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Meliné Sarkissian

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## **Building Spiritual Capital: The Effects of Kundalini Yoga on Adolescent Stress, Emotional Affect, and Resilience**

Meliné Sarkissian

*Loyola Marymount University*, [melsark@yahoo.com](mailto:melsark@yahoo.com)

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LOYOLA MARYMOUNT UNIVERSITY

Building Spiritual Capital: The Effects of Kundalini Yoga on  
Adolescent Stress, Emotional Affect, and Resilience

by

Meliné Sadanand Ghazar Sarkissian

A dissertation presented to the Faculty of the School of Education

Loyola Marymount University,

in partial satisfaction of the requirements for the degree

Doctor of Education

2012

Building Spiritual Capital: The Effects of Kundalini Yoga on  
Adolescent Stress, Emotional Affect, and Resilience

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by

Meliné Sadanand Ghazar Sarkissian

Loyola Marymount University  
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Los Angeles, CA 90045

This dissertation written by Meliné Sadanand Ghazar Sarkissian, under the direction of the Dissertation Committee, is approved and accepted by all committee members, in partial fulfillment of requirements for the degree of Doctor of Education.

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With Joyful Loving Grace and Infinite Gratitude,  
Meliné Sadanand Sarkissian, Ed.D.

DEDICATION

I dedicate this dissertation to

*My mother Lili*

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## ABSTRACT

### Building Spiritual Capital: The Effects of Kundalini Yoga on Adolescent Stress, Emotional Affect, and Resilience

by

Meliné Sadanand Ghazar Sarkissian

In order to integrate a mind, body, spirit approach in school settings, yoga programming such as Y.O.G.A. for Youth was introduced to one public and two charter schools in Los Angeles area urban neighborhoods. The study examined the effectiveness of the overall program and its effect on adolescent stress, emotional affect, and resilience. A survey was administered to measure the three dependent variables and informal interviews were conducted to determine the overall effectiveness of the program. The results of the mixed method approach indicated that the overall program was effective in creating a general sense of well-being and statistically significant in alleviating stress ( $p < .05$ ), increasing positive affect ( $p < .05$ ), and resilience ( $p < .001$ ), in the participants ( $N=30$ ).

# **CHAPTER 1**

## **INTRODUCTION**

In the following discourse I will attempt to illustrate the necessity for educational organizations to consciously and systematically integrate the mind, the body, and a human element that has been increasingly and widely ignored in public schools, the spirit.

I will begin with a brief background about myself to give a contextual understanding of the birth of this research topic. I was born in Tehran, Iran and my heritage is Armenian. I immigrated to England at age seven and then to the United States at age nine. As an adult, I have performed in many different capacities from teaching, administration, to consulting in public, private, and university settings for the past 20 years. I became involved in the lifelong quest and inquiry process of solving an educational crisis: The inability of current education systems to effectively develop children for a rapidly changing world.

My journey with education and yoga began as a personal experience. To continue my lifelong endeavor for self-improvement and personal growth, I began a yoga practice that led to transformative experiences. The liberating, awakening, and practical experiences I had through yoga practice enabled me to see and understand that a vital component of human nature, the integration of all facets of ourselves, the mind, body, and spirit, continues to be largely ignored in educational settings (e.g., Miller, 2009; Richards, 2009).

It was shortly after this realization that I was offered the opportunity to lead an international boarding school rooted in yogic technology and philosophy in Northern India. It was at this unique school for children, ages seven through 18, collectively from seventeen different countries such as England, Brazil, Germany, Chile, Mexico, Australia, and the United

States, where I gained first hand experience observing, on a day-to-day basis, the transformational potential of Kundalini Yoga in children and adolescents that leads to self-actualization, untapped creative potential, and self-empowerment, along with mind, body, spirit integration. I experienced that by providing programming such as yoga gave adolescents the opportunity to unleash their human potential, to take risks, to stand strong against opposition and influential forces, to navigate life's obstacles gracefully and in complete balance and harmony first, with their inner self, and with their external environment.

It is due to this rare and distinctive experience that I returned to the United States as a doctoral candidate to research the effects of Kundalini Yoga in adolescent learning and behavior so that these essential tools and technology can ultimately be available to children in diverse school settings. Shortly after commencing my doctoral course work and as a result of my background as an educator, I was offered a research opportunity for a yoga program in urban city schools and correctional facilities through the Kundalini Yoga community. Y.O.G.A. for Youth's founder, Krishna Kaur, requested my participation in the endeavor to research the effects of her yoga program. From this process the current dissertation was born.

Some scholars have argued that although alternative methods of teaching have been available in the last decade, the teacher-centered approach is still the primary method of teaching (Laufenberg, 2010; Robinson, 2006; Saraswati, 2006). They maintained that this approach to teaching, where a teacher is the bearer of information who imparts it through lectures while the student receives the given information as a passive learner, has become outdated for the current and future requirements of our globalized social and economic needs. The scholars contended that in addition to outdated teachings methods, the current educational system of evaluating

students with extrinsic motivational methods is also in need of reform to more intrinsic motivational methods. Furthermore, the tendency to eliminate the traditional “soft” subjects, such as creative arts and humanities, during economic educational crisis while increasingly becoming testing-driven, exacerbates the problem. The problem involves the inability to fulfill the needs of the future job market as well as develop future leaders who may be disassociated from their full human capacity, including the spirit (e.g., Godin, 2010; Laufenberg, 2010; Mitra, 2010; Pink, 2006; 2009; 2009; Robinson, 2001; 2006; Saraswati, 2006).

It is with this premise that the current area of study was designed to first address the need for potential programming in schools which integrates the mind, body, and spirit for overall well-being, thereby providing adolescents with skills to thrive in social and academic settings. Secondly, the study examined the program’s effectiveness in addressing the needs of urban adolescents who often live in low socioeconomic standards (SES) with added stressors in life resulting from poverty, drugs, violence, abuse, and environmental factors which affect their stress levels, emotions, and resiliency.

### **Statement of the Problem**

To date, our public education systems have largely focused on developing the mind and the body, and this without systematic, purposeful, or meaningful integration. Traditionally, in schools, curriculum and pedagogy is disintegrated which compartmentalizes the human being. For example core subjects such as math, science, and language are cerebral functions and exercise, sports and athletics are physical. And, if budgets allow, fine arts are added that develop emotional and psychological arenas, although this is done by default, not by a system of pedagogy that consciously defines and develops these areas for students (Robinson, 2006;

Saraswati, 2006). Therefore, schooling systems tend to be mostly departmentalized and compartmentalized experiences for both students and educators who do not question the purpose of education and take for granted that it is something to do in order to succeed in life.

It has been argued that human beings do not function efficiently or effectively in a compartmentalized manner. That in life, the mind and body do not function independently from one another and school models do not actually reflect real lived experiences. In order to integrate the whole human being therefore, the mind, body, and spirit, the elements that together function to create the true nature of human existence, are a necessary consideration for the future of education (Robinson, 2006).

In this discourse, spirit is defined as the human spirit, rooted in the Greek word “spiritus” meaning *vital essence* (Zohar, 2007). Spirit is something that is very much alive and present when we have the tools to tap into that potential. It is what gives human beings meaning and purpose. It is with this intention that the current study seeks to examine the extent to which adolescents who engage in mind, body, spirit integrated programs such as Kundalini Yoga will benefit and improve well-being. Specifically, to what extent does this program alleviate the stress, to regulate emotions, and strengthen their personal inner strength in the face of adversity so that they are able to thrive and excel in all areas of life. It is with this premise, that alleviating the “fight or flight” response to stress and to creating an internal rather than an external locus of control, particularly for those living in challenging urban conditions, that yoga programming becomes a form of intervention. It has the potential to generate a sense of overall well-being, decrease stress, regulate emotion and increase resilience to allow adolescents to transcend



beyond the survival experience toward self- actualized states where fulfillment and purpose reside (Bhajan, 2004; Cohen, Kessler, & Gordon, 1997; Maslow, 1968).

Zohar and Marshall (2004) have contended that, in today's educational scenario, when children enter the school and classroom, they disengage and disown their feelings, concerns, personal and emotional issues, challenges, and essentially leave their inner life at the door. They act as if schooling has nothing really to do with their inner essence but something that they must automatically and mechanically do to get from point A to point B. This disengagement and disintegration from the self and inner life therefore diverts the attention from connectedness and the inner landscape to focus on externals, such as, how well they do on test scores. However, this cognitive focused approach to education does not necessarily lead to a life of fulfillment, nor lead to choices that are related to a healthy life style. From early in school, children learn therefore, that fulfillment is not intrinsic but extrinsic. And, if achievements do not bring happiness, then the endless search to find fulfillment by other means spirals, often leading to destructive and sometimes fatal choices (e.g., Richards, 2009; Robinson, 2006; Saraswati, 2006; Zohar & Marshall, 2004).

Therefore, educational systems require programming that support and cultivate the mind, body, and spirit, integration particularly for schools with student populations who may experience added stressors in life circumstances due to factors such as poverty or low SES in densely populated urban centers.

### **Purpose of the Study**

The purpose of this study is two fold. First, it provides evidence of success for effective holistic human development with a Kundalini Yoga program in schools which integrates the

mind, body, and spirit for overall well-being by incorporating physical exercises, breathing, and meditation practices. Second, the study examines the effectiveness of the curriculum on adolescent stress, emotional affect, and resilience. While students are developing their inner landscape through the yoga program, a translation of this growth is reflected in the possible external experience of alleviation of stress, regulation of emotions, and increased resilience. With such programming adolescents are provided added support to balance core subjects with emotional and mental demands giving them an opportunity to systematically integrate all aspects of themselves in order to become full, engaged, confident, focused human beings while effectively navigating the increasing social and emotional pressure of their lives.

Saraswati (2006) has defined yoga as “the art and science of living, and is concerned with the evolution of mind and body” (p. 1). Given this definition, contrary to popular understanding and application, yoga therefore is not merely a practice of exercises designed only for physical health. By definition, yoga is a way of life physiologically and scientifically formulated and developed over the past three thousand years to achieve higher levels of intellectual growth and consciousness by developing the inner landscape leading to a meaningful, thriving, and purposeful life.

Bhajan (2003) stated:

The outer education provided by the information revolution must be matched by an inner education in wisdom, self-control, intuition, and the use of the neutral mind. We need stamina under stress, clarity of values for decisions, and a new base for identity. We need the ability to command our brain, mind and states of consciousness consciously through the filter of intuition, wisdom and the positive, negative and neutral minds. (Bhajan, 2003, p. 5)

It is with this foundation that the purpose of the current study relates to the need for educational models to foster a comprehensive human development approach. Since yoga is not a

religion, it can be utilized in both religious and secular school settings. Through practical tools such as meditation and breathing techniques, yoga provides skills to still the mind and be more flexible. This allows for greater intuitive and creative capacities that can lead to an understanding of thoughts and patterns thereby leading to self-actualized states of consciousness of our interconnected existence.

### **Significance of the Study**

Increasingly companies and the global workforce are searching for employees who are intrinsically rather than extrinsically motivated. Research shows that extrinsic motivation, such as higher salaries, more benefits, and incentives do increase productivity only in rote or mechanically tasks, where as even the basic cognitive tasks have the opposite effect so that with greater incentives, productivity decreases (Pink, 2006; 2009). However, the current educational system is based on external motivators with increasingly testing-driven orientation towards educational outcomes. For example, the traditional grading and evaluation and discipline systems are based on meritocracy. Good merits get promotions. According to Pink (2009), creative and effective employees are motivated by factors that give meaning, vision, creativity, and purpose to the person's life and therefore are factors that need to be addressed in schools for children to be prepared for the rapid changes that are taking place in all aspects of the global culture.

Scholars have argued that the 21<sup>st</sup> century skill-set requires an assessment of how children are being educated today (Godin, 2010; Pink, 2009; Robinson, 2006). The current system of education, for example, was created and developed to fulfill the job force and necessities of the Industrial Era. A new paradigm is necessary therefore to meet the need of the

current Information and Technological Era that sees beyond the field of vision of the current job force preparing children to be flexible, agile, and creative, with strength, courage, and grit to withstand the increasingly rapidly changing global landscape. In addition, it has been argued that the hierarchy of core school subjects indicates that the Industrial Era system of education is still the norm with mathematics and language development at the top of the hierarchy followed by sciences and humanities, with the lowest priority given to the creative arts. As a result, with the focus on cognitive development, schools create academic achievers governed by mental processes without a systematized approach to real life creative experiences that incorporate the whole human experience of the body and spirit. With this model of education therefore, “we become disembodied, as if our body is a form of transportation for our head” (Robinson, 2006). Therefore, a reversal of the hierarchy of school subjects may be required, in addition to incorporating programming such as yoga, so that educational curriculum can cultivate and develop the human spirit, “the vital essence”, and tap into the full creative human potential (Robinson 2006; Zohar et al., 2004).

In addition, currently and in the future, less routine, rule based work is required because increasingly machinery and technology perform these tasks. On the other hand, creative, conceptual kinds of abilities are the requirement for future innovators and career force (Pink, 2006; 2009; 2009; Robinson, 2001; 2006). Therefore, the current social, political, and economic climate calls for creativity to flourish with individuals empowered to live their full potential, first by tapping into the unlimited resource that resides in the complete spectrum of their being. The 21<sup>st</sup> century calls for skills such as the ability to see beyond the field of vision and the realm of possibilities while utilizing creative and intuitive personal resources so that the vastness of

individual uniqueness that lays dormant in the inner realms is cultivated through academic forums that allow human beings to discover their true talent.

It is with this understanding that yoga programs can offer an opportunity for schools to support adolescents with practical skills to alleviate, integrate, and balance social, academic, and personal pressures. In addition, the incorporation of yoga and meditation can provide a unique step toward integrative and holistic school programming which focuses on the mind, body, and spirit that leads to stress reduction, emotional regulation, increased resilience (e.g., Barnes, Treiber, & Davis, 2001; Barnes, Bauza, & Treiber, 2003; Benson, Kornhaber, Kornhaber, LeChanu, Zuttermeister, Myers, & Friedman, 1994). Furthermore, this type of programming can have direct benefits for adolescents of urban schools who often have added challenges in their social and academic arenas such as poverty, racism, violence, drugs, and immigration.

### **Theoretical Framework**

The theoretical framework for this study is based on social justice tenets combined with tenets of spiritual capital theory to support yoga programming in low SES urban schools.

To define spiritual capital, Zohar and Marshal (2004) have illustrated how factors from their personal lived experiences came into focus through the challenging task of raising a child in today's social climate. Seeing the world through a mother's lens gave Zohar a new perspective and brought a defining moment of clarity to her life as a parent. She defined some of these experiences and factors as, individual conduct, the state of Western culture, personal betrayal, violence, lack of deep values, corporate greed, materialism, anger, and personal gain at the expense of others. As a result, she found that, "we live much of our lives in a spiritual desert distinguished by superficiality, absence of commitment, and lack of deep meaning. I

experienced this as a victim helpless to do anything about it” (Zohar & Marshall, 2004, p. x).

This quote embodies the elements that begin to define spiritual capital. Spiritual capital here, and throughout this discourse, refers to:

An intelligence with which we access our deepest meanings, values, purposes, and highest motivations. It is how we use these in our thinking processes, in the decisions that we make, and the things that we think it is worthwhile to do. These decisions include how we make and how we allocate our material wealth. (Zohar & Marshall, 2004, p. 3)

In addition, spiritual capital is defined as having access to something that enhances the quality of our lives. Therefore, spiritual capital is having access to and developing a wealth of an intelligence that speaks to the deepest meanings, values, motivations, and inner wisdom that gives life a greater purpose.

As members of society, individuals, such as Zohar et al. (2004), may often feel helpless in a world that seems to automatically operate without his or her influence by externalizing his or her locus of control. This is particularly true for those who have the added stressors in life that arise from living in a state of poverty. Therefore, in reformulating the task of education for the future, it is viable to consider alternative programming that addresses the full human potential that offers students the tools toward self-actualization. Building spiritual capital has the potential to lead to self-actualized states that can create an overall sense of well-being with the inner strength and resilience to internalized locus of control. And, internal locus of control is an element necessary in all spheres in life for healthy development, particularly for populations living in low socioeconomic circumstances who often may feel helpless and victimized. Therefore, incorporating yoga in schools is one option toward providing the tools necessary for systematically building resilience and allows for the exploration of the inner landscape that may lead to building spiritual capital. One such program, Y.O.G.A. for Youth (YFY), established in

1993, brings an integrated, holistic yoga program to urban schools. YFY offers schools a unique opportunity with the potential to give children and adolescents the tools to facilitate the unveiling process in becoming aware of their social existence while contemplating and creating blueprints of how they may live a fulfilled and purposeful life.

### **Research Questions**

The following research question will be evaluated: To what extent does Kundalini Yoga programming in schools affect adolescent perceived stress, emotional affect, and resilience?

Perceived stress has been defined by the authors of the Perceived Stress Scale as an extent to which “environmental demands tax or exceed the adaptive capacity of an organism, resulting in psychological and biological changes that may place persons at risk for disease” (Cohen, Kessler, & Gordon, 1997, p. 3). Positive and negative affect has been defined by the authors of the Positive and Negative Affect Scale for Children as either positive or negative emotions that determines a person’s mood at any given time. The inventory contains negative affective words (sad, upset, scared) that are often associated with general emotional distress, while positive affective words (happy, strong, calm) are related to over stimulation (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999). Resilience is defined by the authors of the Resilience Scale as an ability to recover, recuperate, and maintain an inner equilibrium in the face of adverse life circumstances while experiencing the negative circumstances as meaningful opportunities for growth and development (Wagnild & Young, 1987).

### **Research Design and Methodology**

This study involved a mixed method approach utilizing both qualitative and quantitative data (Gay, Mills, & Airasian, 2009). It was conducted in one public Elementary and two charter

Middle schools in Los Angeles' urban centers consisting of primarily African American and Latino populations and were designated with the Title I (low socioeconomic, free or reduced lunch) program. The study measured the extent to which Kundalini Yoga affects adolescent stress, emotional affect, and resilience before and after receiving a ten-week Kundalini Yoga program. Qualitative data included, informal interviews with students, classroom teachers, and yoga teachers which informed the degree to which the Kundalini Yoga program was effective in developing a sense overall well-being. For the quantitative data, surveys were administered before and after the yoga program and measured stress, emotional affect, and resilience. The inventories utilized were: Perceived Stress Scale, PANAS-C, and Resilience Scale (see Appendices A, B, and C).

The ten-week YFY program was held twice a week at each participating school during after school or regularly scheduled physical education class times. A standardized curriculum was utilized by a Y.O.G.A. For Youth certified Kundalini Yoga teachers trained specifically to teach the yoga classes in schools. Each Kundalini Yoga class involved kriyas (yoga poses or sets), pranayama (breathing techniques), and meditation.

The three schools that participated included both male and female students from grades 4 through 8. The informal interviews with the participants were conducted on the last day of the yoga class in order to provide a forum for participants to communicate their understanding of yoga, general overview of the program, and the effects they may have experienced both in their personal and academic environments. The analysis of both quantitative and qualitative data helped to determine whether the Kundalini Yoga program changed stress, emotional affect, and resilience for the participants.



## **Limitations**

Although both qualitative and quantitative approaches were utilized to strengthen the validity of the study, there were limitations with the use of the chosen surveys, time constraints with interviewees, and inadequate interview questions. Primarily, it was difficult to make a thorough assessment of the results of the curriculum on students due to their natural growth and development over the ten-week process. Maturation was therefore, a limitation. Furthermore, positive or negative effects of the curriculum could be attributed to factors outside of the yoga program which influenced their lives in addition to variables of prior knowledge and experience in yoga practice and philosophy. As such, both selection and history threats to validity are considerations. Time was another limitation in that most yoga practitioners experience effects of yoga immediately, however, the long-term effects on attitude, behavior, and awareness, may often take longer than the ten-week time limit of the study. Finally, the study did not compare the yoga group to a control group to ascertain whether yoga's effect was exclusive to the Kundalini Yoga program compared to another type of exercise or to another form of yoga practice.

## **Delimitations**

This study was delimited to the convenient sampling of the participants. Only schools that had a pre-existing relationship with the researcher were approached and therefore, a random sampling of schools was not conducted. In addition, from the schools approached, only those who had additional funding for an extracurricular program chose to participate in the Kundalini Yoga program and study. The study was also delimited due to the fact that the program was offered only to schools in urban centers with low socioeconomic, ethnic, and urban populations

around Los Angeles. Furthermore, in order to maximize participant comfort and focus, the researchers delimited the class population to gender specific groups. As a result, due to budgetary constraints, schools did not necessarily offer both male and female yoga classes so that the study had one male class to three female classes. In addition, although YFY covered 75% of the funding, budget constraints limited the sample size since many schools that were approached did not have 25% of the funding to participate in the program.

### **Outline and Organization of Dissertation**

In summary, the purpose of this study was to implement and evaluate a Kundalini Yoga program and its effects on adolescent a) stress b) emotional affect and c) resilience. The results determined whether this kind of school programming was an added value to schools in creating a balanced, holistic education system particularly in the area of adolescent growth and development.

