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The effect of loving kindness meditation and student teachers stress and empathy

Imre Csaszar
Louisiana State University and Agricultural and Mechanical College

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THE EFFECT OF LOVING KINDNESS MEDITATION AND STUDENT TEACHERS
STRESS AND EMPATHY

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in

The Department of Educational Theory, Policy, and Practice

by
Imre (Emeric) Császár
B.A. Toccoa Falls College, 1996
M.S., Stetson University, 2004
August 2012

DEDICATION

I dedicate this dissertation to my late Mother, Edith Gabriella Császár. Your dream became mine … and now a reality.

ACKNOWLEDGEMENTS

them living abroad). Thank you for all your support, encouragements, prayers, and your

enthusiasm about my project; you may not know it, but many times you were the ones who

pulled me through.

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ABSTRACT

Teachers face increasing demands in the twenty-first century as they engage with students, administrators, coworkers, staff, and parents. High demands and stressors may generate feelings of emotional exhaustion in educators. If left ignored or untreated the emotional exhaustion may eventually lead to burnout and impairment. This prospectus highlights a study designed to explore a preventative option to mitigate the experience of stress felt by student teachers through a structured, guided mindfulness training practice: loving kindness Meditation.

CHAPTER 1: INTRODUCTION

1.1 The Relationship of Loving Kindness Mediation on Student Teachers' Stress and Empathy

Twenty-first century educators face unique challenges and must be flexible and adaptive to the specific needs of students in today's classroom. In order to be effective, teachers need to have a relationship with students based on respect, caring, and an overall understanding that the human relationships in schools are vital to a positive learning community (Cooper, 2003). However, the stress faced by teachers may lead to negative consequences that undermine their ability to sustain personal health and positive relationships with students. This manuscript highlights a proposed study that used loving-kindness meditation (LKM) to mitigate student teacher stress and to promote empathy.

1.2 Literature Overview

Teachers are faced with stress on a day-to-day basis. While stress is common among professions and is pervasive in U. S. culture, teachers who do not learn to deal with stress may deal with the negatively progressive consequences associated with stress: emotional exhaustion, burnout and impairment. An examination of each follows.

Stress.   Stress is an ordinary part of everyday life for all individuals. According to Selye (1976) stress is a condition that forces physical and or psychological burden(s) on a person (Selye, 1976).   According to Lazarus and Folkman, "stress refers to a relationship with the environment that the person appraises as significant for his or her well-being and in which the demands tax or exceed available coping resources" (Lazarus & Folkman, 1984, p. 63). Further, there are physical and psychological stressors that influence one's maintenance, development, or regression of physical and psychological integrity (Lazarus & Folkman, 1984).

Teachers are not immune to the effects of stress as they face the demands and expectations of their students, parents, administrators, and society in general. There are several stressors a teacher may face in and outside the classroom on a typical day. One of these stressors is classroom management which includes the facilitation of appropriate individual student conduct, the interactions of groups of students, as well as application of behavioral intervention for the entire classroom. Another stressor a teacher may experience is the development of effective pedagogy and a curriculum that meets and exceeds the expectations of administrators including choosing a method of delivery that meets the learning needs of diverse students. Choosing and applying the appropriate strategies to enhance learning while meeting the demands of a rigorous schedule might also add to the level of stress a teacher may experience.

In addition, the amplified weights of workloads-- particularly due to the heightened importance of assessment, accountability, and high stakes testing—as well as increased number of students in the classrooms, may add to teachers' level of stress. For example, Frysh (2011) reported that in Atlanta, 178 educators were accused of cheating on state standardized test scores from the years 2007-2009; Frysh postulated that this may have been due to the overwhelming emphasis placed on the importance of students' scores. Other stressors include violent acts committed by students (sexual assault, physical assault, verbal harassment) to other students and to teachers. The collegial working relationship may also present stressors to teachers whether they are working with another teacher, in team collaborations, or with administrators and other staff in the educational environment (Montgomery & Rupp, 2005). In addition, interaction or non-interaction with parents of students may also exacerbate the stress felt by teachers.

As the pressures of stress compile, teachers may choose to use adaptive coping strategies to reduce the effects of stress in their lives. However, if teachers do not possess the skills to adapt

to stress they may experience increased stress. Stress in the absence of positive coping strategies may lead to a more negative outcome; teachers may experience emotional exhaustion leading to burnout due to their lack of ability and/or skill to handle stress appropriately.

Emotional exhaustion. Wright and Cropanzano (1998) define emotional exhaustion as a "chronic state of physical and emotional depletion that results from excessive job demands and continuous hassles" (p. 486). People experiencing emotional exhaustion often report a feeling of emotional emptiness and a feeling of being overstretched emotionally. This emotional state may also manifest in both physical and psychological fatigue (Zohar, 1997). When people ignore emotional exhaustion and leave it untreated they eventually will experience burnout. Maslach, Leiter, and Schaufeli (2008) specify burnout as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment. It is important to pay attention to emotional exhaustion because it influences physiological and psychological health as well as how one performs in the workplace (Ducharme, Knudsen & Roman, 2008). Ingersoll (2011) contended that untreated emotional exhaustion is positively related to teacher attrition and migration. Other researchers have called for training to preventatively "equip teachers with coping resources to avoid emotional exhaustion" and suggest for researchers to "continue to assess emotion regulation strategies as one way to explain the emotional exhaustion process" (Tsouloupas, Carson, Matthews, Grawitch, & Barber, 2010, p.186). Mindfulness practice, particularly Loving Kindness Meditation (LKM), may be one way of mitigating emotional exhaustion. However, untreated, emotional exhaustion may progress to the point that a stressed teacher may eventually experience burnout.

Burnout. Burnout "is characterized by emotional fatigue, disengagement, irritability, and apathy resulting from the work environment" (Butler & Constantine, 2005, p.55). People

who experience burnout report difficulties regulating their emotions and often become ineffective in both their professional and personal lives. Burned out teachers may have lower productivity, lower sense of accomplishment, and poorer relationships with students. Due to burnout, some individuals exhibit decreased self-care including extreme measures of change in eating habits: emotional eating, overeating, or poor nutrition. In addition, one might purposely avoid social interactions including missing work as a consequence of burnout. Social avoidance is problematic because it can leave the burned out individual more alienated and feeling further withdrawn. Moreover, one may display self-destructive and self-sabotaging behaviors by engaging in substance abuse with the intention of finding an escape from feelings brought about as a result of burnout. A teacher facing burnout may demonstrate a lack of empathy and compassion towards students as well as resentment and anger towards other teachers and administrators. Beyond these aforementioned aspects of burnout, when burnout goes untreated it can lead to eventual impairment.

Impairment. When an individual becomes impaired he or she is at greater risk of causing harm to self as well as potentially harming others. In the case of a teacher, students are at risk of harm. An impaired teacher may display poor judgment that may be reflected in his or her ability to make the right ethical decisions. This may include becoming verbally and physically abusive and may even include initiating inappropriate sexual contact/ abuse (i.e., sexual harassment in the workplace or sexual contact with a student). An impaired person may no longer show any interest and involvement in his/her job and often makes excuses for tardiness. From these one may draw the conclusion that impairment has excessive costs including productivity, liability for the individual and school district, and potential risk of harm for

students. Many researchers have advocated that the best way to address stress is preventatively through holistic wellness to promote resilience against burnout and impairment.

Holistic Wellness (mitigating stress)

Wellness is more than the absence of illness in a person's life. Wellness encompasses optimal functioning, living productively in all dimensions of life and moving towards transcendence (Maslow, 1971). Corbin and Pangrazi (2001) define wellness as "a multidimensional state of being… the existence of positive health in an individual as exemplified by quality of life and a sense of well-being" (p. 1). Holistic wellness includes all aspects of self: physical, emotional, cognitive/mental, spiritual, and social; wellness promotes healthy development (Hartwig & Meyers, 2003) by emphasizing strengths, maximizing potential, and enhancing positive coping skills (Harari, Waehler, & Rogers, 2005).   Csikszentmihalyi's *flow concep*t may also be associated with the holistic wellness. People experiencing flow are focused, energized and experience accomplishments as a result of their activities (Csikszentmihalyi & Nakamura, 2002).

There are several benefits of holistic wellness related to stress that are specific to the dimensions of self: physical, emotional, cognitive/mental spiritual, and social. People who are physically well have sound nutritional habits, exercise more, and exhibit better quality sleep (Chen, Li, Lin, Chen, Lin & Wu, 2007). Consequently, according to a statement from the American Heart Association's Council on Clinical Cardiology (2003), physically well people run less risk of developing obesity, heart disease, high cholesterol, high blood-pressure, diabetes, osteoporosis and cancer (Sigal, Wasserman, Castaneda-Sceppa, & White, 2006). Physical health is negatively correlated with many ailments because it bolsters immunity, strength, flexibility and endurance while reducing the impact of the environment on one's body through enhancing

peak oxygen uptake (Nabkasorn, Miyai, Sootmongkol, Junprasert, Yamamoto, Arita, & Miyashita, 2005, 2005) , the production and secretion of beta endorphins (Goldfarb & Jamurtas, 1997), and a reduction in cortisol (Nabkasorn et al., 2005).

Individuals also experience benefits from emotional well-being. People with high emotional wellness report adequate self-esteem, confidence, self-efficacy, positive conflict management, problem resolution skills, and a sense of worth. These individuals also appear less depressed and less anxious, possibly due to the ability to regulate their emotions better than those who are not emotionally well. The more emotionally well a person is, the less likely that individual is to encounter emotional exhaustion—a condition brought on by stress that may lead to burnout. Teachers who are more emotionally well are able to be flexible in their communication style with students, in turn students become more engaged and active. Conversely, Demetriou, Wilson and Winterbottom (2009) found that when teachers don't have the emotional wellness skills associated with flexible communication, students become more disengaged and the teachers (particularly male teachers) become disillusioned, frustrated and disheartened—conditions which may exacerbate stress and burnout potential.

Several studies have supported benefits of holistic wellness approaches on cognition and mental abilities. Intellectual stimulation, including problem solving and creativity, is necessary for healthy brain functioning and hence quality of life across the lifespan (i.e., "use it or lose it"; Pelletier, 1994). Montague (1981) suggested that all thinking involves problem solving. Furthermore, he suggested that the need to think soundly is innate and composed of several traits, including the need to know, the need to learn, the need to organize, curiosity, and a sense of wonder. Elliott and Marmarosh (1994) compared effective and ineffective problem solvers and found that those who self-reported as effective had more positive health expectancies, higher

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expectancies for control, fewer irrational beliefs, and a lower tendency toward self-criticism than did ineffective problem solvers. Effective problem solving also correlates with reduced anxiety and depression, increased stress hardiness, and overall psychological adjustment (Benson & Stuart, 1992).

Creativity has also been identified as a universal characteristic of self-actualizing people, all of whom demonstrate originality, expressiveness, imagination, inventiveness, and problem-solving ability (Maslow, 1970). It is a multidimensional phenomenon involving the ability to develop new or different concepts, ideas, structures, or products. Creativity is optimized in individuals with high self-esteem (Yau, 1991) and has a positive effect on life satisfaction, mental health, and overall wellness (Goff, 1993).

Beyond cognitive/mental well-being there are advantages to being spiritually well. Spiritually well individuals display greater empathy, compassion and transcendence and are more likely to report a sense of meaning and purpose in life (Curry, Griffith, Carson & Stewart, 2010; Frankl, 1963). These individuals also display an advanced level of moral development (Young, Cashwell, & Woolington, 1998) and empathy, which may impact altruistic caring (Curry, Smith & Robinson, 2009) and ethical decision making. Further, spirituality has been associated with positively coping with stress, forgiveness, benevolent reappraisal and job satisfaction (Robert, Young, & Kelly, 2006).

The last aspect of wellness is social well-being. If one is well rounded in this dimension he/she reports a greater sense of belonging; the ability and willingness to provide and receive assistance, a sense of humor, the ability to be honest, vulnerable and open with others, and more life balance (Fredrickson, 2002). In addition, when a person is socially well, the individual will have mutual relationships characterized by acceptance, respect, reciprocity (Harvey, Pauwels, &

Zickmund), appropriate self-disclosure, risk-taking and personal responsibility (Sweeney &

Witmer, 1991). Forgiveness of self and others is another component of social wellness

(McCullough & Witvliet, 2002) as is gratitude (Emmons & Shelton, 2002).

In sum, more than avoiding disease or experiencing an absence of illness, wellness offers

an emphasis on lifestyle choices that promote optimal functioning (Myers, Sweeney, & Witmer,

2000; Sweeney & Witmer, 1991). It is proposed that a wellness lifestyle includes taking

personal responsibility and making positive choices about one's self-care and health (Parmer &

Rogers, 1997). For the current study, holistic wellness is used to conceptualize a preventative

approach to job related stress (Young & Lambie, 2007).

Meditation to Promote Well-Being

One promising approach to promoting well-being is the practice of meditation. This

section contains information on the relationship of meditation to wellness, and outlines

distinctions in meditation, particularly mindfulness. Finally, this section ends with a review of

Loving Kindness Meditation.

Meditation. Walsh and Shapiro (2006) define meditation as "a family of self-regulation

practices that focus on training attention and awareness in order to bring mental processes under

greater voluntary control and thereby foster general mental well-being and development and/or

specific capacities such as calm, clarity, and concentration" (pp. 228-229). The practice of

meditation may be traced back to ancient times as an active element of religious practice among

several religions including Hindu (Shear, 2006) and philosophical practice such as Buddhism.

Meditation is generally a personal and internal activity and its aim is to bring focus on a

particular issue or feeling, such as compassion. In the last several decades the implication of

meditation has become more and more prevalent in Western culture and many contemporary

health providers include Meditation as part of their alternative strategy to combat a multitude of health related difficulties their patients may face such as neurological issues, digestive and metabolic concerns, decreasing pain, and stress (Ospina et al., 2007). According to the National Center for Disease Control's (CDC) *National Health Statistics Report #12*, in 2007 there were more than 20 million adults in the U. S. practicing meditation which translated to closely 9.4 % of the adult population at that time.

One of the benefits of meditation is that it promotes holistic wellness particularly in the areas of emotional and spiritual wellness. Moreover, numerous researches have indicated that the practice of meditation appears to mitigate the symptomology of stress, fatigue, and physical illnesses. There are several practical forms of meditation that exist including tai chi, yoga, structured, guided, prayer, and mindfulness meditations just to name a few. For the purposes of this study this researcher will place emphasis on mindfulness Meditation.

Mindfulness. Mindfulness originated from Buddhism and its roots may be discovered in numerous other eastern spiritual traditions. Mindfulness as a concept has received more and more attention in recent years as providing an alternative technique to address negative thoughts and emotions and assisting people whether they have experienced physiological and/or emotional challenges (Stewart, 2004). In the United States, Jon Kabat-Zinn was the forerunner of the mindfulness movement establishing the Mindfulness Based Stress Reduction Program in 1979. He has defined mindfulness as a "moment to moment non-judgmental awareness" (p. 626). The main goals of practicing mindfulness are 1) to be in and accept the present moment as well as 2) to engage in nonjudgmental observation of self and others (Kabat-Zinn, 1994).

Loving Kindness Meditation. Loving-Kindness Meditation (LKM) is a type of mindfulness meditation and its modern roots may be traced back to the positive psychology

movement. However LKM advances mindfulness by cultivating positive emotions and by introducing the practice of compassion and empathy toward self and others (Fredrickson, 2009). This is particularly important for teachers who may be stressed and suffering from emotional exhaustion which leads to decreases in empathy and compassion. In this research study the investigator will employ a structured and guided form of LKM as a component of mindfulness. Further specifics of this method will be provided in chapter two of this document.

The Importance of Empathy and Compassion for Teachers

Empathy. As defined by Young (2005), empathy means that one "grasps the facts, feelings, and the significance of another person's story; more importantly empathy involves the ability to convey your accurate perceptions to the other person" (p.19). Based on this description an empathetic teacher attempts to understand, and has an inclination to comprehend, the lived experiences of his/her students. This creates a balanced approach in teaching: an empathic teacher accomplishes the tasks essential to complete the curricular activities but beyond that has an appreciation for students as whole people. The empathic teacher is cognizant that learning as a process is contextual; therefore, students' lives and lived experiences impact learning, growth and development. Tettagah and Anderson (2007) stated that, "Teacher empathy is the ability to express concern and take the perspective of a student, and it involves cognitive and affective domains of empathy" (p. 49). Boyer (2010) also acknowledged that "caring deeply and empathetically about children and their welfare has been identified as being at the heart of purposeful teaching" (p.313). Conklin (2008) asserted that empathy and genuine caring is necessary for a justice-oriented approach to teaching.

Smith (2000) contended that "The plethora of technical and curricular innovations and recommendations … has left teachers alienated from what their experience has taught them over

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time, which is that effective teaching depends most fundamentally on human relationships" (p.18). Part of any healthy, strong relationship is empathy. Having empathy does not mean that one fixes others' problems and finds resolutions for difficulties others may experience. However, empathy does include listening, understanding, and accepting students' perspectives and encompasses an acknowledgment that life outside the classroom does matter; equally important, empathy can lead to acts of compassion (Whang & Nash, 2005). Displaying empathy through acts of compassion conveys a message of caring to students and may contribute to students' feelings of mattering.

Mattering is the belief that we are an important part of the world around us; in short, mattering means we are valued by others (Elliott, Kao & Grant, 2004). A person may feel that he or she matters in a relationship (such as when a student feels they matter to the teacher) when they are acknowledged and believe that another person has a vested interest in their welfare (Colangelo, & Gelles, 2005). Feeling mattered is an essential part of the human experience and successful relationships (Tucker, Dixon, & Griddine, 2010). Moreover, empathy and compassion promote feelings of mattering. For example, Bloch (2009) noted that when students feel they matter they feel a greater sense of cohesion and belonging in the school environment and Tucker et al., (2010) found that when students feel they matter they experience increased academic motivation particularly when facing scholastic struggles. Crippen (2010) noted that in addition to empathy improving the student-teacher relationship, parents also appreciate teachers that display empathy toward their children. Therefore, promoting empathy and compassion for pre-service teachers is one way to assist students in feeling that they matter and belong in the school community.

Compassion. The definition of compassion according to the Oxford dictionary is "sympathetic pity and concern for the sufferings or misfortunes of others" (2011). This word has originated from the ecclesiastic Latin word *compati* and it literally means *suffer with* or *suffer along with* someone else (Oxford Dictionary, 2011). Bain states that "there is a growing recognition in the field of education regarding the importance of human qualities such as compassion, caring and empathy" (Bain, 2004). According to Stout (1999), there are two major goals of education: helping students 1) develop critical intelligence and 2) develop the capacity to care for self, others, the community and the physical environment. In order to do this, teachers have to cultivate a caring connection with students (Stout, 1999). Compassion is essential to this caring connection and undergirds the development of teacher attitudes necessary for social justice, advocacy and fairness in classrooms.

Today's educational environment calls for greater diversity and higher standards for multicultural competence; part of being competent goes beyond simply understanding the need for social justice and equity (Whang & Nash, 2005). According to Chavez (2003), true multicultural competence includes deconstructing dominant themes and having the courage and compassion to change curriculum and pedagogy to reflect the values of equity and justice. A competent teacher has acquired and exercises the skills related to fair treatment of all of his/her students. Specifically, the teacher feels propelled to compassionate action—the expression of these ideals through activity to eradicate barriers to students such as being an advocate for his/her students, especially the underprivileged (McClain, Ylimaki, & Ford, 2010). A competent teacher recognizes the barriers of learning, facilitates opportunities for historically disadvantaged students, and includes differentiated pedagogy in his /her instruction. Beyond these ideals in competence, one should be aware that a person's core values determine his/her attitude, openness

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and eventually the development of social justice skills. Compassion for students becomes the prominent affective component of positive interactions with the student, an appreciation for the student's struggles, and an impetus for equity among students.

The following figure was created by this writer based on literature reviewed for this study and depicts the cyclical nature of empathy, compassion, pro-social interest, altruism, and social action. Here one may see empathy being on the top as a starting element representing one's ability to understand the feelings of another (Eisenberg, Spinrad, & Sadovsky, 2006). Although compassion may be experienced and felt, however, this component may be viewed as a next step beyond empathy, and is an active component: meaning one must reach out and make a deliberate decision to assist someone else (Kübler-Ross, 1975). Pro-social interest may develop out of compassionate feelings as one establishes thoughts of intention for benefitting others (Kohlberg, 1976).   Altruism is an act of inspiration to provide something to someone else other than the self. Altruism is making a conscious sacrifice for others without any expectation of reward (Batson, Eklund, Chermok, Hoyt, & Ortiz, 2007). One may also say that true altruism is also done in anonymity (Goetz, Keltner, & Simon-Thomas, 2010), as the altruistic person is not seeking accolades. Social action in the cycle refers to the behaviors one puts into practice when she/he creates changes in the social fabric through a reform and/or policy that benefits more than one individual or a certain group of people (Kohlberg, 1981; Eisenberg, & Miller, 1987). Once the cycle is put in motion there is a constant interaction between the components. The line of the elements may not be always clearly distinguished and the components may continually influence each other.
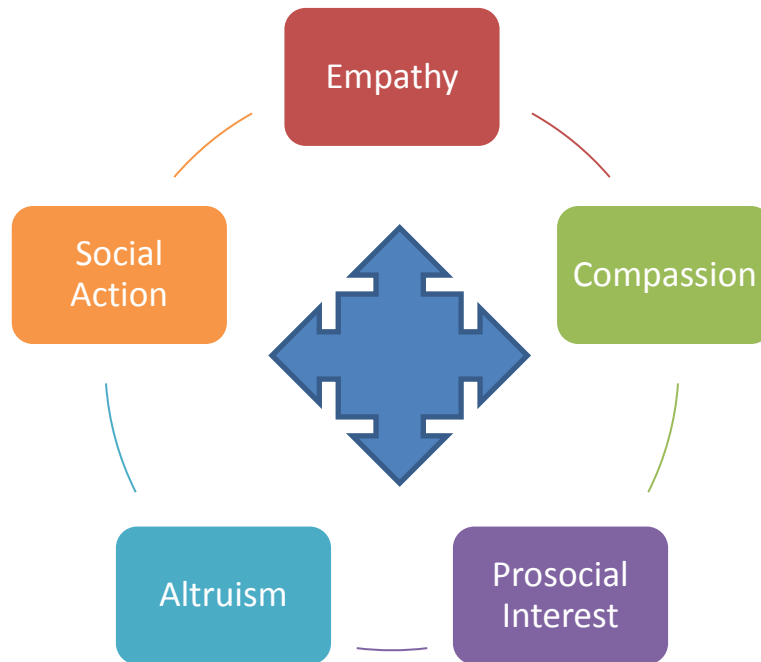
Figure A.   The Cyclical Nature of Empathy, Compassion, Pro-social Interest, Altruism, and Social Action

1.3 Statement of the Problem

Teachers face extreme stress and may feel overwhelmed due to accountability, teaching loads and classroom management. Some of these educators may not have the positive coping mechanisms and adaptation strategies to handle these stressors appropriately. Over time the stress may build and can exacerbate the level of emotional exhaustion one may experience. As previously mentioned, this untreated condition may lead to burnout and eventual impairment.

It is also well documented that teachers who have difficulties coping with the stressors of their work environment have higher rate of dissatisfaction and lower career commitment. Teachers inadequately dealing with their stress levels may also be less effective professionally. Some of these teachers may choose to leave the profession due to their inability to cope with the difficulties they may face and some researchers have suggested that job related stress is a major contributing factor to high attrition rates in the profession (Washburn-Moses, L. 2009).

One appropriate way of addressing the issues of work associated stressors is participating in holistic wellness self-care. This approach may hold a key to mitigate stress and prevent burnout. As one component of an overall holistic wellness approach, mindfulness training, specifically Loving Kindness Meditation (LKM), may promote emotional wellness. Further, several research studies concluded that LKM advanced empathy and compassion in participants. This approach may be implicated in assisting student teachers establish and gain the emotional resources they need in order to meet the developmental and social concerns of children.

1.4 Purpose of the Study: Rationale and Significance

The purpose of this study is to investigate if mindfulness (specifically LKM) is an effective strategy for addressing the stress levels of student teachers. The researcher's rationale is to reduce overall stress and improve the empathy of participants through this prevention based method. Moreover, this research found no literature indicating that this specific study has been previously conducted with pre-service student teachers.

1.5 Conceptual Framework

This researcher has applied Olson and McCubbin's (1983) double ABCX Model of Family Stressors and Strains adopted from Hill (1958) as the base for the study's conceptual framework. In this prevailing model "a" stands for any stressful event, "b" for the resources and skills individuals may have for solving the problems they may be facing. This model also contains subjective perception since a stressful or crisis situation may be much more difficult to handle by one person than another. In this model, "c" stands for the subjective definition of the stressor. The pre-crises area contains "a", "b" and "c" and it is any consequential event in time and space that leads up to the crisis. X stands for the crisis situation itself and it represents the amalgamation of "a", "b" and "c".

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McCubin and Patterson (1982) included the pile up of problems represented by "A" as part of the dynamic process in the improved version of Hill's ABC-X Family Stress Model. In this coping stage of the post-crisis this pile up ("a" and "A" together) represents the summary of problems and difficult issues people face accumulating overtime. Further, McCubbin and Patterson (1982) discusses that pile up may also transpire with regard to the new and existing resources ("b" and "B") as well as with perception ("c" and C") of the problem and available resources that people have made available to themselves. In the final phase of post-crisis, people may or may not adopt at all to their circumstances, or may become maladaptive, creating pile up in the future ("x" and "X") (McCubin, Thompson, & Thompson, 1995). Please see Figure B.
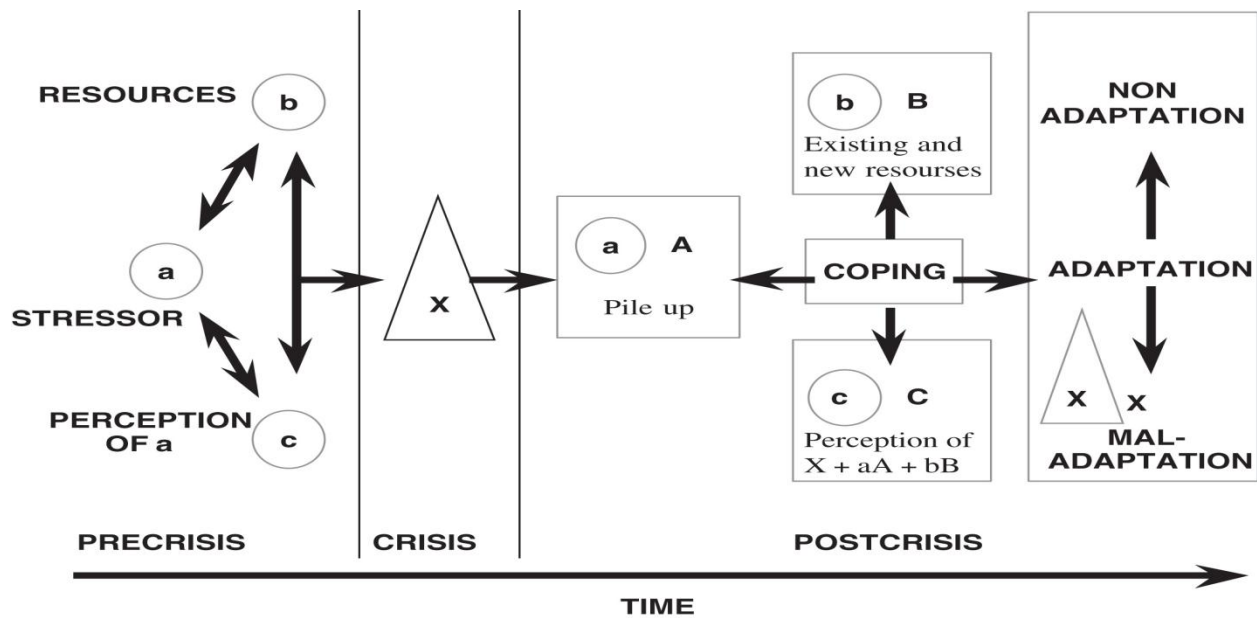
Figure B. Olson and McCubbin's (1983) double ABCX Model of Family Stressors and Strains

Within the context of the current study, pre-service student teachers would be able to add LKM to their resources at the pre-crisis stage avoiding the development of a crisis and arriving to the adaptation stage avoiding maladaptation and the compounded effects of future crises. Additionally, if the participants are already experiencing a crisis situation LKM may provide

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them with a constructive way of coping altering their perception in a constructive and healthy

way adding to their sources of resources. Please see Figure C.
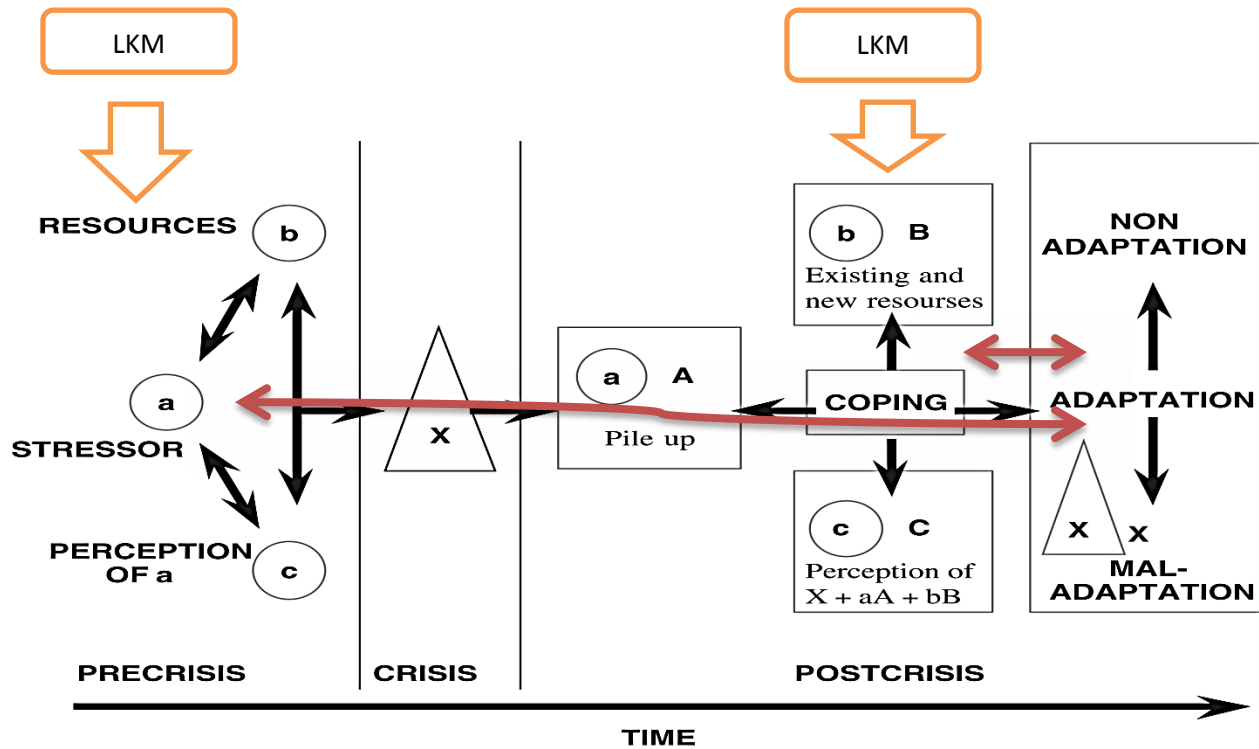
Figure C. LKM as Stress Prevention and Stress Moderation in Current Study

1.6 Research Questions

There are three primary research questions the researcher will attempt to answer by conducting

this study.

1) Is there a statistically significant difference in levels of stress between pre-service student

    teachers who receive LKM training and those who do not?

Null Hypothesis: There is not a statistically significant difference in levels of stress between

student teachers who receive LKM training and those who do not.

Hypothesis: There is a statistically significant difference in levels of stress between student

teachers who receive LKM training and those who do not.

2) Is there a statistically significant difference in levels of empathy between student teachers who receive LKM training and those who do not?

Null Hypothesis: There is not a statistically significant difference in levels of empathy between student teachers who receive LKM training and those who do not.

Hypothesis: There is a statistically significant difference in levels of empathy between student teachers who receive LKM training and those who do not.

3) Is there a statistically significant correlation between the amounts of time spent participating in LKM and the level of stress as well as empathy experienced by participants.

Null Hypothesis: There is no statistically significant correlation between the amounts of times spent doing LKM and levels of stress and empathy score between student teachers who receive LKM training and those who do not.

Hypothesis: There is a statistically significant correlation between the amounts of times spent doing LKM and levels of stress and empathy score between student teachers who receive LKM training and those who do no.

1.7 Methods

This researcher will employ a quantitative, experimental research design. An experimental approach appeared to be the best fit and most appropriate for this study since the researcher will be using random sampling. However, due to the confounding effects of extraneous variables, causal inferences may not be made at the finishing point of this study. The population of the participants will be pooled from a group of student teachers at a large Predominantly White Institution (see limitations section). The Southeastern University where the research will be conducted is accredited by the National Council for Accreditation of Teacher

Education (NCATE) and Southern Association of Colleges and Schools (SACS). The participants will be student teachers enrolled in early childhood education, elementary education, and Masters of Art in Teaching (MAT) programs.

Participants

There will be two sets of participants in this research study: a control group and an experimental/treatment group. Both of these groups are enrolled in a student teacher education program at a Southeastern university of the United States. The control group will not receive LKM training until the first sex week of the semester. Both group will be tested at baseline, at six weeks and at follow up (twelve weeks) with two instruments: the Intrapersonal Reacticity Index (IRI) (Davis, 1983) and with the Outcome Measures 45.2 (OQ45.2) (Lambert, Gregersen, & Burlingame, 2004).

Procedures

Both the experimental and the control group will be enrolled in student teaching during the spring semester of 2012 and will receive a free LKM training during the semester: the experimental group at baseline and the control group at week six. Participants will also receive a free compact disk (CD) that contains both instructional and actual LKM tracts with varying length (UCLA, 2011). The groups will also be provided meditation logs and will be encouraged to record the time they spend meditating each day. Meditation logs will be collected at the end of the student teaching semester along with the final data collection (all instruments). During the semester (Spring 2012) the researcher will provide follow up sessions every two weeks during the student teacher group meetings to check in with participants. This will assist research participants to voice comments, discuss their concerns, and ask questions about LKM meditation.

Definitions

 Teacher Empathy. According to Tettegah and Anderson (2007) "teacher empathy is the ability to express concern and take the perspective of a student, and it involves cognitive and affective domains of empathy" (p. 50). An empathetic teacher has the ability to recognize students' feelings and has the capacity to see the students' perspective "through a conscious or unconscious process" (Tettegah and Anderson, 2007, p. 50).

 Teacher Compassion. The Dalai Lama defines compassion as acting and being "associated with a sense of commitment, responsibility, and respect towards the other" (The Dalai Lama, 1998, p. 114). Based on this concept a compassionate teacher is committed to the well-being of his/her students, feels responsible for students' success, and shows respect to students.

 Teacher Stress. Lazarus states that stress is "a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize" (Lazarus, 1999. p.11) Teachers today are challenged by higher and higher demands: class-size, class-room behavior, and high-stake testing just to name a few (Jennings & Greenberg, 2009).

Instruments

 Outcome Questionnaire. The Outcome Questionnaire (OQ-45.2) measures important areas of functioning: social role functioning, quality of life, symptoms of distress and, interpersonal issues (Lambert and Finch, 1999). The Outcome Questionnaire (OQ-45.2) is a Likert-type self-report instrument consisting of 45 items rated on a 1 to 5 scale. This questionnaire may be completed in less than 5 minutes (Gawain et al, 1996). The form contains three subscales (please see Table 1.) representing broad content areas for assessment: (1)

symptom distress, (2) interpersonal relations, and (3) social role (dissatisfaction and distress in tasks related to work, family roles, and leisure life). The OQ-45.2 include multidimensional measures of key functional areas and may be used for repeat administration (Lambert & Finch, 1999). The psychometric characteristics of the OQ-45.2 are very sound. The internal consistency (Cronbach's alpha) of this total score has been reported to be .93 and test-retest reliability is .84. The total score also correlates highly with other measures of symptoms, interpersonal functioning, and social adjustment. The OQ-45.2 is currently used for clinical outcomes assessment in over 500 public and private mental health clinics across the country (Backstead et al 2003).

Table 1. OQ45.2 Subscales

Subscale 1: Symptom Distress (SD)	Signals possible problem areas that may cause distress to individuals, i.e. anxiety
Subscale 2: Interpersonal Relations (IR)	Shows how individuals relate to others and how satisfied they are with their relationships
Subscale 3: Social Role (SR)	Measures the level of difficulties one may experience in their social role

Interpersonal Reactivity Index (IRI) Empathy is a complex phenomenon based on a multidimensional paradigm (Cliffordson, 2002; Davis, 1983; Greason & Cashwell, 2009). The two major constructs of empathy, emotion and cognition, may be viewed as separate but related (Davis, 1983). In order to encapsulate the multidimensional nature of empathy this study will use the Interpersonal Reactivity Index (Davis, 1980). Literature on the IRI (Davis, 1980) indicates it is well-researched and commonly employed to measure empathy in social situations (Greason & Cashwell, 2009; Cliffordson, 2002). The IRI (Davis, 1980) aims to measure four aspects of empathy: 1) Perspective Taking (PT), 2) Empathic Concern (EC), 3) Fantasy Scale (FS), and 4) Personal Distress (PD). These four scales were initially designated by Davis after preliminary

factor analysis from comprehensive studies (Davis, 1980). The IRI is a 28-item self-report inventory instrument containing the four aforementioned subscales. Each item is rated on a five-point Likert scale, ranging from 1 (does not describe me) to 5 (describes me well). The subscales are typically interpreted individually, and higher scores suggest higher levels of empathy.

Table 2. IRI Subscales

Perspective Taking Scale (PT)	Measures the reported tendency to spontaneously adopt the psychological point of view of others in everyday life ("I sometimes try to understand my friends better by imagining how things look from their perspective").
Empathic Concern (EC)	Assesses the tendency to experience feelings of sympathy and compassion for unfortunate others ("I often have tender, concerned feelings for people less fortunate than me").
Personal Distress (PD)	Evaluates the tendency to experience distress and discomfort in response to extreme distress in others ("Being in a tense emotional situation scares me").
Fantasy Scale (FS)	Weighs the tendency to imaginatively transpose oneself into fictional situations ("When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me").

Proposed Data Analysis

The primary goal of this study is to examine the effects of a loving-kindness meditation (LKM) intervention on student teacher stress and empathy based on prior indication in the literature suggesting that LKM may reduce stress and generate positive emotions The second aim of the study is to determine if a relationship exists between the amount of time spent meditating and the impact on empathy the levels of stress. Independent t-tests will be used to investigate the differences between groups in conjunction with a researcher manipulated independent variable, such as an experimental treatment (Hinkle, 2002). Pearson Moment Product correlation

procedures will provide the opportunity to evaluate the relationship between the time spent doing LKM and levels of stress and levels of empathy. Since multiple independent t-tests and multiple Pearson Moment Product correlation will be run there may be a chance for the appearance of the family wise error (FWE) also known as inflated alpha levels (cumulative Type I error). In order to minimize the occurrence of the FWE a Šidák-Bonferroni adjustment procedure will be performed.

1.8 Ethical Considerations

The first ethical consideration that will be addressed in this study is to obtain Institutional Review Board (IRB) approval. In order to start this research study the writer must apply for an IRB authorization at Louisiana State University where the study will be conducted. The purpose of the IRB is two-fold: 1) It will ensure the protection of participants' rights and 2) it will provide the researcher with a guide in conducting ethical research that makes a sound contribution to the current body of knowledge. One aspect of IRB process under the human subject research is dedicated for the protection of vulnerable populations. These populations include children, prisoners and students. In this study the subjects will be students and this situation may create a power differential between the subjects and the researcher. Adherence to the IRB protocol will ensure that students are not coerced into anything that may create harm to them physically, mentally, and/or emotionally.

The IRB also ensures a protection for participants to exercise their free choice concerning the study. The students will choose to voluntarily participate in this study. The students will also be assured the right to terminate their involvement at any given time during the project. The participants of this study are also provided confidentiality: their individual disclosures will not be revealed publicly. Beyond, confidentiality the participants will also remain anonymous:

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no identifying data will be used in the reporting of results. Beyond confidentiality and anonymity any data included in this study will be stored in a locked file cabinet in a locked office.

Beyond the ethical considerations of IRB, this researcher is obligated to an even higher standard of research ethics due to his membership in the American Counseling Association (ACA) as well as current good standing as a Licensed Professional Counselor (LPC). According to the latest version of *Ethical Standards* of the ACA (2005) LPCs conducting research must ensure that participants comprehend informed consent protocol. This researcher will not only read the informed consent with the subjects interested in the study but also will explain content word to word if necessary. This will enable all participants (including those with learning disabilities or exceptionalities and English Language Learners (ELL) to clearly understand information about the proposed study (Robinson & Curry, 2008).

Another added value of the research standards of practicing as an LPC and a member of ACA may be found in ensuring that there will be no dual relationship between the participants and the researcher. A dual relationship would create a conflict of interest between the subject and the researcher (ACA, 2005). None of the subjects participating in the study may have been a prior or current client of the researcher. Furthermore, the researcher is obligated as a counselor if he discovers any concerning and/or alarming mental health issues with any of the participants during the study to make a referral for the participant to the university counseling center and to any other appropriate agency. However, actually attending counseling is up to the discretion of the participant (ACA, 2005).

1.9 Potential Limitations

One of the limitations of this study is the application of convenience sample rather than random sampling. In general, random samples are used in order to avoid biased statistical results

as well as to establish strength for generalizability of results (Hinkle, Wiersma, and, Jurs, 2002).

Therefore, the use of a convenience sample will prevent robust statistical conclusions as an

outcome of this study.   Another factor associated with generalizability is the limited ethnicity,

gender, and age of the population partaking in this study. The experimental group is highly

homogeneous since most of the participating students are white females in their twenties (the

typical student population in student teaching at a PWI).

Another potential limitation is the use of self-report measures in the study. Although the

results will be kept confidential it is well documented that some participants of studies will

attempt to impress evaluators by making outcomes appear better than they are in reality;

specifically, participants may answer in what they perceive to be socially desirable ways. This is

done not due to intentionally mislead the researcher but as response to a social stigma and

perceived expectation (Trochim & Donnelly, 2008). For example, some student teachers may

perceive that it is unacceptable to not rank themselves as highly compassionate and empathetic.

Furthermore, there may be several other uncontrolled variables swaying the outcomes of this

study. These may include the participants' prior knowledge, participation, and attitude toward

mindfulness and meditation as a practice in general.

1.10 Conclusion

Teachers face many challenges in todays' educational environment. These challenges

may elevate the level of stress experienced by teachers. As is evident in the reviewed literature,

untreated stress may lead to emotional exhaustion which can progress to burnout. If a person is

subjected to prolonged burnout he/she may become impaired if the individual does not have the

ability or skill to handle the sequence of stress appropriately. In order to prevent and circumvent

these negative developments, teacher education programs may consider implementing strategies

to aid and equip student teachers to handle the hurdles of their professional lives. In this prospectus a proposed study using structured and guided loving kindness Meditation, a type of mindfulness, was reviewed. It is proposed that Loving Kindness Meditation may assist student teachers in managing stress and may also promoting feelings of empathy and compassion toward self and others.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction to Mediation

Meditation has been a spiritual and healing practice in some parts of the world for more than 5,000 years (Walters, 2002). According to the Merriam-Webster dictionary, the word "meditation" is derived from the Latin "meditari," which means "to engage in contemplation or reflection." Moreover, it appears that the word meditate has origins in the English language from circa 1200 A. D. 2011. ("meditation" Merriam-Webster Dictionary). Historically, religious or spiritual aims were central to any form of meditation. These traditional practices held some type of spiritual growth, enlightenment, personal transformation, or transcendental experience as their ultimate goal (Perez de Albeniz & Holmes, 2005). During the last 40 years, the practice of meditation has become increasingly popular and has been adapted to the specific interests and orientation of Western culture as a complementary and alternative strategy to address a variety of topics in healthcare, business and education (Deurr, 2004).

Meditation forms rooted in religious and spiritual systems, as well as secular forms of meditation, also have increasingly attracted the interest of clinicians, researchers, and the general public. Meditation has gained acceptance as part of important mind-body interventions within integrative medicine and mental health. These include the combination of evidence-based conventional and alternative approaches that address the biological, psychological, social, and spiritual aspects of health and illness. According to Walsh and Shapiro (2006) it is estimated that there are 10 million practitioners in the United States (U. S.) and hundreds of millions of practitioners worldwide. Furthermore, according to Walsh and Shapiro (2006), meditation was the first mind-body intervention to be widely adopted by mainstream healthcare providers and

incorporated into a variety of therapeutic programs in hospitals and clinics in the U. S. and abroad.

Meditation has been characterized in many ways in the scientific literature. Indeed, after reviewing the literature there is no consensus definition of meditation. This diversity in definitions reflects the complex nature of the practice of meditation and the "coexistence of a variety of perspectives" that have been adopted to describe and explain the characteristics of the practice (Shapiro & Carlson, 2009). From a psychological and cognitive perspective, meditation can be defined as "a family of self-regulation practices that focus on training attention and awareness in order to bring mental processes under greater voluntary control and thereby foster general mental well-being and development and/or specific capacities such as calm, clarity and concentration" (Walsh & Shapiro, 2006, pp. 228-229).

2.2 Defining Meditation

Cardoso, de Souza, Camano, and Leite (2004) developed a detailed operational definition of meditation broad enough to include traditional belief-based practices and those that have been developed specifically for use in clinical settings. Using a systematic approach based on consensus techniques, they defined any practice as meditation if it: (1) utilizes a specific and clearly defined technique, (2) involves muscle relaxation somewhere during the process, (3) involves logic, (4) a self-induced state, and (5) the use of a self-focus skill or *anchor* for attention (Cardoso, de Souza, Camano, & Leite 2004). Other behavioral descriptions emphasize certain components such as relaxation, concentration, an altered state of awareness, suspension of logical thought processes, and maintenance of self-observing attitude (Craven, 2008). From a more general perspective, Manocha (2000) described meditation as a discrete and well-defined experience of a state of "thoughtless awareness" (p. 1137) or mental silence, in which the

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activity of the mind is minimized without reducing the level of alertness. Meditation also has been defined as self-experience and self-realization exercise (Caspi & Burleson, 2005).

Despite the lack of consensus in the scientific literature on a definition of meditation, most researchers agree that meditation implies a form of mental training that requires either stilling or emptying the mind. The goal of meditation is a state of detached observation in which practitioners become aware of their environment, but do not become involved in thinking about it nor do they react to metacognitions. All types of meditation practices seem to be based on 1) the concept of self-observation of immediate psychic activity, 2) training one's level of awareness, and 3) cultivating an attitude of accepting the process of an event rather than the content of it (Shapiro & Carlson, 2009).

Furthermore, meditation practices may be classified according to certain phenomenological characteristics: a) the primary goal of practice (i.e., therapeutic or spiritual), b) the direction of the attention (e. g., mindfulness, concentrative, and practices that shift between the field or background perception and experience and an object within the field), c) the kind of anchor or *grounding* employed (e.g., a word, breath, sound, object or sensation), and d) based upon the posture used (motionless sitting or moving) (Craven, 2008). According to Kristeller and Johnson (2005) "any attempt to create a taxonomy of meditation only approximates the multidimensional experience of the practices" (p. 402). In addition, meditation practices involve a mixture of specific and vaguely defined characteristics, as they can be practiced on their own or in conjunction with other therapies (Caspi & Burleson, 2005).

2.3 Meditation Variations

There are a variety of meditative traditions, but they all contain common elements (Kristeller & Johnson, 2005). Customarily, meditation includes "a particular way of focusing

attention, generally the use of repetition [of a mental phrase or mantra], and a nonjudgmental rather than analytic thought process" (Kristeller & Johnson, 2005, p. 394). The primary goal of meditation is to train one's mind to disengage from habitual reactions and ways of thinking. The literature identifies three overarching categories of meditation: (a) concentrative meditation, (b) insight or mindfulness meditation, and (c) focused or directed meditation (Kristeller & Johnson, 2005).

Concentrative meditation involves focusing one's attention on a particular object, words, mantra or breath. The goal is to maintain focus on the object of the meditation and return to that whenever the mind wanders. In mindfulness meditation, the attention is deliberately kept open to notice, without judgment, anything that enters one's field of awareness. The point is to be fully aware and present, noticing what arises, but refraining from evaluation or following one's own thoughts. Directed meditation utilizes some form of content to engage a selected aspect of one-self while also maintaining a nonjudgmental and non-evaluative stance. Although meditative traditions typically emphasize one of these methods, most contain aspects of all three (Kristeller & Johnson, 2005). Among all forms of meditation, mindfulness has received the most attention in the literature, especially in medical research (Baer, 2003; Kabat-Zinn, 2003).

2.4 Components of Meditation Practices

The main components of any meditation practice or technique refer to its most general features. These may include specific postures (including the position of the eyes and tongue), the use of a mantra, breathing, a focus of attention, and an accompanying belief system. Posture refers to the position of the body assumed for the purpose of meditation. Though traditional meditation practices prescribe particular postures (e.g., the lotus position), postures vary between practices with the only limitation being that the posture does not encourage sleep (e. g., corpse

pose can be used if the practitioner is still aware and not drifting into a sleep state) (Deurr, 2004).

Because accounts of most meditation practices describe explicitly the use and role of breathing, mantra, attention, spirituality and belief, training, and criteria for successful meditation practice, these topics are described individually and briefly as follows.

Breathing

Breathing in meditation can be incorporated passively or actively. In passive breathing, breathing is natural and no conscious control is exerted over inhalation and exhalation. In contrast, active breathing involves the conscious control over inhalation and exhalation. This may involve controlling the way in which air is drawn in (e.g., through the mouth or nostrils), the rate (e.g., drawn in quickly or over a specified length of time), the depth (e.g., shallow or deep), and control of other body parts (e.g., relaxation of the abdomen, expansion of rib cage) (Chernin, 2002).

Mantra

A distinctive feature of some meditation practices is the use of a mantra. A mantra is a sound, word, or phrase that is recited repetitively, usually in an unvarying tone, and used as an object of concentration. The mantra may be chanted aloud, or recited silently. Mantras can be associated with particular historical or archetypal figures from spiritual or religious systems, or they may have no such associations whatsoever (Kaplan, 2001).

Relaxation

Relaxation is often considered to be one of the defining characteristics of meditation practices and meditation itself is often considered to be a relaxation technique (Shannahoff-Khalsa, 2007). Indeed, it has been suggested that the popularity of meditation practices in the West is due, at least in part, to the widely accepted plausibility of their alleged effects with

respect to arousal reduction (Holmes, 1984). Some researchers have attempted to draw a distinction between relaxation and meditation practices on the basis of intention (Tloczynski & Tantriella, 1998).

Attention and Focus

The deliberate self-regulation of attention is considered crucial to the practice of meditation, as is the development of an awareness in which thoughts do not necessarily disappear, but are simply not encouraged by dwelling on them, a state of so-called *thoughtless awareness* (Manocha, 2000). Some meditation practices focus attention on a singular external object (e.g., mandala, candle, flame), sound (e.g., breath), word or phrase (i.e., mantra), or body part (e.g., the tip of the nose, the space between the eyebrows) (Sri Swami Sivinanda, 1975). In contrast, *mindfulness* meditation techniques aim to cultivate an objective openness to whatever comes into awareness (e.g., by paying attention to simple and repetitive activities or to the sensations of the body). In doing so, the breath may be used as an anchor, but not a focus point, to keep the meditator engaged with the present moment (Sagula, 2005). Each of these techniques serves, in a different way, to discourage logical and conceptual thinking as well as emotional reactivity (Chernin, 2002).

Spirituality and Belief

This component refers to the extent to which spirituality and belief systems, or a focus on transcendence, are part of meditation practices. Spirituality and belief systems are composed of metaphysical concepts and the rules or guidelines for behavior (e.g., devotional practices or interpersonal relations) that are based on these concepts. Spirituality and beliefs may be the guiding systems for individuals participating in Meditation and may create a unique relationship with a higher power (Kristeller & Johnson, 2005).

2.5 Training and Criteria of Successful Meditation Practice

Training refers to the recommended frequency and duration of periods of practice, and how long a practitioner is expected to train before being considered proficient in a given technique (Deurr, 2004). The criteria of successful meditation practice are understood both in terms of the successful practice of a specific technique (i.e., is the technique being practiced properly) and in terms of achieving the aim of the meditation practice (e.g., has practice led to reduced stress, calmness of mind, or spiritual enlightenment) (Shannahoff-Khalsa, 2007).

2.6 History of Meditation

Most scholars agree that the beginnings of meditation can be found in antiquity (Walsh, 1983). No one really knows when meditation began but it appears that meditation is an ancient discipline, nearly as old as humanity. According to Walsh (1983), it seems evident that the history of meditation is replete with controversy since there is no written documentation on when meditation truly began. Some scholars speculate that meditation began at the conception of fire, when humans would stare and meditate into the flames (Yogananda, 2000). Others believe it could well have been practiced by hunter-gatherers many thousands of years ago as a form of visual imagery in preparation for successful hunts (Wynne, 2007). Some also speculate that it might have been reserved for tribal shamans who were believed to be in direct touch with the invisible world of spirits. However, there is no written proof to support any of these hypotheses, nor any reputable evidence on how these possible meditations were done (Wynne, 2007).

It has been asserted that the first written note, and thus the beginning of the written history of meditation, began over five thousand years ago in India (Yogananda, 2000). There were numerous mantras (tantric chants) performed prior to five thousand years ago and these

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mantras may have been verbally passed down through generations (Yogananda, 2000). These

chants were used by several different religious groups so no one is entirely certain which

religious group began these meditations, and there is no clear evidence directly linking any of

these tantras to any specific religious groups. Meditation always has been an essential and

important part of the history of Hindu religious tradition, and in fact it was probably the first

religion to use meditation as an essential part of spiritual practice. The ancient Hindu holy books

that are believed to be written about 4000 years ago extensively describe the details of the

practice of meditation, especially in a set of books called the Vedas.

Later, other religions adopted meditation into practice (Dumoulin, Heisig, & Knitter,

2005). For example, according to Buddhist history, Buddha reached enlightenment while

meditating under a Bodhi tree in a small town called Boddh Gaya near Varanasi in India

(Dumoulin, Heisig, & Knitter, 2005). Thus the modern history of meditation began

approximately around 500 B.C., when the Buddha began revealing his forms of meditations to

the world. It was during Buddha's time that meditation began to spread from India into other

Asian countries. Eventually, Buddha's teachings would be spread all over the world and,

according to some scholars, it is not surprising that all religions have some sort of meditation

incorporated into their practices (Dumoulin, Heisig, & Knitter, 2005).

The teachings of the Buddha, birthed as Siddhartha Gautama, were faithfully transcribed

by the monks who followed him shortly after his death sometime in 480 to 470 B.C. (Dumoulin,

Heisig, & Knitter, 2005). Many of the original teachings of the Buddha were passed down orally

until his death, when they were scribed by monks into a series of transcripts still used to guide

present day Buddhists. Included in these writings one may find information on the Buddhist

philosophies, the foundations of Buddhist beliefs, as well as the lifestyles of ancient Indians

including various forms of meditations. From teachings of the Buddha, as well as from other sources in India, the history of meditation evolved into something more than one or two religions practicing the art (Dumoulin, Heisig, & Knitter, 2005). There are hundreds of forms of meditation now, both inside and outside the teachings of the Buddha, which allow people of all religions to practice meditation (Yogananda, 2000).

Even Christianity has borrowed some of the aspects of the Asian meditations, notably through the use of holy chants during worship as well as through the use of prayer beads (Balthasar, 2011). There is evidence that as early as the 2nd Century A.D., a group of early Christian monks known as the Desert Fathers retreated to live in simplicity and used meditation to deepen their relationship with God (Balthasar, 2011). For more than 1000 years afterward, meditation would be an increasingly important part of Christian practice. There is evidence that in the early 1500s, the Catholic Church made attempts to suppress the influence of monks who taught meditation as a response to Martin Luther's Reformation movement (Luther was believed to practice daily meditation) (Balthasar, 2011). In 1550, St. Theresa, a Spanish Carmelite nun championed meditation "in a last gasp of Christian meditation for centuries to come" (Balthasar, 2011, p. 23).

According to Kaplan (1975), in Judaic/Jewish history, there is evidence that meditation has been practiced from ancient times. Evidence for this exists both in the Old Testament - which is considered sacred writings by both Jews and Christians - and also in the Jewish Torah or Tanach holy writings (Kaplan, 1985). Scholars have discovered evidence that circa 1000 A.D. Kabbalistic meditation was commonly practiced to commune with God. In present time Jewish practice, the best known and relatively widely used meditation practice is called Hitbodeidut (Kaplan, 1985).

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Islam basically has two kinds of meditation that are practiced regularly (Khalifa, 2001). The most common and original historical meditation was developed and taught soon after the time of Muhammad, and is mentioned frequently in the Qur'an (or Koran), which is the most holy of teachings in Islamic history (Khalifa, 2001). This meditation is called Tafakkur in the Qur'an, and refers to contemplative meditation and reflection upon the universe. The second form of Islamic meditation, (which is not recognized by some mainstream Muslim scholars), is largely based on mystical exercises of one sort or another, and often includes music and/or dancing. This is the Sufi tradition, and is based on a form of meditation that is similar to the Buddhist meditation practice, and is called Muraqabah (Khalifa, 2001).

According to Abelson, by the 18th century, the study of Buddhism in the West was a topic for intellectuals (1993). The philosopher Schopenhauer discussed meditation practices and path to enlightenment and Voltaire asked for tolerance towards Buddhists (Beales, 2005). The first English translation of the Tibetan Book of the Dead was published in 1927. Starting in the 1960s and 70s meditation grew from a little known and "much dismissed esoteric practiced largely confined to non-western cultures and spiritual practices to a popular self-help tool widely used by Westerners" (Walsh, 1983. p. 19). Contemporary interest in application of meditation techniques is continuing to grow even in the twenty first century by westerners. According to the a U.S. *National Health Statistics Report* published by the U.S. Department of Health and Human Services in 2008, there were approximately 15 million people (more than 9.4% of the population) who actively practiced in some form of meditation in their daily living (Barnes et al, 2008).

2.7 Positive Correlates of Meditation

Meditation has been practiced within religious traditions since ancient times, especially within monastic centers. At present, in many Western cultures meditation and mindfulness-based practices have become increasingly popular especially within the medical and psychological community (Kabat-Zinn, Lipworth, Burney, 1985). According to Benson (1997) who founded the Mind-Body Medical Institute an affiliate of Harvard University and several hospitals in Boston, meditation induces a host of biochemical and physical changes in the body collectively referred to as the "relaxation response" (p. 173). The relaxation response includes changes in metabolism, heart rate, respiration, blood pressure and brain chemistry. Benson and his team have also done clinical studies at Buddhist monasteries in the Himalayan Mountains showing similar results (Benson, 1997).

Meditation has entered mainstream health care as a technique to reduce stress and chronic pain (Ospina, Bond, Karkhaneh, Tjosvold, Vandermeer, Liang, Bialy, Hooton, Buscemi, Dryden, Klassen, 2007). As a method of stress reduction, meditation has been used in hospitals in cases of chronic or terminal illness to reduce complications associated with increased stress that leads to depressed immune systems. There is growing agreement in the medical community that mental health concerns such as stress significantly contribute to illness, and there is a rising movement in mainstream science to fund research in this area (Ospina et al., 2007). There are now several mainstream health care programs which aid those, both sick and healthy, in promoting their inner well-being, especially mindfulness-based programs such as Mindfulness-Based Stress Reduction (MBSR) (Carlson, Ursuliak, Goodey, Angen, Speca, 2001).

In a 2003 meta-analysis researchers found that mindfulness-based stress reduction (MBSR), which involves continuous awareness of consciousness, without seeking to censor

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thoughts, concluded that the form of meditation may be broadly useful for individuals attempting to cope with clinical and nonclinical problems (Grossman, Niemann, Schmidt, & Walach, 2004). Diagnoses for which MBSR was found to be helpful for reducing the negative effects of chronic pain, fibromyalgia, cancer patients and coronary artery disease. Improvements were noted for both physical and mental health measures (Grossman, et al.).

Goleman and Bennett-Goleman suggest a theory that meditation works because of the relationship between the amygdala and the prefrontal cortex (Goleman & Bennett-Goleman, 2001). According to these authors, the amygdala is the part of the brain that decides if one should get angry or anxious (among many other functions), and the pre-frontal cortex is the part that makes individuals stop and think about things and events; it is also known as the inhibitory center of the brain mass. The amygdala first receives emotional signals and sends them to the prefrontal cortex where planning occurs. Then the prefrontal cortex analyzes and plans the reaction but it takes a relatively long time to make decisions. The amygdala, on the other hand, is simpler and it makes rapid judgments about situations and has a powerful effect on peoples' emotions and behavior linked to survival needs (Goleman & Bennett-Goleman, 2001). For example, if a human sees a tiger leaping out at them, the amygdala will trigger a fight or flight response long before the prefrontal cortex responds. In making snap judgments, the amygdala is prone to error because it evolved in times that are vastly different from modern response needs (Sagan, 1977). Today there are essentially no predators to fight or flee from and yet, the neural circuitry that evolved to deal with them is still in place. Today, social forms of conflict and other emergencies are far more common than encounters with predators, and do not present humans with crises similar to the prehistoric context; however, an emotionally charged situation can trigger uncontrollable fear or anger leading to conflict, anxiety, and stress. Based on their theory,

Goleman and Bennett-Goleman suggest that individuals who engage in meditation have a lesser chance to act irrationally and out of impulse compared to those who do not exercise any form of meditation (Goleman & Bennett-Goleman, 2001; Goleman, 2005).

Mindfulness meditation and related techniques are intended to train attention for the sake of promoting insight (Lazar, Bush, Gollub, Fricchione, Khalsa, Benson, 2000). A wider, more flexible attention span makes it easier to be aware of a situation, easier to be objective in emotionally or morally difficult circumstances, and easier to achieve a state of responsive, creative awareness or flow (Lazar et al, 2000). This finding is directly connected with Csikszentmihalyi's flow theory. Csikszentmihalyi defined the flow response as a holistic response or an "optimal state of experience in which there is order in consciousness" (Csikszentmihalyi, 1990. p. 71) Furthermore, Csikszentmihalyi writes "This happens when psychic energy, or attention, is invested in realistic goals, and when skills match the opportunity for action" (1990. p. 72.) Flow provides a sense of discovery, a creative feeling of transporting a person into a new reality. Furthermore flow "pushes a person to higher levels of performance, and leads to previously undreamed of states of consciousness" (Csikszentmihalyi, 1990. p. 74.). According to Csikszentmihalyi, potentially negative experiences can be transformed into flow by 1) setting clear goals to strive toward, 2) becoming immersed in the activity chosen, 3) paying attention to what is happening, and 4) learning to enjoy immediate experiences. The flow state has been defined as "an intrinsic reward for participation in an activity (Csikszentmihalyi, 1977, p. 56.), as an optimal state that occurs when there is a balance between the perceived challenges of a situation and a person's skills or capabilities for action (Csikszentmihalyi, 1990), and as a "centering of attention on a limited stimulus field" (Webster, Trevino & Ryan, 1993. p. 421). Thus, meditation can increase flow, focus, and creativity.

According to Jha, Krompinger, and Baime (2007), regular meditation calms down the restlessness of the mind, and decreases the number of distracting thoughts, bringing a sense of inner peace and relaxation. These researchers found that as the sense of inner peace increases, the ability to concentrate and focus the mind improves. Furthermore, Jha, Krompinger, and Baime speculates that with a peaceful mind one makes less mistakes, better judgments and decisions, and experiences increased patience and tolerance (2007). In addition, this may improve relationships with family, friends, neighbors and colleagues (Jha et al., 2007). Lutz, Slagter, and Dunne (2008) claims that there are further benefits of meditation. Regular practice enhances a sense of happiness and contentment. As the mind becomes more and more peaceful, the number of worries, anxieties, fears and negative thoughts decrease, and in their absence, happiness rises unobstructed from within (Lutz, Slagter, & Dunne, 2008).

Barnes, Bloom, and Nahin (2007) found that much of the stress and tension people normally experience comes from their mind, and many problems, including ill health, are brought about or aggravated by stress and tension. This stress and tension can be reduced by regular meditation. An undisciplined mind accepts every passing thought, and wastes one's time and energy on futile, useless, irrational, illogical or negative thoughts. With a disciplined and trained mind, this tendency gradually gets weaker, and may even disappear (Barnes et al.). Barnes and colleagues (2007) write that "with regular practice one can see changes in the behavior and attitude and manner of thinking" (p. 198). The mind becomes more positive and one learns to react more constructively, patiently and calmly to the various situations of daily life, from dealing with people to dealing with problems, tasks or goals; indeed, individuals who meditate become positive, efficient, focused and more satisfied (Barnes et al.). Based on Barnes and colleagues (2007) research, the following are mental and emotional benefits of meditation:

decrease in restless thinking; increased ability to stay calm in most situations; greater creativity; decreased anxiety; decreased tendency to worry; decreased depression, decreased nervousness, irritability and moodiness; enhancement of self-confidence; improved concentration; increased self-discipline; improved learning ability and memory; increased feelings of vitality; enhanced feelings of happiness; heightened levels of emotional stability; and greater stages of developed intuition. Barnes et al. (2007) detailed the following list for spiritual benefits of meditation: peace of mind; emotional and mental detachment; heightened awareness of the inner self; the ability to look within, beyond the body, mind and personality; discovery of the power and consciousness beyond the ego; discovery of one's true being; and attaining self-realization and spiritual awakening.

The benefits of meditation manifest on the physical, emotional, mental and spiritual levels. Some of them appear quickly, and others take more time. This depends on the amount of time devoted to practicing meditation regularly, the levels of earnestness and concentration, and on the inner processes of the meditating person. It is not enough to meditate once a week or once in a few days. Regular daily practice is required for obtaining and sustaining results. For the purpose of this study, the researcher has chosen a specific form of mindfulness meditation, Loving Kindness Meditation, as an intervention in an experimental design.

<div align="center">2.8 Loving Kindness Meditation</div>

Brief History of LKM

Statements addressing Loving Kindness Meditation (LKM) may be traced back to as early as the Pali Canon which was written in approximately 29 BC (Gombrich, 2006). In this ancient text, one would find statements focusing on loving-kindness (*metta*) particularly as part of mental purification, well wishing for others, and extending loving-kindness embracing all

creations and creatures (Gombrich, 2006). As part of the Pali Cannon, the *Karaniya Metta Sutta*

and the *Abhidhamma*, underline the key role of loving-kindness in the development of

wholesome karma (Gombrich, 2006). Loving-kindness, or *metta*, as it is called in the Pali

language, is an unconditional, all inclusive love; a love with wisdom. *Metta* does not depend on

whether one deserves it or not, nor it is not restricted to friends and family but it extends out

from personal categories to include all living beings. There are no expectations of anything in

return in the concept of *Metta* (Brantley & Hanauer, 2008).

However, LKM was developed with Buddhism as it was the central theme of that

religion. According to historical records, Buddha has taught five hundred monks specific

techniques to exercise living-kindness meditation. Buddha and his followers viewed loving-

kindness meditation (*metta bhavana*) as supplemental or complementary to other forms of

meditation (Kristeller & Johnson, 2005). As Buddhism has spread around the globe so has the

concept of LKM. In recent years, LKM received more attention as part of the mindfulness

movement in holistic wellness approaches as well as afforded more empirical research on its

effectiveness (Fredrickson, 2009).

Correlates of LKM in Current Research

Loving-kindness arises from a Buddhist concept related to compassion, empathy, love,

altruism, and connectedness (Kristeller & Johnson, 2005). Loving-kindness meditation (LKM) is

a type of insight or mindfulness meditation; however, the aim is to cultivate "compassion, joy,

equanimity and the sense of love and connectedness with others" (Kristeller & Johnson, 2005,

p.395). The practice of LKM combines mindfulness, in the form of nonjudgmental awareness of

the present moment (Kabat-Zinn, 2005), with the cultivation of kindness, warmth, and

compassion (Fredrickson, 2009). According to the Dalai Lama, in the Buddhist tradition

compassion is the desire to see others free from suffering, and it contains two aspects. The first is loving-kindness, which is the desire for others to be happy. The second is connectedness, defined as a sense of endearment, warmth and tenderness toward others (Ekman, 2008). Although loving-kindness meditation has been utilized in research stripped of Buddhist connotations (Fredrickson et al., 2008; Weibel, 2007), these principles remain as part of the process.

Kabat-Zinn (2003) described mindfulness as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience" (p. 145). Based on this definition, Shapiro, Carlson, Astin, and Freedman (2006) developed a model describing three components of mindfulness. The first is intention, which refers to why someone is practicing meditation. The second is attention, which can be defined as one's observing moment-by-moment internal and external experience. The third component is attitude, which is how an individual participates in the practice or the "qualities one brings" (pp. 375-376). These three components are implicit in LKM, along with the concept of connectedness (Salzberg, 2005; Weibel, 2007).

A state of loving-kindness or compassion is defined as "unconditional readiness and availability to help living beings" (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008A. para. 3). The process of LKM begins with directing warmth, love, kindness, and compassion toward oneself. This is the foundation of the practice. From there, the practice is typically expanded to include people for whom the meditator feels gratitude, then to family, friends, and other loved ones. Next, the practice is generally expanded to include neutral people, next to people with whom the meditator has difficulty, and ultimately to all beings or the entire planet. During the meditation, it is customary to silently repeat phrases or intentions of loving-kindness (Fredrickson, 2009; Salzberg, 2005; Weibel, 2007). The typical phrases are "May I be safe, may

I be happy, may I be healthy, and may I live with ease". However, meditators may personalize their objectives to suit themselves and their situation (Salzberg, 2005).

Loving-kindness meditation is aimed at training the mind to generate feelings of warmth, kindness, and compassion toward self and others (Fredrickson, 2009); thus, LKM is distinctly different from other mindfulness practices. Consequently, the research on mindfulness does not adequately predict the effects of LKM (Corcoran, 2007) because other mindfulness practices focus on awareness of the present moment, rather than the explicit cultivation of positive emotion.

Research on LKM

Research on LKM is still in its infancy. For the most part, researchers have disregarded meditation's standard goals such as compassion, wisdom and clarity (Walsh & Shapiro, 2006). However, research on LKM emerged early in the 2000s beginning with the exploration of brain activity resulting from the practice of LKM. The following paragraphs highlight the findings in the LKM research. These studies support the possibility of a relationship between LKM and increased empathy, increased stress tolerance, and increased social connectedness. In addition, these studies demonstrate that LKM has been shown to cultivate positive emotions, which is believed to expand cognitive flexibility and build higher quality relationship between self and others. Thus, there is evidence supporting the use of LKM as an intervention to improve empathy, perceived social support, and decreasing stress indicators in student teachers.

Lutz, Greischar, Rawlings, Ricard, Davidson (2004) explored the effects of LKM on brain activity. These researchers utilized electroencephalogram (EEG) to measure gamma-band patterns, which play a part in higher order cognitive processes such as attention, learning, memory, and perception. The study compared eight expert Buddhist meditators with 10 novice

meditators who received six weeks of LKM training prior to the study. Participants were instructed to cultivate a "state of unconditional loving-kindness and compassion" (Lutz et al., 2004, p. 165) during the study. Results indicated first that baseline profiles were significantly different between the two groups (p < .001), suggesting that long-term meditation may alter the resting state of the brain. Second, both groups exhibited increases in gamma-band rhythms during the LKM (p < .05), but the expert meditators demonstrated a significantly greater increase in gamma-band activity than the novice group (p <.05). However, these results should be interpreted with caution due to the small sample size and possible confounding variables. The expert meditators were Tibetan Buddhist monks; therefore, there may be significant lifestyle differences between the two groups that accounted for some of the change. Nevertheless, the findings support the emerging evidence that meditation beneficially alters brain activity.

The first known study in the medical field specifically utilizing LKM as an intervention investigated its effect on chronic lower back pain (Carson et al., 2005). This study employed an experimental design with a treatment and control group (N = 43). Based on the hypothesis that negative emotions, such as anger and resentment increased pain intensity researchers examined the possibility that increasing positive affect through LKM would reduce negative affect and pain intensity. The LKM intervention was conducted through eight weekly 90-minute group sessions that included the meditation plus psychoeducation (Carson et al., 2005).

Utilizing within-group univariate analyses and multilevel modeling, results indicated that participants in the experimental group demonstrated reduced pain intensity and usual pain (p <.05) with a mean effect size of .42. There was also significant reduction in the psychological variables with an effect size of .50; psychological distress, (p = .02); anxiety (p=.05), 52% reduction in daily anger (p < .01); and 45% reduction in daily tension (p < .01). The more the

patients in the treatment group meditated, the less pain they felt that same day, and the less anger they experienced the following day (Carson et al., 2005). Several limitations in the study warrant deliberation in interpreting results. First, the groups demonstrated initial inequality in baseline anger measures; the treatment group demonstrated lower anger variables at the outset. Additionally, there was a high rate of attrition in the treatment group (41.9%), so only 18 of 31 participants in the LKM group completed the study, compared with 25 out of 30 (16.7%) in the control group. Nevertheless, the findings provided preliminary support for further exploration of LKM as an intervention for pain and negative emotions (Carson et al., 2005).

Corcoran (2007) conducted a grounded theory qualitative study on the effects of LKM. Participants included two experienced meditation teachers and seven practicing meditators. All nine participants reported helpful changes in emotions, thoughts, behaviors, and relationships resulting from the practice of LKM. The changes in emotional states included reductions in anger, anxiety, fear, helplessness, emotional pain, and judgments. Further, participant data reflected increases in happiness, well-being, compassion, openness, and self-efficacy. Moreover, participants reported that the ability to practice LKM on other people helped them to develop a greater sense of acceptance and cognitive empathy. Additionally, practitioners reported greater cognitive flexibility due to increased awareness of choices.

In Corcoran's (2007) research, there were also noted effects with respect to relationships. Participants reported feeling better about themselves, being kinder to themselves, and having easier relationships with others. Additionally, the practice of LKM seemed to improve difficult relationships and decrease feelings of isolation. Participants reported feeling more positive towards the people in their lives and a sense of increased compassion and care overall. Partakers were also able to avoid other internalizing other peoples' negative behaviors and developed a

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detached concern for others. Finally, some participants experienced a greater sense of connection combined with less blaming of others (Corcoran, 2007). Based on these results, Corcoran (2007) recommended LKM for caregivers since it was evident that LKM may increase compassion for self and others, decrease feelings of helplessness, decrease judgmental attitudes, and decrease anger. Additionally, Corcoran posited that LKM may support caregivers in increasing efficacy and preventing burnout. Corcoran's findings may hold particular salience for teachers in their work with students, parents, administrators and colleagues; specifically, the results of Corcoran's study hold promise for an intervention to increase teacher efficacy, empathy, and connection to others.

Weibel (2007) investigated LKM as an intervention to increase compassion in students enrolled in psychology classes (N = 71). Participants were randomly assigned into treatment and control groups. The intervention consisted of four weekly 90-minute group sessions and included mindfulness meditations along with LKM. Outcomes were measured with the Self-Compassion Scale (Neff, 2003), the Compassionate Love Scale - Humanity Version (Sprecher & Fehr, 2005), the State-Trait Anxiety Inventory - Trait Form (Speilberger, Gorsuch, & Lushene, 1970), and two measures designed specifically for the study: Weekly Meditation Check List and Post Intervention Survey. Results indicated that the treatment group demonstrated greater increases in self-compassion (effect size .45) and compassionate love (effect size .33), and a greater decrease in trait anxiety (effect size .30, p=.014) than the control group.

Fredrickson and colleagues (2008) utilized LKM to test Fredrickson's (1998 & 2001) broaden-and-build theory. The study employed an experimental design; the participants were 139 full-time employees at a software and information technology company who volunteered for an employee wellness program. The treatment group consisted of 67 participants with 72 in a

waitlist control group. The researchers provided an orientation for participants that outlined the known benefits of meditation but did not describe LKM or the broaden-and-build theory. Fredrickson and colleagues hypothesized that practicing LKM would increase daily positive emotions and build a variety of personal resources that would positively affect participants' mental health and overall life satisfaction. The treatment group participated in six one-hour LKM meditation group sessions held over a period of seven weeks (due to holidays). The mean number of sessions attended was five.

To test for cognitive resources, the researchers utilized the Mindfulness and Awareness Scale, Trait Hope Scale, and the Savoring Beliefs Inventory. To examine psychological resources, they employed the Life Orientation Test, ego-resilience measure (Block & Kremen, 1996) and the psychological resources subscale of Ryff's psychological well-being measure. Social resources were measured by the Dyadic Adjustment Scale and the positive relations with other subscales of Ryff's psychological well-being scale. Physical resources were assessed using an illness symptom self-report measure (Elliott & Sheldon, 1998) and a single item extracted from the Pittsburgh Sleep Quality Index for sleep duration. Outcome measures included the Satisfaction with Life Scale and the Center for Epidemiological Studies-Depression Measure (excluding the four positively worded items to avoid conceptual overlap with positive emotions). Additionally, participants completed the Modified Differential Emotion Scale and the Daily Report of Mood (DRM) for daily reports of emotions and time spent meditating.

Fredrickson et al. (2008) utilized hierarchical linear models with time nested design focusing on individual participants to investigate the impact of the intervention, passage of time, and time spent meditating on self-reported emotions. The researchers tested the build hypothesis with a combined latent growth curve and path-analysis structural equation model (SEM). [The

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build hypothesis explains the functionality of positive emotions (Fredrickson, 1998)]. The data analysis indicated that LKM increased positive emotions in the participants over the course of the study. While results did not indicate a statistically significant increase in compassion or a significant reduction in negative emotions, analysis of the DRM indicated that positive emotions increased during LKM, and they persisted after the meditation session ended; and over time, a cumulative increase in positive emotions was evident whether or not the participant meditated that day (Fredrickson et al. 2008).

In this study, Fredrickson et al. (2008) found that the array of positive emotions experienced included "love, joy, gratitude, contentment, hope, pride, interest, amusement, and awe" (p. 105). Path analyses supported a significant relationship between increased positive emotions, increased personal resources, and increased life satisfaction. The paths were significant for nine out of the eighteen resources examined: (a) mindfulness, (b) pathways thinking, (c) savoring the future, (d) environmental mastery, (e) self-acceptance, (f) purpose in life, (g) social support received, (h) positive relations with others, and (i) illness symptoms. Even though the increase in positive emotions was small in magnitude and occurred gradually, it was associated with increases in several personal resources, such as mindful attention, good physical health, positive interpersonal relationships, and greater self-acceptance. These gains in personal resources generated increased life satisfaction and fewer symptoms of depression (Fredrickson et al. 2008).

Lutz, Brefczynski-Lewis, Johnstone, and Davidson (2008) examined neuroimaging of participants practicing LKM suggested that cultivating the intent to be compassionate enhanced empathic responses. Researchers used functional Magnetic Resonance Imaging (fMRI) to

examine the neurological impact of voluntary cultivation of compassion. Participants (N = 30) included novice and expert practitioners of LKM. Results indicated that expert practitioners of LKM were able to cultivate positive emotions that altered the circuitry associated with empathy, defined as "the capacity to understand and share another person's experience" (Lutz et al, 2008, p. 3). The researchers theorized that empathic response would be amplified by the extent of meditation training. Observed activation in the insula cortex was more intense for those who reported greater intensity of meditative state for both groups; however, expert meditators demonstrated greater activity in the brain regions related to empathy overall. Both novice and expert meditators exhibited stronger neural responses to various audio stimuli during the meditation compared to a state of rest. Results indicated that generating the intent to be compassionate can strengthen empathic responses (Lutz et al., 2008).

Burgard and May (2010) utilized Metta (loving-kindness) meditation to explore its potential to reduce the attentional blink (AB), which is the failure to detect a second image in rapid serial visual presentations (N = 39). One group practiced LKM and the other relaxation in one session for a total of 11 to 12 minutes. This study resulted in no differences between the two groups; however, treatment time seemed to be very short (two occasions) compared to other research studies, thus may have impacted the outcome of the study (Burgard & May, 2010). More recently, there were two articles closely related to the topic of the effectiveness and usefulness of mindfulness (Roeser, Skinner, Beers, & Jennings, 2012; Benn, Akiva, Arel, & Roeser, 2012) Also a presentation of a paper was given at the annual conference of the American Educational Research Association (AERA) by Harrison, Taylor, Denne and Roeser (2012, personal communication) on the same topic. Although the subjects on these publications and studies were teachers and their classrooms and the teachers' students, they still have

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relevance to the current study. LKM is a branch of MBSR, the experiment used by these researchers and the studies all showed positive outcomes and statistically significant results as it comes to the outcomes of these study. The Harrison, Taylor, Dene and Roeser study was part of a Professional Development program for teachers. This study focused on the evaluation of good habits of mind as part of a preventative stress reduction program and seemed to be an empirically rigorous. As one of the results of this study it was concluded that MBSR seem to reduce the level of stress and the number of participants experiencing burnout was also lower (personal communication, Harris, 2012). All above mentioned studies provide support for generating positive emotions via LKM (Carson et al. 2005; Fredrickson et al., 2008; Hutcherson et al, 2008; Seppala, 2009). The studies also substantiate examining LKM as an intervention that may increase empathy, because it has been shown to increase compassion (Weibel, 2007) and empathic brain activity (Lutz et al., 2008A). There is also evidence that LKM increases social connectedness, thus it may increase perceived social support. Finally, positive emotions have been shown to increase cognitive flexibility and environmental mastery (Fredrickson et al., 2008); thus, LKM may increase self-appraisal of problem-solving ability. The protocols utilized by Fredrickson et al. (2008) and Weibel (2007) provided the framework for the current study.

Research has demonstrated that mindfulness meditation may increase positive affect (e.g., Shapiro & Carlson, 2009). Furthermore, meditation has been shown to be an effective antidote to stress and depression and may buffer against maladaptive stress responses. Meditation can generate calmness, relaxation, and acceptance. LKM is a specific type of meditation that is included in Mindfulness Based Stress Reduction programs, but it is just beginning to be explored as its own entity (Salzberg, 2011). Preliminary research indicates that LKM can foster compassion (Weibel, 2007), and connectedness (Seppala, 2009), as well as

reduced anger, depression, and anxiety (Carson et al, 2005; Fredrickson et al, 2008; Hutcherson, Seppala, & Gross, 2008; Seppala, 2009). Additionally, positive emotions, generated through meditation, can improve environmental mastery, flexibility in thinking, and creative problem-solving (Isen, Daubman, & Nowickie, 2009; Fredrickson et al., 2008). Based on the potential benefits of positive emotions through meditation, the subject of this study focused on exploring the expenditure of a positive affect based meditation intervention (LKM) on student teachers.

2.9 Conclusions for Proposed Study

Teachers are often expected to teach without having the tools to deal with the many challenges, changes, and stressors occurring in the education system. In recent years, several studies found a significant increase in psychological distress among teachers (e.g., Fueguel & Montoliu, 2005; Moriana & Herruzo, 2004), which has been exacerbated by high levels of stress experienced at work, anxiety, depression, and low self-esteem. These same studies illuminate that many of the subjects included in the research have also reported that their stress levels negatively affected their job performance (Fueguel & Montoliu, 2005; Moriana & Herruzo, 2004). Teachers' academic education does not include any sort of psychological preparation or self-awareness/self-help tools, so teachers tend to lack the resources and abilities needed to meet the rigors and demands that their work as educators requires of them day to day (Anadón, 2005; Bisquerra, 2005).

Mindfulness and LKM has been adopted as an approach to decrease stress, and to increase awareness of the mental processes that contribute to emotional distress and maladaptive behavior (Bishop et al., 2004). Many researchers ponder that Loving-kindness meditation may be a viable therapeutic tool or intervention technique to appropriately handle stress (e.g., Baer, 2003; Kabat-Zinn, 1994; Segal, Williams, & Teasdale, 2002). Practicing LKM allows one to

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contemplate the thoughts and sensations they experience as events that flow continuously and

that should only be noticed and observed, while remaining conscious of their transitory and non-

permanent nature. This breaks the habitual "think-feel-act pattern" (Kabat-Zin, 1994. p. 19) as

well as the habit of judging and evaluating thoughts as if they were their own entities. In this

manner, participants may have a chance to avoid reacting to internal and external events (Kabat-

Zinn, 1994; Shear, 2006).

Preliminary research indicates that LKM can foster compassion (Weibel, 2007), and

connectedness (Seppala, 2009), as well as reduce anger, depression, and anxiety (Carson et al.,

2005; Fredrickson et al., 2008; Hutcherson, Seppala, & Gross, 2008; Seppala, 2009).

Additionally, positive emotions, generated through meditation, can improve environmental

mastery, flexibility in thinking, and creative problem-solving (Isen et al.,1987; Fredrickson et al.,

2008). Based on the potential benefits of positive emotions through meditation, the objective of

the present, experimental study was to test whether or not LKM exercise may be an effective tool

reducing the levels of psychological distress experienced by a group of student teachers.

CHAPTER 3: METHODS AND MATERIALS

3.1 Purpose of the Study

The critical problems of first-year teachers are well documented (Gold, 1996; Feiman-Nemser, 2003; Schlichte, Yssel, & Merbler 2005; Veenman, 1984; Wang & Odell, 2002). Among many other contributing factors, stress was named one of the top elements creating burnout and influencing high teacher attrition rates. Based on research conducted by Johnson, Cooper, Cartwright, Donald, Taylor, and Millet (2006), teaching is one of the most stressful occupations out of 26 total professions. Stress may come from learning the culture and climate of the schools they serve, having to implement classroom management and discipline protocol, and increased accountability for student outcomes. Moreover, the relationship between teachers and students has received central focus in evaluating teacher effectiveness (Clotfelter, Ladd, & Vigdor, 2006). Specifically, according to Clotfelter and colleagues (2006) teachers who were able to establish and maintain positive relationships between themselves and their students were evaluated as more effective and their students' achievements were also rated higher compared with other teachers whose relationship with students were not rated at the same level.

Further, Tettagah and Anderson (2007) found that empathy may be essential for a successful teaching process as empathy creates a balanced approach. According to these writers the empathic teacher not only accomplishes the tasks essential to complete curricular activities, but has an appreciation for students as whole people. Specifically, the empathic teacher is cognizant that learning as a process is contextual; therefore, students' lives and lived experiences impact learning, growth and development (Tettagah & Anderson 2007). Boyer (2010) also acknowledged that "caring deeply and empathically about children and their welfare has been

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identified as being at the heart of purposeful teaching" (p.313). Conklin (2008) asserted that empathy and genuine caring is necessary for a justice-oriented approach to teaching. However, as teachers' level of stress increases, they are less likely to display empathy (Carlyle & Woods 2002) partially due to emotional exhaustion (Chang, 2009), which if unaddressed overtime may lead to burnout (Brouwers, Evers, & Tomic, 2001).

In light of these findings the current research project is designed to investigate the usefulness of Loving-Kindness Meditation (LKM) for pre-service student teachers. In particular, the study will focus on stress reduction effects and the level of empathy student teachers experience after participating in LKM activities through a 15 week period. This study may contribute new findings to the existing body of literature on teacher stress as well as to the teacher empathy literature. It is proposed that this may be done through an examination of student teachers' levels of stress and empathy after a semester of LKM exercises. This study is also designed to address the substantial need for empirically-driven attention to stress management; it has been noted that stress may have an impact on the judgments teachers make in and outside of the classroom (Lambert & McCarthy, 2006). By helping teachers to become aware of their emotions, and assisting them with gaining new skills to appropriately handle stress, student teachers might become more resilient to potential stressors and may decrease their chances of becoming emotionally exhausted due to the demands of their work.

<center>3.2 Research Questions</center>

1)   The researcher was focused on finding the answers to three primary research questions by conducting this study. Is there a statistically significant difference in levels of stress between student teachers who receive LKM training and those who do not?

Researcher's Hypothesis: There is a statistically significant difference in levels of stress between student teachers who receive LKM training and those who do not.

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Null Hypothesis: There is not a statistically significant difference in levels of stress

between student teachers who receive LKM training and those who do not. Hypothesis:

2) Is there a statistically significant difference in levels of empathy between student teachers who

receive LKM training and those who do not?

Researcher's Hypothesis: There is a statistically significant difference in levels of

empathy between student teachers who receive LKM training and those who do not.

Null Hypothesis: There is not a statistically significant difference in levels of empathy

between student teachers who receive LKM training and those who do not.

3) Is there a correlation between the amounts of time spent participating in LKM and the level of

stress as well as empathy experienced by participants.

Researcher's Hypothesis: The greater amount of time spent with engaging in LKM

exercises will result in greater stress level reduction and achieving higher levels of

empathy.

Null Hypothesis: There is not a statistically significant difference in stress levels and

empathy levels based on time spent engaging in LKM.

<div align="center">3.3 Research Design</div>

This research was conducted by application of a true experimental design. According to

Trochim (2008) a true experimental design is "A blueprint of the procedure that enables the

researcher to test his hypothesis by reaching valid conclusions about relationships between

independent and dependent variables" (p.93). For research to be classified as a true experimental

design, it must include a viable control group, must have random assignment, and one or more

variables must be manipulated (Trochim, 2008). The current research project has a control and

an experimental group, the participants were randomly assigned, as well as had a deployed variable.

There is a need for pragmatic and rigorous research designs to evaluate the effectiveness of population-based interventions (Hawkins, Sanson-Fisher, Shakeshaft, D'este, & Green 2007). This researcher reviewed some of the widely accepted and applied statistical designs in order to determine the central method of delivery for his study. For example, the randomized controlled trial (RCT), which is the gold standard for causal inference for individual-level interventions (Shadish, Cook, & Campbell 2002), and the cluster or group-randomized trial (GRT), when interventions are applied at the group level and outcomes are measured at the individual level (Donner & Klar, 2000) received great consideration. However, this researcher has elected to apply a staggered or multiple baseline design (MBD) as the main statistical approach for this project since this venue seemed to provide the strongest support and relevance.

This design is mostly used in medical, psychological and biological research. The MBD is a true experimental design in that it allows for causal inference. It is extremely useful for evaluating situations where an intervention would be likely to bring about enduring changes in the dependent variable (Barlow, Nock, & Hersen, 2009). According to Hawkins and colleagues (2007), applications of the staggered design can demonstrate that due to the experiment a change in behavior has occurred, the change is a result of the intervention, and the change is significant. The staggered or multiple baseline design has "especially important practical advantages over the RCT in that this design requires a smaller sample size as well as the participants may act as their own controls" (Hawkins et al., 2007, p. 164).

Although identified as potentially useful in statistics as far back as 1968, very little descriptive literature has focused on the staggered, or multiple baseline design, and few

population-based researchers have implemented this type of methodological approach to their studies (Hawkins et al., 2007). With this design, all groups eventually receive the intervention, but at different times. As a result, all groups also serve as a comparison group to each other. According to Shadish et al., (2002) one of the advantages of the multiple baseline design is that it markedly reduces the threat of history or time effects. When an intervention is given to only one group, the researcher may not be sure that something else did not coincidentally occur at the same time to cause the measured effect. Shadish and colleagues assert that "even when using a control group, something could still happen to only the intervention group (besides the intervention itself) that affects the outcome" (Shadish et al., 2002. p.121). When the intervention's introduction is staggered, with the apparent effects correspondingly staggered, history effects are an unlikely explanation for the result (Shadish et al 2002). In this current study the staggered design status was established by first assigning the participants randomly into two groups: Group A: the experimental group and Group B: the control group. Both of these groups were pre-tested with the applied measures (Interpersonal Reactivity Index (IRI) and the Outcome Questionnaire 45.2 [OQ45.2]), establishing the base line for the intervention. The experiment was begun by providing LKM training for Group A. At week six the first post-test was given to both groups A and group B and LKM training was provided for Group B as well as the experiment started for Group B. At week 14 both groups received again post-testing procedure and evaluation. The following table provides a description of the design procedure (Table 1).

Table 3. Staggered Design Data Collection Procedure

	Week # 0 Pre Test	Week # 0 Treatment	Week # 6 Post Test	Week # 6 Treatment	Week # 15 Post Test
Group A	Yes	Yes	Yes	Continued	Yes
Group B	Yes	No	Yes	Yes	Yes

3.4 Determining Power

Murphy and Myors (2003) suggest that a researcher should always perform a power analysis before he/she begins data collection, ideally at the time of the design of the study. This is referred to as an a priori power analysis which is done before one conducts the study. When performing this type of power analysis one needs to know the alpha, the power to be achieved (e.g., .80) and the effect size (small, medium or large). It is also advisable to have a general sense of the desired sample size (n) and the directional nature of the test (one or two tailed test) (Hinkle et al., 2003), (Kraemer, & Theimann 1987). This researcher has conducted such a priori power analysis at the design stage of his study.

According to Cohen, (1989) quantitative researchers should conduct a power analysis to ensure that certain conditions are met to correctly reject the null hypothesis. Before conducting a power analysis, the researcher needs to choose a statistical test to analyze the data used in the study. Furthermore, to conduct a power analysis, the researcher also needs to decide in the level of the significance desired for the statistical analysis. A common choice in research is alpha=.05. One should also have a sense of how much power is required to detect an effect when conducting a power analysis. This is expressed as power=1 - ß, where ß is the probability of a Type II error. Power=0.80 is common, but one could also choose Power=.95 or .90 (Kraemer & Theimann 1987).

Statistical power is defined as the probability that a statistical test will reject the null hypothesis or the ability of a statistical test to detect an effect. Power is equal to 1- ß (beta) (Hinkle et al., 2003). In order to reject the null hypothesis (which states that there is no relationship between the variables of interest), power should be at least .80. In general, the larger the sample size, the greater the power, but Cohen (1989) points out that sometimes having too

many subjects can decrease the power. A power analysis also provides information for determining the minimum number of subject data one needs to collect in order to make the research valuable.

When conducting a power analysis, one must also choose the appropriate effect size; not choosing the appropriate effect size can result in a sample size that is too large or too small (Cohen, 1989). The smaller the effect, the more difficult it will be to detect. Cohen (1989) suggested choosing an effect size based on what is typically observed in the particular field of study or one may also elect to use an estimate of small, medium and large effect sizes. A larger sample size is likely to increase one's ability to detect a significant difference or effect, but researchers may not have the resources required for collecting a large sample. Based on the power analysis, one can determine whether the study is worth pursuing.

This researcher has used Hinkle, Oliver, and Hinkle's (1985) power chart to determine the minimum number of participants (sample size or n) for this study. The level of significance (α) was set at.05, and the power of the test 1- ß (beta) was set at .80 as a standard in behavioral and educational sciences. This researcher elected to use a two tailed test because using a two-tailed test, regardless of the direction of the relationship the researcher hypothesized, enables him to investigate the possibility of the relationship in both directions. The standardized effect size (d=ES/ σ) in the priori power analysis was set at .80. Based on these prerequisites and taking these factors into account the Hinkle, Oliver, and Hinkle's (1985) power chart yielded that the minimum number of participants in this study to be 15 in order to for this research to be worthwhile. Following random assignment of the volunteers for this study the researcher was able to place 34 participants in the experimental group and 33 participants into the control group.

3.5 Sampling Procedure

In purposive sampling subjects are selected from a particular group of people because of some particular characteristic (Patton, 1990). According to Patton (1990), when the desired population for the study is rare or very difficult to locate and recruit then purposive sampling may be the only option. The major problem with purposive sampling is that the type of people who may be available for study may be different from those in the population who can't be located and this might introduce a source of bias (Trochim, 2008). In the current study the researcher purposely chose a sample from student teachers since the focus of this study is that very same population and since student teachers experience heightened levels of stress during their training and at their respective field placements. The researcher has no intention to make the result of this study generalizable to any other population.

In all forms of research, it would be ideal to test the entire population, but in most cases, the population is too large, and therefore, it is impossible to include every individual (Hinkle et al., 2003). In convenience sampling, the subjects are selected based on their availability and ease of recruitment (Hinkle et al., 2003). In this study, the researcher did not consider selecting subjects that are representative of the entire population. Indeed many times this is one of the biases of this method of sampling: it is possible that certain groups would be under or over represented in the research. According to Hinkle et al. (2003), many researchers prefer this sampling technique because it is fast, inexpensive, and easy; and in most cases the subjects are readily available.

The participant sample was pooled from a population of student teachers at a large Predominantly White Institution (PWI) (see limitations section). The Southeastern University where the research was conducted is accredited by the National Council for Accreditation of

Teacher Education (NCATE) and Southern Association of Colleges and Schools (SACS). The participants were student teachers enrolled in early childhood education, elementary education, and Masters of Art in Teaching (MAT) programs. Initially, there were 73 student teachers interested in this research endeavor. However, after providing the preliminary information session and training, there were 70 participants for the experiment. The researcher utilized a JavaScript random number generator to produce a customized set of random numbers (www.randomizer.org). These numbers were assigned to the student teachers interested in the experiment and determined to which group (control or experimental) the participants were assigned.

Following ethical guidelines, participants were provided (1) respect via autonomy in deciding whether or not to enter and remain in study and the right to be protected from harm, (2) beneficence through maximization of benefits and minimization of harm, and (3) justice through fair treatment with no form of deprivation (Shadish, Cook, & Campbell, 2002). Participants were provided complete information regarding the features of the study that may have had an impact on their decision to participate or not, including the procedures of the study, any risks of harm, anonymity, and confidentiality (Rubin & Babbie, 2008). This information was given verbally from a script and in written informed consent, which all participants read and signed prior to participating in the study (Please see Appendix B for informed consent).

3.6 The Intervention

After receiving IRB approval the researcher discussed his inquiry idea with the director of the Office of Field Experiences. The entire class of student teachers, totaling 213 students, was provided an opportunity to participate in the research study through an information session at the beginning of the semester. Those student teachers who were interested in the research

received the same training and materials. The training included a presentation discussing the history of meditation in general, containing Loving-Kindness Meditation (LKM), current and relevant research on meditation, and benefits of meditation. The researcher also discussed the process of meditation and provided answers to questions from participants. During the training the participants were provided a CD with six tracks of audio material (a copy of this CD is included in the Appendices). This CD was created by permission from the University of California at Los Angeles' Semel Institute for Neuroscience and Human Behavior (http://www.semel.ucla.edu/). One of the tracks provided a step-by-step complete instruction for meditation while the other tracks contained LKM meditations of varying length. Participants were encouraged to listen to any of the tracks daily and requested to record time spent mediating on a log-sheet provided to them at the time of the training (please see Appendix B).

At the time of the training the participants also received a copy of informed consent protocol (Appendix B) that was read and fully explained by the research. Participants were asked to complete the IRI and the OQ45.2 as the pretest baseline for the study. Participants were also provided a meditation log in order to record their time spent engaging in Meditation activities (Appendix B). The researcher distributed his contact information and encouraged members of the study to contact him in case there were any questions or concerns throughout the study.

3.7 Instruments

As aforementioned, there were two instruments used by the researcher during data collection in the pre and protest procedures: the Interpersonal Reactivity Index (IRI), [Davis, 1980]; and the Outcome Questionnaire 45.2 (OQ45.2). The IRI demonstrated acceptable to good internal consistency, test-retest reliability, and some evidence for the construct validity of the measure was also determined by several researchers (Davis, 1980; Carey, Fox, & Spraggins,

1988; and Siu & Sheck, 2007). Carey and colleagues also verified the multidimensional nature and item composition of the Interpersonal Reactivity Index (IRI) subscales by using factor analysis. (Carey, Fox, & Spraggins, 1988).

The Outcome Questionnaire-version 2 [OQ-45.2] (Lambert et al., 1996) has been widely adopted as a tool for monitoring treatment efficacy in clinical settings, for making informed decisions about clinically significant change, and for establishing psychotherapy goal criteria (Lambert, Gregersen & Burlingame, 2004). Hatfield and Ogles (2004) ranked the OQ-45.2 as one of the most extensively used psychotherapy outcome measures. Furthermore, the OQ-45.2 is one of the most widely used research measures in the field of psychology (Hancock, 2004). Following is a description of both the IRI and OQ45.2.

IRI

This instrument evaluates empathic disposition by means of two emotional factors and two cognitive ones: a) Fantasy, b) Perspective Taking, c) Empathic Concern, and d) Personal Distress. The IRI is a 28-item questionnaire, consisting of four discrete, seven-item subscales. The fantasy scale (FS), which includes three items from Stotland's empathy scale (Stotland, Mathews, Sherman, Hansson, & Richardson, 1978), appears to tap the tendency to imaginatively transpose oneself into fictional situations (e.g., books, movies, daydreams). The second subscale, the perspective taking scale (PT), seems to reflect an ability or proclivity to shift perspectives – to step "outside the self" -- when dealing with other people. The items comprising this scale refer not to fictitious situations and characters, but to "real life" instances of perspective-taking. The other two subscales explicitly deal with individual differences in emotional responses to observed emotionality in others. The first of these, the empathic concern scale (EC), consists of items assessing the degree to which the respondent experiences feelings of warmth, compassion

and concern for the observed individual. The personal distress scale (PD), on the other hand,

measures the individual's own feelings of fear, apprehension and discomfort at witnessing the

negative experiences of others. Respondents indicate for each question how well the item

described them on a five-point Liker type scale anchored by 0 (does not describe me well) and 4

(describes me very well).

Table 2. IRI Subscales

Perspective Taking Scale (PT)	Measures the reported tendency to spontaneously adopt the psychological point of view of others in everyday life ("I sometimes try to understand my friends better by imagining how things look from their perspective").
Empathic Concern (EC)	Assesses the tendency to experience feelings of sympathy and compassion for unfortunate others ("I often have tender, concerned feelings for people less fortunate than me").
Personal Distress (PD)	Evaluates the tendency to experience distress and discomfort in response to extreme distress in others ("Being in a tense emotional situation scares me").
Fantasy Scale (FS)	Weighs the tendency to imaginatively transpose oneself into fictional situations ("When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me").

According to Davis (1980), the four aspects of the concept of empathy are clearly

discriminable from each other and non-hierarchically organized, which implies a distinction

between emotional and cognitive components of empathy and empathic response. While EC and

PD are described as emotional components and PT as a purely cognitive component, FS is

described as being more indeterminable. Moreover, Davis (1980) reports that the results of the

factor analyses, coupled with the internal reliabilities (standardized alpha coefficients) computed

for each scale strongly support the view that these four subscales are reliably tapping separate

dimensions of individual differences. The internal reliability coefficients (standardized alpha) were computed for each of the four subscales separately in each sex. Davis determined that the standardized alpha values range from .72 to .78 which coupled with the results of the factor analyses is convincing evidence that an internally reliable set of subscales has been developed. Furthermore, the factor structure underlying the subscales is virtually identical for both males and females, and remained constant over administration of the questionnaire to two independent samples.

Furthermore, Davis (1980) reports that in order to assess the reliability over time of the four empathy subscales, an independent sample of University of Texas undergraduates (56 males; 53 females) completed the questionnaire twice. The elapsed time between the first and second administration of the questionnaire to a respondent ranged from 60 to 75 days. The correlation between the test and retest scores are displayed in Table 5. For males, the correlations ranged from .61 to .79, and for females from .62 to .81. Thus, both sexes exhibited satisfactory temporal stability with respect to the new empathy subscales.

Based on this evidence one may come to the conclusion that overall, the IRI has excellent psychometric properties. The factor structure remains constant for both sexes across independent samples and across repeated administration. In addition, the internal reliability of the four scales is ranging from 0.73 to 0.83 respectively: Emphatic Concern and Perspective Taking scale 0.73; Personal Distress scale 0.77; and Fantasy scale 0.83, (de Corte, Buysse,Verhofstadt, Roeyers, Ponnet, Davis, 2007). Moreover, the pattern of sex differences found for the four scales is consistent with the general pattern found in empathy research. Finally, the relationships found to exist among these subscales also support previous theorizing about the development of empathic tendencies (Hoffman, 1976). That is, greater perspective-taking ability is associated with

increased feelings of empathic concern for others and decreased feelings of personal unease in the face of others' negative experiences. The IRI instrument therefore appears well-suited for use as a research tool in studying empathy, and especially useful in investigations of the multi-dimensional nature of the empathic process (Davis, 1980). Please see Appendix A for the copy of this instrument.

OQ45-2

In response to the demand for a reliable measure of psychotherapy progress monitoring, the OQ-45 (Lambert et al., 1996) was developed as a brief assessment for a wide range of outpatient settings. Since its initial publication in 1994 (Lambert, Lunnen, Umphress, Hansen, & Burlingame, 1994), its utilization among psychologists as a psychological treatment outcome measure has so rapidly grown that it has become one of the most frequently used psychotherapy outcome measure. The OQ-45 is a self-report instrument designed to assess problems common to a wide variety of adult mental disorders and syndromes and to be employed as a baseline evaluation tool in primary care for referral for psychological therapies (Lambert, Gregersen, & Burlingame, 2004). The OQ-45 instructions direct respondents to answer the items on the basis of how they have felt over the past week. The instrument consists of 45 items, all of which are based on a five-point Likert scale, including values of 0 (*never*), 1 (*rarely*), 2 (*sometimes*), 3 (*frequently*), and 4 (*almost always*). To decrease the possibility of obtaining biased results arising from response sets, the OQ-45.2 was constructed so that increasing scores correspond to increasing levels of psychopathology on 36 of the OQ-45.2 items (e.g., "I feel no interest in things"), whereas increasing scores correspond to decreasing levels of psychopathology on nine of the OQ-45.2 items (e.g., "I get along well with others"). These nine positive items are reverse scored to get the total score. The total score of the OQ-45.2 ranges from 0 to 180, with higher

scores representing more frequent and more severe psychological distress, interpersonal problems, less adaptive social functioning, and less frequent positive emotional states.

The measure has high internal consistency (.93) and test-retest reliability (.84). Moderate to high validity coefficients have been reported between the scale and other well-established measures of depression, anxiety, and global adjustment. The instrument has proven particularly useful in documenting the effect of interventions due to therapy as it has been shown to be sensitive to change in a treated population while remaining stable in a non-treated population (Lambert, Burlingame, Umphress, Hansen, Vermeersch, Clouse, & Yanchar, 1996).

The OQ45.2 is intended to measure progress in three domains (three subscales): subjective distress, interpersonal functioning, and social role performance. Participants respond to the items on a continuum ranging from *never* to *almost always* as to how they were feeling or functioning in the preceding week. Total scores can range in value from 0 to 180, with a score of 63 or higher falling in the clinical range. The OQ45.2 administration manual reports that no differences exist between male and female samples. Test–retest and internal consistency reliability studies as well as concurrent validity studies have yielded robust findings. Nebeker, Lambert, and Huefner (1995) examined ethnic differences and also found no significant differences on domain or total scores. Vermeersch, Lambert, and Burlingame (2000) examined specificity and sensitivity to change and found the OQ45.2 to perform adequately.

Table 1. OQ45.2 Subscales

Subscale 1: Symptom Distress (SD)	Signals possible problem areas that may cause distress to individuals, i.e. anxiety
Subscale 2: Interpersonal Relations (IR)	Shows how individuals relate to others and how satisfied they are with their relationships
Subscale 3: Social Role (SR)	Measures the level of difficulties one may experience in their social role

The three subscales of the OQ-45—Symptom Distress (intrapsychic functioning, e.g., "I feel blue"), Interpersonal Relations (e.g., "I feel lonely"), and Social Role Performance (e.g., "I feel stressed at work/school") are aimed at assessing these three different domains of client functioning (Lambert et al., 1996; Whipple et al., 2003) (see Table XXX). The Symptom Distress subscale consists of 25 items that evaluate psychological symptoms associated with the most prevalent types of mental disorders among adults (e.g., anxiety disorders, mood disorders, and substance-related disorders). The Interpersonal Relations subscale consists of 11 items that attempt to assess functioning in interpersonal relationships. The last subscale, Social Role Performance, consists of nine items that assess an individual's current level of social role performance (Vermeersch et al, 2004). The three subscales and all the items were "rationally" selected based on relevant literature review. For example, the selection criteria for items in the Symptom Distress subscale were a) conformation to DSM-III-R diagnosis criteria, b) continued reference in research as symptoms of the chosen psychopathology, and c) item analysis (e.g., inter-item correlations) results.

If a person's OQ-45.2 total score falls 63 or below, he or she is more likely to be a member of the functional population. Higher scores place one in the clinical range. Cutoff scores of 63 and 64 were suggested to differentiate a non-clinical or functional population and a clinical or dysfunctional population. These cutoff scores were computed based on a formula developed by Jacobson and Truax (1991) using the OQ-45.2 normative data from a non-clinical group and a clinical group (Hannan, Lambert,Harmon, Nielsen, Smart, Shimokawa, & Sutton, 2005).

The OQ-45.2has been supported throughout empirical studies (Lambert et al., 1996; Vermeersch et al., 2000; Whipple et al., 2003). The OQ-45.2 is unique in that it was developed as a psychotherapy outcome measure for a use in the era of managed health care.

Also, the OQ-45 was designed to a large extent for convenient scoring and minimal cost (Umphress, Lambert, Smart, Barlow, & Clouse, 1997). In addition, it has been shown that the OQ-45 is sensitive to psychological changes over a brief period of time and capable of measuring an extensive array of psychological functioning (Umphress, Lambert, Smart, Barlow, & Clouse, 1997; Vermeersch et al., 2000). The 45 items on the OQ45.2 were mainly developed from the literature that assesses three content domains of symptom distress, interpersonal relations, and social role functioning. Please see Appendix A for the copy of this instrument.

<center>3.8 Data Analysis Procedure</center>

The Theory of Independent Samples t-test

The *t*-test is the most commonly used method to evaluate the differences in means between two groups (Hinkle et al., 2003). T-test can be used to test for a difference in test scores between a group of participants who were given a treatment and a control group who received no treatment as it was proposed in this current research (Hinkle et al., 2003). Theoretically, the t-test can be used even if the sample sizes are very small (e.g., as small as 10), as long as the variables are normally distributed within each group and the variation of scores in the two groups is not reliably different (Cohen, 1983). There are four assumptions of the independent t-test: 1) Normality, 2) Independence, 3) Equal variance or homogeneity of variance, and 4) dependent variable has a value of interval or ratio (Hinkle et al., 2003; Cohen, 1983).

An assessment of the normality of data is a prerequisite for many statistical tests as normal data is an underlying assumption in parametric testing (Sawilowsky & Blair, 1992). The two main methods of assessing normality are graphic and numerical (Hinkle et al., 2003; Cohen, 1983). Numerical tests have the advantage of making an objective judgment of normality but sometimes may not be sensitive enough at low sample sizes or overly sensitive to large sample

<center>70</center>

sizes. Graphical interpretation has the advantage of allowing good judgment to assess normality

in situations when numerical tests might be over or under sensitive but graphical methods do

lack objectivity (Hinkle et al 2003). In order to test for normality, after putting the data into

SPSS, after the Shapiro-Wilk's Test was run and the Normal Q-Q Plots were checked as the

numerical and graphical methods to test for the normality of data, respectively. The Shapiro-

Wilk test is one of the numerical means of assessing normality and is appropriate for small

sample sizes (n < 100 samples) but can also handle sample sizes as large as 2000 (Cohen, 1983).

Normality was also determined graphically as observed in the output of a normal Q-Q Plot. Data

points appeared to be normally distributed in a close diagonal line. The equality of variances

assumption can be verified with the *F* test, or by performing the robust *Levene's test*

(Sawilowsky & Blair, 1992). All these assumptive conditions have been met in this current

study.

The *p*-level reported with a *t*-test represents the probability of error involved in accepting

the research hypothesis about the existence of a difference (Keppel, & Wickens, 2004). This

reported p value is the probability of error associated with rejecting the hypothesis of no

difference between the two categories of observations (corresponding to the groups) in the

population when, in fact, the hypothesis is true (Hinkle et al 2003). