

The Impact of a Neuroeducation-based  
Wellness Curriculum on Generation Z:  
Implementing Mind-Body Connection

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## APPROVAL OF DISSERTATION IN PRACTICE

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## ABSTRACT

NATALIE M. CAPIRO, ALEXANDRA L. GLEASON, AND STEFANIE POWERS:

The Impact of a Neuroeducation-based Wellness Curriculum on Generation Z:

Implementing Mind-Body Connection

Twenty-first century culture has a significant impact on the cognitive-psychological development of modern-day students. Cultural factors that contribute to this include the excessive use of technology, increased focus on higher academic achievement, more parental involvement, a sedentary lifestyle, and fewer in-person social interactions.

Concurrently, the curricular emphasis on physical and mental wellness has been weak leading to a rise of mental health issues amongst adolescent students.

Ample research indicates that the social and emotional bodies of the brain are developing and functioning differently because of cultural factors and societal trends. It is crucial for educators to take a deeper look at the impacts of contemporary society and current educational practices on the cognitive and psychological development of adolescent students. The following narratives explore findings from neuroscience, education, and mindfulness, utilizing research to develop a neuroeducation-based approach to positive cognitive-psychological development for students.

Order Number: \_\_\_\_\_

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## DEDICATION

“The will, determination, and passion experienced throughout the research provided is dedicated to my entire family. Because of your love and belief, I continue to believe in a limitless pursuit. Also, to those who have ever influenced me throughout my education and life—your influence continues to push me to the next level. A special thank you to Lynn University and all involved in this experience and beyond for providing me with continuous opportunities and experiences leading me to a vision for the world I know can be.”

—Natalie M. Capiro, Ed.D.

“To my family for your constant love and support, and to my parents for instilling the value of education in me and for supporting me through all my educational endeavors. This love and support have enabled me to conquer all the challenges that I have encountered and allowed me to grow and develop further so that I can reach my potential. And to my husband, Brendan Gleason, thank you for your patience and understanding, your relentless positivity, and your unconditional support as we continue embarking on our journey through life.”

—Alexandra Gleason, Ed.D.

“Much of my determination and resolve can be attributed to my family. Since I was a young child, I have worked diligently to succeed and prosper. I always challenge myself to be the best version possible to set a prime example for those I treasure most. With that, I dedicate this dissertation to my constant champions. Thank you for challenging me daily and illustrating the importance of hard work, while remembering the significance of family. I often envision walking down the stage at commencement as

a doctoral student. As I visualize the momentous event and reflect on the numerous long, sleepless nights, the one continuous is the admiration on the faces of those that I cherish and admire deeply. I hope to be a role model not only to my students, but also to the two beautiful souls that call me ‘mommy.’”

—Stefanie Powers, Ed.D.

This is only the beginning of iMindAcademy. Our distinct gratitude to Lynn University, the Donald E. and Helen L. Ross College of Education, and specifically Dr. Kathleen Weigel, Dr. Jennifer Lesh, and Dr. Linda Jordan.

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## CHAPTER I: INTRODUCTION

In recent decades, educational policies and societal trends have taken place that have had an impact on the ability of educators to develop adolescent students in a way that prepares them for success in the 21<sup>st</sup> century (Salpeter, 2003). These changes include advanced technology, augmented parental involvement, increased focus on higher standards-based education, increased stress on educators to improve academic performance and outcomes for all students, and heightened expectations for adolescent students in the 21<sup>st</sup> century (Mangan, 2009). These variables have led to both a reduction in sustaining a curricular focus on developing the physical and mental wellness of students, and an increase in curricular emphasis on enhancing academic achievement through intense evaluations like standardized testing assessments. Students are pressured into taking high-level honors and Advanced Placement courses by parents, administrators, and teachers in order to get accepted by highly desirable institutions of higher education. In effect, adolescent students are experiencing stress levels higher than ever before (Jayson, 2014). According to the American College Health Association (2013), statistics evidence college students experiencing high levels of increased stress, anxiety, depression, a lack of self-regulation skills, and other mental health disorders. It is evident that social trends in addition to recent educational reforms have resulted in negative health impacts for modern day adolescents.

Generation Z consists of those born between 1995 and 2012 (Twenge, 2017). The development of students in this generational cohort is concerning considering the dramatic increase in the amount of time they spend using technology. This cultural shift has fostered additional harm to this generation as they have difficulty focusing and being

present. Additionally, it has contributed to an increasingly sedentary lifestyle for students. Social media platforms, search engine accessibility, and a multitude of applications have further added to obsessiveness as well as distractions from interpersonal interactions. With advances continuing to increase, it is critical to acknowledge the physiological effects that technology will have on the cognitive psychological development of this generation of students. Likewise, it is crucial to find a medium where mental wellness and technology can coexist.

Research indicates that these current cultural changes are affecting the brain development of Generation Z adolescents and causing them to be on a slower developmental path than adolescents in previous generations (Twenge, 2017). More specifically, high levels of stress and anxiety in addition to the excessive use of technology are altering the way the social and emotional bodies of the brain are developing and functioning (Giedd, 2012). New research indicates that this poses risks for Generation Z students regarding the development of cognitive and psychological functions needed to thrive in the 21<sup>st</sup> century. To ensure Generation Z students are prepared for success, educators need to take a closer look at the cultural trends and current educational practices hampering the development of cognitive abilities required for self-regulation. Current cultural practices are transforming the physical brains of this generation; thus, this is an opportune time to acknowledge the significance of the mind-body (brain) connection for educational practices. This dissertation will explore methods and strategies that can be implemented to effectively promote the development of these skills in this target population.

## **Background**

There is ample research on the plasticity of the adolescent brain. The teenage brain develops according to an individual's surroundings and experiences. Consequently, the intense focus on increasing student achievement, a more sedentary lifestyle, and the excessive use of technology by today's adolescents play a significant role in shaping the brain. For example, elevated stress levels in combination with little or no physical activity on a daily basis all contribute to physiological and biological changes that occur in the brain. Generation Z students use digital devices as their primary method of communication rather than engaging in face-to-face social interactions, resulting in differences in the way the social brain develops and functions. The differentiation in brain structure and function for this generation is significant in determining the causes of the rapid rise in mental health issues. Educators need to acknowledge the neuroscience behind adolescent brain development as it aids in providing a comprehensive understanding of how the mind and the brain (body) work together.

Research in the field of neuroscience demonstrates how cultural influences are impacting student development on physiological and biological levels. For instance, several studies show that an increase in physical activity stimulates the release of neurotransmitters in turn promoting positive cognitive-psychological development. To effectively enhance education policy and reform efforts, educators must have a thorough understanding of the intricate connection between the physiological and psychological aspects of cognitive development. These aspects involve the recognition of the mind and the body as two separate entities that are interdependent upon each other and complexly related. The assimilation of the mind-body connection into educational practices is



crucial to ensure Generation Z students have the knowledge and skills to maintain positive cognitive-psychological health and development. An appreciation of how these two components of a human being work together will help inform education policy and practices for the future.

The rapid increase in mental health issues amongst today's students indicates that cultural influences are impacting their abilities to regulate emotions, inhibiting thoughts, and controlling their actions to accomplish a task or achieve goals. Thus, current cultural practices are affecting the development of self-regulation skills for Generation Z students. "Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act" (U.S. Department of Health and Human Services, 2017, para. 1). As previously stated, the current cultural practices are affecting the development of these areas on a biological level within the physical brain. In turn, it is influencing the way students think, feel, and act.

"Culture guides thought patterns interpreting relationships and logging vast amounts of data entering through the senses. Our culturally trained senses become gateways to how we think, and we then behave in agreement with that thinking" (Kerr D'Amico & Rochester, 2015, p. 23).

In contemporary society, students need to be able to manage stress and anxiety, regulate emotions, and inhibit intrusive thoughts to accomplish goals. Students also need to be able to work collaboratively and effectively with others. The surrounding environment affects the development of cognitive functions relative to these skills.

If the brain is adapting to the current cultural practices on a physiological level, the mind needs to be recognized as a separate entity that is not just confined to the brain.

The mind determines the subjective experiences of how one thinks and feels about incoming information through the senses (Siegel, 2012, pp. 1-11). By changing the way people think and feel, the brain changes as well. “Many of those changes are fleeting, as your brain changes moment to moment to support the movement of information. But many are lasting, as neurons wire together, structure builds in the brain” (Hanson, 1970, para. 11). Educational strategies need to be implemented to educate students on the mind-body network to moderate the adverse effects of 21<sup>st</sup>-century cultural influences on cognitive-psychological development. These strategies are crucial to ensure this generation has the knowledge and skills to maintain positive self-regulation.

### **Statement of the Problem**

Data reveals that Generation Z students are experiencing high levels of stress, anxiety, and depression. The percentage of American youth with severe depression has increased from 5.9 percent in 2012 to 8.2 percent in 2015. In 2015, 12.5 percent of adolescents (ages 12-17) experienced at least one major depressive episode (National Institute of Mental Health, n.d.). Research shows that suicide rates for children and adolescents in the United States have doubled from 2008-2015 (American Academy of Pediatrics, 2017). Prolonged stress and anxiety throughout adolescence can lead to severe depression and suicide. In 2016, 62 percent of undergraduate college students reported having overwhelming anxiety; this is a 50 percent increase in the percentage of college students that experienced overwhelming anxiety in 2011 (American College Health Association, 2016). The mental health of America’s youth is forecast to worsen (Twenge, 2017). Various cultural factors play a role in this rapid rise in mental health issues

including biological changes that are taking place in the brain as well as different life experiences for Generation Z.

One study identifies Generation Z as being on a slower developmental path than adolescents in previous generations (Twenge, 2017). The different life experiences of this generation throughout youth and adolescence are reshaping the structure and function of the brain. These changes include prolonged stress and anxiety due to higher expectations in education, a more sedentary lifestyle, less education on physical and mental health and wellness, an increased dependency on technology as a primary method of communicating and connecting with others, and fewer in-person social interactions. When neural networks inside the brain are forming by these experiences, research shows that cognitive-psychological functions relative to self-regulation may become insufficient, leading to the fundamental problem of Generation Z students lacking the cognitive-psychological capacities needed for self-regulation. Self-regulation is a critical skill required to succeed in college, work, and life in the 21<sup>st</sup> century. Educational practices need to incorporate the science behind the mind-body network to reverse these effects and promote positive cognitive-psychological development.

### **Purpose of the Study**

The previous paragraphs provide a strong indication that educational programs are insufficient in promoting positive cognitive-psychological health and development for students due in part to the decrease in physical education and health curricula in schools throughout the nation. Thus, students are limited in gaining knowledge and skills relative to maintaining an active and healthy lifestyle. Concurrently, culture has set high expectations for students, including higher standards in education, increased pressures

from parents, and increased competition for college admission and work in the 21<sup>st</sup> century, ultimately resulting in stress and anxiety levels rising dramatically. Additionally, the excessive use of technology amongst Generation Z has been linked to the mental health issues they are experiencing (Twenge, 2017).

According to Corey Seemiller and Meghan Grace's *Generation Z Goes to College*, Generation Z students have indicated they intend to seek counseling services; however, they may not receive the services required because of "limited accessibility for counseling due to high fees, limited hours, or even the lack of a counseling center on campus" (Seemiller & Grace, 2017, p. 197). The purpose of this study is to utilize findings from literature to devise a useful program that will benefit Generation Z students; the program will equip students with the appropriate knowledge and skills that are required for positive self-regulation. The researchers intend to create a proactive curriculum to ensure Generation Z student are on a track to positive cognitive-psychological development.

### **Significance**

The deficiency in a curricular focus on physical and mental wellness in addition to the rapid increase in mental health issues suggests that current educational practices are not sufficient in meeting the needs of this target population. Generation Z students lack the knowledge and skills needed for positive cognitive-psychological health and development. To moderate and reverse the negative effects of these cultural influences, educators need to reevaluate educational programs and revise current strategies to be more effective in promoting positive brain development for Generation Z students. The

initiative needs to be brought to the forefront to ensure Generation Z students are on track to develop cognitive-psychological skills relative to self-regulation.

Furthermore, self-regulation is a critical skill needed to thrive in the 21<sup>st</sup> century. Self-regulation skills develop through positive cognitive-psychological development. The newly emerging field of neuroscience within the field of education demonstrates the science behind both of these abilities. Based on research, if actions are not taken to enhance the development of Generation Z adolescents, they are much more likely to be at risk for cognitive decline and poor physical and mental well-being. It is crucial for educators to take the initiative to promote positive cognitive- psychological development for this particular student population.

### **Research Questions**

Three research questions have been derived from the central research problem to explore the issue logically:

1. RQ1. How do you think mindfulness influences mental health?
2. RQ2. Is there any specific content that you think will be helpful in the iMindAcademy curriculum for Generation Z students? Please explain.
3. RQ3. Do you think the mindfulness-based iMindAcademy curriculum will provide positive results on the overall campus community? Please explain.

### **Definitions of Terms**

**Anxiety:** A: apprehensive uneasiness or nervousness usually over an impending or anticipated ill; B: mental distressing, concern, or interest; C: a strong desire sometimes mixed with doubt, fear, or uneasiness (“Anxiety,” 2017)

**Cognitive skills:** control of skills

**Generation Z:** born between the mid-1990s through the second decade of 21<sup>st</sup> century, preceding the Millennial generation, this generation is known for being extremely savvy with technology

**Mindfulness:** ability to be cognizant and aware

**Neuroeducation:** interdisciplinary field that combines neuroscience, psychology, and education to help create improved teaching methods and curricula (“Neuroeducation: Executive Summary,” 2009)

**Self-regulation:** control of one’s self internally without external factors

## CHAPTER II: LITERATURE REVIEW

This literature review examines various areas relative to the impact of education reform and social trends on adolescents' cognitive development. The first area describes the effect that recently implemented educational policies and social trends have on adolescents' physical and mental health. In particular, increased academic stress, increased competition for college admission, more parental involvement, and excessive use of technology by adolescents are reviewed; these are significant cultural changes that play a notable role in education reform.

The second section is an overview of adolescent brain development. The literature depicts how these cultural changes are affecting cognitive development in adolescence. This review will focus on the development of cognitive skills needed for positive self-regulation amongst Generation Z adolescents (18-21 years old). Generation Z, those born between 1995 and 2012, are now approaching adolescence. The research about characteristics of Generation Z is just starting to evolve; however, research obtained thus far suggests that these cultural changes have a significant effect on the cognitive development of this particular population.

The final section examines how mindfulness can help change the evolving brains of Generation Z adolescents. The research reviewed in this section indicates that the concept of mindfulness could play a vital role in promoting positive self-regulation skills for Generation Z's late adolescents. The conclusion links the primary areas of review together and includes recommendations for future research based on the analysis of the current literature. The theoretical framework of the study is rooted in Thomas Kuhn's ideology of the impact of a paradigm shift.

“Finally, ‘paradigm’ encompasses everything: a generally accepted theory including exemplary problem solutions, governing research, with implications for what there is in the world, how it behaves, what questions we may ask about it, what methods may be used in pursuit of these questions, and what answers we may expect” (Hoyningen-Huene, 1993, pp. 141-142).

There is a suggestive paradigm shift in culture due to the proliferation and extreme use of technology as well as a decline in the health and wellness of adolescents (Charvat, 2012).

### **Educational Policies and Social Trends**

In recent decades, several educational policies and initiatives have been established including the No Child Left Behind Act (NCLB), Race to the Top (RTTT), and the Common Core Standards. The NCLB and RTTT were federal policies put in place to enhance education reform for all schools across the nation (Lohman, 2010). In effect, the Common Core Standards were developed and adopted by most states to increase the academic performance for all K-12 students. According to the U.S. Department of Education (2013), this was an effort to ensure students are college and career ready by the time they graduate high school. These national and state-level policies have caused schools to increase their focus on higher standards-based education, which has increased stress amongst educators to improve student performance and increased the expectations for adolescent students in the 21<sup>st</sup> century (Mangan, 2009).

In spite of these policies and initiatives, the College Board (2014) has recently redesigned national assessments including the SAT and ACT to align with the Common Core Standards. These modifications have caused institutions to strengthen the curricular focus on academic subjects even more to enhance student performance on state and



national assessments. In effect, a curricular emphasis on topics that are not tested on, including health and physical education, has significantly decreased (National Education Association, 2017). Although physical education remains part of the academic curriculum, the lack of focus is a factor in the increase of mental health issues of adolescents.

To adequately prepare students for success in college and careers in the 21<sup>st</sup> century, students need to have the skills and knowledge relative to their health and well-being, including skills relative to adaptability, self-esteem, time-management, a sense of direction, physical fitness, self-control, and resiliency (Fox, 2011). Rather than an intense focus on academic performance and standardized tests, secondary schools should be focusing on developing skills that will enable students to be successful in college and life after high school. These traits are the indicators that will help students cope with the daily stresses and conquer the challenges they face on their own. According to the American College Health Association (2016), statistics show college students experience high levels of increased stress, anxiety, depression, a lack of self-regulation skills and other mental health disorders. It is apparent that social trends in combination with recent changes in education have caused a negative impact on the health of our country. These observations provide a strong indication that secondary schools are not sufficient in promoting positive, cognitive-psychological health and development for students, which is crucial for success in the 21<sup>st</sup> century (Fox, 2011).

