Exhibiting the Effects of Brain Education on Employee Stress Management, Work Performance, Relationships, and Well-being

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Examining the Effects of Brain Education on Employee Stress Management,
Work Performance, Relationships, and Well-being

A Dissertation by

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ABSTRACT

Examining the Effects of Brain Education on Employee Stress Management, Work Performance, Relationships, and Well-Being

by Ericka L. Crawford

Purpose: The purpose of this study was to identify, examine, and describe the lived experience of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being.

Methodology: This qualitative phenomenological study utilized semi-structured interviews to collect data from employees trained in Brain Education. Employees were purposefully chosen based on specific criteria, including those trained in Brain Education for at least three months, worked for organizations that employ more than 20 people, and were located in California.

Findings: Analysis of the data showed 10 major findings across 29 major themes and 76 associated codes. Results of this study revealed Brain Education increased employees’ ability to effectively manage stress, increased work performance, improved relationships, and increased employee well-being.

Conclusions: Six conclusions were drawn: (1) employee engagement, work performance, and organizational citizenship is increased through Brain Education training resulting in increased organizational performance; (2) employee work performance is improved through increased focus, productivity, problem-solving, creativity, and teamwork as a result of Brain Education training; (3) employee ability to navigate organizational change is increased through Brain Education training; (4) employee emotional intelligence is increased through Brain Education training, which develops and
improves work relationships resulting in increased performance; (5) employee leadership skills are increased through Brain Education training, which contributes to optimal organizational functioning; and (6) employee ability to manage stress, health, and well-being is increased through Brain Education training, which prevents burnout, increases presenteeism, and lowers healthcare costs.

**Recommendations:** Further research is recommended in the following areas: (1) repeat this study in other U.S. locations to expand the research in Brain Education; (2) repeat this study with employees in a single organization for deeper insight into the effects of Brain Education on team dynamics, work group performance, and workplace outcomes; and (3) repeat this study specifically for organizational leaders to provide deeper insight into leadership behaviors and the effects on their employees and organizational performance.
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CHAPTER I: INTRODUCTION

Stress has been declared a global epidemic of the 21st century by the World Health Organization (Fink, 2016). The United Nations stated work-related stress is one of the greatest issues facing the world today (International Labour Organization, 2012). Americans consistently report higher stress levels than what they believe to be healthy (American Psychological Association [APA], 2016). The top sources of stress reported were money (67%), work (65%), family responsibilities (54%), and health concerns (51%). According to the 2015 Stress in America survey, “Stress remains a barrier that prevents people from living well and reaching their health and lifestyle goals” (APA, 2015, p. 10).

Stress is known to contribute to health problems, such as cardiovascular diseases, gastrointestinal disorders, diabetes, musculoskeletal pain, weakened immune system, cancer, mental disorders, and mortality (Antoni et al., 2006; Boone & Anthony, 2003; Braveman, Egerter, & Mockenhaupt, 2011; Cohen et al., 2012; Cohen, Janicki-Deverts, & Miller, 2007; Finestone, Alfeeli, & Fisher, 2008; Fink, 2016; Schneiderman, Ironson, & Siegel, 2005). In fact, stress and its associated inflammatory response has been linked to almost all diseases (Cohen et al., 2012; McEwen, 2008; Monat & Lazarus, 1991; Seyle, 1955). Stress is also a significant contributor of poor health behaviors, such as smoking, alcohol consumption, eating unhealthy foods, overeating, and sleep problems (APA, 2016; Braveman et al., 2011; Groesz et al., 2012; Schneiderman et al., 2005; Torres & Nowson, 2007). Forty-three percent of adults suffer adverse effects from stress and 75-90% of all doctor visits are for stress-related issues (Boone & Anthony, 2003). Healthcare costs also continue to rise, affecting both employers and employees with
higher cost premiums. Aetna (2014, 2016a, 2017) reported healthcare spending is expected to reach $5 trillion in 2022, up from $3.2 trillion in 2015, $2.9 trillion in 2013, $2.6 trillion in 2010, and $75 billion in 1970.

Work-related stress affects job performance, relationships, and employee health and well-being, and has significant economic impact on organizations. According to the American Institute of Stress (2017a), 80% of employees feel stress on the job and nearly half say they need help learning how to manage stress. Employee stress negatively affects productivity, concentration, the ability to solve problems, decision-making, creativity, and morale; workplace stress costs employers $300 billion per year in accidents, absenteeism, turnover, diminished productivity, medical costs, and worker’s compensation (American Institute of Stress, 2017a; APA, 2016; Ajayi & Abimbola, 2013; Ball, 2004; Diener & Seligman, 2004; Fink, 2016). Stress-related worker compensation lawsuits are four times the amount of regular injury claims and industrial-related accidents due to stress are estimated between 60-80%, making employee stress a workplace safety risk (Boone & Anthony, 2003). Ajayi and Abimbola (2013) reported, “as organizational stress increases employee performance decreases” (p. 75), suggesting stress management may be one of employers’ most important endeavors of the 21st century.

Stress originates in the brain and is a highly personalized phenomenon as people react to events and situations differently based on their individual thoughts and emotions (Fink, 2016; Lazarus, 1993; McEwen, 2006). Each person’s life history is recorded in their brain and becomes part of the conscious and subconscious mind, making interventions to reduce stress highly complex (Lipton, 2015; Pert, 1997, 2000).
According to Csikszentmihalyi (2008), “Everything we experience – joy or pain, interest or boredom – is represented in the mind as information. If we are able to control this information, we can decide what our lives will be like” (p. 6). For example, when a new computer program is implemented in an organization, some employees may become anxious, frustrated, and overwhelmed whereas other employees may be excited and welcome the change. The employee’s reaction to the event is highly personal, depending on his or her thoughts and emotions related to the change.

Brain Education is an innovative educational program that recognizes the complexity of people’s reactions to stress that originates in the brain. Brain Education consists of over 300 physical, emotional, and cognitive exercises designed to strengthen the mind-body connection and help people learn to fully utilize the capacity of their brain (I. Lee, 2007b, 2016a). Strengthening the mind-body connection and learning how to effectively manage one’s brain can help in managing one’s stress response. According to McEwen (2002), “The brain is the master controller of the interpretation of what is stressful and the behavioral and physiological responses that are produced” (p. 922). This makes learning about the brain and how to manage one’s stress response important in increasing one’s capacity for improved work performance, harmonious relationships, and increased health and well-being.

Brain Education was developed in South Korea in 1980 by Ilchi Lee and introduced in the United States in 1991 through mind-body training centers (now called Body & Brain and Power Brain centers). There are 700 Body & Brain centers in 17 countries, including 100 centers located in the United States. Brain Education was introduced in U.S. school systems in 2006 and over 12,000 teachers, and 50,000 students
in 400 schools have been trained in Brain Education techniques (Beal, 2016). Brain Education is rooted in Eastern philosophy; however, it seeks to integrate Eastern and Western thought into one for development of the human brain and development of humanity (I. Lee, 2016a). Brain Education methods incorporate elements of Asian healing arts, mindfulness, meditation, neuroscience, quantum physics, and positive psychology adapted to today’s modern society (I. Lee, 2016a). To begin development of the human brain for optimal performance, people must first gain control over their stress response; therefore, learning to manage stress is an essential component of Brain Education.

**Background**

**Effects of Stress in the Workplace**

Stress can negatively impact workplace performance, relationships, employee well-being, morale, and organizational citizenship (Ajayi & Abimbola, 2013; APA, 2016; Diener & Sielgman, 2004; Thoits, 2010; Wolever et al., 2012). Stress from one life domain can also spread to other domains, such as stress from work spreading to home or stress from home spreading to work (Diener & Sielgman, 2004; Thoits, 2010). Stress can cause anxiety, frustration, inability to concentrate, feelings of overwhelm, fatigue, depression, irritability, anger, inability to relax, overreaction to situations, procrastination, neglecting responsibilities, violence, poor judgment, constant worry, loss of objectivity, body tension, and headaches (APA, 2015, 2016, 2017a). All these symptoms of stress can significantly impact employees’ ability to perform at their highest level.
Workplace stress costs organizations $300 billion annually in absenteeism, turnover, diminished productivity, medical costs, and worker’s compensation (American Institute of Stress, 2017a; Ball, 2004). Rising workplace stress costs and healthcare spending make employee health and well-being strategic levers for organizations (Zwetsloot & Pot, 2004, as cited by Bakker & Schaufeli, 2008). Other costs to organizations related to stress, but more difficult to quantify, include the impact on customer satisfaction, strained employee relationships, and strained relationships between employees and leaders when goals are not met. Stress is known to affect “productivity, quality of work done, process of it, number of mistakes made, and the number of injuries at work” (Kofoworola & Alayode, 2012, p. 162). Stress also affects creativity and innovation which are “imperative to the progression of human civilization” (Li et al., 2015, p. 191).

**Trends in Workplace Stress**

According to American Institute of Stress (2017a), 80% of employees feel stress on the job and nearly half say they need help learning how to manage stress. Norman B. Anderson, APA CEO, stated “For our nation to get healthier, lower the rates of chronic illnesses, and lower healthcare costs, we need to improve how we view and treat stress and unhealthy behaviors that are contributing to the high incidence of disease in the U.S.” (APA, 2013a, para. 4). This suggests helping employees learn to manage stress may be employers’ most important endeavor of the 21st century.

Over the past 40 years, stress management interventions, such as relaxation, breathing exercises, meditation, mindfulness training, visualization, yoga, and physical fitness programs have been implemented in organizations to address employee stress
(Bellarosa & Chen, 1997; Good et al., 2016; Kabat-Zinn, 2003; Lindh, 2013; Murphy & Schoenborn, 1987). All these stress management methods showed improvement in reducing stress; however, stress management continues to be a problem for employees and more needs to be done. One promising stress management intervention not yet evaluated among employees is Brain Education. Brain Education was shown to reduce stress in Brain Education practitioners and students (Bowden, Gaudry, An, & Gruzelier, 2012; Jung et al., 2010; Oh, 2014); however, it has yet to be evaluated by employees.

**Brain Education Program**

Brain Education may be a solution for employers to help employees learn to effectively manage stress, optimize performance, and increase health and well-being. Brain Education is an educational program that recognizes the link between stress, emotional balance, cognition, performance, and brain function. Brain Education consists of over 300 physical, emotional, and cognitive exercises designed to strengthen the mind-body connection and help people learn to fully utilize the capacity of their brain (I. Lee, 2007b, 2013a, 2016a). Stress is highly destructive to the brain (McEwen, 2008); however, when stress is managed appropriately it helps “stimulate the brain, improving mood and encouraging creative problem solving” (I. Lee, 2007b, p. 19). This is aligned with the Yerkes-Dodson law, which states performance is improved with a certain level of arousal (or stress) and performance decreases when arousal (or stress) levels become too high (Colman, 2001; Teigen, 1994; Yerkes & Dodson, 1908). This suggests effectively managing one’s brain and stress response can help in reaching optimal performance levels.
Brain Education is different from other stress management interventions in that it focuses on development of the brain through integrating the three layers (neocortex, limbic system, and brain stem) and two hemispheres (right and left) of the brain. When the layers of the brain work in harmony, one can reach their highest potential (I. Lee, 2016a). This is closely related to self-actualization in Maslow’s hierarchy of needs (I. Lee, 2007b). The first step in Brain Education is developing energy sensitivity, which is another difference between Brain Education and other stress management interventions. Awakening one’s sensitivity to feel energy helps quiet the mind and restore the optimal energy flow in the body. When the optimal energy flow in the body is restored, health, happiness, peace, creativity, productivity, positive relationships, and well-being naturally emerge (I. Lee, 2016a).

Brain Education benefits include reduced stress, improved cognition, improved problem-solving skills, enhanced emotional intelligence (EI), increased positive emotions, enhanced emotional control, improved relationships, and increased health and well-being (Bowden et al., 2012; Bowden, McLennan, & Gruzelier, 2014; S. Cho, Yoo, & Shim, 2012; Y. Cho & Oh, 2012; Jung et al., 2010; Y. Kim et al., 2002; S. Lee, Mancuso, & Charlson, 2004; Y. Lee & Oh, 2013; Oh, 2010, 2012, 2014). In a study of Brain Education practitioners who took regular classes for three months, practitioners showed improvement in quality of life scores, including mental, emotional, social, and physical health (S. Lee et al., 2004). Results of a 2010 study investigating the effectiveness of Brain Education meditation as part of a “Happy School Program” with 269 elementary school students showed positive results in student concentration, metacognition, emotional control, and physical control (Oh, 2010). A 2012 study of 83
elementary school students showed improved relationships with teachers and friends (Oh, 2012).

**Theoretical Framework**

The theoretical framework used for this study was a modified version of the Integrative Framework Relating Mindfulness to Workplace Outcomes developed by Good et al. in 2016. No theoretical frameworks emerged in the literature review for Brain Education; however, Good et al.’s (2016) framework closely related to this study and was the most current framework in the literature. The framework suggested focused attention led to improving the four human domains of cognition, emotion, behavior, and physiology, which resulted in improved workplace outcomes in the areas of performance, relationships, and well-being (Good et al., 2016). Stress response is included in the physiological human domain but is discussed as a specific variable in this study due to the well-documented effects of stress management on performance, relationships, and employee well-being.

The framework is closely related to the first two steps in Brain Education (sensitizing and versatilizing) in that focus, relaxed concentration, and increasing one’s energy sensitivity showed improvements in cognition, emotion, behavior, and physiology. To begin development of the human brain for optimal performance, it requires one to first gain control over his or her stress response; therefore, learning to manage stress is part of the first step in Brain Education. I. Lee (2007b) stated, “The ability to manage stress is the holy grail of brain management. Every other attempt to develop and use your brain well can be thwarted if you do not gain some level of control over your stress response” (p. 19). The remaining three steps of Brain Education
refreshing, integrating, and mastering) continue to develop the mind-body connection for enhanced executive control of the brain and realization of one’s full potential.

The Integrative Framework Relating Mindfulness to Workplace Outcomes (Good et al., 2016) and the research in Brain Education closely aligned, making the framework the most relevant for this study. The modified version of the theoretical framework used for this study is shown in Figure 1.

**Gaps in Research**

It was evident from the literature that organizations need tools for helping employees effectively manage stress so they can perform at their highest level (Kofoworola & Alayode, 2012; Mirela & Madalina-Adriana, 2011; Walonick, 1993). Brain Education in schools revealed positive results for students (S. Kim & Oh, 2015; Y. Lee & Oh, 2013; Oh, 2010, 2012, 2014, 2015) and for Brain Education practitioners (Bowden et al., 2012; Jung et al., 2010; S. Lee et al., 2004); however, no studies to date have examined the effects of Brain Education for employees. Most research on Brain Education was conducted in Asia where Brain Education was founded. Limited research has been conducted in the United States, warranting further research to evaluate Brain Education as a valuable tool for helping employees manage stress, improve work performance, improve relationships, and improve well-being.

Using Google Scholar, *Brain Education* in the title retrieves 81 results. Brain Education with the addition of each of the following words retrieves no results: employee, working adult, organization, workplace, and job. Using ProQuest, *Brain Education* in the title retrieves 127 results. Brain Education with the addition of each of the following words retrieves no results: employee, working adult, workplace, and job.
Figure 1. Theoretical framework for Brain Education study. Modified from Good et al. (2016) Integrative Framework Relating Mindfulness to Workplace Outcomes.
Brain Education and organization retrieves two results; however, neither article is related to Brain Education in organizations. The results of these searches provide evidence that no research on Brain Education has been conducted in the context of employees or working adults and further research is needed to determine if Brain Education is an effective method for reducing employee stress.

**Statement of the Research Problem**

Unmanaged stress is a current crisis in the world today. Stress was declared a global epidemic of the 21st century by the World Health Organization (Fink, 2016) and work-related stress is one of the greatest challenges facing the world today according to the United Nations (International Labour Organization, 2012). Unmanaged stress leads to chronic illnesses, affects economic growth and development, and negatively impacts American families (APA, 2010, 2013b; Cohen et al., 2007; Kofoworola & Alayode, 2012; McEwen, 2008; Monat & Lazarus, 1991; Selye, 1955; Thoits, 2010).

Americans continue to report higher stress levels than they believe are healthy (APA, 2016) and 53% of Americans stated they receive little or no support in helping manage stress from their healthcare providers (APA, 2013a, 2013b). Stress also negatively affects American families. Eighty-six percent of children stated they were affected by their parents’ stress and reported feeling sad, worried, or frustrated when their parents were stressed (APA, 2010). Thoits (2010) wrote, “Parents under stress give less warmth, attention, support, and effective discipline to their children, further elevating their children’s distress and depression, behavioral problems, and poor educational performance” (p. S45). Pregnant mothers who experience chronic stress can significantly alter the physiological development of their unborn child (Lipton, 1998, 2001). Stress
can also proliferate across generations, increasing the urgency of effective stress management methods for Americans (Thoits, 2010). Stress management programs in the workplace emerged over the past four decades; however, it was clear from the literature that more needs to be done to reduce employee stress (Kofoworola & Alayode, 2012; Mirela & Madalina-Adriana, 2011; Walonick, 1993).

**Purpose Statement**

The purpose of this qualitative phenomenological study was to identify, examine, and describe the lived experience of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being.

**Research Questions**

This study was guided by one central research question and six sub-questions. The central question of this study was: What are the lived experiences of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being? The six sub-questions were:

1. Stress management. What specific changes have employees experienced through Brain Education training in relation to managing stress?
2. Work performance. What specific changes have employees experienced through Brain Education training in relation to work performance?
3. Work performance. What specific changes have employees experienced through Brain Education training in relation to recognizing and managing emotions (e.g., emotional intelligence)?
4. Relationships. What specific changes have employees experienced through Brain Education training in their relationships?
5. Relationships. What specific changes have employees experienced through Brain Education training in relation to social behaviors (e.g., empathy, compassion, and altruism)?

6. Well-being. What specific changes have employees experienced through Brain Education training in relation to their overall well-being?

**Significance of the Problem**

The inability for people to effectively manage stress is a current crisis in the world today according to both the World Health Organization and United Nations (Fink, 2016; International Labour Organization, 2012). Prolonged, unmanaged stress leads to chronic illnesses, increased healthcare costs, and increased costs to employers (American Institute of Stress, 2017a; APA, 2013b; Ball, 2004; Selye, 1955). Healthcare spending in the United States is expected to reach $5 trillion in 2022, up 92% from 2010, and workplace stress costs employers $300 billion per year (Aetna, 2016a; American Institute of Stress, 2017a; Ball, 2004). Stress also leads to poor work performance, negatively affects productivity and quality of work, and increases work injuries (Ajayi & Abimbola, 2013; Kofoworola & Alayode, 2012).

Organizational leaders can play a significant role in helping reduce the stress crises by implementing effective stress management programs for their employees. In the 2015 *Human Development Report*, work was said to strengthen societies and “ultimately, work unleashes human potential, human creativity and the human spirit” (Jahana, 2015, p. 1). For organizations to accomplish this, employee stress must be addressed.
It was evident from the literature that organizations need tools for helping employees effectively manage stress so they can perform at their highest level (Kofoworola & Alayode, 2012; Mirela & Madalina-Adriana, 2011; Walonick, 1993). The significance of this study was to help examine Brain Education as a tool for employers to reduce employee stress, increase work performance, improve relationships, and improve health and well-being. The findings of this study may provide employers a solution, Brain Education training, for reducing employee stress, improving performance, and lowering healthcare costs. This study also has the potential to offer the United Nations and World Health Organization valuable information on how Brain Education can play a part in helping address stress as a global epidemic. Furthermore, this study could be beneficial to healthcare providers in helping patients reduce stress-related illnesses through Brain Education training.

**Definitions**

The following terms were used throughout this study:

**Belly Button Healing.** Belly Button Healing is a self-healing method taught in Brain Education where the belly button is mindfully stimulated to improve gut and brain health, reduce stress and pain, and increase energy and blood circulation (I. Lee, 2016b).

**Brain Education.** Brain Education is a collection of systemized mind-body training methods designed to help people learn to fully utilize the capacity of their brain and reach their full potential (I. Lee, 2016a). It consists of over 300 physical, emotional, and cognitive exercises designed to strengthen the mind-body connection and develop the power of the brain (I. Lee, 2007b, 2016a)
**Brain Wave Vibration.** Brain Wave Vibration (BWV) is a moving meditation used in Brain Education that uses rhythmic vibration designed to lower brain waves, relax the body and mind, follow one’s own natural rhythm, and sense energy in the body (I. Lee, 2009).

**Dahnjon.** Dahnjon is a term used in Brain Education that means “field of energy” and refers to energy centers in the body where energy is gathered and stored (I. Lee, 2016a, p. 47). Energy centers in the body are referred to by different names depending on the culture, such as chakra in Sanskrit, dan tien in Chinese, and dahnjon in Korean.

**Dahnjon Tapping.** Dahnjon tapping is an exercise taught in Brain Education that consists of rhythmically tapping the lower abdomen with both fists or palms to strengthen the lower dahnjon and facilitate circulation of blood and energy throughout the body (I. Lee, 2016a).

**Distress.** Distress is the “the negative, unpleasant, and harmful aspects of stress” (Kent, 1994, p. 133).

**Emotional Intelligence (EI).** EI is how an individual can “adaptively and effectively regulate his or her emotional behavior in a social context. This encompasses the ability to recognize subjective feelings, to manage emotions, to transform emotions into expressiveness and action, to react empathetically, and to shape relationships” (Traue, Kessler, & Deighton, 2016, p. 239).

**Employee.** An employee is an adult over the age of 18 employed by an organization who receives payment for work performed.
**Eustress.** Eustress is the “the positive or pleasant aspect of stress… which produces positive responses of excitement and happiness” (Kent, 1994, p. 155).

**Jangsaeng Walking.** Jangsaeng means “youthful longevity” in Korean and is a mindful walking technique taught in Brain Education to restore proper energy flow in the body (I. Lee & Jones, 2008, p. 183).

**Jigam.** A form of meditation taught in Brain Education to help one develop energy sensitivity and strengthen relaxed concentration (I. Lee, 2016a).

**Meditation.** Meditation means mental training. It is a way to train one’s attention and is used to help calm the mind and become aware of one’s thought stream without reacting to internal or external stimuli (I. Lee, 2016a).

**Mindfulness.** Mindfulness is present moment awareness. Kabat-Zinn (2003) defined mindfulness as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p. 145). Brown and Ryan (2003) defined mindfulness as “the state of being attentive to and aware of what is taking place in the present” (p. 822), which is in contrast to a mindless state, described as “habitual or automatic” ways of functioning (p. 823).

**Organizational Citizenship.** Helping and cooperating with others and supporting organizational objectives even if not formally part of one’s own job (Borman, Penner, Allen, & Motowidlo, 2001; George & Brief, 1992).

**Relationships.** Relationships are the way in which people relate or behave toward one another, such as social support, teamwork, helping others, cooperativeness, altruism, communication, conflict management, kindness, and empathy (Ajayi &

Self-awareness. Self-awareness is the “attention to carefully observe all phenomena that arise within us” (I. Lee, 2016a, p. 95).

Stress. Stress is the “nonspecific response of the body to any demand” (Seyle, 1974, p. 27).

Stress Management. Stress management is the ability to manage one’s stress response using techniques designed to modify one’s appraisal of a situation or deal effectively with stress symptoms (Murphy, 1996).

Stressor. Any stress producing factor (Seyle, 1974).

Well-being. Subjective well-being, also referred to as happiness, is what people think and how they feel when they evaluate their lives (Diener, 2000; Seligman & Csikszentmihalyi, 2000).

Work Performance. Work performance refers to performance of employees at work, such as productivity, concentration, attentional focus, ability to solve problems, creativity, judgment, decision-making, safety, and organizational citizenship behaviors (Ajayi & Abimbola, 2013; Colligan & Higgins, 2006; Diener & Seligman, 2004; Driskell & Salas, 1996; Good et al., 2016; Thoits, 1995, 2010).

Delimitations

The focus of this study was delimited to participants trained in Brain Education through a Body & Brain center for at least three months. The study was also delimited to those working in organizations in California with at least 20 employees.
Organization of the Study

This study is organized into five chapters followed by references and appendices. Chapter I introduced the study, providing background information, the theoretical framework, gaps in the research, the statement of the research problem, significance of the problem, definitions, and delimitations. Chapter II provides a review of the literature, including the science of stress, stress in the workplace, Brain Education, and theoretical framework. Chapter III describes the methodology for the study, including the research design, population and sample, data collection and analysis procedures, and limitations. Chapter IV presents the findings of the study. Chapter V summarizes major findings, conclusions, implications for action, recommendations for further research, and concluding remarks.
CHAPTER II: REVIEW OF THE LITERATURE

This chapter presents a review of the relevant literature and provides the theoretical framework for this study. This literature review is divided into four main sections: the science of stress, stress in the workplace, Brain Education, and the theoretical framework. The first section, science of stress, defines stress, discusses the evolution of stress theory, and describes why perceptions of stress matter. The second section, stress in the workplace, focuses on stress and leadership, the effects of stress, stress for optimal organizational performance, and stress management trends. The third section, Brain Education, explains what Brain Education is, its components, and existing research in Brain Education. The fourth section, theoretical framework, describes the modified Integrative Framework Relating Mindfulness to Work Place Outcomes (Good et al., 2016) used for this study.

Science of Stress

Stress has been studied for over a century, resulting in evolving stress theories, definitions, and contributions by various scientists in the fields of physiology, cell biology, endocrinology, psychology, immunology, neurobiology, and epigenetics. The science of stress evolved from Cannon’s famous theory of \textit{fight or flight} in which people are at the mercy of their bodily reactions to stimuli to current theories explaining how the mind and body are an integrated whole where one’s thoughts and emotions can create wellness or disease (Braden, 1999; Hawkins, 2004; Lipton, 2015; McEwen & Lasley, 2002; McGonigal, 2015, 2016; Pert, 1997). Emerging research showed how people think about stress (positive or negative), their belief systems, and their attitudes (optimism or pessimism) affect their body’s response to stress (Antoni et al., 2006; Lazarus, Kanner, &
Folkman, 1980; Lipton, 2015; McGonigal, 2016; Seligman, 2006). This new understanding of stress suggests stress is a choice and training one’s brain to respond in ways positive for one’s health and well-being can have significant benefits in life.

**Defining Stress**

Hans Seyle, who is often referred to as the father of stress (Fink, 2016), defined stress as the “nonspecific response of the body to any demand” (Seyle, 1974, p. 27). This remains the most general definition of stress in the literature. It encompasses both positive and negative experiences of stress (Seyle, 1974). Eustress refers to the positive aspects of stress and distress refers to the negative aspects of stress (Kent, 1994).

Unfortunately, the word stress is most often perceived as negative in society, which discounts the benefits of stress (McGonigal, 2016). Perhaps this is due to the word first being used in physics to denote pressure or tension on an object, or the early focus of stress research being on the negative consequences of stress on health, or the proliferation of the definition of stress in dictionaries only pointing to the negative aspects of stress. For example, The Oxford Dictionary of Sports Science and Medicine (Kent, 1994) defines stress as:

Any factor, physical or mental, that tends to disturb homeostasis and has an adverse effect on the functions of the body; A psychological condition which occurs when individuals perceive a substantial imbalance between demands being made on them and their ability to satisfy those demands, where failure to do so has important consequences. See also distress; eustress. (p. 427)

The Oxford Dictionary of Psychology (Colman, 2001) defined stress as “Psychological and physical strain or tension generated by physical, emotional, social, economic, or
occupational circumstances, events, or experiences that are difficult to manage or endure… Compare eustress” (p. 711). Both definitions show how the term stress became synonymous with distress, which was not Seyle’s original intent.

**Evolution of Stress Theories**

Claude Brenard laid the foundation of stress theory in the 1800s by introducing the need for the body to maintain a relatively constant internal environment, later coined homeostasis by Walter Cannon in 1932 (Cannon, 1932). Cannon (1932) introduced the fight or flight concept into the literature in the 1930s; however, the term stress was not used (at least not as it applied in a biological sense, as it had been used for centuries in physics) until 1946 when the term was coined by Hans Seyle. Since then stress theories have evolved from purely physiological, to psychological, and to energetic, where thoughts and emotions create wellness or disease in the body (Braden, 1999; Hawkins, 2004; Lipton, 2015; McEwen & Lasley, 2002; McGonigal, 2016; Pert, 1997). The following sections provide the major contributions and evolution of stress theory by various scientists.

**Claude Bernard (1813-1878): Stability of the internal environment.** Claude Bernard was a French physiologist who first introduced the concept that the body’s internal environment, or milieu intérieur, must maintain a relatively constant state despite changes in the external environment (McCarty, 2016). This principle was later expanded and coined homeostasis by Walter Cannon in 1932 (Cannon, 1932).

**Walter Cannon (1871-1945): Homeostasis, fight or flight response, and Cannon-Bard theory of emotions.** Walter Cannon was an American physiologist who built upon the work of Claude Bernard and introduced the term homeostasis to describe
the coordinated physiological processes that maintain the relatively stable internal environment of organisms, regardless of external conditions. Cannon (1932) showed one’s body maintains a fairly narrow range of body temperature, oxygen supply, and chemical composition of bodily fluids (e.g., pH, glucose, sodium, proteins, fat, calcium) to maintain life. Even minor variations to homeostasis is dangerous (Cannon, 1932).

Cannon (1932) is also responsible for the widely known fight or flight response, a physiological reaction that occurs when one perceives a threat and either fights or flees from the threat to maintain survival. The known physiological reaction that occurs during the fight or flight response (often referred to as the stress response) evolved significantly since Cannon’s time as instruments evolved and new biochemicals involved in the stress response were discovered (Fink, 2016; McEwen, 2002). When a threat to homeostasis is perceived by the brain, the brain activates the autonomic nervous system (ANS), which triggers the sympathetic nervous system (SNS), and the hypothalamic-pituitary-adrenal (HPA) axis releasing stress hormones (e.g., adrenaline [also called epinephrine], noradrenaline [also called norepinephrine], and cortisol) into the system to prepare the body for fight or flight (Fink, 2016; McEwen, 2002; McGonigal, 2016). When the stress response is activated, several physiological reactions occur, including increased pupil dilation or alertness, increased heart rate, increased breathing rate, increased blood pressure, conversion of glycogen to glucose by the liver for quick energy, and shunting of blood away from the digestive system, kidneys, reproductive functions, skin, and other non-emergency physical functions to the muscles to prepare the body for battle or fleeing (Cannon, 1915, 1932; Colman, 2001; Fink, 2016; Kent, 1994; McCarty, 2016; McEwen, 2002; Torres & Nowson, 2007). When stress is short-lived,
referred to as acute stress (lasting minutes to hours), the body returns to a resting state via the parasympathetic nervous system (PNS) which is a branch of the autonomic nervous system (ANS). The PNS is responsible for restoring homeostasis and promoting rest and digestion. When stress persists, referred to as chronic stress (lasting weeks to months), it can tax the body making the body more susceptible to disease through a suppressed immune system, slowing down the healing process, and impairing cognitive control (Calvo & Gutierrez-Garcia, 2016; Diwadkar, 2016; Finestone et al., 2008; McEwen, 2002; McGonigal, 2016; Schneiderman et al., 2005). Figure 2 summarizes the ANS responses to stress, including the SNS for promoting fight or flight and the PNS for restoring homeostasis and promoting a calm, rest, and digest state.
In 1927, Cannon disproved the James-Lange theory of emotion introduced in 1884. The James-Lange theory hypothesized emotions were the result of physiological changes in the body, meaning the body reacted to a stimulus first and the reaction produced the emotional feeling (Cannon, 1927; Reevy et al., 2010b). For example, one’s muscles would tense up before feeling fear or one’s heart would race before feeling anger. The James-Lange theory lacked any cognitive intervention related to emotion. Cannon discounted this theory in 1927 and introduced a new theory along with his student, Philip Bard, that later became known as the Cannon-Bard theory. The Cannon-Bard theory of emotion explained that emotions and physiological reactions occurred

Figure 2. Autonomic nervous system responses to stress and a calm state. Developed from Cannon (1915); Fink (2016); McEwen and Lasley (2002); and Reevy, Ozer, and Ito (2010a, 2010b).

<table>
<thead>
<tr>
<th>Body Area</th>
<th>Autonomic Nervous System</th>
<th>Parasympathetic Nervous System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Sympathetic Nervous System</strong></td>
<td><strong>Parasympathetic Nervous System</strong></td>
</tr>
<tr>
<td></td>
<td>Mobilizes body for survival (Promotes fight or flight)</td>
<td>Restores homeostasis and calm state (Promotes rest and digest state)</td>
</tr>
<tr>
<td>Eyes</td>
<td>Dilates pupils</td>
<td>Constricts pupils</td>
</tr>
<tr>
<td>Salivary glands</td>
<td>Decreases saliva production</td>
<td>Increases saliva production</td>
</tr>
<tr>
<td>Heart</td>
<td>Increases heart rate</td>
<td>Decreases heart rate</td>
</tr>
<tr>
<td>Blood vessels</td>
<td>Blood pressure increases; Blood diverted from non-essential body areas</td>
<td>Blood pressure decreases</td>
</tr>
<tr>
<td>Lungs</td>
<td>Breathing increases; Bronchial tubes dilate</td>
<td>Breathing slows down; Bronchial tubes constrict</td>
</tr>
<tr>
<td>Muscles</td>
<td>Contract, Become tense</td>
<td>Relax</td>
</tr>
<tr>
<td>Adrenal glands</td>
<td>Release of adrenaline, noradrenaline, cortisol</td>
<td>No involvement</td>
</tr>
<tr>
<td>Liver</td>
<td>Conversion of glycogen to glucose for energy</td>
<td>No involvement</td>
</tr>
<tr>
<td>Digestion</td>
<td>Inhibits digestion</td>
<td>Stimulates digestion</td>
</tr>
<tr>
<td>Bladder</td>
<td>Decreases urinary output</td>
<td>Increases urinary output</td>
</tr>
<tr>
<td>Sexual organs</td>
<td>Stimulates orgasm</td>
<td>Stimulates erection</td>
</tr>
<tr>
<td>Immune system</td>
<td>Suppresses</td>
<td>Restores</td>
</tr>
</tbody>
</table>
nearly simultaneously by a signal received in the thalamus, which indicates a physiological reaction (Cannon, 1915, 1927), meaning emotion originates in the brain and is then felt in the body. For example, one feels fear first then muscles tighten or one feels anger first then the heart races. Although the Cannon-Bard theory was incomplete in that it did not include the limbic areas of the brain, Cannon was the first to realize “emotion is only a perception of changes in the body” (Cannon, 1927, p. 569).


Hans Seyle was an Austrian-Canadian endocrinologist born in Hungary who introduced the general adaption theory (GAS) into the literature in 1936. GAS describes the “generalized effort of the organism to adapt itself to new conditions” (Seyle, 1946, p. 32). Seyle (1936) discovered when laboratory rats were exposed to various stimuli, such as cold, surgical injury, spinal shock, excessive muscular exercise, or intoxications with sublethal doses of diverse drugs, a pattern occurred that was independent of the stimulus. He named this pattern of how an organism responds to stress as GAS; however, he did not use the term stress until 1946 (Seyle, 1946).

Selye (1946) defined GAS as the “sum of all nonspecific, systemic reactions of the body which ensue upon long-continued exposure to stress” (p. 232). GAS occurs in three stages: alarm reaction, resistance, and exhaustion. Alarm reaction is the initial phenomena that occurs when an organism is first exposed to a stimulus and prepares the body for fight or flight. In the resistance stage, the organism builds up a resistance (or adapts) to the stimulus as a result of the continuous exposure. If the stimulus continues and the organism is unable to maintain adaptation, then the third stage occurs, exhaustion, which leads to disease and eventually death. Seyle (1946) referred to the inability to
adapt to reactions of stress as “diseases of adaptation” and was the first to recognize the relationship between disease and stress (p. 238). Much research was conducted on stress and its link to diseases, disorders, symptoms, and conditions since Seyle (1946) first introduced the concept of diseases of adaptation. A brief summary of research linking stress and its effects are listed in Figure 3.

<table>
<thead>
<tr>
<th>Linkage to Stress</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>All diseases</td>
<td>Cohen et al., 2012; McEwen, 2008; Monat &amp; Lazarus, 1991; Seyle, 1955; Thoits, 2010</td>
</tr>
<tr>
<td>Addiction</td>
<td>Fink, 2016</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Fink, 2016; Schneiderman et al., 2005</td>
</tr>
<tr>
<td>Arthritis</td>
<td>Boone &amp; Anthony, 2003</td>
</tr>
<tr>
<td>Cancer</td>
<td>Antoni et al., 2006; Boone &amp; Anthony, 2003</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>Boone &amp; Anthony, 2003; Cohen, Janicki-Deverts, &amp; Miller, 2007; Fink, 2016; Schneiderman et al., 2005</td>
</tr>
<tr>
<td>Chronic fatigue</td>
<td>Boone &amp; Anthony, 2003</td>
</tr>
<tr>
<td>Cognitive Control</td>
<td>Calvo &amp; Gutierrez-Garcia, 2016; Diwadkar, 2016; McEwen, 2002; McGenigal, 2014; Tenzer et al., 2015</td>
</tr>
<tr>
<td>Depression</td>
<td>Cohen, Janicki-Deverts, &amp; Miller, 2007; Fink, 2016; Schneiderman et al., 2005</td>
</tr>
<tr>
<td>Dermatologic manifestations (e.g. acne, eczema)</td>
<td>Boone &amp; Anthony, 2003</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Cohen et al., 2012</td>
</tr>
<tr>
<td>Eating problems (e.g. unhealthy eating, overeating, obesity)</td>
<td>Braverman, Egerter, &amp; Mockenhaupt, 2011; Fink, 2016; Groesz et al., 2012; McEwen, 2008; Schneiderman et al., 2005</td>
</tr>
<tr>
<td>Gastrointestinal disorders (e.g. peptic ulcers, irritable bowel syndrome)</td>
<td>Boone &amp; Anthony, 2003</td>
</tr>
<tr>
<td>Headaches</td>
<td>Boone &amp; Anthony, 2003; Stress in America, 2016</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Fink, 2016; Schneiderman et al., 2005</td>
</tr>
<tr>
<td>Mental disorders (e.g. schizophrenia, post-traumatic stress disorder)</td>
<td>Diwadkar, 2016; Fink, 2016; Schneiderman et al., 2005</td>
</tr>
<tr>
<td>Mortality</td>
<td>Boone &amp; Anthony, 2003; Braverman, Egerter, &amp; Mockenhaupt, 2011</td>
</tr>
<tr>
<td>Sleep problems</td>
<td>McEwen, 2008; Schneiderman et al., 2005; Stress in America, 2014</td>
</tr>
<tr>
<td>Slower wound healing</td>
<td>Finestone, Alfeeli, &amp; Fisher, 2008</td>
</tr>
<tr>
<td>Smoking, substance use, alcohol consumption</td>
<td>Braverman, Egerter, &amp; Mockenhaupt, 2011; Schneiderman et al., 2005; Stress in America, 2016</td>
</tr>
<tr>
<td>Weakened immune system</td>
<td>Boone &amp; Anthony, 2003; Cohen, Janicki-Deverts, &amp; Miller, 2007; Diwadkar, 2016</td>
</tr>
</tbody>
</table>

**Figure 3.** Summary of the linkage of stress and its effects.
Although Seyle (1974) linked stress to diseases, he also stated “contrary to public opinion, we must not – and indeed cannot – avoid stress, we can meet it efficiently and enjoy it by learning more about its mechanism and adjusting our philosophy of life accordingly” (p. 33). Seyle (1946, 1974) recognized that stress could damage as well as protect and restore the body. Seyle (1974) provided an example to illustrate how diseases could be produced indirectly by reactions to events:

If you meet a helpless drunk who showers you with insults but is obviously quite unable to do you harm, nothing will happen if you take a “syntoxic” attitude – go past and ignore him. However, if you respond catatocratically and fight, or even only prepare to fight, the result may be tragic. You will discharge adrenaline-type hormones, which increase blood pressure and pulse rate, while your whole nervous system will become alarmed and tense in preparation for combat. If you happen to be a coronary candidate (because of age, arteriosclerosis, obesity, a high-blood cholesterol level), the result may be a fatal brain hemorrhage or heart attack. In this case, who was the murderer? The drunk didn’t even touch you. This is biological suicide! Death is caused by choosing the wrong reaction. (p.50)

This example illustrates the importance of understanding one’s stress response and suggests learning to control responses to various stressors could have significant impact on health and well-being.

**Richard Lazarus (1922-2002): Transactional model of stress and coping theory.** Richard Lazarus was an American psychologist who emphasized the importance of emotions in stress and believed it should be a central theme of scientific study. Much of the research in stress theory occurred in animal models that focused on arousal and
defense/escape behaviors which did not encompass the cognitive coping abilities of humans (Lazarus & Folkman, 1984). Up until the 1980s, emotion was considered an “irrelevant epiphenomenon” (Smith & Lazarus, 1990, p. 609). Smith and Lazarus (1990) believed along with the central role that emotions have in everyday life, the widespread belief is “emotions have a major impact on our subjective well-being, our physical health, our social functioning, and our problem-solving performance” (p. 609); thus, understanding emotions should be a focus for social and biological sciences.

Lazarus and Folkman (1984, 1987) introduced a different approach to stress theory, stating stress results from the individual’s cognitive appraisal or perception of an event versus the event itself. They suggested how people appraise an event in relation to their well-being determined if the event was stressful. An individual’s cognitive appraisal is based on their knowledge (beliefs, previous experiences, attitudes, expectations, self-concept, and coping resources) and motivational characteristics (values, goals, and commitments). Introducing cognitive appraisal into stress theory led to a new definition of stress: “the relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, 1984, p. 21). Cognitive appraisals can also be conscious or unconscious (Lazarus & Folkman, 1984; Smith & Lazarus, 1990).

The transactional model of stress and coping theory states that stress results from the relationship (or transaction) between the person and the environment. This relationship is mediated by cognitive appraisal of the environment and available coping resources (real or perceived). How people appraise the situation and their coping
resources determine their emotional experience (Coyne & Lazarus, 1980; Smith & Lazarus, 1990). The environment may also be purely imaginary, meaning, a person’s thought about the future or memory of the past can evoke emotional experiences. Smith and Lazarus (1990) proposed emotions serve an evolutionary purpose for human adaptation to survive, grow, and flourish. For example, anger evokes eliminating the source of harm or neutralizing harm; guilt evokes making amends for harm caused to others, which motivates socially responsible behavior; anxiety evokes avoiding potential harm; and sadness evokes getting help or support (Smith & Lazarus, 1990).