Chapter 1 of the dissertation identified the problem that has led to the topic of study with contextual, background, significance and relevance discussed and preliminary methods and measures identified. Chapter 2 offers a thorough review of the literature related to the general and specific areas of study and the theoretical framework. Chapter 3 includes the Kundalini Yoga program along with the research question, methodology, and design. The findings are analyzed and discussed in Chapter 4. Finally, Chapter 5 includes recommendations for improvements to the current research such as curriculum and design, addresses further research possibilities, and whether the study benefited the area of scholarship.

## CHAPTER 2

### REVIEW OF LITERATURE

The following study aims to discuss the necessity for educational systems to consciously and systematically integrate the mind, body, and spirit for overall well-being through yoga programs such as Y.O.G.A. for Youth (YFY). The purpose of this study is twofold. First, it provides schools with a Kundalini Yoga program that has the potential to enhance adolescent overall personal and emotional experiences. Second, the study examines the effectiveness of a Kundalini Yoga program, such as YFY, on adolescent stress, emotional affect, and resilience within an urban elementary and two middle school settings.

Programs such as Y.O.G.A. for Youth deliver yoga to urban inner-city schools with the goal of providing practical benefits that support underserved adolescents. These benefits may include alleviating stress, aiding emotional regulation, and increasing resilience in order to promote a more healthy and productive approach to balancing students' academic, social, and environmental pressures. The importance of integrating the mind, body, and spirit approach to education is to provide a holistic education, since focusing on cognitive development only does not necessarily meet the needs of the urban inner-city adolescent population for preparation to meeting the demands of the 21<sup>st</sup> century work force. As Zohar and Marshall (2004) and Robinson (2006) implied, children do not leave their emotional, physiological, and spiritual needs at the door when they enter the schoolhouse. They arrive to the classroom as a whole human being. Therefore, the educational systems, in order to be truly effective, need to incorporate programs that address not just cognitive, but other components of human development. To serve as a potential option to incorporating holistic approaches to the

educational systems, yoga programming is discussed as a possible endeavor for this purpose. However, since yoga has been a controversial subject, particularly in the public school sector, the spiritual component that may be interpreted as promoting religion, is often modified to uphold First Amendment Constitutional Rights. For this reason, the current study will include a practical definition of spirit, as well as a research approach to yoga's physiological and emotional outcomes that can be incorporated within the public school setting. Therefore, the research component of this study will measure the effects of a Kundalini Yoga program on adolescent stress, emotional affect, and resilience, while discussing yoga's potential to build spiritual capital for well-being that may translate into higher level functions that transcend survival based "fight or flight" responses often experienced in urban public school settings.

In the following literature review, first a foundation for the need to incorporate programs which develop the whole being will be discussed and informed by the theoretical framework. Second, the controversial issues surrounding yoga in schools will be addressed in order to establish the rationale for the practical benefits of yoga that are rooted in mental, physiological, and emotional development. Third, the importance to alleviate stress, regulate emotion, and strengthen resiliency in adolescents, particularly in low socioeconomic urban settings, is discussed. Fourth, the principles of yoga are introduced and discussed, followed by a review of studies that incorporate yoga as intervention and curricular programming in and out of school settings and display positive results with respect to alleviation of stress, emotional affect, and resilience. Fifth, general benefits of yoga, along with self-actualization and spiritual development, are discussed to create a more thorough understanding of yoga's potential benefits for the educational setting in addressing the holistic development of children. Sixth, the

interrelationship of yoga and the three dependent variable measures of stress, emotional affect, and resilience will be examined to highlight the effects of yoga on these specific variables.

### **Theoretical Framework**

The theoretical framework for this study is based on the tenets of spiritual capital combined with tenets of social justice to support the practice of yoga in the urban school setting.

#### **Spiritual Capital**

Zohar and Marshall (2004) define spiritual intelligence as the building block to spiritual capital. They define “spiritual” as something that brings vitality or life to an organism or system. In Latin, spirit or spiritus is translated as breathing, while spirit is also defined as the animating, or life force ([www.websters-online-dictionary.org](http://www.websters-online-dictionary.org)). This definition is reflected as a fundamental aspect of any yoga practice where the emphasis on breathing or life force is fundamental in creating a union between mind, body, and spirit.

To define spiritual capital, Zohar, in Zohar and Marshall (2004) recounted how her lived experiences came into focus through the challenging task of raising her son in today’s social climate. Seeing the world through a mother’s lens gave her a new perspective that brought a defining moment of clarity for her. Her new perspective revolved around the lived day-to-day experiences of individual conduct, the state of Western culture, personal betrayals, violence, lack of deep values, corporate greed, materialism, anger, and personal gain at the expense of others. As a result, she found that, “we live much of our lives in a spiritual desert distinguished by superficiality, absence of commitment, and lack of deep meaning. I experienced this as a victim helpless to do anything about it” (Zohar & Marshall, 2004, p. x). This quote embodies the elements that begin to define spiritual capital. Spiritual intelligence here, and throughout this

discourse, refers to:

An intelligence with which we access our deepest meanings, values, purposes, and highest motivations. It is how we use these in our thinking processes, in the decisions that we make, and the things that we think it is worthwhile to do. These decisions include how we make and how we allocate our material wealth. (Zohar & Marshall, 2004, p. 3)

In addition, if capital is defined as having access to something that enhances the quality of our lives, then spiritual capital is having access to and developing a wealth of an intelligence that speaks to the deepest meanings, values, motivations, and inner wisdom that gives life a greater purpose. It is with this understanding that yoga's ultimate aim, beyond the alleviation of stress, regulation of emotion, and fostering of resiliency, is to create a foundation that allows, in Maslow's (1968) terms, self-actualization. This includes accessing spiritual intelligence leading to a wealth of spiritual capital, as defined by Zohar and Marshall (2004).

Often members of society may feel helpless in the face of circumstances that seem beyond their control. In the face of poverty, for example, with added influences such as immigration and cultural barriers, the external world seems to operate without any personal say or influence thereby creating an externalization of locus of control (Kelley & Stack, 2000). Like Zohar et al. (2004), individuals, particularly children, may often feel like victims who have little influence with their circumstances in life. Individuals therefore, can not only fight the ongoing battle of balancing external forces and resources to overcome their oppressive circumstances, but also develop skills to tap into the endless wealth of their internal resources as well (Bhajan, 1998; 2003; Freire, 2009; 2009; Zohar et al. 2004). Freire (2009) added, that in the current education system students fail to "develop critical consciousness which would result from their intervention in the world as transformers of that world" (p.73). Freire (2009) argued that without choice, voice, and conscious awareness of our actions, we are reduced to a dehumanizing existence.

Yogia advocates have the belief that yoga has the potential to empower individuals who feel victimized first by enhancing physical and psychological well-being, which leads to a process of experiencing the stages of self-actualization, or self-realization (Nahai, 2012). Studies have shown that yoga aids with emotional regulation, clarity of thought, focus, resilience, and expressing internal locus of control (Arpita, 1990; Baptiste, 2002; Iyengar, Evans, & Abrams, 2005; Schell, Allolio, & Schonecke, 1994). Therefore, these processes may have definitive influences on the choices individuals make as a result of increased resilience and the empowering effects of the shift in the locus of control. This can lead to a spiral of empowerment that translates to a purposeful life, thereby creating a wealth of spiritual capital.

**Spiritual intelligence in schools.** Spiritual intelligence is an area of human development that has been ignored in schools. The possible physical benefits alone may be enough to foster a serious consideration to mandate yoga programming in schools. However, Saraswati (2006) emphasized benefits beyond the physical and challenges educators to examine the true purpose of education. He defined education as a process by which a student gains mastery over him or herself first, while gaining an understanding of how he or she relates to external world. The mastery of the self is a notion that has been a part of yoga's philosophy as a journey toward self-realization, self-actualization, or enlightenment (Bhajan, 2003; Chapple, 2008; Iyengar, 1979). And it is a journey that continues throughout life with skills that directly translate into the day-to-day quality of life as an adult.

Education therefore, as defined by Saraswati (2006), is not just for developing skills for professional advancement but also about how to live and incorporate our true selves and personal development throughout life. Saraswati (2006) has suggested that yoga, for example, can be

utilized as a methodology to serve this end. He has defined yoga as, “the art and science of living concerned with the evolution of mind and body” (p. 1). Although yoga is another form of exercise, the author argued that on the contrary, it is a lifestyle that has been physiologically and scientifically formulated for over three thousand years to integrate the mind, body, and spirit in order to achieve higher levels of intellectual growth and consciousness.

Similarly, Arweck, Nesbitt and Jackson (2005), have argued that today’s education programs lack the component of a spiritual development constructed around a values-based education system that should prepare children to be “fit for life, not just for earning a living” (p. 332). According to their report, two values-based programs consisted of what they termed as “universal values” to define their curriculum. The two programs, the Living Values: an Educational Program (LVEP) and the Sathya Sai Education in Human Values (SSEHV), developed for public schools, identified specific values. The LVEP identified twelve values; peace, respect, love, tolerance, honesty, humility, cooperation, responsibility, happiness, freedom, simplicity, and unity. The SSEHV identified five values; love, truth, peace, right conduct, and non-violence. Programs such as these, according to Arweck et al. (2005), “take a ‘holistic’ approach to the individual: The individual is not just mind, intellect and body, but also a being with a spiritual and emotional affective side” (p. 331).

Both Saraswati (2006) and Arweck et al. (2005) have suggested that there is a worldwide need for teaching beyond skills, particularly when we, as a global society, are increasingly concerned and affected by social problems, violence, and absence of respect for each other and the environment. Therefore, we must examine our current curricular content and modalities, adding to and perhaps transforming pedagogical systems that transcend teaching skills for



professional success to teaching children to be successful human beings. A yogic approach is one way to achieve this social phenomenon. It is an approach that focuses on teaching skills to expand the capacity to know oneself and the ability to understand others in order to live successfully as human beings. Adding this approach to the current system of education has the potential to begin the “unveiling” process of the truth about each individual’s situation and place in the world and, as a result, individuals can begin to transcend it. So that, by tapping into the resources of their inner realms, an awareness and understanding of the human condition begins to take place. Thereby, beginning the journey of transcendence that fosters a shift in consciousness, which in turn, leads to empowerment and action (Freire, 2009; Arweck et al., 2005; Zohar et al., 2004).

**Spirit and creativity.** To further illustrate the potential utility of yoga in educational programming, Saraswati (2006) contended that although many forms of alternative teaching methodologies have been implemented in the educational settings, for the most part, the traditional teacher-centered approach is still the dominant method used around the world. The yogic system of education, on the other hand, “is educating the behaviour of the mind and the brain,” where absorbing knowledge is a spontaneous phenomenon that takes place in the subconscious mind and where the “inner components of the brain can be brought to a point of regulation” (pp. 16-17). The premise is that by practicing how to regulate the mind, through the use of yogic technology, children can develop an understanding of how the mind works in order to maximize its utility to increase understanding of content and therefore its application in real life circumstances. For example, in yogic philosophy, there are three facets to the workings of

the mind (positive, negative, and neutral) that when explored, can help children understand and therefore direct their emotional reaction to external factors. Bhajan (2003) states:

The outer education provided by the information revolution must be matched by an inner education in wisdom, self-control, intuition, and the use of the neutral mind. We need stamina under stress, clarity of values for decisions, and a new base for identity. We need the ability to command our brain, mind and states of consciousness consciously through the filter of intuition, wisdom and the positive, negative and neutral minds. (Bhajan, 2003, p. 5)

These authors have proposed that yoga provides a type of training for children and adolescents that is necessary for now and the demands of the future. Furthermore, to illustrate using Maslow's (1968) theory on self-actualization, the higher-level orders of development, which include creativity, vitality, and meaningfulness, arise once physiological and psychological needs are met or addressed. Therefore, providing children with programming that addresses these issues may be important considerations for the future in the educational setting in order to address the needs of the future.

According to Saraswati (2006) and Freire (2009), another aspect of child development that is a limitation of current educational systems and prevalent in traditional schools is grounded in restraint and control methods. Often adults place their beliefs, personal blueprints, and expectations on children without allowing the child's natural behavior to unfold (Freire, 2009; Saraswati, 2006). Saraswati (2006) added that as a result, the child rebels against the structure that has been imprinted into his or her mind by the adults. Thus, acting out against the adults in the sphere of influence of the child is not necessarily against the adults, but the structures. Therefore, when children are given opportunities to visualize, fantasize, and operate their minds in freedom while being taught yogic understanding of the workings of the mind this can support them to develop their personalities in a more healthy and holistic manner.

According to Robinson (2001), today's educational systems have inadequately met the demands of the increasingly and rapidly changing information age, which is in increasingly greater need of a work force for current and future businesses and industries. He contended that our current educational system was developed during the Industrial Age where a certain type of skill set was necessary for the workforce. However, today, increasingly the need for creative, emotionally intelligent, intuitive, perceptive, and expressive human beings in the workforce is on the rise. He added that companies are looking for innovation to occur at a faster rate in order to compete with the demands of the times. This in essence requires workers who are empowered enough to take risks, experiment, and who understand and embrace "not change itself, but the nature of change" (Robinson, 2001, p. 25).

Robinson (2001) has made the argument that the current educational system has created a narrow view of human potential: those who are able to excel in the academic sphere and those who do not. He added that the Enlightenment Era enforced the scientific method and disengaged humanity from the arts as a form of knowledge and understanding. Robinson (2001) also proposed that the only "truth" had to be evidence based through deductive reasoning, dismissing feelings, emotions, intuition, and internal strength as a way to truth and knowledge as well. This divide between the intellect and other human spheres of knowledge has resulted in marginalizing and overlooking equally important abilities. Therefore, he proposed that school programs that allow for the exploration of the innate abilities to flourish must become top priority in our educational systems in order to create a robust workforce for the future. Robinson (2001) stated:

Real creativity comes from finding your medium, from being in your element. When people find their medium, they discover their real creative strengths and come into their own. Genuine creativity is not only a matter of letting go but of holding on. (Robinson, 2001, p. 10)

It is important to note that creativity here is not defined as an absence of traditional curricular structures that are in current schools. Creativity is defined as the essence of what is true for each individual so that “creativity is possible in science, in technology, in management, in business, in music, in any activity that engages human intelligence” (Robinson, 2001, p. 10).

Following this line of reasoning then, spiritual intelligence and creativity are interrelated. Since spirit is defined as “an intelligence with which we access our deepest meanings, values, purposes, and highest motivations” (Zohar & Marshall, 2004, p. 3), and the educational system proposes to awaken and cultivate each person’s ultimate truth, then the potential for yoga as a supplemental support to encourage the true essence and creative capacity of children to flourish through this “supreme technology to awaken your awareness and take you into your original Self. It is the natural unfolding of your own nature” (Bhajan, 2003, p. 17). This therefore, may be a possible curricular necessity in our future educational settings.

**Summary of spiritual capital.** In order to further define the theoretical framework based on spiritual capital and social justice with the practical quantitative approach to yoga’s potential to alleviate stress, aid in affect regulation, and build resiliency, for low-income underserved adolescent populations, the founder of Y.O.G.A. for Youth (YFY) stated:

Children are our future and they need the best guidance possible to prepare them to take on that role with courage and grace. Yoga for Youth is committed to serving the highest potential in our youth no matter who or where they are. (Kaur, 2006, p. iv)

As with many educational institutions that look to serve the well-being of children, the usual challenges are intensified with an increasingly fast-paced globalized reality, mass media influences, economic instability, poverty, deterioration of family dynamics, drugs, and violence can often become continuous stressful and traumatizing factors for adolescents in urban settings,

which can foster mental, physical, and emotional strain leading to damaging consequences such as illness, emotional instability, and lack of coping mechanisms required to live a healthy and thriving life (Erickson, 1993; 1994; Lance, 2011; Lowry, 2011; Price, 2008; van der Kolk, 1994; 2005). It is with this premise that programs such as YFY provide the rationale and undertake the initiative to research the effects of yoga on adolescent stress, emotional affect, and resilience. These three measures are important because the alleviation of stress, regulating emotions, and building resilience can create and allow the lifting of the human spirit and potential to the possibilities of motivation, growth, and self-actualization. The next section examines the effects of stress on the physiology, emotions, and resilience in order to build a foundation and rationale for the necessity of yoga in particular to the urban low socioeconomic school settings.

## **Stress**

Research shows that early onset of stressors in life, especially ongoing stress, has cumulative effects that often lead to detrimental psychological and physical impact on children's development (Price, 2008; van der Kolk, 1994; 2005). Cohen, Kessler, and Gordon (1997), the authors of the Perceived Stress Scale, utilized in this study to measure stress, described stress as the relationship of environmental demands to psychological perceptions, along with the ability to cope with the meanings individuals place on the events in life. According to one leading clinical psychiatrist, scholar, and researcher, Bessel van der Kolk (1994), the effects of stress and trauma, or ongoing stress, can cause "chronic affect dysregulation, destructive behavior against self and others, learning disabilities, dissociative problems, somatization, and distortions in concepts about self and others" (p. 259). It is important, therefore, to integrate programming into the daily experience of adolescents that specifically serves to alleviate some of the added pressures they

face in their daily experiences at home, school, and in neighborhoods. When adolescents are operating in “fight or flight” resulting from the stressors in their lives, their capacity to engage in cognitive, creative, and productive endeavors is substantially diminished, thereby resulting in substandard ability to cope with academic achievement and to lead a healthy and productive life (Erikson, 1993; 1994; Maslow, 2011; Price, 2008; van der Kolk, 1994; 2005).

Although the well-being of adolescents is dependent upon their experience within every socioeconomic level, there are other factors, such as immigrant status, geography, residence and neighborhood conditions, familial structures, culture, and personal challenges that can impair their development (Baum, Garofalo, & Yali, 1999; Bradley & Corwyn, 2002; Leventhal & Brooks-Gun, 2000; Leventhal & Brooks-Gun, 2003). This dissertation attempts to illustrate the effect of implementing yoga programming in low socioeconomic urban school settings in order to deliver additional support in giving adolescents the tools they require to alleviate stress, regulate their emotions, and increase their resilience to provide an opportunity for overall well-being that serves to better equip adolescence to meet the demands of their social and academic lives.

The U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC) has stated:

Stress is internal or external influences that disrupt an individual’s normal state of well-being. These influences are capable of affecting health by causing emotional distress and leading to a variety of physiological changes. These changes include increased heart rate, elevated blood pressure, and a dramatic rise in hormone levels. (Middlebrooks & Audage, 2008)

The Center has contended that not all stress is harmful. In fact, according to the CDC, stress is often necessary for coping skills, resilience, and healthy development. However, prolonged stress can become toxic since children often lack the support and skills necessary to

manage it effectively, creating possible permanent adverse affects on the development of the brain. Subsequently, some effects on brain development have been found to be impaired connection of brain circuits that can cause low thresholds for stress, resulting in reactivity to challenging experiences in life. Furthermore, heightened levels of hormones secreted due to stress may suppress the immune system, making children more susceptible to illness and disease. In addition, stress can lead to the deterioration of the parts of the brain responsible for learning and memory. It has been estimated that:

Stress is a significant public health problem in the United States. An estimated 8,755,000 juvenile victims live in this country. That means that more than 1 out of 7 children between the ages of 2 and 17 years have experienced maltreatment. This includes physical abuse, sexual abuse, psychological or emotional abuse, neglect, and custodial interference or family abduction. The perpetrators are family (77%), acquaintances (23%), and strangers (2%). (Middlebrooks & Audage, 2008, p. 4)

While these numbers are impressive in terms of how many children are experiencing some form of stress in their lives and the possible influences of this issue on academic achievement, the ability to flourish in general as an individual may be hindered when intervention possibilities are non-existent in schools. It is with this goal to intervene and provide effective programming through a holistic yoga practice approach that this research study has been undertaken. The holistic yoga practice is one that provides a tool for adolescents to dim the noise of their external environment while raising the volume of their internal forces, which may offer an effective methodology of empowerment and self-actualization in the face of conflicting external forces.

**Poverty and stress.** There are many factors that may contribute to childhood and adolescent stress. Though stressors are not limited to low socioeconomic populations (Price, 2008): a primary factor that creates a domino effect resulting in stress, trauma, emotional, and

social problems in the United States is poverty. According to the 2009 report by the National Center for Children in Poverty (NCCP), there are close to 15 million children in the United States who live below the federal poverty level of \$22,050 per year. Although this is 21% of all children, the income required to cover basic living expenses is double the proposed federal poverty level. Therefore, almost half (42%) of the children in this country are living either below the poverty level or in low-income circumstances ([www.nccp.org](http://www.nccp.org)).