### **Impact of Academic Stress**

In recent decades, various social trends have contributed to the current mental health issues facing adolescents. In this review, mental health issues refer to the stress,

anxiety, and social and emotional problems that adolescents encounter. The educational policies and initiatives discussed previously provide a basis for the trend of increased academic stress. In particular, adolescents are facing various stressors including academic assessments and evaluation, planning for the future, increased parental pressure, and the beginning of their transition to social and emotional independence (Brar, 2013). In a research study conducted by Brar (2013) on 700 randomly selected students, the relationship between adolescents' coping strategies, parental attachment, and social support with academic stress was examined. Results found that problem-focused coping strategy was helpful in reducing students' anxiety, but it increased academic pressure. Emotion-focused coping strategies were found to increase adolescent stress even more. When students focused on emotions associated with academic stress, they were distracted from more productive efforts to deal with the demands and find a resolution (Brar, 2013).

The second variable examined parental attachment. "Attachment is described as an enduring affectional bond of substantial intensity—the first and most basic forms of love felt by the child towards another human" (Brar, 2013, p. 402). The results of the study indicate that the more adolescents communicate with their parents, the less academic stress there will be. In other words, if adolescents and parents actively engaged in healthy communication regarding adolescents' academics, students would be able to resolve academic conflicts successfully and cope with stresses (Brar, 2013). In effect, this would lead to higher levels of confidence, self-esteem, and academic performance (Brar, 2013).

The third variable measured in this study was social support. Ironically, the results found that the more social support a student has, the more academic stress there was. Brar

suggests that students' social support providers may not have the ability to help in regards to the specific academic subject causing the fear, or the support provider needed may not be available at the required time. Another important suggestion from the study based on these findings is that support providers need to help the student reduce academic conflict, stress, and anxiety with the specific issue at hand in order to help them decrease overall academic stress.

This particular study analyzes several variables relative to adolescents' abilities to handle academic stress positively. Results inferred that adolescent students are not effective in using productive coping strategies to manage their stress. Although the results suggest more communication between parents and adolescents will help adolescents manage academic stress, it does not define what exactly a healthy channel of communication between adolescents and parents of the 21<sup>st</sup> century is. The educational policies and initiatives have led to increased academic expectations and increased stress for students. The effect of social trends on parents' expectations and parents' involvement in their children's lives was not reviewed in this study, which is an important factor in determining what exactly healthy communication between parents and adolescents consists of in the 21<sup>st</sup> century. For example, if the parents expect their children to get into a highly desired institution of higher educational, the parents' communicative efforts may result in increasing adolescents' stress and anxiety even more. Further research needs to be done to examine the impact that these specific changes have had on adolescents' cognitive abilities to manage academic stress.

## **Impact of Increased Parental Involvement**

Most parents hold themselves to relatively high standards in regard to cultivating and monitoring their children through their childhood and adolescent years. However, the characteristics of Generation Z's parents have contributed to the increase in more intensive parenting techniques. Parents of Generation Z students are more familiar with technology than parents in older generations. Also, Generation Z parents grew up with many social and economic hardships including an unstable economy and financial insecurities. As a result, these parents became accustomed to using their technological skills along with their natural tendency to worry about their children's safety and success in parenting strategies. They exert more control over their children compared to parents in previous decades. "To satisfy these high standards, parents utilize a broad array of technological devices, making intensive parenting a socio-technological trend" (Bernstein & Triger, 2011, p. 1221). Additionally, the increasingly competitive U.S. economy and higher rates of income inequality have led to smaller family sizes and enabled parents to invest more time cultivating each child and preparing them for success in the 21<sup>st</sup> century. Although there are many positive aspects of this trend, including more safety and security, there are also numerous concerns.

According to life history theory, Generation Z adolescents are following a slow life strategy as they live in a resource-rich environment with a more predictable future (Twenge & Park, 2017). These students expect to graduate from high school, receive a college degree, and then to proceed to obtain an internship, go to graduate school, and get a job. Additionally, Generation Z students are doing many adult activities, that are typically experienced in adolescence, later on than adolescents in previous generational

cohorts. Data obtained from this study was drawn from four databases that examined several generations when they were in the adolescent stage of development, which has allowed the current research to make inferences based on the cultural changes rather than age.

The data show significant decreases in this population's engagement in adult activities; they are in fewer romantic relationships, drinking less alcohol, going out without their parents less, and not engaging in as much sexual intercourse as adolescents in years past (Twenge, 2017). They are also less likely to have experience working for pay and driving (Twenge, 2017). Engagement in these adult activities is paramount in adolescent development as these are the events that allow teens to experience freedom and independence on their own. These activities force teens to make personal judgments and decisions, which lead to consequences as well as rewards. These consequences and rewards are dealt with on internal and external levels. In essence, these experiences enhance learning—it is through these experiences that adolescents develop their own values, beliefs, and identity. It is where they learn many fundamental skills relative to relationships, responsibilities, and overall health and well-being. It is clear that Generation Z adolescents are experiencing higher levels of academic stress due to increased pressures to succeed in education and a competitive 21<sup>st</sup> century society. However, a slower developmental path in adolescence is contradictory to the idea that students are preparing for adulthood earlier in life, and indicates that parents of Generation Z students play a significant role in shaping their adolescent children. The more involved the parents are in their Generation Z child's life, the more likely the teenage child is to remain on a slower developmental path.

Daniel Siegel, an adolescent psychiatrist and the author of *Brainstorm: The Power and Purpose of the Teenage Brain*, reported in the *Washington Post* that, “[i]n a culture that says ‘okay, you’re going to go to high school, go to college, go to graduate school and then get an internship, and you’re not going to really be responsible till your late 20s’, well then the brain will respond accordingly” (Bahrapour, 2017, para. 19). Dr. Twenge (2017) points out that it is a natural tendency for teens to resist parental guidance and restrictions. Traditionally, teens are known to battle their parents’ rules and expectations. However, from 2005 to 2015, the number of teens who had more than three serious fights with their parents in one year dropped from 66 percent to 56 percent (Twenge, 2017). Additionally, data from the Monitoring the Future (MTF) study shows a significant increase in the number of parents that always know where and who their teenage child is with. There was also a major drop in the percentage of teens that tried to run away from home from 2015-2010. “Since running away is virtually never a parent’s idea, it gives a view into what teens are thinking on their own—their deepest feelings unfettered by parental guidance” thus, iGen teens and their parents are on the “same page of growing up more slowly” (Twenge, 2017, p. 44). These findings all support the theory that members of iGen are in no hurry to immerse themselves into adulthood. “These individuals have a large chance of surviving into the future to reap the benefits accrued through investments in somatic development and parental effort” (Zhang et al., 2015, p. 3). Parents’ investments in Generation Z children has increased to help children meet the expectations of the current society.

## **Impact of Technology on Generation Z Adolescents**

In 2016, the MTF study determined that high school seniors spent approximately six hours of leisure time each day engaging in digital media. The percentage of students who read print media continues to plummet (Twenge, 2017). Social media has taken over as today's teens are developing their social skills via Instagram, Snapchat, FaceTime, and texting rather than through in-person social interaction. It makes sense that iGeners are adapting to this new environment with more parental guidance and control as they have less of a need to independently interact with their peers in person. The number of high school seniors who attend parties once a month more has dropped about 15 percent from 1976 to 2015 (Twenge, 2017, p. 70). The percentage of iGen teens who interact with their peers on a daily basis has decreased by 50 percent from 1976 to 2015. In 2016, college students were found to spend seven hours less engaging in on activities involving in-person social interaction than college students in the 1980s (Twenge, 2017, p. 72). These data imply that the increase in screen time contributes to the significant decline in adolescents engaging in experiences that are critical to enhance social skills, cultivate positive and intimate relationships, and navigate emotions. Concurrently, adolescents who spend more time on the screen are found to have higher rates of stress, anxiety, and depression.

Technological advancements have been found to have both positive and negative impacts on adolescents' physical and mental health. One qualitative research study examined 128 students (ages 13-14) on their perceived technological impact on both cognitive and psychosocial development (Fitton et al., 2013). The results showed that students were confident with their technology skills, and their proficiencies helped them

to expand their knowledge, be creative, and develop critical thinking skills. The researchers discovered that the adolescents understood the importance of technology in developing academic skills in addition to developing cognitive skills that are needed for their futures and careers. In regards to students' psychosocial development, the results showed that students utilized technology to communicate with friends, create new relationships, and to cope with stresses and anxieties. In essence, the qualitative analysis in this study indicates that students perceive technology to have a positive impact on their cognitive and psychosocial development and skills.

Despite these positive findings, the research is limited in the fact that the data is self-reported by the adolescents. The qualitative method used to research this problem does not adequately explore the negative aspects associated with adolescent use of technology. For example, the analysis did not consider the increased sedentary behavior that has resulted from more screen time and how this affects the physical and mental health of adolescents (Schwartz, 2010). Furthermore, the study did not thoroughly examine students' perceptions of the psychosocial effects of cyberbullying, face-to-face interaction, self-esteem, attention, etc. Utilizing quantitative methods in addition to a qualitative study would provide stronger research as data could be drawn to make more accurate conclusions.

A systematic review was conducted to determine the relationship between sedentary behavior and adolescent mental health issues (Hoare et. al, 2016). One strong quantitative study in this systematic review examined 2,660 Canadian adolescents (Trinh et. al, 2015). The results demonstrated that adolescents who spend more time engaging with technology (browsing the Internet, playing video or computer games, emailing, text



messaging, etc.), experience more psychological distress, lower self-esteem, and depressive symptoms. This study's results prove that technology does have the ability to affect the mental health of individuals negatively. However, this study implies that technology increases sedentary behavior, yet it does not discuss the effect of sedentary behavior on the physical health of adolescents.

Consequently, the results are a vital part of the research problem as there is a strong connection between the physical and mental health of an individual. Many studies confirm that participation in physical activity is essential for healthy cognitive development to take place. The following section will explore the physiological and the psychological effects of these cultural changes on the developing adolescent brain. More specifically, the literature will illustrate how these significant changes are affecting the development of self-regulation skills for Generation Z adolescents.

### **Self-Regulation for Generation Z Adolescents**

The Partnership for 21<sup>st</sup> Century Learning (2015) identifies communication and collaboration as crucial skills for success in the 21<sup>st</sup> century. To effectively communicate and collaborate with others to attain a goal, individuals must have control over their thoughts, emotions, and behaviors so they can moderate or alter them as needed in pursuit of goals. "A good self-regulator will pay attention to task, persist when it becomes difficult, demonstrate flexibility and be confident that additional effort will lead to positive outcomes" (Uhls, 2012, para. 5). Researchers and theorists have proposed various definitions of self-regulation. For this review, the definition of self-regulation comprises the executive skills that allow individuals to moderate or change their thoughts, actions, and emotions to achieve a goal(s). "People need to inhibit their

impulses, stifle their desires, resist temptations, undertake difficult or unpleasant activities, banish unwanted and intrusive thoughts and control their emotional displays” (Heatherton, 2011, para. 10).

These skills are crucial especially for adolescents with whom risky and impulsive behavior is typical due to various environmental and biological factors. Self-regulation skills for Generation Z late adolescents (ages 18-21) are imperative for a successful transition from adolescence to adulthood. In American society, during these particular ages, adolescent students physically separate themselves from their parents as they graduate high school and proceed to obtain a college degree. For late adolescents to reach academic, social, and lifelong goals, they need to develop self-regulation skills that will help them stay on track to success. As reviewed in the previous sections, educational policies and social trends have caused an increase in expectations for adolescent students, resulting in higher stress and anxiety levels. Parents exert more control over their teenage child in the 21<sup>st</sup> century than parents in previous decades. These cultural changes have led to a slower developmental path for Generation Z adolescents (Twenge & Park, 2017). Also, the excessive use of technology is a major cultural factor affecting adolescent development. The decrease in physical education programs and increase in screen time has contributed to the decline in physical activity levels amongst today’s adolescents.

The American educational system is deficient in its curricular focus on adolescents’ physical and mental well-being; this contributes to the lack of cognitive skills needed for positive self-regulation. The demanding factors of the current environment have affected Generation Z’s ability to self-regulate. For Generation Z late adolescents who are so accustomed to their safe environments at home with their parents,

the transitional periods can be incredibly distressful. The research on Generation Z indicates that self-regulation skills are all the more crucial for this target population to thrive in the progressively competitive society of the 21<sup>st</sup> century.

### **Cognitive Development in Generation Z Adolescents**

Previous research has confirmed that the brain is in one of its most dynamic states of development during adolescence. Adolescence consists of the period in which puberty takes place and provokes further physical, cognitive, and psychological development for an individual ranging from 11 - 25 years of age (Araia et al., 2013). The adolescent brain is susceptible to the surrounding environment; this means that cognitive functions can quickly change and develop according to the range of experiences that take place during adolescent years, and is referred to as “plasticity” (Giedd, 2012, para. 5). During this time, the brain is actively rewiring neural circuits based on environmental stimuli. The neural networks develop between multiple parts of the brain including the amygdala, cerebellum, hippocampus, prefrontal cortex (PFC), etc. As the efficiency of the connections between these disparate parts of the brain increases, maturation occurs.

The PFC is a key component in adolescent brain development as its main functions involve aspects of control. It plays an intricate role in developing neural networks relative to attention, inhibitory control, planning, flexibility, delay of gratification, higher level problem-solving skills, and emotion regulation (Siddiqui et al., 2008). It is one of the last brain regions to reach full maturity. “There are several executive functions of the human prefrontal cortex that remain under construction during adolescence” (Araia et al., 2013, para. 16). Neural circuits between the PFC and other

brain regions evolve and become more efficient with time and experience for an individual.

Many cognitive functions that develop within the prefrontal cortex throughout adolescence are correlated with skills needed for self-regulation. “The prefrontal cortex intelligently regulates our thoughts, actions, and emotions through extensive connections with other brain regions” (Arnsten, 2009, p. 410). Self-regulation includes skills needed to adapt to changes and environmental demands. For example, individuals with good self-regulation skills can maintain their focus on a task, remain persistent as they navigate around setbacks, learn from failures, and remain confident that positive results will come because of this process. Since adolescent brains are extremely vulnerable and adept at adaptation, what they experience during these years will significantly affect the development of cognitive skills relative to self-regulation. “If a teen is doing music, sports or academics, those are the connections that will be hardwired. If they’re lying on the couch or playing video games, those are the cells and connections that are going to survive” (Spinks, 2000, para. 6).

The experiences of iGeners play a vital role in the development of their PFC. In 2016, first-year college students showed all-time highs in mental health issues, including an 18 percent increase in emotional health issues, a 51 percent increase in anxiety, and a 95 percent increase in students who felt depressed (Twenge, 2017, pp. 103-104). The data convey that the amount of in-person social interactions that Generation Z late adolescents engage in has significantly declined compared to previous generations at the same age (Twenge, 2017). The human brain has evolved according to the social context in which it exists. The social brain allows one to understand others’ intentions, emotions, and actions

as well as their own. These cognitive functions are the fundamental skills that will enable individuals to regulate their feelings, thoughts, and behaviors that are stimulated by social interactions with others; this includes self-regulation abilities for internal control of the self as well as external power (Frith, 2007). Thus, the significant rise in mental health issues, in addition to the decrease in in-person social interaction for iGen adolescents, indicates that their brains are developing differently than in years past.

“Self-regulatory failure is a core feature of many social and mental health problems” (Heatherton & Wagner, 2011, para. 1). In adolescence, the prolonged development of the PFC permits intricate neural networks to develop based on experiences. The lack of independent experiences amongst Generation Z late adolescents has contributed to the deficiency in their lack of cognitive skills for self-regulation. The fear of emotional connection with others, decrease in intrinsic life goals, and increase in physical and mental safety has led Generation Z adolescents to an empty state of existence (Twenge, 2017). There are less in-person social interactions and emotional connections due to the higher expectations in society and the excessive use of technology. The lack of these experiences contributes to less happiness and more loneliness (Twenge et al., 2002).

Additionally, iGener’s are adapting to society’s expectations of graduating from high school, earning a bachelor’s degree, and proceeding to get a job to establish financial security and independent success. These expectations contribute to the slower development of Generation Z adolescents. Their focus on a safer and more secure environment has stifled their natural social tendencies to explore relationships and intimacy, engage in independent experiences, and learn from taking risks. Instead, these

adolescents engage in more screen time, and they expect instant gratification from social relations. The limbic system is the brain region that is stimulated by social and emotional stimuli (Steinberg, 2007). This brain region develops faster than the PFC. Thus, the instant rewards that are granted by advanced technology and the emotional responses that occur override the rational, controlled thought processes that take place in the PFC.

Given that Generation Zer's are on a slower developmental path, these new types of experiences are hindering the development of positive self-regulation skills. Rather than learning through traditional adolescent experiences of independence, these students are internalizing constant social pressures from parents, schools, and peers through a technological platform. This rapid and continuous internalization of stress, negative emotions, and instant rewards leads to mental health disorders. Self-regulation skills enable these students to cope with stresses and regulate emotions in pursuit of goals, planning, and executing to achieve short-term objectives as well as long-term goals. These self-regulatory abilities are essential to effectively progress and succeed in the 21<sup>st</sup> century. The prolonged maturation periods of the PFC in addition to a slower developmental path indicates that the brains of Generation Z adolescents are adapting more to the environmental stimuli that promote negative cognition. Practices must be implemented to enhance cognitive abilities relative to self-awareness, empathy, and purpose to improve the development of positive self-regulation skills for Generation Z adolescents.

### **Mindfulness Approach**

Many of us have forgotten how to live a good and joyful existence (Penman & Williams, 2011). As Dr. Twenge (2017) revealed, 82 percent of entering college students

in 2016 believed that financial success is an essential life goal versus only 47 percent of students who thought that “developing a meaningful philosophy of life” was important (p. 168). While there are many approaches to cure or find remedies for the rising mental illnesses, mindfulness has become a keyword in research today. From 1980-2013, mindfulness research publications continued to increase (Black, 2014). The study and practices of mindfulness have been implemented in a variety of industries including medicine, neuroscience, psychology, education, and business. Research indicates positive outcomes with the practice of mindfulness regarding psychological-cognitive development and health.

Mindfulness is often considered a practice that relates to a religious philosophy. While mindfulness is a practiced involved in religion, it is practiced through secular traditions from Hinduism, Buddhism, yoga, and non-religious meditation. Mindfulness has been exercised through these traditions for thousands of years. Its roots can be understood in Eastern religions where this practice was generally popularized. While mindfulness is primarily learned through the ancient philosophies of Buddhism and Hinduism, it also has roots in Judaism, Christianity, and Islam (Trousselard et al., 2014).

Hinduism, while difficult to define its history, is considered the oldest existing religion in the world. Hinduism focuses on individual disciplines such as meditation, yoga, and chanting—unifying the concept of karma. Hindus believe karma is the foundation of life. Karma has been defined as the essence of an individual derived from past and present thoughts and actions—what one has earned and what determines future (Herbst, 2017). The foundation of Hinduism promotes acceptance and peacefulness.

*“I am a Hindu because it is Hinduism which makes the world worth living. I am Hindu hence I love not only human beings, but all living beings.” (Mahatma Gandhi)*

Mindfulness has been a cyclical aspect of Hinduism. Due to its belief in practices such as yoga and meditation, Hinduism has a strong correlation with mindfulness and its origins. Buddhism, common to Hinduism, focuses on the presence of dharma. Dharma, though difficult to define, translates to the way of life that is in harmony with the natural order of the universe. Buddhism was founded around the time 400-500 B.C.E. by Siddhartha Gautama (Herbst, 2017). Researchers have stated the word mindfulness relates to the Buddhist concept of sati. Sati is considered the first step toward enlightenment in Buddhism (Herbst, 2017).

The philosophy and practice of mindfulness through its origins relate to mind and body connection through awareness and enlightenment of self in the present moment. Throughout decades, mindfulness has proven its positive effects on the brain and body connection of the human being. Due to its positive impact, mindfulness is not practiced solely as a religion but has continued to increase in adaptation and knowledge in Western culture as a secular practice. Recently, one of the biggest influences on mindfulness in the West is Jon Kabat-Zinn, who founded the Center for Mindfulness at the University of Massachusetts Medical School and the Oasis Institute for Mindfulness-Based Professional Education and Training (Herbst, 2017). Kabat-Zinn also developed and founded the well-known Mindfulness-Based Stress Reduction (MBSR) program. MBSR is an eight-week program designed for the reduction of stress of participants and has been



implemented throughout industries such as medical, educational, and business. Kabat-Zinn was inspired under several Buddhist teachers including Thích Nhất Hạnh. Hạnh is an influential and popular figure in Western mindfulness, which provided Jon Kabat-Zinn the knowledge and foundation to integrate mindfulness with Western science to develop his programs (Herbst, 2017).

*“Mindfulness is an awareness that arises through paying attention, on purpose, in the present moment, non-judgmentally” (Kabat-Zinn, 2010).*

Professor Barbara Fredrickson and colleagues at the University of North Carolina at Chapel Hill researched the positive effects of mindfulness on mood enhancements. Throughout this study at the University of North Carolina, meditators developed an increased sense of purpose, had fewer feelings of isolation and alienation, and experienced decreased symptoms of illnesses including headaches, chest pain, congestion, and weakness (Penman & Williams, 2011). Research conducted at the University Medical Center at Groningen, Netherlands, indicates increases in positive mood and well-being are directly related to becoming more aware of routine daily activities, observing and attending to the ordinary experiences of life and acting less automatically; accepting thoughts and emotions without judgment and learning to be open and curious (Penman & Williams, 2011).

Abundant evidence has indicated positive effects on physical health among participants (Penman & Williams, 2011). A study funded and published by the U.S. National Institutes of Health and published in 2005 found a massive reduction in mortality. There was a 30 percent decrease in cardiovascular mortality as well as mortality related to cancer. The study was conducted throughout a 19-year period, which

included a combined controls group and a meditation group (Penman & Williams, 2011). Mark Williams and colleagues developed an eight-week mindfulness-based cognitive therapy (MBCT) course. Research indicates MBCT significantly reduces the chances of suffering from depression (Penman & Williams, 2011). The UK's National Institute for Health and Clinical Excellence (NICE) now recommends MBCT for patients suffering from a history of three or more episodes of depression (Penman & Williams, 2011).

### **Mindfulness and Interpersonal Neurobiology**

Interpersonal neurobiology explores fundamental aspects of how particular exercises can influence changes in the neural connections that take place in the brain. The mind is the “activity of the brain in addition to including consciousness and subjective experience; it is seen as an emergent, self-organizing, embodied and relational process that regulates the flow of energy and information” (Siegel, 2015, para. 5). Mindfulness practices can train adolescents to develop awareness as to what is happening in their own minds. The neural networks that allow communication to take place between disparate parts of the brain are still being developed in adolescence. Therefore, practicing mindfulness will positively contribute to the development of cognitive skills and psychological health.

In Generation Z adolescents, the lack of cognitive skills relative to emotion regulation and inhibitory control affects the integration of neural connections. By bringing awareness to the internal workings of the mind, the PFC activates. The PFC is responsible for coordinating and balancing information flow between other parts of the brain including the limbic system (Siegel, 2013). Clinical trials have now shown hugely positive effects on the brain translate into benefits for our sense of happiness, well-being,

and physical health (Penman & Williams, 2011). Scientific research has shown through the use of brain imaging that the insula becomes energized through meditation and mindfulness practices. This specific portion of the brain is essential for one's sense of connectedness. The longer a person practices mindfulness, development of the insula in the brain increases. This effect increases human empathy (Penman & Williams, 2011). When empathy develops at the neurobiological level, skills relative to social and emotional regulation will evolve. Therefore, a mindfulness approach to remodeling the brain of Generation Z adolescents is one-step closer to enhancing the development of positive self-regulation skills.

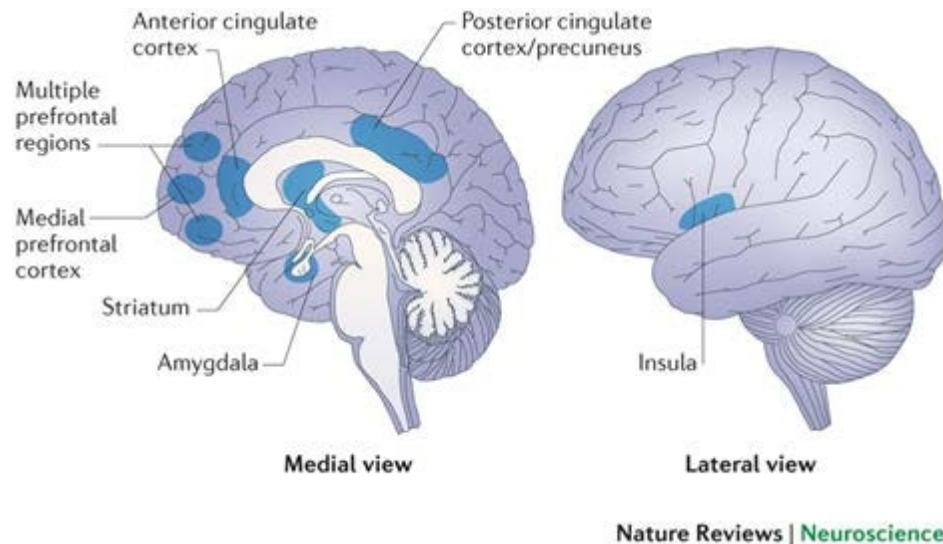


Figure 1. Brain regions involved in the components of mindfulness meditation.

(from: Tang, Y. Y., Hölzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. *Nature Reviews Neuroscience*, 16(4), 213-225.)

## Mindfulness and Self-Regulation

Researchers Kirk Brown and Richard Ryan at the University of Rochester discovered those who practice mindfulness develop an increase in awareness of values and are more likely to engage in *self-directed* activities (Penman & Williams, 2011, pg.

51). In Generation Z adolescents, the high levels of stress and anxiety in addition to the underdeveloped PFC contribute to the lack of self-regulation skills. In order to direct oneself toward achievement of goals, self-regulation skills are necessary. This indicates that Generation Z must first be able to cope with their anxiety and stress. There are several studies that show how mindfulness training can improve students' coping abilities to decrease these mental health issues.

MBSR indicates an increase in “awareness, non-striving, and acceptance of present moment experience” (Hjeltnes et al., 2015, p. 1). The MBSR is an eight-week mindfulness-based training program developed to ease anxieties, including social anxieties. This program involves systematic training in mindfulness exercises, Haṭha yoga, group discussions, and homework between classes (Hjeltnes et al., 2015). A clinical study at the University of Bergen, Norway, tested the effectiveness of the MBSR program for university students evaluating anxieties. This qualitative study interviewed 29 university student participants of which five common themes were identified after completion of the program: (1) finding an inner source of calm, (2) sharing a human struggle, (3) staying focused in learning situations, (4) moving from fear to curiosity in academic learning, and (5) feeling more self-acceptance when facing difficult conditions (Hjeltnes et al., 2015, p. 5). Overall, the MBSR program proved positive results for participants experiencing anxieties that, in turn, provided a means for greater self-regulation, self-awareness, and academic performances.

A non-profit organization called Peace in Schools launched the first for credit mindfulness course in Portland, Oregon. This course has been implemented in five high schools, is expanding to date, and is designed specifically for adolescents. Its vision is to

teach students about the interpersonal neurobiology of mindfulness practices and train students to experience and realize the importance of this discipline in education.

Mindfulness in education continues to increase as research demonstrates the cognitive and psychological benefit for students. While research states significant needs and benefits to this practice and its implementation, the National Center for Complementary and Integrative Health reports only 8 percent of Americans are aware of the benefits of meditation and mindfulness practices (NCCIH, 2016). This research suggests that mindfulness practices will be beneficial for the high rates of stress and anxieties amongst Generation Z adolescents.

## **Conclusion**

The slower developmental path of Generation Z adolescents in addition to their excessive use of technology indicates that the brains of these generational cohort members are developing differently. The decrease in the percentage of this population that participates in adult activities and the reduction in education's curricular focus on physical and mental well-being has caused a deficiency in the development of cognitive skills relative to self-regulation. Cultural influences have contributed to a dramatic increase in stress, anxiety, and lack of socialization skills for this student population. Adolescent brains are in an extreme stage of neuroplasticity; their increased susceptibility to negative emotions and thoughts poses significant risks as the higher-level cognitive functions of the PFC are undergoing prolonged maturity. "The prefrontal cortex is the most notable for the executive functions that support the various cognitive processes that are involved in self-regulation" (Heatherton, 2011, para. 33). For Generation Z late adolescents to maintain positive well-being and progress in the 21<sup>st</sup> century, educators

need to develop and implement strategies to meet the needs of this specific target population. Generation Z adolescents need to be educated and trained in a way that will improve their cognitive skills for positive self-regulation.

Self-regulatory skills that are developed from independent activities and in-person social relations are notably lacking for Generation Z adolescents. To hinder the negative emotions and constant stresses that override the cognitive functions of the still-maturing PFC, strategies to activate this significant brain region must be implemented for positive cognitive development to take place. Mindfulness practices have proven to be effective in rewiring the brain in ways that develop skills relative to self-awareness, empathy, and emotional intelligence. Although research suggests that this unique population will benefit from mindfulness practices, the slower developmental path indicates a need for a greater activation in the PFC; this will assist in balancing the higher level of cognitive-psychological skills that are vital in enabling positive self-regulation for a successful transition into adulthood.

## CHAPTER III: RESEARCH DESIGN AND METHODOLOGY

### Introduction

There is a recent paradigm shift in society due to various cultural factors including an increase and excessive use of technology as well as a decrease in the health and wellness of adolescents (Charvat, 2012). This shift has had a direct influence on Generation Z, those born between 1995 to 2012. According to the American College Health Association (2013), statistics show college students experiencing high levels of stress, anxiety, depression, a lack of self-regulation skills, and other mental health disorders. One in four students has a diagnosable illness, and 50 percent have become so apprehensive that they struggled in school (Top 5 Mental Health Challenges Facing College Students, 2018). The dependency on technology and lack of physical activity are altering the brain development of this generation. One could argue that more focus should be on the mind-body connection to improve the development of cognitive-psychological skills in Generation Z adolescents. “To recruit, educate, and graduate this new generational cohort effectively, educators must understand the overarching characteristics, perspectives, and styles of these students” (Seemiller & Grace, 2017, p. 21).

Technology is advancing daily. Due to this, educators have witnessed an uninterrupted series of technological improvements that are changing culture. Literature suggests that these changes directly impact the mind-body development of students and their overall ability to succeed (Centers for Disease Control and Prevention, 2020). In addition to these technological developments, there has been a decrease in physical activity for today’s youth. According to the Center for Disease Control and Prevention

(2020), “higher physical activity and physical fitness levels are associated with improved cognitive performance (e.g., concentration, memory) among students” (para. 6).

Furthermore, exercise has a direct relationship with the executive functioning of the brain, including increasing oxygen flow to the brain as well as 30 augmenting brain neurotransmitters. Educators should consider incorporating a forward-leaning, mind-body perspective in classroom discussions and exercises in the traditional classroom setting. Generation Z students lack the cognition skills needed for self-regulation. According to the National Alliance on Mental Illness (NAMI), research has found an increase in anxiety between this demographic (Top 5 Mental Health Challenges Facing College Students, 2018).

Developments in technology have also played a fundamental disturbance in every aspect of their lives.

“Psychologically, however, they are more vulnerable than Millennials were: Rates of teen depression and suicide have skyrocketed since 2011. It is not an exaggeration to describe iGen as being on the brink of the worst mental-health crisis in decades” (Twenge, 2017, para. 10).

Educational practices need to incorporate the science behind the mind-body network. Consequently, the researchers of this study will create a website to provide methods and strategies that can be implemented to successfully promote the development of mind-body connection for this target population. The site will include videos, testimonials, curriculum details, framework, and extensive modules highlighting a procedure to help educators with implementation within their respective institutions.



## **Hypothesis and Rationale**

The primary hypothesis of this study is that a cross-curricular neuroeducation-based wellness curriculum will (1) enhance students' abilities to cope with stresses and anxiety in order to improve self-regulation skills, and (2) improve physical and mental wellness. The hypothesis was based on inductive logic given that the premises stated above can be used as a link in concluding the research finding.

## **Purpose of the Study**

The purpose of this study is to improve self-regulation skills and overall wellness in Generation Z students by developing a neuroeducation-based wellness curriculum. This segmented group will focus on Generation Z students. This study will sample administrators and faculty at a four-year, private, higher education institution in southeastern Florida to address the results of mindfulness practices in Generation Z students. This research will attempt to answer the following questions:

1. RQ1: How do you think mindfulness influences mental health?
2. RQ2: Is there any specific content that you think will be helpful in the iMindAcademy curriculum for Generation Z students? Please explain.
3. RQ3: Do you think the mindfulness-based iMindAcademy curriculum will provide positive results on the overall campus community? Please explain.

Based on extensive research and given the paradigm shift caused by cultural factors including continuous technological advances, this is a critical issue to study.

Robert A. Bonfiglio, Vice President for Student and Campus Life at the State University New York Geneseo, stated in the article "High Anxiety in Higher Education," that he

“referred to reports in publications such as *The New York Times* and *The Chronicle of Higher Education*, and quoted Daniel Smith that ‘recent studies have found that, among college students, neuroticism levels have increased by as much as 20 percent,’ and the demands placed on campus mental health services have grown dramatically in recent years” (2015, p. 27).