Cognitive appraisal includes primary appraisal, secondary appraisal, and reappraisals. During primary appraisal, a person asks, “What do I have at stake in this encounter?” (Folkman & Lazarus, 1991, p. 211). The person will appraise the situation as irrelevant, positive, or stressful (harm/loss, threat, challenge). If the person appraises the situation as irrelevant, then the encounter has no significance to the person and no further appraisal occurs. If the person appraises the situation as positive, meaning it preserves or enhances well-being, then “pleasurable emotions, such as, joy, love, happiness, exhilaration, or peacefulness” are experienced (Lazarus & Folkman, 1984, p. 32). If the person appraises the situation as harm or loss (meaning damage or loss has already occurred), or a threat (the person anticipates harm or loss), then “negative emotions, such as, fear, anxiety, and anger” are experienced (Lazarus & Folkman, 1984, p. 33). Challenge appraisals, although stressful, have a different emotional profile and physiological profile (Jamieson, Mendes & Nock, 2013; Jamieson, Nock, & Mendes, 2012). When a person appraises a situation as challenging, the person sees a potential
gain or opportunity for growth in the situation and experiences “pleasurable emotions such as eagerness, excitement, and exhilaration” (Lazarus & Folkman, 1984, p. 33).

Reappraisals refer to a person’s ongoing judgments in response to the changing internal (i.e., emotional responses) and external (i.e., the changing situation) environment (Coyne & Lazarus, 1980). Reappraisals occur constantly as new information is obtained and are complex and often mixed. For example, a new job opportunity could be appraised as positive, challenging, and a threat. The person may feel the new job is positive in that it can improve their well-being by having a higher salary and less commute time, challenging because of the opportunity to learn new skills, and threatening with the fear of not fitting in with colleagues or performing as well as expected. This shows how a person’s emotions constantly change as they think about and reappraise a situation.

During secondary appraisal, the person determines the best kind of coping strategies to use by asking, “What can I do? What are my options?” (Folkman & Lazarus, 1991, p. 211). There are two types of coping mechanisms, problem-focused and emotion-focused. Problem-focused strategies are used if the person feels they have some control or resources over the situation and can change the situation. Emotion-focused strategies are used when the person feels they have no control or resources over the situation and cannot do anything to change the situation. Resources can include, financial, social support, problem-solving skills, health, and energy (Folkman & Lazarus, 1991). Problem-focused coping focuses on actions to resolve a problem, such as providing additional resources for a project, rearranging one’s schedule or work environment or seeking input from a colleague. Emotion-focused coping focuses on
adjustment of the person’s psychological state, consciously or unconsciously, in relation to the environment. For example, distancing oneself from an angry customer or transforming anger toward a colleague for being late to work to compassion for his/her car troubles on the way to work. People typically rely on both forms of coping during an encounter as the person-environment is constantly changing as the encounter unfolds (Lazarus, 1990). Individual differences in knowledge (beliefs, previous experiences, attitudes, expectations, self-concept, and coping resources) and motivational characteristics (values, goals, and commitments) explain why an encounter may be appraised as a threat by one person and as neutral or challenging by another (Folkman & Lazarus, 1991). It also helps explain why the same person may appraise an encounter differently over time as they learn and grow and acquire new knowledge or change their motivations.

In Lazarus’s (1990) later work he advocated for abandoning the outdated measurement of stress to the measurement of emotion. Lazarus (1990) stated:

Research on how emotions affect health outcomes can tell us much more than research on stress and health outcomes. We need to know, for example, whether and in what ways specific negative emotions, such as anger and anxiety, contribute to illness and ill-being, and whether and in what way specific positive emotions, such as love and happiness, contribute to health and well-being. (p. 12)

He believed that measuring stress was unidimensional and did not account for the multidimensional emotional qualities and intensities people experience (Lazarus, 1990).
Candace Pert (1946-2013): Theory of emotions. Candace Pert was a neuropharmacologist who helped discover in 1985 that neuropeptides (information carriers) and their receptors are the biochemical substrate of emotion (Pert, Ruff, Weber, & Herkenham, 1985). Neuropeptides and their receptors are located throughout the brain and body and form a network of communication between the brain, glands and various body systems, including the immune system, endocrine system, digestive system, and autonomic nervous system. Pert’s (1986, 1997) theory of emotions contradicts both the James-Lange and Cannon-Bard theories in that emotions occur simultaneously between brain and body versus one occurring before the other. This network of communication, mediated by emotions, links the mind and body together and is what Pert (1997) called the molecules of emotions. This was the first scientific discovery uniting the mind and body together as one entity. Pert (1997) stated, “Mind doesn’t dominate body, it becomes body – body and mind are one” (p. 187).

This discovery implied emotions play a vital role in health and well-being. Emotions include human experiences (e.g., anger, fear, sadness, joy, contentment, courage), basic sensations (e.g., pleasure, pain), drive states (e.g., hunger, thirst), and subjective experiences (e.g., spiritual inspiration, awe, bliss; Pert, 1997). According to Pert (1997),

When stress prevents the molecules of emotion from flowing freely where needed, the largely autonomic processes that are regulated by peptide flow such as breathing, blood flow, immunity, digestion, and elimination, collapse down to a few simple feedback loops and upset the normal healing response. (p. 242-243)
Pert (1997) describes disease-related stress as information overload, where the mind-body network becomes taxed by unprocessed sensory input from suppressed trauma or undigested emotions.

The continuous flow of the molecular information of emotions between the mind and body takes place mostly at a subconscious level and is influenced by emotional memories (Pert, 1997, 2000). Emotional memories are stored in the limbic area of the brain and in the body (Pert, 2000). Emotions can get stuck in the body when denied or repressed and retained as memories in the brain, as well as at a cellular level of the neuropeptide receptors, shaping behaviors throughout childhood and as adults (Pert, 1997). Emotional memories stored in the body must be accessed through the body, making mind-body training important for health (Pert, 1997). With intentional training methods designed to increase consciousness, one can learn to participate in the exchange of mind-body information flow, changing physiology and behaviors (Pert, 1997). Two examples Pert (1997) provided were (1) visualizing a part of the body can increase blood flow to that body part, which nourishes the cells through increased oxygen flow and nutrients and carrying away toxins from the cells, and (2) conscious breathing can reduce pain and improve mood.

With the discovery of the molecules of emotion, Pert (1997) described the need to move from studying and treating the body as a machine to reintegrating biomedical science of the body with the soul, mind, and emotions for health and well-being. Pert (1997) stated:

Most psychologists treat the mind as disembodied, a phenomenon with little or no connection to the physical body. Conversely, physicians treat
the body with no regard to the mind or the emotions. But the body and mind are not separate, and we cannot treat one without the other. My research has shown me that the body can and must be healed through the mind, and the mind can and must be healed through the body. (p. 274)

A step in this direction was combining the once separated sciences of psychology, neuroscience, immunology, and endocrinology into a new science called psychoneuroimmunology (PNI). Prior to Pert’s (1997) discovery, Western medicine had developed under 17th century philosopher Rene Descartes’ declaration that the human mind or soul and body are separate and entirely unrelated to each other. Pert (2000, 2006) stated life is where the spiritual realm (mind, world of information, thoughts, and emotions) and the physical realm (body, world of matter) intersect and cannot be separated. In an interview with Bill Moyers, Pert (1993) described the mind as “some kind of enlivening energy that throughout the brain and body enables the cells to talk to each other. And the outside to talk to the whole organism.” This energy is called chi, qi, ki, prana, spirit, doshas, mana, joja, or subtle energy, depending on what culture one is from and means life-force energy (I. Lee, 2016a; Olivo, 2006; Pert, 1997). I. Lee (2016a) stated, “Energy is the bridge linking the body and mind. It is the essence of life, moving and flowing freely. When energy coalesces and becomes dense enough, it’s transformed into a form of energy that we can see and touch” (p. 42). According to Pert (1997), when stored or blocked emotions are released, energy freely flows, allowing the mind-body to heal naturally.

Hawkins (2004) introduced a map of the energy fields of consciousness, including corresponding emotions, into the literature in 1995. Energy levels above 200 are life-
enhancing and create health, such as courage, neutrality, willingness, acceptance, reason, love, joy, and peace (Hawkins, 2004). Energy levels below 200 create disease and are life destructive to both the individual and society, such as shame, guilt, apathy, grief, fear, desire, anger, and pride (Hawkins, 2004). The map of energy consciousness aligns with the theories of Pert, Lazarus, and Seyle in that thoughts, emotions, perceptions, attitudes, and beliefs directly impact health and well-being. Fredrickson (2014) stated,

You have more control over your biology than you realize. Once you grasp the pathways and common obstacles to love, you gain a measure of control over the biochemicals that bathe your cells. To a considerable extent, you orchestrate the messages that your cells hear, the messages that tell your cells whether to grow toward health or illness. (p. 59)

Bruce McEwen (1938 - ): Allostasis and allostatic load. Bruce McEwen is an American neuroscientist who studied the effects of stress on the body’s ability to adjust or adapt to stressors not related to survival and the effects of cumulative stress or chronic stress. According to McEwen (2006),

Stress is a condition of the mind-body interaction, and a factor in the expression of disease that differs among individuals. It is not just the dramatic stressful events that exact their toll, but rather the many events of daily life that elevate and sustain activities of physiological systems and cause sleep deprivation, overeating, and other health-damaging behaviors, producing the feeling of being “stressed out.” (p. 267)

McEwen (2002) defined stress as the “physiological and behavioral responses to a ‘stressor’… that either perturbs homeostasis and requires an adaptive response or that is
interpreted as threatening and results in a hormonal or behavioral response even if physiological homeostasis is not compromised” (p. 922). This definition of stress points out stress responses go beyond the fight or flight response but may also include responses such as health-related behaviors (e.g., eating, lack of exercise, alcohol consumption, smoking, substance abuse) and increased anxiety and worry, causing fight or flight responses even when there is no threat to survival (McEwen, 2002; McEwen & Lasley, 2002).

During the normal stress response, stress hormones are released and sustained during the presence of a stressor and then shut off when no longer needed; this is referred to as acute stress generally lasting minutes or hours (Calvo & Gutierrez-Garcia, 2016). Chronic stress, generally lasts weeks or months, occurs when cumulative day-to-day stress interferes with the body’s ability to efficiently shut off the stress response and return to a normal resting state, referred to as allostatic load (Calvo & Gutierrez-Garcia, 2016; McEwen, 1998, 2002). McEwen (2008) proposed using the word allostasis (achieving stability through change), a term introduced by Sterling and Eyer (1988) to describe the “active process by which the body responds to daily events and maintains homeostasis” (p. 175). Allostatic load refers to the cumulative wear and tear on the body systems caused by too much stress or not turning off the stress response when no longer needed (McEwen, 2008; McEwen & Karatosoreos, 2015; McEwen & Lasley, 2002). Four conditions lead to allostatic load where the body is overexposed to stress hormones: (1) repeated exposure to stressors during a short period of time, (2) failure to adapt to repeated stressors of the same type, (3) prolonged stress response due to failure to turn off the stress response after the stressor has ended, and (4) inadequate response of one or
more stress hormones causing compensation by others (McEwen, 1998, 2002, 2006). Examples leading to allostatic load include feelings of anticipation or worry, memories of a traumatic event, job strain, lack of control in the work environment, alcohol consumption, smoking, dietary choices, lack of exercise or too much exercise, and sleep deprivation or circadian disruption (McEwen, 1998, 2002; McEwen & Karatosoreos, 2015; McEwen & Lasley, 2002). Allostatic load reduces cognitive performance, physical functioning and can lead to disease through atrophy of neurons, inhibition of neurogenesis, receptor desensitization, and tissue damage (McEwen, 2002, 2006, 2008).

According to McEwen (2006), “The brain is the key organ of stress, allostasis, and allostatic load, because it determines what is threatening and therefore stressful, and also determines the physiological and behavioral responses” (p. 367). Although, the brain controls the stress response, it is also the target of stress (McEwen, 2002). Repeated stress affects brain function (e.g., memory, learning, selective attention, decision-making, emotional regulation); however, the brain is highly resilient and able to withstand challenges and adapts, due to neuroplasticity (or plasticity) and neurogenesis (Calvo & Gutierrez-Garcia, 2016; Lupien, Ouellet-Morin, Herba, Juster & McEwen, 2016; McEwen, 1998, 2002; McEwen et al., 2015; McEwen & Lasley, 2002; McGonigal, 2009, 2016).

Neuroplasticity is the brain’s ability to change and rewire or reconfigure itself in response to stimulation, such as learning or experiencing something new (Fredrickson, 2014; McEwen & Lasley, 2002; McGonigal, 2009). When one learns new things, such as learning how to add numbers, the brain produces new synapses that form memories. The more the learning experience is repeated, the stronger the memory becomes. When one
actually experiences something, it reinforces the learning and makes the memory stronger, such as riding a bike. One can acquire knowledge of how to ride a bike by reading a book, but experiencing how to ride a bike reinforces the synapses and memory. Neuroplasticity makes any response, when repeated, more likely in the future; this includes how one responds to situations, to emotions, or to stress (McGonigal, 2009). If one responds to stress by eating unhealthy foods or smoking repeatedly, then this is likely to be one’s response in future stressful encounters. However, due to neuroplasticity, one can also train their brain and make new synapses by repeatedly choosing a different response to stress, such as going for a walk or calling a friend. In I. Lee’s (2016a) book, *The Power Brain*, he wrote,

> The changeability of the brain is, in fact, a great hope to us all. It means that painful memories of the past can be forgotten or healed with time, and we can always have new experiences and accept new information. Thanks to this brain property, we can examine ourselves, alter our habits and thinking, and even change our personalities. (p. 26-27)

The ability to change the brain through neuroplasticity suggests people have infinite potential to learn and grow.

Neurogenesis is the ability to create new neurons in the brain throughout a lifetime (Eriksson et al., 1998; McEwen & Lasley, 2002; Shors et al., 2001). Prior to the 1990s, it was thought that neurons died throughout one’s life and were not replaced. However, Eriksson et al. (1998) found “the human brain retains the potential for self-renewal throughout life” (p. 1315). During the stress response, neurogenesis is suppressed as a protective measure of the brain (McEwen & Lasley, 2002). This suggests
that learning to effectively manage our stress response can have significant benefits to our health, well-being, and cognitive performance.

Several things were found to have a positive effect on allostatic load, including healthy lifestyle choices (e.g., eating a healthy diet, improving sleep quality and quantity, exercising, avoiding smoking and alcohol consumption), a positive outlook on life, social support, positive self-esteem, and finding meaning and purpose in life (Fredrickson, 2014; McEwen, 2006, 2008; Schneiderman et al., 2005; Seligman, 2013). Both McEwen (2006) and Pert (1997) raised the discussion about using pharmaceutical drugs to treat stress. Although both agreed pharmaceutical drugs can be helpful to some degree, they pointed out that there were side effects and limitations to drug treatment because the mind-body systems are interconnected. Drugs can inhibit the beneficial effects of some systems and disrupt others causing some systems to compensate (McEwen, 2006).

McEwen (2006, 2008) also discussed how lifestyle behaviors are not an individual matter, but a government and business matter as policies influence and shape people’s lives. Government and business leaders can set policies (e.g., education, housing, taxation, pollution, food quality, occupational health and safety, environmental), provide incentives, and establish community services that help build and encourage healthy lifestyle practices (McEwen, 2006, 2008). These changes by individuals, governments, and businesses could reduce the financial burden of healthcare and improve people’s well-being.

**Martin Seligman (1942 - )**: Positive psychology, authentic happiness theory, and well-being theory. Martin Seligman is an American psychologist whose study of positive emotions gained traction when he became president of the American
Psychological Association (APA) in 1998 and made the field of positive psychology his central theme. Up until this time, most research on emotions was on how negative emotions lead to individual and societal problems, such as anger (e.g., aggression, violence), fear (e.g., anxiety, phobias), sadness (e.g., depression, suicide), and shame (e.g., depression, eating disorders, sexual disorders; Fredrickson, 1998; Seligman, 2004, 2013). Seligman (1972, 1975) himself spent the first part of his career studying learned helplessness and depression.

Depression is a mental illness affecting 350 million people globally, is the third leading contributor to the global burden of disease, and has a 16.9% lifetime prevalence rate in the United States compared to most other countries which fall between 8-12% (World Federation for Mental Health [WFMH], 2012). Depression is said to be an “illness of the brain,” which unmanaged stress can exacerbate (WFMH, 2012, p. 10). Depression, characterized by sadness, loss of interest in activities, decreased energy, loss of confidence and self-esteem, decreased concentration, and thoughts of death and suicide, is also one of the largest causes of disability worldwide (World Health Organization, 2001, 2004). The economic burden of depression in the United States is $210.5 billion with 50% of the cost being workplace costs, such as absenteeism and reduced productivity (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). Ulrich (1997) described how increasing demands on employees “to be more global, more customer-responsive, more flexible, more learning-oriented, more team-driven, more productive, and so on” may lead to employee depression that cannot be ignored or discounted by organizations that want to be competitive in today’s market (p. 128). In a study by Blackmore et al. (2007), depression in the workplace among men was associated
with high job strain and lack of social support, whereas among women depression was associated with lack of social support and low levels of decision authority. After many years of studying what was wrong with people, mental illness, and human suffering, Seligman (2004, 2006, 2013), as president of the APA, helped shift the focus of psychology to exploring what was right with people and what made life worth living by studying positive emotions, happiness, well-being, and flourishing for optimal human functioning (Seligman & Csikszentmihalyi, 2000). Seligman (2004) stated:

For the last half-century psychology has been consumed with a single topic only – mental illness – and has done fairly well with it… The time has finally arrived for a science that seeks to understand positive emotion, build strength and virtue, and provide guideposts for finding what Aristotle called the “good life.” The pursuit of happiness is enshrined in the Declaration of Independence as a right of all Americans, as well as on the self-improvement shelves of every American bookstore. (p. ix)

Research showed “people who are happier achieve better life outcomes, including financial success, supportive relationships, mental health, effective coping, and even physical health and longevity” (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009, p. 361).

Seligman introduced the authentic happiness theory in 2002, which consists of three elements: positive emotion, engagement, and meaning. Positive emotion is about the positivity people feel about the past (e.g., satisfaction, contentment, fulfillment, pride, serenity); the present (e.g., joy, ecstasy, calm, pleasure); or the future (e.g., hope, trust,
optimism, faith, confidence; Jayawickreme, Forgeard, & Seligman, 2012; Seligman, 2004). Seligman (2004) stated,

Feeling positive emotion is important, not just because it is pleasant in its own right, but because it causes much better commerce with the world.

Developing more positive emotion in our lives will build friendship, love, better physical health, and greater achievement. (p. 43)

Vaillant (2011) offered that positive emotions, such as love, awe, hope, faith or trust, forgiveness, joy, and gratitude are the building blocks of community, spirituality, and “extremely important in the relief of stress and in the regulation of the neuroendocrine system, protecting us against stress” (p. 113).

The second element of the authentic happiness theory, engagement, is about flow. Mihaly Csikszentmihalyi introduced the term flow into the literature in 1990 to describe the “positive aspects of human experience – joy, creativity, the process of total involvement with life” or “optimal experience” (2008, p. xi, p. 3). Flow is a highly focused mental state where thought and emotion are absent, and one is completely absorbed in an activity. Flow occurs when a person’s skills match the challenge of the situation and their attention is fully focused or absorbed in the activity (Csikszentmihalyi, 2008). Flow is often described as effortless, time stopping, the loss of self-consciousness, merging with the object or activity, high concentration and focused attention, knowing what to do moment by moment, abilities being stretched but not overwhelmed, and feeling or being part of something greater than yourself (Csikszentmihalyi, 2014). Positive emotions, such as happiness and joy, are often used following an experience of flow, although no emotion is present while in the state of
flow. Csikszentmihalyi (2008) stated that happiness is not reached by consciously searching for it but is created by being present in the moment and “fully involved with every detail of our lives, whether good or bad” (p. 2). Severe stress is known to impair the flow experience (Peifer, Schachinger, Engeser, & Antoni, 2015).

The third element of the authentic happiness theory, meaning, consists of “belonging to and serving something that you believe is bigger than the self” (Seligman, 2013, p. 17). Meaning is attained by using one’s strengths or talents to serve something bigger than the self (Jayawickreme et al., 2012). Human beings want meaning and purpose in life. Religions and social organizations throughout the world have been created for this purpose. Family, friends, organizations, groups, and teams can also help provide a sense of meaning or purpose in life. Seligman (2013) stated, “It is accepted without dissent that connections to other people and relationships are what give meaning and purpose to life” (p. 17).

Seligman (2013) further developed the authentic happiness theory into the well-being theory in 2011, adding two additional elements: positive relationships and accomplishment. Positive relationships (or social support) buffer against stress and increase well-being (Cobb, 1976; Cohen & Wills, 1985; Thoits, 2010). Social support is defined as knowing one is “loved and cared for, esteemed and valued, and part of a social network of communication and mutual obligations” (Taylor, 2010, p. 8510). According to Maslow (1943), the feeling of love and belonging gained through positive relationships is a basic human need. It is generally accepted the evolution of the human brain was designed for social interaction and positive relationships, as people are hard-wired for empathy (i.e., the ability to accurately perceive the feelings of another person),
compassion (i.e., the ability to be aware of the suffering of others and the desire to relieve their suffering), and altruism (i.e., behavior that benefits another person; Batson, 2012; Hoffman, 2000; Humphrey, 1986; Keltner, Haidt & Shiota, 2006; Levenson & Ruef, 1992; Neff, 2016; Pert, 1997; Pohling, Bzdok, Eigenstetter, Stumpf, & Strobel, 2016; Ricard, 2006; Seligman 2013; Singer, 2009).

The stress response prepares the body for fight or flight and promotes affiliative behavior, primarily through the release of the neurohormone oxytocin (McGonigal, 2016; Taylor, 2006). Taylor et al. (2000) described this affiliative behavior under stress in their tend-and-befriend theory introduced in 2000. Tending involves protecting the self and other loved ones to ensure survival and befriending involves creating and maintaining social networks for joint protection and comfort (Taylor, 2011; Taylor et al., 2000). The release of oxytocin was found to promote connection with others, enhance the brain’s social instincts, increase trust and prosocial approach behavior, promote calmness reducing the fear response, enhance empathy, increase intuition, and improve cardiovascular health (Fredrickson, 2009, 2014; Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005; McGonigal, 2016; Uvnäs-Moberg, 1998). These prosocial behaviors encouraged through the release of oxytocin during the stress response provide support the human brain is hard-wired for social interaction.

The discovery of mirror neurons in the 1990’s in the macaque monkey and later in humans further support that our brains are hard-wired for social interaction (di Pellegrino, Fadiga, Fogassi, Gallese & Rizzolatti, 1992; Iacoboni et al., 1999; Kohler et al., 2002; Rizzolatti & Fabbri-Destro, 2010; Rizzolatti, Fadiga, Gallese & Fogassi, 1996). Mirror neurons are neurons that fire both when someone performs an action and when someone
observes a similar action being performed (i.e., neurons in the brain of one person are being “mirrored” in the brain of another person). This means neurons in the brain will fire if someone reaches and grabs something, but they will also fire when watching someone else reach and grab something. Mirror neurons were reported as the mechanism for the ability to empathize with others, imitate and emulate others, cooperate with others, and understand the intentions of others, and were suggested as the neurons that shaped civilization (Iacoboni, 2009; Iacoboni et al., 1999; Ramachandran, 2009; Singer, 2009). Ramachandran (2009) described how neurons literally connect people to one another and there is no real distinction between one person’s consciousness and another’s; the only thing separating people from one another is their skin. Mirror neurons enable people to understand the feelings and mental states of others, which is the foundation of social behavior and positive relationships.

Accomplishment (e.g., achievement, winning, competence, mastery) pursued for its own sake is the fifth element of Seligman’s (2013) well-being theory. Some pursue accomplishment for a reward, or the admiration of others, or to evoke positive emotions, or create meaning; however, accomplishment for its own sake is an element of well-being. Accomplishment is a basic human need according to Maslow (1943) and allows one to build self-esteem, self-confidence, and self-respect. Accomplishment is also known to increase well-being and positive affect (Harris, Daniels, & Briner, 2003; Henkel & Hinsz, 2004; Locke, 1965). According to Pierce and Gardner (2004), individual’s self-esteem, formed around work and organizational experiences, as reflected by organization-based self-esteem, may well play a significant role in shaping employee intrinsic motivation, work-related
attitudes (e.g., turnover intentions, job satisfaction, organization commitment) and behaviors (e.g., performance, citizenship behavior, turnover). (p. 613)

Subjective well-being, also referred to as happiness, is becoming of increased importance throughout the world. Subjective well-being is what people think and how they feel when they evaluate their lives (Diener, 2000; Seligman & Csikszentmihalyi, 2000). In organizations, happier employees are more productive, have better relationships with co-workers, and are better organizational citizens (Ajayi & Abimbola, 2013; Diener & Seligman, 2004). Thirty-six percent of Americans stated stress significantly affects their overall happiness (APA, 2014). In the 1980s, Bhutan made Gross National Happiness (GNH) part of its government policies as an indicator of national progress instead of just relying on gross domestic product (GDP); other countries (e.g., the UK, France, Canada) are beginning to follow their lead (Ghent, 2011; Ricard, 2006). According to Diener and Seligman (2004), “economic measures have seriously failed to provide a full account of quality of life” and that “well-being should become the primary focus of policymakers” (p. 2, p. 1). British Prime Minister David Cameron stated, “It’s time we admitted that there’s more to life than money and it’s time we focused not just on GDP but on GWB – general well-being” (Ghent, 2011, p. 246).

According to the 2017 World Happiness Report (Helliwell, Layard, & Sachs 2017), which ranks 155 countries on their happiness levels, happiness in the United States is on the decline; in 2016, the United States ranked 19th in happiness compared to 3rd in 2007. Although income has steadily risen over the past 50 years and GDP per capita has tripled, happiness has remained virtually flat and is now actually declining in
the United States (Diener & Seligman, 2004; Helliwell et al., 2017). The reasons reported for the decline were “less social support, less sense of personal freedom, lower donations, and more perceived corruption of government and business” (Helliwell et al., 2017, p. 6).

This further adds to the evidence that money cannot buy happiness once basic material needs are met (Diener, 2000; Diener & Biswas-Diener, 2002; Diener & Oishi, 2000; Diener & Seligman, 2004; Helliwell et al., 2017; Kahneman & Deaton, 2010). Diener and Seligman (2004) proposed that policy decisions in governments, corporations and organizations “should be more heavily influenced by issues related to well-being – people’s evaluations and feelings about their lives” versus economic indicators alone (p. 1). Csikszentmihalyi (2004) described how businesses can either suppress or enhance happiness in the workplace and contribute to overall human well-being. According to Csikszentmihalyi (2004),

Money, security and comfort may be necessary to make us happy, but they are definitely not sufficient. A person must feel that his or her talents are fully employed, that he is able to develop his potentialities, and that his everyday life is not stressful or boring, but holds enjoyable experiences.

(p. 18)

Businesses could contribute to the well-being of humanity by helping to increase the happiness and well-being of their employees.

Seligman’s (2013) well-being theory consists of positive emotion, engagement, meaning, positive relationships, and accomplishment. According to Seligman (2013), the goal of positive psychology in well-being theory is “to increase the amount of flourishing
in your own life and on the planet” (p. 26). Flourishing – a state of complete mental health – was found in only 17.2% of the U.S. population in adults ages 25-74 (Keyes, 2002). According to Keyes (2007), adults who flourish “function superior to all others in terms of fewest workdays missed…the fewest chronic physical diseases and conditions, the lowest health care utilization, and the highest levels of psychosocial functioning” (p. 100). Seligman (2013) stated,

If we want to flourish and if we want to have well-being, we must indeed minimize our misery; but in addition, we must have positive emotion, meaning, accomplishment, and positive relationships. The skills and exercises that build these are entirely different from the skills that minimize our suffering. (p. 53)

Several scientists agree that happiness is a skill that can be learned (Fredrickson, 2014; Fredrickson, Cohn, Coffey, Pek & Finkel, 2008; Pert, 1997; Seligman, 2006, 2013). Ricard (2006) stated, “Achieving durable happiness as a way of being is a skill. It requires sustained effort in training the mind and developing a set of human qualities, such as inner peace, mindfulness, and altruistic love” (p.7-8). Organizations have a unique opportunity to help people flourish and achieve durable happiness by providing a recurring environment where employees can cultivate positive emotions, engagement through challenging work and flow, meaning (e.g., being part of something larger than the self), positive relationships (e.g., social interactions with colleagues, forming of social bonds), and accomplishment, which leads to a sense of pride and builds self-esteem, self-confidence, and self-respect (Fredrickson, 2009; Seligman, 2013).
Barbara Fredrickson (1964 - ): Broaden-and-build theory and the undoing effect of positive emotions. Barbara Fredrickson is an American psychologist who introduced the broaden-and-build theory and the undoing effect of positive emotions in 1998. Fredrickson’s (1998, 2001) broaden-and-build theory states positive emotions broaden an individual’s mind (their thought-action repertoires), which results in helping build durable personal resources (physical, intellectual, social, and psychological) for the future. This broadening of the mind and building resources allows one to manage stress more effectively (Fredrickson, 2003a). According to Fredrickson (1998), experiencing positive emotions prompts people to broaden their attentional scope and “pursue novel, creative, and often unscripted paths of thought and action”, whereas, negative emotions narrows people’s attentional scope, resulting in following “ancestrally adaptive actions” or “automatic (everyday) behavioral scripts” (p. 5).

Emotions are known to be associated with certain action-tendencies. Positive emotions have non-specific action tendencies that promote growth and well-being (e.g., joy urges play and creativity, interest urges exploration and expansion of self, contentment urges one to savor current life circumstances); in contrast, negative emotions narrow attentional focus and have specific action tendencies for survival in life-threatening situations (e.g., anger urges attack, fear urges escape, guilt urges one to make amends, disgust urges one to expel; Fredrickson, 1998, 2001). Experiencing negative emotions in life-threatening situations, such as fear when being chased by a tiger, is helpful as it urges one to find an escape route to survive; however, in non-life-threatening situations, such as fear when interacting with one’s boss or fear of making a mistake, is not helpful as it narrows one’s attention to escape or survive versus broadening one’s
attention to learn and grow. When individuals experience positive emotions, they broaden their scope of cognition, including increased cognitive flexibility, increased ability to see the big picture, increased creative thinking, increased ability to see more and unusual associations between divergent stimuli leading to creative problem solving, increased ability to process and integrate more information, and increased ability to become more attuned to others (Fredrickson, 1998, 2004a, 2014; Fredrickson & Branigan, 2005; Isen, 1987; Isen, Daubman, & Nowicki, 1987; Isen, Johnson, Mertz, & Robinson, 1985; Isen, Niedenthal, & Cantor, 1992; Johnson, Waugh, & Fredrickson, 2010). Positive emotions also expand one’s sense of self to include others and to “think in terms of ‘we’ instead of ‘me’ versus ‘you’” (Waugh & Fredrickson, 2006, p. 13). Positive emotions were also shown to reduce and even eliminate own-race bias (the tendency to more easily recognize and distinguish faces of one’s own race compared to a less familiar race), which may lead to more positive interactions between social groups (Johnson & Fredrickson, 2005). A summary of emotions and action tendencies are listed in Figure 4.
<table>
<thead>
<tr>
<th>Positive Emotions</th>
<th>Thought-Action Repertoire</th>
<th>Emotion (Associated emotions)</th>
<th>Action Tendency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broadens a person's mind</td>
<td>Joy (Happiness, amusement,</td>
<td>Urge to play and be creative; Promotes skill acquisition; Builds an individual's physical, intellectual, and social skills</td>
</tr>
<tr>
<td></td>
<td>(thought-action repertoire)</td>
<td>exhilaration, mirth, elation,</td>
<td>Coasts</td>
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<td></td>
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<td>gladness)</td>
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<td></td>
<td></td>
<td>Interest (Curiosity, wonder,</td>
<td>Urge to explore; To expand the self through new knowledge or experiences; Openness to new ideas</td>
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<tr>
<td></td>
<td></td>
<td>intrigue, excitement,</td>
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<td></td>
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<td>challenge, intrinsic motivation, flow)</td>
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<tr>
<td></td>
<td></td>
<td>Contentment (Tranquility,</td>
<td>Urge to savor current life circumstances; Experience &quot;Oneness&quot; with others and the world; Integrate recent events and achievements into overall self-concept and worldview</td>
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<td></td>
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<td>serenity, mild or</td>
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<td></td>
<td></td>
<td>receptive joy, relief)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Love (Fusion of other positive emotions - joy, interest, contentment)</td>
<td>Urge to explore, savor, and play; Builds and strengthens social bonds</td>
</tr>
<tr>
<td>Negative Emotions</td>
<td>Narrows a person's mind</td>
<td>Anger</td>
<td>Urge to attack</td>
</tr>
<tr>
<td></td>
<td>(thought-action repertoire)</td>
<td>Fear</td>
<td>Urge to escape</td>
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<tr>
<td></td>
<td></td>
<td>Guilt</td>
<td>Urge to make amends</td>
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<tr>
<td></td>
<td></td>
<td>Disgust</td>
<td>Urge to expel</td>
</tr>
</tbody>
</table>


The second part of Fredrickson’s (1998, 2001, 2003a) broaden-and-build theory, build, is that positive emotions build individual’s enduring personal resources, including physical, intellectual, social, and psychological, that can be used in the future. Physical resources (e.g., coordination, muscle strength, cardiovascular fitness) are built as one experiences joy playing a sport, intellectual resources are built as one learns the rules of the sport, and social resources are built as teammates interact while playing the sport (Fredrickson, 1998). In another example, positive emotions of interest or curiosity urges...
one to explore, which could be a team project to design a new product or process. Intellectual resources are built as one explores new ideas for feasibility and social resources are built as colleagues from various disciplines interact while developing the new product or process. Psychological resources (e.g., resilience, optimism) are built as the team overcomes adversities and the new product or process comes to fruition.

Fredrickson (1998) stated, “Shared experiences of positive emotions – through mutual smiles and social play – create not only mutual enjoyment in the moment, but also enduring alliances, friendships or family bonds” (p. 13). Experiencing positive emotions also increases the likelihood of helping others (i.e., altruism), which leads to cooperative relationships and forming social bonds (Fredrickson, 1998; Isen, 1987). These personal resources (physical, intellectual, social, and psychological) built through experiencing positive emotions accumulate over time and can be used in the future to buffer against stress.

The undoing effect of positive emotions has implications for why learning to cultivate more positive emotions is beneficial for health, well-being, and human flourishing. The undoing effect states that experiencing positive emotions can counteract or undo the effects that negative emotions have on an individual’s mind and body (Fredrickson, 1998, 2000a, 2003a; Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000). According to Fredrickson (2003a),

It seems that positive emotions do more than simply feel good in the present. The undoing effect suggests that positive emotions can reduce the physiological “damage” on the cardiovascular system sustained by feeling negative emotions. But some other research suggests that there’s more to
it than that. It appears that experiencing positive emotions increase the likelihood that one will feel good in the future. (p. 335)

Positive emotions were shown to speed recovery from the cardiovascular effects of negative emotions, improve immune function, increase psychological resilience, and optimize health and well-being (Davidson et al., 2003; Fredrickson, 2000a; Fredrickson & Cohn, 2008; Fredrickson & Levenson, 1998; Fredrickson et al., 2000; Fredrickson, Tugade, Waugh, & Larkin, 2003; Kok et al., 2013; Tugade & Fredrickson, 2004, 2007). According to Fredrickson and Levenson (1998), positive emotions can be seen as “efficiently restoring equilibrium to the organism both in terms of returning physiological activation to prior levels, and restoring psychological openness to a wide range of action possibilities” (p. 15).

Emotions can trigger self-perpetuating cycles referred to as downward spirals for negative emotions (e.g., sadness can create withdrawal and fatigue, which can lead to more sadness) and upward spirals for positive emotions (e.g., joy can create learning a new skill that can lead to greater joy; Garland et al., 2010). These downward or upward spirals of emotions are aligned with the concept of neuroplasticity – repeated neural connections become stronger and more likely to be repeated in the future. According to Garland et al. (2010), “A core principle of the broaden-and-build theory is that repeated instances of positive emotions accrue into upward spirals of sustained well-being” (p. 6). Upward spirals of positive emotions increase health and well-being, social connectedness, and human flourishing (Catalino & Fredrickson, 2011; Fredrickson, 2001, 2004b, 2006; Fredrickson & Joiner, 2002; Fredrickson & Levenson, 1998; Kok et al., 2013; Kok & Fredrickson, 2010).
According to Fredrickson and Losada (2005), flourishing among individuals, marriages, and business teams occur when the ratio of positive to negative emotions is above a 2.9:1 ratio (called the Losada ratio and often written as a 3:1 ratio for simplicity). Positivity that falls below this 3:1 ratio is considered languishing. For example, in a business team for each negative statement made, three positive statements would be needed for the team to flourish. This suggests interventions that invoke positive emotions (e.g., meditation, mindfulness, progressive muscle relaxation, biofeedback, imagery exercises) can be beneficial in initiating upward spirals of positive emotion, undo the effects of negative emotions, and help individuals and businesses flourish (Fredrickson, 2000a; Fredrickson et al., 2008; Garland et al., 2010).

According to Fredrickson (2000a), “The capacity to experience positive emotions remains a largely untapped human strength” (p. 2). Expanding the capacity of individuals to experience positive emotions can transform individuals and organizations. Individual performance is enhanced when a person experiences positive emotion, and as an individual’s mind is broadened, it allows for increased cognitive processing and for building enduring personal resources (Fredrickson, 2000b, 2003b). According to Fredrickson and Cohn (2008), “through experiences of positive emotions, people transform themselves – becoming more creative, knowledgeable, resilient, socially integrated and healthy individuals” (p. 783). Organizations are transformed as positive emotions are contagious across employees, especially from leaders and through interpersonal transactions that extend to customers fueling cohesive, moral, and optimal organizational functioning (Barsade, 2002; Fredrickson, 2000b, 2003a, 2004b).
In a review of the Gallup organization’s employee engagement survey, which links employee engagement to business outcomes (e.g., customer loyalty, net sales, financial revenues, and employee turnover), Fredrickson (2000b) found that each of the 12 questions asked on the survey was linked to the extent that employees experience positive emotions at work. According to Fredrickson (2000b),

Positive emotions transform organizations because they broaden people’s habitual modes of thinking, and in doing so, make organizational members more flexible, empathic, creative, and so on. Over time, such broadening builds stronger social connections, better organizational climates, and more effective businesses. (p. 138)

Perception of Stress Matters

Research showed stress is needed to grow and evolve (American Institute of Stress, 2017b; Lipton, 2015; McGonigal, 2015, 2016). Research also showed one’s perception or belief about whether stress is helpful or harmful effects one’s physical biology (Antoni et al., 2006; Aschbacher et al., 2013; Keller et al., 2012; Lazarus et al., 1980; Lipton, 2015; McGonigal, 2016; Ricard, 2006). In an eight-year study described by McGonigal (2013), 182,000 Americans died prematurely due to the belief stress is bad versus stress itself. In another study, those who reported high stress and perceived it impacted their health were at a 43% increased risk of premature death (Keller et al., 2012). Perceived stress also affects health behaviors. A study of 12,110 individuals from 26 worksites showed that high levels of perceived stress affected health behaviors, including eating a higher fat diet, exercising less, and increased smoking behaviors for smokers (Ng & Jeffery, 2003).
It is well-documented that one’s thoughts, emotions, perceptions, and beliefs can create one’s wellness or disease (Braden, 1999; Hawkins, 2004; Keller et al., 2012; Lipton, 2015; McEwen & Lasley, 2002; McGonigal, 2013, 2016; Pert, 1997; Taylor, 2010). McGonigal (2013) stated, “When you choose to view your stress response as helpful you create the biology of courage. And when you choose to connect with others under stress, you can create resilience” (12:12). Taylor (2010) found that positive beliefs associated with optimism helps people better manage stress. Research also showed learning to reappraise bodily responses to stress can improve physiological and cognitive functioning, reduce threat-related attentional bias, and can shift negative stress to positive stress (Jamieson et al., 2013; Jamieson et al., 2012). McEwen and Lasley (2002) offered,

The human mind is so powerful, the connections between perception and physiological response so strong, that we can set off the fight-or-flight response by just imagining ourselves in a threatening situation. This ability can be a source of power or an invitation to illness. (p. 9-10)

The brain is the “master controller” of the stress response (McEwen, 2002, p. 922) making learning about the brain and harnessing its power to promote growth, enhance performance, improve relationships, and improve health and well-being, of significant importance for individuals and organizations.
Stress in the Workplace

Employees are what make organizations flourish or languish. Colligan and Higgins (2006) stated, “stress can help people achieve their goals and propel them through challenging situations. On the other hand, stress can also become burdensome causing one to experience significant emotional distress and physical illness” (p. 90). Optimal levels of stress can help employees and organizations flourish while too much stress can be a major barrier to individual and organizational flourishing.

Workplace stress is defined as “the change in one’s physical or mental state in response to workplaces that pose an appraised challenge or threat to that employee” (Colligan & Higgins, 2006, p. 89). Employee stress can negatively affect work performance (e.g., productivity, concentration, attentional focus, ability to solve problems, creativity, judgment, decision-making, safety, and organizational citizenship behaviors), relationships (e.g., behavior toward others, teamwork, altruism, communication, conflict management, empathy), and employee well-being (e.g., physical, psychological, behavioral), which has significant economic impact to organizations (Ajayi & Abimbola, 2013; American Institute of Stress, 2017a; APA, 2016; Ball, 2004; Colligan & Higgins, 2006; Diener & Sielgman, 2004; Driskell & Salas, 1996; Fink, 2016; Good et al., 2016; Thoits, 2010; Wolever et al., 2012). Workplace stress costs employers $300 billion per year in accidents, absenteeism, turnover, diminished productivity, medical costs, and worker’s compensation (American Institute of Stress, 2017a; Ball, 2004; Fink, 2016). Other costs to organizations more difficult to quantify include the impact to customer satisfaction, customer loyalty, and strained employee relationships with co-workers and leaders.
Although much research was conducted specifically on workplace stress, such as environmental conditions (e.g., noise, temperature, vibration) and organizational stressors (e.g., organization structure, culture, mergers and acquisitions, difficult relationships, performance pressure, work overload, career development barriers, role ambiguity, lack of autonomy, competition, crowding, shiftwork), stress from one life domain can spread to other domains; for example, work stress can spread to home and vice-versa (Bass & Bass, 2008; Colligan & Higgins, 2006; Diener & Sielgman, 2004; Driskell & Salas, 1996; Lazarus, 1995; McLeroy, Green, Mullen, & Foshee, 1984; Schweiger, Ivancevich, & Power, 1987; Thoits, 2010). The rapidly changing world is also a major contributor of increased stress both at home and work, including technological advancements (i.e., smartphone, email, social media), access and speed of information, and increased travel, particularly to different time zones, cultures, languages, or surroundings (APA, 2017b; Seyle, 1974). Stress, regardless of its source, can cause anxiety, frustration, inability to concentrate, overwhelm, fatigue, depression, irritability, anger, inability to relax, overreaction to situations, procrastination, arguments, violence, poor judgment, constant worry, loss of objectivity, body tension, headaches, and disease (APA, 2015, 2016; Cohen et al., 2012; McEwen, 2008; Monat & Lazarus, 1991; Seyle, 1955). This suggests helping employees manage stress, regardless of the domain, could have organizational benefits.

Recent advances in organizational neuroscience suggest embracing the whole human at work, both mind and body, can lead to increased employee engagement, which may lead to important business outcomes such as increased customer satisfaction, productivity, and profit (Harter, Schmidt, & Hayes, 2002; Zak and Winn, 2016).
Fredrickson (2009) and Seligman (2013) described how organizations have a unique opportunity to help people flourish and achieve durable happiness by providing a recurring environment where employees can cultivate positive emotions, be engaged through challenging work, create meaning by being part of something larger than the self, develop positive relationships with colleagues, and feel a sense of accomplishment, which builds self-esteem and self-confidence. According to Colligan and Higgins (2006), “By providing the foundation for employees to flourish while also allowing employees to take responsibility for their stress-related symptoms, organizations will find significant improvement in productivity and improved workplace dynamic” (p. 96).

**Stress and Leadership**

Leaders play a vital role in organizations, including organizational stress. Gallup has conducted organizational research for over 30 years and consistently reported the significance supervisors and managers have on employee engagement, performance, and company satisfaction (Harter et al., 2002). Bass and Bass (2008) stated, “Leadership makes the difference in the prevention or occurrence of stress and burnout. Leadership can be the source of increased stress, negative emotions, and negative outcomes. But leadership can provide for avoiding stress or coping with it” (p. 812). For example, supportive leaders mediate the effects of employee stress (Bass & Bass, 2008; Crawford, 1995; Kirmeyer & Dougherty, 1988; Skakon, Nielson, Borg & Guzman, 2010).

It is well known that leadership behaviors affect employee performance, team dynamics, and employee stress and well-being (Offermann & Hellmann, 1996; Schlechter & Strauss, 2008; Skakon et al., 2010). Walonick (1993) stated, “Managers of organizations have a dual role perspective of stress. They need to be aware of their own
stress levels, as well as those of their subordinates” (p. 6). Offerman and Hellmann (1996) found that leader behaviors are associated with the degree of stress experienced by their staffs. Leaders emotions (positive or negative) can spread throughout the organization across employees through interpersonal transactions and extend to customers fueling optimal or dysfunctional organizational functioning (Barsade, 2002; Fredrickson, 2000b, 2003a, 2004b; Kelly & Barsade, 2001). Goleman (1998) wrote, 

This ability to transmit emotions is amplified for leaders, since people in groups spend more time looking at the leader than at anyone else. This attention magnifies the impact of the leader’s mood on the group; a small change in the facial expression or tone of voice of a powerful figure can have more impact than dramatic shows of feeling by someone in a lesser position of power. People not only pay more attention to leaders, they also tend to mimic them. (p. 186)

Lovelace, Manz, and Alves (2007) proposed that a component of leadership development should include stress management because leaders tend to have stressful jobs with high-level demands and responsibilities that affect employee stress. Cryer, McCraty, and Childre (2003) stated, “transforming your reactions to stress is the first and most essential ingredient of effective leadership—as essential a skill as hiring, firing, strategy development, and fiscal responsibility. Transform your stress, and you transform your world” (p. 6). Levinson (1980) included the ability to manage stress as a criterion for choosing chief executives, highlighting the importance of stress management among leaders. Leaders also play a critical role in the identification and intervention of organizational stress as they can change the work environment, engage the strengths of
employees in meaningful work, set organizational priorities and workload, provide a climate of positive social interaction, and can help employees effectively manage stress. The critical role of leaders in the organization and the impact they have on employee work performance, the degree of stress experienced by employees, and their ability to make changes in the organization suggest leadership development regarding stress management could have significant influence on organizational flourishing (Offerman & Hellmann, 1996).

**Effects of Stress in the Workplace**

Stress in the workplace can impact cognition, emotions, social behaviors, and physiology (Good et al., 2016). These four domains of human functioning (cognition, emotion, behavior, physiology) are associated with workplace outcomes in the areas of performance, relationships, and well-being (Good et al., 2016). This suggests the ability to effectively manage stress may improve human functioning and workplace outcomes.

**Performance.** Research shows acute stress can have both beneficial and detrimental effects on performance, whereas chronic stress generally shows decreased performance. According to Calvo and Gutiereez-Garcia (2016),

> Unlike acute stress, which, at least when it is of mild intensity, can yield some favorable effects on various cognitive processes (mainly encoding and memory consolidation), repeated or prolonged stress typically causes functional cognitive deterioration, in addition to structural damage of some brain structures. (p. 143)

Beste, Yildiz, Meissner, and Wolf (2013) reported under acute stress, dual-task performance is enhanced whereas Teixeira et al. (2015) found chronic stress impairs
cognitive performance resulting in increased errors and longer reaction times. Calvo and Guitierrez-Garcia (2016) reported acute stress helps cognitive performance on simple tasks, but negatively affects memory and complex tasks. Other studies on memory confirm that acute stress may increase memory performance whereas chronic stress may impair memory performance (Lindau, Almkvist, & Mohammed, 2016; Lupien et al., 2005; Music & Rossell, 2016). Cognitive performance was also shown to be impaired by stress caused by “evaluation and judgment by others” (van Ast et al., 2016, p. 544).

Stress on cognitive performance may not always be visible, as stress can trigger increased motivation and additional cognitive strategies to minimize effects on task performance; however, this is associated with increased mental effort that reduces cognitive efficiency (Mandrick, Peysakhovich, Remy, Lepron, & Causee, 2016).

Working memory capacity (WMC) is the number of items that can be actively maintained and manipulated in the mind at one time and is used to manage cognitive demands (e.g., language comprehension, problem-solving, planning) and regulate emotions (Cowan, 2010; Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010). WMC is also strongly related to fluid intelligence (the ability to reason to solve novel, complex problems independent of previously acquired knowledge), which is important in organizational success (Au et al., 2015; Cowan, 2010; Gottfredson, 1997; Jaeggi, Buschkuehl, Jonides, & Perrig, 2008; Unsworth, Fukuda, Awh, & Vogel, 2014). Cowan (2010) reported WMC is limited to three to five items and individual differences in WMC vary greatly. Research showed a major factor in individual differences in WMC is the ability to control attention (Barrett, Tugade, & Engle, 2004; Redick, Heitz, & Engle,
Brown and Ryan (2003) defined attention as “a process of focusing conscious awareness, providing heightened sensitivity to a limited range of experience” (p. 822).

The ability to control attention and focus on a given task without being distracted by internal stimuli (e.g., non-relevant thoughts, emotions, feelings) or external stimuli in the environment is the basis of higher cognitive and emotional abilities. A person’s vulnerability to stress is caused from individual differences in attentional and interpretive biases of stimuli (Brooke & Harrison, 2016; Calvo & Gutierrez-Garcia, 2016). Attention is susceptible to emotional biases; however, emotional responses can be regulated via cognitive control or reappraisal (Brooke & Harrison, 2016; Ochsner & Gross, 2005; Wells & Matthews, 1994). Calvo and Gutierrez-Garcia (2016) stated,

Selective attentional orienting toward threat cues, as well as biased negative interpretations of ambiguous stimuli, will enhance the probability of perceiving stressful demands. Relatedly, maintained rumination of internal representations of threat, harm, or loss, will increase the intensity and duration of the stress response. (p. 141)

According to Wells and Matthews (1994), “when a person is in a state of emotion, he or she is primed to perceive and attend to stimuli congruent with the emotion” (p. 61). This means the stimuli a person pays attention to and how they interpret the stimuli (neutral, positive, or negative) will create the person’s experience. This suggests that gaining control of one’s attention and emotions is critical to controlling his or her stress response and how one experiences the world.

The ability to control attention without being distracted is becoming increasingly more difficult with modern world technological advancements. Technological
advancements increased the speed and access of information and the competition for a person’s attention. For example, according to the APA, since the launch of technologies such as the smartphone and social media (e.g., Facebook, Instagram, LinkedIn, Twitter) in the early 2000s, a profile of the constant checker (those who constantly check their emails, texts, or social media accounts) has emerged; 43% of Americans reported being a constant checker (APA, 2017b, p. 1). The constant use of these devices was associated with higher stress levels and 18% of Americans reported the use of technology as a significant source of stress (APA, 2017b).

Cognitive flexibility is decreased under stress (Schwabe & Wolf, 2013; Streufert & Streufert, 1981). Schwabe and Wolf (2013) confirmed “stress promotes a shift from flexible ‘cognitive’ to rather rigid ‘habit’ memory systems” (p. 61). The shift to habit memory systems may be adaptive in stressful situations as it is less demanding of cognitive resources; however, it can be maladaptive if the habitual behavior is not beneficial for the given situation (Schwabe & Wolf, 2013). Streufert and Streufert (1981) found cognitive flexibility needed in long-range planning and complex decision-making is negatively impacted by the stress of time urgency.

Stress was also shown to affect work performance in the areas of productivity, concentration, focus, problem-solving, creativity, judgment, decision-making, safety, and organizational citizenship behaviors (Ajayi & Abimbola, 2013; American Institute of Stress, 2017a; APA, 2016; Ball, 2004; Colligan & Higgins, 2006; Diener & Sielgman, 2004; Driskell & Salas, 1996; Fink, 2016; Good et al., 2016; Wolever et al., 2012). In a U.S. study described by Fink (2016), more than half of employees indicated productivity was negatively impacted by stress. Under stress, the ability to concentrate and retain
information decreases (Colligan & Higgins, 2006; Lupien et al., 2005). Research showed stress restricts or narrows attentional focus (Combs & Taylor, 1952; Wells & Matthews, 1994) and in a team environment, this narrowing of focus created a shift from a team perspective to an individualistic perspective, thus negatively impacting team performance (Driskell, Salas, & Johnston, 1999).

Combs and Taylor (1952) and Yamamoto (1984) found the ability to solve problems in stressful situations becomes more difficult, the number of errors increase, and the time to solve the problem increases. However, Isen et al. (1987) found positive feelings increase creative problem solving through increased tendency to see things in new ways. Creativity was also shown to be associated with one’s openness to experience (Li et al., 2015). This aligned with Fredrickson’s (1998) claim that experiencing positive emotions prompts people to broaden their attentional scope and pursue new thought patterns. In a meta-analysis on the relationship between stressors and creativity, Byron, Khazanchi, and Nazarian (2010) found “low stress-inducing situations caused increases in creative performance, and high stress-inducing situations caused decreases in creative performance” (p. 207).

When making judgments under the stress of time pressure or distractions, research found subjects placed greater weight on negative information than positive information (Wright, 1974). In an empirical review of studies, Edland and Svenson (1993) concluded under the stress of time pressure, the quality and accuracy of judgments decrease, selectivity of input information increases, and a tendency to lock in on a strategy and not search for alternative strategies in problem-solving occurs. Research showed the quality of decisions under the stress of time pressure was impacted by premature closure without
generating and considering available alternatives (Keinan, 1987; Streufert & Streufert, 1981); however, in some cases, decision quality under stress can improve, particularly when previous experience can be leveraged (Klein, 1996). Pabst, Brand, and Wolf (2013) showed acute stress on decision-making had a time dependent effect, meaning improved decisions are made at initial activation of the acute stressor, measured at 5 and 18 minutes, but is impaired once cortisol peak is reached at about 28 minutes.

Stress can also negatively impact worker safety and organizational citizenship behaviors (Musick, 2016; Lundstrom, Pugliese, Bartley, Cox, & Guither, 2002; Ryan & Dunn-Jensen, 2016; Salas, Driskell, & Hughes, 1996). Job stress can lead to a loss of focus, which is a common cause of workplace incidents, including worker injuries (Musick, 2016). Organizational citizenship behaviors are typically viewed as positive because they can lead to personal satisfaction and increased organizational performance; however, Ryan and Dunn-Jensen (2016) found that extra-role behaviors associated with organization citizenship can contribute to employee stress and job overload. Positive emotions are associated with increased organizational citizenship (Borman, Penner, Allen, & Motowidlo, 2001; George & Brief, 1992).

**Relationships.** Employee stress can significantly affect relationships, both negatively and positively. Employees can be a source of stress or a coping resource. According to the APA (2016), stress affects behavior towards others; for example, 25% of adults reported snapping at or being short with co-workers due to stress, 46% of parents reported yelling at or losing patience with their children, and 47% of adults reported yelling at or losing patience with their spouse/partner due to stress. In another survey, 29% of adults reported yelling at co-workers due to stress, 14% said machinery or
equipment had been damaged because of stress, and 2% reported hitting someone (American Institute of Stress, 2017a). Social support is known to buffer against stress and increase well-being (Cobb, 1976; Cohen & Wills, 1985; Griffith, 1989; Thoits, 2010). Cobb (1976) defined social support as the belief one is cared about, valued, and a member of the team. Koeske and Koeske (1989) found that social support, especially from coworkers, buffered the negative impact of workload associated with employee burnout.

Team-based structures in today’s organizations are commonplace and the benefits of teams are well documented (Schlechter & Strauss, 2008). Virtual teams also significantly increased in popularity as organizations expanded globally (DeRosa & Lepsinger, 2010). According to Ulrich (1997), high-performing teams leverage the talents of individual members to achieve superior performance and teams are often better at solving problems than individuals working alone. Although teams can leverage one another to meet high demands and can provide social support, stress can negatively impact team performance. Salas et al. (1996) found that stress reduced cooperation, increased aggression, and lowered recognition of social and interpersonal cues. According to Driskell et al. (1999), stress negatively affects team performance by “narrowing or weakening the team-level perspective required for effective team behavior” (p. 291). Experiencing positive emotions also increases the likelihood of helping others (i.e., altruism), which can lead to cooperative relationships (Fredrickson, 1998; Isen, 1987).

Emotions are fundamental to social relationships and can significantly influence group behavior due to emotional contagion (i.e., sharing of emotions; Barsade, 2002).
Emotional contagion most often occurs at a subconscious level through automatic processes (Barsade, 2002; Neumann & Strack, 2000). Neumann and Strack (2000) stated people often acquire other’s emotions unknowingly. According to Brooke and Harrison (2016), “humans show a marked tendency to mimic each other’s gesticulations, emotional facial expressions, and body postures, suggesting that this mirroring of activity may facilitate emotional understanding” (p. 256). This phenomenon is most likely explained by mirror neurons discovered in the 1990s. Mirror neurons were reported as the mechanism for one’s ability to empathize with others, imitate and emulate others, cooperate with others, and understand the intentions of others (Iacoboni, 2009; Iacoboni et al., 1999; Ramachandran, 2009; Singer, 2009).

Emotions often spread from the most expressive person in a group and are amplified for leaders (Barsade, 2002; Friedman & Riggio, 1981; Goleman, 1998). Research also showed mental rumination and social sharing (i.e., verbal communication with others) occurs shortly after an emotional event (positive or negative), regardless of sex, age, or culture (Rime, 2009; Rime, Philippot, Boca, & Mesquita, 1992). The communication of negative emotions creates downward spirals and perpetuates more negative emotions whereas sharing positive emotions creates upward spirals and perpetuates more positive emotions in an organization (Fredrickson, 2000b). According to Isen (1987), positive affect influences social behavior, including altruism, cooperation, and kindness. Similarly, Barsade (2002) found that positive emotional contagion “improved cooperation, decreased conflict, and increased perceived task performance” (p. 644). Avey, Wernsing, and Luthans (2008) found positive employees can facilitate positive organizational change by countering negative attitudes and behaviors often
associated with organizational change. This constant sharing of emotions can lead to organizational languishing or flourishing (Fredrickson & Losada, 2005), and supports the importance of emotional understanding and management in organizations.

The importance of emotions in daily life and social interactions has led to an area of research called emotional intelligence (EI; also referred to as emotional competence). Peter Salovey and John D. Mayer (1990) are often referred to as the fathers of EI and define EI as a “subset of social intelligence that involves the ability to monitor one’s own and others’ emotions, to discriminate among them, and to use the information to guide one’s thinking and actions” (p. 189). Several definitions of EI has emerged since its first introduction into the literature. Traue, Kessler, and Deighton (2016), defined EI as:

[The] ability of an individual to adaptively and effectively regulate his or her emotional behavior in a social context. This encompasses the ability to recognize subjective feelings, to manage emotions, to transform emotions into expressiveness and action, to react empathetically, and to shape relationships. (p. 239)

This definition of EI suggests learning how to recognize, manage, transform, and choose one’s reaction to emotions can more consciously shape relationships. Corporate interest in EI began in the 1990s, as organizations searched for competitive advantages. EI was associated with better job performance and a better predictor of job performance over cognitive intelligence (O’Boyle, Humphrey, Pollack, Hawver, & Story, 2011; Van Rooy & Viswesvaran, 2004). According to Mikolajczak et al. (2015), EI is associated with “greater happiness, better mental health, more satisfying social and marital relationships, and greater occupational success” (p.653). Daniel Goleman (1996, 1998, 2006, 2013)
helped popularize EI, particularly in organizations, and described how EI can help one grow and flourish through improved personal competence (self-awareness, self-regulation, and motivation) and social competence (empathy and social skills). Goleman (1998) stated, “for star performance in all jobs, in every field, emotional competence is twice as important as purely cognitive abilities. For success at the highest levels, in leadership positions, emotional competence accounts for virtually the entire advantage” (p. 34).

EI was also associated with better health (Martins, Ramalho, & Morin, 2010; Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007). Mikolajczak et al. (2015) found EI was a “significant predictor of health outcomes and that it predicts incremental variance over and above sex, education, BMI, social support, diet habits, physical activity, and smoking and drinking habits” (p. 663). These findings were not surprising given the general acceptance that emotions influence physiology.

**Well-being.** Employee stress can negatively affect employee well-being (physical, mental, and emotional) and have significant economic impact to organizations (American Institute of Stress, 2017a; Ball, 2004; Fink, 2016). Well-being (often referred to as happiness) refers to how people feel about their lives and is essential for individual, organizational, government, and national flourishing (Deiner & Seligman, 2004). Research showed “people who are happier achieve better life outcomes, including financial success, supportive relationships, mental health, effective coping, and even physical health and longevity” (Cohn et al., 2009, p. 361). Happier employees have better performance, are more productive, have higher levels of organizational citizenship, and have better relationships with co-workers (Ajayi & Abimbola, 2013; Diener &
Employee well-being has also shown to predict customer satisfaction (Diener & Seligman, 2004). According to the Gallup organization (Heifetz & Wood, 2014),

Companies are often skeptical of the importance of well-being at the office because of the misconception that focusing on well-being cuts into work time and doesn’t affect key business outcomes. This is a misunderstanding. Well-being is a catalyst companies need to cultivate engaged, thriving employees who perform at their best every day. And a company well-being program—if done right—can cut down on skyrocketing employee health costs while allowing productivity to soar. (para. 1-2)

Publicly traded organizations that invested in employee health and well-being substantially outperformed the S&P 500 Index (Grossmeier et al., 2016). Grossmeier et al. (2016) concluded that high-performing companies invested in employee health and well-being.

Employee well-being was also linked to employee engagement, defined as the cognitive, emotional, and behavior energy directed at achieving organizational goals (Shuck & Reio, 2014). The Gallup organization’s employee engagement survey showed high employee engagement was associated with substantially higher organizational performance (Harter, Schmidt, Argawal, Plowman, & Blue, 2016). According to the Gallup Daily: U.S. Employee Engagement poll (Gallup, 2017), only 30-35% of employees are engaged at work, which means 65-70% of employees are disengaged, suggesting that businesses who invest in employee well-being could substantially increase organizational performance.
Stress for Optimal Performance

Not all stress is bad. In fact, stress is needed to learn, grow, and perform at optimal levels (American Institute of Stress, 2017b; Lipton, 2015; McGonigal, 2016). According to the American Institute of Stress (2017b), stress may be the “most important element of positive growth and transformation. The key is making sure we have the capacity to deal with the demands of our circumstances, which includes elements of physical, emotional, spiritual, and social energy and connection” (para. 1). According to Lazarus (2006),

Stress is, in effect, not necessarily a negative force. It can mobilize us to achieve more than we believed could be accomplished, and it can even lead to a greater appreciation of life. From crisis, too, can come a reorganization of our lives in ways that leave us more productive, engaged, and satisfied than before the crisis. (p. 20)

This suggests that helping employees understand the benefits of stress, increasing their stress coping resources, and helping employees find their optimal stress/performance level could help increase both employee and organizational performance.

The Yerkes-Dodson law states that optimal performance occurs at an intermediate level of arousal (i.e., stress) and performance decreases at both high and low arousal levels (Colman, 2001; Teigen, 1994; Yerkes & Dodson, 1908). The Yerkes-Dodson law received some criticism, particularly for its widely accepted and expanded interpretations and reformulations in other fields beyond its original form; however, it continues to be the most widely accepted law regarding the relationship between stress and performance (Lundberg, 1982; Teigen, 1994). According to the Yerkes-Dodson law, as stress
increases, healthy tension is created, thus increasing awareness, interest, and positive emotions. As intermediate levels of stress are reached optimal performance occurs, and as stress continues and overload occurs, awareness decreases, anxiety increases, and negative emotions increase (Mair, Onos, & Hembrook, 2011; Wu et al., 2010). The healthy tension that occurs as the level of stress increases toward optimal performance can be described as eustress, “the positive or pleasant aspect of stress… which produce positive responses of excitement and happiness” (Kent, 1994, p. 155). Positive emotions experienced during eustress help increase individual performance as an individual’s mind is broadened allowing increased cognitive processing (e.g., flexibility, creativity, open to information, ability to integrate information) and building of enduring personal resources (e.g., physical, intellectual, social, psychological; Fredrickson, 2000b, 2003b).

According to Fredrickson and Cohn (2008), when people experience positive emotions they become “more creative, knowledgeable, resilient, socially integrated and healthy individuals” (p. 783).

At the intermediate level of stress, performance reaches optimal levels, characterized by being focused, energized, alert and attentive, and where flow experience is available (Csikszentmihalyi, 2004; Mair et al., 2011). When stress increases past the point of optimal performance to overload, it can be described as distress (Kent, 1994). When stress overload occurs, attention is narrowed, performance is impaired, and eventually exhaustion, burnout, and ill health occurs (Mair et al., 2011; Maslach & Jackson, 1981; Maslach & Leiter, 2016; Matthews, 2016; McEwen, 2005). Distress can also occur when stress is low, for example boredom (van Hooft & van Hooft, 2014; Weinberg, 2016). Boredom is typically perceived as negative in society; however,
Weinberg (2016) suggested boredom can be good if used as a spare resource to focus on self-actualizing activities. Deficient reactions to stress can also lead to distress and was linked to depression, obesity, addiction, and poor cognitive ability (Carroll, Ginty, & Phillips, 2016). An illustration of the Yerkes-Dodson law with additional stress research presented thus far is depicted in Figure 5.

Figure 5. Illustration of the Yerkes-Dodson law with additional stress research.

**Stress Management Trends**

Some organizations view employee stress management as part of their corporate social responsibility and have implemented stress management interventions for employees. Over the past 40 years, stress management interventions such as relaxation, breathing exercises, meditation, mindfulness, visualization, biofeedback, cognitive restructuring, yoga, and physical fitness programs were implemented in organizations to address employee stress (Bellarosa & Chen, 1997; Good et al., 2016; Kabat-Zinn, 2003;
Lindh, 2013; McLeroy et al., 1984; Murphy & Schoenborn, 1987). Murphy (1996) found that stress management methods with a combination of two or more techniques seemed to be more effective than single techniques. Most stress reduction programs reported positive results, but long-term effects (3-6 month follow-ups) were either not measured or indicated a decrease in effect, suggesting incorporating maintenance of learned skills into stress reduction programs may be beneficial (McLeroy et al., 1984).

Mindfulness programs gained attention in the corporate world in the last two decades due to research showing its benefits to well-being, relationships, and performance (Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007; Glomb, Duffy, Bono, & Yang, 2011; Good et al., 2016; Kabat-Zinn, 1982, 2003; Wolever et al., 2012). Mindfulness programs were implemented in companies such as, Adobe, Aetna, Apple, Astra Zeneca, Deutsche Bank, Ford, General Mills, Goldman Sachs, Google, McKinsey & Company, Nike, Proctor & Gamble, Target, The Huffington Post, and the U.S. Army (Aetna, 2016b; Glomb et al., 2011; Hansen, 2012; Huffington, 2015; Jha et al., 2015; Pinsker, 2015; Tan, 2012). Published data on the success of corporate wellness programs such as mindfulness are scarce; however, in Aetna’s 2015 annual report, they reported a $3,000 per employee gain in productivity for each employee who completed a mindfulness program (Aetna, 2016b). Google’s Chade-Meng Tan (2012) created a mindfulness and meditation program called Search Inside Yourself to help train employees in managing the quality of their attention, which he stated is the basis of EI. The program has been running at Google since 2007 and even offered outside of Google. Mindfulness programs also started making their way into government arenas (Ryan, 2012).
Other stress management trends beginning to emerge include meditation rooms and napping rooms where employees can rest and recharge their body and brain. According to the Centers for Disease Control and Prevention (CDC; 2015), sleep insufficiency is on the rise and may be due to workplace overload and constant access to technology. Kessler et al. (2011) reported 23% of workers experience some form of insomnia and presenteeism (i.e., physically at work but too tired to perform job effectively), resulting in $63.2 billion in lost productivity or 7.8 days of lost work performance annually. According to Roth (2005), insomnia affects individual performance, reduces quality of life, and increases accidents and other workplace problems. Stress affects sleeping patterns that leads to sleep deprivation, which impairs cognitive function such as attention, working memory, long-term memory, and decision-making, and it may increase anxiety and aggression (Alhola & Polo-Kantola, 2007; McEwen, 2006). According to McEwen (2006), sleep deprivation often stems from stress. Some organizations responded to the sleep deprivation research and created meditation and napping rooms for employees. Meditation rooms were created in organizations such as General Mills, Apple, Google, Yahoo, and Proctor & Gamble, and napping rooms were created in companies such as Zappos, Google, Proctor & Gamble, Hubspot, and Facebook (Gelles, 2015; Lechner, n.d.; Zak & Winn, 2016).

**Brain Education**

This section of the literature review focuses on Brain Education, including what it is, its components, steps within the program, and existing research on Brain Education. Brain Education is a collection of systemized mind-body training methods to help people learn to fully utilize the capacity of their brain and reach their full potential (I. Lee,
Brain Education was developed in South Korea in 1980 by Ilchi Lee and introduced in the U.S. in 1991. I. Lee (2016a) stated “Brain Education’s ultimate goal is to create what I call a Power Brain – a productive, creative, and peaceful brain” (p. 38). Brain Education blends Eastern and Western approaches to well-being and incorporates elements of Asian healing arts, mindfulness, meditation, neuroscience, quantum physics, and positive psychology. It consists of over 300 physical, emotional, and cognitive exercises designed to strengthen the mind-body connection and develop the power of the brain (I. Lee, 2007b, 2016a). It is well-documented that one’s thoughts, emotions, perceptions, and beliefs can create wellness or disease, suggesting that gaining control over one’s mind-body is imperative to one’s well-being (Braden, 1999; Hawkins, 2004; Keller et al., 2012; Lipton, 2015; McEwen & Lasley, 2002; McGonigal, 2016; Pert, 1997; Taylor, 2010).

To begin development of the human brain for optimal performance, it requires one to first gain control over his or her stress response; therefore, it is the first step in Brain Education. I. Lee (2007b) stated,

The ability to manage stress is the holy grail of brain management. Every other attempt to develop and use your brain well can be thwarted if you do not gain some level of control over your stress response. Unmanaged, habitual stress reactions interrupt the learning process, contribute dramatically to brain aging, and are at the root of numerous chronic disease conditions. (p. 19)
This makes learning about the brain and harnessing its power to promote growth, enhance performance, improve relationships, and improve health and well-being, of significant importance for individuals and organizations.

Brain Education was introduced in the United States through mind-body training centers, now called Body & Brain Centers and Power Brain Centers. There are 700 Body & Brain centers in 17 countries, including 100 centers located in the United States. In 2014, an online platform providing Brain Education principles, training methods, and courses via the Internet was launched (www.changeyourenergy.com). Brain Education was introduced into U.S. school systems in 2006 and expanded from 1,000 teachers and 20,000 students in 250 schools in 2008 (Parker, 2008) to 12,000 teachers and over 50,000 students in 400 U.S. schools in 2016 (Beal, 2016).

Brain Education is different from other stress management interventions in that it focuses on development of the brain through integrating the three layers (neocortex, limbic system, and brain stem) and the two hemispheres (right and left) of the brain. This is closely related to self-actualization in Maslow’s hierarchy of needs (I. Lee, 2007b). When the layers of the brain work in harmony, one can actualize his or her highest potential (I. Lee, 2016a). Additional differences in Brain Education compared to other stress management interventions include strengthening the mind-body connection through developing energy sensitivity, using the body to change the mind, and using rhythmic movements. Brain Education helps strengthen the mind-body connection through developing sensitivity to feeling energy (called chi, qi, ki, prana, spirit, doshas, mana, joja, or subtle energy depending on what culture one is from). According to quantum physics, energy is the building block of the universe and is affected by
consciousness (Adamski, 2014; Swanson, 2008, 2016). This suggests that to create positive changes in people’s lives and society, including health, happiness, and peace, one must understand the properties of energy.

As one’s energy awareness and sensitivity increase, consciousness also expands (I. Lee, 2007a). I. Lee (2007a) defined consciousness as “a being’s awareness of self in relationship to the immediate environment and the universe as a whole” (p. 31). Adamski (2014) stated consciousness is “not only knowledge of reality, but also self-knowledge or awareness of the human mind’s own activities, feelings, thoughts and motives of conduct” (p. 30). According to Pert (1997), with intentional training methods designed to increase consciousness, one can learn to participate in the exchange of mind-body information flow, changing physiology and behaviors. Brain Education uses energy sensing exercises, such as meditation, to help develop one’s sense of energy and learn to participate in the exchange of mind-body information flow (I. Lee, 2007b, 2013a, 2016a).

Another unique method of Brain Education is the use of the body to change the mind. Pert (1997) stated, “Mind doesn’t dominate body, it becomes body – body and mind are one” (p. 187). Ki energy is the source of communication between the body and brain, so learning to sense ki energy when training the body helps facilitate a path to develop the mind (I. Lee, 2016a). The use of rhythmic movements with focused attention is another unique method used in Brain Education (I. Lee, 2009).

**Components of Brain Education**

Brain Education uses a variety of methods to help develop and train the brain, including various forms of physical exercise, rhythmic exercises, energy sensing
exercises, breathing, imagination, creative exercises, and a large focus on mindfulness and meditation (I. Lee, 2007b, 2015, 2016a).

**Mindfulness.** Mindfulness was defined as, “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). Brown and Ryan (2003) defined mindfulness as attentiveness to the present and one’s immediate surrounding, which contrasted with a mindless state described as habitual and automatic ways of functioning. In other words, being present means one’s mind is not traveling to memories of the past or daydreaming about the future but fully engaged in experiencing the present moment. The goal of mindfulness is to “maintain awareness moment by moment, disengaging oneself from strong attachment to beliefs, thoughts, or emotions, thereby developing a greater sense of emotional balance and well-being” (Ludwig & Kabat-Zinn, 2008, p. 1350). Mindfulness is often associated with Buddhist meditative practices; however, roots were traced back thousands of years prior to Buddhism and can be conceptualized as a “a particular way of paying attention” (Miller, Fletcher, & Kabat-Zinn, 1995, p. 193) or as a “quality of consciousness” (Brown et al., 2007, p. 211). As the essence of mindfulness is present moment awareness, it has been taught in clinical, medical, military, and organizational settings without any association to religion or cultural beliefs. Although mindfulness meditation practices such as MBSR (Mindfulness Based Stress Reduction) are taught without religious or cultural associations, an increase in spiritual experience is often reported (Mackenzie, Carlson, Munoz, & Speca, 2007; Shapiro, Schwartz, & Bonner, 1998).
A variety of mindfulness programs have been introduced into the literature, such as MBSR, MBSR-Id (shortened version of the MBSR program), Mindfulness Based Cognitive Therapy (MBCT), Mindfulness Mind Fitness Training (MMFT), and Stress Reduction and Relaxation Program (SR&RP). MBSR is one of the most popular mindfulness programs initially developed by Jon Kabat-Zinn in 1979 at the University of Massachusetts Medical Center to help reduce stress, pain, and illness in medical patients and has since been used as a model for other mindfulness programs (Kabat-Zinn, 2003). MBSR is an 8-10 week course consisting of a three-hour, instructor led session per week and 45-60 minutes of daily mindfulness practice that combines three different techniques including body scan, sitting mindfulness meditation, and hatha yogic practices (e.g., breathing exercises, stretches, bodily postures; Chiesa & Serretti, 2009; Klatt, Buckworth, & Malarkey, 2009). MBSR-Id (low dose) is a shortened version of the MBSR program designed to significantly decrease the time commitment of the program to be adapted to the work environment, such as reducing the MBSR three-hour instructor led session per week to one hour per week for the MBSR-Id program and reducing the 45-60 minutes of daily mindfulness practice to 20 minutes a day (Klatt et al., 2009).

MBCT is designed to reduce relapse or recurrence of major depressive disorder (MDD) and uses elements of cognitive behavior therapy (CBT) and mindfulness exercises such as those found in MBSR (Piet & Hougaard, 2011). MMFT is a program developed for the military that includes mindfulness skills similar to those found in MBSR programs and integrates skills and information specific to the military population (Jha et al., 2015; Jha, Morrison, Parker, & Stanley, 2016; Jha et al., 2010). SR&RP is a mindfulness program designed for medical patients with a wide range of diagnoses and incorporates...
elements of MBSR techniques (e.g., body scan, sitting meditation, hatha yoga postures) and activities for mindfulness meditation during daily living (e.g., walking, standing, eating; Kabat-Zinn, 1982; Miller et al., 1995).

Interest in mindfulness exploded over the last 20 years as evidence accumulated on its benefits to well-being, relationships, and performance (Brown et al., 2007; Good et al., 2016; Glomb et al., 2011; Grossman, Niemann, Schmidt, & Walach, 2004). Mindfulness research was conducted with individuals dealing with chronic illness and healthy adults dealing with daily stressors. Schutte and Malouff (2011) found mindfulness was associated with higher levels of EI and positive affect, lower levels of negative affect, and greater life satisfaction. Mindfulness was also associated with a variety of benefits, including increased well-being, reduced stress, improved cognitive performance, increased working memory capacity, enhanced creative performance, increased metacognition, increased positive affect, increased EI and emotional regulation, improved relationships, increased empathy, reduced depression and anxiety, improved immune function, reduced chronic pain, and improved sleep (Brown & Ryan, 2003; Brown, Weinstein, & Creswell, 2012; Creswell, Pacilio, Lindsay, & Brown, 2014; Jankowski & Holas, 2014; Jha et al., 2015; Jha et al., 2016; Jha et al., 2010; Kabat-Zinn, 1982; Klatt et al., 2009; Miller et al., 1995; Shapiro et al., 1998).

Although various methods were developed to cultivate mindfulness, all were designed to increase one’s capacity for present moment awareness and attention. The first two steps of Brain Education (sensitizing and versatilizing) are designed to cultivate mindfulness through various forms of meditation described in the next section. A brief summary of mindfulness research and its benefits is shown in Figure 6.
Meditation. Meditation simply means mental training. Meditation is a powerful way to train one’s attention and is used to help calm the mind and become aware of one’s thought stream without reacting to internal or external stimuli. This helps one identify habits of the mind and gradually reveals the freedom one has to consciously move the mind toward life flourishing versus languishing experiences. Research showed meditation is effective in attention and emotional regulation, which has a wide variety of workplace implications (Aftanas & Golosheykin, 2005; Baerentsen et al., 2010; Brefczynski-Lewis, Lutz, Schaefer, Levinson, & Davidson, 2007; Slagter et al., 2007).
Meditation was also described as happiness training (I. Lee, 2007b; Ricard, 2004, 2006; Tan, 2012). McGonigal (2009) stated, “Meditation does not just interrupt negative states of mind; it also produces positive states of mind” (p. 120). According to Garland et al. (2010), negative emotions often stem from the mind wandering to the past or future while “positive emotions flow naturally from a nonjudgmental focus on the present” (p. 23). This suggests that mental training to train one’s attention and learning to self-generate positive emotions can increase one’s happiness. This is also aligned with I. Lee’s (2002) claim that, “Happiness is a choice. It all comes down to how well you consciously direct your mind, awareness, thoughts, and emotions” (p. 70). Research showed that loving-kindness or compassion meditation is particularly effective at generating positive emotions and intentional mental training to cultivate kindness and compassion may enhance empathic responses toward others (Fredrickson et al., 2008; Garland et al., 2010; Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008).

Many types of meditation techniques are used to train different aspects of mental processing, such as mindfulness meditation, loving-kindness or compassion meditation, mantra meditation, zen meditation, vipassana meditation, transcendental meditation, and energy meditation (Giovanni, 2015; I. Lee, 2013b, 2015, 2016a). Meditation is categorized into two main classes, focused-attention or concentration meditation and open-monitoring or mindfulness meditation (Colzato, Ozturk, & Hommel, 2012; Kabat-Zinn, 1982). Focused attention meditation focuses attention on a single object (e.g., a mantra, breathing, visual object) and open-monitoring meditation where concentration is used to maintain attention as a detached observer on the constant stream of objects in the mind. In open-monitoring meditation the breath is often used to help stabilize attention.
and then allowing the field of attention to expand. I. Lee (2016a) stated, “Any action that calms the mind and empties it of thoughts and emotions – anything that calls the wandering mind to the here and now – can be considered a form of meditation” (p. 60). Brain Education uses both forms of meditation to develop the brain.

Research showed meditation affects brain waves, increases the length of telomeres, and actually changes the physical structure of the brain (Epel, Daubenmier, Moskowitz, Folkman, & Blackburn, 2009; Fell, Axmacher, & Haupt, 2010; Grant, Courtemanche, Duerden, Duncan, & Rainville, 2010; Holzel et al., 2011; Lazar et al., 2005; Lutz, Greischar, Rawlings, Ricard, & Davidson, 2004; Schutte & Malouff, 2014a, 2014b). Meditation was shown to lower brain waves in the alpha and theta rhythms and was said to be one of the first basic changes in meditative practice (Fell et al., 2010). Types of brain waves and the associated activities include: gamma waves (30+ Hz) associated with intense mental activity; beta waves (13-30 Hz) associated with an active normal awake state; alpha waves (8-12 Hz) associated with calm, rest, or pleasant feelings; theta waves (4-7 Hz) associated with the time just before falling asleep or deep meditation; and delta waves (1-3 Hz) associated with deep sleep or unconscious states (I. Lee, 2009, 2016a). Experienced meditators have shown the ability to maintain lower baseline brain waves, which was associated with a more relaxed, calm, and peaceful state (Lutz et al., 2004). Long-term meditators also showed self-induced, high-amplitude gamma waves and phase synchronization during meditation (Lutz et al., 2004). Synchronized gamma activity is associated with higher-order cognitive functions and cortical restructuring (Fell et al., 2010; Lutz et al., 2004).
Meditation was also shown to increase the length of telomeres, which are protective caps at the end of chromosomes associated with better health and longevity (Epel et al., 2009; Schutte & Malouff, 2014a, 2014b). Shorter telomere length is associated with poor health and mortality and is affected by chronic stress and depression (Epel et al., 2009). In a meta-analysis of 1,143 participants, higher levels of perceived stress were associated with shorter telomere length, suggesting that appraising situations as a challenge versus a threat may maintain telomere length (Schutte & Malouff, 2014b). Schutte, Palanisamy, and McFarlane (2016) found the positive dispositional characteristic of optimism showed significant association with longer telomeres over other positive characteristics, suggesting optimism has a cumulative effect on telomere maintenance over time.

Lazar et al. (2005) found that meditation practice is associated with changes in the physical structure of the brain (i.e., cortical thickness), particularly in regions associated with attention, interception, and sensory processing. Findings also suggested meditation may counteract age-related cortical thinning (Lazar et al., 2005). In another study, cortical thickness in meditators was associated with significantly lower pain sensitivity (Grant et al., 2010). Following an eight-week MBSR program, changes in gray matter concentration was found, providing further support that meditation physically changes the structure of the brain (Holzel et al., 2011).

Two forms of energy meditation specific to Brain Education is Jigam and Brain Wave Vibration (BWV). Jigam in Korean means, “quieting the emotions, and quieting the mind” (I. Lee, 2013a, p. 152). Jigam helps awaken one’s sense of ki energy and develops the capacity for relaxed concentration. According to I. Lee (2016a), “Neither
thoughts nor emotions play a role in Jigam; it’s their absence that allows you to become deeply quiet and entirely focused on the non-sensory, non-cognitive realm of energy” (p. 121). BWV is a moving meditation that uses rhythmic vibration designed to lower brain waves, relax the body and mind, follow one’s own natural rhythm, and sense ki energy in the body (I. Lee, 2009). Research studies on BWV showed reduced stress, improved mindfulness, improved health and well-being, reduced depression, and improved sleep (Bowden et al., 2012; Bowden et al., 2014; Jung et al., 2010).

**Five Steps of Brain Education**

The five steps of Brain Education are (1) sensitizing, (2) versatilizing, (3) refreshing, (4) integrating, and (5) mastering (I. Lee, 2007b, 2016a). The steps of Brain Education are generally done in order; however, different steps can be done simultaneously through various exercises.

**Step 1. Brain sensitizing.** The first step in Brain Education is brain sensitizing. Brain sensitizing is designed to strengthen the brain-body connection, awaken the body’s multiple senses, and increase ki energy sensitivity. This step helps to cultivate mindfulness, enhance focus and concentration, and increase physical vitality. In this step the connection between body and brain are strengthened and senses are awakened through various physical exercises (e.g., deep stretching often found in yoga, qigong, martial arts), energy sensing exercises, meditation, and breathing methods designed to relax the body and mind, increase blood circulation, and stimulate the free flow of energy in the body. When the body is stretched and moved through various physical exercises, corresponding areas of the brain are activated, increasing the connection between brain-body and improving coordination and balance. Mindfulness is also cultivated through
developing the capacity to pay attention to the thoughts and emotions that arises without attaching to them. I. Lee (2016a) stated, “Through the brain sensitizing process, we develop the attention to carefully observe all the phenomena that arise within us, beginning with our bodies and going as far as our thoughts, emotions, and ideas” (I. Lee, 2016a, p. 95).