In California alone, 1,754,200 children live below poverty, the highest in our nation, followed by Texas at 1,541,192. In the low-income category, California again takes the lead at 3,956,421 followed by Texas 3,180,754, New York, 1,770,190, and Florida 1,609,718 ([www.nccp.org](http://www.nccp.org)). Interestingly, over half of the low-income individuals in California and Texas indicated at least one person in the household working in full-time employment while less than 20% indicated no employment at all. In addition, nearly half reported living in a single parent household. The ethnicity report reflects urban school populations with 49% African American children in California and 58% in Texas and 59% Latino children in California and 64% in Texas who, according to the 2008 data, live in low-income families (Chau, 2009).

Poverty can impede children's ability to learn and contribute to social, emotional, and behavioral problems. Poverty also can contribute to poor health and mental health. Risks are greatest for children who experience poverty when they are young and/or experience deep and persistent poverty. Research is clear that poverty is the single greatest threat to children's well-being. But effective public policies – to make work pay for low-income parents and to provide high-quality early care and learning experiences for their children – can make a difference. Investments in the most vulnerable children are also critical. (NCCP, 2011)

Therefore, when circumstances are beyond the power of immediate change, then intervention strategies and coping mechanisms may be required in order to alleviate the pressures of the lived circumstances. And intervention programs, by way of “investments in the most



vulnerable children” as suggested by the NCCP, may be necessary in order to close the achievement gap and level the playing field for this demographic. It has been suggested that tools such as relaxation techniques and breathing exercises may have immediate benefits. As Lance (2011) stated:

This means that to learn to counter the negative effects of stressful stimuli, a person might need to learn the steps to a relaxation response and then routinely practice it as often as possible. Offering the opportunity to learn a technique that can reduce the physiological and psychological effects associated with school stress may be empowering for students if it is integrated into the school day. (p. 32)

Given these statistics, it seems plausible that children (individuals under the age of 18) who fall in this demographic require more than the average educational experience in order to cope with their daily realities. They also need to have the tools necessary to sustain them through their educational and social pressures in order to make healthy choices while building their resilience to follow through with those choices under difficult and often stressful circumstances.

Research has indicated that there is a strong relationship between low socioeconomic factors and stress that may have detrimental effects on the lives of adolescents, leading to socio-emotional and cognitive problems creating academic, social, and intrapersonal obstacles, preventing them from becoming healthy members of society (Bradley & Corwyn, 2002; Evans, 2007; Fröjd, Marttunen, Pelkonen, Von der Pahlen, & Kaltiala-Heino, 2006; Price, 2008). Barriers may include violence, abuse, and trauma, which often lead to lasting consequences that prevent adolescents from becoming thriving, healthy, and productive adults.

For example, Fröjd, Marttunen, Pelkonen, Von der Pahlen, and Kaltiala-Heino (2006) have found that depression and harmful drinking patterns in adolescent girls and boys were

directly associated with SES indicators and perceived financial difficulties. Of course, it can be argued that every child may experience stress despite socioeconomic factors. However, studies have shown that risk exposure is increased for children in low socioeconomic populations compared to more affluent children. So that those who are living below the poverty line, or living with low-income standards are significantly more at risk of social, physical, academic, and psychological stressors (Evans & Kim, 2007). In addition, some research has also indicated that prolonged stress due to these risk factors can exacerbate physiological trauma.

For example, Evans (2006) has found that increased blood pressure and active hypothalamic-pituitary-adrenal axis (HPA) in children were indicators of stress compared to those who didn't experience activated HPA and high blood pressure indicators in the study. The functioning of these stress factors on the physiology can be precursors to disease. Similarly, a study conducted by Evans and Kim (2007) found that childhood poverty may be a factor in significantly raising the likelihood of disease, due to heightened levels of HPA. Furthermore, the researchers also concluded that "elevated cumulative risk exposure during early childhood compromises the ability of the body to handle environmental demands efficiently" (Evans & Kim, 2007, p. 956).

It is important to note not only the psychological factors that are affected by stress, but as these researchers have indicated, there are physiological aspects that can directly affect the functioning of the sympathetic nervous and lymphatic systems. The significance of this research for this study is to provide the rationale for yoga's potential multidimensionality in affecting the human physiology by exercising the sympathetic and parasympathetic systems of the body (Bhajan, 2003). The sympathetic nervous system assists in controlling many of the body's

organs. Stress that is caused by an emotional response to a situation can directly influence the physiological health of children over time. Therefore, the mind, body, and spirit connection is an important consideration for schools when implementing curricular programming, in order to create a holistic approach to education, since research has provided information on how, for example, childhood stress has physiological implications leading to possible disease and impaired academic performance (Evans 2006; Price, 2008; van der Kolk, 2005). The purpose of discussing the physiological implications resulting from stress is to illustrate the possibilities embedded in yoga's holistic effect and interconnection on the various systems of the body. These include the mental, emotional, and the physiological, such as the nervous, glandular, and organs of the body.

To further demonstrate the mind body connection, according to Guilliams and Edwards (2010), the sympathetic nervous and HPA or hypothalamic pituitary adrenal axis is triggered when an individual's state of equilibrium is violated by a stressor. When this occurs, a series of physiological events take place that ultimately trigger the brain's response to "fight or flight." Due to these heightened levels of secretions by the glands, researchers have been able to test for cumulative stress response in individuals. Medical studies such as these have provided much needed documentation and support that fuel the increasing need for programming in schools that balances the physical and emotional spheres by keeping the mind and body in a state of equilibrium.

In addition, Duncan, Brooks-Gunn, and Klebanov (1994) have found that poverty has a significant relationship with cognitive development and behavior in children. In their longitudinal study, they concluded that low-income, family structure, and neighborhood

conditions have detrimental effects on children's cognitive development and externalization of behavior. Due to the stressors in their lives, children often externalize their feelings and act out, resulting in a display of anger, helplessness, low self esteem, tantrums, and the inability to concentrate and thrive in social and academic settings (Price, 2008). Research has indicated that poverty unfavorably impacts the ability of children to regulate their emotions, thereby impacting their ability to successfully navigate their socio-emotional development.

In a study of 400 participants, along with 128 community residents who sought treatment due to prolonged interpersonal stress, all reported significantly high incidences of difficulties with affect and impulse regulation (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). The findings particularly implicated those who had experienced prolonged stress and trauma early in life. In addition, it is important to note that in the same study, memory and attention, self-perception, interpersonal relations, physical challenges, and systems of meaning were measured with significant results that implicate stress and trauma as a negative factor of the lived experiences of the participants.

Thus far, studies have indicated that stress and ongoing trauma created by stressors in life may have physiological and psychological implications. The next section will examine emotional affect dysregulation that is often a consequence of prolonged stress, which in turn create adverse effects and obstacles in the lives of adolescents.

### **Emotional Affect Regulation**

One of the resulting consequences of prolonged stress is the inability to regulate emotions that may have detrimental consequences, often trapping adolescents in a downward spiraling series of events. For the purposes of this study, emotional affect is defined using a scale that

differentiates internalized emotions. The scale, Positive Affect and Negative Affect Schedule – Child Form (PANAS-C), utilized to measure the difference in affect before and after the yoga program, contains negative affective words (sad, upset, scared) that are often associated with general emotional distress, while positive affective words (happy, strong, calm) are related to over stimulation. In addition, low levels of positive affect can indicate depressed states (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999).

To illustrate, emotional regulation has been highlighted in research that defines its importance to initiation, motivation, and adaptation of behavior, particularly with regard to preventing stress caused by negative emotions leading to disruptive or harmful behavior. For example, children with symptoms of anxiety and depression display a lack of emotional awareness and dysregulation such that they are unable to differentiate between experienced states with appropriate descriptions (Kim & Cicchetti, 2010; Price, 2008).

Studies specific to emotional regulation have found that prolonged stress in children impairs the ability to interpret, adapt, and regulate their internal and external realm, causing a direct impact on their life experiences (Cicchetti & Tucker, 1994; Kim & Cicchetti, 2010). For example, in their study, Kim and Cicchetti (2010) examined 215 maltreated and 206 nonmaltreated children between the ages of six through 12 from low socioeconomic families. To clarify, maltreatment is defined and coded by the researchers, through the children's records from the County Department of Social Services, for sexual abuse, physical abuse, physical neglect, and emotional maltreatment. The study concluded that participants who were maltreated experienced emotional dysregulation. For example, subjects who were physically abused experienced greater depressive symptoms than those who were not physically abused. In

addition, emotional abuse was an even stronger indicator than physical abuse for depressed symptoms and low self-esteem. In fact, they found that lower emotional regulation was linked to higher externalization of behavior, leading to peer rejection causing further externalization, thereby creating a spiraling effect. Additionally, the study concluded that healthy emotional regulation was associated with higher peer acceptance that led to lower internalization of symptoms.

When distressful affect caused by stress is dysregulated it can cause clinical maladjusted states such as depression (Kovacs, Joormann, & Gotlib, 2008). In addition to experiencing depressed states, children who are maltreated or endure prolonged periods of stress due to emotional, physical, or psychological trauma seem to exhibit aggression (particularly in boys), have deficiencies in the ability to resolve important tasks, experience disorientation and numbing of emotions, and develop susceptibility toward psychological pathologies (Cicchetti, Rogosch, Howe, Toth, 2010; Cullerton-Sen, Cassidy, Murray-Close, Cicchetti, Crick, & Rogosch, 2008; Kim & Cicchetti, 2006; Price, 2008).

In an earlier study, Kim and Cicchetti (2006) investigated 251 children between the ages of six and 11 who were either maltreated or not maltreated. Although the findings suggested that over time, depression decreased while self-esteem increased. In addition, the researchers found that when internalized affect, resulting from consistent emotional stress caused by lack of psychological safety, both depression and self-esteem had a significantly slower recovery. In this study, emotional stress was defined as “persistent or extreme thwarting of children’s emotional needs including the needs for psychological safety and security, and for acceptance and positive regard” (p. 634). So the inability to cope with emotional affect in a consistently

stressful environment can negatively impact the healthy development of children, which in turn suppresses their ability to flourish in their social and academic milieu. Since childhood depression can often go unnoticed, it is important to have programming that not only aids in allowing children to find ways to identify and perhaps alleviate some of their internalized emotions but to offer preventative measures as well (Cole, Luby, & Sullivan, 2008).

The reviewed studies above have shown the implications of stress, trauma, and emotional dysregulation, and now the third measure in this study, the area of resilience or coping mechanisms that enable adolescents to persevere despite difficulties, will be examined.

### **Resilience**

Wagnild and Young (1987) the authors of the Resilience Scale, utilized in this study, defined resilience as:

Resilient individuals regain balance and keep going despite adversity and misfortune and find meaning amidst confusion. Resilient persons are self-confident and understand their own strengths and abilities (Wagnild & Young, 1987).

Although there are relationships highlighting the significance between childhood poverty, stress, trauma, and affect dysregulation leading to psychological and physiological disorders, still, many children exhibit the ability to thrive under the most difficult and challenging circumstances, becoming well-adapted adults. In relation to stress, Rutter (1987) defined resilience as “the positive pole of individual differences in people’s response to stress and adversity” (p. 316).

The resiliency of children in the face of adverse circumstances is shown by research to imply several dynamics that contribute to this condition. The inquiry around why some individuals become healthy and socially engaging adults while others, under similar

circumstances, do not, has been attributed to three domains: the child, the family, and the social environment. Some of the specific areas that contribute to resilience in children can be directed toward having the care and attention of at least one adult, having an area of personal competence, being socially engaged, having age appropriate responsibility in making decisions, self esteem, and the ability to self-regulate. Others attribute resilience to inherent biological and psychological factors that make up an individual's capacity to cope under adverse conditions (e.g., Brooks, 1994; Herrenkohl, Herrenkohl, & Egolf, 1994; Hoge, Austin, & Pollack, 2007; Price, 2008; Rutter, 1987; Ungar, 2011).

However, a defining factor that ultimately may contribute to the level of resilience is an individual's locus of control. According to Kelley and Stack (2000), locus of control has been defined as the extent to which individuals perceive their circumstances in life as within their personal control. There is a range of control related to a person's perception that is based on a continuum of internal to external locos of control. An example of external locus of control would be a perception that life's circumstances are based on chance or other external influencing factors. On the other hand, internal locus of control is the perception that individuals take responsibility for life experiences and outcomes. A factor in enabling the perception of locus of control is thought recognition and the ability to see the mind's processes. This is discussed later, in terms of yoga's effects on stilling the mind and creating a level of awareness as a result that can contribute to internal locus of control and therefore enhance resiliency.

Studies have shown that those who experienced some control over their stressful circumstances exhibited more resiliency than those who felt helpless in the face of life events (Brooks, 1994; Herrenkohl et al., 1994; Luthar & Zigler, 1991). Herrenkohl, Herrenkohl, and



Egolf (1994) suggested that there is varied differentiation between individuals' resilience. In effect, resilience is in a constant state of flux due to environmental conditions, maturation, and "is a function of the complex relationship between internal resources and external supports" (p. 308). In a case study of three siblings, Herrenkohl et al. (1994) have found that two out of the three siblings utilized the ongoing stressors in their home environment to be a driving force toward success. They did this in order to obtain a life that was more positive than the one in which they found themselves, thereby exhibiting an internal locus of control. However, the third sibling internalized the life circumstances, keeping him in a spiral of harmful behavior in the absence of determination and a definitive decision "to be different from their parents, which enabled them to plan a life-course that departed from the behavior patterns set by their parents" (p. 305). However, Herrenkohl et al. (1994) concluded that academic success did not always lead to emotional adequacy. Even though positive self-esteem, sense of control, and determination were factors that may have contributed to successful academic achievement, emotional competency was not necessarily related to academic success.

### **Summary of Stress, Emotional Affect Regulation, and Resilience**

Stressors due to varied environmental circumstances have overwhelming effects on children who have not been adequately nurtured, which may lead to self destructive behavior resulting from traumatic stress, affect dysregulation, and lack of resiliency. It is therefore understood that chronic stress resulting from factors such as poverty, neglect, and abuse may lead children into spiraling emotional dysregulation that tests their resiliency toward making healthy choices toward becoming functioning and prosperous adults.

It is with this premise that the recommendation for incorporating programming, such as

yoga, into the day-to-day experiences of children may give them some necessary tools to foster a healthy development within their inner and external realms. Incorporating yoga in schools has the potential to give urban school students the holistic tools to integrate the mind, body, and spirit, leading to the awareness of the full spectrum of who they are. As they become more adept at releasing the stress from their physiology, allowing the mind to become more still, and seeing the triggers that cause their emotional responses, yoga has the potential to create an empowering effect leading to a sense of perseverance in the face of life's challenges.

The following section will examine the principals of yoga, followed by general benefits of yoga, with an emphasis on ADHD and eating disorders that are often related to children in educational settings. These are followed by a review of literature specifically related to yoga and the three measures of stress, emotional affect, and resilience.

### **Principles of Yoga**

According to Chapple (2008) the practice of yoga can be traced back to 3500 BCE, in India, during the Indus Valley civilization. Images of people in meditative poses were depicted in statues and seals. Believed to support the mystical experience of religion, over the centuries, the practice of yoga, in various forms, was incorporated into religious practice by Buddhists, Jainas, Sikhs, Sufis, and Christians. However, by 200 CE, Patañjali formulated a system of yoga called the *Yoga Sutra*, which has become the foundation of all modern day yoga practice.

According to Chapple (2008), Patañjali defined yoga as “a state of consciousness bereft of pain or discomfort during which the preoccupations of the mind cease. He stated that yoga can be applied to alleviate human suffering (*duhkham*), leading to a state of purified witnessing” (p. 2). Although the Hindu religious scripture, the *Bhagavad Gita*, is often associated to the

practice, yoga itself is not rooted in the Hindu religion. Just as the *Bhagavad Gita* describes three types of yoga (Karma/Action Yoga, Jnana/Knowledge Yoga, and Bhakti/Devotion Yoga), Buddha sought enlightenment through meditation practice, the Jina advocated the yoga of discipline to live a life of non-violence, and the Sikhs incorporated yogic practice and philosophy into their day-to-day life (Chapple, 2008; Muktibodhananda, 2005).

The growing popularity of yoga over the last decade has taken many forms, from Prenatal to Power Yoga, depending on the preference of the teacher, and a niche in the population that is looking to be transformed, whether physically, psychologically, emotionally, or spiritually by this ancient practice. Some practice yoga for physical exercise, while others see it as a way to reach the depths of their inner realm and psyche through the integration of postures, breathing, and meditation that still the mind, thereby allowing the unseen to surface (Lowry, 2011).

According to a survey conducted by *Yoga Journal* (2008) there are over 10 million American adults ranging from 18 to 54 years with a median age of 39 practicing yoga, the fastest growing form of exercise. This is an increase by almost 6 million since 2001. As for yoga's popularity for children, a "Yoga and Children" search on the Internet displays 186,000,000 results, showing the growing popularity of yoga in this population sector as well. Increasingly, yoga is becoming more accepted in schools and, although there are numerous types of yoga for adults and children, the call for standardization has been a topic of discussion and research (Lowry, 2011). Though there is not currently a standardized system of yoga, there are types of yoga that have become known for their traditional formula. Although, as stated earlier, Patañjali was not the creator of yoga, his *Yoga Sutra*, along with other sacred Indian texts such as the *Upanishads* and the *Baghavat Gita*, have become the foundation for traditional forms of yoga

(Lance, 2011).

Yoga means union. It is believed therefore, that the practice of yoga unites aspects of the self to a core true identity, or the essential nature of the self, while creating a sense of unity with the infinite universal consciousness where all beings are experienced as one. Patañjali imparted a formula by which this path to universal consciousness is taken through the *Sutras* or strands. There are eight limbs to Patañjali's *Sutras* that prescribe a blueprint to a way of life, including a code of moral behavior, spiritual practice, breathing exercises, physical postures, meditation, and the cultivation of inner awareness leading to union with universal consciousness or the Divine (Bhajan, 2003; Chapple, 2008; Iyengar, 1979; Lance, 2011; Lowry, 2011; Muktibodhananda, 2005; Prabhavananda & Isherwood, 2007).

As noted above, there are currently numerous types of yoga and each offers a variation suited to the preferences of the practitioner. The traditional goal of yoga, as stated earlier, is the mind, body, and spirit integration. Most types of yoga can be categorized under the umbrella of Hatha Yoga. In its pure form, Hatha Yoga is a complex series of practices that include, postures, breathing, meditation, purification methods. In addition, Hatha Yoga is believed to activate the body's subtle energy centers, including the Kundalini, which is believed to be a coiled dormant energy center resting at the base of the spine that when awakened through the practice, leads to states of awareness and elevated consciousness (Bhajan, 2003; Iyengar, 1979; Muktibodhananda, 2005).

Vinyasa is a derivative of Hatha Yoga that includes Ashtanga, Power, Jivamukti, Kali Ray TriYoga, and White Lotus Yoga that emphasize specific aspects of Hatha Yoga, depending on the variation. What all have in common, however, are a series of flowing postures, moving

from one posture to the next, while focusing on rhythmic breathing.

Iyengar Yoga is a popular form of Hatha Yoga formulated by B.K.S. Iyengar. This form of yoga focuses on precise alignment of postures held for longer periods of time than the typical Vinyasa, or Flow Yoga. In addition, this form of yoga encourages the use of props such as belts, blocks, and pillows to facilitate the precision of the postures so that the practitioner can participate at his or her level of comfort in posture alignment (Cook, 2012).

Another popular style of Hatha Yoga is called Bikram Yoga, developed by Bikram Choudhury. Since Bikram has trademarked this form of yoga, some centers that have not been specifically certified by Bikram are called Hot Yoga. In a typical Bikram or Hot Yoga class, the room temperature is held at 105° Fahrenheit while a series of

26 postures systematically work every part of the body, to give all the internal organs, all the veins, all the ligaments, and all the muscles everything they need to maintain optimum health and maximum function. Each component takes care of something different in the body, and yet they all work together synergistically, contributing to the success of every other one, and extending its benefits. ([www.bikramyoga.com](http://www.bikramyoga.com))

These are but a few examples that give a glimpse of the yogic lifestyle, philosophy, and practice. While the types of yoga mentioned have differences, most incorporate postures and breathing in practice.

Not all yoga involves the practice of physical postures. For example, the sacred Hindu text, the *Baghavad Gita*, defines sets of yogic practices that ultimately lead to universal consciousness. The individual's union with universal consciousness is attainable, according to this text, through Karma Yoga (action), Bhakti Yoga (devotion), and Jnana Yoga (intellect). All of these require daily discipline, which include the purifying and strengthening qualities of postures for the body, and stilling the mind through meditation (Lance, 2011; Easwaran, 2007;

2011).

Kundalini Yoga, the type of yoga that has been utilized in this study, under the program Y.O.G.A. for Youth (YFY), is a form of yoga that integrates sets of postures or kriyas, breathing, and meditation that sometimes involves chanting, in each yoga class. It is different from other types of yoga because it integrates postures, meditation, and breathing within a single yoga class. Kundalini Yoga, known as the yoga of awareness, originated in India and was brought to the United States by Yogi Bhajan in 1969. Yogi Bhajan became a master of Kundalini Yoga by the age of 16 and immigrated to the United States to share the teachings in order to liberate the youth of the time from the self-destructive spiral of drug use for the purposes of heightened states of perception and awareness ([www.yogibhajan.org](http://www.yogibhajan.org)). He believed that consistent practice of Kundalini Yoga was a healthy way to gain strong immune, nervous, glandular, and circulatory systems, develop intuition, gain clarity and neutrality of mind, and gain an understanding of the cause and effect of personal habits that lead to transformational and transcendental experiences (Bhajan, 2003).

The practice of Kundalini Yoga balances the glandular system, strengthens the nervous system, and enables us to harness the energy of the mind and the emotions, so we can be in control of ourselves, rather than being controlled by our thoughts and feelings. This technology combines breath, *mudra*, eye-focus, mantra, body locks, and postures in a precise, conscious manner to affect body, mind, and soul. ([www.3ho.org](http://www.3ho.org))

In addition, the YFY program focuses on developing an overall sense of well-being through the tools gained from the yoga. Potentially, while students are developing their inner landscape through yoga, a translation of this growth is reflected in their external experiences through the alleviation of stress, emotional regulation, and increased resiliency leading to a sense of empowerment that contributes to making healthy and productive choices in life.

## **Yoga and General Benefits**

Research has shown that yoga practice can benefit a wide range of areas in emotional and physical well-being, including those concerning adolescents, such as eating disorders and attention deficit disorders that are a part of the educational landscape. For example, a qualitative study conducted by Atkinson and Permuth-Levine (2009) examined three focus groups: participants who had never practiced yoga, those who had practiced for one year or less, and practitioners of more than one year. The results indicated that all participants expressed a variety of benefits including lowered blood pressure, improved respiration, enhanced muscular strength and flexibility, improved stress levels, and better sleep quality. The most common perceived benefits across the groups were stress reduction and flexibility. The benefits that resulted from the study were then categorized in three themes: health promotion effects, disease prevention effects, and social psychological benefits, which were common across groups regardless of yoga experience. To quote one participant from the study that accurately describes widely held perceptions of the initial effects of yoga practice:

I am healthier since I began yoga. I know that I don't get sick as much, I'm not sure why that is, but I think that yoga prevents illness. I think it makes me less tense, so as a result, I get less headaches, I sleep better, and I just feel better over all. I notice that when I don't come, things go wrong. (Atkinson & Permuth-Levine, 2009, p. 8)

Similarly, some yogis believe that through the practice of yoga a healthy spine, proper body alignment, and exercising the internal organs and systems can promote a lifestyle that leads to physical and psychological health (e.g., Bhajan, 2003; Iyengar, 1979; Muktibodhananda, 2005). Since all nerve endings are connected to the spine, maintaining its flexibility with regular yoga practice would therefore aid in keeping the skeletal and neurological systems healthy and therefore aid in preventing age-related diseases.

**Yoga and eating disorders.** Yoga's contribution to alleviating emotional responses related specifically to eating disorders has been documented. For example, one of the factors of stress in the lives of adolescents and children is low levels of self-awareness, which can lead to negative self-image issues, which can subsequently lead to serious eating disorders. Bondette (2006) incorporated yoga practice into therapeutic approaches with eating disorder patients. After experiencing the positive effects of yoga herself, she questioned whether yoga would impact her patients in reversing some of the affects of eating disorders. She found that yoga introduced her patients to relaxation, followed by a deep sense of peace and freedom never before experienced. In addition, she found that yoga gave her patients a new way of relating to their bodies, since those with eating disorders often tend to "relate to the body as an ornament; they suffer from a disconnection from the body, feelings, appetites, and inner experience" (Bondette, 2006, p. 170). With yoga practice, the focal point disengages from external forces and becomes internal, leading to a heightened sense of awareness a necessary component for healing and rehabilitation. To quote from the author's account of one patient's change in perception:

Before yoga, her mind worked like the zoom lens on a camera, magnifying the most minor issues into angst-ridden, crisis situations. But after several months of weekly classes, her perceptions began to change; she began seeing things more through a wide-angle lens. The little things, she said, no longer seemed so big and could more easily be put into proper perspective. (Bondette, 2006, p. 168)

Through her years of experience and practice, Bondette (2006), concluded that yoga practice is an effective tool that can aid in healing eating disorders. Similarly, Daubenmier (2005) tested the effects of yoga on awareness of body responses and body satisfaction that lead to eating disorders. The results indicated that compared to aerobic exercisers and those who do



not practice either yoga or aerobics, yoga practitioners reported greater physical satisfaction and fewer disordered eating attitudes. These examples illustrate how yoga practice in schools can foster empowerment by internalizing locus of control, contribute to positive self-image attitudes, particularly for female, and increasingly for male populations, who are endlessly exposed to mass media images that inevitably contribute to adverse self-worth issues in adolescents.

**Yoga and ADHD.** Another area of research that has implications on adolescent well-being and academic learning is in the area of attention deficit hyperactivity disorder (ADHD). Research has found that yoga enhances mental clarity, concentration and attention. Studies have been conducted on children who have challenges with staying on task and with ADHD. For example, a study review conducted by Rojas and Chan (2005) found that aside from diet modifications, yoga was perceived to have benefits in stress reduction and improved concentration. In addition, Jensen and Kenny (2004) revealed that yoga participants significantly improved on their Restless/Impulsive and ADHD scales. These studies show that yoga may have an impact as an alternative to widespread treatments that focus on medication and diet modifications.

Furthermore, Peck, Kehle, Bray, and Theodore (2005) examined the effectiveness of yoga on attention problems. The researchers investigated improvement of time on task for children who were identified as having some attention problems although not formally diagnosed with ADHD. The observational study defined time on task by the percentage of intervals students were engaged on either the class assigned activity or the teacher. The researchers observed improvement in the overall behavior of the students. However, this study did not yield any significant correlation between time on task and yoga, which may be an important indication

of the shortcomings of the study. For example, only one instrument in the design was utilized other than observation. In addition, no other variable, other than time on task, was used to define effectiveness of yoga on students' behavior.

These examples cited the general benefits of yoga, with an emphasis on ADHD and eating disorders that are areas of concern in educational settings, include common themes. Some refer to outcomes that yoga participants expressed mental clarity, awareness to inner realms, heightened senses, sensations of peace and calm, greater confidence, and enhanced personal self image, which can be associated to the positive effects of yoga practice on those with attention and eating disorders (e.g., Rosanova, 2004; Saraswati, 2006; Schure et al., 2008; Stueck et al., 2005; Wahi, Pappas, & Wahi, 2002). Thus far, just a glimpse of the general outcomes of yoga practice has been highlighted. The next section will specifically focus on yoga's effects on the three measures that are examined in the current research study: yoga and stress, emotional affect, and resilience. In addition, since Kundalini Yoga, the form of yoga utilized for the current research study, incorporates yoga postures and meditation within the yoga practice, specific meditation studies are reviewed as well to create a more robust understanding of both yoga and meditation.

**Yoga and stress.** Increasingly, adolescents have to endure social, environmental, and academic pressures without necessarily possessing skills to adequately navigate through life's challenges. According to Suldo, Shaunessy, and Hardesty (2008), stronger coping skills among high achieving high school students enrolled in a more rigorous International Baccalaureate (IB) curriculum was compared to students in a standard high school program. The study found that high-achievers do not necessarily have better coping skills, and that high school students in

general may require tools to better navigate their increasingly demanding academic and life stressors. Perceived stress is associated with factors across cognitive levels in adolescents that are not limited to academic demands. It is with this understanding that yoga is introduced as a tool that may alleviate stressors for adolescents, to give them life-long tools to utilize when faced with demands in their personal and social environments.

The benefits of yoga related to stress relief, mood disturbance such as anxiety and depression, and its impact on an overall sense of well-being and spiritual connectedness was highlighted through a qualitative study conducted by Schure, Christopher, and Christopher (2008). The researchers examined the influence of Hatha yoga, meditation and Qigong on students over a period of three years with an emphasis on how college students apply mindfulness (as a result of the ongoing yoga practice) to different areas in their lives. Through an open-ended questionnaire utilizing a reflective journal, the study discovered themes extracted from the participants' responses. The themes were then categorized in the following five areas: physical changes, emotional changes, attitudinal or mental changes, spiritual awareness, and interpersonal changes. The results of the study showed increased body awareness and ability to cope with and manage strong and threatening emotions. In addition, the participants expressed an increased capacity to understand themselves and reported changes they experienced in their attitudes and perceptions with an increased level of self-confidence.

In short, this qualitative study found positive results of yoga and meditation on physical, emotional, mental, spiritual, and interpersonal aspects of the participants' lives. In the physical category, the participants expressed a change in strength, flexibility, balance, and a general increased awareness of their bodies. Some even noted that their frequency of illness had

decreased. In the emotions category, students noted a difference in their capacity to manage and control emotional triggers. They reported that the impact of the negative emotion was decreased due to the fact that they were more accepting and willing to let go of the emotion and thought pattern. In the mental arena, clarity of thought and capacity for reflection was frequently reported, along with changes in attitudes and perceptions, which could be due to a result of calming the mind to allow for greater awareness to take place. Students also reported that beliefs, values, and a sense of purpose and direction were enhanced by the yoga practice. Many studies examine yoga's effects on children with respect to relaxation, concentration, self-awareness, and creativity.

Rosanova (2004), for example, highlighted the stress-reducing effects of yoga in elementary aged children. He used a Montessori classroom as the forum for his observations, to find that yoga had a calming affect on the students' nerves and enhanced their attention span. By utilizing yogic techniques, he was able to aid students' physiological calming responses by having them in "tadpole" position. This position required students to rest their abdominal area in a face down position on a folded blanket that was placed on top of their yoga mat such that the blanket created a platform that was a few inches higher than the floor. With deep breathing techniques, the children were able to experience a release in the tension their body and relax with the breathing.

Through his observations as a Montessori teacher, Rosanova (2004) also found some possible gender differences in students' affinity toward the yoga practice. One insight that emerged from the observation was that adolescent boys tended to have a dislike for "softer" forms of yoga and needed a more rigorous type of yoga that suited their more active physical

needs. In the long run, however, Rosanova (2004) concluded that even boys looked forward to the yoga practice when they experienced the calming and restorative effects after a period of time.

Another study, which used both criterion-based quantitative and qualitative data to discuss findings, was conducted by Stueck and Gloeckner (2005) who examined Training of Relaxation with Elements of Yoga for Children (Torwe Y-C) to foster self-control and self-regulated relaxation strategies using breathing exercises, imagination journeys, and yoga techniques designed for children. The goal of the TorweY-C technique was to “reduce stress and to optimize their reactions related to high psychological demand and pressure in everyday life” (Stueck & Gloeckner, 2005, p. 371). The TorweY-C model had three elements in the practice which began with relaxation, followed by yoga exercises and completed with a game component including partner massage, candle meditation, and sensory exercises such as touching and/or smelling to identify objects. The study interviewed 21 participants in the experimental group (TorweY-C) and 27 in the control group (no program) to delineate the short-term effects immediately after the training and interview for long-term effects three months after the training. The participants were chosen out of a pool of 110 children ranging from age 11 to age 12. Only those who showed an abnormal anxiety examination level, as tested by an anxiety questionnaire, were selected for the study. The results concluded that not only was the course effective, but participants enjoyed and valued the yoga practice and other administered methodologies. For example, the program was statistically significant ( $p < .05$ ) in increasing the effect variables of stress-coping abilities, and decreasing effect variables of aggression, helplessness in school, and physical complaints. In the Post 2 measurement, indicating a longer-term effect, emotional

balance increased whereas anxiety and impulsiveness decreased ( $p < .05$ ). This analysis indicates that yoga is an effective method for relaxation that can be applied, particularly for children and adolescent age groups.

The benefits of yoga have been researched since the 1970s. For example, Linden (1973) examined the effect of meditation and breathing on test anxiety and reading achievement. He hypothesized that meditation, a technique to train and focus the mind, would help school children to focus, concentrate and choose to change their emotional states. In this study, from a pool of 90 randomly selected third grade students from a low socioeconomic urban school, 26 students were given meditation practices for 18 weeks, while the other two groups were given either 45 minutes of guidance counseling or no treatment at all. Although the reading achievement measure did not yield significant results in this study, the results indicated that compared to the control groups, the meditation group experienced decreased test anxiety, which may illustrate the effectiveness of meditation on relaxation and alleviation of stress. Linden (1973) suggested that the results of the meditation and breathing enable subjects to strengthen their coping skills and effectively alter their emotional states as indicated by the test anxiety responses.

In a more current study, Barnes, Treiber, and Davis (2001) examined the impact of Transcendental Meditation (TM) on cardiovascular function in adolescents during high stress circumstances. The results of the laboratory stressors (car driving stimuli, social stressor interview) indicated that TM was effective in reducing cardiovascular reactivity, as measured by blood pressure in the subjects. The significance of the study indicated that adolescents can benefit from meditation practices to aid them in reacting to stress factors that result from social and peer pressures. Similarly, three years later, Barnes, Davis, Murzynowski, and Treiber (2004)

concluded that practicing a breathing meditation significantly decreased heart rate and blood pressure in middle school students (N = 73). As a result of the study, given that breathing meditation can be conducted in a classroom setting, and as a result of the benefits, the researchers suggested that integrating the breathing mediation technique into a classroom setting is simple, feasible and cost effective.

With the popularity of yoga in the last decade, literature on the subject has become available for adolescents, providing reference tools for relaxation and coping skills to decrease the stressors in academic and social arenas. Wahi, Pappas, and Wahi (2002), for example, discussed the effects of yoga on the increasing stressful demands placed on high school students and provided some exercises and techniques for the students to utilize. Through their experiences with teaching and practice, they found that yoga helps students with decreased stress resulting in mental clarity, restorative benefits of physical and emotional energy, calming affects during hectic school and home schedules, and general heightened sense of awareness, which can lead to a sense of overall well-being. It may be deduced from these findings that when children and adolescents are feeling positive about themselves, their environment and interpersonal relationships are positively impacted as a result.

It would be important to continue to investigate yoga's utility in alleviating affective filters that inhibit learning, which can lead to enhanced learning that can contribute greatly to the field of education. In addition, yoga's effects may be researched in depth to gain more knowledge about personal, social, and academic concerns in order to bring yoga into the forefront of alternative ways in which to address issues that students and educators face today. This could be especially important with regard to urban settings specifically, where media

influences, environmental factors, socio-economic factors, and cultural factors contribute to already stressful adolescent experiences. Yoga's influence has the potential to significantly reduce these stress-causing factors by presenting educators and students with tools to better navigate the inner realms that may ultimately create positive influences on external forces. As mentioned earlier, educators can look beyond curricular teaching practices, and add to them, using approaches such as yoga that supplement the educational pedagogic approaches by incorporating holistic programming to integrate the mind, body, and build their spiritual capital (Arweck, Nesbitt, & Jackson, 2005; Saraswati, 2006).

**Yoga and emotional affect.** As early as the 1970's, research has shown that yoga and meditation can enhance positive affect in participants. And since Kundalini Yoga integrates yoga postures and meditation within the practice, both yoga and meditation have been reviewed throughout the discourse.

Research has shown that yoga can help alleviate neurological and mental dysfunctions that can cause depression, leading to adverse affects on overall well-being and quality of life. In a review of literature, Smith (1975) found that experienced meditators were overall happier and healthier than non-meditators, beginner meditators who practiced meditation for 4 to ten weeks showed more improvement on a variety of tests than non-meditators, and randomly assigned persons who were taught how to meditate over 4 to ten weeks showed more improvement than the control subjects receiving an alternative treatment. Other research has found that yoga can have positive outcomes on emotional affects such as anger, guilt, depression, anxiety, and obsessive-compulsive disorder (Shannahoff-Khalsa, 2004; Toneatto & Nguyen, 2007; Uebelacker, Epstein-Lubow, Gaudiano, Tremont, Battle, & Miller, 2010).



In the school setting, Slovacek, Tucker and Pantoja (2003) conducted a study on a specific yoga program called YogaEd at an inner city school in Los Angeles, California. With the participation of 405 students, 18 core subject and yoga teachers, they examined the effects of yoga on academic performance, discipline, and students' attitudes about themselves. The study found that yoga appears to improve students' personal attitudes toward themselves. At the end of the year, there was a statistical significant increase of 20% in positive affect ( $t = .779$ ,  $n = 305$ ,  $p < .001$ ). In addition to the increase in positive affect, this study supported research showing that yoga helped improve students' overall well-being, resulting in improved behavior. In this particular study, student behavior resulted from a measure that showed a negative correlation between yoga participation and student behavior referrals for elementary ( $r = -.463$ ,  $p < .01$ ) and middle school ( $r = -.367$ ,  $p < .01$ ) students. The researchers also found that this school's students were rated better physically fit compared to the school district's mean levels of fitness by 23.4% in fifth graders and 28.5% in seventh graders, due to the ongoing yoga classes. Additionally, when yoga participation was correlated with student grade point average, the results indicated that yoga participation helped students improve in academic performance ( $r = .399$ ,  $p < .01$ ).

In a similar study using meditation, Barnes, Bauza, and Treiber (2003) examined the effects of Transcendental Meditation (TM) on school rule infractions in adolescents. Forty-five African American adolescents aged 15 through 18 with high normal systolic blood pressure (a cardiac measure) were randomly assigned to TM ( $n = 25$ ) or health education control ( $n = 20$ ) groups. The TM group was assigned 15-minute sessions each day at home and at school for four months. The control group was presented with a health education program for 15-minutes each day at school for four months. The results indicated that TM may have a positive impact on

absenteeism ( $p < .05$ ), rule infractions ( $p < .03$ ), and suspension rates ( $p < .04$ ). Interestingly, while there was a significant decrease in all three areas for the TM group, the control group had an actual increase in all three areas measured.

A study conducted by Kim, Choi, Kim, Park, Lee, and Lee (2001) examined the effects of Brain Respiration (BR) training in 12 children compared to a control group of another 12 children. BR is a breathing technique developed in Korea which is understood to improve academic ability and emotional stability. Brain waves or EEGs were utilized to measure the brain function of the subjects. The findings conveyed greater emotional maturation and educational achievement levels associated with the specific decrease or increase of activity in parts of the brain in the BR subjects as opposed to the non-treatment group.

A more reflective study was conducted over a period of one year by Schoeberlein, Koffler, and Jha (2005) to assess the success of programs in K-12 educational settings that utilized, what the researchers termed, *contemplative techniques*. The project focused on pedagogy and methodology, as well as the degree to which these programs developed love and forgiveness among students. They gathered information from 80 informants, primarily in the U.S., however, Canada, India and England contributed to the study as well. The researchers found that, “In general, they incorporate mindfulness and other contemplative techniques to train and refine attention, promote emotional balance and by extension, help students develop the capacity for self-regulation” (Schoeberlein, et al., 2005, p. 4). In addition, they reported that overall there were similarities among the schools with regards to program techniques utilized. For example, mindfulness meditation practices, breath-awareness, body scans, movement, and mindful yoga were among the techniques used in the schools. The researchers also reported that

these techniques have been found to promote positive outcomes in stress reduction, increased relaxation, less pain, increased pain tolerance and improved self-esteem. They concluded that in an educational setting, the school community can benefit from mindfulness and other contemplative techniques “in an effort to become more responsive and less reactive, more focused and less distracted, more calm and less stressed” (Schoeberlein, et al., 2005, p. 7).

One sample the researchers collected was on the Lineage Project in New York, New York and Youth Horizons in San Francisco, California, which utilizes the Mindfulness-based Stress Reduction (MBSR) approach. The Lineage program runs in schools, whereas Youth Horizons is for incarcerated youth. Both these programs work with at-risk youth. The classes are yoga, meditation, and discussion-based where students

Learn positive ways of responding to stress other than repression or acting out. Learn how to respond rather than react to difficult events. Find calm and clarity through positive techniques rather than through drugs. Gain clarity of mind so that more conscious choices can be made, while learning to understand the consequences of all actions. Gain a better understanding of the mind and body through awareness-based classes that help youth live healthier lives. (Schoeberlein, Koffler, and Jha, 2005, p. 9)

The Lineage Project, in addition, focuses on compassion, non-violence, and forgiveness.

Another example worth noting from the Schoeberlein, Koffler, and Jha (2005) report was on the Mind Body Medical Institute (MBMI) at Harvard University, which trains teachers to develop coping skills, relaxation techniques, and awareness to reduce the emotional and behavioral effects of stress in their students by utilizing “repetition of word, sound, phrase, prayer” (mantras), “muscular activity” (kriyas or postures) and “passive disregard for everyday thoughts” (meditation). According to the MBMI, these types of practices have been found to increase grade point average, increase self-esteem, decrease psychological distress and aggressive behavior, and enhance attendance and work habits. The reviewed literature thus far,

indicates a trend toward the positive impact on socio-emotional and in turn, academic performance of meditation and yogic techniques.

**Yoga and resilience.** As a response to personal life challenges, whether they are a result of personal choice, decisions, or circumstance, yoga and meditation has been shown to offer tools to strengthen inner resilience to face and often overcome challenges and obstacles.

Chan, Chan, and Ng (2006) examined the effects of Strength-focused and Meaning-oriented Approach to Resilience and Transformation (SMART) as a methodology to crisis intervention and building inner strength, utilizing findings in March 2003 from the Severe Acute Respiratory Syndrome (SARS) epidemic in Hong Kong which had the second highest number of confirmed cases. They categorized and defined crisis and traumatic experiences in three areas of potential threat: personal, relational, and social. “The SMART intervention attempts to foster growth in people undergoing crisis. The intervention process focuses at the rediscovery of self and the development of inner strength” (Chan, Chan, & Ng, 2006, p. 17) through a Body, Mind and Spirit (BMS) approach which draws heavily from Eastern philosophical models of integration.

According to Chan, Chan, and Ng (2006), the BMS model has been utilized in Hong Kong for over a decade with patients suffering from cancer, stroke, systemic lupus erythematosus, rheumatoid arthritis, diabetes, the bereaved, infertile couples, and divorced single mothers. The SMART intervention, based on the BMS approach, was created for severe crisis sufferers, incorporating elements that work with each component of the human being, such as verbal and non-verbal communication, physical movement (tai-chi, yoga), meditation, and breathing exercises, that can foster emotional release and transformation. According to Eastern

philosophy, “disease is the manifestation of the patient’s inner disharmony of energies. To heal is to strengthen the patient’s entire bodily system by restoring the balance between different elements (internal organs) and systems (psychosocial, and spiritual)” (Chan, et al., 2006, p. 20). The SMART and BMS approaches are holistic in their goal to human development.

Self-esteem and internal, as opposed to external, locus of control were evaluated in high school students (Benson, Kornhaber, Kornhaber, LeChanu, Zuttermeister, Myers, & Friedman, 1994), a volatile age group, who tend to experience emotional and problematic behaviors due to their developmental stage. As a result of the transition to adulthood and facing physical and physiological changes, negative behavior, anxiety, depression, poor academic performance, and drug or alcohol abuse can be used as coping mechanisms to alleviate the affect associated with these changes. The result of the study indicated that relaxation-based curriculum, namely meditation and breathing techniques, when applied, created positive psychological changes in both self-esteem and internal locus of control in the high school population. The implications from this study indicated that adolescents can develop self-mastery through simple techniques such as breathing exercises and meditation that enable them to interact with their environment in a healthy manner.

### **Yoga Programs in Schools**

The concept of yoga in schools has become increasingly popular over the past several years. Lowry (2011) surveyed nine yoga programs for children and found an array of differences among the programs, although their goal in integrating yoga practice into the lives of children was the same: to benefit their overall well-being. Lowry’s (2011) survey included programs such as Be Yoga, Calming Kids, Kids Yoga Circle, Radiant Child Yoga, School District Yoga,

Yoga 4 Teens, Yoga Child, Yoga Ed, and Youth Yoga Dharma. Although her analysis resulted in various methods of teaching yoga along with various outcomes the programs seemed to

engage students across multiple dimensions of wellness; cultivate self awareness, attention, and concentration; and teach relaxation skills. Spiritual wellness was addressed using relaxation, self-awareness, partner work, and examining emotional states. Emerging themes included attention, awareness, meta-cognition, and self-regulation as learning objectives. (Lowry, 2011, p. iv)

The developers of each program had varied backgrounds in education, including college and graduate level degrees from an eclectic array of fields. These included psychology, physiology, theatre, dance, education, therapeutic exercise, physical and health education, business, and law. The founders were each driven to bring the benefits of yoga, that they had experienced themselves, to a younger population in order to offer it as an intervention option and/or a supplemental addition to school curriculum. The School District Yoga, for example, situated within a large urban area, received a federal grant in order to incorporate non-traditional curricular activities, including yoga. The program developer's initial motivation was to introduce the calming effect he had experienced through yoga to children in the school district Lowry (2011).

Another example of a yoga program for children investigated by Lowry (2011) was the Radiant Child Yoga, which is based on Kundalini Yoga teachings. The founder of Radiant Child, Shakta Kaur, is also an author of adult and children's yoga books, who has been a practitioner of yoga for 40 years. She was formerly a Montessori school teacher who adapted her educational training into teaching yoga to children through stories and songs with her acclaimed book *Fly Like a Butterfly*. In an interview, Kassir (2008) asked Shakta Kaur to comment on her experience with the effects of the yoga with children she had taught over the

past 35 years, particularly with children who had ADHD. Shakta related one example of a boy with sensory processing challenges who would use a chanting meditation (specific to releasing mental stress) when he felt overwhelmed by his environment's sensory stimuli. Kassir (2008), due to her medical and yogic background, in addition to her research on ADHD and autism, and along with long-time experts in the yoga field, concluded that, "Through practice, the young student could self-regulate effectively. The inner calm created by positive affirmations, combined with song and movement, can help children with ADHD deal with anxiety and sensory integration issues" (p. 2).

Lowry (2011) found that when asked to define yoga, each of the nine participants in the study gave a varied response to the definition, from "wholeness," "a system of balance and transformation," "bringing the attention to what the mind and body are experiencing," and "a way to know your self better," (p. 101). As mentioned earlier, there are numerous types of yoga that range in aim from emotional, spiritual, and physical well-being. However, there has been a general understanding that yoga's aim is to integrate or unite parts of the self in body, mind, and spirit, leading to an elevated level of consciousness that enables the practitioner to be united with all that exists. Basically, all forms of yoga, whether Iyengar, Bikram, Kundalini, or Ashtanga, has the purpose of unity at its traditional foundation (e.g., Bhajan, 2003; Iyengar, 1979; Yoga Journal, 2008).

### **Conclusion**

To conclude, further work and study in this vast area is required in order to ascertain the multi-layered effects of yoga on adolescent mental, physical, and spiritual development. This area of research has the potential to create a simple application that has multi-dimensional

outcomes for the overall well-being of children and adolescents in the school setting, particularly as the global sphere increasingly becomes more complex. Discovering and incorporating ways to address holistic child development in educational settings is required particularly ways that transcend beyond teaching methods that serve only to teach cognitive curricular skill. When used as a technology, yoga has the potential to have profound impact on experiential human development, first by supporting physical, emotional, and mental regulation. Second, by supporting and enhancing spiritual development and capital, yoga may have a direct application to real-life experiences, thus enabling students to navigate through challenges, blocks, perceptions, behaviors, and limitations.

The reviewed studies have indicated yoga's potential for positive effects on stress reduction, emotional regulation, and resiliency, which may lead to improved learning, creativity, and ultimately empowerment and self-actualization. In addition, these areas of improvement, facilitated through yoga practice, may certainly have direct benefits for adolescents of urban schools who may have added social challenges such as poverty, violence, drugs, racism, and immigration. Yoga practice, as an integral part of the school curriculum, can give students specific tools to help navigate stress-causing factors that often have adverse effects on familial, social, and academic arenas (e.g., Benson, Kornhaber, Kornhaber, LeChanu, Zuttermeister, Myers, & Friedman, 1994; Jensen & Kenny, 2004; Linden, 1973; Schoeberlein, Koffler, & Jha, 2005). Therefore, yogic technology offers a unique opportunity for growth and expansion beyond physical and mental limitations, perceptions, attitudes, behaviors, habits, and structures that may lead participants to make healthy life choices and perhaps positively affect personal, social, and academic arenas, leading to a sense of purpose and fulfillment in life.



## **CHAPTER 3**

### **RESEARCH DESIGN**

The following study examines the necessity for educational systems to foster a holistic approach to education that consciously integrates the mind and body while building spiritual capital through yoga programs such as Y.O.G.A. for Youth (YFY), particularly for low SES urban schools. The purpose of this study is therefore twofold. First, it examines the effectiveness of the YFY Kundalini Yoga program for integrating the mind, body, and spirit for overall well-being of elementary and middle school students. Second, the study examines the effectiveness of the program on adolescent stress, emotional affect, and resilience.

#### **Research Questions**

Kundalini Yoga in schools may provide benefits including the alleviation of stress, regulation of emotions, and increased resilience for urban schools with low SES populations. The yoga program focuses on developing spiritual capital which can lead to an overall sense of well-being. Specifically, students in the yoga program, have the opportunity to develop their inner landscape by participating in a 10-week program.

Therefore, the following research questions will be evaluated: To what extent does Kundalini Yoga practice in schools affect adolescent overall well-being? And to what extent does Kundalini Yoga practice in schools affect adolescent perceived stress, emotional affect, and resilience?

Perceived stress was defined as:

(a) actual environmental experiences, (b) subjective evaluations of the stressfulness of a situation, and (c) the affective, behavioral, or biological responses to environmental experiences or their subjective situation. (Cohen, Kessler, & Gordon, 1997, p.3)

Positive and negative affect was defined as emotions that were categorized as positive affective words (happy, strong, calm) that related to over stimulation while negative affective words (sad, upset, scared) that were often associated with general emotional distress (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999). Adolescent resilience is defined as the ability to maintain an inner equilibrium despite life circumstance while finding meaning within the chaos and confusion (Wagnild & Young, 1987). To evaluate the extent to which yoga programming in school settings can benefit adolescent well-being, an existing yoga program, grounded in Kundalini Yoga, was administered as the treatment.

### **Program Background**

Y.O.G.A. (Your Own Greatness Affirmed) For Youth was implemented at three schools in Fall 2010. Krishna Kaur, who has been a student and teacher of Kundalini Yoga for over forty years, founded the non-profit organization sixteen years ago. Her expertise in the field is far reaching. Her repertoire of experiences in the field is described as:

A dynamic heart centered Yoga teacher, began studying with Yogi Bhanan in 1970 and has been teaching the art and science of Kundalini Yoga and Self Awareness for 40 years. She is certified by the 3HO Foundation and the Kundalini Research Institute as a Kundalini Yoga Teacher and Trainer of both Level I and II. She is the regional coordinator for 3HO Africa, which unites Kundalini Yoga in Africa. Krishna also founded and runs Y.O.G.A. for Youth, a non-profit dedicated to training yoga teachers to work with at-risk youth and creating yoga programs in schools and juvenile facilities. Krishna opened the first yoga center in South Central Los Angeles and continues to train yoga teachers, teach workshops, and bring yoga to the underserved populations throughout the world. She currently lives in Los Angeles, California. ([www.krishnakaur.org](http://www.krishnakaur.org))

Before devoting her life to teaching Kundalini Yoga, Krishna was a celebrated singer until she decided that her lifestyle required a transformation to a more health-oriented purpose. Once she adopted the yogic lifestyle, the benefits propelled her to a lifelong mission to share the

transformative effects of yoga with others, particularly in neighborhoods where this type of practice was scarce. The initial aim of the program was to bring Kundalini Yoga into the juvenile incarceration facilities in order to provide a potential stress relieving, emotional regulating, resilience building, and self-awareness tool to young incarcerated men and women in an effort to “enrich their lives and assist them in effectively meeting life’s challenges now and in the future” (<http://www.yogaforyouth.org/about.php>, 2011).

Currently, Y.O.G.A. For Youth (YFY) is taught in juvenile detention facilities, prisons, after school programs, and to pregnant and parenting teens throughout Southern California with satellite programs in New York, Minneapolis, Seattle, Chicago, and Mexico. The following is the organization’s mission and rationale for developing a program for Kundalini Yoga for youth. “The Y.O.G.A. for Youth mission is to provide urban youth with tools for self-discovery that foster hope, discipline and respect for self, others and community” ([www.yogaforyouth.org](http://www.yogaforyouth.org)).

The rationale they provide is the following:

Y.O.G.A. for Youth brings Yoga and Meditation to urban youth in schools, community facilities, detention centers and jails in order to break the cycle of incarceration in our inner cities. We accomplish this by training teachers to help create miracles in the lives of adolescents who desperately need tools to navigate their very difficult environments and situations. Y.O.G.A. for Youth acknowledges that the youth are our future. In order to promote a positive and productive future, we must teach our youth skills to make healthy choices to become positive and productive members and leaders of our communities. ([www.yogaforyouth.org](http://www.yogaforyouth.org))

Therefore, the YFY program was chosen for the study since its mission, to bring yogic skills and technology to underserved adolescent population in urban schools, paralleled the social justice component of the current study.

### **Why Kundalini Yoga**

The Y.O.G.A. for Youth Kundalini Yoga program, for the purposes of this study, was

chosen because it is a holistic approach to yoga practice. Kundalini Yoga is a comprehensive form of yoga since it combines physical practices, breathing exercises, and meditation within each yoga class. In each class, kriyas and asanas (physical postures), pranayama (breath work), and meditation are practiced. Meditation is an important aspect in Kundalini Yoga practice to exercise the ability to silence the mind, and learn the inner workings of the mental processes in order to allow thought forms and awareness to surface. This is heightened through the preparation of the physical body first, so that it releases tension, stress, and trauma from the physiology, allowing the body's reparation processes to allow the mind, in stillness, to "see" and "listen" to messaging more clearly.

"Kundalini" is Sanskrit for "coiled" and is described as a coil of energy that lays dormant at the base of the spine (Bhajan, 2003). It is suggested that this dormant energy is awakened and stimulated through the practice of Kundalini Yoga, leading to awakened experiences of consciousness (Bhajan, 2003). Additionally, it is argued that this flow of energy and consciousness that exists within the body enables an individual to merge with or "yoke" individual consciousness with universal consciousness, thereby creating a Divine union, called "yoga." This yoga or union is depicted in the *Upanishads*, a sacred Hindu scripture that is sometimes referred to as the Vedas, and is believed to be over five thousand years old (Bhajan, 2003). The *Upanishads* "are neither dogma nor theology...they are unified by their common search for the true nature of Reality and, in the course of this search, afford glimpses into supreme states of the soul" (Prabhavananda & Manchester, 2002, Title Page). Given these definitions, the Kundalini Yoga curriculum used in the study has been adopted and adapted for the youth through the teachings of Yogi Bhajan. For the study itself, in order to maximize

external validity, a set curriculum created by YFY was utilized across schools and participants.

The Western hemisphere attributes Kundalini Yoga to Yogi Bhajan, who was a master of Kundalini Yoga by the age of 16. At age 39 he immigrated to the United States from India and gave his first lecture to an empty high school gym on January 5, 1969. He continued to work toward his vision to bring Kundalini Yoga to the youth of the drug culture of the 1960's. "He recognized their experimentation with drugs and altered states of consciousness expressed a deeper desire to experience a holistic, liberating sense of awareness and a longing for family, for connection with themselves and one another" ([www.yogibhajan.org](http://www.yogibhajan.org)). His lectures on Vedic philosophy and the Kundalini Yoga techniques spread rapidly and young people adopted the teachings and the lifestyle for over 40 years around the world ([www.yogibhajan.org](http://www.yogibhajan.org)).

In addition to meditation, the physical practice of Kundalini Yoga involves moving through asanas or postures in formulated sets. In Kundalini Yoga, a set or kriya, can be chosen by an instructor. Each kriya is a set of traditional yogic postures that are designed and combined for a specific purpose. For example, there are kriyas to work specifically on making the spine more flexible or for releasing stress from the adrenal glands and kidneys.

To illustrate, the kriya called the "Stress Set for Adrenals and Kidneys" consist of 12 Yoga asanas (postures) and during each asana, a designated breath is utilized, and at times, a specific mudra (hand gesture) is used (Bhajan, 2003). Sometimes, in the middle of the kriya, a meditation is integrated within this particular kriya. The practitioner is asked to sit in easy pose (legs crossed) on the floor, hands in front of the solar plexis, with left hand facing the body and right hand pressing the left wrist with the base of the palm. All the while, eyes are turned downward while using long deep breathing (a pranayama technique) for 1 to 3 minutes. And at

other times, only pranayama (breath work) is integrated into the kriya. In this same series for example, the third asana (posture) is to simple sit in easy pose and utilize (a pranayama technique) specialized breathing for 1 to 3 minutes. According to Yogi Bhajan (2003; 2006), there are hundreds of kriyas, each designed to deliver specific results.

**The program.** According to Krishna Kaur (2006), the Y.O.G.A. for Youth program is designed:

To provide urban youth with the ancient yogic tools of self-discovery that foster hope, discipline and respect, for oneself and community.

The Y.O.G.A. for Youth curriculum translates ancient scientific yogic tools into a language youth can understand and apply to daily life. Unique programs have been designed to combat a myriad of issues that plague our youth today including stress, anger, depression, anxiety, low self-esteem, poor concentration and obesity.

([www.yogaforyouth.org](http://www.yogaforyouth.org))

The Y.O.G.A. for Youth program:

Is specifically designed to address and correct the fact that historically, communities with the greatest inherent need have limited access to effective, holistic strategies for overcoming systemic and psychological barriers such as unemployment, poor schools, urban decay, poverty, low self-esteem and lack of positive role models. The program responds to this dynamic by bringing violence prevention, and additional healthy coping skills directly to underserved populations-with a focus on inner city youth. (p. iv)

Krishna selected the kriyas for their specific function and formulated a ten-week course for schools. Therefore, the ten-week Kundalini Yoga course that was utilized for the study is as follows in Table 1:

Table 1

*Treatment: Kundalini Yoga Curriculum*

Weeks	Categories	Activities	Length of Time
1 - 3	Pranayam	Sitali Pranayam	3 – 7 minutes
	Kriyas	Sun Salutation Warm Up	5 minutes
		Awakening Yourself to Your Ten Bodies	30 minutes
	Meditation	Kirtan Kriya (Sa Ta Na Ma)	3 – 7 minutes
4 – 5	Pranayam	Segmented Breath (8:4:8:4)	3 – 7 minutes
	Kriyas	Sun Salutation Warm Up	5 minutes
		Kriya for Elevation	31 minutes
	Meditation	7 wave Sat Nam	3 - 7 minutes
6 – 7	Pranayam	Alternate Nostril Breathing	3 – 7 minutes
	Kriyas	Sun Salutation Warm Up	5 minutes
		Abdominal Strengthening	31 minutes
	Meditation	Calm Heart	3 – 7 minutes
8 – 10	Pranayam	Extended Breath of Fire Ego Eradicator	3 – 7 minutes
	Kriyas	Sun Salutation Warm Up	5 minutes
		Magnetic Field and Heart Center	31 minutes
	Meditation	Ra Ma Da Sa - Sa Se So Hung	3 – 7 minutes

The curriculum was designed specifically for the study to ensure consistency and maximize external validity by standardizing the experience for each school. Instructors at each school were instructed to follow the same pattern. However, the yoga teacher had discretionary authority to customize the timings and activities to suit the needs of the class.

As stated earlier, kriyas can be selected for their specific purpose. In order to create the most profound effects during the ten-week program measuring stress, emotional affect, and resilience, Krishna formulated the series with three weeks to each set. To illustrate the effects and rationale for choosing the exercises, in weeks 1 through 3, the pranayama (breathing exercise) was the Sitali Pranayam. This breathing exercise is done by sitting in easy pose (legs crossed) on the floor mat with hands comfortably placed on the knees, hands in Gyan mudra

(thumb and index finger touching) while inhaling deeply through the rolled tongue and exhaling through the nose. This pranayama is said to have a cooling, regulating, and detoxifying effect on the entire system while creating strength and vitality (Bhajan, 2003; Iyengar, 1979; Khalsa, 2006; Kaur, 2006).

Following the pranayama, students were directed through Sun Salutations, a kriya that can serve as an effective overall warm up exercise. The effectiveness of this kriya as a warm up is that in a few repetitions, the whole body is warmed and prepared for more in depth yoga practice. Surya Namaskara or Sun Salutations are a series of 11 postures conducted while moving fluidly from one posture, or asana, to the next and with each transition, the breath is either at an inhale or an exhale, the eyes are at a certain angle, and the hands also are engaged in specific mudra (hand posture). This way, many yogic elements are at work. It begins in Samasthiti (standing straight), moving to arms stretching up, then Uttanasana (bending forward), continuing with straightening the back while keeping fingertips or palms of the hands on the floor, moving into a Chaturanga Dandasana (push up) position, then bending lower back up while the lower body and legs remain touching the mat to Bhujangasana (cobra), then up to Adho Mukha Svanasana (triangle), finishing off with the three postures at the start in reverse, Uttanasana (forward bend), arms reaching and stretching up, and ending with standing position, all the while the breath is synchronized to the flow of the postures. As difficult as it may be to envision, the purpose of this illustration is to provide an understanding that many muscle groups are being exercised at the same time in this kriya, serving as an effective warm up for the overall body. According to Bhajan (2003) this series is valuable as an exercise on its own since “It increases cardiac activity and circulation, stretches and bends the spine, massages the inner



organs, aids the digestive system, exercises the lungs, and oxygenates the blood” (p. 336).

Following the warm up, the next kriya that was introduced to the students was the Awakening Your Ten Bodies. This set consists of 15 asanas (postures). As with all yoga exercises, it incorporates breathing throughout the kriya ending with Savasana (deep relaxation), a vital component of the yoga series. Deep relaxation is the time to allow the mind, body, and spirit to integrate the effects of the release of the tension created through the series. The rationale to begin the ten-week program with this kriya was to “awaken” the students to all the aspects of themselves, creating an immediate mind, body, spirit connection that would in establish a strong foundation for the rest of the program.

A unique aspect to this specific kriya is that after the postures, a meditation called Laya Yoga Meditation is incorporated to complete the integration of the aspects of the self. This meditation involves sitting on the mat in easy pose, arms extended comfortably resting on the knees, hands in Gyan mudra (thumb and index finger touching) while utilizing a chant that stimulates the energy in a spiral from the base of the spine up to the top of the head (Bhajan, 2003; Kaur, 2006; Khalsa, 1997).

Finally, the last part of the Kundalini Yoga class before the conclusion is the meditation. In weeks 1 through 3, Kirtan Kriya was utilized for the meditation component of the class. This meditation is believed to bring “mental balance to the individual psyche” (Bhajan, 2003, p. 425). Sitting in easy pose, eyes closed focused inward on the middle of the brow, with a straight spine while wrists are resting comfortably on the knees, each finger is gently pressed against the thumb while chanting Sa Ta Na Ma. So that, Sa=Gyan mudra (index touching the thumb); Ta=Shuni mudra (middle finger touching the thumb); Na=Surya mudra (ring finger touching the thumb);

and Ma=Buddhi mudra (pinky touching the thumb) in rhythm with the chanting. The mantra or chant, along with the mudras, is said to create a powerful circuitry that represents the cycle of each component of our self from a finite cellular to a greater infinite cosmic level. Table 2 highlights the mudra and mantra utilized in Kirtan Kriya.

Table 2

*Mudra and Mantra (Hand Gestures and Chanting)*

Mudra	Planet	Meaning	Mantra	Meaning
Gyan	Jupiter	Knowledge	Sa	Infinity, Cosmos, Beginning
Shuni	Saturn	Wisdom, Intelligence, Patience	Ta	Life, Existence
Surya	Sun	Vitality, Energy, Life	Na	Death, Change, Transformation
Buddhi	Mercury	Ability to Communicate	Ma	Rebirth

According to Bhajan (2003), each mudra represents the totality and cycle of life. The purpose of using this particular meditation in the first three weeks was to integrate and connect all aspects of the self in the most finite and infinite manner. In this way, everything from the largest glands and organs to the most subtle energetic aspects of the self could be integrated into one, a union, that is yoga.

The class follows a general format set forth by Bhajan (2003) and modified for adolescents by Y.O.G.A. for Youth (YFY). All Kundalini Yoga classes begin with the teachers chanting the “Adi” mantra to bring everyone on the same page and signal the beginning of the class. For the purposes of the YFY courses with adolescents, a theme may be introduced at the beginning of each class to allow time for brief sharing, such as the power of action, speech,

attitude, understanding, mindfulness, and concentration. This may be followed by a yoga game that is designed to introduce a yogic concept. For example, in the Connection Game, students are sitting in a circle with eyes closed and objects are passed around until everyone has felt the objects. Then, the students have the opportunity to name the objects and share how it felt to “see” with their eyes closed. This game is played to teach students about non-visual awareness, teamwork, and trust. Although it is not mandatory that the games are played during each class session, they are available for the yoga teacher to utilize, depending on the needs of the class.

The formula for the class structure that is fixed includes the tune-in, postures and movement (kriyas), deep relaxation, breathing practice (pranayam), meditation, and closing song. It is possible that the sequence may differ from class to class, but the components are fixed. The general sequence of a Kundalini Yoga class is as follows:

**Beginning class.** The class begins with a tune-in using a mantra. *Man* = mind and *Trang* = wave. Chanting creates a sound current. And since sound is a form of energy, it can influence the mind and the physical body (Bhajan, 2003). *Adi* mantra, for example, begins a Kundalini Yoga class. The words *Ong Namō Guru Dev Namō* are chanted. The translation is, “I bow to the totality of all things that exist and to the wisdom within my own consciousness” (Khalsa, 2006). In Kundalini Yoga, mantra is generally used during the meditation component of the class.

**Breathing or pranayam.** Control of *Prana* = life force and *Ayam* = expansion. In yoga philosophy, it is understood that the breath is life force. The practice of pranayama is the expansion of the life force within the practitioner. Therefore, breathing exercises are an integral component of Kundalini Yoga (Bhajan, 2003). For example, *Sitali Pranayam* is a cooling

breath. When practiced, the physical body is cooled and balanced. This breath-work requires the practitioner to inhale through an open mouth with tongue rolled, and exhale through the nose (Khalsa, 2006).

**Physical postures or kriya.** *Kriya* = action. A kriya in Kundalini Yoga is a set of or sequence of postures, breath, and sound that are integrated to produce a specific state (Bhajan, 2003). For example, *Sun Salutation* is a sequence of postures and breathing performed by the practitioner. The whole of the sequence is called a *kriya*.

As stated earlier, in the first three weeks of the Kundalini Yoga classes, participants started the class with a cooling pranayam. They sat on their yoga mats with legs crossed, a posture commonly known as *easy pose*, and inhaled through their rolled tongue, and exhaled through their nose for about 3 minutes, sometimes longer, depending on the class and the teacher's discretion. Then, *Sun Salutations* were conducted to warm up the body. These are a series of postures that start with the practitioner standing, then bending down from the waist, then down to a push up position, flow to a *cobra* (head and shoulders up while the rest of the body horizontally resting on the mat), then to *triangle* or *downward dog* pose (hands and feet on mat creating a triangle) and then to standing again. This is repeated several times. Then another *kriya* is practiced. The *kriyas* take up the bulk of the class time.

**Meditation.** The class culminates with a 3 to 7 minute meditation. Meditations generally utilize a mudra, or hand and finger placement, with specific eye focus, sitting in a specific pose and consciously breathing or chanting.

**End of class.** The class ends with "Longtime Sun" song. "May the longtime sun shine upon you; All love surround you; And the pure light within you; Guide your way on." This

provides closure for the group experience for the session and signals to the practitioners that class is over for the day.

### **Method**

The 10-week Kundalini Yoga program was administered in three urban schools and was evaluated to examine the effects of yoga on adolescent stress, emotional affect, and resilience. This study involved a mixed-method approach (Gay, Mills, & Airasian, 2009), utilizing quantitative data from Los Angeles public and charter schools: one Elementary and two Middle schools. Questionnaires were used to measure stress, affect, and resilience before and after the students experienced the Kundalini Yoga curriculum. A qualitative component was utilized to inform the overall well-being of the students in addition to the perception of the program from students and teachers.

### **Participants**

**Students.** The total number of participants from the three urban schools included 56 students (male = 15; female = 41). However only 30 completed both the pre and post surveys. The student participants were from low socioeconomic neighborhoods in Los Angeles urban areas.

***Middle School A.*** Middle School A, located in the Mid-Wilshire district of Los Angeles, consisted of Latino female participants from grades five through eight. The percentage make up of the grades is as follows: Grade 5 = 54%; Grade 6 = 15%; Grade 7 = 0%; and Grade 8 = 31%.

***Elementary School B.*** Elementary School B, located in South Los Angeles, consisted of one class of female students in grades four and five. The percentage make up of the grades is as

follows: Grade 4 = 78%; Grade 5 = 22%. Twenty-eight percent of the class were Latino and 72% African American.

***Middle School C.*** Middle School C, located in South Los Angeles, consisted of two classes: One class of 10 female students in grade six and one class of 15 male students in grade seven. The sample consisted of 44% Latino and 56% African American participants.

**School teachers.** Three classroom teachers from Middle School C participated in the informal interviews. All three teachers (one male and two female) taught grades six and seven.

**Yoga teachers.** Three Kundalini Yoga certified teacher (one per school) taught the classes for this study. Each teacher was also specifically certified through Y.O.G.A. For Youth's certification workshops for those interested in teaching yoga to school-age students and incarcerated adolescents. The YFY workshop is a three-day course that consists of practicing Kundalini Yoga, creating a lesson for children and adolescents and teaching to the rest of the teachers. Since the yoga teachers do not necessarily have experience teaching in schools, engaging in role-play is a dominant part of the workshop, whereby fellow participants are given prompts to create challenging situations that may occur in any given classroom while teaching to school-age students. The prompts often include disruptive behavior in the class such as students refusing to participate in the yoga practice. In addition to role-play, a workbook with age-appropriate mantras, kriyas, and pranayama is utilized and distributed as a resource for the yoga teachers.

From these workshops, YFY certified yoga teachers were invited to participate in the study. Those who were interested in participating attended an orientation program where the objective and purpose of the research study was defined and procedures explained. Out of those

who attended, three teachers, two female and one male, were selected to teach the yoga classes based on convenience in scheduling, availability, and experience. Due to scheduling conflicts, two of the three yoga teachers who participated in the program were interviewed.

### **Procedures**

Authorizations from the school principal and parents were obtained to implement and evaluate the yoga program for ten weeks beginning October 5, 2010 through January 20, 2011. The authorization forms were created by YFY, distributed by the principal investigator, and collected from the students by the school site administrator assigned to oversee the program. Since not all schools were able to start at the same time due to administrative purposes, some of the starting dates were staggered. Middle School A started on October 5, 2010, Elementary School B on October 7, 2010, and Middle School C on October 19, 2010. The 10-week program was taught during the participants' regularly scheduled 50-minute physical education class, or after school, two times per week. Male and female participants had separate classes to ensure comfort, openness, and concentration.

**Recruitment.** A convenience sample was utilized, such that pre-existing relationships became the source for recruiting schools for the yoga program and study. Of five schools contacted, three opted to participate in the yoga program and study. The recruitment of participants was left to the school. The school site administrator made the arrangements for the class participants, location, and schedule. Since the class was gender specific, due to budget constraints, Middle School A chose to offer an after-school class to female students only. The class was open to the female population in grades five through eight. Teachers in this particular school were encouraged by the school administrator to recommend students whom they felt

would specifically benefit from the yoga classes. Since it was an afterschool program, students had the choice whether to participate. Therefore, the class was not mandatory for these students.

Elementary School B also opted for one yoga class, due to budgetary constraints. They offered the class to female volunteers from grades four and five during an after-school program. And Middle School C opted to have both a male and female class during a regularly scheduled physical education class. For scheduling convenience and due to yoga teacher availability, one female class followed by one male class was designated by the school administrator. The female class participants were in grade six while the male participants were in grade seven. In all three schools, only students who had parental consents participated in the course and study (see Appendix D).

**Data collection.** A packet of questionnaires including the three measures, Perceived Stress Scale, PANAS-C, and Resilience Scale, (see Appendices A, B, and C) were distributed to all the participants on the first and last day of the Kundalini Yoga program. During the first class, the purpose of the study was explained to the participants and directions on completing the questionnaires were explained and distributed. Participants were given as much time as required to complete the questionnaires. During the last class, participants were reminded of the purpose of the study and the directions for the questionnaires were restated and administered in the same manner. The principal investigator promptly addressed any questions about items on the surveys throughout the duration of the class. Depending on the age group, the amount of time completing the surveys lasted from 15 to 25 minutes (see Appendix E).

Interviews with the two of the three yoga teachers, three classroom teachers, and 10 randomly selected students were conducted on the last day of the class. Students were asked to



volunteer and were then randomly selected from the group of volunteers to speak with the research coordinator about their yoga class experience. While taking notes, the principal investigator recorded the interviews. Each interview was five to 15 minutes in duration.

## **Measures**

Surveys in the form of questionnaires and inventories were utilized to measure the participants' perceived stress, emotional states, and resilience, before the start of the Kundalini Yoga program and after. Informal interviews were conducted to gain an understanding of the students' and teachers' overall impression of the yoga program along with a sense of their overall well-being. The following discourse will illustrate a brief background and definition for each measure.

**Background and definition.** The head of the research team for Y.O.G.A. for Youth, Dr. Sat Bir Singh Khalsa, himself a practitioner of Kundalini Yoga for 35 years, identified the three measures that were tested for the study. His extensive background in research on the effects of yoga and meditation on physical and psychological health has earned him directorships with the Kundalini Research Institute and the Kripalu Center for Yoga and Health. He is currently an Assistant Professor of Medicine at Harvard Medical School at Brigham and Women's Hospital and teaches elective courses in Mind-Body Medicine at the Harvard Medical School. Dr. Khalsa's clinical research evaluates the effects of yoga for addiction, back pain, insomnia, depression, music performance anxiety, and posttraumatic stress disorder. He has been conducting research with Kripalu on yoga's effect on chronic stress and mental health, and continues promoting yoga therapy through his work with the International Association of Yoga Therapists ([www.yogaforthemind.com](http://www.yogaforthemind.com)).

Due to his background and expertise, Dr. Khalsa selected the questionnaires for the Y.O.G.A. for Youth program to measure stress, emotional affect, and resilience. The purpose for these measures was to determine whether Kundalini Yoga could be a possible method for decreasing stress, regulating emotion, and increasing a sense of internal locus of control through building of resilience. The following three scales were utilized to measure the effect of the Kundalini Yoga program on the dependent variables (Perceived Stress, Emotional Affect, and Resilience) for the study. The three questionnaires that were chosen for this study were as follows:

***Perceived stress.*** One of the instruments used was the Perceived Stress Scale (PSS).

Stress is defined by the authors of the scale as:

Three broad traditions of assessing the role of stress in disease risk can be distinguished. The environmental tradition focuses on assessment of environmental events or experiences that are normatively (*objectively*) associated with substantial adaptive demands. The psychological tradition focuses on individuals' *subjective* evaluations of their abilities to cope with the demands posed by specific events or experiences. Finally, the biological tradition focuses on activation of specific physiological systems that have been repeatedly shown to be modulated by both psychologically and physically demanding conditions. (Cohen, Kessler, & Gordon, 1997, pp. 3-4)

The PSS, with a Cronbach's alpha of .68, is a 10-item questionnaire with a 5-point Likert scale of 0 (Never) to 4 (Very Often). Sample questions for perceived stress include, (a) In the last month, how often have you felt nervous and "stressed"? (b) In the last month, how often have you felt that things were going your way? (c) In the last month, how often have you been able to control irritations in your life? The authors contend that stress is a perception of how an individual is able to cope with a given experience in relation to his or her environment such that:

When confronting environmental demands, people evaluate whether sufficient adaptive capacities are available to cope with them. If they find the environment demands taxing

or threatening, and at the same time view their coping resources as inadequate, they perceive themselves as under stress. (Cohen, Kessler, and Gordon, 1997, p. 10)

**Emotional Affect.** A second measure used in the study was the Positive Affect and Negative Affect Schedule – Child Form (PANAS-C). PANAS-C, with a Cronbach’s alpha of .83 for Positive Affect and .90 for Negative Affect, is a 30-item inventory of 15 positive (e.g., excited, cheerful, proud, calm) and 15 negative affects (e.g., afraid, nervous, sad, upset). These affects were measured on a 5-point Likert scale of 1 (Very slightly or not at all) to 5 (Extremely).

The 30-item PANAS-C, a derivative of Watson and Clark’s original PANAS and PANAS-X, was developed using 707 students in grades four through eight in a self-reported inventory to measure internalized emotions (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999).

**Resilience.** The third instrument used in the study was the Resilience Scale (RS). The RS, with a Cronbach’s alpha of .92, is a 25-item survey with a 7-point Likert scale of 1 (Disagree) to 7 (Agree). Some sample questions include (a) When I make plans I follow through with them. (b) I am friends with myself. (c) It’s okay if there are people who don’t like me. For this scale, higher scores reflect greater resilience that measures the degree of individual resilience, defined by the authors as:

Resilient people respond to life’s challenges with courage and emotional stamina, even when they are afraid. Downturns become challenges to face head-on and overcome. Even though we have no control over many events in our life – accidents, natural disasters, illness, the economy, etc. – we can control how we *respond* to these events, and we can choose to do so with resilience. (Wagnild, 2010, p. 1)

**Interviews.** Informal interviews were conducted with two yoga teachers and three classroom teachers. The yoga teachers were asked (a) Describe what did and did not work in terms of curriculum, class size, age groups, gender, and location (b) What differences if any, did

you perceive in the students, and (c) How would you improve on the administrative and procedural areas. The classroom teachers were asked (a) What differences if any, did you perceive in the students before and after the yoga program?

In addition, 10 randomly selected students from the sample were selected for the informal interviews (Hatch, 2002; Maxwell, 2005). Sample interview items include, (a) Tell me about your experience of the yoga class (b) What was your expectation of the yoga class before you started? (c) What is your understanding now? (d) If at all, how has the yoga affected your personal and academic life? From these open-ended questions, probing questions were conducted depending upon the participant’s response.

**Data cleaning.** Once the coding and data entry for the PSS, PANAS-C, and RS was completed some items needed to be reversed in order to obtain valid results. For example, to obtain an accurate score for the PSS, four of the 10 items were reversed in accordance with the directions made by the authors of the scales (Cohen, Kessler, & Gordon, 1997). Six of the 10 items were negatively stated while 4 were positively stated and therefore were reversed to indicate stress. Table 3 displays the positively stated reversed items for the PSS.

Table 3

*Perceived Stress Scale Reversed Items*

Item Number	PSS Statement
4	In the last month, how often have you felt confident about your ability to handle your personal problems?
5	In the last month, how often have you felt that things were going your way?
7	In the last month, how often have you been able to control irritations in your life?
8	In the last month, how often have you felt that you were on top of things?

For the PANAS-C, a composite sum was calculated for each of the positive and negative affects. Although the participants responded to thirty items, a composite sum for 12 positive affect items, and 15 negative affect items were calculated in accordance with the authors' guidelines (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999). See Table 4 for the list of positive and negative affect items.

Table 4

*PANAS-C Scored Items*

Positive Affect				Negative Affect				
Interested	Strong	Cheerful	Joyful	Sad	Upset	Scared	Miserable	Disgusted
Excited	Energetic	Active	Delighted	Frightened	Nervous	Jittery	Afraid	Blue
Happy	Calm	Proud	Lively	Ashamed	Guilty	Lonely	Mad	Gloomy

For the final scale, since all of the 25 RS items were positively worded and reflect verbatim statements, they did not require item reversal. Therefore, a composite sum was calculated for all 25 items of this scale.

**Analytical Plan**

Both qualitative and quantitative data were collected to address the two purposes of this study: (a) To examine the effectiveness of Kundalini Yoga program for overall effectiveness and well-being and (b) To examine the effectiveness of the program on adolescent stress, emotional affect, and resilience within an urban elementary and two middle school settings. The qualitative data examined the translation of the effects of the yoga class in the participants' personal overall well-being.

For the quantitative component of the study, the data were collected and inputted into an SPSS document and cleaned. The PANAS-C was separated into positive and negative affect,

and analysis was conducted for each. A pre and post composite was created for each of the four measures (RS, PSS, PANAS-C Positive, and PANAS-C Negative) and analyzed with a paired samples t-test to evaluate changes over time.

## CHAPTER 4

### RESULTS

Yoga aims to offer effective tools that contribute to leveling the playing field for the underserved populations in urban school systems, particularly for students who live with low-income and below poverty conditions. Programming in schools that incorporate a holistic approach like yoga, are essential in providing tools that allow for adolescents to manage and alleviate stressors in life, so that they are better able to cope emotionally, mentally, and physically, with the demands of their social, familial, and academic arenas. For the purposes of this study, Y.O.G.A. for Youth, a Kundalini Yoga program for adolescents in urban city schools and juvenile facilities, was chosen because of its holistic approach to yoga practice. In each class, kriyas and asanas (physical postures), pranayama (breath work), and meditation are practiced to “yoke” or unite all facets of the self (body, mind, and spirit) in order to achieve self-actualized states of well-being, building spiritual capital, for an overall sense of purpose and meaning in all facets of life while empowering the self through internalization of locus of control through alleviation of stress, regulation of emotions, and increased resilience. It is with this premise that the study was conducted in urban city public schools with low SES populations. The effects of Kundalini Yoga on stress, emotional affect, and resilience are presented in this chapter with the results of a mixed-method approach.

Qualitative findings examine the overall effectiveness of the yoga program on personal well-being while quantitative findings analyze the extent to which the program was effective in decreasing stress, regulating emotion, and increasing resilience.

## Demographics

The study was conducted at three urban school sites in Los Angeles, California. While all three schools were publicly funded, two of the school sites were charter schools. The students age ranged from grades four through eight. The total number of participants from the three schools included 56 students (male  $N = 15$ ; female  $N = 41$ ). The student participants' ethnicities were Latino and African American from low socioeconomic neighborhoods in the Los Angeles urban areas. Of the 56 participants, 30 completed the pre and post measures ( $N = 30$ ).

**Middle School A.** Middle School A, located in the Mid-Wilshire district of Los Angeles, consisted of Latino female participants from grades five (54%), six (15%), and eight (31%). Out of the 56 total participants from all three schools, 13 (23%) from this school participated in the Kundalini Yoga program. However, of the 13 who participated, six (11%) completed both the pre and post measures, and of those 67% were from grade five and 33% from grade eight. Table 5 displays the demographics of Middle School A.

Table 5

### *Middle School A Participant Demographics*

Gender	Grades	Ethnicity	Participants	Actual Number ( $N = 6$ )
Female	5, 6, 8	Latino	13	6

**Elementary School B.** Elementary School B, located in South Los Angeles, consisted of one class of female students in grades four (78%) and five (22%), with a total of 18 (32%) female students who participated in the Kundalini Yoga program. Of the 18 who participated, 10 (33%) completed both the pre and post measures, and of those 80% were from grade four and



20% from grade five. The ethnic make up of the class consisted of 28% Latino and 72% African American students. Table 6 displays the demographics of Elementary School B.

Table 6

*Elementary School B Participant Demographics*

Gender	Grades	Ethnicity	Participants	Actual Number ( <i>N</i> = 10)
Female	4, 5	Latino, African American	18	10

**Middle School C.** Middle School C, located in South Los Angeles, consisted of two classes: One class of 10 (40%) female students in grade six and one class of 15 (60%) male students in grade seven. Out of the 56 total participants from all three schools, 25 (45%) from this school participated in the Kundalini Yoga program. Of the 25 who participated, 14 (56%) completed both the pre and post measures, and of those 64% were female from grade six and 36% male from grade seven. The ethnic totals for this school consisted of 44% Latino and 56% African American participants. Table 7 displays the demographics of Middle School C.

Table 7

*Middle School C Participant Demographics*

Gender	Grades	Ethnicity	Participants	Actual Number ( <i>N</i> = 14)
Female	6	Latino, African American	10	9
Male	7		15	5

In order to maximize the benefits of the treatment that included a standardized curriculum, participants from all three schools were combined for the analysis. None of the schools significantly deferred at the pre-survey on any of the dependent variables allowing the

data to re-examine across all schools in the aggregate. Thirty (54%) participants completed the pre and post measures with 83% female and 17% male; 50% Latino and 50% African American. The breakdown of the age range in actual numbers and percentages are presented below (see Table 8). While only five boys were included in the sample, scores did not differ by gender at the pre-survey. Scores also did not differ by individual school.

Table 8

*Actual Participant Grade Range, Numbers, and Percentages*

Grade	Number of Students ( $N = 30$ )	Percentage
4	8	27%
5	6	20%
6	9	30%
7	5	17%
8	2	6%

**Findings**

**Qualitative.** For the qualitative component of the study, five to 15 minute informal interviews were conducted with 10 randomly selected students from the sample of students ( $N = 30$ ) who participated in the project. In addition, two of the three yoga teachers, and three classroom teachers (one male and two female) were interviewed to explore possibilities of the program’s overall effectiveness. The analytical coding for the students focused on overall well-being, application of the Kundalini Yoga outside of the yoga class, and general understanding and affinity toward yoga. The classroom teachers were coded for general impression regarding changes in the students they may have observed in the classroom that could possibly be

attributed to the 10-week yoga practice. With the yoga teachers, analysis was coded for overall impressions of the course, the effectiveness of the curriculum, students' attitudes toward the yoga practice, and changes, if any, they may have observed in the participants' emotional and physical well-being.

***Students.*** The overall impressions of the students interviewed were positive regarding the Kundalini Yoga program. Overall, the students interviewed had positive impressions of the Kundalini Yoga program. When asked to respond to the statement "Tell me about your experience of the yoga class," students generally discussed specific techniques that they had learned and utilized from the yoga class. For example, one seventh grade male participant stated, "It was cool. I really enjoyed lotus pose, baby pose, and tree pose." Another student, a grade six female participant expressed, "It's awesome. The postures that I really enjoyed in yoga were the bow, tree, and one of the exercises (kriya) because it gets your body pumping." While other students simply felt that yoga was fun. One male student stated that, "Yoga is challenging but fun."

*Kundalini Yoga's effect on stress, emotional affect, and resilience.* Other students expressed their daily utilization of breathing and meditation techniques as aiding them in various situations from classroom behavior, positive attitudes toward friends, to emotional regulation, to resilience, expressed in terms of greater self-control and calming effects, which resulted in less stress. For example, one male student expressed his ability to control his reaction to his classmates which had shifted due to the yoga practice. He stated that, "I am more tolerant and controlled." This may be an indication that he was able to regulate his emotions and prolong his reaction time long enough to think through his response. This may also be an indication of his

increased resilience to withstanding pressures from his classmates. He added, “In the mornings, I don’t get irritated any more, I am more tolerant of my sister.” One female in grade eight expressed a similar experience. She was able to specifically attribute the various breathing techniques as helpful in situations when her temper would normally get the best of her. She stated, “Yoga has helped with my mood changes, I can control my moods more. Now I know my emotions and I can tell people. Before I wouldn’t communicate, I would just take it out on people.” She defined her shift in behavior as positive shift in the ability to regulate her emotions since she no longer had to feel bad or guilty after uncontrolled outbursts with her friends and family. Her ability to regulate her emotions and the increased resilience in her ability to withstand the pressures she experienced in school or at home was attributed to her yoga practice.

*Overall well-being.* With regards to participants’ overall well-being and application of the Kundalini Yoga techniques outside the yoga class, varied responses from students generated similar themes. For instance, focus and concentration, calming, anger and frustration management, and impulse control were reported as commonalities. Interestingly the yoga techniques utilized by the participants to arrive at the common results varied. For example, a few students, both male and female, reported using breathing techniques. Some used long deep breathing, while others used breath of fire to help calm their nervousness before exams. Other students used meditation as a technique to acquire a desired outcome for shifting an emotion or gaining greater self-control. Some students attributed utilizing the yoga skills in decreasing their level of stress leading to academic success. Some stated, “I get better grades on tests,” “I was nervous but I became calm and confident and got an A,” “I pay better attention, I stopped talking, and in all classes I get better grades.”

Another female student recalled how her anger and reaction to situations with her mother or her friends significantly shifted since she started the yoga program. She acknowledged that although she was still “stressed,” her ability to regulate her anger, frustration, and “forget the issue” that prompted her emotions resulted from the yoga practice and utilizing the techniques she had learned from the yoga program. Similarly, one male student articulated that the overall yoga program helped him to remain calm and controlled during his academic classes. He stated, “In class, I used to get anxious, talk out, and blurt out answers. Now I’m calm. I used to get into arguments with classmates. Now I reason with them.”

In addition to utilizing the yoga techniques in the school setting, some students reported that the practice affected aspects of their personal life outside of school. For example, one male student reported that he was more tolerant of his younger sister and less disrespectful toward his mother. He contended that although he still got “out of hand,” he was able to stop before he “got too far.” Adding, “I take three deep breaths and calm down.”

Similarly, a female student expressed that her anger became more regulated since the yoga program. “I used to get mad for everything. My dad would ask me to translate something and I would get mad at him. Now I don’t get mad.” She continued, “Yoga is a way to calm people down and not get stressed out. Now my dad wants me to teach my four year old brother.” Likewise, another female student reported that her mother and friends often asked her to teach them yoga techniques. These are examples and indicators of yoga’s potential to influencing factors of overall well-being that may lead to personal, social, and academic success.

***Classroom Teachers.*** Overall, all three teachers had a positive impression of the yoga program. When asked whether they observed changes or differences in the students that they

attributed to the yoga program, their responses were varied and positive ranging from focus and concentration to changes in attitude towards other students. In addition, their responses reflected similarities to student reports. For example, one female classroom teacher stated:

Before yoga, most of the students on this list couldn't concentrate. They couldn't focus on the task. Couldn't sit still. And now after, I do see a difference. They're able to focus. They spend a longer time sitting at their desk able to work independently. They are more positive towards each other. There's less fighting, arguing, and shouting out. Their favorite words are "shut up stupid," so I see less of that. They're more supportive of each other. I do hear the kids. They get excited about it. Always after lunch they always run and talk about yoga. So it's good - a benefit.

Another female classroom teacher articulated the following:

I see less distracted behavior and I see less of the cattiness that I see with the girls with this particular group. I can definitely see a change in them from the beginning of the year. Some of the boys seem to have matured and seem able to take some deep breaths and walk away from a situation instead of reacting right away. There's a couple whose grades have actually improved. I love yoga and I think it's fantastic that our kids are exposed to it and have it. And I didn't hear anything but praise about it. And they were sorry that it ended. I think it's been a great experience for our students.

Finally, a male teacher gave his overall impression with these words:

Most of the students look forward to the yoga as a change of pace so to speak. They came out of the class more calm, more control of their actions than their desires to burst out. I saw change in certain students who were very hyperactive. It would give them a chance to kind of breathe, slow down for a while, and someone giving them instructions on how to move their body and be in control for a while so I think it was very positive.

***Yoga Teachers.*** The yoga teachers interviewed expressed observations about class logistics along with effectiveness of the program with regards to curriculum and structure. When asked, "Describe what did and did not work in terms of curriculum, class size, age groups, and location," the teachers responses were generally positive with the overall structure, curriculum, outcomes, and effectiveness of the program. In some areas however, improvements were suggested. For example, both yoga teachers interviewed expressed the necessity and importance of using their discretion to deviate from the curriculum in order to accommodate the students'

needs and frame of mind on a given day. One female teacher, as part of her class structure, incorporated games with the class to ascertain whether they had learned the yoga techniques. For instance, she had students volunteer to demonstrate postures and breathing techniques. In addition, she would create challenges for the students to overcome by adding to their meditation time, or holding the posture for longer durations each time they met. Similarly, the male yoga teacher expressed that creating competitive games with the students helped keep them interested. His particular challenge however, was the wide age and ability range of grade five through eight in the single class. A more homogenous class grouping would have been more effective according to this yoga teacher.

With regards to observing the students' improvement, both teachers expressed "growth," "development," and "maturity" in the students. The male teacher observed resilience in students increasing and building over time due to their increased "attention span," as their evidence by their ability to "maintain silence," and "focus" during the meditation component. He also observed that students were able to hold postures for longer periods of time with "complete focus and breath work."

The female teacher observed a marked difference in a few students specifically. In the first week of class, one student for example "couldn't sit still" nor keep from "distracting other students." This particular student's ability to focus was a great challenge to the point that she would "disrupt the other girls who were sitting in her proximity." By the end of the program, this particular student, according to the yoga teacher, was able to "maintain all the postures, sit still in meditation, participate with focused attention, and encouraged other students to do so as well."

**Quantitative.** For the quantitative component of the study, a paired-samples t-test was conducted to ascertain whether there were any significant changes, in the students' stress, emotional affect, and resilience levels after the Kundalini Yoga program intervention. Overall, the results indicated a trend toward significant differences in the measures. The following section presents the quantitative results for each measure (see Table 9).

Table 9

*Mean Scores of Main Effect for Time (N = 30)*

Dependent Variables	Pre <i>M</i>	<i>SD</i>	Post <i>M</i>	<i>SD</i>	<i>t</i>
Stress	17.33	7.19	14.37	7.03	2.38*
Positive Affect	45.23	11.39	49.27	8.20	2.62*
Negative Affect	29.33	11.97	30.80	11.15	.75
Resilience	122.30	25.01	135.80	26.24	3.58**

\* $p < .05$ , \*\* $p < .001$

**Perceived Stress.** There was a significant difference from pre to post Kundalini Yoga program, such that students significantly decreased in perceived stress [ $t(29) = 2.38; p < .05$ ]. In other words, on a 40-point scale with higher scores indicating greater stress, all students scored higher before the yoga program on the perceived stress measure ( $M = 17.33, SD = 7.19$ ) but significantly decreased after the program ( $M = 14.37, SD = 7.03$ ).

**Positive Affect.** The scores on the PANAS-C could range from 10 to 50 on both the positive affect and negative affect scale, where the higher the score, the higher the experienced affect. Positive affect significantly increased from before to after the Kundalini Yoga program [ $t(29) = 2.62; p < .05$ ]. In other words, all students scored lower before the program on positive affect ( $M = 45.23, SD = 11.39$ ) but significantly increased after the program ( $M = 49.27, SD =$



8.20).

**Negative Affect.** There was not a significant difference from pre to post Kundalini Yoga program for negative affect [ $t(29) = .75; p = \text{NS}$ ]. In other words, all students scored lower before the Kundalini Yoga program on negative affect ( $M = 29.33, SD = 11.97$ ) and only slightly increased after the program ( $M = 30.8, SD = 11.15$ ). Interestingly, little change was noted in negative affect.

**Resilience.** The possible score range on this scale was from 25 to 175, with higher scores reflecting higher resilience. There was a significant main effect for time, such that all students increased in resilience [ $t(29) = 3.58; p < .001$ ]. All students scored in the middle range before the Kundalini Yoga program on the resilience measure ( $M = 122.30, SD = 25.01$ ), but significantly increased after the program ( $M = 135.80, SD = 26.23$ ).

### **Conclusion**

In this chapter, qualitative and quantitative findings were presented from 30 students, three classroom teachers, and two yoga teachers to determine to what extent Kundalini Yoga practice in urban schools affects adolescent perceived stress, positive and negative affect, and resilience. The findings indicated a significant reduction in stress and significant increase in positive affect and resilience. In addition, qualitative findings provided a better understanding of the overall effectiveness of the Kundalini Yoga program in schools with regards to well-being, emotional regulation, resilience, focus and concentration, and overall effectiveness. In the following chapter, the implications of the findings are discussed to determine whether yoga programming in schools has the potential for a positive and purposeful affect on student populations in general and specifically, low SES urban schools. In addition, in Chapter 5,

recommendations and future research are discussed in the next chapter.

## CHAPTER 5

### ANALYSIS

To address the primary purpose of the study, the overall effectiveness and quality of the Kundalini Yoga program as designed by YFY, was found to be effective in learning and applying the yoga techniques, general attitude and respect toward the practice, and overall student well-being. Students expressed feeling calm, less stressed, and having better attitudes in school and at home. School teachers expressed better focus and concentration and better classroom behavior. Students found the program to be fun and wanted yoga to continue at their school. Yoga teachers noted the benefits of the standardized curriculum but emphasized their preference for flexibility in delivery and teaching decisions.

To address the second research question measuring the effects of the Kundalini Yoga program on adolescent stress, emotional affect, and resilience, the quantitative data indicated that the yoga program was successful in reducing stress, increasing positive affect, and increasing resilience. Although negative emotional affect did not significantly change, the implications of the outcome specific to this measure are further discussed in this chapter.

#### **Findings and Implications**

**Stress.** The results of this study indicated that the YFY program was successful in reducing stress. It has been argued that early onset of stressors in life, especially ongoing stress, has cumulative effects that can, in turn, have detrimental psychological and physical effects on adolescent development (Price, 2008; van der Kolk, 1994; 2005). Therefore, yoga programming in schools, may be a consideration for education curricular options. Furthermore, the stress-alleviating impact of yoga, particularly with the population specific to the three schools

investigated (all of which were Title 1 schools with a majority of the students either Latino or African American) is another consideration for public education. Offering programming that focuses on areas of human development with regards to emotional, physiological, and spiritual development is needed in order to provide ways for underserved adolescents to become better suited to make healthy life choice and thrive in the current globalized workforce.

Low SES levels, along with living in densely-populated urban conditions, create potential stress and trauma causing factors that can impact adolescent development. Implementing programming that involves Kundalini Yoga in low SES urban school settings in order to provide adolescents with some tools to alleviate stress and maximize their creative and cognitive capacities could help them to be better equipped to meet the demands of their lives. Studies have shown that potential stress and trauma causing factors, such as poverty and low socioeconomic status, create physiological impacts (the mind-body connection) that can directly affect the functioning of the sympathetic nervous and lymphatic systems (e.g., Duncan, Brooks-Gunn, and Klebanov, 1994; Evans & Kim, 2007; van der Kolk, et al. 2005). The sympathetic nervous system assists in controlling many of the body's organs. Thus, stress that is caused by an emotional response to a situation can directly influence the physiological health of children over time impeding their ability to thrive as healthy human beings (e.g., Duncan, Brooks-Gunn, and Klebanov, 1994; Evans & Kim, 2007; van der Kolk, et al. 2005). This is particularly true for adolescents who experience stress as a constant in their daily lives, creating an ongoing "fight or flight" response state. Yoga therefore, has the potential to reduce stress, regulate emotions, and build resilience to equip adolescents with some tools to make healthy choices for overall well-being.

According to Maslow (1968) when individuals are in a constant state of survival to meet their basic needs for safety, their higher-level functions are inhibited including creativity, vitality, authenticity, and life purpose and meaning. He argues that the human developmental process has one ultimate goal: in order to be fulfilled, individuals strive toward self-actualization. When individuals are at-risk in personal and emotional safety therefore, their ability to function in fulfilling their needs for social, self-sufficiency, and self-actualization comes to a standstill. Therefore, when a child is faced with stress and trauma in his or her life, as a result of familial and environmental circumstances, then the higher-level functions, such as creativity and cognitive ability, are compromised. It is with this aim that programming such as yoga in schools can supplement the existing school programming to integrate the full human developmental experience. Yoga further contributes to the full development experience by first reducing stress allowing for other developmental processes to take place. Furthermore, according to scholars, since creativity, meaningfulness, self-sufficiency, authenticity, vitality, and self-actualization are rooted in higher-level functions, the basic survival responses that are a consequence of stress-causing factors need to be met first allowing children to access their “vital essence” (Bhajan, 2003; Maslow, 1968; Robinson, 2001; 2006; Saraswati, 2006; Zohar & Marshall, 2004; Zohar, 2007). Accessing this “vital essence” allows students to build their spiritual capital to maximize the full human potential, which is often overlooked in cognitive-focused curriculum of schools (e.g., Bhajan, 2003; Maslow, 1968; 1970; Robinson, 2001; 2006; Saraswati, 2006; Zohar & Marshall, 2004; Zohar, 2007). Therefore, programming that addresses these human facets are essential to the healthy development of adolescents, especially those who have added and prolonged stressors in life. Incorporating yoga classes in daily school curriculum has the

potential to serve the purpose of contributing to healthy development.

For example, some of the words and phrases the students expressed in informal interviews about the general effects of the yoga program were: “I get calm,” “I can relax when I have a test,” “Haven’t stressed out, even under pressure,” “Yoga is a way to calm people down, not get stressed out,” “I study better, not get nervous,” “When I get nervous or go to the doctor, I breathe in and out, inhale and exhale, and that calms me,” “Yoga relieves my stress when I have hard work, I can relax and concentrate.” These responses from various student participants from the three schools about yoga’s relaxing effects indicated that yoga affected their ability to relax and thrive in their academic and personal lives.

According to a report by the National Center for Children in Poverty (2009), there are close to 15 million children in the United States who live below the federal poverty level of \$22,050 per year. In addition, the ethnicity report reflects the urban school populations of the study, with 49% African American children in California and 59% Latino children in California, who according to the 2008 data live in low-income families (Chau, 2009). It seems plausible therefore that children (individuals under the age of 18) who fall in this demographic require more than the average educational experience in order to effectively face and overcome challenges presented in their daily realities and to have the tools necessary to sustain them through their educational and social pressures. Therefore, programs that build spiritual capital help students to reduce stress and serve to still the mind, regulate emotions, and build resilience for an overall well-being, which can have a positive impact on adolescent lives.

**Affect Regulation.** One of the resulting consequences of prolonged stress is the inability to regulate emotions which often has detrimental consequences in the lives of adolescents.

Emotional regulation is highlighted in research and defined as initiation, motivation, and adaptation of behavior, particularly to prevent stress caused by negative emotions that lead to disruptive or harmful behavior (e.g., Cole, Luby, & Sullivan, 2008; Cullerton-Sen, Cassidy, Murray-Close, Cicchetti, Crick, & Rogosch, 2008; Kim & Cicchetti, 2006; 2010). For example, children with symptoms of anxiety and depression display a lack of emotional awareness and dysregulation such that they are unable to differentiate between experienced states with appropriate descriptions (Kim & Cicchetti, 2010; Price, 2008).

The results of the current study indicated that the yoga program was successful in significantly increasing positive affect. While not significant, findings indicate the program did not decrease negative affect. In fact, the results, although not significant, show that negative affect slightly increased. One speculation for this result is that as the participants practiced yoga, their level of awareness increased becoming more aware of their emotions, whether positive or negative (Bhajan, 2003; Krishna, 2006). Another argument may be that as participants became more aware, and while their resilience increased, they allowed for their negative emotions to surface. Thus the participants may be better capable, due to their reported increase in resilience, to handle their negative emotions so that they ultimately surface in a less destructive manner (Rutter, 1987; Shamdasani, 1999). To illustrate, in an informal interview, one of the yoga teachers expressed that in the second week, the class was closing with a check-in and discussion after the yoga practice. Surprisingly, the girls “opened up” and five or six cried while sharing their feelings and experiences even though emotions expressed were not positive. This example shows that, given a safe environment and the tools to bring emotions to surface, can lead to a healthy release of negative emotions. In another example, one seventh grade male student

reflected on his awareness of emotions and his locus of control, “At home, sometimes I get out of hand, but I stop before it gets too far. I take three deep breaths and calm down.” Here the student is incorporating the tools he’s learned from the yoga program to regulate his emotion and make healthier choices.

**Resilience.** The results of the study indicated that all students increased in resilience. Although there are relationships highlighting the significance between childhood poverty, stress, trauma, and affect dysregulation leading to psychological and physiological disorders, still, many children exhibit the ability to flourish under the most difficult and challenging circumstances, becoming well-adapted adults. Rutter (1987) defined resilience as “the positive pole of individual differences in people’s response to stress and adversity” (p. 316).

The resiliency of children in the face of adverse circumstances is shown by research to imply several dynamics that contribute to this condition which include the child, family, and social environment. The child’s social and personal competence is often attributed to having the care of at least one adult, some responsibility in decision-making, self-regulation, and self-esteem. In addition, resilience is also believed to be inherent in biological and psychological factors that make up an individual’s capacity to cope under adverse conditions (e.g., Brooks, 1994; Herrenkohl, Herrenkohl, & Egolf, 1994; Hoge, Austin, & Pollack, 2007; Price, 2008; Rutter, 1987; Ungar, 2011). However, a defining factor that ultimately may contribute to the level of resilience is an individual’s locus of control (Kelley & Stack, 2000). Studies have shown that those who experienced some control over their stressful circumstances exhibited more resiliency than those who felt helpless in the face of life events (Brooks, 1994; Herrenkohl et al., 1994; Kelley, 2000; Luthar & Zigler, 1991).



The results of this study indicated that yoga programming has significant outcomes for resilience in adolescent populations. For example, an indicator of increased resilience could be derived from one student who stated, “I am more tolerant and controlled.” This seventh grade male student is conveying that his behavior changes as a result of his ability to control his impulses with his internalized locus of control. He attributes the yoga program and the skills he learned to his increased resilience and “tolerance.” He adds, “Sometimes I can get out of hand but I stop before it gets too far. I take three breaths and calm down. Another example with a similar experience was expressed by a female student in grade eight who was able to alter her mood swings through breathing exercises displaying her increased in resilience and internalized locus of control. She stated, “Yoga has helped with my mood changes, I can control my moods more. Now I know my emotions and I can tell people. Before I wouldn’t communicate, I would just take it out on people.”

### **Limitations and Implications**

Although the study yielded significant results in all three measures, there were limitations that are examined in the following section of the discourse.

**Kundalini Yoga.** The type of yoga was a potential limitation of the study since Kundalini Yoga is not as widely known or practiced as other forms of Hatha yoga. The fact that mantra, meditation, and pranayam were part of the yoga program may have created some discomfort and misunderstanding since most popular Hatha yoga classes do not necessarily incorporate meditation or chanting as part of the meditation.

**Controversy.** Another limitation may be the controversy surrounding yoga practice. For example, one yoga teacher felt that a parent originally withdrew a student from the class due to

his or her understanding that yoga conflicted with his or her religious beliefs. However, with the student's insistence and after the parent observed the class, the student rejoined and completed the program. Therefore, it is because of the misunderstanding that yoga is a religion that programs such as YogaEd have renamed "spirit" with words like "breath" and "self" to create a more school-friendly approach. In addition, instead of meditation, sometimes misconstrued as prayer, visualization or relaxation techniques are utilized. Although the controversy is a factor, yoga in schools is becoming more accepted, particularly with yoga programs, such as YogaEd and Y.O.G.A. For Youth, who consciously align the program to align with the U.S. Constitution and with the California State Standards for Physical Education.

**Population.** The population that was chosen for the Kundalini Yoga program was another factor that limited the study. Since, YFY is a program with a mission to deliver yoga to urban city underserved schools, the population pool limited the study to a convenient rather than a more randomized sample design. Still, the dependent variables of stress, emotional affect, and resilience are important to measure for at-risk students. Therefore the dependent variables were appropriate to measure for this sample. Furthermore, although YFY funded 75% of the program leaving the school to fund the remaining 25%, due to budgetary issues for supplemental programming, only schools with extra funds were able to participate, limiting the study to three schools. Due to budget constraints, two of the three schools opted to have only one class of yoga. In addition, the two schools chose to offer the yoga class to their female students therefore limiting the male sample size for the study. Subsequently, the age range of the population may have been a limitation since the articulation of the transformational effects of the yoga practice was limited by students' vocabulary, awareness, and life experience.

**Instruments.** Both qualitative and quantitative approaches were utilized to address and inform the two main purposes of the study. Informal interviews were conducted for the qualitative component to examine the overall effectiveness of the yoga program for schools while the quantitative component examined the degree to which Kundalini Yoga effected adolescent stress, emotional affect, and resilience.

**Qualitative.** The questions were open-ended and allowed for the participants to disclose what they actually gained from the program without giving them specific direction. While this allowed for more authenticity of response, interviews were often short in length with minimal description given as answers which may be due to the age, maturity, and ability to articulate changes in their awareness and behavior. Another limitation for the interviews was the time and location they were conducted. Since the interviews were administered on the last day of the program, students were distracted by the last day celebrations that were taking place. In addition, the interviews took place in close proximity to the rest of the class which added to the distracting factors. However, since students volunteered for the interviews, even with the distractions, they appeared attentive and excited to be part of this process.

**Quantitative.** All three instruments used for the quantitative component of the study were limited in the comprehension of survey items, length of surveys, and language. Both pre- and post-data collection was conducted utilizing all three scales (PSS, PANAS-C, and RS). Most of the first and last class period was dedicated to administering and conducting the surveys, however, many students completed all three measures in 15 minutes. Some students, depending on their academic level required the greater part of the class time to complete the survey. Since not all students completed the surveys in that time period however, a few students were relocated

to another classroom to complete the survey while the rest of the students started with yoga games such as The Connection Game or The Quiet Game from the YFY teacher's manual. The nature of variations in student abilities in reading and comprehension was a limitation for administering this type of questionnaire, particularly when the yoga class had a range of grade levels such as in Middle School A with grades five through eight. The grade eight students, for example were able to work independently and had the surveys completed in 15 minutes while the grade five students took almost the duration of the class time with consistent assistance from the principal investigator. Some of the items were ambiguous for the younger students. For example, in the PSS, item 6 states: "In the last month, how often have you found that you could not cope with all the things that you had to do?" The word "cope" was a concept with which many students were not familiar. Therefore, the principal investigator defined the word for the students replacing the word "cope" with "handle" which helped them to answer the question. This issue was addressed in the same manner for other items. In the PANAS-C, some words were either beyond the range of the children's vocabulary or unfamiliar to their day-to-day language. For example, words such as "jittery," "disgusted," "miserable," "gloomy," "daring," "delighted," and "blue" required clarification particularly with the younger student population. Finally, in the RS scale, although the sentences of the 25-item survey were short and simple, there were concepts that required defining. For example, item 11 states, "I seldom wonder what the point of it all is." This item received a few questions, however, given the content and concept, it was surprising that it did not receive questioning by more students. This can be an indication of the nature of the design of the survey so that if the students were actually

experiencing this affect, then perhaps they could relate to the stated psychological affect. As such, instrumentation was a potential threat to validity in the study.

**Yoga class logistics.** There were factors with class logistics that were potential limitations to the study. For example, the yoga teachers felt that behavior and classroom management was sometimes a challenge. In two of the three schools, the yoga program was part of afterschool programming. One teacher felt that perhaps the class, seen as supplemental to the required school curriculum, was not taken seriously by the students. However, the other yoga teacher, who also taught the class afterschool, felt that over the weeks, students actually grew to understand and respect their yoga practice time, to the extent that they wanted their friends, siblings, and parents to get involved.

Although the respect came overtime, one yoga teacher expressed the importance of setting rules and following through with them in order to maintain discipline while teaching. This issue of discipline was an important aspect of the YFY Teacher Certification program which also required thirty hours of internship observing another teacher in a school setting. Therefore, behavior, classroom management, and school logistical issues limited the findings since the yoga teachers had to deviate from the standardized curriculum in order to conduct an effective class.

**Deviations from the program.** Some deviations from the YFY set curriculum and program may have limited the study. For example, although not required in a Kundalini Yoga class, teachers practiced their discretion to include music to accompany the class. Since many recordings of the same mantras utilized in the Kundalini Yoga program are readily available, teachers chose these as accompaniment to the kriya, mantra, and meditation component of the

class. One teacher stated that her class “loved the music.” In fact, this particular teacher, a trained musician and vocalist, played some of the mantras live for her class using a harmonium. She believed that the addition of music definitely enhanced the yoga experience for her students.

Another teacher added Bhangra, a lively dance form from Northern Indian, to the class. As with music, this teacher believed that adding this form of warm up or deviation enhanced the overall experience and affinity for the yoga program. These examples may have limited the study’s control for variations in that the general experience of the students in these two schools varied with the school that did not have musical accompaniment or dance as a motivation factor. In addition, the results may be confounded when adding music and dance which could be competing with the pure yoga practice outcomes.

Although music and dancing may have limited the study, when utilized effectively in terms of when to supplement or deviate from the set program, these supplemental forms can enhance the program while maintaining the integrity of the Kundalini Yoga format. For example, Bhangra was utilized effectively during warm up or to end the kriya series which can enhance the overall experience by adding creative transitions between each component of the class. In addition, using music to accompany the asanas or meditations may enhance students’ focus on the given task. For future research it is therefore recommended that a list of preferred music accompany the standardized curriculum.

**Personal bias.** Finally, my own personal bias as a Kundalini Yoga teacher and practitioner limited the study. As an educator, I have experienced first hand the benefits of yoga integration in the school setting. In fact, for six years as the head of an international boarding school that was entirely based on yoga philosophy and practice, I have observed and experienced

the positive outcomes and the transformational potential of yoga's technology on adolescent well-being, self-esteem, body image, self-awareness, emotional regulation, behavior, attitude, personal empowerment, universal connectedness, and compassionate behavior leading to a sense of purpose and contribution. From my experience and observation, yoga is a holistic tool with specific skills that children and adolescents can utilize throughout their lives to integrate and unite the components of the self (the mind, body, and spirit) leading to self-actualized states while building spiritual capital. Therefore, for the current study, I acknowledge my personal bias and tried to remain neutral when asking interview questions. Although a quantitative approach with an added qualitative component to supplement the findings was utilized to maximize validity, I found that the Kundalini Yoga program was effective in alleviating stress, regulating emotions, and increasing resilience. However, the current study only scratched the surface of the possible potential for yoga's effects for school aged children and adolescents. Therefore, for further study, the following are recommended.

### **Further Study**

It is recommended for further study that the same three dependent variables of stress, emotional affect, and resilience are compared between a yoga group and a control group. For example, it would be worthwhile to examine how a standardized Kundalini Yoga program differs from a regular exercise class, or another modality of physical movement such as dance. In addition, meditation itself can be a component of study to extrapolate the specific affects of the Kundalini Yoga meditations. Other studies on meditation indicate the calming and focusing effects of the practice, but research is needed on the components of Kundalini Yoga meditation specifically that is embedded within the program. For example, since the physical component of

yoga serves to prepare the body for meditation, it would be worthwhile to examine whether adding meditation to a traditional physical education class has the same effects.

Another area of research that can complement the quantitative approach is a thorough qualitative design, particularly one that extends throughout the duration of a school year to examine yoga's scaffolding effects on the physical, mental, and spiritual development. A year long qualitative design can create a more robust and well-rounded study that allows researchers to examine the multiple layered benefits of yoga, particularly specific to building spiritual capital. For example, examining the academic outcomes by involving more classroom teachers in the process and interviewing parents and siblings to formulate outcomes from their perspective would add to scholarship in this area of study.

### **Conclusion**

Y.O.G.A. for Youth offers a unique opportunity for urban city low SES schools to promote programming that contributes to the advancement of leveling the playing field so that children and adolescents who are subjected to additional life stressors resulting from poverty, violence, and abuse have the tools to alleviate stress, regulate emotions, and increase resilience. In addition, yoga programs also provide an opportunity to extend beyond the cognitive centered to a more holistic approach to education by integrating the mind, body, and spirit and empower students to tap into their full human potential so that true human development becomes the sphere of the educational settings. Both Saraswati (2006) and Arweck et al. (2005) suggest that there is a worldwide need for teaching beyond skills particularly when, as a global society, human beings are increasingly concerned and affected by social problems, violence, and absence of respect for each other and the environment. Therefore, a call to an examination of the current



curricular content in education, while adding alternative programming that transcend the cognitive centered approaches to educating children to be successful human beings, is proposed.

Zohar and Marshall (2004) defined spiritual capital as a foundation for the meaning and values we give to life experiences. Spirit is the foundation through which individuals are motivated through thinking processes that lead to life-altering decisions. Therefore, spirit is what gives lived experiences a purpose. To disregard this facet in the educational setting ignores the very tools required for children to develop into healthy and thriving adults. For the purposes of this study, spiritual capital was combined with yoga to develop a link between a need and a possible solution. The need is to contribute to building spiritual capital in schools, as defined by Zohar et al. (2004), in order for children to develop into healthy, thriving adults. The possible solution: the incorporation of yoga in schools.

*Appendix A*  
*Perceived Stress Scale*

PSS

Name: \_\_\_\_\_ Date: \_\_\_\_\_

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

	Never = 0	Almost Never = 1	Some- times = 2	Fairly Often = 3	Very Often = 4
1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

*Appendix B*

*PANAS-C*

**PANAS-C**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past few weeks.

---

Feeling or emotion	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	1	2	3	4	5
Sad	1	2	3	4	5
Frightened	1	2	3	4	5
Alert	1	2	3	4	5
Excited	1	2	3	4	5
Ashamed	1	2	3	4	5
Upset	1	2	3	4	5
Happy	1	2	3	4	5
Strong	1	2	3	4	5
Nervous	1	2	3	4	5
Guilty	1	2	3	4	5
Energetic	1	2	3	4	5
Scared	1	2	3	4	5
Calm	1	2	3	4	5
Miserable	1	2	3	4	5
Jittery	1	2	3	4	5
Cheerful	1	2	3	4	5
Active	1	2	3	4	5
Proud	1	2	3	4	5
Afraid	1	2	3	4	5
Joyful	1	2	3	4	5
Lonely	1	2	3	4	5
Mad	1	2	3	4	5
Fearless	1	2	3	4	5
Disgusted	1	2	3	4	5
Delighted	1	2	3	4	5
Blue	1	2	3	4	5
Daring	1	2	3	4	5
Gloomy	1	2	3	4	5
Lively	1	2	3	4	5

*Appendix C*

*Resilience Scale*

RS Page 1 Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Please circle a number indicating how much you agree or disagree with each statement.**

Disagree-----Agree

- 1. When I make plans I follow through with them.  
1        2        3        4        5        6        7
- 2. I usually manage one way or another.  
1        2        3        4        5        6        7
- 3. I am able to depend on myself more than anyone else.  
1        2        3        4        5        6        7
- 4. Keeping interested in things is important to me.  
1        2        3        4        5        6        7
- 5. I can be on my own if I have to.  
1        2        3        4        5        6        7
- 6. I feel proud that I have accomplished things in my life.  
1        2        3        4        5        6        7
- 7. I usually take things in my stride.  
1        2        3        4        5        6        7
- 8. I am friends with myself.  
1        2        3        4        5        6        7
- 9. I feel that I can handle many things at a time.  
1        2        3        4        5        6        7
- 10. I am determined.  
1        2        3        4        5        6        7
- 11. I seldom wonder what the point of it all is.  
1        2        3        4        5        6        7
- 12. I take things one day at a time.  
1        2        3        4        5        6        7

Disagree-----Agree

*Appendix D*

*Parent Consent Form*

Summary of Program

Y.O.G.A. for Youth is providing yoga and meditation classes twice weekly for ten weeks to introduce yoga and meditation, empower youth with new skills to focus academically and to realize their own greatness. All participants will have an opportunity to give feedback about their experience.

Our Purpose

Your Own Greatness Affirmed (Y.O.G.A.) Inc., also know as Y.O.G.A. for Youth, is a federally designated 501 (c) 3, nonprofit corporation that brings yoga and meditation to urban youth throughout Los Angeles County. Founded 16 years ago by Krishna Kaur, Y.O.G.A. for Youth has maintained a commitment to its work and has expanded its programming to include New York, North Carolina and Mexico. The organization’s purpose is to provide youth with tools for self-discovery that foster hope, discipline, and respect for self, others and community.

Frequently Asked Questions about Yoga

1. Where does Yoga come from? Yoga is an ancient practice, which many believe originated in India. It continues to be a way to help people stay healthy mentally, physically and emotionally.
2. Is Yoga a Religion? Yoga is not a religion. It is a science of self-development that people from all faiths practice regardless of race, gender, belief and culture. Similar to Karate and Tai’Chi.
3. Is Yoga exercise? Yes, yoga is both physical and mental exercise that uses breath to make it easier to find a sense of calm while dealing with stressful situations.
4. What are the benefits of Yoga? Yoga helps reduce stress, lowers high blood pressure, and reduces effects of other chronic diseases such as diabetes, asthma, obesity and ADHD. Yoga boosts the immune system, increases the amount of oxygen in the system, strengthens the nervous system, and helps create greater emotional balance. Yoga makes you feel alive with energy and greater sense of health and well being.
5. Why is yoga becoming widespread in communities? Because the proven benefits of yoga can help create a stronger, healthier and more motivated community. Yoga can also help bring families together by reducing anger and violence among youth and adults.

\*\*\*\*\*Please Fold and Detach Lower Portion\*\*\*\*\*

NAME OF SCHOOL

My child, \_\_\_\_\_ (please circle one) will or will not participate in Y.O.G.A. for Youth’s yoga and meditation classes twice weekly for ten weeks. I understand that my child will complete a pre and post feedback questionnaire which will be

used to measure the benefits of yoga and all information relating to my child will be held in the highest regard and kept confidential.

Please Mark Those That Apply To Your Child

My child has:

- no knowledge of yoga \_\_\_\_\_
- some knowledge of yoga \_\_\_\_\_
- currently practices yoga regularly \_\_\_\_\_
- no personal experience with yoga \_\_\_\_\_
- some experience with yoga \_\_\_\_\_
- has practiced yoga regularly in the past \_\_\_\_\_

---

Name of Parent (Please print)

Parent Signature

\*If this form is not returned we will assume your child has permission to participate\*

*Appendix E*

*Interview Questions*

Student:

- a) Tell me about your experience of the yoga class.
- b) What was your expectation of the yoga class before you started?
- c) What is your understanding now?
- d) If at all, how has the yoga affected your personal and academic life?

Classroom Teachers:

- a) What differences if any, did you perceive in the students after the classes?

Yoga Teachers:

- a) Describe what did and did not work in terms of curriculum, class size, age groups, gender, and location.
- b) What differences if any, did you perceive in the students after the classes?
- c) How would you improve on the administrative and procedural areas?

## Appendix F

### Definition of Terms

#### Kriya:

*Kriya* = action. A set of or sequence of postures, breath, and sound that are integrated to produce a specific state (Bhajan, 2003).

#### Kundalini Yoga:

A comprehensive form of yoga that combines physical practices, breathing exercises, and meditation. “Kundalini” is Sanskrit for “coiled” and is described as a coil of energy that lays dormant at the base of the spine (Bhajan, 2003).

#### Mantra:

Derived from the Sanskrit words *Man* = mind and *Trang* = wave, or sound current (Bhajan, 2003).

#### Perceived Stress:

The ability to relate to “(a) actual environmental experiences, (b) subjective evaluations of the stressfulness of a situation, and (c) the affective, behavioral, or biological responses to environmental experiences or their subjective situation” (Cohen, Kessler, & Gordon, 1997).

#### Positive and Negative Affect:

Negative affective words (sad, upset, scared) that are often associated with general emotional distress, while positive affective words (happy, strong, calm) are related to over stimulation. In addition, low levels of positive affect can indicate depressed states (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999)

#### Pranayam:

Control of *Prana* = life force and *Ayam* = expansion. Breathing techniques (Bhajan, 2003).

#### Resilience:

The ability to “regain balance and keep going despite adversity and misfortune and find meaning amidst confusion” (Wagnild & Young, 1987, Resilience Scale official website).



Spirit:

Rooted in the Greek word “spiritus” meaning *vital essence* (Zohar, 2007)

Spiritual Capital:

“An intelligence with which we access our deepest meanings, values, purposes, and highest motivations. It is how we use these in our thinking processes, in the decisions that we make, and the things that we think it is worthwhile to do. These decisions include how we make and how we allocate or material wealth.” (Zohar & Marshall, 2004, p. 3)

Yoga:

“union” (Prabhavananda & Isherwood, 2007, p. 13).

Y.O.G.A. (Your Own Greatness Affirmed) For Youth:

Non-profit organization with a mission to bring Kundalini Yoga to schools and juvenile incarceration facilities in order to provide potential self-awareness, stress relieving, and emotional regulating tools to “enrich their lives and assist them in effectively meeting life’s challenges now and in the future” (<http://www.yogaforyouth.org/about.php>, 2011).

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