Some significant emotional challenges that students face include anxiousness, fear, concern, and doubt. According to *The New Science of Health and Happiness*, anxieties create sub-problems for students in their everyday development. These sub-problems include irritability, depression, Attention deficient hyperactivity disorder (ADHD), loss of self-control/focus, and lower test scores.

Due to the proliferation of emotional instability, educators are faced with these increasing challenges more so than in generations past. Mindfulness practices and implementations may alleviate these obstacles and have a positive effect on Generation Z students. Mindfulness practices in the classroom have resulted in less anxiety among students.

“Mindfulness-based intervention emphasizes awareness, non-striving, and acceptance of present-moment experience, which may seem paradoxical for young people in a stressful academic situation, where achievement and high performance on exams may appear imminently important for their future life” (Hjeltnes et al., 2015, p. 1).

The preceding paragraphs provide a strong indication that educational programs are insufficient in promoting positive cognitive-psychological health and development for students. Moreover, this is due in part to the decrease in physical education and health

curricula in schools throughout the nation. At the same time, the current culture has set high expectations for students, which have caused stress and anxiety levels to rise dramatically (Twenge, 2017). Higher standards in education increased pressure from parents, and increased competition for college admission and work in the 21<sup>st</sup> century, which are also factors to consider. Additionally, the excessive use of technology amongst Generation Z has been linked to the mental health issues they are experiencing (Twenge, 2017).

According to Corey Seemiller and Meghan Grace, authors of the book *Generation Z Goes to College*, Generation Z students have indicated they intend to seek counseling services; however, they may not receive the services they need due to “limited accessibility for counseling due to high fees, limited hours, or even the lack of a counseling center on campus” (Seemiller & Grace, 2017, p. 197). The purpose of this study is to utilize findings from literature to devise a useful program that will benefit Generation Z students; notably, the curriculum will equip students with the appropriate knowledge and skills that are needed for positive self-regulation. This curriculum intends to be a proactive approach to ensure Generation Z students are on track to positive cognitive-psychological development.

### **Significance of the Study**

The deficiency in a curricular focus on physical and mental wellness in addition to the rapid increase in mental health issues implies that current educational practices are not sufficient in meeting the needs of this target population. Generation Z students lack the knowledge and skills needed for positive cognitive-psychological health and development. To moderate and reverse the adverse effects of these cultural influences,

educators need to reevaluate educational programs and revise current strategies to be more effective in promoting positive brain development for Generation Z students. This is an initiative that needs to be brought to the forefront to ensure Generation Z is on track to develop cognitive and psychological skills relative to self-regulation and overall wellness (Twenge, 2017).

Self-regulation is a critical skill needed to thrive in the 21<sup>st</sup> century. Based on research, if actions are not taken to enhance the development of these students, they are more likely to be at risk for cognitive decline and reduced physical and mental well-being. It is crucial for educators to take the initiative to better promote positive cognitive-psychological development for this particular student population. The study will contribute to the literature as it intends to investigate the contemporary culture of educational institutions in the 21<sup>st</sup> century and to determine how they can better enhance their students' wellness. There is currently little research on this topic regarding this particular population and setting.

### **Variables**

The study will attempt to identify educators' knowledge on mindfulness practices in regard to overall wellness. The neuroeducation-based wellness curriculum is the primary independent variable in the study.

### **Research Design**

This study will sample administrators and faculty at a four-year, private higher education institution in southeastern Florida to address the results of mindfulness practices. The emphasis of the focus group is centered on developing a neuroeducation-based wellness curriculum. The curriculum will be showcased on the website

iMindAcademy, which will incorporate curriculum on mindfulness practices such as meditation, yoga, journaling, and cultivating connections. There will be two homogenous focus groups consisting of administrators and faculty members that will meet at a predetermined time and location. From the focus groups, the researchers hope to understand the interviewees' perceptions of mindfulness practices of Generation Z students. The qualitative data will also be evaluated to determine the usefulness of the website. Focus groups will be used to assess the qualitative questions as delineated below:

1. RQ1: How do you think mindfulness influences mental health?
2. RQ2: Is there any specific content that you think will be helpful in the iMindAcademy curriculum for Generation Z students? Please explain.
3. RQ3: Do you think the mindfulness-based iMindAcademy curriculum will provide positive results on the overall campus community? Please explain.

The researchers will examine common themes found within the open-ended answers and improve the website and curriculum accordingly.

### **Sample**

This study will sample administrators and faculty at a four-year, private higher education institution in southeastern Florida who are at least 21 years of age. The rationale for subject selection is that these individuals work on a daily basis with Generation Z students. Also, it is the hope that these individuals might be more candid with their responses to iMindAcademy, given the criteria for participation is professionals at private higher education institutions.

## **Instrumentation**

The study will utilize qualitative instrumentation to evaluate and answer the research questions. To collect qualitative data, the researchers will conduct focus groups consisting of administrators and faculty members. The audio-recorded interview will be evaluated to compare data on participants' understanding of the mindfulness practices of Generation Z students. The emphasis of the focus group is centered on the creation of the iMindAcademy website's curriculum.

## **Procedures**

The research team will email the provost at the four-year, private higher education institution in southeastern Florida (Appendix A). Upon approval to conduct the research by the provost, the researchers will send an email (Appendix B) to potential participants with a brief description of the study; the researchers will select administrators and faculty to participate in the study. Participants must be 21 years of age or older. To protect confidentiality, all participants will be given pseudonyms. Participants will be invited to attend a focus group interview in order for the researchers to gain a better understanding of their perceptions on the iMindAcademy curricular framework. Once the invitations are accepted, the groups will meet at a predetermined time and location. The proctors will consist of the three members of the research team and will explain the proposed curriculum. Proctors will delineate a version of the curriculum and will provide the opportunity for questions and answers. Shortly after questions and answers, the researchers will conduct the qualitative focus group. An audio recorder will be used to transcribe the data following the interview. The researchers will then further examine and

outline the iMindAcademy curriculum and make appropriate modifications to the website.

### **Curriculum Practices**

The curriculum practices that will be implemented include a multitude of topics, including but not limited to mindfulness, meditation, yoga, the power in the self, goal-setting, overall wellness, and cultivating connections. The critical curriculum components that will be discussed in-depth throughout instruction and emphasized upon and developed in modules include: (1) underlying cognitive processes, (2) cognitive health and development, (3) intricate connection between mind and physical body, (4) positive cognition, (5) proper nutrition, (6) holistic well-being, (7) interpersonal skills, (8) intrapersonal competencies, (9) emotional intelligence, (10) mental fortitude, (11) mental toughness, (12) the social brain, and (13) cultivating connections.

*The basic structure of the modules.* The modules will be designed with the following agenda:

#### **• Module One: Mind-Brain-Body (I)**

Goal: to educate students on differences between the mind, brain, and body

Recommended activities: meditation, breathing, yoga, physical activity/exercises, and recognizing mindfulness/awareness

#### **• Module Two: More of Me (ME)**

Goal: to empower students with a knowledge of a greater sense of self

Recommended activities: a socio-cultural autobiography (where I have been);

StrengthsFinder assessment and personal SWOT analysis (where I am); fostering a growth mindset; identifying values, goals, and purpose; mantras, intentions, and a vision

board (where I will be)

• **Module Three: Cultivating Connections (WE)**

Goal: to prepare students for holistic wellness beyond the classroom

Recommended activities: ethics (what would you do?); stepping into uncomfortable situations (become comfortable, being uncomfortable); creating a social movement campaign; volunteering (off-campus); ice-breakers, physical activities, and rope course/circle of trust; social media positive activities including blogging; understanding emotional intelligence; understanding the significance of verbal/non-verbal communication; interpersonal and digital communication; learning about empathy, regulation, mindfulness and the social brain in relation to cultivating connections with others.

This knowledge base can then be expanded upon to further develop students' internal abilities relative to self-regulation skills, mental toughness, and emotional intelligence.

**Data Collection**

A member of the research team will administer the focus group and participate in an open dialogue. A second member of the team will be assigned the task of collecting the data. The third member of the research team will be responsible for recording the audio of the focus group.

Three open-ended questions will be conducted during the research with administrators and faculty members. The researchers will be available to facilitate and address any issues that might ensue. The first question will focus on the general understanding of mindfulness. The second question will seek to gain an understanding of the educators'



perspective on the iMindAcademy curriculum, and whether additional content should be implemented to benefit the target audience. The third question will pay particular attention to the participants' feelings of the iMindAcademy curricular framework implemented in a campus community.

### **Data Analysis**

The researchers will collect the qualitative assessments after completion of both focus group interviews. Once the researchers transcribe the data, they will analyze it to derive common codes and themes. The themes will be further analyzed and displayed through a table representation. This will allow the researchers the opportunity to identify the minimum and maximum of the participants' responses to each question as it relates to common themes. Through critical thought and analysis, the researchers will compare this qualitative data to the findings of similar research studies in the literature review. The data will be summarized, and findings will be linked in an effort to answer the research questions. Below is a workflow chart of the study and includes the scheduled phase, procedure, and product.

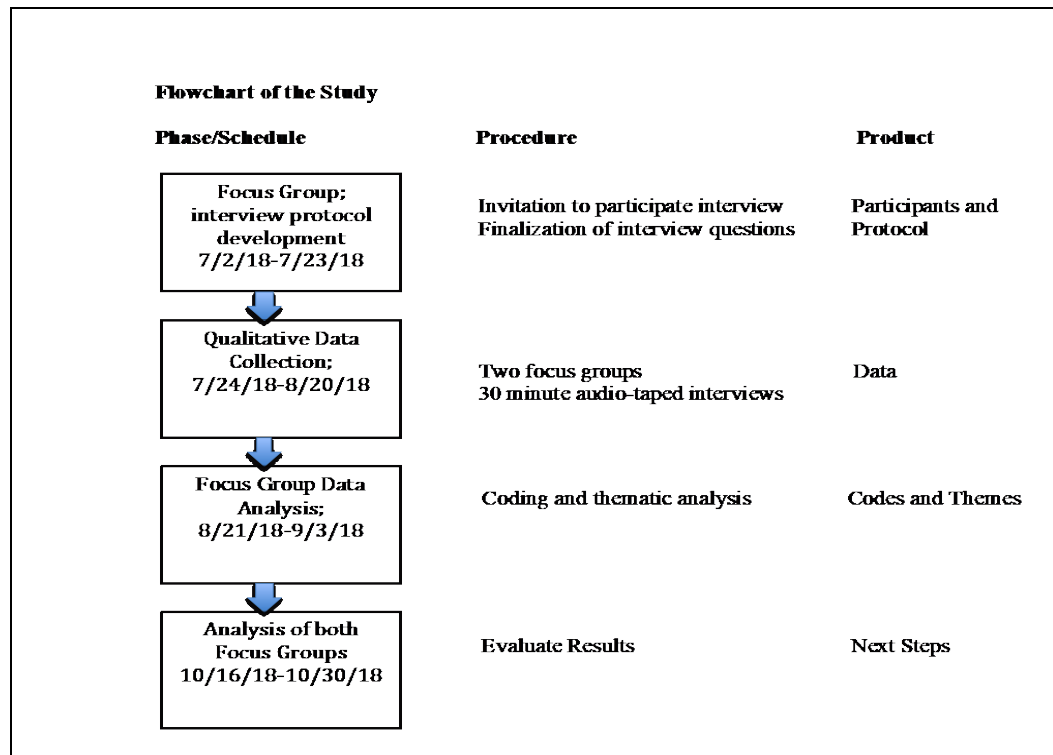


Figure 2. Diagram of timeline of the study.

(Adapted from Ivankova and Stick (2017) in Creswell and Plan Clark (2011) and Lesh (2012).

### Methodological Assumptions

The following assumptions have been made for this study: Implementation of the iMindAcademy curricular framework on a website will be a viable resource for educators to utilize for their own student population; the neuroeducation-based wellness curriculum on the iMindAcademy website will be achievable and ethical; participants will be actively engaged in iMindAcademy curriculum; participants of the focus groups will be honest; assessments used for this study will maintain a high level of reliability and validity.

### Delimitations

The curriculum will only focus on Generation Z students. The study will not research the proposed curriculum's long-term ability to influence mental wellness.

Although these research topics are relevant, they are delimitations and will diminish the value of the specific study being conducted.

### **Limitations**

The proposed study has several limitations. The sample is relatively small and consists of participants from only one private higher education institution in southeastern Florida and may not be generalizable to all educational institutions. This research study would be more credible if the assessments measured students' actual feelings before and after the course. Lastly, there is the potential that the proctor explaining the curriculum—iMindAcademy—may not have the ability to teach the content and could seem biased through didactic instructional methods used.

### **Ethical Issues: Risks and Benefits**

The researchers foresee minimal to no risks involved with participating in the study. The curriculum outlined could benefit faculty and administrators interested in implementing a wellness program at their institution. The researchers are also offering a \$25 gift card to participants as a reward for participating in the research. Lastly, the participants may enjoy knowing they are helping to develop a useful curriculum. This focus group is strictly voluntary, and no penalty will be imposed for non-participation. As stated in the Informed Consent, if a participant feels uncomfortable at any time, s/he may leave the focus group interview.

### **Confidentiality and Anonymity**

All participants will sign an Informed Consent before participating in the investigation. To protect privacy, both the participants and their institution will be given pseudonyms. The information obtained from each interview will not be shared with other

participants. The researcher guarantees to maintain confidentiality; however, due to the focus groups, it is not guaranteed that other members will uphold confidentiality. Nevertheless, all participants will be asked to do so. All data will be kept on a password-protected computer at the researcher's home. Also, transcribed information and audio recordings will be locked in two separate file cabinets. After two years, all data will be shredded and destroyed.

### **Summary**

The study is significant in that it strategically addresses the needs of this particular population. To progress even further as a society, it is crucial that one cultivates and maintains a culture of mindfulness in educational institutions. Integrating the findings of neuroscience into a physical and mental wellness curriculum is a promising approach in developing and preparing students for success in the 21<sup>st</sup> century. The study will contribute to the literature as it intends to investigate the contemporary culture and educational values of Generation Z students and their physical and mental well-being. Currently, there is little research on this topic regarding this particular population and setting. The study will also incorporate mindfulness curriculum that could ease anxiety, create awareness of self, and create a greater sense of community among their peers and environment. The website creation will provide methods and strategies that can be implemented to successfully promote the development of mind-body connection for this target population including videos, testimonials, curriculum details, framework, and extensive modules highlighting a procedure to help educators implement the program.

## CHAPTER IV: RESULTS

The purpose of the study was to improve self-regulation skills in Generation Z adolescents by developing a neuroeducation-based wellness curriculum. The researchers conducted two focus group interviews sampling administrators and faculty at a four-year, private higher education institution in southeastern Florida. The research sought to gain an understanding of educators' knowledge relative to mindfulness and student development, and to gain perspectives on the neuroeducation-based wellness curriculum. This chapter will outline the results and findings that were gained from the focus group interviews.

### **Qualitative Participants**

The researchers selected faculty and administrators from five different colleges within the university, including faculty members and deans. The researchers also selected high-level administrative staff including vice presidents from the Office of Student Affairs, Career Connections, and the Office of Admissions and Enrollment. The purpose of this selection was to gain a broader perspective on the current needs of students across disciplines in an educational institution.

After approval from the Institutional Research Board and the provost of the university, the researchers sent a Google Form questionnaire to all selected recipients inviting them to partake in a focus group interview. The participants had an option to select from two different dates to take part in the focus group interview. The researchers sent the email invitations to a total of 31 faculty and administrators. Out of the 31 selected, 21 participated in the two focus group interviews; there was a total of 11 faculty and administrators in each focus group interview. To encourage participation, the

researchers notified all recipients in the initial email that they would receive a \$25 gift card for participating in the study.

All volunteers that contributed to the study were given an Informed Consent outlining the details of the research and the involvement of their participation. The researchers explained in the initial email that an audio recorder would be used to transcribe the data following the interview; if they wished to withdraw from the focus group interview at any point in time, they could do so. To protect confidentiality, all participants were given pseudonyms. The researchers guaranteed to maintain confidentiality and all data was kept on a password-protected computer. In addition, the participants were notified that the audio recordings would be locked in two separate filing cabinets and all data would be shredded and destroyed in two years.

### **Qualitative Research Questions**

To explore the problem logically, the following questions were assessed:

1. RQ1: How do you think mindfulness influences mental health?
2. RQ2: Is there any specific content that you think will be helpful in the iMindAcademy curriculum for Generation Z students? Please explain.
3. RQ3: Do you think the mindfulness-based iMindAcademy curriculum will provide positive results on the overall campus community? Please explain.

### **Data Analysis Procedures**

The researchers collected the qualitative assessments after completion of both focus group interviews. Once the researchers transcribed the data, they analyzed it to assign common codes and themes. The themes were further analyzed and displayed through a graphical representation as seen below. This allowed the researchers the

opportunity to identify the minimum and maximum of the participants' responses to each question as it related to common themes. Through critical thought and analysis, the researchers compared this qualitative data to the findings of similar research studies in the literature review. The data was summarized, and findings were linked in an effort to answer the research questions.

### **Summary of Responses from Focus Group**

RQ1: How do you think mindfulness influences mental health?

Through the focus group interview, the participants indicated that mindfulness is a critical aspect of self-development and awareness. The participants did not demonstrate knowledge of how mindfulness affects mental health from a neuroeducational perspective. The literature review validates that mindfulness practices are beneficial for positive cognitive-psychological development.

*Major theme: developing self-awareness through continuous reflective practices.* This theme is an indication that developing self-awareness is critical for Generation Z students. The educators were aware that reflective practices are necessary in order to develop the fundamental skill of being mindful. Enumerated below are quotations from the participants that validated this first theme:

**Speaker 3 4:05:** "I think it's pretty critical because you have to be aware of who you are and what you think so that you can either affirm or challenge in that process."

**Speaker 3 8:01:** "Mindfulness is the first step in maintaining any type of wellness within mental health."

**Speaker 3 7:05:** "It's an important piece because if you're aware of what

you may perceive or how it's impacting you, then you can actually act and work towards improving your mental health.”

**Speaker 7 8:56:** “If students don't understand that they need to be mindful of how they're feeling and why their feeling that way, they're never going to progress down the road of mental health.”

RQ2: Is there any specific content that you think will be helpful in the iMindAcademy curriculum for Generation Z students? Please explain.

One of the primary objectives of this study was for the researchers to gain insight on educators' perspectives of the iMindAcademy curriculum. The participants acknowledged that the curricular framework is necessary due to current cultural factors. All members of the focus group were aware of the implications that technology and media have on Generation Z students in the 21<sup>st</sup> century. However, they did not specify how these social trends affect students' cognitive-psychological development.

*Major theme: technology and media significantly affect Generation Z students.* This theme is critical given the continuous progression of technology in today's society. It is vital to acknowledge the physiological effects that technology will have on the cognitive and psychological development of modern-day students. Furthermore, it is crucial to find a medium where wellness and technology can coexist. This is decisive for educators to understand as well as students.

**Speaker 6 18:06:** “I think creating reasonable, attainable and realistic goals. I think that some of the stuff we get through social media, so unrealistic and so unattainable.”

**Speaker 5 6:37:** “The distractions have quadrupled in their lives. I think



it's really hard for them to be mindful in society that's filled with technology.”

**Speaker 2 4:44:** “It's the impact of the media on how one sees oneself and develops. But not it's a hyper-dynamic because of social media, its 24 hours a day.”

**Speaker 6 32:40:** “Students need to have some aspect of technical knowledge or some depth of knowledge in a particular area, but where the lack is, from what we hear from employers, is there is a lack of emotional intelligence which is not focused on in higher ed.”

*Major theme: the need for resiliency and self-regulation amongst students.* The rapid increase in mental health issues amongst today's students indicates that cultural influences are impacting their abilities to regulate emotions, inhibit thoughts, and control their actions in an effort to accomplish a task or achieve goals. Thus, contemporary social and educational practices are affecting the development of self-regulation skills for Generation Z students. The dialogue between members of the focus group led to the conclusion that self-regulation and resiliency is needed for this generational cohort. Therefore, this theme validates the research in the literature review.

**Speaker 3 10:05:** “I think that it's resiliency, the ability to bounce back. Things aren't always going to go as planned. That's life. If an individual can't cope with that concept, I think they're setting themselves up for failure.”

**Speaker 2 13:46:** “We have taken away their coping mechanisms.”

**Speaker 2 14:00:** “We also deal with that immediate gratification, not soon enough.”

**Speaker 2 18:53:** “They can’t accept failure and they can’t accept the mark.”

**Speaker 2: 17:04:** Parents are putting an impossibly high bar.”

RQ3: Do you think the mindfulness-based iMindAcademy curriculum will provide positive results on the overall campus community? Please explain.

The researchers provided the participants with copies of the curricular framework in a PDF document to review prior to asking the research questions. It was the hope of the researchers to understand if the iMindAcademy curricular framework would be effective if implemented into a higher education institution.

*Major theme: creating a culture of wellness through a continuous process in the classroom and beyond.* The data analysis revealed that the educators supported the curriculum. Whilst the participants indicated the need for the iMindAcademy curriculum, they expressed that introducing the curriculum at a younger age would also produce benefits for students. Additionally, the educators emphasized that this ideology would be most beneficial when treated as a longitudinal process. This initiative needs to be brought to the forefront to introduce knowledge and skills needed to enhance well-being and thrive in the classroom and beyond.

**Speaker 6: 23:25:** “You don’t want to spend a lot of time giving a lengthy curriculum with lots of learning outcomes when it’s really driven by a practice that helps one to develop a skill.” **Speaker 2 19:23:** “It is helping them and guiding them in a direction so they can find what their purpose is or a career they’re going to be good in.”

**Speaker 6 34:32:** “It starts with us though. I think starting with professors

and moving it outside of just a class is needed. There should be an event for the whole college...”

*Table 1.* Transcription of responses from focus group coded by themes.

Themes	Codes/Quotes
Developing self-awareness through continuous reflective practices	<p>S3 4:05: “I think it’s pretty critical because you have to be aware of who you are and what you think so that you can either affirm or challenge in that process”</p> <p>S3 8:01: “Mindfulness is the first step in maintaining any type of wellness within mental health”</p> <p>S3 7:05: “It’s an important piece because if you’re aware of what you may perceive or how it’s impacting you, then you can actually act and work towards improving your mental health”</p> <p>S7 8:56: “If students don’t understand that they need to be mindful of how they’re feeling and why their feeling that way, their never going to progress down the road of mental health”</p>
The need for resiliency and self-regulation amongst students	<p>S3 10:05: “I think that it’s resiliency, the ability to bounce back. Things aren’t always going to go as planned. That’s life. If an individual can’t cope with that concept, I think they’re setting themselves up for failure.”</p> <p>S2 13:46: “We have taken away their coping mechanisms”</p> <p>S2 14:00: “We also deal with that immediate gratification, not soon enough.”</p> <p>S2 18:53: “They can’t accept failure and they can’t accept the mark”</p> <p>S2: 17:04: Parents are putting an impossibly high bar”</p>
Creating a culture of wellness through a continuous process in the classroom and beyond	<p>S6: 23:25: “You don’t want to spend a lot of time giving a lengthy curriculum with lots of learning outcomes when it’s really driven by a practice that helps one to develop a skill”</p> <p>S2 19:23: “It is helping them and guiding them in a direction so they can find what their purpose is or a career they’re going to be good in”</p>

<p>Technology and media significantly affect Generation Z students</p>	<p>S618:06: “I think creating reasonable, attainable and realistic goals. I think that some of the stuff we get through social media, so unrealistic and so unattainable”</p> <p>“S5 6:37: “The distractions have quadrupled in their lives. I think it’s really hard for them to be mindful in society that’s filled with technology”</p> <p>S2 4:44 “It’s the impact of the media on how one sees oneself and develops. But not its a hyper-dynamic because of social media, its 24 hours a day”</p> <p>S6 32:40: “Students need to have some aspect of technical knowledge or some depth of knowledge in a particular area, but where the lack is, from what we hear from employers, is there is a lack of emotional intelligence which is not focused on in higher ed.”</p>
<p>TESTIMONIALS</p>	<p>“I love it”</p> <p>“Impressed about the service component”</p> <p>“I think this is needed more than ever perhaps for young people”</p> <p>“It seems like there’s a perfect need for something like this</p> <p>“I think this is fantastic”</p> <p>“It’s phenomenal and the perfect time”</p>

**Conclusion**

The results in the study validated the literature review and confirmed that current cultural influences do have a negative impact on Generation Z students. These negative influences include excessive use of technology, augmented parental involvement, and differentiation of the developing brain. As such, iMindAcademy has the potential to shift current culture through educating students, parents, and educators on how these cultural factors affect cognitive-psychological development on a holistic level. In order to shift culture for Generation Z students and future generations, the researchers modified the ultimate mission of iMindAcademy. The mission is to shift current cultural practices by

providing a neuroeducation-based wellness curriculum for Generation Z students by promoting mind-body connection and cultivating a sense of community.



**THE IMPACT OF A NEUROEDUCATION-BASED  
MENTAL WELLNESS CURRICULUM ON GENERATION Z:  
IMPLEMENTING MIND BODY CONNECTION**

A Dissertation in Practice

**Executive Summary**

Submitted to the Faculty of Lynn University,

College of Education



In Partial Fulfillment of  
The Requirements for the Degree of Doctor of Education By  
Natalie M. Capiro  
Alexandra L. Gleason  
Stefanie Powers

## **I. Summary of Problem in Practice**

### **Introduction.**

Twenty-first century culture has a significant impact on the cognitive-psychological development of modern-day students. Cultural factors that contribute to this include excessive use of technology, increased focus on higher academic achievement, more parental involvement, a sedentary lifestyle, and less in-person social interactions. Concurrently, the curricular emphasis on physical and mental wellness has been weak and has led to a rise of mental health issues amongst Generation Z students. There is ample research that indicates the social and emotional bodies of the brain are developing and functioning differently because of cultural factors and societal trends. It is crucial for educators to take a more in-depth look at the impact that contemporary society and current educational practices have on the cognitive and psychological development of students.

The purpose of iMindAcademy is to integrate the findings of neuroscience into a wellness curriculum. It is important to note significant components of the evaluation, including background information, statement of problem and purpose, program description, methodology, limitations, findings, and recommendations.

### **Background Information.**

In recent decades, educational policies and societal trends have taken place and have had an impact on the ability of educators to develop students in a way that prepares them for success in the 21<sup>st</sup> century (Salpeter, 2003). These changes include advanced technology, augmented parental involvement, increased focus on higher standards-based education, increased stress on educators to improve academic performance and outcomes

for all students, and heightened expectations for adolescent students in the 21<sup>st</sup> century (Mangan, 2009). These variables have led to a reduction in sustaining a curricular focus on developing the physical and mental wellness aspects of students and an increase in a curricular emphasis on augmenting academic achievement through intense evaluations such as standardized testing assessments. Students are pressured into taking high-level honors and Advanced Placement courses by parents, administrators, and teachers in order to get into highly desirable institutions of higher education. In effect, students are experiencing stress levels higher than ever before (Jayson, 2014). According to the American College Health Association (2013), statistics demonstrate college students experiencing high levels of increased stress, anxiety, depression, a lack of self-regulation skills, and other mental health disorders. It is evident that social trends in addition to recent educational reforms have caused a negative impact on the health of modern-day adolescents.

The development of Generation Z students is concerning considering the dramatic increase in the amount of time these students spend using technology. Generation Z consists of those born between 1995 and 2012 (Twenge, 2017). This cultural shift has fostered additional harm to this generational cohort as they have difficulty focusing and being present. Additionally, it has led to a much more sedentary lifestyle for students. Social media platforms, search engine accessibility, and a multitude of applications have further added to obsessiveness as well as distractions from frequent interactions. With advances continuing to increase, it is critical to acknowledge the psychological effects that technology will have on the cognitive development of this generation of students.



Likewise, it is crucial to find a medium where mental wellness and technology can coexist. Research indicates that these current cultural changes are affecting the brain development of Generation Z students and causing them to be on a slower developmental path than adolescents in previous generations (Twenge, 2017). More specifically, high levels of stress and anxiety in addition to the excessive use of technology are altering the way the social and emotional bodies of the brain are developing and functioning (Giedd, 2012). New research indicates that this poses risks for Generation Z adolescents in regards to the development of cognitive functions needed to thrive in the 21<sup>st</sup> century. To ensure Generation Z adolescents are prepared for success, educators need to take a closer look at the cultural trends and current educational practices that are hampering the development of cognitive abilities required for self-regulation. Current cultural practices are transforming the physical brains of this generation; thus, there is no better time to acknowledge the significance of the mind-body (brain) connection for educational practices. This executive summary will explore methods and strategies that can be implemented to effectively promote the development of these skills in this target population.

There is ample research on the plasticity of the adolescent brain. The teenage brain develops according to an individual's surroundings and experiences. Consequently, the intense focus on increasing student achievement, a more sedentary lifestyle, and the excessive use of technology by today's adolescents play significant roles in shaping the brain. For example, high stress levels in addition to little or no physical activity on a daily basis all contribute to physiological and biological changes that take place in the brain. Generation Z students use digital devices as their primary method of communicating with

others rather than engaging in face-to-face social interactions; this is causing differences in the way the social brain is developing and functioning. The differentiation in brain structure and function for this generation is significant in determining the causes of the rapid rise in mental health issues. Educators need to acknowledge the neuroscience behind adolescent brain development as it aids in providing a comprehensive understanding of how the mind and the brain (body) work together.

Research in the field of neuroscience demonstrates how cultural influences are impacting adolescent cognitive development on a physiological and biological level. For instance, several studies show that an increase in physical activity stimulates the release of neurotransmitters that promote positive cognitive development. To effectively enhance education policy and reform efforts, educators must have a thorough understanding of the intricate connection between the physiological and psychological aspects of cognitive development. These aspects involve the recognition of the mind and the body as two separate entities that are interdependent upon each other and intricately related. The assimilation of the mind-body connection into educational practices is crucial to ensure Generation Z students have the knowledge and skills to maintain positive cognitive-psychological health and development. An appreciation of how these two components of a human being work together will help inform educational policies and practices for the future.

The rapid increase in mental health issues amongst today's students indicates that cultural influences are impacting their abilities to regulate emotions, inhibit thoughts, and control their actions to accomplish tasks or achieve goals. Thus, current cultural practices are affecting the development of self-regulation skills for Generation Z students and their

overall well-being. “Mental health includes our emotional, psychological, and social well being. It affects how we think, feel and act” (U.S. Department of Health and Human Services, 2017, para. 1). As previously stated, the current cultural practices are affecting the development of these areas on a biological level within the physical brain. In turn, it is influencing the way students think, feel, and act.

“Culture guides thought patterns interpreting relationships and logging vast amounts of data entering through the senses. Our culturally trained senses become gateways to how we think, and we then behave in agreement with that thinking” (Kerr D’Amico & Rochester, 2015, p. 23).

In contemporary society, students need to be able to manage stress and anxiety, regulate emotions, and inhibit intrusive thoughts to accomplish goals. Students also need to be able to work collaboratively and effectively with others. These skills develop by cognitive functions. If the brain is adapting to the current cultural practices on a physiological level, the mind needs to be recognized as a separate entity that is not just confined to the brain. The mind determines the subjective experiences as to how one thinks and feels about incoming information through the senses (Siegel, 2012, pp. 1-11). By changing the way people think and feel, the brain changes as well. “Many of those changes are fleeting, as your brain changes moment to moment to support the movement of information. But many are lasting, as neurons wire together, structure builds in the brain” (Hanson, 1970, para. 11). Educational strategies need to be implemented to educate students on the mind-body network to moderate the adverse effects of 21<sup>st</sup> century cultural influences on students’ cognitive-psychological development. These

strategies are crucial to ensure this generation of students has the knowledge and skills to maintain positive self-regulation.

### **Statement of the Problem.**

Data reveals that Generation Z students are experiencing high levels of stress, anxiety, and depression. The percentage of American youth with severe depression has increased from 5.9 percent in 2012 to 8.2 percent in 2015. In 2015, 12.5 percent of adolescents (ages 12-17) experienced at least one major depressive episode (National Institute of Mental Health, n.d.). Research shows that suicide rates for children and adolescents in the United States have doubled from 2008-2015 (American Academy of Pediatrics, 2017). Prolonged stress and anxiety throughout adolescence can lead to severe depression and suicide. In 2016, 62 percent of undergraduate college students reported having overwhelming anxiety; this is a 50 percent increase in the percentage of college students that experienced overwhelming anxiety in 2011 (ACHA, 2016). The mental health of America's youth is predicted to be getting worse (Twenge, 2017). Various cultural factors play a role in this rapid rise in mental health issues including biological changes that are taking place in the brain as well as different life experiences for Generation Z students.

One study identifies Generation Z as being on a slower developmental path than adolescents in previous generations (Twenge, 2017). The different life experiences of this generation throughout youth and adolescence are reshaping the structure and function of the brain. These changes include prolonged stress and anxiety due to higher expectations in education, a more sedentary lifestyle, less education on physical and mental health and wellness, an increased dependency on technology as a primary method of communicating

and connecting with others, and less in-person social interactions. When neural networks inside the brain are forming by these experiences, research shows that cognitive functions relative to self-regulation may become insufficient leading to the fundamental problem of Generation Z adolescents lacking the cognitive capacities needed for self-regulation. Self-regulation is a critical skill required to succeed in college, work, and life in the 21<sup>st</sup> century. Educational practices need to incorporate the science behind the mind-body network to reverse these effects and promote positive cognitive-psychological development.

**Statement of Purpose.**

The previous paragraphs provide a strong indication that educational programs are insufficient in promoting positive cognitive-psychological health and development for students due in part to the decrease in physical education and health curricula in schools throughout the nation. At the same time, the current culture has set high expectations for students, including higher standards in education, increased pressures from parents, and increased competition for college admission and work in the 21<sup>st</sup> century, which have caused stress and anxiety levels to rise dramatically. Additionally, the excessive use of technology amongst Generation Z students has been linked to the mental health issues they are experiencing (Twenge, 2017).

**Significance.**

Generation Z students lack the knowledge and skills needed for positive cognitive-psychological health and development. To moderate and reverse the effects of these cultural influences, educators need to reevaluate educational programs and revise

current strategies to be more effective in promoting positive brain development for Generation Z students.

### **iMindAcademy.**

iMindAcademy is a neuroeducation-based wellness curriculum that was developed following research findings from neuroscience and education in the 21st-century. The curriculum equips students with the knowledge and skills needed for positive self-regulation and promotes healthy cognitive-psychological development. The curricular framework and research are designed to assist administrators and faculty members in higher education institutions in creating their own successful neuroeducation-based wellness program.

## **II. Summary of Major Research Findings in the Literature**

### **Introduction.**

In creating iMindAcademy, the researchers examined various areas relative to the impact of education reform and social trends on students' cognitive development. The first area described the effect that recently implemented educational policies and social trends have had on students' physical and mental health. In particular, increased academic stress, increased competition for college admission, more parental involvement, and excessive use of technology by adolescents; these are significant cultural changes that play a significant role in education reform.

The second section overviewed the adolescent brain development. The literature depicted how cultural changes are affecting cognitive development in adolescence. The researchers focused on the development of cognitive skills needed for positive self-regulation amongst Generation Z adolescents (18-21 years old). Generation Z, born in

1995 to 2012, are now approaching adolescence. The research about characteristics of Generation Z is just starting to evolve; however, the study obtained thus far implies that these cultural changes have a significant effect on the cognitive development of this particular population.

The final section examined how mindfulness can help change the evolving brains of Generation Z adolescents. The research reviewed indicated that the concept of mindfulness could play a vital role in promoting positive self-regulation skills for Generation Z late adolescents.

### **Educational Policies and Social Trends.**

In recent decades, several educational policies and initiatives have been established to enhance education reform for all schools across the nation (Lohman, 2010). These modifications have caused institutions to strengthen the curricular focus on academic subjects even more to enhance student performance on state and national assessments. In effect, a curricular emphasis on topics that are not tested on, including health and physical education, has significantly decreased (National Education Association, 2017). Although physical education remains part of the academic curriculum, the lack of focus is a factor to the increase of mental health issues of adolescents.

To adequately prepare students for success in college and careers in the 21<sup>st</sup> century, students need to have the skills and knowledge relative to their health and well-being, including skills relative to adaptability, self-esteem, time-management skills, a sense of direction, physical fitness, self-control, and resiliency (Fox, 2011). Rather than an intense focus on academic performance and standardized tests, secondary schools

should be focusing on developing skills that will enable students to be successful in college and life after high school. These traits are the indicators that will help students cope with the daily stresses and conquer the challenges they face on their own.

According to the American College Health Association (2016), statistics show college students experiencing high levels of increased stress, anxiety, depression, a lack of self-regulation skills, and other mental health disorders. It is apparent that social trends in addition to recent changes in education have caused a negative impact on the health of the country. These observations provide a strong indication that secondary schools are not sufficient in promoting positive cognitive-psychological health and development for students.

### **Impact of Increased Parental Involvement.**

Generation Z's parents have contributed to the increase in more intensive parenting techniques. Parents of Generation Z students are more familiar with technology than parents in older generations. Also, Generation Z parents grew up with many social and economic hardships including an unstable economy and financial insecurities. As a result, these parents became accustomed to using their technological skills along with their natural tendency to worry about their children's safety and success in parenting strategies. They exert more control over their children compared to parents in previous decades.

According to life history theory, Generation Z adolescents are following a slow life strategy as they live in a resource-rich environment with a more predictable future (Twenge & Park, 2017, p. 3). These students expect to graduate from high school, receive a college degree, and then to proceed on to obtain an internship, go to graduate school,



and get a job. Data shows significant decreases in this population's engagement in adult activities; they are in fewer romantic relationships, drinking alcohol less, going out without their parents less, and not engaging in as much sexual activity as adolescents in years past. They are also less likely to have experience working for pay and driving (Twenge, 2017, p. 31). Engagement in these adult activities is paramount in adolescent development as these are the events that allow teens to experience freedom and independence on their own. These activities force teens to make personal judgments and decisions, which lead to consequences as well as rewards. These consequences and rewards are dealt with on internal and external levels.

### **Impact of Technology on Generation Z Adolescents.**

In 2016, the MTF determined that high school seniors spent approximately six hours of leisure time each day engaging in digital media. The percentage of students who read print media continues to plummet (Twenge, 2017, p. 51). Social media has taken over as today's teens are developing their social skills via Instagram, Snapchat, FaceTime, and texting rather than through in-person social interaction. It makes sense that iGeners are adapting to this new environment with more parental guidance and control as they have less of a need to independently interact with their peers in person. The number of high school seniors who attend parties once a month more has dropped about 15 percent from 1976 to 2015 (Twenge, 2017, p. 70). The percentage of iGen teens who interact with their peers on a daily basis has decreased by 50 percent from 1976 to 2015. In 2016, college students were found to spend seven hours less engaging in on activities involving in-person social interaction than college students in the 1980s (Twenge, 2017, p. 72). This data implies that the increase in screen time contributes to

the significant decline in adolescents engaging in experiences that are critical to enhance social skills, cultivate positive and intimate relationships, and navigate emotions.

Concurrently, adolescents who spend more time on the screen are found to have higher rates of stress, anxiety, and depression.

### **Self-Regulation for Generation Z Students.**

The Partnership for 21<sup>st</sup> Century Learning (2015) identifies communication and collaboration as crucial skills for success in the 21<sup>st</sup> century. To effectively communicate and collaborate with others to attain a goal, individuals must have control over their thoughts, emotions, and behaviors so they can moderate or alter them as needed in pursuit of goals. “A good self-regulator will pay attention to task, persist when it becomes difficult, demonstrate flexibility and be confident that additional effort will lead to positive outcomes” (Uhls, 2012, para. 5). Researchers and theorists have proposed various definitions of self-regulation. For this review, the definition of self-regulation comprises the executive skills that allow individuals to moderate or change their thoughts, actions, and emotions to achieve a goal(s). “People need to inhibit their impulses, stifle their desires, resist temptations, undertake difficult or unpleasant activities, banish unwanted and intrusive thoughts and control their emotional displays” (Heatherton, 2011, para. 10). These skills are crucial especially for adolescents where risky and impulsive behavior is typical due to various environmental and biological factors. Self-regulation skills for Generation Z late adolescents (ages 18-21) are imperative for a successful transition from adolescence to adulthood. The demanding factors of the current environment have affected Generation Z’s ability to self-regulate.

For Generation Z late adolescents who are so accustomed to their safe environments at home with their parents, the transitional periods can be incredibly distressful.

### **Cognitive Development in Generation Z Adolescents.**

Previous research has confirmed that the brain is in one of its most dynamic states of development during adolescence. Adolescence consists of the period in which puberty takes place and provokes further physical, cognitive, and psychological development for an individual, ranging from 11 - 25 years of age (Arain et al., 2013). The adolescent brain is susceptible to the surrounding environment; this means that cognitive functions can quickly change and develop according to the range of experiences that take place in the adolescent years, and is referred to as “plasticity” (Giedd, 2012, para. 5). During this time, the brain is actively rewiring neural circuits based on environmental stimuli. The neural networks develop between multiple parts of the brain including the amygdala, cerebellum, hippocampus, prefrontal cortex (PFC), etc.

As the efficiency of the connections between these disparate parts of the brain increases, maturation occurs. The PFC is a key component in adolescent brain development as its main functions involve aspects of control. It plays an intricate role in developing neural networks relative to attention, inhibitory control, planning, flexibility, delay of gratification, higher-level problem-solving skills, and emotion regulation (Siddiqui et al., 2008, para.13). It is one of the last brain regions to reach full maturity. Neural circuits between the PFC and other brain regions evolve and become more efficient with time and experience for an individual.

Many cognitive functions that develop within the PFC throughout adolescence are correlated with skills needed for self-regulation. “The prefrontal cortex intelligently regulates our thoughts, actions, and emotions through extensive connections with other brain regions” (Arnsten, 2009, p. 410). Practices must be implemented to enhance cognitive abilities relative to self-awareness, empathy, and purpose to improve the development of positive self-regulation skills for Generation Z adolescents.

### **Mindfulness Approach.**

While there are many approaches to cure or find remedies for rising mental illnesses, mindfulness has become a keyword in research today. From 1980-2013, mindfulness research publications have increased (Black, 2014). The study and practice of mindfulness has been implemented in a variety of industries including medicine, neuroscience, psychology, education, and business. Research indicates positive outcomes with the practice of mindfulness in regards to psychological-cognitive development and health. The philosophy and practice of mindfulness through its origins relate to mind and body connection through awareness and enlightenment of self in the present moment. Throughout decades, mindfulness has proven its positive effects on the brain and body connection of the human being.

### **Mindfulness, Interpersonal Neurobiology & Self-Regulation.**

Interpersonal neurobiology explores fundamental aspects of how particular exercises can influence changes in the neural connections that take place in the brain. The neural networks that allow communication to take place between disparate parts of the brain are still being developed in adolescence. In Generation Z students, the lack of cognitive skills relative to emotion regulation and inhibitory control affects the

integration of neural connections. By bringing awareness to the internal workings of the mind, the PFC activates. When empathy develops at the neurobiological level, skills relative to social and emotional regulation will evolve.

In Generation Z students, high levels of stress and anxiety in addition to the underdeveloped PFC contribute to the lack of self-regulation skills. In order to direct oneself toward achievement of goals, self-regulation skills are necessary. This indicates that Generation Z must first be able to cope with their anxiety and stress. There are several studies that show how mindfulness training can improve students' coping abilities to decrease these mental health issues.

### **Summary of Research Findings.**

The slower developmental path of Generation Z adolescents in addition to their excessive use of technology indicates that the brain is developing differently. The decrease in the percentage of this population that participates in adult activities and the reduction in education's curricular focus on physical and mental well-being has caused a deficiency in the development of cognitive skills relative to self-regulation. Cultural influences have contributed to stress, anxiety, and lack of socialization skills for this student population. Generation Z students need to be educated and trained in a way that will improve their cognitive skills for positive self-regulation. Thus, iMindAcademy was developed.

### **III. Context and Methodology of the Study**

#### **Purpose of the Study.**

The purpose of this study was to improve self-regulation skills and overall wellness in Generation Z students by developing a neuroeducation-based wellness curriculum. This

segmented group focused on Generation Z students. This study sampled administrators and faculty at a four-year, private higher education institution in southeastern Florida to address the results of mindfulness practices in Generation Z students. This research attempted to answer the following questions:

1. RQ1: How do you think mindfulness influences mental health? 63
2. RQ2: Is there any specific content that you think will be helpful in the iMindAcademy curriculum for Generation Z students? Please explain.
3. RQ3: Do you think the mindfulness-based iMindAcademy curriculum will provide positive results on the overall campus community? Please explain.

Based on extensive research and given the paradigm shift caused by cultural factors including continuous technological advances, this is a critical issue to study.

### **Methodology.**

Three open-ended questions will be conducted during the research with the administrators and faculty members. The researchers will be available to facilitate and address any issues that might ensue. The first question will focus on the general understanding of mindfulness. The second question will seek to gain an understanding of the educators' perspective on the iMindAcademy curriculum and if any additional content should be implemented to benefit the target audience. The third question will pay particular attention to the participants' feelings of the iMindAcademy curricular framework implemented in a campus community.

### **Curriculum Practices.**

The curriculum practices that will be implemented include a multitude of topics, including but not limited to mindfulness, meditation, yoga, the power in the self, goal-

setting, overall wellness, and cultivating connections. The critical curriculum components that will be discussed in depth throughout instruction and emphasized upon and developed in modules include: (1) underlying cognitive processes, (2) cognitive health and development, (3) intricate connection between mind and physical body, (4) positive cognition, (5) proper nutrition , (6) holistic well-being, (7) interpersonal skills, (8) intrapersonal competencies, (9) emotional intelligence, (10) mental fortitude, (11) mental toughness, (12) the social brain, and (13) cultivating connections.

The basic structure of the modules. The modules will be designed with the following agenda:

• **Module One: Mind-Brain-Body (I)**

Goal: to educate students on differences between the mind, brain, and body

Recommended activities: meditation, breathing, yoga, physical activity/exercises, and recognizing mindfulness/awareness

• **Module Two: More of Me (ME)**

Goal: to empower students with a knowledge of a greater sense of self

Recommended activities: a socio-cultural autobiography (where I have been);

StrengthsFinder assessment and personal SWOT analysis (where I am); fostering a growth mindset; identifying values, goals, and purpose; mantras, intentions, and a vision board (where I will be)

• **Module Three: Cultivating Connections (WE) Will Be**

Goal: to prepare students for holistic wellness beyond the classroom

Recommended activities: ethics (what would you do?); stepping into uncomfortable situations (become comfortable, being uncomfortable); create a social movement

campaign; volunteering (off-campus); ice-breakers, physical activities, and rope course/circle of trust; social media positive activities including blogging; understanding emotional intelligence and the significance of verbal/non- verbal communication; interpersonal and digital communication; learning empathy, regulation, mindfulness, and the social brain in relation to cultivating connections with others

This knowledge base can then be expanded upon to further develop students’ internal abilities about self-regulation skills, mental toughness, and emotional intelligence.

#### IV. Summary of Results

*Table 2. Summary of Results coded by theme.*

Themes	Codes/Quotes
Developing self-awareness through continuous reflective practices	<p>S3 4:05: “I think it’s pretty critical because you have to be aware of who you are and what you think so that you can either affirm or challenge in that process”</p> <p>S3 8:01: “Mindfulness is the first step in maintaining any type of wellness within mental health”</p> <p>S3 7:05: “It’s an important piece because if you’re aware of what you may perceive or how it’s impacting you, then you can actually act and work towards improving your mental health”</p> <p>S7 8:56: “If students don’t understand that they need to be mindful of how they’re feeling and why their feeling that way, their never going to progress down the road of mental health”</p>
The need for resiliency and self-regulation amongst students	<p>S3 10:05: “I think that it’s resiliency, the ability to bounce back. Things aren’t always going to go as planned. That’s life. If an individual can’t cope with that concept, I think they’re setting themselves up for failure.”</p> <p>S2 13:46: “We have taken away their coping mechanisms”</p> <p>S2 14:00: “We also deal with that immediate gratification, not soon enough.”</p> <p>S2 18:53: “They can’t accept failure and they can’t accept the mark”</p>



	S2: 17:04: Parents are putting an impossibly high bar”
Creating a culture of wellness through a continuous process in the classroom and beyond	S6: 23:25: “You don’t want to spend a lot of time giving a lengthy curriculum with lots of learning outcomes when it’s really driven by a practice that helps one to develop a skill” S2 19:23: “It is helping them and guiding them in a direction so they can find what their purpose is or a career they’re going to be good in”
Technology and media significantly affect Generation Z students	S618:06: “I think creating reasonable, attainable and realistic goals. I think that some of the stuff we get through social media, so unrealistic and so unattainable” “S5 6:37: “The distractions have quadrupled in their lives. I think it’s really hard for them to be mindful in society that’s filled with technology” S2 4:44 “It’s the impact of the media on how one sees oneself and develops. But not it’s a hyper-dynamic because of social media, its 24 hours a day” S6 32:40: “Students need to have some aspect of technical knowledge or some depth of knowledge in a particular area, but where the lack is, from what we hear from employers, is there is a lack of emotional intelligence which is not focused on in higher ed.”
TESTIMONIALS	“I love it” “Impressed about the service component” “I think this is needed more than ever perhaps for young people” “It seems like there’s a perfect need for something like this” “I think this is fantastic” “It’s phenomenal and the perfect time”

## V. Limitations and Recommendations

The study had limitations. The sample was relatively small and consisted of participants from only a private higher education institution in southeastern Florida and may not be generalizable to all private institutions. This research study would be more credible if the assessments measured students’ actual feelings before and after the course.

## **Conclusion.**

The slower developmental path of Generation Z adolescents in addition to their excessive use of technology indicates that the brain is developing differently. The decrease in the percentage of this population that participates in adult activities and the decline in education's curricular focus on physical and mental well-being has caused a deficiency in the development of cognitive skills relative to self-regulation. Cultural influences have contributed to a dramatic increase in stress, anxiety, and lack of socialization skills for this student population. Adolescent brains are in an extreme stage of neuroplasticity; their increased susceptibility to negative emotions and thoughts poses significant risks as the higher-level cognitive functions of the PFC are undergoing prolonged maturity. "The prefrontal cortex is the most notable for the executive functions that support the various cognitive processes that are involved in self-regulation" (Heatherton, 2011, para. 33). For Generation Z late adolescents to maintain positive well-being and progress in the 21st-century society, educators need to develop and implement strategies to meet the needs of this specific target population. Generation Z adolescents need to be educated and trained in a way that will improve their cognitive skills for positive self-regulation.

iMindAcademy is significant in that it strategically addresses the needs of this particular population. To progress even further as a society, it is crucial that one cultivates and maintains a culture of mindfulness in educational institutions. Integrating the findings of neuroscience into a physical and mental wellness curriculum is a promising approach in developing and preparing adolescents for the 21st century. The iMindAcademy curriculum provides methods and strategies that can be implemented to

successfully promote the development of mind-body connection for this target population including videos, testimonials, and curriculum details.

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## Appendix A1: Recruitment Electronic Mail (Email) and Flyer

Lynn University  
Donald E. and Helen L. Ross College of Education  
Recruitment Electronic Mail (Email) to Provost

Greetings:

We are writing to you today requesting permission to send the attached flyer to the faculty and staff at your institution. As doctoral students in the Educational Leadership program at Lynn University, we are seeking information to improve self-regulation skills in Generation Z students by developing a neuroeducation-based wellness curriculum. The title of our study is: *The Impact of a Neuroeducation-based Wellness Curriculum on Generation Z: Implementing Mind-Body Connection.*

In accordance with these aims, the following procedures will be used. Participants will be provided with a consent form prior to the study. Participants must read and sign the consent form and return to the researchers in order to participate in a focus group interview. The researchers will then contact the participants via email to arrange the interview date and time on GoMeeting.Com. After the researchers' analyses, participants will be asked to check their responses via email and confirm them with the researchers' interpretations. The review of analyses should take no longer than 15 minutes. Participants will be given a \$25.00 gift card as a token for their participation. In order to protect confidentiality, both the participants and their schools will be given pseudonyms.

If you have any questions or concerns regarding the study, you may contact the researcher team, by phone at [REDACTED] or by email at [REDACTED]. You may also contact the Institutional Review Board point of contact, Robert Reich, by phone [REDACTED] or by email at [REDACTED].

Thank you in advance for your consideration.

Sincerely,

Natalie M. Capiro, Alexandra Primo Gleason, and Stefanie Powers

## Appendix A2: Recruitment Electronic Mail (Email) and Flyer

### RESEARCH STUDY PARTICIPANTS NEEDED FOR FOCUS GROUP

**Who:**

**Faculty & Administration:**

Volunteers to participate in a focus group on wellness curriculum.

**What:**

Participants willing to participate in a 30-minute audiotaped focus group interview with researchers on GoToMeeting.Com. After the researchers' analyses, you will be asked to check your responses via email and confirm them with the researchers' interpretations. The review of analyses completed by the research team should take no longer than 15 minutes.

**Title:**

*The Impact of a Neuroeducation-based Wellness Curriculum on  
Generation Z: Implementing Mind-Body Connection*

**Benefits and Risks:**

**Benefits:** Participants may appreciate the opportunity to share their practices and experiences with Generation Z students in regard to overall wellness. In addition, their participation may help educators better understand their student population and utilize a curriculum centered on this topic. Participants will be offered a \$25.00 gift card after completing the audiotaped focus group interview.

**Risks:** There are minimal risks in participating. However, as stated in the "Informed Consent," if a participant feels uncomfortable or anxious at any time, he/she may leave the focus group interview. In order to protect confidentiality, the participants and their schools will be given pseudonyms. The pseudonym will be used with all correspondence.

**Researchers' contact information:**

Natalie M. Capiro, Alexandra Primo Gleason, and Stefanie Powers  
Doctoral Students in Lynn University's Educational Leadership Program

Email: [REDACTED]

Phone: [REDACTED]

Chairperson of Dissertation: Dr. Kathleen Weigel [REDACTED]  
Institutional Review Board Contact: Robert Reich [REDACTED]

## Appendix B: Email to prospective members of the research study

Lynn University  
Donald E. and Helen L. Ross College of Education  
Focus Group Cover Letter

Greetings:

Your participation in a research project is requested. The title of the study is: *The Impact of a Neuroeducation-based Wellness Curriculum on Generation Z: Implementing Mind-Body Connection*. The research is being conducted by Natalie M. Capiro, Alexandra Primo Gleason, and Stefanie Powers, doctoral candidates in the Educational Leadership program at Lynn University. The researchers are seeking information to improve self-regulation skills in Generation Z students by developing a neuroeducation-based and wellness curriculum. In accordance with these aims, the following procedures will be used. Participants must sign consent form and return to researchers via email. Participants will participate in a focus group interview at a prearranged time. The interview will take place on GoMeeting.Com and will last approximately 30 minutes. After the analyses, you will be asked to check your responses via email and confirm them with the researchers' interpretations. The review of analyses should take no longer than 15 minutes. If there are any discrepancies with the interpretations, the researchers will modify analyses as needed. If there is no response from the participants after one-week, the researchers will assume the analysis is correct. Participants will be given a \$25.00 gift card as a token for their participation. In order to protect confidentiality, both the participants and their schools will be given pseudonyms.

You must be at least 21 years of age to participate in this study. The risks of involvement in this study are minimal and you can exit at any time. Your participation in the study will contribute to educational research in the area of overall wellness in Generation Z students.

If you are at least 21 years of age and willing to participate in this research study, please sign the attached consent form and return to research team via email by October 1<sup>st</sup>, 2018. If you have any questions or concerns regarding the study or your participation in the study, you may contact the research team, by phone at [REDACTED] or by email at [REDACTED]. You may also contact the Chair, Dr. Kathleen Weigel at [REDACTED] or by email at [REDACTED]. Lastly, you may contact the Institutional Review Board point of contact, Robert Reich, by phone [REDACTED] or by email at [REDACTED].

Thank you for your participation.

Sincerely,

Natalie M. Capiro, Alexandra Primo Gleason, and Stefanie Powers

## Appendix C: Informed Consent Form

### LYNN UNIVERSITY FOCUS GROUPS INTERVIEW INFORMED CONSENT FORM

Your participation in a research project is requested. The title of the study is *The Impact of a Neuroeducation-based Wellness Curriculum on Generation Z: Implementing Mind-Body Connection*. The research is being conducted by Natalie M. Capiro, Alexandra Primo Gleason, and Stefanie Powers, doctoral students in the Educational Leadership program at Lynn University, who are seeking information to improve self-regulation skills in Generation Z adolescents by developing a neuroeducation-based wellness curriculum.

In accordance with these aims, the following procedures will be used. Participants who choose to partake in this portion of the study will be asked to arrange a time convenient for them to be interviewed. The interview will take place on GoMeeting.Com. In order to protect confidentiality, both the participants and their schools will be given pseudonyms. The researchers guarantee to maintain confidentiality. The researchers will then conduct 30-minute audiotaped focus group interviews. Participants will be able to request that the audiotaped be stopped and resumed at any point in the interview. After the researchers' analyses, you will be asked to check your responses via email and confirm them with the researcher's interpretations. The review of analyses should take no longer than 15 minutes. The researcher anticipates the number of participants to be approximately 12.

Participants interested in this study must be 21 years of age or older. Your consent to be a research participant is strictly voluntary and should you decline to participate, or should you choose to drop out at any time during the study, your data, transcripts and audiotape will be destroyed. Also, there will be no adverse effects on your employment. The risks of involvement in this study are minimal. To minimize risks: the researchers will be empathetic toward you and if you feel uncomfortable completing the survey you may ask the researchers to destroy your audiotape and transcripts immediately. You may however find benefit in answering questions regarding mental and physical wellness in Generation Z adolescents, and your participation in this study may help educators' understanding of this topic. You will also be offered a \$25 gift certificate after the interview.

As a research participant, information you provide will be held in confidence to the extent permitted by law. Any published results of the research will refer to group averages only and no names will be used in the study. Data will be kept in a locked file in one of the researcher's homes. The audiotapes will be destroyed immediately after the recording is transcribed and transcriptions will be kept in a different locked cabinet and the key of names and pseudonyms will be kept separate from transcriptions. All transcriptions will be destroyed two years after the completion of the study. Only the researchers will have access to the information collected. A pseudonym, which is not similar or does not in any way identify the participant, will be assigned to the participant and school. Your signed consent form will be kept separate from the data.

If you have any questions or concerns regarding the study or your participation in the study, you may contact the researchers at [REDACTED], or the Chairperson of the dissertation committee, Dr. Weigel, at [REDACTED].

You may also contact the Institutional Review Board point of contact, Robert Reich, [REDACTED]. If you are satisfied with the information provided and are willing to participate in this research, please signify your consent by signing this consent form.



## Appendix C: Informed Consent Form

### Voluntary Consent

I acknowledge that I have been informed of the nature and purposes of this study by the researchers and that I have read and understand the information presented above, and that I have received a copy of this form for my records. I give my voluntary consent to participate in this experiment.

\_\_\_\_\_  
*Signature of Participant*                      *Date*

\_\_\_\_\_  
*Researcher*                                      *Date*

\_\_\_\_\_  
*Researcher*                                      *Date*

\_\_\_\_\_  
*Researcher*                                      *Date*

\_\_\_\_\_  
*Witness*    *Date*

(Witness signature is required only if research involves pregnant women, children, other vulnerable populations, or if more than minimal risk is present)

## Appendix D: Interview Questions for Focus Groups

• *1. How do you think mindfulness influences mental health?*

*2. Is there any specific content that you think will be helpful in the iMindAcademy curriculum for generation Z students? Please explain.*

*3. Do you think the mindfulness-based iMindAcademy curriculum will provide positive results on the overall campus community? Please explain.*



**APPENDIX E: IRB APPROVALS**



**Institutional Review Board**  
3601 North Military Trail  
Boca Raton, FL 33433  
T: 561-237-7407  
561-237-7000 | lynn.edu  
Robert W. Reich, D.BA, Cha

**DATE: 8/1/2018**

**TO:** Natalie M. Capiro, MBA, ME.D., Alexandra Primo Gleason, MBA, Powers, M.S.  
**FROM:** Robert Reich

**PROJECT NUMBER: 18.18**

**PROTOCOL TITLE:** *"The Impact of a Neuroeducation-based Wellness Curriculum on Generation Z: Implementing Mind-Body Connection,"*

**PROJECT TYPE:** Research investigation

**REVIEW TYPE:** Exempt  
**ACTION:** Approved  
**APPROVAL DATE:** 8/1/2018  
**EXPIRATION DATE:** 8/1/2019

Thank you for your submission for this research study. The Lynn University IRB has APPROVED your New Project. This approval is in accordance with 45 CFR §46.111 Criteria for IRB approval of research. All research must be conducted in accordance with this approved submission.

It is important that you retain this letter for your records and present upon request to necessary parties.

- This approval is valid for one year. **IRB Form 4: Application to Continue (Renew) a Previously Approved Project** will be required prior to the expiration date if this project will continue beyond one year.
- Please note that any revision to previously approved materials or procedures must be approved by the IRB before it is initiated. Please submit **IRB Form 5 Application for Procedural Revisions of or Changes in Research Protocol and/or Informed Consent Form 1 of a Previously Approved Project** for this procedure.
- All serious and unexpected adverse events must be reported to the IRB. Please use **IRB Form 6 Report of Unexpected Adverse Event, Serious Injury or Death** for this procedure.
- At the completion of your data collection, please submit **IRB Form 8 IRB Report of Termination of Project**.

If you have any questions or comments about this correspondence, please contact the chair of the Lynn University IRB, Robert Reich (██████████)

████████████████████

Institutional Review Board  
Lynn University  
3601 North Military Trail  
Boca Raton, FL 33433  
T: ██████████  
561-237-7000 | lynn.edu

Appendix E: IRB Approvals

**IRB FORM 5**

**LYNN UNIVERSITY INSTITUTIONAL REVIEW BOARD  
APPLICATION FOR PROCEDURAL REVISIONS OF OR CHANGES IN  
RESEARCH PROTOCOL AND/OR INFORMED CONSENT FORM 1 OF A  
PREVIOUSLY APPROVED PROJECT**

Initial Review: Full <input type="checkbox"/> Expedited <input type="checkbox"/> Exempt <input checked="" type="checkbox"/>
Principal Investigator: Natalie Capiro, Alexandra Primo Gleason, Stefanie Powers
IRB Project Number: 18.18
Date of initial approval: 8/1/2018
Date of most recent continuing (renewal) approval: 8/24/2018
Today's Date: 8/24/2018
Project Title: The Impact of a Neuroeducation-based Wellness Curriculum on Generation Z: Implementing

**Report changes only to items listed below since last IRB review (initial or continuing).**

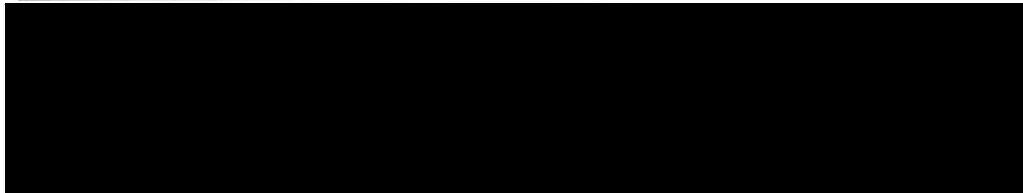
Principal Investigator: <i>(Full name and educational credentials)</i>	
Principal Investigator: Address	
Project Title:	
Students: <i>Specify Degree Program</i>	
Employees enrolled in degree programs, complete this item	
Employee: <i>Specify Position and Employment Unit</i>	
Phone Number: (Work)	
Phone Number: (Home)	
Phone Number: (Mobile)	
FAX Number:	
e-mail:	
Faculty Sponsor (If applicable)	
Phone Number: (Work)	
e-mail:	
Co-Investigators (Associate or Collaborating Investigator(s): Names, titles and address. If list is extensive, insert on a separate page.	

**Policy and Procedure**

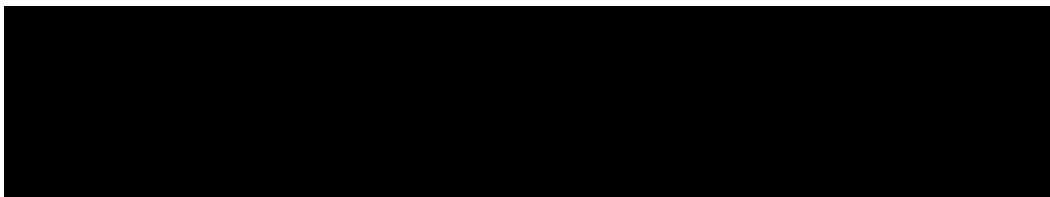
The principal investigator is responsible for obtaining prior approval for changes in accordance with policies. Expedited review procedures may be used for certain kinds of research involving no more than minimal risk, and for minor changes in approved research CFR 45 §46.110. Under an expedited review procedure, the review may be carried out by the IRB chairperson or by one or more experienced reviewers designated by the chairperson from among members of the IRB. In reviewing the research, the reviewers may exercise all of the authorities of the IRB except that the reviewers may not disapprove the research. A research activity may be disapproved only after review in accordance with the non-expedited procedure set forth in CFR 45 §46.108(b). If the procedural change is judged to involve more than minimal risk, intentional deception, or questions pertaining to a protected population and does not meet the categories for exempt or expedited review it must be presented to a convened full review board for discussion and consideration of approval or non-approval. The IRB reserves the right to request the investigator to provide additional information concerning the application for a procedural change. After review, the IRB will send the applicant formal notification of IRB actions.

Complete the information below.

<p>1. DESCRIPTION AND JUSTIFICATION OF PROPOSED REVISIONS IN RESEARCH PROTOCOL (the revised protocol must be submitted with the items representing revisions highlighted):</p> <p>The recently approved IRB application permitted the researchers to conduct a study on administrators and faculty at private higher education institutions in Southeast Florida. The first step of the approved research study included seeking permission from the provosts to email faculty and administrators at their institutions to see if they are willing to participate in a focus group interview. Due to lack of email responses for</p>
<p>2. DESCRIPTION OF AND JUSTIFICATION FOR PROPOSED CHANGES IN INFORMED CONSENT FORM (if revisions to the consent form are proposed, a copy of both the revised consent and the original consent must be submitted with the requested revisions highlighted on both forms, if applicable):</p> <p>The only proposed change in the informed consent form is that we will be asking the participants to participate in an in person focus group interview rather than participate in the interview via GoMeeting.com.</p>
<p>3. OTHER CHANGES (i.e., changes in investigator status, funding sources, etc.):</p>
<p>4. LIST ATTACHMENTS (i.e., research protocol, consent form, correspondence, etc.):</p> <p>Informed Consent Form</p>



_____ Signature of Sponsor (for non-doctoral employees)		_____ Date
_____ Name	_____ Position	_____ Academic Unit/Department
_____ Signature of Vice President (for staff employee)		_____ Date



**NOTE: Applications without all requested information will be returned without IRB review.**

**Principal Investigator:** Natalie Capiro, Alexandra Primo Gleason, Stefanie Powers  
**Project Title:** The Impact of a Neuroeducation-based Wellness Curriculum on Generation Z: Implementing

DO NOT WRITE BELOW THIS LINE: FOR IRB USE ONLY

APPLICATION FOR PROCEDURAL REVISIONS OF OR CHANGES IN RESEARCH PROTOCOL AND/OR INFORMED CONSENT FORM 1 OF A PREVIOUSLY APPROVED PROJECT		
IRB Project Number: 18.18		
Initial Review: Full <input type="checkbox"/> Expedited <input type="checkbox"/> Exempt <input checked="" type="checkbox"/> Date of most recent continuation approval: _____		
IRB ACTION BY IRB CHAIR OR ANOTHER MEMBER OR MEMBERS DESIGNATED BY THE CHAIR		
Procedural Revision(s): Approved <input type="checkbox"/> Approved w/provision(s) <input type="checkbox"/>		
Referred For Convened Full-Board Review _____		
Comments:		
Consent Required: No <input type="checkbox"/> Yes <input type="checkbox"/> Not Applicable <input type="checkbox"/> Written <input type="checkbox"/> Signed <input type="checkbox"/>		
Consent Form Revised: No <input type="checkbox"/> Yes <input type="checkbox"/> . If yes, the Consent forms must bear the research protocol expiration date of _____.		
Date for Application to Continue/Renew is as noted on initial application or most recent renewal		
Other Comments:		
IRB Reviewer: _____	Title _____	Date _____
IRB Reviewer: _____	Title _____	Date _____
IRB Reviewer: _____	Title _____	Date _____
IRB Reviewer: _____	Title _____	Date _____
IRB Reviewer: _____	Title _____	Date _____

Name of IRB Chair (Print) Dr. Kathleen Weigel



IRB ACTION by the CONVENED FULL BOARD if Applicable		
Date of IRB Review of Procedural Revision _____		
IRB ACTION: Approved _____ Approved w/provision(s) _____ Not Approved _____ Other _____		
Comments:		
Consent Required: No <input type="checkbox"/> Yes <input type="checkbox"/> Not Applicable <input type="checkbox"/> Written <input type="checkbox"/> Signed <input type="checkbox"/>		
Consent Form Revised: No <input type="checkbox"/> Yes <input type="checkbox"/> . If yes, the Consent forms must bear the research protocol expiration date of _____.		
Date for Application to Continue/Renew is as noted on initial application or most recent renewal		
Other Comments:		

Name of IRB Chair (Print) Dr. Kathleen Weigel

Signature of IRB Chair \_\_\_\_\_

Last revision: March 2010.

**Appendix F: NIH Protecting Human Subjects Certificates for Natalie M. Capiro, MBA, ME.D., Alexandra L. Cleason, MBA, and Stefanie Powers, M.S.**



## Appendix H: iMindAcademy Website

### THE PRODUCT #CultureOverCurriculum



## Appendix I: iMindAcademy Curriculum





# PROBLEM:

The 21<sup>st</sup> century culture has a significant impact on the cognitive-psychological development of generation Z students. Cultural factors that contribute to this include the excessive use of technology, an increased focus on higher academic achievement, more parental involvement, a more sedentary lifestyle, and less in-person social interactions. Concurrently, the curricular focus on physical and mental wellness has been weak. This has led to a rise of mental health issues amongst 21<sup>st</sup> century students. According to Dr. Jean Twenge, Professor of Psychology at San Diego State University, first-year college students showed all-time highs in mental health issues in 2016. The research indicates that since 2009, students experienced an 18 percent increase in emotional health issues, a 51 percent increase in anxiety, and a 95 percent increase in students who felt depressed (Twenge, 2017, pp. 103-104). There is ample research that indicates the social and emotional bodies of the brain are developing and functioning differently because of 21<sup>st</sup> century cultural factors and social trends. It is crucial for educators to take a deeper look at the impact that contemporary society and current educational practices have on the cognitive and psychological development of adolescent students.

# BACKGROUND:

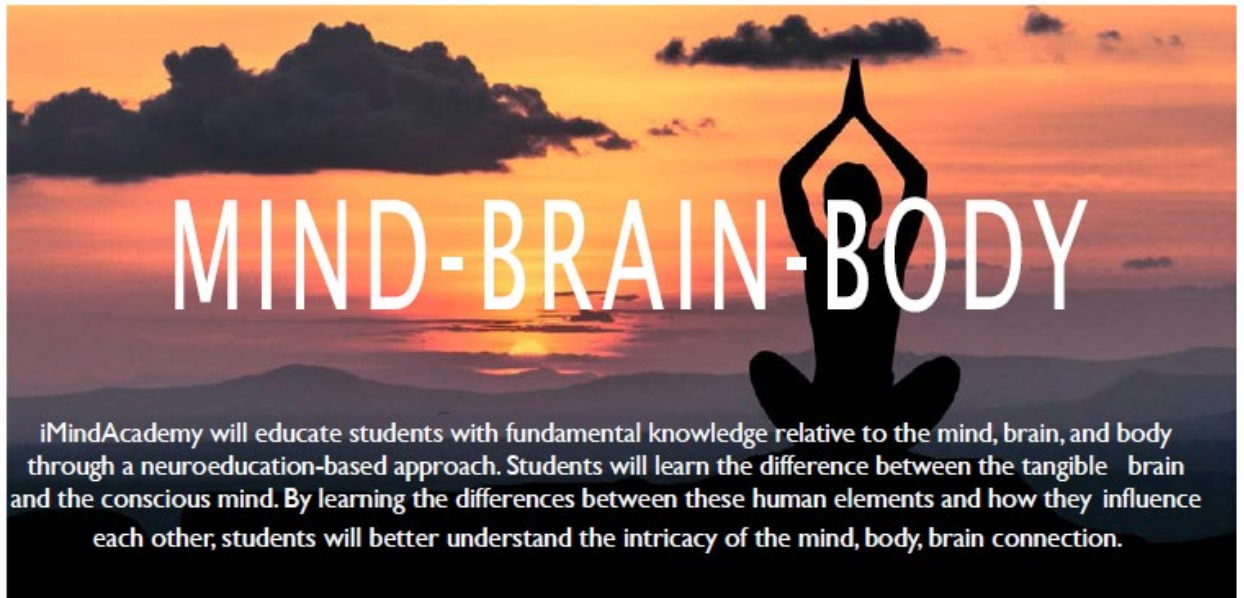
Adolescents are in a critical transition period in which students are undergoing significant cognitive, physical, and psychological development. Research reveals that students who spend more time engaging with technology experience more psychological distress, lower self-esteem, and depressive symptoms. If the brain is adapting to current cultural practices on a physiological level, the mind needs to be recognized as a separate entity that is not confined to the brain. The mind determines one's subjective experiences as to how one thinks and feels about incoming information through the senses (Siegel, 2012, pp. 1-11). By empowering students to change the way they think and feel, educators can enhance the structure and function of students' brains. The flexibility in brain plasticity throughout adolescence is a prime opportunity for educators to implement strategies that will promote positive development in the mind, body, and brain.

# PURPOSE:

iMindAcademy is a neuroeducation-based wellness curriculum that was developed in accordance with research findings from neuroscience and education in the 21<sup>st</sup> century. The intent of the curriculum is to equip adolescent students with the knowledge and skills needed for positive self-regulation and healthy cognitive-psychological development. The following pages include a curricular framework

based on neuroeducation research to assist administrators and faculty members in higher education institutions.

## CURRICULUM



### MIND, BRAIN, BODY CONNECTION

Students will learn the fundamental differences between the mind, brain, and body. Through videos, readings, and interactive discussions, students will become familiar with the science behind the intricate connection between the mind, brain, and body. Students will start to build awareness and apply this knowledge to improve their well-being.

### THE NEUROSCIENCE OF MINDFULNESS PRACTICES

Students will be educated on the profound effects that mindfulness exercises have on the brain. Students will be introduced to the remarkable cognitive, psychological, and physical benefits that mindfulness practices are able to produce.

### MINDFULNESS EXERCISES

Students will be introduced to a variety of mindfulness exercises including meditations, body scans, breathing techniques, and mindful eating. Students should be guided to reflect on their experiences of recognizing how their mind works in relation to the brain and the body.

## MINDFUL MOVEMENT

Students will investigate the science behind moving with mindfulness. Through participation in physical activities including yoga, Pilates, tai-chi, aerobics, strength training, martial arts, etc., students will experience the fundamental link between the brain and the body. Reaffirm and educate students on the significance of physical activity in maintaining healthy physical, cognitive, and psychological development in the 21st century.

## BALANCE

When the external world is put on hold and students focus on positively developing their internal states, they will cultivate skills relative to self-regulation and resilience. This is a result of the mind, body, and brain working together. By utilizing knowledge and skills acquired from this first module, students will be able to better regulate thoughts and emotions and control their actions.



### L01:

Students will be able to understand the intricate and interdependent relationship between the mind, brain, and body.

### L02:

Students will be able to understand the effects that mindfulness practices have on the brain.

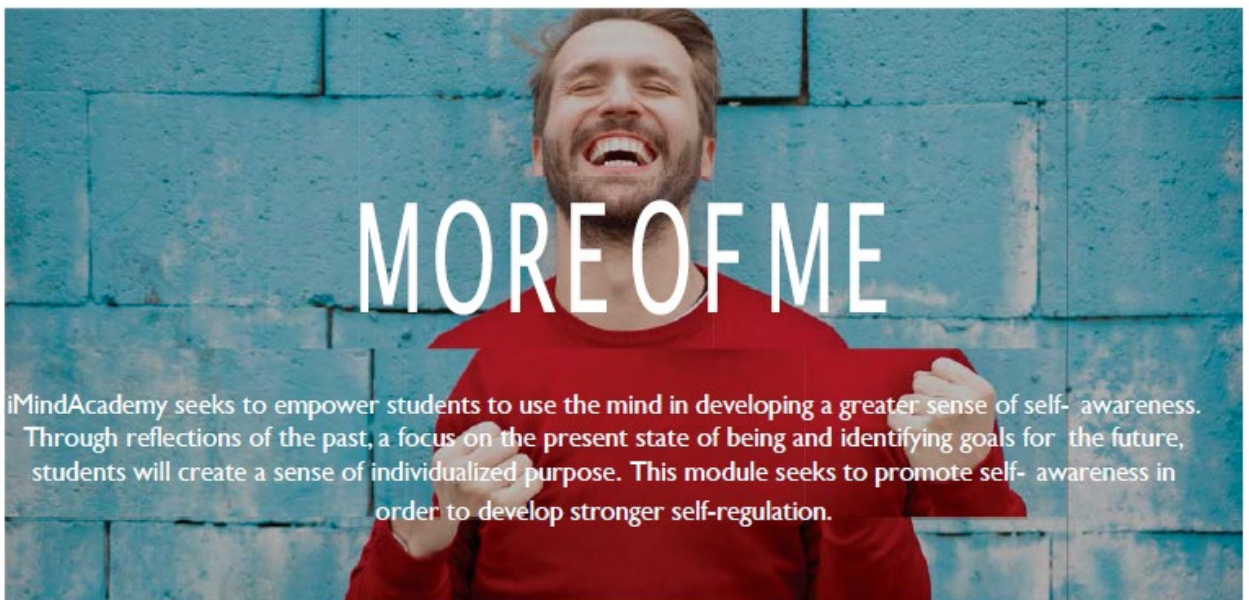
### L03:

Students will be able to experience the benefits of mindfulness practices through meditation, body scans, breathing techniques, and mindful eating.

### L04:

Students will be able to experience and appreciate the fundamental physiological effects of movement on the brain.

## CURRICULUM



### MINDFUL OF EMOTIONS

Through interactive discussions, readings, and videos, students will learn how mindfulness influences cognitive development relative to skills such as empathy, self-regulation, and social interactions.

### MINDFUL OF THE PAST

Through active reflection, students will become aware of how past experiences have contributed to who they are today. Students will engage in storytelling and present an autobiography that will promote students to understand themselves as well develop empathy for others.

## MINDFUL OF THE PRESENT

Students will create a personal SWOT analysis identifying their strengths, weaknesses, opportunities, and threats. By increasing self-awareness in these areas, students will recognize their individuality and develop a meaningful purpose.

## MINDFUL OF THE FUTURE

iMindAcademy will educate students on how to develop a growth mindset. The power of a growth mindset allows students to discover that goals can be attained through dedication, discipline, and resilience.

## MINDFULNESS IN ACTION

Conversations on values, morals, and beliefs will be examined to determine appropriate and inappropriate choices in college and beyond. Through curricular programming, students will create action plans in an effort to accomplish short and long-term goals.



### L01:

Students will be able to identify how their individual experiences have shaped who they are today.

## L02:

Through exploration and self-inquiry, students will be able to better understand their innate qualities that contribute to finding their ultimate purpose.

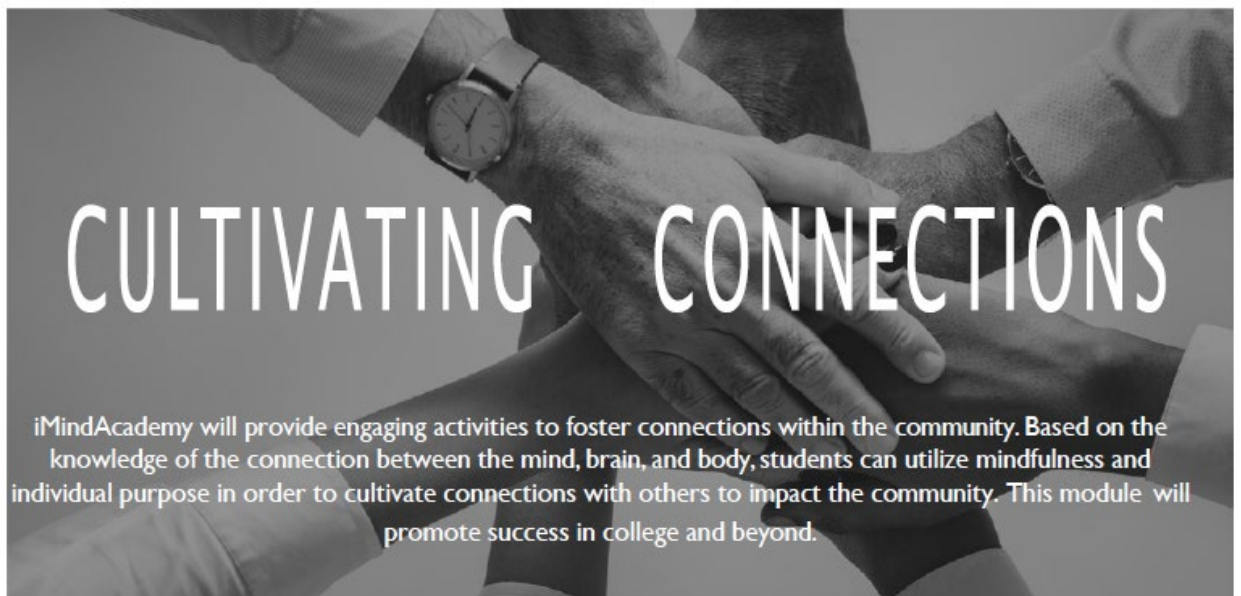
## L03:

Students will understand the importance of a growth mindset and utilize this technique to promote personal productivity and foster healthy development.

## L04:

Students will cultivate competencies relative to ethical decision-making, emotional intelligence, and leadership.

# CURRICULUM



## CULTIVATING CONNECTIONS THROUGH COMMUNICATION

Through interactive discussions, readings, and videos, students will learn the power of cultivating connections through interpersonal communication. Students will understand the differences between verbal and nonverbal communication.

## PURPOSEFUL PROGRAMMING AND INTERACTIVE ACTIVITIES

Current cultural practices must be addressed to ensure a nurturing environment where students feel self-empowered and valued. To enrich the setting, students will be partaking in a variety of icebreakers and team-building activities which will begin to cultivate positive relationships and foster community.

## SOCIAL MOVEMENT CAMPAIGN

To explore the idea and concepts of social activism, students will create a powerful online media campaign on a current issue of importance. This campaign will facilitate discussions on the power of social media as a driving force in today's culture. Students will gain a stronger understanding of the impact of their social media practices. Students will be guided to create personal blogs to emphasize online engagement through a positive social media platform.

## SERVING SOCIETY

Research evidence suggests that engaging in community service develops a greater sense of purpose and connection. In addition to reducing stress and anxiety, service provides personal satisfaction, civic mindfulness and enhances students' sense of belonging in the community. Students will reflect on the meaning of community and will be encouraged to volunteer.



L01:

Students will be able to understand the power of cultivating connections through interpersonal communication.

## L02:

Students will better understand how to positively engage in social media platforms.

## L03:

Students will cultivate an awareness of the implications of being an active participant in increasingly diverse communities.

## L04:

Students will be able to recognize their self-worth and will be more mindful of how they actively contribute within their communities.

# CURRICULUM

# BE PART OF THE CHANGE

**JOIN THE IMIND ACADEMY COMMUNITY**