Brain sensitizing means being aware of how different thoughts and emotions affect the energy in one’s brain, so that one can identify unhelpful patterns and change them. According to I. Lee (2007a), when ki energy is viewed as the “source of communication between body and brain, you are empowered to begin changing habits that negatively affect your body and mind” (p. 69). Without this level of self-awareness, one can unknowingly get stuck in habits that limit one from reaching his or her chosen goals. Self-awareness is also the key to maintaining presence, enhancing metacognition (i.e., the process of maintaining awareness of and controlling internal thoughts and subjective states), and EI, which are all known to be negatively influenced by stress (Goleman, 1996, 1998; Matthews, 2016). Learning to feel energy through brain sensitizing allows one to detect their stress response as it is arising so one can shift their energy before it turns into a full-blown fight or flight response releasing destructive stress hormones into the blood stream. Brain sensitizing lays the foundation of the Brain Education system.

**Step 2. Brain versatilizing.** The second step in Brain Education is brain versatilizing. Brain versatilizing is designed to utilize the neuroplasticity of the brain to make the brain more flexible and adaptable. I. Lee (2007b) stated, “to take full advantage of this feature [neuroplasticity], we must get into the habit of rewiring our brains with
ease, which is what the second step, Brain Versatilizing, is all about” (p. 36). This step increases the ability to accept change more easily, increases creativity, increases the capacity to recognize new patterns of thought and actions, and develops a more resilient mindset. Deeply ingrained habits, biases, preconceptions, and thought patterns can be changed at this step as the brain becomes more flexible and adaptable. I. Lee (2016a) stated,

The blocks between you and your greatest potential are probably much the same as they are for others – rigidity, fear, weakness, insecurity, imbalance. These represent the opposite of flexibility. Such unhelpful living patterns can become so deeply ingrained that it’s hard to set yourself free from them. But when you successfully let go of old conditioning, you reap the benefits of flexibility, calmness, security, courage, strength, and balance. And you become more receptive to the opportunities life brings. (p. 137)

Brain versatilizing uses rhythmic exercises and patterns to engage more of the brain, stimulate new neural connections, awaken non-dominant parts of the body, and improve coordination and balance between the body and brain (I. Lee, 2009, 2015, 2016a). The power of imagination and various creative games and exercises are also used in this step to stimulate the brain making new neural connections and developing new ways of thinking (I. Lee, 2007, 2016a). Examples of games and exercises used in this step include Thumb and Pinky, Triangle Circle Square, Rock-Paper-Scissors-Brain, Harmony Claps, Body-And-Mind Infinity, Balancing Poses, Renaming Game, Looking from Both Sides, Creative Shapes, 21-Day Challenge, The Architect of Happiness (Beal,
Developing a flexible brain allows one to see things from a broader perspective, approach situations and problems in new novel ways, find creative solutions, switch between tasks more rapidly, switch points of view more rapidly, and resolve issues in relationships (Fredrickson, 2003a, 2014; I. Lee, 2016a). Having a flexible brain also allows one to adapt to the rapidly changing environment more easily (I. Lee, 2016a; McGonigal, 2016).

**Step 3. Brain refreshing.** The third step in Brain Education is brain refreshing. Brain refreshing is designed to free the brain from negative patterns of thought and emotion and expands the capacity to experience positive emotions. This step helps to clear away negative emotional memories, encourages a positive life view (optimism), and develops EI. Brain refreshing uses various techniques such as, imagination, breathing, meditation, energy balancing, and self-awareness exercises to release negative emotions and self-limiting memories of the past (Lee, 2016a; Lee & Jones, 2008). Examples of exercises used in this step include Brain Cleansing Exercise, Energy Ball, Brain Breathing Exercise, Emotional Inventory, Brain Releasing – Transform Memory into Learning, Turning It Outside In, Positive Reinforced, and Seeing in the Raw (Beal, 2016; I. Lee, 2007, 2016a).

Emotions can get stuck in the body when denied or repressed and retained as memories in the brain and at a cellular level, shaping behaviors throughout childhood and as adults (Pert, 1997). By expressing and releasing emotions from the past, one clears away emotional residue and learns to control the information of the mind rather than being controlled by emotions (I. Lee, 2016a). In this step, one realizes that emotions arise from preconceptions and expectations (of self or others) existing within oneself.
versus something external, which means one can release emotions whenever they are no longer useful (I. Lee, 2016a); for example, a person may say, “My coworker made me angry,” when the coworker did something the person did not like, but the coworker lacks control to make someone angry. I. Lee (2016a) stated,

The important lesson is that when you look outside yourself for the source of your emotions, you surrender your personal power by believing you’re at the mercy of external circumstances. But when you look only to yourself as the source of your emotions, your focus shifts to something over which you do have control. You can’t be in command of external events or other people, but you can play an enormous role in determining how they affect you emotionally. (p. 169)

Realizing that one has control over their emotional experience and developing a habit to release emotions when they are no longer useful can be very liberating and free one’s brain to pursue higher purposes and personal goals. According to I. Lee (2007b), “The point is not to eliminate emotions as though they were somehow bad, but rather to gain control of your brain by using emotions in a positive, life-enhancing way” (p. 56).

Freeing the brain from negative emotional memories and gaining control over one’s emotional experience helps increase the capacity to experience positive emotions and develop a positive outlook. According to I. Lee and Jones (2008), “The intention of Brain Refreshing is not only to release and clear away negative emotional memories and non-useful information, but also to gain mastery over your emotions and to realize that happiness can be created anytime and anywhere through action” (p. 116). Research showed happier employees had better performance, were more productive, had higher
levels of organizational citizenship, and had better relationships with coworkers (Ajayi & Abimbola, 2013; Diener & Seligman, 2004). Positive emotions also speed recovery from the cardiovascular effects of negative emotions, improve immune function, increase psychological resilience, and optimize health and well-being (Davidson et al., 2003; Fredrickson, 2000a; Fredrickson & Cohn, 2008; Fredrickson & Levenson, 1998; Fredrickson et al., 2000; Fredrickson et al., 2003; Kok et al., 2013; Tugade & Fredrickson, 2004, 2007).

Brain refreshing techniques enhance EI skills through a deep level of self-awareness and self-regulation skills. According to I. Lee (2016a), “Emotional intelligence – the ability to perceive, assess, and manage your own emotions, as well as to deal with those of others – is one of the most valuable skills of the mature individual” (p. 170). Brain refreshing enhances the ability to recognize emotions, understand them, and manage their effects (I. Lee, 2016a). When one has a deep level of self-awareness and can self-regulate their own emotions, one naturally is able to create more harmonious relationships with others. EI was associated with better job performance, greater occupational success, more satisfying relationships, greater happiness, and better health (Martins et al., 2010; Mikolajczak et al., 2015; Schutte et al., 2007; Van Rooy & Viswesvaran, 2004).

**Step 4. Brain integrating.** The fourth step in Brain Education is brain integrating. Brain integrating is designed to integrate the various functions of the brain to work together toward one’s highest potential. This step helps to increase awareness of core information (preconceptions and beliefs about oneself and others) and helps one realize that beliefs about oneself, others, and the world are malleable and can be changed.
(e.g., cognitive reappraisal) to align with one’s life goals. A sense of purpose and meaning in life is also developed during this stage. Brain integrating uses breathing techniques, meditation, rhythmic exercises, energy circuit exercises, and various other activities to help one discover their authentic self and develop a sense of purpose in life.

Brain integrating seeks to integrate the three layers (neocortex, limbic system, and brainstem) and the two hemispheres (right and left) of the brain to help people fully utilize their brain and reach their highest potential. In general terms, the basic function of the layers of the brain include: the intellectual part of the brain (neocortex) responsible for logic and intelligence, the emotional part of the brain (limbic system) responsible for emotions and reactions, and the primitive part of the brain (brainstem) responsible for basic life functions (e.g., breathing, heartbeat, metabolism) and natural healing. The basic functions of the two hemispheres of the brain include: the left hemisphere responsible for logic, linear thinking, relational problem-solving, language, numbers, details, analysis, and process; and the right hemisphere responsible for creativity, imagination, intuition, spontaneity, visualization, symbolism, and rhythm. I. Lee and Jones (2008) stated,

Brain integration establishes new, robust connections between your three brain centers and the hemispheres of your brain – the linear and analytical left brain and the creative intuitive right brain. You will be able to unleash your creativity, control your emotions, and approach situations from both a rational and intuitive perspective. (p. 133)

When all these brain functions work together in harmony versus being fragmented by traumas or negative emotional memories and one takes control over their brain’s
functioning versus being controlled by unconscious processes, then one’s full potential can be reached (I. Lee, 2016a; I. Lee & Jones, 2008).

Once the brain is freed from unhelpful thoughts and emotions, one is able to expand using all the tools learned to redefine oneself and create one’s life as intended versus being defined by past memories, emotions, preconceptions, or beliefs. During the brain integration process, awareness of one’s core information (preconceptions and beliefs about self and others) increases, as well as the ability to change the information (e.g., cognitive reappraisal) depending on if the information is helpful or harmful to one’s new sense of self. During this step, various exercises are used to help people discover their authentic self and develop a sense of purpose and meaning in life; for example, life questions such as Who am I?, What do I want?, What’s my life purpose? are asked (I. Lee, 2016a). Examples of exercises used in this step include Energy Circuit Drawing, Sound Vibration Exercises, Om Vibration, BWV, Life Questions Exercise, Corporeal Identity, Vision Meditation, Self-Declaration, Altruistic Actions, and The Ritual of Self-reflection (I. Lee, 2007b; 2016a). Establishing meaning and purpose in life and using one’s strengths and talents to serve something bigger than the self is essential to overall well-being (Jayawickreme et al., 2012; I. Lee & Jones, 2008; Seligman, 2013).

**Step 5. Brain mastering.** The fifth step in Brain Education is brain mastering. Brain mastering enhances executive control of the brain and mastership of one’s life. Brain mastery is knowing what information and emotions are influencing one’s life and then consciously choosing which information and emotions to act upon (I. Lee, 2016a). This step helps one realize the power of choices and actions, enhances use of imagination, and empowers authorship of one’s life. Once people decide what purpose
and meaning is in life and how they want to live their lives, they can create goals and pursue living the life they have chosen. I. Lee (2002) stated, “Human beings mature through formulating and achieving a vision. By reaching a vision beyond your previous limits, you will not only expand your awareness, but also enhance your brain’s capabilities” (p. 195). Brain mastery uses meditation, imagination, and various exercises to help people actualize the vision they have chosen for their life. Examples of exercises used in this step include Vision Meditation, Self-Creation Exercise, Brainscreen Visualization, I Have a Dream, Vision Tree, Earth Communion, Counting Your Other Blessings, Brain Supermodels, Alternate Uses, and Peace is Possible (Beal 2016; I. Lee, 2007b, 2016a). This step is the continuous application of everything learned in the previous four steps to create a lifestyle of brain mastership and actualize one’s life goals.

Brain mastery includes the active development of the executive part of the brain responsible for planning, setting goals, and making decisions. For the brain to function optimally, it needs a clear goal or vision to focus on. Mind wandering to the past or future has been associated with negative emotions, suggesting that having a clear goal or vision can help focus the brain versus wandering (Garland et al., 2010). I. Lee (2016a) stated, “your brain is the extraordinary tool that helps you create the life you want. It’s up to you, as your brain’s user, to direct it” (p. 232). As the brain continuously transforms to live the life one has chosen, the brain will naturally find creative solutions to resolve problems, become more decisive, and create peaceful relationships with others (I. Lee, 2016a).

A summary of the five steps of Brain Education and the associated expected benefits and results are shown in Figure 7.
Research on Brain Education

Research on Brain Education has shown positive effects in all four domains of human functioning: cognition, emotion, behavior, and physiology. Some benefits include reduced stress, improved cognition, improved problem-solving skills, enhanced EI, increased positive emotions, improved relationships, increased global citizenship, and increased health and well-being (Bowden et al., 2012; Bowden et al., 2014; S. Cho et al., 2012; Y. Cho & Oh, 2012; Jung et al., 2010; Oh, 2010, 2012, 2014, 2015; S. Lee et al., 2004; Y. Lee & Oh, 2013). In a study of 171 Brain Education practitioners who took...
regular classes for three months, practitioners reported improvements in quality of life scores, including mental, emotional, social, and physical health; additional findings showed fewer depressive symptoms, less trait anxiety, greater self-efficacy, and increased skills for managing stress (S. Lee et al., 2004). In a 2012 study comparing Brain Education meditators to non-experienced meditators, those in the Brain Education meditator group scored higher in psychological well-being and lower in symptoms of depression (Y. Cho & Oh, 2012).

Brain Education was also found effective for students. Results of a 2010 study investigating the effectiveness of Brain Education meditation as part of a “Happy School Program” with 269 elementary school students; students showed positive results in concentration, metacognition, emotional control, and physical control ability (Oh, 2010). In another study, Oh (2014) reported Brain Education positively influenced stress reduction, mental health, depression, anxiety, and self-esteem in a study of elementary school students. Two other studies of elementary and middle school students showed significant improvements in concentration compared to the control group following 14 weeks and 8 weeks respectively of Brain Education training (E. Kim & Shim, 2010; Shim, 2009). S. Cho et al. (2012) found Brain Education had significant positive influence on multiple intelligences in a study of 90 five-year old children. In a 2008 study of high school students, Brain Education training for four months showed significant improvements in students’ ability to experience flow compared to the control group (Kwak, 2008).

Brain Education research was shown to improve positive emotions, optimism, EI, relationships, and global citizenship (J. Kim & Yoon, 2010; S. Kim & Oh, 2015; Y. Kim
et al., 2002; Oh et al., 2009; Y. Lee & Oh, 2013; Oh, 2012, 2015; Won & Kwon, 2015). Oh (2015) reported students showed increased positive emotional experiences following 13 weeks of Brain Education training compared to a control group. In a 2010 study of 130 college students, those who participated in Brain Education training for more than one year showed a statically significant difference in optimism compared to students who participated in training for two hours per week for 14 weeks and compared to the control group (J. Kim & Yoon, 2010). In a 2009 study conducted over a full academic year with elementary school students, Brain Education was shown to positively influence EI, degree of perceived stress, and stress-coping strategies (Oh et al., 2009). A study investigating the contribution of Brain Education in prevention of school violence showed the program had significant positive effects, including improved empathy, increased ability to control anger, increased peer-problem solving skills, and increased global citizenship (Y. Lee & Oh, 2013). A 2012 study of 83 elementary school students showed improved relationships with teachers and friends (Oh, 2012). Other studies have shown improvements in components of EI, including emotional stability and self-understanding (Y. Kim et al., 2002; Won & Kwon, 2015).

Research studies of the BWV meditation method showed it reduced stress, improved mindfulness, improved health and well-being, reduced depression, and improved sleep (Bowden et al., 2012; Bowden et al., 2014; Jung et al., 2010). In a 2010 study, 67 participants who practiced BWV meditation 3-144 months were compared to a control group of 57 participants; the BWV meditation group exhibited lower stress and higher positive affect compared to the control group (Jung et al., 2010). In a 2012 randomized controlled trial comparing the effects of BWV training with Iyengar yoga
(used to contrast physical components of BWV) and mindfulness training (used to contrast mental components of BWV), all interventions showed reduced stress, improved mindfulness, and improved well-being; however, BWV showed significantly better benefits for depression and sleep latency (Bowden et al., 2012). In a 2014 randomized controlled trial study investigating the effects of BWV compared to a group practicing without the rhythmic component, BWV showed unique benefits in health, well-being, sleep, energy, and tiredness (Bowden et al., 2014). A summary of research in Brain Education is shown in Figure 8.

<table>
<thead>
<tr>
<th>Functional Domain</th>
<th>Brain Education Research</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>Improved cognition</td>
<td>S. Cho, Yoo, &amp; Shim, 2012</td>
</tr>
<tr>
<td></td>
<td>Improved metacognition</td>
<td>Oh, 2010</td>
</tr>
<tr>
<td></td>
<td>Improved concentration</td>
<td>E. Kim &amp; Shim, 2010; Oh, 2010; Oh et al., 2009; Shim, 2009</td>
</tr>
<tr>
<td></td>
<td>Improved problem-solving skills</td>
<td>Y. Lee &amp; Oh, 2013</td>
</tr>
<tr>
<td>Emotion</td>
<td>Increased positive emotions:</td>
<td>Oh, 2015; Jung et al., 2010; J. Kim &amp; Yoon, 2010</td>
</tr>
<tr>
<td></td>
<td>Optimism: positive affect</td>
<td>S. Cho, Yoo, &amp; Shim, 2012; Y. Lee &amp; Oh, 2013; Oh et al., 2009</td>
</tr>
<tr>
<td></td>
<td>Increased emotional intelligence</td>
<td>Y. Kim et al., 2002</td>
</tr>
<tr>
<td></td>
<td>Increased emotional stability</td>
<td>Y. Lee &amp; Oh, 2013; Oh, 2010</td>
</tr>
<tr>
<td>Behavior</td>
<td>Improved relationships</td>
<td>Oh, 2012</td>
</tr>
<tr>
<td></td>
<td>Increased global citizenship</td>
<td>S. Kim &amp; Oh, 2015; Y. Lee &amp; Oh, 2013</td>
</tr>
<tr>
<td></td>
<td>Expanded self-awareness</td>
<td>S. Cho, Yoo, &amp; Shim, 2012; Won &amp; Kwon, 2015</td>
</tr>
<tr>
<td></td>
<td>Reduced stress</td>
<td>Bowden, Gaudry, An, &amp; Gruzelier, 2012; Jung et al., 2010; Oh, 2014; Oh et al., 2009</td>
</tr>
<tr>
<td>Physiology</td>
<td>Increased well-being</td>
<td>Bowden, Gaudry, An, &amp; Gruzelier, 2012; Bowden, McLennan, &amp; Gruzelier, 2014; Y. Cho &amp; Oh, 2012; S. Lee, Mancuso, &amp; Carlson, 2004; Oh, 2014</td>
</tr>
<tr>
<td></td>
<td>Increased energy</td>
<td>Bowden, McLennan, &amp; Gruzelier, 2014</td>
</tr>
<tr>
<td></td>
<td>Reduced depression</td>
<td>Bowden, Gaudry, An, &amp; Gruzelier, 2012; Y. Cho &amp; Oh, 2012; S. Lee, Mancuso, &amp; Carlson, 2004; Oh, 2014</td>
</tr>
<tr>
<td></td>
<td>Reduced anxiety</td>
<td>S. Lee, Mancuso, &amp; Carlson, 2004; Oh, 2014</td>
</tr>
<tr>
<td></td>
<td>Improved sleep</td>
<td>Bowden, Gaudry, An, &amp; Gruzelier, 2012; Bowden, McLennan, &amp; Gruzelier, 2014</td>
</tr>
<tr>
<td></td>
<td>Improved health</td>
<td>Bowden, McLennan, &amp; Gruzelier, 2014; S. Lee, Mancuso, &amp; Carlson, 2004; Oh, 2010</td>
</tr>
</tbody>
</table>

*Figure 8. Summary of Brain Education research.*
Theoretical Framework

The modified theoretical framework used for this study is the Integrative Framework Relating Mindfulness to Workplace Outcomes developed by Good et al. in 2016. No theoretical frameworks emerged in the literature review for Brain Education; however, Good et al.’s (2016) framework is closely related to this study and is the most current framework in the literature. The framework shows how mindfulness influences attention which effects the four human domains of cognition, emotion, behavior, and physiology. Attention is often included as part of the cognition domain; however, attention affects all other domains. Good et al. (2016) argued “attention to a stimulus typically precedes the information processing more typically connoted by the term ‘cognition’” and therefore separates out attention as its own domain within the framework (p. 61).

Research showed improving the domains of cognition, emotion, behavior, and physiology can result in improved workplace outcomes in the areas of performance, relationships, and well-being. The first two steps of Brain Education (sensitizing and versatilizing) is designed to cultivate mindfulness and improve cognition, emotion, behavior, and physiology. The remaining three steps of Brain Education (refreshing, integrating, and mastering) continue to develop the mind-body connection for enhanced executive control of the brain and realization of one’s full potential. Good’s et al. (2016) Integrative Framework Relating Mindfulness to Workplace Outcomes and the research in Brain Education is closely aligned making the modified framework the most relevant for this study.
Summary

Organizations are uniquely positioned to help resolve stress as our world’s greatest health challenge of the 21st century. Organizational leaders who manage their own stress and help teach employees how to effectively manage stress could create significant organizational advantages. For example, recent advances in organizational neuroscience suggest that embracing the whole human at work, both mind and body, can lead to increased employee engagement, which may lead to important business outcomes, such as increased customer satisfaction, productivity, and profit (Harter et al., 2002; Zak & Winn, 2016).

Brain Education may be a valuable tool for employers in helping reduce employee stress, increase engagement, improve organizational performance, and reduce healthcare costs. Research on Brain Education showed positive effects in all four domains of human functioning, including cognition, emotion, behavior, and physiology. This suggests that mastering one’s brain is the key to optimal performance, harmonious relationships, and well-being. A synthesis matrix of the literature is included in Appendix N, showing the study variables and associated major researchers or authors. Chapter III presents the methodology used to conduct this study. Chapter IV presents the data and findings, and Chapter V describes the conclusions and implications for action.
CHAPTER III: METHODOLOGY

The ability of employees to effectively manage stress may be organizations’ greatest challenge of the 21st century. Stress was declared a global epidemic by the World Health Organization (Fink, 2016) and work-related stress one of the most important issues of our time by the United Nations (International Labour Organization, 2012). Employers who recognize and embrace stress management solutions for their employees may improve organizational performance and help resolve the greatest health challenge facing the world today.

Brain Education may be a solution to help employees learn to effectively manage stress and improve work performance, relationships, and well-being. This study sought to identify, examine, and describe the lived experience of employees who received Brain Education training, in the areas of stress management, work performance, relationships, and well-being. This chapter describes the methods and procedures used in the study and is divided into the following sections: purpose statement, research questions, research design, population, sample, instrumentation, data collection procedures, data analysis, and limitations.

Purpose Statement

The purpose of this qualitative phenomenological study was to identify, examine, and describe the lived experience of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being.

Research Questions

This study was guided by one central question and six sub-questions. The central question of this study was: What are the lived experiences of employees who received
Brain Education training in the areas of stress management, work performance, relationships, and well-being? The six sub-questions were:

1. Stress management. What specific changes have employees experienced through Brain Education training in relation to managing stress?

2. Work performance. What specific changes have employees experienced through Brain Education training in relation to work performance?

3. Work performance. What specific changes have employees experienced through Brain Education training in relation to recognizing and managing emotions (e.g., emotional intelligence)?

4. Relationships. What specific changes have employees experienced through Brain Education training in their relationships?

5. Relationships. What specific changes have employees experienced through Brain Education training in relation to social behaviors (e.g., empathy, compassion, and altruism)?

6. Well-being. What specific changes have employees experienced through Brain Education training in relation to their overall well-being?

**Research Design**

A qualitative phenomenological research design was used to describe the lived experiences of employees who received Brain Education training. In phenomenological studies, researchers identify and describe participant experiences to understand the meaning they attributed to the experience (McMillan & Schumacher, 2010). According to McMillan and Schumacher (2010), “phenomenological studies investigate what was experienced, how it was experienced, and finally, the meanings that the interviewees
assign to the experience” (p. 356). The literature on stress was clear in that individuals determine what is stressful based on their appraisal (conscious or unconscious) or meaning given to situations (Lazarus & Folkman, 1984). Although appraisals are not always conscious, a qualitative phenomenological research design allowed the narratives of participants’ experiences to be captured so that data may emerge on the effects of Brain Education in the areas of stress management, work performance, relationships, and well-being.

According to Patten (2012), the phenomenological approach explores perceptions. Patton (2015) described phenomenology as “exploring how human beings make sense of their experience and transform experience into consciousness” (p. 360). According to McMillan and Schumacher (2010), phenomenology focuses on how people interpret their human experiences and explores the essence participants give to a phenomenon. Thus, the aim of this study was to explain the lived experience of participants.

Standardized, open-ended interviews were used to gather data about participant experiences with Brain Education. Qualitative research questions are flexible, open-ended, and evolving as more questions emerge during the interview process for a deeper understanding of the phenomenon (McMillan & Schumacher, 2010). Patton (2015) stated, “Treating questions as rigid and unalterable is dumb because qualitative inquiry is a journey of discovery, and that includes learning what deeper questions to ask as the inquiry unfolds” (p. 254). McMillan and Schumacher (2010) described the intent of qualitative research as providing deep narratives not captured through numeric data.
Population

According to Creswell (2003), a population is a “group of individuals who comprise the same characteristics” (p. 644). The population for this study was employees over the age of 18 in the United States who received Brain Education training. Brain Education is taught in over 700 Body & Brain centers in 17 countries, including 100 centers in the United States. Body & Brain centers have taught Brain Education to center members, as well as in schools, companies, senior centers, and community organizations.

Target Population

A target population is the group of individuals who may be chosen from the overall population from which the study data are used to make inferences. McMillan and Schumacher (2010) defined target population as a group of individuals from whom the researcher intends “to generalize the results of the research” (p. 129). The target population for this study was employees trained in Brain Education for at least three months who work for organizations in California that employed more than 20 people. California has 14 Body & Brain centers and nearly 80,000 organizations with 20 or more employees (U.S. Census Bureau, 2016).

Studies lasting five weeks showed the effects of Brain Education (Bowden et al., 2012); however, employees trained in Brain Education for at least three months were chosen for this study to allow time for participants to develop greater energy sensitivity and increase the brain-body connection. Organizations that employ more than 20 people were selected for this study to gather rich data on effects of Brain Education on relationships in the workplace with coworkers and direct reports. Organizations that employ more than 20 people also represent 82% of California’s employment population.
The state of California was selected because it has 14 of the 100 Body & Brain centers in the U.S. (3 in northern California and 11 in southern California) and is also geographically close to the researcher. The availability of employees trained in Brain Education allowed for a comprehensive and diverse sample.

**Sample**

A sample is defined as the group of individuals from the target population from whom data is collected (McMillan & Schumacher, 2010). A purposeful sampling strategy was used to identify employees from the target population for participation in this study. According to Patton (2015), “Purposeful sampling focuses on selecting information-rich cases whose study will illuminate the questions under study” (p. 264). Clark and Creswell (2008) defined purposeful sampling as “selecting units (e.g., individuals, groups of individuals, institutions) based on specific purposes associated with answering a research study’s questions” (p. 200). Purposeful sampling is typically used with large populations for which it would be impossible to include all those who experienced the phenomenon.

This research opportunity was presented to members of Body & Brain centers located in California, excluding those members where the interview questions were pilot tested. The managers from the Body & Brain centers sent a letter (Appendix C) to members who attended at least three months of training informing them about the study and requesting their participation. The sampling plan is shown in Figure 9.
The sample size for this study was 21 participants. According to McMillan and Schumacher (2010), qualitative studies can range from 1 to 40 or more participants. In a survey conducted by Patten (2012), qualitative research samples ranged from 10 to 36 with the median of 13. The logic of the sample size for qualitative studies described by McMillan and Schumacher (2010) was, “The insights generated from qualitative inquiry depend more on the information richness of the cases and the analytical capabilities of the researcher than on the sample size” (p. 328). Patton (2015) stated the “power of purposeful sampling lies in selecting information-rich cases for in-depth study. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling” (p. 264). The criteria for purposeful sampling in this study was employees who participated in Brain Education training for at least three months and worked for organizations employing more than 20 people. Sample size in qualitative research is often determined
by saturation where no new information emerges from participants and the researcher concludes additional participants are unlikely to respond with different information (Patten, 2012). After collecting data from 21 participants, it was determined a point of saturation was reached where new information was unlikely to emerge and no adjustments to sample size were required. The narrowing from population to target population and to sample is shown in Figure 10.

**Figure 10.** Population, target population, and sample.

**Instrumentation**

The instrument used for this study was a semi-structured interview protocol developed by the researcher. Semi-structured interviews consist of predetermined questions where the wording and sequence of questions are determined in advance and asked of all participants to help guide, but not limit the conversation (Patton, 2015; Patten, 2012). Patten (2012) describes semi-structured as:
“Semi-structured” refers to the fact that the interviewer does not need to ask only the predetermined questions. First, if a participant does not seem to understand a question, it can be reworded by the interviewer. Second, if a response is too terse, the interviewer can ask additional questions, such as “Can you tell me more about it?” Third, the interviewer can probe with additional questions (in addition to the predetermined questions) in order to explore unexpected, unusual, or especially relevant material revealed by a participant. (p. 153)

The interview instrument was developed based on the purpose of the study, research questions, literature review, and theoretical framework. The interview protocol (Appendix B) includes written instructions for carrying out the interview, the interview questions, possible probing questions, and demographic questions. According to Patten (2012), “predetermined questions should ask for demographic information…which will allow the researchers to describe the participants in a research report” (p. 154). Including detailed demographic information helps readers understand participant characteristics (Patten, 2012). The initial demographic questions were designed to build rapport and gather helpful information about the participants.

Validity

Validity means the appropriate measurement is used to measure what is intended (McMillan & Schumacher, 2010; Patten, 2012; Shenton, 2004). Evidence of instrument validity can be accomplished by assembling a panel of experts to review the content of the instrument, provide feedback, and revise the instrument based on the feedback (McMillan & Schumacher, 2010; Patten, 2012). A panel of three experts in Brain
Education were used to review the interview questions for validity. The expert panel was defined as someone having more than five years of teaching experience in Brain Education. The expert panel members had 39 years of combined teaching experience in Brain Education (Member 1-10 years, Member 2-12 years, Member 3-17 years). Changes were made to the questions based on feedback from the expert panel.

Validity in qualitative designs is based on the researcher and participant agreeing on the description and meaning of events (McMillan & Schumacher, 2010). McMillan and Schumacher (2010) described 10 strategies qualitative researchers use to enhance validity during data collection. The strategies used to enhance validity for this study included (a) participant language, (b) low-inference descriptors, (c) verbatim accounts, (d) mechanically recorded data, (e) member checking, (f) participant review, and (g) negative or discrepant data. Using these strategies helped enhance the validity of the data and ensure “the essence of the experience as perceived by the participants” was captured (McMillan & Schumacher, 2010, p. 346).

Participant language and low-inference descriptors were used during interview instrument development and data collection. Participant language means that interview questions are phrased in the language the participant can understand versus social science terms likely unfamiliar to the participant (McMillan & Schumacher, 2010). Low-inference descriptors “means that the descriptions are almost literal and that any important terms are those used and understood by the participants” (McMillan & Schumacher, 2010, p. 331). The interview instrument was pilot tested (or field tested) with one individual not part of the study to gather feedback on improving the instrument, including use of participant language and low-inference descriptors, as well as the overall
interview process. Following the interview, the pilot test participant was asked for feedback using the questions included in Appendix H. An observer also participated as part of the pilot study and provided feedback on the instrument and interview process. Based on feedback from both the pilot study participant and the observer the interview instrument did not require revision. The Body & Brain center used to pilot test the interview instrument was excluded from data collection.

Verbatim accounts, mechanically recording data, and member checking were three strategies used during data collection. Verbatim accounts refer to obtaining actual quotations from participants (McMillan & Schumacher, 2010). All interviews were recorded using an audio recording device. Audio recording interviews ensures an accurate record of the data and the ability to obtain verbatim quotations from participants. Member checking refers to when the interviewer rephrases questions and probes during the interview to understand participant perspectives and obtain more complete information (McMillan & Schumacher, 2010). Member checking was used throughout the interview process.

Participant review and negative or discrepant data are two strategies used following data collection. Participant review means the participants are provided the opportunity to review the transcribed data for accuracy and make any changes to ensure their words match what they intended (McMillan & Schumacher, 2010; Shenton, 2004). Participants were provided a copy of their transcript for review and could make changes. Negative and discrepant data means researchers “actively search for, record, analyze, and report negative or discrepant data that are an exception to patterns or that modify patterns found in data” (McMillan & Schumacher, 2010, p. 330). Negative and discrepant data
were reported in Chapter IV. The strategies chosen to increase validity helped ensure researcher and participant agreement on the description of their experience with Brain Education and the meanings of those experiences were accurately reported. A summary of the strategies used to enhance validity for this study are described in Table 1.

Table 1

Strategies Used to Enhance Validity

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant language</td>
<td>Interview questions were phrased in the language the participant could understand versus social science terms the participant was not likely to be familiar with.</td>
</tr>
<tr>
<td>Low-inference descriptors</td>
<td>Descriptions used and understood by participants versus abstract language used by the researcher.</td>
</tr>
<tr>
<td>Verbatim accounts</td>
<td>Actual quotations from participants were obtained in the interview process.</td>
</tr>
<tr>
<td>Mechanically recorded data</td>
<td>Audio recording devices were used to provide accurate data and to record a verbatim account of the participant interview.</td>
</tr>
<tr>
<td>Member checking</td>
<td>Interviewer rephrased questions and probes during the interview to understand the participant’s perspectives and to obtain more complete information.</td>
</tr>
<tr>
<td>Participant review</td>
<td>Participants reviewed transcribed data or a synthesis of the data from the interview for accuracy and made any changes to ensure their words matched what they intended. This was also a strategy used for reliability.</td>
</tr>
<tr>
<td>Negative or discrepant data</td>
<td>Researcher actively searched for and reported negative or discrepant data that were an exception to the pattern found in the data.</td>
</tr>
</tbody>
</table>

Reliability

Reliability refers to consistency in results (McMillan & Schumacher, 2010; Patten, 2012). However, the terms trustworthiness, authenticity, dependability, and credibility are often used for qualitative studies (Golafshani, 2003; Patton, 2015; Shenton, 2004). Several strategies were used to enhance study reliability and credibility of this...
study, including (a) interview instrument design; (b) researcher consistency; (c) pilot testing of interview instrument; (d) participant review; (e) site triangulation; (f) reflexivity; (g) disclosure of researcher background, qualifications, and experience; and (h) interrater reliability.

The interview instrument was designed based on the purpose of the study, research questions, literature review, and theoretical framework. The interview instrument was reviewed by a panel of experts in Brain Education, and all participants were asked the same questions in the same order. The same researcher interviewed all participants to eliminate possible researcher inconsistencies. The interview questions were pilot tested with one individual excluded from the study and observed by a third party to gather feedback on question clarity and interpretation.

Participant review means participants are provided a copy of the transcript to verify accuracy and intent (McMillan & Schumacher, 2010; Patten, 2012; Shenton, 2004). Following the interview, participants were provided a copy of the transcribed interview for review and to make any changes. This strategy was also used for validity by ensuring participants could verify what they meant to say during the interview.

Site triangulation is another strategy to enhance reliability. Site triangulation means participants from several different locations were included in the study, which limits the influence or bias of a single site (Shenton, 2004). Participants were included from 4 of the 14 Body & Brain centers in California.

Reflexivity is deep self-reflection, self-awareness, introspection, and consciousness of one’s own cultural, political, and social perspectives (McMillan & Schumacher, 2010; Patton, 2015). McMillan and Schumacher (2010) stated reflexivity is
an “important procedure for establishing credibility” as the “researcher’s very act of posing difficult questions to himself or herself assumes that he or she cannot be neutral, objective, or detached” (p. 332). Qualitative researchers do not deny human subjectivity but employ various reflexivity strategies to monitor and evaluate researcher subjectivity and perspective (McMillan & Schumacher, 2010). The reflexivity strategies used in this study were a reflex journal and audibility. A reflex journal is a record of the researcher’s ideas, personal reactions, and decisions made throughout the research process to provide rationale and justification for the emergent design; audibility is recording data management techniques, including codes, categories, themes, descriptions, diagrams, and interpretations (McMillan & Schumacher, 2010). These data management techniques are used as a decision trail or chain of evidence available for inspection. The reflex journal and record of data management techniques used for this study were available for review by the dissertation chair and committee.

In qualitative research, Patton (2015) and Patten (2012) described the researcher as a major instrument in the data collection and analysis process. McMillan and Schumacher (2010) describe how the heavy reliance on a single method of data collection, semi-structured interviews, requires the researcher to be skilled at interviewing, including “listening, prompting when appropriate, and encouraging participants to reflect, expand, and elaborate on their remembrances of experience” (p. 346). Due to the researcher being a major instrument in qualitative research, the study may contain biases based on the researcher’s personal background and how the researcher may have influenced the interviewee. Disclosing the researcher’s background, qualifications, experience, and potential bias can enhance the credibility of the study.
The researcher’s background includes 20 years of professional experience in various organizational leadership roles. The researcher was adept in conducting various types of interviews described by Patton (2015), including personnel evaluation and human resource interviews, motivational interviews, and audit and compliance interviews. Although these types of interviews have a different purpose than qualitative interviewing used for research, they helped prepare the researcher for data collection. The researcher also participated in Brain Education training for six years and is adept in its methods and principles. A full researcher disclosure, including professional experience and educational background, is included in Appendix G.

Interrater reliability is a strategy used during the data coding process to ensure reliability of coding decisions. McMillan and Schumacher (2010) described interrater reliability as “when two or more observers or raters independently observe or rate something, will they agree about what was observed or rated? If they do, then there is some consistency in measurement” (p. 182). An independent coder reviewed and double coded at least 10% of the data to ensure agreement between the two coders. A summary of the strategies used to enhance reliability for this study are described in Table 2.
Table 2

Strategies Used to Enhance Reliability

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview instrument design</td>
<td>Participants were asked the same interview questions in the same order.</td>
</tr>
<tr>
<td>Researcher consistency</td>
<td>The same researcher conducted all data collection eliminating differences in researchers.</td>
</tr>
<tr>
<td>Pilot test of interview instrument</td>
<td>The interview instrument was pilot tested with an individual not part of the study and observed by a third party to gather feedback on question clarity and interpretation.</td>
</tr>
<tr>
<td>Participant review</td>
<td>Participants reviewed the transcribed data or a synthesis of the data from the interview for accuracy and made any changes to ensure their words matched what they intended. This was also a strategy used for validity.</td>
</tr>
<tr>
<td>Site triangulation</td>
<td>Participants from several sites were used to reduce the effects on the study based on a specific location.</td>
</tr>
<tr>
<td>Reflexivity</td>
<td>The researcher used a reflex journal to record reflective inquiry throughout the research process and recorded data management techniques, including codes, categories, themes, descriptions, diagrams, and interpretations.</td>
</tr>
<tr>
<td>Researcher disclosure</td>
<td>Disclosure of the researcher’s background, qualifications, experience, and potential bias are included in Appendix G.</td>
</tr>
<tr>
<td>Interrater reliability</td>
<td>An independent coder reviewed and double coded at least 10% of the data to ensure consistency in results.</td>
</tr>
</tbody>
</table>

Data Collection

Data collection for this study occurred November 2017 through December 2018, following approval from Brandman University Institutional Review Board (BUIRB).

Data collection procedures were designed to protect the rights and welfare of participants, including full disclosure of the purpose of the study, voluntary participation, informed consent, and privacy of participant information. Data was collected through open-ended interviews following the interview protocol in Appendix B. The process for data collection included:
1. Obtain BUIRB approval.

2. Obtain Body & Brain corporation approval.

3. Contact pilot study center to introduce the study and provide information for participant participation.

4. Conduct pilot study and revise interview instrument based on feedback.

5. Contact Body & Brain centers to introduce the study and request participation. Send a follow-up email formally introducing the study (Appendix A) and a participant invitation letter (Appendix C) to provide to potential participants.

6. For participants that meet the study criteria, schedule an interview and assign unique identifier to ensure confidentiality.

7. Prior to scheduled interview, email participants with an outline of the interview questions (Appendix F), informed consent form (Appendix D), and Research Participant’s Bill of Rights (Appendix E).

8. Conduct and record interviews following the protocol (Appendix B).

9. Transcribe audio recordings and send to each participant via email for review and feedback as a method to enhance data validity.

**Human Subject Considerations**

Protection of participant confidentiality is a critical component of conducting ethical research. McMillan and Schumacher (2010) defined confidentiality as “making certain that the data cannot be linked to individual subjects by name” (p. 122). The research design for this study, including the introduction email (Appendix A), interview protocol (Appendix B), participant information letter (Appendix C), and informed
consent form (Appendix D) were approved by the BUIRB prior to collection of data. The participant invitation letter (Appendix C) disclosed the purpose of the research, time commitment, participant confidentiality, and voluntary nature of participation.

The identities of the participants were kept confidential by providing a unique identifier to each participant (e.g., Participant 1, Participant 2, Participant 3). A key with each participant’s unique identifier and name was kept in a locked file cabinet in the researcher’s office, along with the signed informed consent forms. The key with participant’s unique identifier, informed consent forms, digital recordings, and study notes were destroyed following publication of the study.

**Interview Procedures**

One-on-one interviews with each participant were scheduled for a 90-minute block of time and location convenient to the participant. Prior to the interview, an email was sent to the participant with an outline of the interview protocol (Appendix F), informed consent form (Appendix D), and *Research Participant’s Bill of Rights* (Appendix E). Efforts were made to conduct interviews in person; however, two interviews were conducted via video conferencing. The researcher followed the interview protocol, which included written instructions for carrying out the interview with an introduction and welcome statement, review of informed consent, audio recording information, purpose of the research, reminder of participant rights, interview questions, and probing questions. Participants signed the informed consent, including consent for audio recording, prior to conducting the interview.

Each interview was audio recorded using two digital recording devices and notes were taken to record non-verbal communication. According to McMillan and
Schumacher (2010), audio recording the interview “ensures completeness of the verbal interaction and provides material for reliability checks” (p. 360). Following the interview, the audio recording was transcribed to provide a verbatim account of participant responses, and researcher notes were added to the transcribed data. Transcribed interview data were sent to each participant via email for review and feedback. Minor changes were made based on feedback from the participants.

**Data Analysis**

Qualitative data analysis is the process of “coding, categorizing, and interpreting data to provide explanations of a single phenomenon of interest” (McMillan & Schumacher, 2010, p. 367). Inductive analysis was used to organize, analyze and identify patterns in the data. McMillan and Schumacher (2010) defined inductive analysis as the process through which qualitative researchers synthesize and make meaning from the data, starting with specific data and ending with categories and patterns. In this way, more general themes and conclusions emerge from the data rather than being imposed prior to data collection.

(p. 367)

**Data Coding and Categorizing**

Data coding began during data collection. One characteristic of qualitative research described by McMillan and Schumacher (2010) is that “the analysis is done during data collection as well as after all the data has been gathered” (p. 367). Data coding began with reading transcribed data from participants to get a sense of the whole. Data coding is used to convert raw textual data into categories or themes for analysis and identifying patterns (Roberts, 2010). The analysis of data and data coding followed the
steps outlined by McMillan and Schumacher (2010), including (a) getting a sense of the whole, (b) generating initial codes, (c) comparing codes and removing duplicates, (d) testing initial codes, and (e) refining the coding system. Once the data from the first participants were coded, the remaining transcripts were coded following the same process. All the data were combined and the coding system refined based on the data.

Codes were then grouped into categories. According to McMillan and Schumacher (2010), most qualitative studies have 30-50 initial codes, making it difficult to look for patterns, so codes are further grouped into categories or themes. Themes are descriptions of grouped codes that give meaning to the combined codes (McMillan & Schumacher, 2010). Themes went through a recursive process to compare the data supporting the meanings of the categories.

**Patterns in the Data**

The goal of qualitative research is to discover patterns in the data based on relationships between the categories to make general statements (McMillan & Schumacher, 2010). Frequencies of references to codes were calculated to identify common themes and grouped into larger patterns that told the story of participants. Several techniques were used for discovering patterns, including (a) site triangulation, (b) evaluating discrepant and negative evidence, (c) sorting categories, (d) constructing visual representations, and (e) logical cross-analyses.

**Limitations**

Limitations are features of the study design that may affect results or the ability to generalize results to a larger group and are usually controllable by the researcher (Roberts, 2010). The limitations for this study included the following:
1. This phenomenological study was delimited to 21 employees in the state of California. Although the sample size is aligned with the literature, it is small and findings may not be generalized to other groups or geographic regions.

2. This study was based on voluntary participation, which may not represent the entire population.

3. Results of the study were based on the participants’ self-reported experiences. Honesty and candor of participants are assumed; however, it’s impossible to verify accuracy.

4. Due to the nature of qualitative research, the researcher’s personal bias can influence the study. Several strategies were used to increase reliability and trustworthiness of the study; however, this remains a limitation of the study.

Summary

This chapter presented the purpose of the study, research questions, research design, population and sample, instrumentation, data collection procedures, data analysis procedures, and study limitations. Chapter IV presents the findings from the study.
CHAPTER IV: RESEARCH, DATA COLLECTION, AND FINDINGS

This qualitative phenomenological study examined the effects of Brain Education on employee stress management, work performance, relationships, and well-being. This chapter begins with a restatement of the purpose and research questions, a summary of the research methods and data collection procedures, and a description of the population and sample. Then a presentation and analysis of the data organized by each research area. The chapter concludes with a summary of the findings.

Purpose Statement

The purpose of this qualitative phenomenological study was to identify, examine, and describe the lived experience of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being.

Research Questions

This study was guided by one central question and six sub-questions. The central question of this study was: What are the lived experiences of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being? The six sub-questions were:

1. Stress management. What specific changes have employees experienced through Brain Education training in relation to managing stress?
2. Work performance. What specific changes have employees experienced through Brain Education training in relation to work performance?
3. Work performance. What specific changes have employees experienced through Brain Education training in relation to recognizing and managing emotions (e.g., emotional intelligence)?
4. Relationships. What specific changes have employees experienced through Brain Education training in their relationships?

5. Relationships. What specific changes have employees experienced through Brain Education training in relation to social behaviors (e.g., empathy, compassion, and altruism)?

6. Well-being. What specific changes have employees experienced through Brain Education training in relation to their overall well-being?

**Research Methods and Data Collection Procedures**

This qualitative phenomenological study utilized semi-structured interviews to collect data from employees. The interview instrument consisted of pre-determined interview questions where wording and sequence of questions were determined in advance, reviewed by an expert panel, and pilot tested prior to starting the study. All participants were asked the same questions, although probing questions and follow-up questions were asked as needed for further details or clarification of responses. Leaders with direct reports were asked one additional question.

All interviews were audio-recorded using a digital recorder and transcribed by a professional transcriptionist. The length of interviews ranged from 51 minutes to 2 hours 24 minutes with the average interview time of 1 hour 28 minutes. Of the 21 interviews, 19 interviews took place in-person and two interviews took place via video conferencing. Transcribed data were reviewed by the researcher for accuracy and provided to participants for the opportunity to review for accuracy and make any changes to ensure their words matched what they intended. Twenty participants (95%) responded confirming the accuracy or making minor changes to the transcript.
Interrater reliability was used to ensure reliability of coding decisions. An independent coder reviewed and coded 10% of the data with 93% agreement. To further enhance reliability, site triangulation was used as participants were from four different Body & Brain center locations. Six participants were from one location in northern California (Location 1, n=6) and 15 participants were from three different locations in southern California (Location 2, n=9; Location 3, n=4; Location 4, n=2).

Population

The population for this study was employees in the United States who received Brain Education training. Employees were defined as adults over the age of 18 employed by an organization and paid for work performed. The target population for this study was employees trained in Brain Education for at least three months who worked for organizations that employed more than 20 people and were located in California.

Sample

Purposeful sampling was used to identify participants for this study. Participants were identified through Body & Brain centers in California where Brain Education was taught. The sample for this study was 21 employees who worked for 18 different organizations in California. Three employees were from one large California employer in three different locations. Names of organizations were not disclosed to maintain employee confidentiality. Sixteen people who expressed interest in participating in the study were not eligible (i.e., 10 worked for organizations with fewer than 20 people and 6 were retired). Employees of Body & Brain centers were not eligible to participate.
Demographic Data

The 21 employees who participated in this study had been practicing Brain Education for an average of 7 years, with the least amount of training being seven months and the most being 17 years. The average age of employees was 51 and the average age employees started practicing Brain Education was 44. Employees initially joined Body & Brain centers where Brain Education is taught for various reasons; however, five primary reasons were included: (1) to be more active or learn meditation or tai chi; (2) for stress management, anxiety, or trouble sleeping; (3) not feeling well or felt something was missing in their life; (4) it was recommended; and (5) for healing or spiritual growth.

Of the 21 employees, 18 were asked how long they had practiced Brain Education before they noticed any changes; 11 responded less than a week (e.g., immediately, first class, few classes), three responded within two to four weeks, and four responded within two to three months. Several employees described changes occurred in stages, where they immediately felt better following classes, but more changes occurred as their self-awareness increased. Table 3 describes participants’ experiences in Brain Education.
Table 3

Demographic Description of Participant’s Experience in Brain Education

<table>
<thead>
<tr>
<th>Brain Education Participant Description</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of years practicing Brain Education</td>
<td>7</td>
</tr>
<tr>
<td>Total number of years practicing Brain Education</td>
<td></td>
</tr>
<tr>
<td>≤1 year</td>
<td>4</td>
</tr>
<tr>
<td>2-4 years</td>
<td>6</td>
</tr>
<tr>
<td>5-10 years</td>
<td>6</td>
</tr>
<tr>
<td>11-17 years</td>
<td>5</td>
</tr>
<tr>
<td>Average age of employees</td>
<td>51</td>
</tr>
<tr>
<td>Average age of employees when started practicing Brain Education</td>
<td>44</td>
</tr>
<tr>
<td>Age when started practicing Brain Education</td>
<td></td>
</tr>
<tr>
<td>20-29 years</td>
<td>1</td>
</tr>
<tr>
<td>30-39 years</td>
<td>6</td>
</tr>
<tr>
<td>40-49 years</td>
<td>8</td>
</tr>
<tr>
<td>50-59 years</td>
<td>6</td>
</tr>
<tr>
<td>Length of time practicing Brain Education before changes noticed?</td>
<td></td>
</tr>
<tr>
<td>≤1 week</td>
<td>11</td>
</tr>
<tr>
<td>2-4 weeks</td>
<td>3</td>
</tr>
<tr>
<td>5-12 weeks</td>
<td>4</td>
</tr>
<tr>
<td>Didn’t ask</td>
<td>3</td>
</tr>
<tr>
<td>Primary reason for initially joining a Body &amp; Brain center</td>
<td></td>
</tr>
<tr>
<td>Be more active, learn meditation or tai chi</td>
<td>7</td>
</tr>
<tr>
<td>Stress management, anxiety, trouble sleeping</td>
<td>4</td>
</tr>
<tr>
<td>Not feeling well, felt something was missing</td>
<td>4</td>
</tr>
<tr>
<td>Recommendation from someone</td>
<td>4</td>
</tr>
<tr>
<td>Healing, spiritual growth</td>
<td>2</td>
</tr>
</tbody>
</table>

Note. n = 21

The average age of employees was 51 years and included 16 females and 5 males. The education level of employees varied with most employees having a bachelor’s degree (n=13) or master’s degree (n=4). Employees represented a variety of races/ethnicities, including Asian (self-identification as Chinese, Chinese American, Filipina, Chinese-
Asian, Asian-Taiwanese), Black or African American, Hispanic (self-identification as Latina, Mexican, Hispanic), White or European American, and two or more races.

Employees were from 12 different industries with the most being in healthcare (n=5), followed by education (n=3). Most employees (n=18) worked for organizations with more than 1,000 employees. Employees were at various levels in the organizations including professional (e.g., engineer, nurse, physician assistant, military, teacher), technician/specialist/associate/coordinator, supervisor, manager, and director/associate vice president. Six employees shared their religious or cultural beliefs during the interview process and identified themselves as Catholic (n=2), Christian (n=1), Muslim (n=1), Buddhist (n=1), and Sufi (n=1). Two employees stated they had no religious beliefs. Table 4 includes a detailed demographic description of employees who participated in this study.

Table 4

Demographic Description of Participants

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average current age</td>
<td>51</td>
</tr>
<tr>
<td>30-39 years</td>
<td>5</td>
</tr>
<tr>
<td>40-49 years</td>
<td>4</td>
</tr>
<tr>
<td>50-59 years</td>
<td>6</td>
</tr>
<tr>
<td>60-65 years</td>
<td>6</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>16</td>
</tr>
<tr>
<td>Male</td>
<td>5</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>2</td>
</tr>
<tr>
<td>Trade school</td>
<td>1</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>13</td>
</tr>
<tr>
<td>Master’s</td>
<td>4</td>
</tr>
</tbody>
</table>
Doctorate 1

Race/Ethnicity

Asian 8
Black or African American 1
Hispanic 3
White or European American 7
Two or more races 2

Number of employees in organization

20-99 employees 1
100-499 employees 1
500-999 employees 1
1000+ employees 18

Level in the organization

Professional 6
Technician/Specialist/Associate/Coordinator 5
Supervisor 2
Manager 5
Director/Associate Vice President 3

Industry

Beauty 1
Construction 2
Education 3
Entertainment 1
Financial 1
Food & Beverage 1
Government 1
Healthcare 5
Information Technology 2
Manufacturing 2
Military 1
Transportation 1

Note. n = 21

Presentation and Analysis of Data

In this section, data from employees who participated in this study are presented to answer the one central research question and six sub-questions. Data are organized by
the four research areas: stress management (Research Sub-Question 1), work performance (Research Sub-Questions 2 and 3), relationships (Research Sub-Questions 4 and 5), and well-being (Research Sub-Question 6). Each section includes a table of major themes and associated codes that emerged and a narrative description. Example quotations for each major theme are included in Appendices I-M. An analysis of the themes resulted in major findings summarized at the end of the chapter.

**Overview of the Major Themes**

The central question of this study was: *What are the lived experiences of employees, who have received Brain Education training, in the areas of stress management, work performance, relationships, and well-being?* Analysis of the data from employees found 29 major themes with 76 associated codes. An additional 23 codes were assigned but were not considered prevalent due to the low number of responses. Table 5 presents an overview of the 29 major themes that emerged.
Table 5

*Overview of the Major Themes*

<table>
<thead>
<tr>
<th>Research Area</th>
<th>Major Themes</th>
<th>Themes</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Management</td>
<td>Increased ability to effectively manage stress (n=21)</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Increased self-awareness, understanding energy principles (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased emotional control and stability (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased happiness, optimism, positivity (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased calmness, clear mind (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduced symptoms of stress (n=19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Performance</td>
<td>Increased emotional intelligence (n=21)</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Improved cognition (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved decision-making abilities (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased ability to manage change (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved focus and concentration (n=20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased productivity (n=20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved problem-solving abilities (n=18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved creativity, expression of creativity (n=17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased organizational citizenship (n=16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased ability to meet organizational goals (n=16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enhanced leadership abilities (n=7 of 7)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationships</td>
<td>Improved relationships (n=21)</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Improved communication, self-expression (n=20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased empathy, ability to manage empathetic abilities (n=20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased compassion (n=20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased altruism (n=19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved relationship with self (n=19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well-being</td>
<td>Increased well-being (n=21)</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Increased self-confidence (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased energy, vitality (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved sleep (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved exercise (n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved eating (n=17)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* n = number of participants that identified theme. *a*Seven participants had direct reports and were asked one additional question regarding leadership.
Findings for Stress Management

Stress management included Research Sub-Question 1: What specific changes have employees experienced through Brain Education training in relation to managing stress? Table 6 presents the six major themes and 24 codes that emerged.

Table 6

<table>
<thead>
<tr>
<th>Major Themes</th>
<th>Codes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased ability to effectively manage stress (100%)</td>
<td>Use of tools</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Recognize stress and change energy state</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Confidence in ability to manage stress</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Positive perception of stress</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Prevent burnout</td>
<td>29</td>
</tr>
<tr>
<td>Increased self-awareness, understanding of energy</td>
<td>Self-awareness</td>
<td>100</td>
</tr>
<tr>
<td>principles (100%)</td>
<td>Understanding principles and language of energy</td>
<td>90</td>
</tr>
<tr>
<td>Increased emotional control and stability (100%)</td>
<td>Recognize and control emotions</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Acceptance, non-judgment</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Recognition and reduction of victim mentality</td>
<td>43</td>
</tr>
<tr>
<td>Increased positive emotions (100%)</td>
<td>Happier, joyful, peace, love</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Positivity, openness</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Optimism</td>
<td>52</td>
</tr>
<tr>
<td>Increased calmness, clear mind (100%)</td>
<td>Calm and relaxed, clear mind</td>
<td>100</td>
</tr>
<tr>
<td>Reduced symptoms of stress (90%)</td>
<td>Reduced tension</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Reduced tiredness, fatigue</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Reduced anxiety</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Reduced pain</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Reduced depression</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Reduced, eliminated medications</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Eliminated cigarette smoking</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Improved health</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Improved digestion</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Reduced alcohol consumption</td>
<td>10</td>
</tr>
</tbody>
</table>

Note. n = 21
Increased Ability to Effectively Manage Stress

All employees stated Brain Education increased their ability to effectively manage stress. Five codes emerged within this theme, including use of tools (100%), ability to recognize stress and change own energy state (100%), confidence in ability to manage stress (95%), positive perception of stress (29%), and prevent burnout (29%). Employees described having a variety of tools to help them manage stress and being able to physically experience changes in their body using the tools increased their confidence in being able to effectively manage their stress.

Tools. All employees stated they learned many tools in Brain Education; however, use of 28 various tools were described throughout the study in helping manage stress. The 12 tools most often mentioned were: breathing, meridian stretching, meditation (e.g., Jigam, bowing, etc.), tapping (e.g., Dahnjon tapping – tapping energy center in lower abdomen, toe-tapping, full-body tapping), intestinal exercises, mindful exercises (e.g., 1-min exercise, jangsaeng walking – mindful walking, push-ups, sit-ups, squats, etc.), energy circulation postures, body sensing, visualization, wooden pillow exercises, Belly Button Healing, and Brain Wave Vibration (a description of tools can be found in I. Lee, 2009, 2015, 2016a, 2016b).

Ability to recognize stress and change energy state. Employees described their experience of stress as not knowing and not understanding what they were feeling. Employees reported once they could recognize stress and understand what was happening energetically in their body, they were able to utilize the tools and energy principles learned in Brain Education to change their energy state. Some employees described being skeptical at first, but reported once they experienced changes in their own body and
could feel their energy shift, they were more open to continue training and learn new tools. One employee shared, “In the beginning, I had lots of skepticism, doubts. But after experiencing my neck healing event, this is where I said, ‘Okay, there’s something more to this. I need to learn more.’

**Confidence in ability to manage stress.** Employees reported as they learned various tools to both manage stress and understand how stress manifests itself in their body, their confidence in managing stress increased. Most employees (95%) described an increase in confidence in managing stress. Some descriptions employees used were “empowered,” “captain of my ship,” “I couldn’t control it before,” and “I know how to manage my stress.” Employees also began to reappraise bodily responses to stress, such as pain. Employees described understanding pain could be from an energetic origin, such as emotions versus an anatomical or physiological origin, helped them release pain and decrease or eliminate medications for pain (e.g., Advil, Motrin, Naprosyn). As employees gained experience in managing stress and understanding the energy flow in their body confidence in managing their own health and well-being increased.

**Positive perception of stress.** Some employees (29%) described changing their perception of stress from being negative to positive. Employees described moving from being a “victim of stress” to perceiving stress as a challenge and an opportunity to learn, grow, and expand. One employee shared,

> It’s the feeling of calmness and feeling of not being a victim, rather whatever happens, there could be growth in it… And when I look at it that way, I don’t feel miserable or feel like a victim anymore. Rather than, it is just a challenge and hey, it could be fun actually. It could be something
exciting. If I pick the next steps, something exciting could actually happen.

**Prevent burnout.** Some employees (29%) stated Brain Education helped them prevent burnout. One employee shared,

Early this year, I was putting in over 100 hours a week. Who, in a normal person, would be able to do all that? Without this training, I would not have survived. I would have walked off and quit for being burnt out.

Two employees shared burnout was a common topic in the healthcare field. One participant described the job itself was stressful dealing with life and death situations, but also caring for sick people and picking up on their energy. Understanding how to manage stress and patient energy, and being conscious of interactions helped them prevent burnout.

**Increased Self-Awareness, Understanding of Energy Principles**

Self-awareness, defined by I. Lee (2016a) as “attention to carefully observe all phenomena that arise within us,” emerged as the number one key element to all other themes (p. 95). Employees described self-awareness as critical to improvements in all other research areas, including stress management, work performance, relationships, and well-being. All employees (100%) stated Brain Education helped increase their self-awareness. Employees (90%) also described various energy principles learned through Brain Education helped them manage their stress and emotions, and improve their relationships and well-being.

**Self-awareness.** Employees described self-awareness as critical to managing stress, maintaining presence, improving EI and work performance, developing
relationships, increasing empathy and compassion, building altruism, improving communication, increasing happiness, providing meaning and life-purpose, building self-confidence, and improving well-being. Phrases used to describe self-awareness included, “stress is happening but it’s not me,” “listen to my body,” “watch myself,” “heard my inner voice,” “observer,” “be in your presence,” “driver of who I am,” and “connecting with myself.” Employees described their ability to separate themselves from the stress, the emotion, the body, or the situation allowed them to have greater control over their experience. One employee described the importance of self-awareness as, “Self-awareness is everything to be in charge of myself. Know myself well. Know my emotions well and know my reactions well.” Self-awareness was also described as feeling empowered to heal oneself. Healing was defined by Hawkins (2004) as bringing “about an absolute removal of the cause of condition” versus treating, which was defined as a “mere recovery from symptoms” (p. 57).

**Principles and language of energy.** Most employees (90%) described various energy principles learned through Brain Education as foundational to learning to manage their stress, emotions, relationships, and well-being. The top five energy principles stated most often were:

- My emotions are not me but mine; my thoughts are not me but mine.
- Zero-point
- Water Up, Fire Down
- Where the mind goes, energy follows
- Hong Ik (to widely benefit all)
The principle of my emotions are not me but mine; my thoughts are not me but mine was cited most often as the guiding principle that helped employees gain control over their emotions and thought processes. Employees described this principle as the self being separate from their thoughts and emotions. For example, if they were sad, they could stay in the sadness, but they could also choose to change their emotion. Employees described changing their emotions through moving their body (e.g., using various Brain Education tools, taking a walk, exercising), meditating, thinking of what they were grateful for, or having an intention to feel better or be happy.

The second most described Brain Education principle was zero-point, which related to self-awareness and the concept of the self or “Who am I?” Employees described zero-point as the place of unchanging essence within themselves. They said it as the self beyond thoughts, emotions, beliefs, and external circumstances. Employees discovered the self through Brain Education and referred to the self using phrases such as, “true self,” “authentic self,” “inner voice,” “connection to me,” “soul,” and “true essence.” The principle of zero-point was described by employees as helping them remain calm and peaceful within themselves regardless of external circumstances.

The third principle described by employees was water up fire down. Employees described it as the proper energy flow in the body where fire energy moves down to the lower abdomen making it warm and flexible, heating the kidneys which enables water energy to travel up the spine to create a cool brain. Employees described recognizing when their energy was flowing properly in their body or had reversed where the fire energy moved to the brain making them hot-headed, which caused mind fogginess, headaches, and the inability to manage thoughts and emotions. Being able to recognize
their energy flow helped them use tools to manage their energy to clear their minds,
stabilize their emotions, and build more energy in the lower abdomen to reduce tiredness.

The fourth principle mentioned was where the mind goes, energy follows, or what
people focus on creates their experience. This principle describes why it is important to
become consciously aware of one’s attention, or be mindful. Employees described
becoming more consciously aware of themselves and their thoughts and emotions
through various Brain Education practices and where they were directing their attention.
They consciously set intentions and goals to direct their attention on what they wanted
versus ruminating on things they did not want or things in the past.

The fifth principle described was Hong Ik, which means to widely benefit all.
Employees described this principle as helping them expand their awareness beyond what
was good for them or their family or company, but what was good for everyone.
Employees often used the word oneness to describe no separation between them and
others. Employees stated when they were able to feel oneness, then implementing the
Hong Ik principle was a natural response. The principle of Hong Ik and oneness
appeared to contribute to improved relationships and social behaviors, including
empathy, compassion, and altruism.

**Increased Emotional Control and Stability**

After self-awareness, increased emotional control and stability was cited as the
most impactful element of Brain Education. All employees (100%) stated Brain
Education increased their emotional control and stability. Emotional control decreased
rumination, helped create more harmonious relationships, increased productivity, and
increased well-being. Emotional control and stability were also major components of EI.
Acceptance, non-judgment. Acceptance and non-judgment of emotions, people, and situations emerged from 86% of employees as an element of emotional control and stability. Employees described their ability to accept things as they were, enabled their emotions to pass much faster and see the situation more clearly. The speed at which employees accepted things decreased their negative emotions and stress, which allowed space for positive emotions to be experienced and clarity to see what the next step was in the situation.

Recognition and reduction of victim mentality. Employees (43%) stated Brain Education helped them see their victim mentality and how they would blame others for their situation. Phrases employees used to describe their victim mentality included “why me,” “you made me feel this way,” “this happened to me,” and “I felt sorry for myself.” Employees shared seeing their mentality and how it affected them, and accepting responsibility for their mental patterns, enabled them to more easily choose emotions that empowered them.

Releasing negative emotional patterns from the past. Another key element of increased emotional control and stability described by employees was letting go of negative emotional patterns from their past, particularly childhood, that were affecting them in present time. This was described as a pivotal step that increased self-awareness, emotional control and stability, EI, and expanded their capacity for experiencing positive emotions. Employees described seeing, accepting, and releasing their negative emotional patterns, and realizing their past had affected them in present time, helped them gain more understanding and compassion for others. It also increased their capacity to be present with things that were uncomfortable.
Increased Positive Emotions

All employees (100%) stated Brain Education helped them become happier and described experiencing positive emotions more frequently, such as, love, joy, and peace. Employees also described being more positive and open (52%) and approaching life with more optimism (52%). Employees described being happier and experiencing positive emotions more often increased their overall well-being.

Increased Calmness, Clear Mind

All employees (100%) stated they were calmer, more relaxed, and had a clearer mind. Being calmer and more relaxed was associated with less stress, the ability to see situations more clearly, the ability to manage emotions more effectively, the ability to respond calmly in stressful situations, ease of meeting goals, increased ability to focus, and greater productivity. One employee stated, “If you're more relaxed, then you can be productive and focus better.”

Reduced Symptoms of Stress

Most employees (90%) stated they had reduced symptoms of stress. Reduced stress symptoms included reduced: tension (52%), tiredness and fatigue (52%), anxiety (52%), pain (33%), depression (24%), medications (19%), cigarette smoking (14%), and alcohol consumption (10%). A few participants also described improved health (14%) and digestion (10%).

Appendix I includes example quotations from each of the six major themes that emerged from employee responses to Research Sub-Question 1.
Findings for Work Performance

Work performance included Research Sub-Question 2 (What specific changes have employees experienced through Brain Education training in relation to work performance?) and Research Sub-Question 3 (What specific changes have employees experienced through Brain Education training in relation to recognizing and managing emotions)?

All employees (100%) stated that Brain Education helped them improve their work performance. All employees (100%) also reported increased ability to effectively manage stress, increased self-awareness and understanding energy principles, increased emotional control and stability, increased calmness and clear mindedness, and increased positive emotions contributed to their improved work performance. Table 7 presents the 11 major themes and 20 codes that emerged from employee responses to Research Sub-Questions 2 and 3.
Table 7

*Major Themes and Codes for Work Performance*

<table>
<thead>
<tr>
<th>Major Themes</th>
<th>Codes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased EI (100%)</td>
<td>Recognize and understand energy of emotions</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Emotional control and stability</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Express emotions effectively</td>
<td>86</td>
</tr>
<tr>
<td>Improved cognition (100%)</td>
<td>Increased metacognition</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Thought processes clearer, expanded awareness</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Flexible mind, reduced rigidity</td>
<td>57</td>
</tr>
<tr>
<td>Improved decision-making abilities (100%)</td>
<td>Improved decision-making</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Increased confidence in making decisions</td>
<td>29</td>
</tr>
<tr>
<td>Increased ability to manage change (100%)</td>
<td>Increased ability to manage change</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Openness, positive view to change</td>
<td>48</td>
</tr>
<tr>
<td>Improved focus and concentration (95%)</td>
<td>Improved focus and concentration</td>
<td>95</td>
</tr>
<tr>
<td>Increased productivity (95%)</td>
<td>More productive</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Increased time management</td>
<td>33</td>
</tr>
<tr>
<td>Improved problem-solving abilities (86%)</td>
<td>Improved problem-solving abilities</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Increased confidence in problem-solving</td>
<td>38</td>
</tr>
<tr>
<td>Increased creativity, expression of creativity</td>
<td>New ideas, creative solutions</td>
<td>81</td>
</tr>
<tr>
<td>(81%)</td>
<td>Increased confidence in creative abilities, expressing creativity</td>
<td>33</td>
</tr>
<tr>
<td>Increased organizational citizenship (81%)</td>
<td>Citizenship behaviors</td>
<td>81</td>
</tr>
<tr>
<td>Increased ability to meet organizational goals (81%)</td>
<td>Ability to meet organizational goals</td>
<td>81</td>
</tr>
<tr>
<td>Enhanced leadership abilities (100%)a</td>
<td>Enhanced leadership abilities</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. n = 21. aSeven employees had direct reports and were asked one additional question regarding leadership.*
Increased Emotional Intelligence

All employees (100%) described how Brain Education helped increase their EI. Three codes emerged within this theme, including recognizing emotions and understanding the energy of emotions (100%), emotional control and stability (100%), and effective expression of emotions (86%). These categories aligned with the definition of EI by Traue et al. (2016) related to one’s “ability to recognize subjective feelings, to manage emotions, to transform emotions into expressiveness and action, to react empathetically, and to shape relationships” (p. 239). Three employees stated they could recognize their emotions prior to Brain Education; however, understanding the energy of emotions helped increase their EI. Employees described EI while interacting with others and developing relationships was a key element to their improved work performance. Employees described how EI helped them improve work performance through increased understanding and improved interactions with their co-workers, boss, customers, patients, and students.

Improved Cognition

All employees (100%) described how Brain Education improved their cognition. Three codes emerged within this theme, including increased metacognition (100%), clearer thought processes and expanded awareness (90%), and reduced mind rigidity (57%). Employees described how managing their stress and emotions helped them think more clearly, expanded their awareness to new ideas and available resources to solve problems, and were more open and flexible to different approaches. One employee shared,
Every day I’m firefighting with new issues, things I never dealt with before but have to go figure it out. So, this is where I’m more flexible… If plan A didn’t work, okay, we’ll switch to plan B. What is plan B? Oh, we’ll make it up right now on the spot.

**Improved Decision-Making Abilities**

All employees (100%) stated Brain Education helped improve their ability to make decisions. The reasons given for better decision-making included: expanded awareness and increased clarity of the whole picture, less rumination about the decision once it was made, less procrastinating or avoiding making decisions, less stress about the outcome, and more consciousness of making win-win decisions.

Some employees also described increased confidence in making decisions (29%). They explained this as having increased trust in themselves, increased feelings of worthiness, and a more positive attitude and approach. Three employees (14%) described the increased ability to make intuitive decisions based on gut feelings.

**Increased Ability to Manage Change**

All employees (100%) stated Brain Education increased their ability to manage change more effectively. Employees (48%) also described they had more openness toward and a positive view of change. Employees described accepting change more easily versus resisting, going with the flow, trying to control situations less, developing less attachment to the status quo, becoming more comfortable with discomfort, viewing change as less scary, not worrying about change, and gaining confidence in handling challenges that arise. Some employees mentioned the principle *change is constant* and how Brain Education taught change is good as it increases the flexibility and
neuroplasticity of the brain. This helped them accept change more easily. One employee shared, “Going with the flow. Change is constant. And kind of like, we can have a plan, but if it doesn’t come through, then we’ll be flexible. We’ll switch and take another path.”

**Improved Focus and Concentration**

Most employees (95%) stated Brain Education helped improve their ability to focus and concentrate due to an increased ability to manage distractions, refocus attention quicker when distracted, feel more relaxed from managing stress, maintain attention on the task at hand, and refresh energy when tired (e.g., breathe, stretch, walk). Two employees stated increased focus and concentration helped prevent workplace injury.

**Increased Productivity**

Most employees (95%) stated Brain Education helped them increase their productivity because of an increased ability to effectively manage time, process information faster, better prioritize, be more organized, spend less time managing emotional upsets, higher self-confidence, less stress, more comfort asking for help, better focus, expanded awareness of what needed to be done, and increased ability to work as a team. One employee shared, “Because I’m more focused and more thoughtful about everything, I feel like the brain’s sharper, so I can be organized and I don’t waste time.”

**Improved Problem-Solving Abilities**

Most employees (86%) stated Brain Education helped them improve their problem-solving abilities, specifically mentioning improved ability to think outside the box for creative solutions, have a more positive approach to the problem, identify the actual problem and root of the problem, see the details, step back from a problem and
approach it from different perspectives, know when to take a break from a problem to refresh energy, have more patience, and stay with the problem when they did not like something. Some employees (38%) stated increased confidence in themselves also helped improve their problem-solving abilities.

**Increased Creativity, Expression of Creativity**

Most employees (81%) stated Brain Education helped them increase their creativity or expression of creativity (i.e., employees previously had creative ideas but would not share or act on them). Employees explained this was because of an increased ability to think outside the box, expanded awareness, persistence and follow-through on bringing ideas to fruition, openness to sharing ideas with others, openness to try new ideas, improved ability to step back from overly analyzing and just being creative, improved ability to see a workable solution versus trying to make things as elaborate as possible, and improved ability to see the whole picture. Several employees (33%) believed they were not creative from an incident that happened in their childhood, but Brain Education helped them realize they were creative and increased their confidence in being creative.

**Increased Organizational Citizenship**

Most employees (81%) described increased organizational citizenship behaviors. Employees described helping other departments with workload, encouraging co-workers to be positive during organizational changes (e.g., restructuring, management changes, acquisitions), and sharing what they learned in Brain Education to help their co-workers manage stress. Eleven employees (52%) stated they taught Brain Education methods in their workplace and three employees (14%) stated their boss asked them to lead Brain
Education training methods (e.g., stretching, tapping, mindfulness exercises) before meetings or for employee stretch breaks.

**Increased Ability to Meet Organizational Goals**

Seventeen employees (81%) stated Brain Education increased their ability to meet organizational goals. One employee did not have formal organizational goals and two employees had to meet organizational goals to keep their job, so they met their organizational goals but often sacrificed their well-being by taking work home or working late. Employees reported an increased ability to break down big goals into step-by-step actions, track progress, prioritize what is important, relate to others and develop relationships, communicate a vision to others, and accept organizational goals and direction from upper management, which decreased stress. Employees also talked about approaching goals with more positivity, being calmer and more focused, and managing emotions helped them meet their goals.

**Enhanced Leadership Abilities**

Seven employees with direct reports were asked one additional question regarding leadership: *Do you feel Brain Education influenced your leadership style or behaviors?* All seven employees (100%) described increased leadership abilities in addition to what they shared throughout the study. Employees indicated Brain Education increased their leadership abilities through coaching others more effectively and performance management (71%), making decisions based on the collective good (57%), gaining confidence (43%), and making more intuitive decisions (29%). One employee shared,

It’s probably influenced me in that I’m able to coach people more effectively. As a manager, you deal with absorbing some of the emotions
of the people that work for you and it’s helped me. I can absorb it, accept it, acknowledge it, and then I can coach them. It also helps you be a better listener.

Employees also stated that increased EI, improved cognition, improved decision-making and problem-solving abilities, increased creativity, and improved communication helped them increase their leadership abilities.

Appendix J includes example quotations from each of the 11 major themes that emerged from employee responses to Research Sub-Questions 2 and 3. Appendix K presents example quotations for enhanced leadership abilities.

**Findings for Relationships**

Relationships included Research Sub-Question 4 (*What specific changes have employees experienced through Brain Education training in their relationships?*) and Research Sub-Question 5 (*What specific changes have employees experienced through Brain Education in relation to social behaviors?*) Table 8 presents the six major themes and 14 codes that emerged from employee responses to Research Sub-Questions 4 and 5.
Table 8

**Major Themes and Codes for Relationships**

<table>
<thead>
<tr>
<th>Major Themes</th>
<th>Codes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved relationships (100%)</td>
<td>Positivity and care for others</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>More thoughtful interactions and awareness of impact on others</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Improved work relationships (e.g., boss, coworkers, customers, patients, students, etc.)</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Improved teamwork</td>
<td>93</td>
</tr>
<tr>
<td>Improved communication and self-expression (95%)</td>
<td>Increased ability to express self</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Ability to sense what is not said</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>More open, honest, forthcoming with information</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Improved listening</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Increased ability to have difficult conversations</td>
<td>24</td>
</tr>
<tr>
<td>Increased empathy, ability to manage empathetic abilities (95%)</td>
<td>Increased empathy</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Increased ability to manage empathetic abilities</td>
<td>52</td>
</tr>
<tr>
<td>Increased compassion (95%)</td>
<td>Increased compassion</td>
<td>95</td>
</tr>
<tr>
<td>Increased altruism (90%)</td>
<td>Increased altruism</td>
<td>90</td>
</tr>
<tr>
<td>Improved relationship with self (90%)</td>
<td>Improved relationship with self, self-care, self-management</td>
<td>90</td>
</tr>
</tbody>
</table>

*Note. n = 21. *Of the 21 employees, 14 employees described being part of a team environment, and 13 employees described improved teamwork (93%).

**Improved Relationships**

All employees (100%) described improved relationships. Four codes emerged within this theme: positivity and care for others (100%), more thoughtful interactions and awareness of impact on others (95%), improved work relationships (95%), and improved teamwork (93%).

**Positivity and care for others.** All employees (100%) described more positivity and caring for others in their relationships or interactions. Employees described their
experiences as being more positive, caring, loving, respectful, friendly, nice, kind, gentle, nonjudgmental, and altruistic. One employee described, “I’m more connected to them, I’m more down to earth, I’m friendly, I’m open to talking to them better now.”

**More thoughtful interactions awareness of impact on others.** Most employees (95%) stated they were more thoughtful in their interactions with others and more aware of their impact on others. Employees described being able to watch their emotions and how they affected others. They reported being able to observe and see different ways of responding, having more positive intentions when interacting with others, and being more aware of how their communications might be perceived by others. Employees also described withdrawing from office gossip and drama.

**Improved work relationships.** Most employees (95%) described improved working relationships with bosses, coworkers, customers, patients, and students. Employees described being better able to relate to others, connect with others, and accept others. They were more open to others and felt a sense of oneness with others. One employee shared, “I think it [Brain Education] helps me a great amount in my work and my relationships with people at work as far as not thinking they are a separate entity, rather we are all working together to accomplish something.”

Employees also described improved personal relationships, including spouse, children, parents, and siblings. Employees described feeling a stronger connection, were better listeners, more patient and accepting, better able to handle tantrums with children, and happier.

**Improved teamwork.** Of the 21 employees interviewed, 14 described being part of a team environment and 13 described improved teamwork (93%). Reasons for
improved teamwork included an improved ability to see others’ perspectives, improved communication and personal expression, and decreased judgment of others. Employees also reported greater willingness to have difficult conversations, seeing others as not separate from themselves, being happier and more positive, and being more relaxed and calmer.

**Improved Communication and Self-Expression**

Most employees (95%) shared Brain Education helped improve their ability to communicate and express themselves. Five codes emerged within this theme: increased ability to express self (86%); ability to sense what’s not being said (52%); more open, honest, and forthcoming with information (29%); improved listening (24%); and increased ability to have difficult conversations (24%).

**Increased ability to express self.** Employees (86%) described an increased ability to express themselves, which included being able to talk to others easier, having clearer thought processes, being mindful of words chosen, spent less time thinking about “What I’m going to say” or “Did I say something wrong,” being more straightforward, staying focused on the conversation versus being distracted (e.g., emotions, the other person’s reaction, wandering thoughts), gaining confidence in reaching out to others, and gaining confidence in sharing thoughts, emotions, and ideas.

**Ability to sense what is not said.** Employees (52%) described an increased ability to sense what was not being said. Employees described feeling or sensing if someone was genuine, if someone was telling the truth or not, what someone’s intentions or motivations were, what someone was going to say, and “what’s not being shown” in the situation. One employee shared, “You know who’s genuine, who’s not. You kind of
get a better sense of that.” Another employee shared, “Because I talk less [after Brain Education], I notice more of the things that are not being shown, like the intention. So, you pick up on that.”

**More open, honest, and forthcoming with information.** Some employees (29%) described being more open, honest, and forthcoming with information. One employee shared, “Sometimes if you’re stressed, you may not be as forthcoming and I think communication is very important. I would say it’s probably helped me be more forthcoming, a better communicator.”

**Improved listening.** Some employees (24%) described improved listening. Employees shared they focused on listening rather than thinking of what to say next, going through *what if* scenarios, or already having a reason to dismiss the other person.

**Increased ability to have difficult conversations.** Some employees (24%) described Brain Education increased their ability to have difficult conversations. Employees described this helped resolve conflict, improve teamwork, and build relationships, and for managers, it helped them engage easier in performance management discussions.

**Increased Empathy, Ability to Manage Empathetic Abilities**

Most employees (95%) stated Brain Education increased their empathy or ability to manage empathetic abilities. Two codes emerged within this theme, increased empathy (81%) and increased ability to manage empathetic abilities (52%). Three employees stated they empathized with others prior to Brain Education, two of which had formal training in counseling, but noted understanding the energy of emotions helped them better manage their empathy.
**Increased empathy.** Most employees (81%) described increased empathy and reported an improved ability to see others perspective, to “put themselves in the other person’s shoes,” and feel how other people felt. Employees described their self-awareness and ability to know and understand their own emotions helped them better understand others and see their perspectives.

**Ability to manage empathetic abilities.** Some employees (52%) described an increased ability to manage empathetic abilities. Employees described that as they started to open up, they became more sensitive to the energies of others. Employees described feeling another person’s emotions or pain in their own body. Employees also described not understanding what was happening at first, but as they learned more about energy and how to manage their own energy, they were able to better manage their empathy and energy exchange with others. They described learning techniques to help ground themselves, to not take on the emotions of others, and how to release emotions or pain out of their body.

**Increased Compassion**

Most employees (95%) stated Brain Education helped increase their compassion. Employees described more awareness to help others, care for others, and thought about others more often. Employees described that as their empathy and self-awareness increased, they naturally became more compassionate and altruistic as they could feel how other people felt. Employees also described having greater compassion for themselves.
Increased Altruism

Most employees (90%) stated Brain Education increased their altruistic behaviors. Employees described that prior to Brain Education, they wanted to help others and had an altruistic mindset; however, Brain Education helped them expand their awareness of others (e.g., beyond themselves, family, work, community, and country to the whole world) and have more intention to help others. Employees described doing more daily things for others (e.g., smiling, offering a kind word, giving a card or gift), sharing tools they learned in Brain Education with others to help them manage stress, and creating and pursuing an altruistic vision. Employees also described having a sense of oneness with others, being happy when seeing others happy, and realizing when they help others, they also help themselves.

Improved Relationship with Self

Most employees (90%) described Brain Education helped them improve their relationship with themselves. Employees described taking better care of themselves and taking responsibility for managing their own energy. Some phrases employees used were, “listen to myself,” “trust myself,” “forgive myself,” “love myself more,” “be good to myself,” “tell myself calming things,” “connect to me,” “take ownership and accountability for myself,” “focus on what is healthy for me,” “know when to take breaks for myself,” “do not judge myself,” and “do not be so hard on myself.”

Appendix L presents example quotations from each of the six major themes that emerged from employee responses to Research Sub-Questions 4 and 5.
Findings for Well-being

Well-being included Research Sub-Question 6: What specific changes have employees experienced through Brain Education in relation to their overall well-being?

Table 9 presents the six major themes and 18 codes that emerged from employee responses to Research Sub-Question 6.

Table 9

Major Themes and Codes for Well-being

<table>
<thead>
<tr>
<th>Major Themes</th>
<th>Codes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased well-being (100%)</td>
<td>Increased overall well-being</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Increased emotional well-being</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Increased spiritual well-being</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Increased physical well-being</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Increased mental well-being</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Increased social well-being</td>
<td>48</td>
</tr>
<tr>
<td>Increased self-confidence (100%)</td>
<td>Increased self-confidence</td>
<td>100</td>
</tr>
<tr>
<td>Increased energy, vitality (100%)</td>
<td>Increased energy, vitality</td>
<td>100</td>
</tr>
<tr>
<td>Improved sleep (100%)</td>
<td>Improved sleep</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Tools to relax for sleep</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Deeper quality of sleep</td>
<td>24</td>
</tr>
<tr>
<td>Improved exercise (100%)</td>
<td>Improved exercise</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Different types of exercises</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Mindful exercise</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>More consistent in exercising</td>
<td>24</td>
</tr>
<tr>
<td>Improved eating (81%)</td>
<td>Improved eating</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Mindful eating</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Healthier choices</td>
<td>57</td>
</tr>
</tbody>
</table>

Note. n = 21

Increased Well-Being

All employees (100%) stated Brain Education helped them increase their well-being. Employees described increased emotional well-being (100%), spiritual well-being (100%), physical well-being (95%), mental well-being (95%), and social well-being
(48%). One employee shared, “I am probably healthier. Overall healthier, happier, and more peaceful than I was previously to Brain Education.”

**Increased Self-Confidence**

All employees (100%) reported an increase in self-confidence. Employees described more confidence in managing stress, managing emotions, expressing themselves (e.g., thoughts, emotions, ideas), solving problems, being creative, making decisions, managing change, and leading others. Employees also described having more confidence in themselves, including their ability to heal themselves, self-worth, trust and belief in themselves, and acceptance of themselves. Employees described being less worried about being judged by others, less concerned about their job title, more participatory in conversations, and less personal isolation. Employees also described having more courage and confidence in their overall potential. Some employees described being confident before Brain Education, but admitted it was façade confidences with others versus genuine confidence in themselves.

**Increased Energy, Vitality**

All employees (100%) stated they had more energy and vitality. Employees described feeling overall more energetic, being more productive, wanting to do more things, having more energy than others their same age, being more conscious of where they were using their energy, knowing how to get themselves out of “slumps a lot better,” and being able to refresh energy when needed.

**Improved Sleep**

All employees (100%) stated Brain Education helped them improve their sleep. Employees (73%) described learning how to bring their energy down from their head
where they had many thoughts from the day through using some of the tools and techniques (e.g., toe-tapping, belly button healing, bowing, wooden pillow, sleeping tiger) helped them sleep better. Employees also described having better quality of sleep, deeper sleep, and less anxiety and stress helped them sleep.

**Improved Exercise**

All employees (100%) stated Brain Education helped improve their exercise. Employees (71%) described having various types of exercises was helpful. Employees also described being more mindful when exercising, enjoying exercise more, knowing the right time and right amount to exercise, realizing they did not have to do too much to receive the benefits, being more consistent in exercising, feeling empowered, and feeling more grateful for their body. Some employees also described being more flexible, having greater balance, and experiencing improved dexterity when typing.

**Improved Eating**

Most employees (81%) stated Brain Education helped them improve their eating habits. Employees (62%) described being more mindful when eating, eating more slowly, chewing food more, and being more mindful of the earth. Employees (57%) also described making healthier choices, naturally wanting more fruits and vegetables, naturally rejecting certain foods, and losing weight.

Appendix M presents example quotations from each of the six major themes that emerged from employee responses to Research Sub-Question 6.
Summary

The purpose of this qualitative phenomenological study was to identify, examine, and describe the effects of Brain Education on employee stress management, work performance, relationships, and well-being. This chapter presented the data summarizing the major themes and codes that emerged in each research area from interviews with employees. An analysis of the data found 10 major findings and 29 major themes with 76 associated codes. Findings for stress management laid the foundation for the effects of Brain Education in all other research areas, including work performance, relationships, and well-being.

Most employees (86%) stated they received positive feedback from others, who noticed changes in their attitudes, behaviors, and work performance when they started learning Brain Education. Feedback received from others included being more calm, happier, requested to work with others, approachable, relaxed, open to take on challenges, creative, productive, and focused. Others reported being more thoughtful in thinking of others, more responsible, and healthier. One employee shared, “They notice, they say, ‘Oh you look different, like more happier than before and more open to other people.’” Some employees reported improved annual performance reviews and one employee reported removal from a performance improvement plan to meeting all goals.

All employees described improvements in all research areas; however, the level of experience in Brain Education was recognized by the researcher through subtle responses to interview questions. The longer and more diligent (e.g., daily practice at home, weekly classes, special workshops) employees practiced Brain Education, the greater self-awareness they described. Those with more experience in Brain Education also
reported increased emotional control and stability, greater EI, expanded awareness, more positive emotions more often, increased self-expression, and increased self-confidence. Employees with more experience also described being more diligent about setting goals and living with more conscious intention.

**Major Findings**

Ten major findings emerged from analysis of the data. Four major findings for stress management, two major findings for work performance, one major finding for relationships, and three major findings for well-being. Table 10 summarizes the major findings from this study.
Table 10

Summary of the Major Findings

<table>
<thead>
<tr>
<th>Research Area</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>1. Brain Education increases employee ability to effectively manage stress through providing tools, teaching energy principles, and experiential learning through the body.</td>
</tr>
<tr>
<td>Management</td>
<td>2. Brain Education increases employee self-awareness, which is key to managing stress, EI, work performance, and well-being.</td>
</tr>
<tr>
<td></td>
<td>3. Brain Education increases employee happiness, optimism, and positive emotions, which improves work performance, relationships, and well-being.</td>
</tr>
<tr>
<td></td>
<td>4. Brain Education increases employee capacity for acceptance, which is the precursor to presence, flow, and positive emotions.</td>
</tr>
<tr>
<td>Work</td>
<td>5. Brain Education increases employee EI, which improves work performance, relationships, and well-being.</td>
</tr>
<tr>
<td>Performance</td>
<td>6. Brain Education improves employee work performance through increased focus and productivity, improved decision-making and problem-solving abilities, increased ability to manage change, increased creativity, and enhanced leadership abilities.</td>
</tr>
<tr>
<td>Relationships</td>
<td>7. Brain Education improves employee relationships, teamwork, and organizational citizenship behaviors through increased EI, improved communication, and increased social behaviors (e.g., empathy, compassion, altruism).</td>
</tr>
<tr>
<td>Well-being</td>
<td>8. Brain Education helps employees improve health-related behaviors, including sleeping, eating, and exercising, as well as smoking cessation and reduced alcohol consumption.</td>
</tr>
<tr>
<td></td>
<td>10. Brain Education helps employees increase their well-being, including physical, emotional, mental, social, and spiritual well-being.</td>
</tr>
</tbody>
</table>

Chapter V presents a final summary of the study, including major findings with associated current literature organized by research area, unexpected findings, and conclusions. The chapter also includes implications for action, recommendations for further research, and concluding remarks and reflections of the researcher.
CHAPTER V: FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter begins with a restatement of the purpose statement, research questions, methods, population, and sample. It then presents the major findings for the study organized by research area (i.e., stress management, work performance, relationships, and well-being), unexpected findings, and conclusions. This chapter then concludes with implications for action, recommendations for further research, and concluding remarks.

Purpose Statement

The purpose of this qualitative phenomenological study was to identify, examine, and describe the lived experience of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being.

Research Questions

This study was guided by one central question and six sub-questions. The central question of this study was: What are the lived experiences of employees who received Brain Education training in the areas of stress management, work performance, relationships, and well-being? The six sub-questions were:

1. Stress management. What specific changes have employees experienced through Brain Education training in relation to managing stress?
2. Work performance. What specific changes have employees experienced through Brain Education training in relation to work performance?
3. Work performance. What specific changes have employees experienced through Brain Education training in relation to recognizing and managing emotions (e.g., emotional intelligence)?
4. Relationships. What specific changes have employees experienced through Brain Education training in their relationships?

5. Relationships. What specific changes have employees experienced through Brain Education training in relation to social behaviors (e.g., empathy, compassion, and altruism)?

6. Well-being. What specific changes have employees experienced through Brain Education training in relation to their overall well-being?

**Research Methods and Data Collection Procedures**

This qualitative phenomenological study utilized semi-structured interviews to collect data from participants. The interview instrument consisted of pre-determined interview questions where wording and sequence of questions were determined in advance, reviewed by an expert panel, and pilot tested prior to starting the study. All participants were asked the same questions, although probing questions and follow-up questions were asked as needed for further details or clarification. Leaders with direct reports were asked one additional question.

All interviews were audio-recorded using a digital recorder and transcribed by a professional transcriptionist. The length of interviews ranged from 51 minutes to 2 hours 24 minutes with the average interview time of 1 hour 28 minutes. Of the 21 interviews, 19 interviews took place in person and two interviews took place via video conferencing. Transcribed data were reviewed by the researcher for accuracy and provided to participants for the opportunity to review for accuracy and make any changes to ensure their words matched what they intended. Twenty participants (95%) responded confirming accuracy or made minor changes to the transcript.
Interrater reliability was used to ensure reliability of coding decisions. An independent coder reviewed the data and coded 10% of the data with 93% agreement. To further enhance reliability, site triangulation was used as participants were from four different Body & Brain center locations. Six participants were from one center in northern California (Location 1, n=6) and 15 participants were from three centers in southern California (Location 2, n=9; Location 3, n=4; Location 4, n=2).

Population

The population for this study was employees in the United States who received Brain Education training. Employees were defined as adults over the age of 18 employed by an organization and paid for work performed. The target population for this study was employees trained in Brain Education for at least three months who work for organizations in California with more than 20 employees.

Sample

Purposeful sampling was used to identify participants for this study. Participants were identified through Body & Brain centers in California where Brain Education is taught. The sample for this study was 21 employees from 18 different employers. Three employees worked for one large California organization in three separate locations. Names of organizations where employees worked were not disclosed in this study to maintain employee confidentiality.

Major Findings

Ten major findings emerged from this research study that answered the central research question: What are the lived experiences of employees who received Brain Education training in the areas of stress management, work performance, relationships,
and well-being? Findings are presented by research area; however, most findings are inter-related and not specific to one research area.

**Stress Management Findings**

Four major findings were identified in relation to stress management.

**Major finding 1.** Brain Education increased employee ability to effectively manage stress by providing tools, teaching energy principles, and experiential learning through the body. All employees (100%) described being able to effectively manage stress helped in all other research areas, including work performance, relationships, and well-being.

All employees (100%) stated they learned many tools in Brain Education to help them manage stress, including breathing exercises, meridian stretching, meditation, mindfulness exercises, energy circulation postures, body sensing, visualization, Belly Button Healing, and Brain Wave Vibration (a description of tools can be found in I. Lee, 2009, 2015, 2016a, 2016b). Employees described their experience of stress as “not knowing” or “not understanding” what they were feeling. Employees reported once they recognized stress and understood what was happening energetically in their body, they could utilize the tools and energy principles learned in Brain Education to change their energy state. Being able to change their energy state helped them have more emotional control and stability which decreased rumination, helped create more harmonious relationships, increased productivity, and increased well-being. All employees (100%) also described being able to effectively manage their stress helped them be more calm and clear-minded and experience positive emotions more often.
Employees explained Brain Education was unique from other stress management activities because it was a holistic approach of mind-body-spirit integration (or physical, mental, emotional, and spiritual integration) through learning energy principles and experiencing changes in the body. Employees described experiencing all the components together had greater impact than experiencing only one by itself. For example, employees described exercising prior to Brain Education and gaining benefits from exercising; however, after Brain Education they described greater benefits through being mindful and aware of the energy flow in their body. Another example was employees explained meditation helped them calm their mind and emotions and connect with themselves, which increased their mental, emotional, and spiritual well-being.

**Major finding 2.** Brain Education increased self-awareness, which was key to managing stress, EI, work performance, and well-being. All employees (100%) stated Brain Education increased their self-awareness. Self-awareness also emerged as a key to improving all other research areas, including work performance, relationships, and well-being. Self-awareness allowed employees to be aware of their thoughts and emotions as they arose, which allowed them to self-regulate their emotional responses via cognitive control or reappraisal. One employee shared, “I think self-awareness helps you be happier because if you can recognize some emotions that are affecting you, you can be somewhat free from the tyranny of that emotion.”

**Major finding 3.** Brain Education increased employee happiness, optimism, and positive emotions, which improved work performance, relationships, and well-being. All employees (100%) reported Brain Education helped them become happier, have a more optimistic view of life, and experience positive emotions more often. One employee
shared, “Being in general, much happier, has helped me in everything. [What do you feel contributes to that happiness?] Being able to manage the stress and my emotions. And, having the tools to deal with things that come up.” Employees also described that as they became happier, others around them became happier, including co-workers, bosses, patients, and family members.

**Major finding 4.** Brain Education increased employee capacity for acceptance, which was the precursor to presence, flow, and positive emotions. Employees described acceptance of self, emotions, people, and situations decreased negative emotions, reduced stress, and allowed space for flow, positive emotions, and clarity to see the next steps in a situation. Employees shared being able to see their mentality (e.g., thoughts, emotions, beliefs) and how it affected them, and accept responsibility for their mental patterns, enabled them to more easily choose empowering thoughts and emotions.

**Work Performance Findings**

Two major findings were identified in relation to work performance.

**Major finding 5.** Brain Education increased employee EI, which improved work performance, relationships, and well-being. All employees (100%) reported increased EI. Employees described gaining a deeper level of self-awareness, recognizing their emotions, and understanding the energy of emotions helped increase their EI.

Employees described the first step to increased EI was being able to recognize and gain control over their emotions while alone. During this stage, employees learned the energy of emotions and gained a deeper level of self-awareness. Employees also described training to release emotions from their past, which increased their energetic understanding of emotions, empathy, and compassion for others. This step helped
prepare them to maintain awareness of what was happening in their body during interactions with others. When interacting with others, employees described understanding their own emotions, how the energy of emotions was exchanged with others, and compassion for others helped them better interact and express themselves. Helping employees understand the energy of emotions through their own body was a contributing factor to increased EI.

**Major finding 6.** Brain Education improved employee work performance through increased focus and productivity, improved decision-making and problem-solving abilities, increased ability to manage change, increased creativity, and enhanced leadership abilities. All employees (100%) stated Brain Education helped them improve their work performance. Employees described being able to effectively manage their stress helped them to relax, be calm, be more clear minded, and expanded their awareness, which also contributed to their improved work performance.

**Relationship Findings**

One major finding was identified for relationships.

**Major finding 7.** Brain Education improved employee relationships, teamwork, and organizational citizenship behaviors through increased EI, improved communication, and increased social behaviors (i.e., empathy, compassion, altruism). All employees (100%) reported improved relationships with others, including co-workers, bosses, customers, patients, and students. Employees (93%) also described improved teamwork. Employees described their relationships and teamwork improved due to their ability to see others’ perspectives, improved communication (listening and ability to express themselves), and being happier, more positive, and calmer. Employees also described
how Brain Education helped them expand their awareness of oneness (i.e., having no separation between themselves and others) and empathy, which naturally evoked behaviors of compassion, altruism, and organizational citizenship.

**Well-being Findings**

Three major findings were identified in relation to well-being.

**Major finding 8.** Brain Education helped employees improve health-related behaviors, including sleeping, eating, and exercising, as well as smoking cessation and reduced alcohol consumption. Employees described how effectively managing their stress helped them improve their health-related behaviors. All employees (100%) noted improvements in sleeping and exercising, and 81% of employees described improved eating habits. Employees also stated Brain Education helped them with smoking cessation (14%) and reduced alcohol consumption (10%).

**Major finding 9.** Brain Education increased employee self-confidence, which improved work performance, relationships, and well-being. All employees (100%) reported an increase in self-confidence. Employees described more confidence in managing stress, managing emotions, expressing themselves (e.g., thoughts, emotions, ideas), solving problems, being creative, making decisions, managing change, and leading others. Employees also described having more confidence in their overall potential, which led them to try new things and stick with things despite not being good in the beginning.

**Major finding 10.** Brain Education helped increase well-being, including physical, emotional, mental, social, and spiritual well-being. All employees (100%) described an increase in their overall well-being. Employees described increased well-
being in emotional (100%), spiritual (100%), physical (95%), mental (95%), and social (48%) aspects. All employees (100%) also described being happier, which is often referred to as well-being.

**Unexpected Findings**

The level of experience in Brain Education was recognized through employees’ subtle responses to interview questions. The longer and more diligent (e.g., daily practice at home, weekly classes, special workshops) employees practiced Brain Education, the greater self-awareness they described, as well as increased emotional control and stability, greater EI, expanded awareness, more positive emotions more often, increased self-expression, increased self-confidence, more diligence in setting goals, and more conscious intention.

One employee’s experience level in Brain Education, less than one year, was inconsistent with other responses of similar experience levels. This discrepancy was recognized 15 minutes into the interview and when probed for their experience level in energy principles, the employee had been learning about energy principles since high school through various other modalities, including the Dalai Lama, Shakti Gawain, and Deepak Chopra. When asked how Brain Education impacted this individual, the employee reported Brain Education offered other energy principles and newer techniques, such as Brain Wave Vibration and bowing, that solidified the teachings. This person also reported an evolution in their energy since taking Brain Education, which included greater awareness of energy and the increased ability to move energy through their body in a positive way.
Conclusions

Based on the findings of this study and previous research presented in the literature review, six main conclusions were derived regarding the effects of Brain Education in the workplace. Table 11 summarizes the six conclusions from this study followed by a narrative of each conclusion.

Table 11

Summary of the Conclusions

<table>
<thead>
<tr>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employee engagement, work performance, and organizational citizenship is increased through Brain Education training, resulting in increased organizational performance.</td>
</tr>
<tr>
<td>2. Employee work performance is improved through increased focus, productivity, problem-solving, creativity, and teamwork as a result of Brain Education training.</td>
</tr>
<tr>
<td>3. Employee ability to navigate organizational change is increased through Brain Education training.</td>
</tr>
<tr>
<td>4. Employee EI is increased through Brain Education training, which develops and improves work relationships resulting in increased performance.</td>
</tr>
<tr>
<td>5. Employee leadership skills are increased through Brain Education training, which contributes to optimal organizational functioning.</td>
</tr>
<tr>
<td>6. Employee ability to manage stress, health, and well-being is increased through Brain Education training, which prevents burnout, increases presenteeism, and lowers healthcare costs.</td>
</tr>
</tbody>
</table>

Conclusion 1

Employee engagement, work performance, and organizational citizenship is increased through Brain Education training, resulting in increased organizational performance. As employees learned to recognize and change their energy state through Brain Education tools and principles, they became more engaged at work, better able to perform, and better organizational citizens. The literature review found employee engagement (i.e., cognitive, emotional, and behavior energy directed at achieving organizational goals) is linked to business outcomes (e.g., profitability, productivity,
customer loyalty, quality, turnover, safety) and associated with substantially higher organizational performance (Harter et al., 2016). Employee engagement was also linked to the extent employees experienced positive emotions at work (Fredrickson, 2000b). Happier employees had better performance, were more productive, had better relationships with co-workers, and higher levels of organizational citizenship (Ajayi & Abimbola, 2013; Diener & Seligman, 2004). This study found Brain Education helped employees develop happiness as a skill and experience positive emotions more often.

Research showed improving the four human domains of cognition, emotion, behavior, and physiology is linked to improved workplace outcomes in the areas of performance, relationships, and well-being (Good et al., 2016). This study found all employees experienced improvements in cognition, emotion, behavior, and physiology resulting in improved workplace outcomes. A summary of employee improvements and the associated workplace outcomes discovered in this study is shown in Figure 11 following the conclusions.

**Conclusion 2**

Employee work performance is improved through increased focus, productivity, problem-solving, creativity, and teamwork as a result of Brain Education training. As employees learned to effectively manage their energy, including their stress and emotions, they were able to increase their focus, making them more productive, better able to solve problems, and more creative. Employees were able to free their mental capacity from rumination and shift their energy to experience positive emotions more often, which expanded their awareness to see the big picture and more possibilities, leading to increased creativity, problem-solving, and teamwork.
According to the literature, when individuals experience positive emotions, they broaden their scope of cognition, increase their ability to see the big picture, increase creative thinking, see more and unusual associations between divergent stimuli leading to creative problem solving, process and integrate more information, and increase their ability to become attuned to others (Fredrickson, 1998, 2004a, 2014; Isen, 1987; Isen et al., 1987; Isen et al., 1985; Isen et al., 1992; Johnson et al., 2010). Research also showed stress narrows attentional focus and in a team environment, this narrowing led to a loss of team perspective to a more individualistic perspective, negatively impacting team performance (Combs & Taylor, 1952; Driskell et al., 1999; Wells & Matthews, 1994). This study showed Brain Education helped employees effectively manage their stress and shift their energy to experience positive emotions more often, leading to broader attentional focus and the ability to maintain perspective on what was best for the team and organization versus only for themselves.

Conclusion 3

Employee ability to navigate organizational change is increased through Brain Education training. Employee acceptance of change, people, and situations decreased their negative emotions, reduced stress, and allowed space for flow, positive emotions, and clarity to see the next step in the situation, which increased their ability to navigate organizational change. Hawkins (2004) stated, “With acceptance there is emotional calm and perception is widened as denial is transcended. One now sees things without distortion and misinterpretation; the context of experience is expanded so that one is capable of ‘seeing the whole picture.” (p. 70).
Brain Education helped employees see their mentality (e.g., thoughts, emotions, beliefs) and how it affected them. Once employees accepted responsibility for their mental patterns, it enabled them to more easily choose emotions that empowered them, which helped them navigate change more easily. According to Hawkins (2004),

At this level [Acceptance] of awareness a major transformation takes place with the understanding that one is oneself the source and creator of the experience of one’s life. Taking such responsibility is distinctive of this degree of evolution, characterized by the capacity to live harmoniously with the forces of life. All people at levels below 200 tend to be powerless and see themselves as victims, at the mercy of life. This stems from a belief that the sources of one’s happiness or the cause of one’s problems is “out there”. An enormous jump, taking back one’s own power, is completed at this level [Acceptance] with the realization that the source of happiness is within oneself. At this more evolved stage, nothing “out there” has the capacity to make one happy, and love is not something that is given or taken away by another, but is created from within. (p. 69)

When employees were able to realize they were not victims of external circumstances, such as organizational changes, they were able to navigate organizational change with a positive attitude and encouraged co-workers to do the same. Employees embraced organizational change as opportunities to learn and grow, which increased their well-being and led to greater organizational citizenship.
Conclusion 4

Employee EI is increased through Brain Education training, which develops and improves work relationships resulting in increased work performance. As employee energy sensitivity, self-awareness, and understanding of the energy of emotions increased, so did their EI. A pivotal step in Brain Education training that contributed to increased EI was employee recognition and release of negative emotional patterns from the past that was affecting them in present time.

According to the literature, emotions can get stuck in the body when denied or repressed, and retained as memories in the brain, and at a cellular level of the neuropeptide receptors, shaping behaviors throughout childhood and as adults (Pert, 1997). When stored or blocked emotions are released, energy freely flows allowing the mind-body to heal naturally (Pert, 1997). This study found Brain Education helped employees release blocked emotions, which allowed them to heal naturally and increase their EI. After employees were able to recognize and release blocked emotions, they were able to better sense the emotions of others and have more compassion for others, which improved relationships and led to increased work performance.

Increased energy sensitivity and self-awareness also led to increased empathy and feelings of oneness (i.e., having no separation between themselves and others), which naturally evoked behaviors of compassion, altruism, and organizational citizenship. According to the literature, mirror neurons enable people to understand the feelings and mental states of others, which is the foundation of social behavior and positive relationships (Ramachandran, 2009; Iacoboni, 2009; Singer, 2009; Iacoboni et al., 1999). Ramachandran (2009) described how neurons literally connect people to one another and
there is no distinction between one person’s consciousness and another’s; rather, the only thing separating people from each other is their skin. As employees’ empathy and understanding of the energy exchange with others increased, they were able to more consciously develop and improve relationships with their coworkers, bosses, customers, patients, and students, which enabled increased work performance. Employees were also able to improve relationships with family members, which led to less rumination and increased focus at work.

**Conclusion 5**

Employee leadership skills are increased through Brain Education training, which contributes to optimal organizational functioning. Employees learned to recognize and change their energy state through Brain Education tools and principles, which helped them effectively manage their stress, emotions, and interactions with others, and increased organizational performance. As employees became more self-aware and more confident in their ability to change their own energy state from negative to positive, they became more aware of the effects of their energy on others and took more responsibility for managing their energy. Employees were also able to recognize the energy state of others and coach employees more effectively. Other leadership skills employees developed through Brain Education training that led to improved organizational functioning included increased EI, improved cognition, improved decision-making and problem-solving abilities, increased creativity, and improved communication.

According to the literature, leader behaviors are associated with the degree of stress experienced by staff (Offermann & Hellmann, 1996). Leader behaviors are also known to affect employee well-being, engagement, performance, and team dynamics.
Leaders emotions, positive or negative, highly impact employees, leading to optimal or dysfunctional organizational functioning (Barsade, 2002; Fredrickson, 2000b, 2003a, 2004b; Kelly & Barsade, 2001). This study found Brain Education increased leaders’ awareness of and ability to effectively manage their energy, including stress and emotions, resulting in increased organizational functioning.

**Conclusion 6**

Employee ability to manage stress, health, and well-being is increased through Brain Education training, which prevents burnout, increases presenteeism, and lowers healthcare costs. As employees learned to recognize stress and understand what was happening energetically in their body, they were able to utilize the tools and energy principles learned in Brain Education to change their energy state and manage their own health and well-being. According to the literature, workplace stress costs employers $300 billion per year in absenteeism, turnover, diminished productivity, accidents, medical costs, and worker’s compensation (American Institute of Stress, 2017a; Ball, 2004; Fink, 2016). According to Kessler et al. (2011), 23% of workers experienced some form of insomnia (e.g., difficulty falling asleep, difficulty maintaining sleep, poor sleep quality) and presenteeism (i.e., employee physically at work but too tired to perform the job effectively), resulting in $63.2 billion in lost productivity or 7.8 days of lost work performance annually. Forty-three percent of adults suffer adverse effects from stress and 75-90% of all doctor visits are for stress-related issues (Boone & Anthony, 2003). Stress is also a significant contributor of poor health behaviors, such as smoking, alcohol...
consumption, unhealthy eating, overeating, and sleep problems (APA, 2016; Braveman et al., 2011; Groesz et al., 2012; Schneiderman et al., 2005; Torres & Nowson, 2007).

This study found Brain Education empowered employees to manage their own stress, health, and well-being. Employees had fewer doctor visits, eliminated or significantly reduced medications, eliminated smoking, reduced alcohol consumption, developed healthier eating habits, exercised more, and improved their quality of sleep. Being able to effectively manage stress also allowed employees to be less distracted by stress symptoms such as fatigue, anxiety, depression, and pain, which enabled them to be more present at work and prevent burnout. Employees in the healthcare field were able to manage their stress and better manage their empathy and energy exchange with patients, which helped prevent burnout.

Figure 11 summarizes the research discovered in this study and the associated workplace outcomes in performance, relationships, and well-being.
**Figure 11.** Summary of Brain Education research discovered in this study.
Implications for Action

Based on the findings and conclusions of this study, several actions emerged that companies, government entities, healthcare facilities, schools, and community organizations can take to improve stress management, performance, relationships, and well-being. Brain Education programs can be designed to meet varying needs, such as 20 to 60-minute classes, one- to five-day workshops, and a combination of classes, workshops, online tools, and follow-up sessions depending on the organization’s goals.

Based on the findings of this study the following actions are recommended:

1. Implement Brain Education programs in the workplace as a strategic lever to increase productivity and innovation, lower healthcare costs, and increase organizational performance. Brain Education programs can be designed and implemented to meet specific organizational goals such as developing leadership skills, improving teamwork and communication, increasing innovation and creativity, developing and improving relationships (e.g., with bosses, coworkers, customers, patients, students), navigating organizational change, increasing diversity and inclusion, increasing employee stress management, and meeting health and wellness initiatives.

2. Make Brain Education a core training program for leaders in organizations. Leadership behaviors are known to significantly affect employee performance, stress, and well-being, resulting in functional or dysfunctional organizational operation.

3. Implement Brain Education in government entities, especially for leaders, as government employees can develop policies (e.g., education, housing,
taxation, pollution, food quality, occupational health and safety, and environmental), provide incentives, and establish community services that help build and encourage healthy lifestyle practices.

4. Incorporate Brain Education as part of organization and government diversity training programs for employees working in a global capacity. As technology continues to advance and global barriers become more invisible, the ability to effectively communicate and work with others from diverse backgrounds becomes increasingly more critical for organizational success.

5. Implement Brain Education programs for healthcare workers (e.g., doctors, physicians, physician assistants, nurses, nurse practitioners) to prevent burnout, increase well-being, and improve patient care by helping patients with stress-related illnesses.

6. Implement Brain Education in hospitals and community organizations as part of patient educational services to empower people to manage their stress, improve health-related behaviors (e.g., eating, exercising, sleeping, smoking cessation, reducing alcohol consumption), reduce pain, reduce or eliminate reliance on medications, and improve overall health.

7. Implement Brain Education as part of community services for retired people to help them better manage their health and well-being through the rest of their lives.

8. Implement Brain Education as a core curriculum for college students to help prepare students for the workforce, including managing stress, developing a
vision for their lives, and effectively utilizing their brains for optimal performance.

9. Make Brain Education a core curriculum for primary grade students to help teach students at an early age to sense energy in their body, effectively manage stress and their emotions, and develop self-confidence.

10. Work with the United Nations and the World Health Organization on implementing Brain Education programs in schools, government entities, and communities to address stress as a global epidemic.

Recommendations for Further Research

Based on the findings and literature review of this study, it is recommended further research be conducted in the following areas:

1. Repeat this study in other U.S. locations to expand the research in Brain Education because this study was performed with employees in California.

2. Implement Brain Education training in a single organization and repeat this study to allow for deeper insight into the effects of Brain Education on team dynamics, work group performance, customer satisfaction, and workplace outcomes.

3. Repeat this study specifically for organizational leaders to provide deeper insight into leadership behaviors and the effects on their employees and organizational performance.

4. Implement Brain Education in two similar organizations and compare employee feedback, customer feedback, and organizational performance.
5. Repeat this study for healthcare workers to provide deeper insight into the effects of Brain Education specifically for healthcare workers.

6. Implement Brain Education as part of patient education services and evaluate patient feedback, medication changes, and health-related behaviors.

7. Repeat this study for teachers to provide deeper insight into the effects of Brain Education specifically for teachers and the effects on their students.

Concluding Remarks and Reflections

I am deeply humbled, grateful, and inspired by the findings from this study. Previous research presented in the literature review, findings from this study, and my own experience during my doctoral journey can be summed up in one sentence: Our thoughts, emotions, perceptions, beliefs, and actions create our experiences. This makes becoming conscious of our thoughts, emotions, and beliefs, and being able to choose what empowers us, is vital to our well-being. Without this level of self-awareness, people are at the mercy of old habits, beliefs, and patterns that no longer enhance their well-being.

I learned that understanding how energy works in our body through feeling is the missing link between the mind-body connection. In school we are not taught about energy or to feel our bodies or that we have the power to change our thoughts, emotions, and beliefs in a way that empowers us to live well and help others live well. What if every child, every adult, every being on the planet realized they had the power within themselves to create their own well-being? That love, joy, and peace is something created from within versus externally by others? I suspect some will not want the responsibility and some will not believe it is possible, which in turn will create their
experience; however, for those searching for why they are not happy or feel something is missing in their life, Brain Education helps those at this stage of growth to discover within themselves what they have been looking for and how to create health, happiness, and peace within themselves, which in turn expands to their families, communities, organizations, and the world.

I am forever grateful for all those who helped bring this study to fruition. I am deeply honored and grateful to have met those who participated in this study who sincerely shared their stories and experiences to help bring forth this first study in Brain Education in the United States for employees in the workplace. It is my hope and dream the findings of this study catalyze organizations to implement Brain Education programs in their workplace for their employees to flourish. When employees flourish, organizations will naturally flourish, which will then expand to communities, countries, and the Earth itself. I believe there is no greater endeavor than helping expand human consciousness and increase human flourishing. Why do humans live if not to flourish?
REFERENCES


on the treatment of emotion dysfunctions and deficits in psychopathology.


doi:10.5539/ijps.v4n2p162


doi:10.1177/0956797612470827


how-and-why-big-businesses-are-promoting-
meditation#sm.0001tj6jrb14klddwrl1h1u3c2crub


Skakon, J., Nielsen, K., Borg, V., & Guzman, J. (2010). Are leaders’ well-being, behaviours and style associated with the affective well-being of their employees?


Dear Body & Brain Center Manager,

My name is Ericka Crawford, and I am a doctoral candidate in Organizational Leadership at Brandman University, California. I am also a Vice President of Quality for Maravai LifeSciences and a leadership coach. I have also participated in Brain Education training for six years in southern California. As part of my doctoral program with Brandman University, I have chosen Brain Education as my area of study for my dissertation research.

The purpose of my study is to identify, examine, and describe the lived experience of employees, who have received Brain Education training, in the areas of stress management, work performance, relationships, and well-being. My hope is that the insights of participants in the study may add to the research regarding Brain Education in the workplace.

You have been contacted as one of the Body & Brain center managers who may have eligible participants at your location. Participation in the study consists of participating in a 90-minute interview. The criteria for participating in the study are as follows:

- Employees who have been trained in Brain Education for at least 3 months
- Work for organizations that employee more than 20 people
- Located in the state of California

The study has been approved by Brandman University Institutional Review Board (BUIRB) and designed to protect the rights and welfare of participants, including full disclosure of the purpose of the study, voluntary participation, informed consent, and privacy of participant information.

Attached to this email is an invitation letter to provide to potential participants in the study. The participant invitation letter includes an introduction of myself, an introduction to the study, eligibility criteria, and my contact information for those interested in participating in the study.
I am available by phone at XXX-XXX-XXX or email at ecrawfo1@mail.brandman.edu to answer any questions you may have or discuss this research further. Additionally, my dissertation chair, Dr. Jeanine Prince, may be contacted to answer any questions you may have at jprince@brandman.edu.

Sincerely,

Ericka Crawford
Doctoral Candidate, Brandman University
ecrawfo1@mail.brandman.edu
Phone: XXX-XXX-XXXX
APPENDIX B - INTERVIEW PROTOCOL

Researcher: Ericka L. Crawford

Participant Number: _____________________

Date: ________________________________

Introduction

Hello. My name is Ericka Crawford. I am a student at Brandman University pursuing my doctoral degree in Organizational Leadership. Thank you for taking the time to meet with me and for your willingness to participate in this research study.

As we discussed previously, the purpose of this study is to identify, examine, and describe the lived experience of employees, who have received Brain Education training, in the areas of stress management, work performance, relationships, and well-being. You have been asked to participate in this study because of your participation in Brain Education training. My hope is that your insights may add to the research regarding Brain Education in the workplace.

Informed Consent

Before we begin the interview, I’d like to review the Informed Consent form that was provided when we scheduled the interview. (Provide Informed Consent form to participant). I would like to highlight that you can stop the interview at any time or choose not to answer a particular question during the interview. I would also like to highlight that your confidentiality will be protected by assigning you an identifier code in which only I have access to.

I would like to record the interview so that I have an accurate record of our conversation. The audio recording will be destroyed once it has been transcribed.

Have you been able to review the Informed Consent form? Do you have any questions? (Answer questions and obtain signed consent form).

With your consent, I will turn on the recorder at this time. (Obtain verbal consent).
Now that the recorder is on, I would like to ask for your verbal consent before we begin the interview. Do I have your consent to conduct and record the interview? (Wait for response before proceeding).

Thank you. I would like to begin with some basic demographic questions to help describe the study sample. If you prefer, you may choose to indicate “not specified” to any of the questions.

**Interview Instrument**

**Demographic Questions**

1. Tell me a little bit about the type of work that you do.
   
   ____________________________________________________________
   ____________________________________________________________

2. How many years have you been doing this type of work? _______________________  

3. What organization do you currently work for? ________________________________  

4. What industry is your organization in? ________________________________  
   _____ Agriculture, Forestry, Fishing and Hunting  _____ Utilities  _____ Construction  
   _____ Manufacturing  _____ Wholesale Trade  _____ Retail Trade  _____ Information  
   _____ Purchasing/Supply Chain  _____ Transportation and Warehousing  
   _____ Finance and Insurance  _____ Accommodation and Food Services  
   _____ Real Estate and Rental and Leasing  _____ Health Care and Social Assistance  
   _____ Professional, Scientific, and Technical Services  _____ Educational Services  
   _____ Arts, Entertainment, and Recreation  _____ Administrative and Support  
   _____ Management of Companies and Enterprises  
   _____ Waste Management and Remediation Services  
   _____ Other Services (except Public Administration)  _____ Industries not classified  

5. How many employees does your organization have? _________________________  
   20-99 employees  100-499 employees  500-999  1000+  

6. How would you describe your level in the organization (e.g., professional, technician/specialist/associate, supervisor, manager, director, VP or C-suite, other)?
   
   ____________________________________________________________

7. How long have you been in your current position? _________________________  

8. What is your highest level of education attained? ____________________________
9. What is your gender? ___________________________________________________________

10. What is your race/ethnicity? __________________________________________________

11. What is your age? ____________________________________________________________

12. How long (months/years) have you been practicing Brain Education principles or tools? ________________________________________________________________

13. What made you decide to participate in or learn about Brain Education?

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Research Area #1: Stress Management

14. Would you describe your experience with Brain Education in relation to managing stress?

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

15. What specific changes have you experienced with Brain Education in relation to managing stress?

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Probing Questions:

- How do you utilize what you have learned in Brain Education in your day-to-day work?
- What things do you feel have contributed the most to your ability to manage stress?
• Would you tell me more about that?
• Would you share some examples?

Research Area #2: Work Performance

16. Would you describe your experience with Brain Education in relation to your work performance?

_____________________________________________________________________
_____________________________________________________________________

Probing Questions: In relation to Brain Education,

• How would you describe your ability to concentrate or focus?
• How would you describe your ability to problem solve?
• How would you describe your ability to make decisions?
• How would you describe your ability to be creative?
• How would you describe your ability to be productive?
• How would you describe your ability to manage change?
• How would you describe your ability to meet your organizational goals?
• How would you describe how Brain Education has affected your performance reviews?
• Would you share some examples?

17. Would you describe your experience with Brain Education in relation to recognizing and managing your emotions (e.g., emotional intelligence)?

_____________________________________________________________________
_____________________________________________________________________

_____________________________________________________________________
**Probing Questions:**

- How would you describe your ability to control your emotions? Would you share some examples?
- Do you feel you have more, less, or the same level of emotional intelligence? Would you share some examples?
- Do you feel more, less or the same level of self-awareness?
- Would you share some examples?

**Research Area #3: Relationships**

18. Would you describe your experience with Brain Education in relation to your relationships with the people you work with (e.g., boss, co-workers, direct reports)?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

19. Would you describe your experience with Brain Education in relation to social behaviors, such as, empathy (i.e., the ability to accurately perceive the feelings of another person), compassion (i.e., the ability to be aware of the suffering of others and the desire to relieve their suffering), and altruism (i.e., behavior that benefits another person)?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

**Probing Questions:**

- For leaders, do you feel Brain Education has influenced you in your leadership style or behaviors?
- How would you describe your relationships within a team? Can you share some examples?
• How would you describe your ability to communicate?
• How would you describe your ability to resolve conflict?
• Would you share some examples?

Research Area #4: Well-being

20. Would you describe for me your experience with Brain Education in relation to your overall well-being?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Probing Questions:
• Research indicates that sleeping well, exercising, and eating well are important to your overall well-being. Do you feel Brain Education has influenced you in any of these areas? If so, how?
• How would you describe your energy level?
• How would you describe your self-confidence level?
• Would you tell me more about that?
• Would you share some examples?

Closing Questions

21. When you reflect on your overall experience with Brain Education, what are some things that have impacted you the most, if any?

22. Based on your experience, how could organizations utilize Brain Education in the workplace?

23. Is there anything else you would like to share with me now?
Date

Dear Potential Study Participant:

My name is Ericka Crawford, and I am a doctoral candidate in Organizational Leadership at Brandman University, California. I am also a Vice President of Quality for Maravai LifeSciences and a leadership coach. I have also participated in Brain Education training for six years in southern California. As part of my doctoral program with Brandman University, I have chosen Brain Education as my area of study for my dissertation research.

The purpose of my study is to identify, examine, and describe the lived experience of employees, who have received Brain Education training, in the areas of stress management, work performance, relationships, and well-being. My hope is that the insights of participants in the study may add to the research regarding Brain Education in the workplace.

Participation in the research study consists of participating in a 90-minute one-on-one interview at a time and location convenient for you. The interview will be audio recorded with your consent so that I have an accurate record of our conversation and will be destroyed once it has been transcribed.

The study is designed to protect the rights and welfare of all participants and has been approved by Brandman University Institutional Review Board (BUIRB). Your participation in the study will be kept completely confidential. To ensure confidentiality you will be assigned a unique identifier code which only I will have access to. Participation in the study is completely voluntary and you can withdraw from the study at any time.

The criteria for participating in the study are as follows:

- Employees who have been trained in Brain Education for at least 3 months
- Work for organizations that employ more than 20 people
- Located in the state of California
If you meet the eligibility criteria listed above and would like to participate in the study or learn more about the study, please contact me via phone at XXX-XXX-XXX or email at ecrawfo1@mail.brandman.edu.

Thank you for your consideration in participating in this study.

Sincerely,

Ericka Crawford
Doctoral Candidate, Brandman University
ecrawfo1@mail.brandman.edu
Phone: XXX-XXX-XXXX
APPENDIX D - INFORMED CONSENT FORM

CONSENT TO PARTICIPATE IN RESEARCH

Brandman University
16355 Laguna Canyon Road
Irvine, CA 92618

**TITLE:** Examining the Effects of Brain Education on Employee Stress Management, Work Performance, Relationships, and Well-being

**RESPONSIBLE INVESTIGATOR:** Ericka L. Crawford, Ed.D. Graduate student

**FACULTY ADVISOR:** Dr. Jeanine Prince

**DEPARTMENT:** Organizational Leadership

**PURPOSE OF STUDY:** The purpose of this study is to identify, examine, and describe the lived experience of employees, who have received Brain Education training, in the areas of stress management, work performance, relationships, and well-being.

**PROCEDURES:** By participating in this study I agree to participate in a one-on-one interview which will be conducted in person, by phone or electronically. The interview will last approximately 90 minutes and will be audio recorded (see separate consent form attached).

I understand that:

a) There are minimal risks associated with participating in this research. I understand that the Investigator will protect my confidentiality by keeping the identifying codes and research materials in a locked file drawer that is available only to the researcher.

b) The possible benefit of this study to me is that my input may help add to the research regarding Brain Education in the workplace. The findings will be
available to me at the conclusion of the study and will provide new insights about Brain Education in which I participated. I understand that I will not be compensated for my participation.

c) If you have any questions or concerns about the research, please feel free to contact Ericka Crawford at ecrawfo1@mail.brandman.edu or by phone at XXX-XXX-XXXX; or Dr. Jeanine Prince (Advisor) at jprince@brandman.edu.

d) My participation in this research study is voluntary. I may decide to not participate in the study and I can withdraw at any time. I can also decide not to answer particular questions during the interview if I so choose. I understand that I may refuse to participate or may withdraw from this study at any time without any negative consequences. I understand that I may ask questions any time before, during or after the study. Also, the Investigator may stop at any time.

e) No information that identifies me will be released without my separate consent and that all identifiable information will be protected to the limits allowed by law. If the study design or the use of the data is to be changed, I will be so informed and my consent obtained. I understand that if I have any questions, comments or concerns about the study or the informed consent process, I may write or call the Office of the Vice Chancellor of Academic Affairs, Brandman University, at 16355 Laguna Canyon Road, Irvine, CA 92618, (949) 341-7641.

I acknowledge that I have received a copy of this form and the “Research Participants’ Bill of Rights”. I have read the above and understand it. My questions have been answered to my satisfaction and I agree to participate in the study.

____________________________________
Printed Name of Participant

____________________________________
Signature of Participant / Date

____________________________________
Signature of Principal Investigator / Date

Participant number assigned:  ____________________
PRIVACY ACT STATEMENT AND CONSENT AGREEMENT FOR AUDIO RECORDING

By participating in this study, I agree to allow audio recording during the interview and for recordings to be reviewed and transcribed by persons involved in the study. I understand that all information will be kept confidential and will be reported in an anonymous fashion. Audio recordings will be destroyed after the interview has been transcribed. I understand that I may elect to receive a copy of the interview transcript for review and corrections as necessary. I further understand that I may withdraw from this consent at any time without negative consequences.

____________________________________
Printed Name of Participant

____________________________________
Signature of Participant / Date

Please provide a copy of the transcript for my review at the following address:

____________________________________
Signature of Principal Investigator / Date
APPENDIX E - RESEARCH PARTICIPANT’S BILL OF RIGHTS

BRANDMAN UNIVERSITY INSTITUTIONAL REVIEW BOARD

Research Participant’s Bill of Rights

Any person who is requested to consent to participate as a subject in an experiment, or who is requested to consent on behalf of another, has the following rights:

1. To be told what the study is attempting to discover.

2. To be told what will happen in the study and whether any of the procedures, drugs or devices are different from what would be used in standard practice.

3. To be told about the risks, side effects or discomforts of the things that may happen to him/her.

4. To be told if he/she can expect any benefit from participating and, if so, what the benefits might be.

5. To be told what other choices he/she has and how they may be better or worse than being in the study.

6. To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study.

7. To be told what sort of medical treatment is available if any complications arise.

8. To refuse to participate at all before or after the study is started without any adverse effects.

9. To receive a copy of the signed and dated consent form.

10. To be free of pressures when considering whether he/she wishes to agree to be in the study.

If at any time you have questions regarding a research study, you should ask the researchers to answer them. You also may contact the Brandman University Institutional Review Board, which is concerned with the protection of volunteers in research projects. The Brandman University Institutional Review Board may be contacted either by telephoning the Office of Academic Affairs at (949) 561-9937 or by writing to the Vice Chancellor of Academic Affairs, Brandman University, 15355 Laguna Canyon Road, Irvine, CA, 92618.

Brandman University IRB                        Adopted                        November 2013
APPENDIX F - INTERVIEW QUESTIONS PROVIDED TO PARTICIPANTS

Dear Potential Study Participant:

My name is Ericka Crawford, and I am a doctoral candidate in Organizational Leadership at Brandman University, California. I am also a Vice President of Quality for Maravai LifeSciences and a leadership coach. I have also participated in Brain Education training for six years in southern California. As part of my doctoral program with Brandman University, I have chosen Brain Education as my area of study for my dissertation research.

The purpose of my study is to identify, examine, and describe the lived experience of employees, who have received Brain Education training, in the areas of stress management, work performance, relationships, and well-being. My hope is that the insights of participants in the study may add to the research regarding Brain Education in the workplace.

You have expressed interest in being part of this research study which consists of participating in a 90-minute interview. This document includes the general interview questions that will be asked during the interview. These are provided in advance to provide you an opportunity to review the questions prior to the interview. Some definitions have also been included at the end of this document to help clarify some of the terms used. You do not need to prepare or provide responses prior to the interview as these are for your information only. Please be aware, that additional questions may be asked during the interview to provide additional information, clarification, or understanding of your responses.

The interview will begin with introductions and review of the forms provided, including the informed consent form and the Research Participant’s Bill of Rights. If you agree to participate in the research study, then signature of the informed consent will be obtained.

The interview will then proceed to asking basic demographic questions to help describe the study sample. If you prefer, you may choose to indicate “not specified” to any of the questions.

The interview will then proceed with questions specific to the purpose of the research study. The purpose of this research study is to identify, examine, and describe the lived experience of employees, who have received Brain Education training, in the areas of stress management, work performance, relationships, and well-being. You can stop the interview at any time or choose not to answer a particular question during the interview.
Demographic Questions

1. Tell me a little bit about the type of work that you do.
2. How many years have you been doing this type of work?
3. What organization do you currently work for?
4. What industry is your organization in?
   _____ Agriculture, Forestry, Fishing and Hunting  _____ Utilities  _____ Construction
   _____ Manufacturing  _____ Wholesale Trade  _____ Retail Trade  _____ Information
   _____ Purchasing/Supply Chain  _____ Transportation and Warehousing
   _____ Finance and Insurance  _____ Accommodation and Food Services
   _____ Real Estate and Rental and Leasing  _____ Health Care and Social Assistance
   _____ Professional, Scientific, and Technical Services  _____ Educational Services
   _____ Arts, Entertainment, and Recreation  _____ Administrative and Support
   _____ Management of Companies and Enterprises
   _____ Waste Management and Remediation Services
   _____ Other Services (except Public Administration)  _____ Industries not classified
5. How many employees does your organization have?
   20-99 employees  100-499 employees  500-999  1000+
6. How would you describe your level in the organization (e.g., professional,
   technician/specialist/associate, supervisor, manager, director, VP or C-suite, other)?
7. How long have you been in your current position?
8. What is your highest level of education attained?
   _____ High school or less  _____ Some College  _____ Completed College
   _____ Graduate or professional school
9. What is your gender?
10. What is your race/ethnicity?
11. What is your age?
12. How long (months/years) have you been practicing Brain Education principles or
   tools?
13. What made you decide to participate in or learn about Brain Education?
Research Area #1: Stress Management
14. Would you describe your experience with Brain Education in relation to managing stress?
15. What specific changes have you experienced with Brain Education in relation to managing stress?

Research Area #2: Work Performance
16. Would you describe your experience with Brain Education in relation to your work performance?

17. Would you describe your experience with Brain Education in relation to recognizing and managing your emotions (e.g., emotional intelligence)?

Research Area #3: Relationships
18. Would you describe your experience with Brain Education in relation to your relationships with the people you work with (e.g., boss, co-workers, direct reports)?

19. Would you describe your experience with Brain Education in relation to social behaviors, such as, empathy (i.e., the ability to accurately perceive the feelings of another person), compassion (i.e., the ability to be aware of the suffering of others and the desire to relieve their suffering), and altruism (i.e., behavior that benefits another person)?

Research Area #4: Well-being
20. Would you describe your experience with Brain Education in relation to your overall well-being?

Closing Questions
21. When you reflect on your overall experience with Brain Education, what are some things that have impacted you the most, if any?
22. Based on your experience, how could organizations utilize Brain Education in the workplace?

23. Is there anything else you would like to share with me now?

Definitions

**Brain Education.** Brain Education is a collection of systemized mind-body training methods designed to help people learn to fully utilize the capacity of their brain and reach their full potential (I. Lee, 2016a). It consists of over 300 physical, emotional, and cognitive exercises designed to strengthen the mind-body connection and develop the power of the brain (I. Lee, 2007b, 2016a)

**Emotional Intelligence (EI).** Emotional intelligence is how an individual can “adaptively and effectively regulate his or her emotional behavior in a social context. This encompasses the ability to recognize subjective feelings, to manage emotions, to transform emotions into expressiveness and action, to react empathetically, and to shape relationships” (Traue et al., 2016, p. 239).

**Relationships.** Relationships are the way in which people relate or behave toward one another, such as social support, teamwork, helping others, cooperativeness, altruism, communication, conflict management, kindness, and empathy (Ajayi & Abimbola, 2013; Cobb, 1976; Cohen & Wills, 1985; Colligan & Higgins, 2006; Thoits, 1995, 2010; Diener & Sielgman, 2004; Driskell & Salas, 1996; Isen, 1987).

**Stress.** Stress is the “nonspecific response of the body to any demand” (Seyle, 1974, p. 27).
**Stress Management.** Stress management is the ability to manage one’s stress response using techniques designed to modify one’s appraisal of a situation or deal effectively with stress symptoms (Murphy, 1996).

**Well-being.** Subjective well-being, also referred to as happiness, is what people think and how they feel when they evaluate their lives (Diener, 2000; Seligman & Csikszentmihalyi, 2000).

**Work Performance.** Work performance refers to performance of employees at work, such as productivity, concentration, attentional focus, ability to solve problems, creativity, judgment, decision-making, safety, and organizational citizenship behaviors (Ajayi & Abimbola, 2013; Colligan & Higgins, 2006; Diener & Seligman, 2004; Driskell & Salas, 1996; Good et al., 2016; Thoits, 1995, 2010).
APPENDIX G - RESEARCHER DISCLOSURE

Ericka L. Crawford
ecrawfo1@mail.brandman.edu

In qualitative research, the researcher is the major instrument in the data collection and analysis process (Patten, 2012; Patton, 2015). McMillan and Schumacher (2010) describe how the heavy reliance on a single method of data collection, semi-structured interviews, requires the researcher to be skilled at interviewing, including, “listening, prompting when appropriate, and encouraging participants to reflect, expand, and elaborate on their remembrances of experience” (p. 346). Disclosing the researcher’s background, qualifications, experience, and potential bias can enhance the reliability or credibility of the study.

The researcher’s background includes 20 years of professional experience in organizational leadership, quality management, operations, strategic business planning, project management, and employee development. The researcher is adept in conducting various types of interviews described by Patton (2015), including, personnel evaluation and human resource interviews, motivational interviewing, and audit and compliance interviews. Although these types of interviews have a different purpose and use than qualitative interviewing, which is specifically used for research or evaluation; interviewing skills described by McMillan and Schumacher (2010), such as “listening, prompting when appropriate, and encouraging participants to reflect, expand, and elaborate on their remembrances of experience” have been thoroughly developed by the researcher (p. 346). The researcher’s educational background also qualified her to conduct this study. The researcher is currently a doctoral student in organizational leadership at Brandman University and has completed all coursework. The researcher has participated in Brain Education training for six years and is adept in Brain Education methods and principles. A summary of the researcher’s educational and professional experience is disclosed below.

**Education:**

Doctor of Organizational Leadership

*Brandman University, Irvine, California*

Expected 2019

Executive Master of Business Administration

*Kennesaw State University, Georgia*

2000

Bachelor of Science, Biology

*Western Carolina University, North Carolina*

1993

**Professional Experience:**

Vice President of Quality

*Maravai LifeSciences, San Diego, California*

2017 - present
Transformational Leadership Coach 2008 – present
*Light Leadership, San Marcos, California*

Director of Quality Assurance 2011 - 2017
*Abbott Laboratories, Carlsbad, California*

Head of Quality and Regulatory 2008 – 2011
*Life Technologies, Carlsbad, California*

Sr. Manger, Global Quality and Regulatory Integration 2006 - 2008
*Life Technologies (previously Invitrogen), Carlsbad, California*

Manager, Quality Assurance and Regulatory Affairs 2004 - 2006
*OXIS International, Portland, Oregon*

Compliance Training Specialist 2001 - 2004
*Bayer Healthcare, Berkeley, California*

Director of Operations 2000 - 2001
*Serologicals, Inc., Marietta, Georgia*

Manager of Operations 1997 – 2000
*Cryolife, Inc., Kennesaw, Georgia*
APPENDIX H - PILOT TEST PARTICIPANT FEEDBACK QUESTIONS

1. How did you feel about the interview? Comfortable? Nervous?

2. Do you feel you had ample opportunities to describe your experience with Brain Education in relation to stress management, work performance, relationships, and well-being?

3. Did you feel the amount of time for the interview was appropriate?

4. Were the questions clear? Were there questions that you were uncertain about what was being asked?

5. Can you recall any words or terms asked that were confusing?

6. Were there any parts of the interview that were uncomfortable?

7. What suggestions do you have for improving the overall process?
### Major Themes

- **Increased ability to effectively manage stress (n=21)**

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<th>Example Quotations</th>
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<td>Well, having tools because you can’t avoid stress in the 21st century, it’s going to be there. So, if it’s going to be there, you need to have tools to manage it. The biggest part of my life, that in all the challenges that I get, I’m confident having this discipline will definitely carry me through so, that makes me more confident to take on big challenges knowing that I will have the mental capacity and toughness that I need to welcome challenges and work with them. I think it’s just a big part of my stress management, something that has given me a lot of tools to deal with different types of challenges.</td>
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<td>Well, I’m not kicking my chair when I get back to my office anymore, to be honest. I don’t need to have my little squeeze head that I need to squeeze whenever I come back. Actually, there would be times where before I would have to go in my car and just yell it out because I did not know how to deal with it. It was just way too much. A lot of times, you’ll see my chair just roll out of my office because I have kicked it across the office. Very type A personality. But that doesn’t happen anymore. I don’t let it out that way. I first recognize it, and secondly, I know how to manage it. Manage my stress. A lot of people have seen that difference in me. They see that I am a different person since I’ve been doing this. That I don’t let it out that way, and I’m able to deal with stressful situations with a clearer mind.</td>
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<td>I think that it’s helped in self-confidence in that you feel like you have the tools to be healthier and whole. You see that you now have these tools and you can use them. Before, you didn’t have the tools, you didn’t have the awareness. I would say that helps you.</td>
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<td>It’s a very stressful environment, dealing with life and death situations. You can feel the energy off of the people that you do surgery on. That you do injections on. That you do procedures on. I need to be able to channel that in a way so that I can ground myself to be able to get to the next day, because if not then it’s tough for me physically, emotionally, spiritually. Before, I never had any type of outlet to be able to manage all of those. There’s a lot of people in my profession that have a lot of anxiety and depression, because we don’t know how to deal with it. Because first of all, we don’t know what it is, what we’re feeling. Second of all, we don’t know how to manage it. It’s been life changing. I practice it every day.</td>
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<td>I didn’t really know what stress was. I didn’t understand it. My preconception was that, as a man, I just don’t feel stress, that’s just not how life works. So, I would ignore a lot of the signs of it,</td>
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but then try to deal with them. I had a lot of problems where, at the end of the day, I couldn’t really concentrate, or my experience of the world felt like it was going through a filter in some sense. I was a little bit disconnected. In a lot of ways, those are just fatigue and stress symptoms that I wasn’t recognizing at the time that I now recognize more easily. I didn’t understand breathing training, which has made a really big difference. Just being able to concentrate on my breath and bring my attention back to myself. I didn’t have that. I didn’t know about the system of energy or Dahnjon [energy center in lower abdomen], so I didn’t know that I could reconcentrate or ground my energy. Instead I would kind of panic. I’d get into these moments where I’d have a real long day and be working real hard and then this feeling would start to take over towards the end of the day. I didn’t really know what it was, so I’d get kind of like ... I’d try to fight it off. I’d try to fight that feeling off. I’d drink extra coffee. I’d try to drive real fast in order to get some adrenaline back. On healthier days, I would go for a run. If I wasn’t quite doing that well, I might turn to a beer instead. Or if, the days when I really had trouble, I’d get real angry real fast. Kind of just lose my temper and start hitting things. Just try to get some sensation back. So being able to learn how to breathe, being able to learn how to concentrate on myself again, took a lot of that pressure off, because I knew that I could do something that I knew would help me get through those moments. So, it’s made a big difference in that sense.

• [How long had you been practicing before you recognized any changes?] Immediately, on my first session here we did an introductory session. I couldn’t even touch my toes, I couldn’t even go past my knees. When I lifted my arms, I couldn’t even come up above my head. I had this heavy feeling just everywhere. They touched my chest and I pretty much jumped with light touch. After maybe about three minutes of doing Belly Button Healing I was able to do palms on the ground, able to put my hands behind my head. She was able to just push down on my chest without having me scream. It was instant. Absolutely instant. I was in shock. I was like, "Oh my gosh. Are you kidding me? This is weird." It was weird sticking something in your bellybutton and making this all happen. Even the thought of having energy was weird, and a new concept to me. Having a flow was absolutely new to me. I would think of pain as it being a physiological origin, as opposed to energetic origin. Learning that there could be different reasons for pain other than it being anatomical or physiological was absolutely new to me as well. To be able to do something so quickly like that, and to change my body that quickly was just mind blowing...I didn’t know that that
could even happen prior to this. I thought, "I have a pain in my foot. Oh my god, I have plantar fasciitis. Take an NSAID, take some Motrin. Maybe get an injection if that doesn’t work. I have a pain in my shoulder, go get a massage. Pop some Advil, maybe some Naprosyn," you know? I used to think that when my body hurt, it was something wrong with my muscle or something. I didn’t think it was something wrong energetically or something emotionally that was going on.

Increased self-awareness and understanding of energy principles (n=21)

- [What would you say has impacted you the most?] I would say the self-awareness. The level of self-awareness to use executing the principles has impacted me the most. I would say that because it’s allowed me to step back and be truer to who I am and in doing so, I’m focused on the universe and the well-being of the universe. To me, that is had the hugest impact on my life.

- It [Self-awareness] helps you feel empowered to heal yourself. That we have the natural power to heal ourselves, and to have that self-awareness brings you to be more specific and separate from what scares you, or that would normally scare you. For example, an ailment, if you’re more self-aware like, "Okay, this part of my body, I could do this specific exercise." Again, spiritually, “What am I holding onto emotionally that might be manifesting in that part of my body”, will help guide me to healing, ultimately. With healing brings peace and happiness. And we all feel good when we’re happy and peaceful. So, if we can take control of that on our own and not have to depend on something else that we may not have control over, I think it’s empowering.

- It changed me. I think I never heard that voice. I never heard that voice, the inner self, my voice. I never heard I have a voice. So, I was a curious when I connected with myself, I heard that voice and I said, " Wow, interesting." And I want to learn more.

- [What would you say has impacted you the most?] Listening to my soul, listening and paying attention to what I am wanting down there [pointing to lower abdomen], what’s coming in my gut. I think those are related. And, this openness of empathy and connecting with the earth and the energy.

- In every way, as far as self-awareness, of being aware when somethings coming that’s making me upset, or stressed, so I can manage it better. So, then I can relax and focus, and be more productive and relate to others better too. Because I’m aware of what doesn’t work, or what’s going on, and set an intention to feel better and find the solution for it. I’m much more of an observer of myself now. Like I see something coming up I say, “Oh there it goes again.” I don’t take it as seriously because I know that this is gonna pass, and not gonna stay.
• [What would you say has impacted you the most?] I think the separation of the physical body, emotional body, and spiritual body, and how it’s all connected. And most importantly, understanding the oneness, because it really impacted me in understanding that and guiding me through life with that principle. Because I’m going back to the, "If you’re okay, I’m okay." I think if we’re all healthy, happy, and peaceful it’s just better for the Earth itself.

• The principle [Water Up Fire Down] is you have to keep your water energy up and fire energy down because if you worry too much the fire energy will go up. So, you start getting a headache and you can’t concentrate because your head is fire and you cannot very clearly see what the situation is now. You have to calm down. You have to bring your ki energy down to your Dahnjon [energy center in lower abdomen]. So, I do the Dahnjon tapping and accumulate the ki energy in my Dahnjon. I just came back Monday night from an international trip at midnight and immediately Tuesday I went back to work. I didn’t have jet lag. I have a lot of energy. People can’t believe I just traveled. They can’t believe I just slept 6 hours and back to work. They don’t believe my age, my health. They ask “How, how are you doing it?” And I say come to Body and Brain, we’ll show you how we do it.

• The idea of a zero-point [energy principle taught in Brain Education] is where a lot of it comes from, and the idea that all of the things that are going on in my life aren’t me. I am me. I am my true self. And so being able to have those ideas that there is a point at which we’re balanced, and that point is really the true essence of what we are, and then everything else is going on around. . . The idea is that I can be balanced in myself without necessarily needing to change anything about what is. So, in that sense my condition or the things external to myself aren’t that important. It’s not that they’re not important, but they don’t have the level of importance that I place on them for, say, actual happiness or peace or stability or any of the things that we try to work on in Brain Education. So, to be stable, to be within myself, I don’t need to do this, I don’t need to do that. I can be stable within myself, have peace in my mind, and have that regardless of whether these things happen.

• Hong Ik [energy principle taught in Brain Education], what’s good for all, is kind of top of mind for me. That drives my relationships with people. I’m aware of my decisions in how they impact others. I want to make sure that I take action that’s going to, when possible, be good for everyone.

• When I look at other people around me, when I see their pains, how can I not feel it? How can I not be with other people, when
they go through life and their ups and downs? I don’t think I can separate myself. It just brings tears to my eyes when people separate themselves and call themselves and other people different names. It’s just, I cannot understand it. [Were you always like that?] I guess I’ve felt that way, but then during the course of taking Brain Education, I’ve been able to verbalize it. When somebody was in pain or something was going on, I felt uncomfortable, and I think everybody feels uncomfortable. But if you don’t have the language for it, if you don’t know how to describe it, or you don’t have the language of what this oneness is, if you’re not educated in that way, you will not be able to verbalize it and then it becomes forgotten until next time the next pain comes up. And you think those are separate than you, but once you start getting training, and you look at it, and have a verbiage for it, then "Oh yeah, that’s oneness. We’re all the same."

Increased emotional control and stability (n=21)

• Before I would be upset, throw a fit and then my usual pattern I wouldn’t talk to people. I would just walk away and I wouldn’t talk for three days, a week or whatever. I would be in my own world. My friend would say, whenever something happens I go to the penthouse [being with the thoughts in the mind]. These are the things I used to do. But going up there and staying inside my head and not communicating with anybody, that way of being would not make any difference. The situation is still there and actually you’re creating a bigger gap, instead of trying to close the gap and trying to move things forward. Now I can be more clear. What can I do, who can I be, what kind of action can I take that would make a difference because that’s the bottom line, that’s what it is. What action from here on can I take. So, practicing Brain Education helped me create a mind of patience and start watching myself and deal with the situation.

• Just getting off, the emotions pass much faster. Look, it’s there for some seconds and then getting off it. I just feel like I can get off things much faster than lingering in it and be in it. It’s different than agreeing with things, I’m not agreeing with it, but I can see that it’s happening. I can see it, I may not agree with it, but the acceptance of what’s happening is, it empowers you to start working on solutions rather than being driven by the crowd or being stubborn and just being disempowered.

• Well, after my training started, then everything didn’t seem as end-of-the-world type of situation. So, I manage my emotions better, and more calming to everything in my response to events. And people also noticed a change in my attitude, where I wasn’t being over-reactive. [Can you give me an example?] Just in the day-to-day dealings with people, where I actually have more
patience in dealing with someone and coaching them versus blowing off. Like I would just explode. Like, "We covered this. How many times do we have to go through this?" But in a more extreme tone. People noticed a change in me. And I overall became much, much, much happier.

- I think before I had more upsets. Like at work, if people were rude to me I would feel more sensitive, so I would feel upset. But once I took Brain Education, I realized everyone has their emotions, and emotions can come and go. So, I think that’s normal. I can accept that, because even for me too, sometimes I have a bad feeling or sad, so I think that’s normal, so I feel more accepting and more understandable to employees and my family. I learned a lot of skills of how to release and how to accept and how to try to solve it.

- [What would you say has impacted you the most?] So, one is separation of emotions from self, which just tells me that I can change, I can control the way I feel as opposed to it controlling me. Also, separation of my habits and pre-conceived ideas from my true self. So, things that I grew up learning and thinking was right or wrong. I have the ability to change those thoughts and ideas to match my innermost feelings.

- I can notice when my emotions are getting upset, so I say “It’s okay”. To be upset is okay too. I can release that emotion much quicker after taking Brain Education, because I know that’s acceptance and I know the reason, so I can also use certain techniques to try to help me to release some of the negative emotion much better than before. Like before I may have all those heavy emotions stuck in my mind for days, but now probably like hour or something and it’s gone. So, I can just notice all those and then release it much quicker than before.

- Before [Brain Education], I just didn’t trust myself and I had a lot of negativity. I would say things to myself like “I’m stupid” and “I cannot do it”. I always had a victim mentality. But through Brain Education, I learned to trust myself and give myself confidence. I went from victim consciousness to master consciousness. And now, I’m more open, I’m joyful, I’m happy, and more loving. I think these are the things that are just amazing that Brain Education taught me and changed me from the person I was three years ago.

Increased happiness, optimism, positivity (n=21)

- I just feel like it’s made me a happier person. I’m really grateful for that.

- I think that’s a huge part of it, every day that I wake up it [Brain Education] gives you a very holistic view of the future and having a positive view of the future. I think that’s a big part of positive thinking, positive approach, just a future that is hopeful. You can
create your future and you’re not at the mercy of anything. You create things. Those type of things are very much as a result of using the brain well. Given that, "Hey, I have a brain and I can use it well." As opposed to, "Oh, I don’t know how much of this stress I can take."

- Seems like now, things are coming to me more that I want. Like I have more parties to go to, like tonight I have a dinner with friends, you attract what makes you happy. I know that makes me happy, so I make an intention to do what’s gonna make me happy, or what I really like and so I notice those things are coming to me. And it’s much more easy to do, and they appear, just out of the blue.

- I think starting the day with the correct exercise or any exercise or breathing for a half an hour or whatever and then starting my day grants me a lot of calmness and openness to whatever comes. And to actually be happy with whatever comes because it happens anyway, you cannot stop it. And it grants me more space to deal with whatever happens. [Do you think that the calmness attributes to that openness?] Oh totally. Totally. It gives me a vast space of dealing with whatever it is, rather than having my mind going 100 miles per hour and create more of a problem than whatever it is. I try not to add more of my own problem to the situation, rather looking at what can I do at this moment that would make a difference from here on.

Increased calmness, clear mind (n=21)

- I think that one of the biggest changes is that I can actually help myself relax. Yeah, it’s probably one of the biggest. Just being able to recognize the tension and the energy that I’m using, especially if it’s brain or mental energy. I can feel it more in my body, and I can take the time I need to and do the activities that I need to help me get back to a more relaxed and focused state, which then helps me be a little bit more productive.

- More peacefulness and more clear mindfulness. I was conscious about being mindful but it was kind of a noisy mindfulness. Whereas after, for example, being in a class, then it was clearer. It was more peaceful, calm mindfulness. I also think that I paused a little bit more when I became stressed to identify what was some of those stress triggers. And then, how do I relieve that stress.

- So definitely meditation is one of the biggest things that I have gotten out of the trainings for stress management, and also the Jigam exercises [energy meditation] with the energy you’re feeling. My whole-body relaxes when I feel the energy.

- I think being relaxed, will fix everything. Being able to focus, and being able to think better. It affects everything. Your relationships, it opens you more to compassion.
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<th>Reduced symptoms of stress (n=19)</th>
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<td>• I was calmer. I was not that angry, and I was just joyful. And the pain on my joints started minimizing, because I had fibromyalgia. And so, it was going less and less. And I could feel, &quot;Oh, I don’t have a headache.&quot; ’Cause I had headache pretty much every day. But the headaches went away. And so that was another thing I noticed, &quot;I’m not taking Advil today, or Motrin,&quot; or whatever I was taking because everything was like candy. I was taking pills, I was taking Prozac, I was taking Advil. And so now the reason I know is the energy from my head, the fire energy was going down to my lower abdomen, so that’s why the headache went away and the pain lessened.</td>
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<td>• Through the practice my health has gotten much better. My energy has changed and evolved over the last year where I’m more aware of my energy and how I can move the energy through my body in a positive way. [What are some of the health changes that you experienced?] One major one, I’ve always had low thyroid and have had to take medication over the years. I’ve gone on and off. When I go off, my thyroid levels dip. I took myself off right after I started Body and Brain [Brain Education]. I just went in two weeks ago for blood work. My levels off the thyroid medicine is higher than it’s ever been even when I was on it. That’s just telling me that what I’m doing and how we can impact our health through our thoughts and our behaviors, it’s real documented change. My other levels have been enhanced. My good cholesterol went higher. My bad cholesterol went lower. Some of those type of things just tell me health-wise it’s working.</td>
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<td>• I have learned several techniques on how to lessen the effects of anxiety. Like I said, it never really goes completely away, but it helps you lessen the effects and mentally deal with it in a new, better way. So, my experience with it is that when I do get episodes of anxiety, they don’t last as long because I deal with them better.</td>
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### Major Themes

- **Increased emotional intelligence (n=21)**

  - Oh, it’s [emotional intelligence] a lot better. I actually understand what emotions are now. [Can you describe before and after?] Now, I notice some of the physical signs of what it feels like to have the stress, or I recognize that I may be going into a situation that’s uncomfortable and maybe feel a little bit of anxiety. And I can feel all that, I can feel it in my chest, I can feel it in my stomach, I feel it in my shoulders, sometimes my head. I actually recognize the difference between sad and being angry now. I didn’t have that fine a distinction four years ago. It was all just being emotional. All emotions were just kind of like not useful, and bad, and not things that a guy in his 20s is supposed to be experiencing. In general, my relationship with my emotions has improved quite a bit. I recognize what I’m going through and it’s helped me also with recognizing where other people are emotionally. I can pick up on others’ feelings a little bit better, on their energy. And so that helps with either protecting myself when it’s necessary, but also help reach out a little bit more and support when it’s time for that. That’s been very helpful for me.

  - I actually have a master’s degree in Counseling as well. I feel that I’ve been able to recognize emotions and so forth, so I don’t feel that I’ve gained a lot of that with Brain Education; however, the key is in that emotional intelligence or that aspect, understanding how a person’s feeling in terms of if they’re angry, if they’re saying what their emotions are. If they’re crying, if they’re upset, if they’re happy and joyful, in addition to some of those behavioral responses and the words they use. Brain Education has helped me to incorporate that energy level and energy connection to what their behavior and actions and feelings may be saying as well. I think it’s enhanced it.

  - Before if I was angry with somebody, I wouldn’t pick up their calls. And then they wouldn’t leave me a message, so I wouldn’t call them. They would call me three or four times and then finally leave a message. Then I would wait another two or three days to go by before I would call them. Now, even if I feel like people are not handling the situation well, it doesn’t stop me from picking up the phone. Now, I can pick up the phone and have a meaningful conversation. Or, if I’m upset, I tell them, "I’m upset because of this, because of this, because of this." And then they can explain why they did the things they did. And then I can say, "Oh, I was upset for nothing." Because I will know what’s happening on the other side. I make up things in my head, and then I ride that horse forever. Now it allows me to be with it and to listen to it. And I still could be upset about it, but I don’t cut

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others off. I allow people to tell me how they feel, or why they did the things they did. Because lots of times it’s very justifiable, and I did not grant the other person to say why they did the things they did. I just basically cut them out of my life, cut them out of my work. And it’s not only there. It’s at home. It’s with everybody. So, this education [Brain Education] allows me to be with things that are not comfortable, or I don’t like, or I’m upset about. Just be with it, and as you’re with it, things start to unfold. And you can see a clear picture of things that wasn’t available to you before.

- I used to be inside my emotions a lot and not be able to manage them properly. After Brain Education, there is this gap of watching that allows the emotions, but me not be the emotion. It makes it a lot easier for me to not be involved with the emotion, rather watching the emotion so I can act more intelligently about it, than being reactive.

**Improved cognition (n=21)**

- So, work performance absolutely has changed in a positive way. Even my husband’s like, "Did you get smarter?" I don’t know, because when I had my kids, they weren’t kidding when they said your brain cells just go “blah” after you have kids, because I was slow. I was like, "What’s going on?" And then after I had my other one, it just exponentially went down. And so I felt like, number one, it was hard to learn new things, number two, it was hard to read, and I was just not comprehending things. Number three, I have to do a lot of mental math when I do drug calculations and sometimes I just sit there and then I just need to get my calculator out and do it on my calculator because I wasn’t doing it. Since this, I feel like a new part of my brain has opened and I’m able to do mental math a lot quicker, I’m able to read a lot more journal articles and it actually makes sense to me, and I learn it and incorporate it in my practice. I’m actually liking to read because before it was like I was traumatized from reading from all the school and stuff. And it wasn’t fun to me to read, and so I’m actually reading more articles and incorporating it into my practice.

- Knowing Brain Education helps me be more focused, more creative, and more thinking outside of the box. Being able to just not go all over the place thinking and staying with the subject matter, and digging deep, and going into it deeper. You get a relationship to the problem itself. You are looking at it, and I’m just looking at it more. Now it’s just a linear problem, but I’m looking how to solve it, or a linear thing that’s in front of me to work on. Also, how do I see it from all different angles of it. I think just being in Brain Education, helped me for sure to focus better, for sure to see it more holistic, and for sure see more
possibilities of how we can be more creative and innovative about it versus being limited. [Do you think those characteristics helped you enhance your work performance?] Enhance my work performance, yeah. That I no longer see things in a very rigid way. It’s just this way, and because we have always done it this way, it has to always been done this way. Rather than, oh, what do we need? Does it need to be this way at all? More holistic seeing things, more realistic seeing things than being rigid about it.

- By knowing more about yourself, you have more control. You can step back and see. It allows you to step back and see problems you may have, or ways to fix problems. It allows you to separate yourself and almost look at yourself from a third person point of view, which can make it a little more easy to see what you’re looking for.

<table>
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<th>Improved decision-making abilities (n=21)</th>
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| • Making decisions before this, I don’t know, I was not really thinking about it, but going off of what I’d done in the past. When I make decisions now, I have more of a clarity of the whole picture before I make a decision. And it’s not necessarily that I’ll sit there and think about it and make pro and con charts and stuff like that. It comes more innate now when I make a decision. Before when I made a decision, it was so hard. I feel like I was in a box. But now when I make decisions, I feel like my box has opened and I can see a lot bigger and that I can see the whole picture. And when I see the whole picture, I can make a better decision because I can see everything. Before, I couldn’t see everything, and I didn’t even know that I couldn’t see everything. I didn’t know that there was something outside of that box that existed. So just having the realization that there was a box and that I can see outside the box makes it a lot better.

• Making decisions, definitely yeah. Win-win decisions, not selfish decisions. Win-win decisions, that everyone would win, not only me. [Tell me more about that.] So sometimes if we only focus on ourselves, a decision could benefit that person. Me for example. But it helped me to see the same area from different perspectives. This is the problem, okay, I see it this way, but what about this person, how he or she could see it. And then I put myself in that position and the position of that person, and look at the same thing from that angle. And that helped me to realize what is the best scenario, not only the perspective that I’m looking at through my filter. Because I could put myself into somebody else’s shoes. So in that sense, I think it’s very helpful.

• Before I never really went off of what I felt was right. I rationalized it in my brain. It needs to make sense up here in my head for it to be correct before, because I was based on, "Okay,
you need to make pros and cons. You need to make sure all the numbers line up before you even make that decision, because if not then you will fail. That’s not good, failing’s not good. You need to succeed.” As opposed to now, well look, I’m making decisions I didn’t have the money to be able to do BMT [Brain Management Training] Masters program. And for some reason I went and I decided off my gut feeling, and that was completely left field for me. And to be able to make decisions based on what I feel instead of what is in my mind was a big step. And I feel like I should be doing more of that. So that was a big change for me is the way of thinking more with my head as opposed to what I felt. And now I know how it is to feel what I feel. But before it was absolutely rational mind, 100%. There was no this feeling. What is it you’re feeling? Now, I know it exists and I know how to trust it and when to trust it.

- I think that the Brain Education has helped me in making decisions. It’s been some additional tools and strategies for making decisions, so I think the more tools and strategies you have, the more effective your decision making can be.

- Decision making is important in my role and making them quickly with a lot of other people’s inputs at all times. Again, just stepping back and taking a couple of deep breaths and kind of allowing my Dahnjon [energy center in lower abdomen] to make that decision versus up in my head because sometimes when we get in our heads we get, I think a little bit scattered. If I can bring the decision making down into my gut, I usually make the best decision. [Can you describe that?] I can tell what feels right and doesn’t feel right. I was aware that that was a possibility but never knew all the techniques around it. You will hear, “Oh my gut is telling me this. My gut is telling me that”. But I always thought, “Oh yeah, right. No way”. Now that I’ve gone through some education formally [Brain Education] I can see that it definitely works. [How would you describe that to someone that didn’t know about energy?] That’s a challenging question because I think you have to experience it. I mean in the workshops I have taken it’s been more around that principle of Water up, Fire down. Then once you apply that in the experience of it you can then use that in the situation. It’s about that whole experience. I could describe it to somebody, but I don’t know if it would be applicable until they’re in that and experienced it. For me to tell somebody how to listen to their gut I would welcome them to come to the Body and Brain Center and go through some of the classes.
Increased ability to manage change (n=21)

- I think that it makes me more go with the flow, more open to just see how life unfolds, and not getting too caught up with any attachment to the way I thought things should go. I think, in general, it has helped in that.
- Managing change, definitely better. Realizing that life is ever-changing, learning to accept those changes is what allowed me to stop freaking out over things and say, "You know what? That’s meant to change and I’ll do it" or “You know, it’s not the end of the world.” It’s just like things change for the better or change for the worse, I have to accept both sides of the coin, and know that that’s part of my journey in life, in my growth process.
- Yeah, I used to resist change, but then there’s no way of resisting that, so I might as well try to enjoy it. Life is going so fast, there’s just so many changes. So, I still sometimes dream, “Oh it used to be slower”, and other times “I wish I was there”, but not as much I think. I’m starting to notice a little change and say, “Okay this is here, and I better just go with the flow.” I can’t really fight it, because the more I fight it and more resisting, I suffer resisting it, so just go with the flow.
- Change, I’ve never been good at. I don’t like change. I’m a creature of habit. I think Brain Education helps me manage change by realizing change can be good. I mean, it goes back to less stress about change. The concepts and ideas have helped me manage my stress and anxiety better about change which in turn, makes me not as worried. I’m not as worried to try something new, or to change something I’ve done a certain way for a long time as I would have been before. I just know I’ll adapt faster than I would have before due to my ability to separate my emotions. I might feel scared or worried about it, but just knowing that it’s temporary. Through Brain Education, I’ve realized that I have preconceived ideas and habits that are ingrained in me, so I have to practice change. So, my acceptance of change is more now. It’s not something I like, but I accept it more easily because I know it’s something I have to practice.

Improved focus and concentration (n=20)

- I would say it’s better. It is better because I’m able to not allow other things to distract me or bother me too much. I can go back to what I was doing faster, whereas before, I would get stuck there. I mean I still go there, but then I’m able to bring myself back faster on track.
- After Brain Education, my concentration is not all over the place. I can focus on the task at hand, and get on it right away, rather than postponing it, or trying to slide through it, or give it to somebody else. Rather meeting it head on and focus. Keep my full attention and time to it, to get the job done. Before I would do a little bit of it and then postpone it for the next day. Or do a
little bit, and then postpone it for something else. If I only want to call this so-and-so person, and then watch my show, and then I get to these things, and usually then it gets later and later and later to finally pick up something and put it together. Right now, I look at it, what it is, and just focus on it and get the job done.

- Yeah, I’m able to focus and concentrate better because I’m not focusing on my pain. So, I’m focusing more at the task at hand. I’m catching things more, and just kind of being sharper, focused, on my toes, on guard, versus I guess the average person.

- My concentration and focus have increased. Like how I said, I was scattered brain. I couldn’t focus. I have had that problem since I was a child. I’ve had a problem focusing, just because my mind races and I don’t know how to calm it down. I’ve had this conversation with my mother as well. She has the same problem too, our minds race. She is a member now too [of the Body & Brain center] and she comes regularly. And she says it’s helped her have her mind calm down and stop racing. So concentration, I’m able to do things and concentrate a lot better, have a clearer mind. Focus has completely changed. Before I couldn’t focus, and now I can focus a lot better.

### Increased productivity (n=20)

- Productivity, being the master of time and space [principle taught in Brain Education]. That is my mantra, because I am a busy person. I’m a wife, I’ve got two small kids, work full time, got a side business as well with a team of like 80 plus people. So, to be able to balance all of that, I need to be productive with the time that I have. So, when I feel like I don’t have time to do things, I think to myself, "Okay, be the master of your time. You can make it happen." And for some reason, it just happens. Like, when I just manifest it’s going to happen, it just happens. Like, I just make it happen, either I’m doing conference calls when I’m driving into work, or I’ll do conference calls for five minutes before I get into the daycare to pick my kids up just so I can figure things out with my business, and then I’ll go pick them up. So, things that usually I would say I don’t have time for, I just find a way to get it done, find a way to do it instead of watching that Netflix movie. [How would you describe before and after?] Oh, I’d be like, "Yeah, I don’t have time for that." I’d get stressed out because I don’t have time for it. And then maybe I’ll do it, but I’ll be so stressed doing it. And then by the time it’s done, it’s like, "Oh my god, why did I even do that?" As opposed to now, for some reason after doing this, it just seems like when I want something to be done, it just clicks together like legos.

- It improved quiet a lot. Like before if I got stuck, I would feel so mad and feel so stressed out that I couldn’t even think. So now I know how to release the stress when I get stuck on certain things.
Now at least, I learned I can calm down and do some meditation or some exercise to try to help myself and clear my mind. Then I can think more clearly about the problem and try to tackle the problem. Try to solve the problem from a different perspective. I will try to think out of the box, whereas before, I would be stuck on a certain thing. Now I can think, “Oh there’s another way, maybe we can try another way and think differently”. My performance is much better.

• Yes. Because in being able to manage my stress better I was able to manage my time better as well, because like I mentioned, I didn’t spend so much time just kind of having to regulate my emotions, that regulation time shortened so there was more thinking time, more performance time. Like, "Okay, back to work." Because sometimes I would have to actively like, "Okay, I have to go take a walk." Or, "I need to go do something else other than ..." A lot of what we do is report writing, so it was hard to focus on, "Okay, now I have to sit down and type a whole report after I just did, for example, a suicide assessment." But now, I don’t dwell on just the feeling of what went on. Now I’m more productive.

• If you’re more relaxed, then you can be productive and focus better. I think it also helps for workplace injury in terms of repetitive stress syndrome because I have gotten those before. That’s going to make you more productive.

Improved problem-solving abilities (n=18)

• Yeah, I think I’m definitely a better problem solver than before. This is not the end of the world type of thing, it’s just a problem, and it needs to be resolved. Looking at those challenges, as a source of growth, rather than a source of disempowerment. That’s a shift in seeing those things. I think it was a big shift for me from before and after. To have a lot more capacity for challenges.

• I would say it got better. I’m at the point where I would say "I know where the problem is," and people would have to verify my proposal of where the problem is, and they’ll take a whole day just to go research it and come back and tell me the same thing.

• Gosh, yeah. I mean, I’m problem solving all the time. I mean, my profession is just one big problem, everyone’s sick. Before, I would just go through the motions. Like, when I see my patients, I’ll go through the motions of, "Yeah, well, we’re supposed to do that procedure," or, "We’re supposed to do that procedure." I never really thought about it because I was just on a wheel of routine. But you can tell now that I do this [Brain Education], I’m thinking of other things outside of the box that it could be instead of just going through the routine. So, if I never thought of that disease process that it could be, or it could be this, or maybe try this new thing. Or I’ll ask my supervising physician, "Have we
ever tried doing this? Do you think maybe we could give that a try?" I would never be innovative. I would always be going by what I was taught and what I was told because that side of my brain just never fired. Now, it's fired up and I'm thinking of new ways of doing things. I'm thinking of new processes of doing things with staff and maybe trying this workflow. And I'm more involved in trying to do newer things instead of going with what was being done in the past.

**Improved creativity, expression of creativity (n=17)**

- I’ve always, as I’ve grown up, thought I was not creative. I still question that sometimes but for some reason, tapping into my creativity has been a lot easier since I’ve been doing the Body and Brain [Brain Education] work. As I step back away from overly analyzing and saying, “I’m not good at this”, to just being creative. I had some incidence in my childhood that made me feel I wasn’t creative. If I can get out of my head, it’s a good thing because I overanalyze things.
- I think it allows your mind to kind of expand and do more than normal because once you start believing, or you see something that makes a difference, then you believe it and then I think you’re more apt to be more creative or do things that you’re not normally used to doing.
- Creativity, yeah, it helps too. I can think out the box now. Better than before.
- After taking Brain Education, I feel more successful in my job performance because I’m more confident to share my ideas to help my department grow. It’s not just being a worker, coming in at 8:00, leaving at 5:00, and do just whatever they tell me to do and that’s it. I’m more willing to share my ideas with my team. Before I didn’t have the confidence and I wouldn’t propose anything, I wouldn’t be creative. But now, since I know I can do it, I like to propose ideas to my manager and my team.
- Yeah, I think I’m more creative. Being able to see the whole picture helps instead of just being stuck on this one thing. I’ll kind of look at it as a whole and then try to come up with a better idea for something.

**Increased citizenship behaviors (n=17)**

- So even our staff meeting with my manager when we went to the Philippines, we’ll fill up a whole huge conference room. Then my boss was like, "Hey, you got 10 minutes." I said, "10 minutes for what?" "Do your thing." I said, "Oh, okay. So, everybody up." And we did stretching or whatever just to kind of loosen up the tension, wake up everybody so everyone’s not dozing off, falling asleep. Everyone’s now awake and will listen to what my manager has to say. Because then you get everyone giggling and everything. So, I’m just showing them the basics, tapping and
then doing shoulder rolls, doing the penguin. You could see everyone’s condition. And also touching your toes, and a lot of people just start giggling because they can’t do it. But then I would kind of educate them further.

- Well, I’ve been teaching my coworkers a little bit of the exercises because we’re supposed to stretch. They had this thing on the computer where it pops up and says time to exercise, but nobody follows that. They just click it, too much work, but if somebody comes and says “Okay, let’s do this”. Like yesterday, we were doing the patting. I don’t know if you remember that. You bend over and then pat, and they love that. I say, oh we’re gonna do this every day because it really helps circulation and it wakes you up, and stuff. It feels good on your back. And so, my boss put me as leader to make everyone stretch a little bit more. At least once a day. [What’s the feedback from your coworkers?] Oh, they love to do that.

- They like plate balancing. I think because we work such long hours. I actually introduced plate balancing… I’d say, “Oh, let’s do plate balancing”, because they feel, especially at three or four in the morning when your blood sugar begins to plummet, and they feel that. They feel that they’re more energized.

- Yeah, I tell them [co-workers] what I do. I actually have a mini-class twice a week at lunch hour for everybody. Some stretching, some breathing and 5-10 minutes of meditation at lunch hour. . I try to bring whatever I got out of it for other people.

- With Brain Education, the technique of actually breaking down, setting goals and making them measurable and actually tracking your progress. So, measuring your goals and then coming back to see if you’ve actually accomplished those things or what you need to improve on. Building that system into my lifestyle. I’ve actually applied that to my job. You can just make measurable goals. You can just do something doable. Don’t shoot for the moon. Just do something that’s measurable that you can do on a regular basis and recheck and make sure that you’re actually making progress and that actually allows you to keep going when you start seeing that you’re making progress. As opposed to just setting this huge goal and never accomplishing it. Set small minimal ones and that way you can see yourself getting there and it gives you the momentum to keep going. You don’t burn yourself out. At work that’s exactly what I do now. I don’t just come up with a project or just come up with an idea to do something. I write it down. I make steps. I say, okay what do I need to get there first. How can I split this out into smaller goals and how can I make this manageable so that I can take this on in addition to other tasks that I already do.
• I think with me being a lot calmer, if we have a goal to meet, it’s a lot easier.
• Yeah, at work I’m doing really good. That’s based on not my own review, but from my boss. In my yearly review, when I see the paperwork and everything, they’re very happy with me. I produce, I think, the most I can. Within my group I do a really good job of delivering on projects. Actually, one year I delivered 140 percent.
• If a goal seems overwhelming or something, you just gotta take it and make it into a bunch of mini goals that equal the whole. So, I would say Brain Education has made goals become more achievable and manageable because it helps you break things down so it doesn’t seem so overwhelming. It helps you dissect the goal into more manageable portions.
APPENDIX K - EXAMPLE QUOTATIONS FOR ENHANCED LEADERSHIP

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<th>Major Themes</th>
<th>Example Quotations</th>
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| **Enhanced leadership abilities** *(n=7 of 7)* | • It definitely has increased me becoming more selfless as a leader, more patient with others, and just overall kindness. Go back to self-awareness, being more into myself and understanding myself and being able to help them in return. I’m more in tune with my own emotions and my thoughts and my feelings and everything than I was before, and because of that, I think I’m able to make better decisions and see things differently than I was before.  
• How are we going to win together? How are we going to cross the finish line together? Not me crossing the finish line, but together as a team. Everyone do your part, but at the end of the day, how are we going to cross the finish line together?" Not "Okay, I’m just crossing the finish line and never mind everybody else" which is easy. But it’s harder to do it together as a team and get everyone to buy into that and to do it together because everyone wants to do their thing differently, go different directions.  
• I think that my view and looking at, in the culture of work, and looking at the politics of work, and the politics people play in work, I think that Brain Education has helped me look at that energy that people have around the politics, around the culture and being able to separate myself from that. And focusing on what’s healthy for me and those around me, collectively, versus focusing on some of the political games or being able to see the biases. It’s interesting because I’ve noticed that a number of folks I’ve interacted with in senior leadership, once they have their mind set on a person and a certain perception, it’s very hard for them to change that perception. And even if that individual changes their behavior, or their approach, it’s very hard for folks to make that switch in their perception of the person. Whereas I think that Brain Education has helped me to see when I feel that people are trying to make a change or trying to fulfill some capacity they have, they’re trying to grow and develop, and I want to support them in that. I want to encourage that and I want to see them be able to grow in that area and succeed. With recognizing that, okay, they used to do X and now they’re trying to do Y and being open to that. Whereas some folks around me are like, well, that person’s always said X and they’re always going to do X. I think Brain Education has helped me be a little bit more flexible in my thinking about the growth and capacity of individuals and the belief that we all can change and that we are changing and that the energy that we can help provide for those changes in those individuals versus having the perception, oh, they can’t change. |

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## APPENDIX L - EXAMPLE QUOTATIONS FOR RELATIONSHIPS

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<th>Major Themes</th>
<th>Example Quotations</th>
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| Improved relationships (n=21)    | • Before I would’ve been very timid and very careful and sometimes scared of if I am doing it right or not. What’s going to be the consequences, blah-blah-blah. But it gets me closer to the people that I work with so, I have better communication and feeling and sensing the other people on the other side of the phone. That they are not separate than me. They are just like me, they’re trying to get something done, they may not know how to go about it, they’re making tons of mistakes and it’s for me to not be upset but rather assisting them to help them to get things lifted up off the ground. I create a relationship with my customers. Actually, I like to go see people, it’s not always possible so, I call them, I go see them, and I don’t even sometimes have to, but I go to see them, see them in person and talk to them more about who they are. How many kids do you have? What do you do? What’s your hobby? What’s this and that? Then, next time when we are on the phone, we start a different conversation, like how was your day? How is your family doing? Did your son make it to so and so or whatever. Then, we talk about the work. I’m sort of related to them, and the work is part of that relationship. It’s not only about the work anymore. It is another human being, just like me on the other side of the phone. We are related, we work together and we try to accomplish something. It is the same way people in my group that I work with that I try to be harmonious with them. Working together harmoniously and taking care of things. I realize how important they are, they are not separate. There is no separation within all of us, really. It’s like we are all the same. In that way, it helps me to be closer, and feeling going to work is not like, "Ugh, I’ve got to go to work". It’s a place that I spend eight hours, and everybody can be part of the family spending time together. So, it helped me a lot to be related to everybody.  
• I think it helps me to connect with people and also for people to trust me. An example, was one person from another department joined the team and she wanted to prove herself. And I saw her trying to cut me out of things and trying to show off and stuff. And I tried to be gentle and I reminded her to include me. Finally, I had to be stern, I said, "Okay, you are new. You have been here only two months, you want to prove yourself. I was in your shoes before, I know that this is not the way." I said, "I will help you, I know you’re good, I will help you to shine, to be a shining star. But this is not good because it creates tension. We need to work as a team, I shouldn’t have to watch my back for you to stab me, no. Don’t act that way, work as a team, I will help you so that your manager will be impressed with you, your team will be
impressed. Because I’ve worked here a long time, so people trust me, so I will help you, but don’t do it this way." So, then she changed, and she’s my friend now, very good friend. She always tells me, she says, "You helped me a lot." And she trusts me and shares with me personnel things about her life. Because I was able to reach out that way and help her out too. So, all of that comes through these educations. [Would you have had that same type of conversation before Brain Education?] No. Mostly, I would judge her, and say “Oh No”. I would judge her and be upset inside and would not approach her to help her out also. I would suffer through working with her, I would accept that’s the way she is. But through Brain Education, I kind of know how to help her out. And I try to help. She’s appreciative also, she always says that “You helped me when I was new, you helped me a lot”.

- I think my brain turned positive in a lot of ways. Before, I would look more at people rather than looking at me and how I impact other people. Now it’s more of, "Before I can change you, let me change me first." Before it was demanding, expecting. But now, it’s what I put out there is what I get. I’ve noticed that a lot. I don’t know if it’s part of it, but I’m not expecting how people have to be. It’s more of I’m open to whatever comes into the door is a person. I think I’ve erased a lot of preconceptions, that’s what it is. It improves your relationships in a lot of ways. [How does it improve your relationships?] Because you are able to communicate better, and you’re able to be kinder and more nonjudgmental, that differences are okay.

- My relationship with my boss is so much more positive now. So much more positive because, I’ve changed my way of approaching situations. Instead of being very defensive, instead of being very one sided, it’s my way or the highway, I can see the whole picture and not be upset about it. Because before it was either, "What are you talking about? This is the way I think and this is what I think." I could never think of the other way. But now that I’m able to think on the other side and have a clear mind as to the whole picture, the relationship has gotten a lot better because I am able to see what he’s trying to do. And we’re seeing more eye to eye instead of me being so one sided, my way or the highway type thing.

- [What would you say has impacted you the most?] Relationships. I’ve been more open. Open heart. I think that’s what has impacted me the most. I’ve been really, really closed. I would say my heart was closed. I was just closed and shut down. I think that has had the most effect on me to open my heart, to open my mind, to accept everything that comes.
• I think I have really good relationships with my coworkers, and boss, and family. I think Brain Education has helped with that. [In what way?] I think it’s made me feel like I don’t have to own their reactions. Things that I do and decisions I make, and I realize that people are having reactions to that, that I don’t have to own that. I try to be straightforward, frank with people. I think maybe it’s more empathy with people, as well.

• When I go to work or wherever I am and meet people I always carry with me the “Five Roots of the Mind” I learned from Brain Education. So, it’s positive, active, grateful, sincere, and humble. And when you have these five minds, five attitudes, people that meet you, they are very, very appreciative. No matter the person you meet, be humble to talk to them, be grateful for whatever they say to you. When your positive with them, and you’re actively listening to them, and your being totally sincere, then they are happy to talk to you. They are happy. They see you, they’re happy you’re around them. So, I carry these five minds with me every day everywhere. [How has that changed your relationships?] Before I wasn’t appreciative, I wasn’t humble, I didn’t feel sincerity with people. So now the relationships at work have changed because now they can feel me, they feel the true me. And no matter who you are with, coworkers, your family, friends, if you carry these five roots of the mind it will definitely change your relationships no matter where you are. It works everywhere.

• I can resolve conflict a lot better now after Brain Education because I don’t get my emotions caught up into it. Before, I would get caught up into being pissed off or I’m angry or, “You made me feel bad, so why should I make you feel better?” Like, it was very selfish. And so, with a clearer mind when you see the whole picture, you can just resolve things a lot better when you do see the big picture and you’re not clouded by your emotions and that you can manage your own emotions and take yourself away from that and make decisions, because you can’t make correct decisions when your emotions are just all rolled into it. You just can’t. So, to be able to master those emotions and be aware that I can change that has made me see things and resolve conflict a lot better.

• My relationships with my kids are a lot better because I’m able to ground myself, I’m able to handle tantrums a lot better, being able to be more creative with them, they love it. Just my overall energy with them is so much better and I feel like they feed off of that.
• I feel like I am able to see situations a lot better. My thought processes are so much clearer. Before, my thoughts used to be just all over the place. Now, I’m able to look at it and systematically put it in a way and present it in a way that makes a lot of sense, and you can tell I’m a lot more engaged in my groups because my thoughts can be put into a clearer way. Before, I wouldn’t want to say anything because I had all these thoughts, but I didn’t know how to say it so that it made sense to people. But now, I feel like I’m able to communicate it a lot better in a more systematic way that they are able to understand.

• Relationships have gotten better. Mostly it’s just become a little bit more natural, a little easier just to interact with people. Before, it was, if I wanted to talk to someone, there was always a lot of thinking involved about what I should say or not say. Just like basic conversations were actually kinda hard for a while. They were okay if it was a controlled setting, like I knew what I was gonna talk about, but beyond that it was a little bit more difficult. [What do you think changed that?] Practice sharing. With Brain Education, we talk a lot about our own experiences and what we go through, and since everyone does this, and you get a lot of opportunities to be able to talk about your own, what it is you’re going through and be able to put that into words. And so, it’s uncomfortable, especially at first. It was really uncomfortable. I think as I’ve gone on, through that I’ve gained a little bit more insight into myself, I’ve also gained a more regular way to express myself.

• More confident in sharing what I was feeling in that moment because I could just let it go. And, I was more aware even of how I was communicating it too because I know that I wanted my intention to be clear, and not offensive. Because I didn’t want it to be communication just because what if I say it and release it, then I’m good again but not thinking of the other person. So being mindful about how I express myself and how that other person might feel based on the words that I’m choosing.

• I mean everything boils down to again the self-awareness part and putting yourself in that person’s position, thinking about them as equals, and letting your ego not get in the way, not taking things personally. It’s more about being down to earth, grounded. All of its kind of same stuff with your relationships and being more honest and truthful.

• I think I have improved a lot in my listening part. I didn’t wanna listen. I would be more inside of my head in my own conversation, than listening to what my partner is requesting from me, or what her needs are. It would be more about me. Or as she’s talking, I already have a reason, dismissing her. Or not even wanna listen to her. But I think it allows me to be more with her,
and listen to her concerns. And granted, I may not accept them, still at the end of the day, but it allows her to have a conversation that I wasn’t available before.

- I think it helps to resolve conflict in that you can have the open conversation with the people that you’re having conflict with. I think that it gives you the guts to address it but try to address it in a way that is loving, not an attack on anybody. I think that Brain Education helps you to be more relaxed, but also helps you to be a better listener, and trying to understand the viewpoint of the other person. I think that will help resolve the conflict.

- It actually helped me develop my empathy, to take others into consideration. It helps me connect with them more versus before, I didn’t have any feelings. It was more like, "Okay, go fix it" kind of attitude, where it was like, "Why are you complaining? Do something about it?" I won’t sit down; listen to hear what you actually have to say. It’s like, "Oh, you have a problem? Go deal with it. I won’t let emotion come in because I don’t want to get hurt. So, I will block emotions, especially ones that are hurtful emotions. So, I’ll just kind of leave it at bay. I don’t want to get too close. Now, I can get close and still be okay. Whereas before I was not okay. Now, I’ll feel it and be okay with it. So, I don’t necessarily block it right now. Now I just feel it and then kind of like, "Okay, how do I want to channel this?" I’ll listen to them, or I’ll try to comfort them, or give them something hopeful to think about. So, it’s not just focusing on me, but focusing more on the other person.

- Before, whenever I would do procedures on people, it’s like I’d numb myself up. I’d try not to feel, and I’d try to separate myself from what they feel. Because if you feel too much with your patient’s day in and day out, it will get to you. There’s this whole entire notion of medical professional being a quote, unquote, "Hard ass," or have to separate yourself from your emotions because if you do feel every single time you meet a patient dying from cancer, or something like that, it’s hard. You need to protect yourself. I felt like I needed to protect myself from it all the time. Now that I’m doing this, I feel and I empathize with people a lot more. I felt it’s kind of harder for me, because I don’t have that shield up and I do feel my patients. Not just emotionally, but physically, I can feel my patients now. When I do my procedures, I can feel the pain sometimes come through my body. I had to learn to be able to do things to ground myself so that I can just let it go through instead of keeping it within. Because before, when I started being more aware of my body and doing more Brain Education, when I would do my procedures, I’d literally feel chest pain. I didn’t know what that was, and I didn’t know what
was going on. Then I found ways to be able to ground myself, to be able to let it go through, instead of holding it in. In a way, I also feel like I can see my patients more. I can see through their eyes, and I can feel what they’re feeling when they tell me they feel this, this, this, and this. I have seen an increase in connection with my patients.

- I sense other people’s emotions as well, and now, I can sense it even better. For example, if I walk into a room and I feel nervous, I know it’s not because I feel ugly or because I feel however, it’s because someone else is nervous, or someone else is feeling something and I look for that person. Now I will talk to them and see if I could be friends with them or see if I can cheer them up, change the energy in the room and change my energy overall. That is how I really feel like it’s helped me because I would feel these things and not understand why, and especially because I never connected with my own emotions. I’m like, “Why am I feeling this all of a sudden? I don’t usually feel this way.” Now, I know where it’s coming from. Sometimes, it’s from me. Sometimes, it’s from someone else. Sometimes, it’s another event. But now, I can categorize it and now, I can kind of catch it before it gets out of hand and actually, not be afraid to connect with it and trust that this is an emotion that I can control, and not so much to let it control me.

- You need it [empathy] for the line of work that I do. To take that other person’s perspective and guide them through their feelings. So that came pretty easy, but it’s the specific principle from Brain Education of “my feeling is mine, but it’s not me”. I identify the feeling separate from me, for example, if the student’s really, really sad and we are together in that moment, when the session is over, the thought would be recurring over, and over, and over again about what was said and what was done. So, I would be in the sadness. Now, it’s like I make it an entity like, “Hello, sadness. Oh, sadness. Okay. I have the power to manage you.” I see it, but I just don’t feel it in my body. Whenever I just call it out that way, it makes it separate. I accept it for what it is, and that it’s not like something that you have to stay in. So yes, that was sadness, that was sad. That circumstance was sad. But it doesn’t define that student. It doesn’t define who I am or where I’m at. Because my natural state is to be happy. So, I can be happy. And it’s okay. Just because we experience that sadness I don’t have to now be sad and everything’s sad. No, that was sadness and then we move on to the next thing.

- Relationship with my patients, I can empathize with them a lot better, have a lot more compassion for them because I can feel. I used to be very numb to everything, but I’ve allowed myself to feel. And I think it’s a lot better relationship with me and my
patients because I can feel what they’re going through. A big thing in my field is a lot of docs don’t feel for their patients anymore.

Increased compassion (n=20)

- I would say I have more compassion for others, and if they’re telling me they’re going through a difficult event right now, it’s like I’m at the point where I’m more sensitive, where I can actually feel their emotions. And I feel sad now. You know, tears will just start. I don’t know why, but it happens. Then I’m kind of praying for them silently, that things will work out for them. And I’ll be there for them if they need something.

- Because of Body and Brain [Brain Education], I’m more aware of the situation that they’re going through because I’ve been there, so I have a little bit more empathy and compassion and all of that. I try to tell them, I’d say, "What helps me is I like meditating." Just quiet your mind. It’ll come to you.

- Compassion to other people, of course, definitely. Yes. Because I have gone through difficult times and I never thought about how I can help others. But because Brain Education helped me, when a coworker told me she was getting divorced, I felt that I have to help her. That is compassion. It’s from my heart. Even though I’m not close to her. But it just popped in my mind, "You have to talk to her. You have to help her. Because you see a mirror. She’s just you." If I had Brain Education before I went through my divorce, I would not have had such a difficult time. My life would have been much, much easier. I would have been happier. I wouldn’t have suffered that long until three years ago. [How would you have responded before Brain Education?] If I didn’t have Brain Education, I don’t think I would have the confidence to talk to her because we are not that close. I wouldn’t say, "I would like to help you." I would just tell myself, "Oh, that’s another sad woman just like me". Before, I might just say it’s not my business. And, if I didn’t learn all the tools from Brain Education, I wouldn’t know how to help her. Even if I would have wanted to help her, I wouldn’t know how without Brain Education.

- Yeah. I definitely think I’ve become more compassionate. I guess for a long time, and this is an example, my daughter has had some hard feelings. She’s my biological daughter, but I remarried so she has really hard feelings towards my husband. I feel like, in the last year or so, I’ve become more aware of how much things have bothered her in the past. I’ve talked to her more openly, and said, "You know, I understand." I asked her for her forgiveness if I had ever been less than compassionate with her. I think that really helped. I think that the whole Body and Brain [Brain Education] has helped me in that area.
Increased altruism (n=19)

• [How did vision training impact you?] I didn’t believe in it. I believed that things happen and you just have to react to it or step in if you must. It’s never been my thing to put a vision out there, but ever since Brain Education, they talk about visions and ask what your vision is. It’s like, what can I do? I mean, I’m already a working person, you know, I have my own vision in my house, I want to clean it, but not a big vision. Not a big vision like that. Then I started thinking about my grandfather’s school in the Philippines, which is getting ready to close. That was actually my first vision, to get it off the ground. I didn’t realize how hard that is. I was like, “No, this is not me, this is for a younger person”, but it’s continuing. I think that was the first impact for me because I’ve had this vision about the school even before I went to Brain Education but I just didn’t have the guts to do it, and so after I went to BMT [Brain Management Training], I actually held a meeting and I said, “Okay, since you’re all graduates from this school, do you think that we can form an alumni and do something for the school.” It was actually the first thing that came to me after BMT and I held the meeting one month after. I was very happy with the result because I didn’t know at the time that that school was really going to close, there was no way it was going to continue because they were not meeting their standards. They were not even able to pay their employees, it was going to close. There’s no doubt about it, but for some reason I’ve followed a lot of my instincts and it’s not in the best shape, but it’s continued on. So as long as it’s there, I think something positive is going to happen.

• I think the more I understand other people, that I make a difference in other people’s life, I actually make a difference in my own life. Because, we’re all living together. We are social animals. How things are affecting you, is affecting me. And if I’m blind to that, I’m just being stupid. Really, I’ll be stupid. So, when I make a difference in somebody else’s life, I actually make a difference in my own life. The happiness and joy I get is enormous. It cannot even be measured. And when I see other people happy, it makes me happy. That kind of a connection is just amazing. And I was blind to it, till I started the Brain Education courses. And then I realized the value of it. None of us are separate from another. We are all connected. We are just blind to it. We don’t know what the connection is. And if I try a little bit harder, and try to understand this a little bit more deeper, we make a huge difference, to their life, and to my life. It’s just goes both ways.

• I think particularly, with altruism, thinking that you’re having a world view of things, that your existence is interconnected and
interrelated with each other. And each being is contributing to the whole. And so, seeing yourself, to be industrious, for human kind. So, it’s kind of like, when you see yourself there, and then you kind of go back, and then from there you’re acting, it just makes all of your actions very different. Because, you see yourself in a very different light, than when you are just an individual trying to do your life. But now you have this view of a whole, of wholeness, you can then really see yourself in that. Therefore, altruism becomes a very natural way of being. And from there, compassion becomes a natural way of being, to have compassion for others, because you never know where they are at in their lives. ‘Cause you’re feeling connected you have empathy for other people. “Well, what can I do?” Just have that kind of understanding about your being. So, I think those are actually major components of Brain Education, because you see yourself in an interconnected, interrelated world, and you see yourself as a contributor to the whole and not just an individual, separate, doing your own thing. It just makes you connected and as soon as you get connected, the empathy and compassion and altruism becomes very much the byproduct of that, because we’re connected. How else would I be able to live other than harmonizing and helping others? And same thing also for your own existence, because how else would you be able to survive, if you don’t ask for help? So being vulnerable with people and exchanging with others becomes very natural, feeling their pain and doing something.

- All three of those [empathy, compassion, altruism] have been enhanced. When you’re aware of how interconnected you are to everybody, and for myself becoming more aware, I’m going to have more empathy towards others and compassion and in that fuels that universal life path for me and “Why am I here? What am I doing? Truly what is my true self?” I learned when I was in that workshop that my true self is giving back to society.

• Finding peace within myself, forgiving myself, not being so hard on myself, trusting in myself. When I started to do that, I started to let things go, like in my past as to why am I such a perfectionist? Why am I such a hard ass? Why am I so closed off to other people? When I recognize the reasons because of that and learn to let that just go, it was like, "Oh, it’s okay. Everything’s okay," because I was holding so much in my past, things that happened to me. I was so angry that this happened to me, and I was so angry that that happened to me. "You betrayed me because da-da-da-da-da. So, because you betrayed me, I’m going to put up this wall." But to recognize and just let that go... that’s the past, just let it go. It was so freeing to me. And when I
felt that freeness, it feels like I have the peace within myself to focus on what I really need to do and what I was really put on this earth to do, instead of clouding my mind and being resentful and being bitter and hatred towards my past and how I am. Actually, what it is just really being upset at myself, you know? When I learned not to be so upset at myself, I felt weight lifted off my shoulder.

• If you understand how your body works, then probably you can use it better, and you can care for it better, and you know how dependent you are on it and that part I did not make the connection before. You use your body like it will go on forever. I mean, as a healthcare worker, my focus is giving. And so, I didn’t realize that until Brain Education and they said that it’s really giving and receiving, and that made sense to me. That concept I think is what impacted me the most. The concept of oriental medicine is, you should be well to give. You should be well to give to another person. And that kind of made sense to me. And before it was different. You are a nurse, you give, you actually forget about you and you’re supposed to be the nurse, you’re supposed to be well, you’re the caregiver, but you don’t think of it that way. Your role is to care, care for others, not care for yourself. I didn’t realize how much impact that is if you know that. That’s not the western concept. It’s very segregated. It’s not the focus. It might be the concept but it’s not the focus.

• I was smoking a lot. I was drinking a lot. I was taking Prozac all together. I thought I was relaxing myself but I was numbing myself. That’s the part where I would try everything to become numb so I wouldn’t feel the anger, pain, and resentment toward myself for my past choices. I couldn’t see the rage I had inside. I thought the anger was good because I felt it made me strong. I felt like it made me work better, make better decisions, do things better. And I was so sure, I had such a confidence ‘cause that’s the strength inside that anger creates. But it wasn’t making me stronger, it was actually making me weaker. But I didn’t see it because I was not feeling my body. Even though my body was screaming I still didn’t feel it. I still blamed it on someone or something else. Brain Education helped me see the anger and resentment I was holding inside from my past and release it out of my body. Now I can make better choices that align with what I want to create for myself versus being stuck in emotions from my past.

• [If you were to summarize, what’s a few things that’s impacted you the most?] The emotional part. The way I deal with the stress. It’s linked to emotion, and so that is the number one thing. And because of that, it leads me to open so many doors. Being compassionate and understanding to others, being good to
myself, loving myself more, handling stress by looking at it differently. It’s not really a big stress because it’s a really small thing. I’m just making it big because I think too much. Yeah, self-awareness, allowing me to step back and breathe and looking at the situation in fresh, new eyes, whatever you call it. It allows me to see things differently. It makes the situation smaller than it is.
APPENDIX M - EXAMPLE QUOTATIONS FOR WELL-BEING

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<th>Major Themes</th>
<th>Example Quotations</th>
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<tr>
<td>Increased well-being</td>
<td>• [When you reflect on your overall experience with Brain Education, what do you feel has impacted you the most?] Happiness. Genuine happiness. Confidence, and I think health. Being healthy. It’s just been amazing.</td>
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<td>(n=21)</td>
<td>• I got my health back. [When you say &quot;health,&quot; can you describe that more?] So, physical health being primary, and then that leads into my emotional and my spiritual, and then everything else that falls under the sky. [For spiritual well-being, how would you describe that?] Helping me connect to myself was the biggest win for me. So, prior to this training, inside I felt this big hole. Even though I was surrounded by lots of people, I felt so lonely inside. And to a certain extent I was depressed, but I didn’t say it, I just kept it to myself. But after connecting to my soul, then that hole closed. I was no longer depressed. I was actually happy. [When you say “connecting to your soul” how would you describe that experience?] I connected to me. There was a gap between what was the inside me, like how I felt inside, versus the outside me, like how others saw me. I was feeling inside, just kind of sadness, depression, anger. I could be around a whole bunch of people but still be depressed. Everyone could be giggling, but inside I just felt, &quot;Okay. Haha.&quot; But I’m still sad inside. But after connecting to me, that created a shift and that hole closed up and was gone. And once I made that connection, I was so much happier. So, connecting to me, that was the big thing and that was one of the things I got from Brain Education that I would classify as a lifesaver. [When you say &quot;make that connection,&quot; how did Brain Education help you make that connection?] Going through the series of workshops, all the sudden one day, all of a sudden the gap just closed. It was like day and night, in that one instant. I don’t know how else to describe it.</td>
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<td>• I physically felt better. What I was feeling was tiredness. And because you’re tired, you deal with things that come your way as, “Oh, this is another thing”. And it’s harder because you can’t see it clearly. What’s coming to you is not clear, so you’re not able to deal with it. You can’t seem to solve it. It’s like things are a burden more versus enjoying what you’re doing. You don’t have a clear vision of what’s going on because you are focusing more on your physically being tired and not able to cope. So, in a sense it’s holistic. It’s not just your body, it’s also what going on mentally. So, your emotions can be affected if you don’t feel well. [Tell me more about the holistic aspect.] Western medicine has always segregated I think physical from mental. The model</td>
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that we have in medicine, is that we want to get patients better physically, which I do agree with as we want to get them physically better, but we don’t really think about what’s going on in their life. We segregate that. They come to you and we need to patch whatever they need patching and off they go. But really, I think there’s a great impact of what’s going on with them, wherever they are in their life that we’re not meeting. And I think that’s what’s keeping the cost of healthcare up in some ways. So, it has been a learning experience for me to be in Brain Education and not separate the physical, mental, and emotional wellness.

- And, also like I said, spiritually, helps you grow because of the meditation and just being in touch with the people, most of the leaders are ... you don’t even have to say anything, just you feel it that they are somehow different. . . . [When you say spiritual aspect, tell me more about that.] Well, being able to be quiet in the meditation, helps you center and quiet your mind and that relieves the stress. And, helps you center and forget about everyday problems.

- Initially I mentioned how I came in for spiritual growth, but I also needed physical healing and being more active just in general. I had for a couple of months been feeling a lot of pain in my chest. I went to doctors, I said, "Something’s wrong. I can’t breathe, I’m having a hard time breathing." And I was relatively healthy, physically at least. So, my doctor’s like, "You’re fine. There’s nothing wrong with you. You’re okay." I said, "But I don’t feel okay. Something else feels heavy in my chest that’s making it difficult to breathe." Literally, I couldn’t breathe. My doctor just said, "No, it’s probably just stress." I said, "Okay, what do I do?" She’s like, "Don’t be stressed. Let go of the stress." I said, "Okay, that’s not helpful." I said, "Okay, if it’s not physical, but it’s manifesting physically, what more do I need to do?" That’s why my search for the spiritual growth was important. Now with Brain Education, I understand my spiritual body was not healthy as I was holding on to a lot of resentment and pain from the past that manifested physically... Another example, is that my husband and I were trying to get pregnant for two years. Again, that was something else that I’m like, "Okay, I’m healthy physically and nothing’s wrong with me. What’s going on?" I think being in a happier state, being able to regulate my emotions and release an old, way old emotions from childhood, emotions I didn’t even know I was holding onto. Being able to go that deep into my healing, I think allowed me to be a lot more present, and in turn happier. And when I was able to connect with my husband in that sense, not to say that that equaled a baby, but then miraculously just when I thought I was healthy I got even healthier physically, emotionally, and then we got pregnant. So
yeah, I think as my overall well-being, I met goals that I didn’t even realize that I would be able to.

- Overall healthier, happier and more peaceful than I was previously to Brain Education. I have taken it more to heart and practice it on a daily basis for myself. I practice it because it makes me feel like a better person and then I can interact with others and my interactions can be healthier and more peaceful, happier overall with others as well. I think also that I’ve always been more of a thinker than a feeler and that this has helped me have a little bit more balance and more feeling with the thinking and more balance in that area.

**Increased self-confidence** (n=21)

- It increased my self-confidence. A lot. [And how has that influenced you?] Courage. Courage to try new things, courage to speak up, courage to ...everything. Deal with changes easier. So, I used to be a control freak. If it didn’t go exactly my way, everything is off. So now it’s like, “Okay, go with the flow.” So just letting it go. It’s more freeing. And I would say less stress. When people actually see me in the environment and what I’m dealing with, they will question, "How do you do it? In the midst of all this chaos and craziness, how do you do it?" And I say, "You just do. Go with the flow." But it’s hard to describe to someone who hasn’t undergone their own training.

- I think I’m feeling more comfortable in my own skin. I have become more confident I think with all this training and knowing myself and being aware of who I am or what I want. So, I think that has a role to play with it. Of course, as you get older and your experience and everything, but I believe that because I’m more self-aware, more confident than I was before and I see people as an extension of me, like I have these conversations in my head, “We’re connected.” I mean we’re all from the same source and she probably has the same issues I have in a different way, and so I do this a lot and that helps me.

- Oh, that [self-confidence] totally is ten notches’ higher. I used to not be in the conversation. I didn’t want to participate in things, just sat there and watched people. Wasn’t too sure about everything. Now, I feel I can be myself and however it is, it’s okay. I don’t have to be the most intelligent person, or the most this and that, or whatever. I can be myself, and I’ll be okay. Being myself is okay. I don’t have to be something else. I don’t have to take a step back because I’m not that, whatever that is. It gives me a confidence to be whoever I am, and participate in whatever is out there. Not feeling that I’m less than whatever. Or this is not me, I shouldn’t be this way, or anything that before was stopping me, I’m not that. I didn’t participate in lots of things, only participated in things that I felt I’m good at. I can participate in
things I’m not good at, and I can laugh at it at the end of it, however it is. No problem. [Why do you think that self-confidence is important?] When you don’t have self-confidence, you get isolated, you get separated, and you are away from everybody else. So, I think it brings depression when you don’t have self-confidence, because you’ve been isolated. When you don’t have self-confidence, personally, I don’t participate in anything, right? I don’t participate in group conversation, I don’t participate with my co-workers, I don’t participate with my wife, I don’t participate with my kids. I just always hold back. I wouldn’t be fully out there, and I think in the long run it brings depression. It becomes a way of being, which is not healthy.

- It’s not only the concentration, it’s also the belief system. I remember taking a course in Brain Education, and we started the training by doing some pushups. The belief system that we have about ourselves, it was, I don’t know, maybe 20, 25 or 30. Then, by the end of the 2-day training, from Saturday morning to Sunday evening, I had 67, 68. That’s how I can describe the before belief system about our limitation, and then after those limitations are erased. When we can see those false limitations, we have a better understanding of ourselves and what we can do. I think before Brain Education, perhaps there was a lot of restriction about my belief system, about my performance and how far I can go.

- I think I’ve always been confident to a certain extent, but I think knowing what I know now that was more pride than confidence and now the confidence comes from being okay with who I am and being unique and being different and thinking different. Whereas before I always tried to hide that from people. I didn’t want to show people how differently I thought or felt about things. Now I feel more comfortable being me, being in my own skin and expressing myself.

- Increased energy, vitality (n=21)

  - I think my energy level, people do not believe that I’m 47. They’re thinking I’m still in my late 20s or my 30s. And I think that’s a huge contributing factor where I’m able to start making changes, then it has a longer lasting effect, to slow down the aging process.

  - I think that the shift in energy came with the happiness together. I just felt lighter, less heavy. Especially in the chest area because that’s where I was carrying all my stress. I just felt lighter. So, the energy just was happy most of the time.

  - It’s higher than before. Yeah, before I would feel sleepy after lunch or something, but now I’m okay. I can go for the whole day without feeling tired or sleepy.
• Now I’m using my energy wisely not just wasting it. Whereas in the past, I’m feeling tired, "I just need a cup of coffee. I’ll be fine." Oh, "I just need a cigarette I’ll be fine." When really it’s managing my breath. Managing my diet.

• [When you reflect on your overall experience with Brain Education, what are some things that have impacted you the most?] I guess the overall energy for activity, that’d be one. I would also say I feel like my digestive health is better. And then one other aspect of Brain Education is having some goals and being able to pursue your goals. I think that attitude of having goals and pursing them is helpful. I read the book, *I’ve Decided to Live 120 Years* [I. Lee, 2017]. I also feel like that helped me turn around like my attitude toward aging. I think that’s good. It gives me that perspective like, okay, I’m 59, I got another 61 years to live. I feel like that’s a good thing in terms of giving me that perspective. [How would you say that your attitude or beliefs have changed around aging? What was it before and then now?] I think that before I felt like I was going to retire and then maybe do some things. Now, I feel like I have a lot longer to plan for and it gives you that attitude of, well I could actually live to 120 years, so it helps you feel like you prioritize your health and mental well-being, as well as feeling like your long-term altruistic goals, you have some time. You can develop those, before you didn’t have that long-range thinking, at least for me.

**Improved sleep (n=21)**

• I used to have a lot trouble sleeping but I learned the toe tapping technique and it worked like a charm. I also tried the wooden pillow, it worked like a charm. And those episodes of not sleeping and waking up suddenly throughout the night became less and less frequent to the point where it almost doesn’t happen anymore. Now it happens, but very slight and knowing that I have something to do to address it I’m not afraid to go to sleep anymore.

• I used to have a problem a lot with sleeping. My mind would not stop racing. I’d think about all my patients throughout the day. Did I do the right thing? Did I write the right medication? Is this patient dying as we speak right now, while I’m lying in my bed? Things that I think of that I did in my work would just haunt me throughout the night, and I couldn’t stop it. But bowing really helps just relax everything. I mean, before I go to sleep, I’ll do my bowing. I’ll bow before I go to sleep because if I don’t, I can’t sleep. My mind won’t stop, and I feel like it just, I don’t know, it just aligns me to just relax and sleep.

• I think it’s influenced my sleeping, so I used to not be able to sleep very well. Since childhood I was not able to sleep very well. I think it’s really helped me be able to sleep better overall.
Especially kinda bringing the energy down, doing the toe tapping and the wooden pillow behind my neck.

- Making sure your energy is moving properly through your body has helped me. For me it’s helped me sleep better. I tend to be a light sleeper and when I started doing the Body & Brain exercises [Brain Education], I went into a deeper sleep.

Improved exercise (n=21)

- Yeah. All of them [sleeping, exercising, eating]. I was pretty good at exercising, but I think I’m even better now. I feel more energetic. I feel like I want to do more. Or more different things, I don’t just mean run 10 miles. Just different kinds of exercise, whether it’s just light exercise or walking, or playing golf. It just seems so much easier for me, now. ‘Cause I mentally know where that next gear is, and it’s not miserable or hard for me anymore to do it. I actually look forward to it… The other things I’ve noticed are balance. I actually love to play golf, and when you’re a golfer, having really good balance is really important, because when you swing the golf club just a fraction off one way or the other in your balance can make a huge difference. So, I think about that now, and my balance has gotten a lot better.

- Brain Education helped me with exercise in that I have more different things I can do. I feel like I’ve learned a lot of different exercises I can do now. And it’s helped me to think of exercise as more than building muscle strength or something like that. So, I have a little bit more of a full sense of what’s going on in my body and what’s working well and what’s not. And then being able to address those things that aren’t. Keep a better kind of balance about me. So that’s been a positive change.

- Absolutely. Exercising … I mean, before I used to think I had to go to the gym and pump it out for an hour and be away from my kids, but just having to do like 10 minutes exercises at the top of the hour or just doing my exercises before I go to bed. I feel like I’m getting a lot more benefit. Like, doing 40 pushups right before I go see my patients, my gosh it makes such a difference. Even if it’s just one minute of your time, if you do that every single day, it just adds up.

- The exercise, the type of exercise through the center [Body & Brain center] and doing the tai chi yoga, the way they’re doing it at Body & Brain [Brain Education] is much different than what I was used to in the past. It really enhances the energy level and moving the energy. I can feel the energy going through my body. Like I direct energy through my body and that really is key because energy is life.
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<th>Improved eating (n=17)</th>
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<td>• Absolutely. The most important one was the eating. . . When I then became mindful of the Earth, and what it meant to eat what I was eating, and be graceful and grateful, it allowed me to change my diet. But not in the sense I’m following now Paleo, or Keto, or whatever it is that they talk about, but it was just more, I keep saying the word “mindful”, but I can’t get away from that. Being present and understanding the nurturing part of it, or how my body is becoming the Earth and that connection led me to be able to make better choices for myself, and in turn again the Earth. I think that one [eating] stands out a lot to me because before I was never really on a diet, but that’s just all I knew. That’s just what we hear about. But thinking about food differently about just the appreciation of the Earth and how it’s becoming our body really helped me and guided me in making the healthier choice for that reason rather than, &quot;I want to lose 30 pounds.&quot; [You mentioned that you had lost a lot of weight when you first started. Can you share more about that?] Yeah, when I started to then just think about what I was eating and the reasons why, I wasn’t so scared, or worried about it anymore. But it naturally just happened given the principles when I was thinking about being grateful. And I don’t know, I just came closer to Earth that way.</td>
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<td>• The instructor always emphasizes mindful eating and not eating too much. I try to take that to heart. I think I’m a little bit more satisfied and my digestion is better because I’m more slowly eating. I’m chewing my food. I think before I did the Body &amp; Brain [Brain Education], when I would eat, I wasn’t as mindful and I always wanted to eat with people. And then after learning more about mindful eating, I began to change my attitude, like I should concentrate on the eating, and I don’t really need to have the distraction of people. If I were eating at home, I’d be like “Well, why isn’t my husband or my son eating with me?” And then I lost that attachment, it’s like, &quot;Oh, I’m eating by myself because they’re off doing something and this is an opportunity for me to be more mindful and eat more slowly,&quot; and not to have a little bit of resentment that I didn’t have some company with me or something.</td>
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<td>• For me, it was always important to eat well, but being more aware of what you’re eating, when you’re eating it, and how you’re eating it. Brain Education has enhanced that.</td>
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## APPENDIX N – SYNTHESIS MATRIX

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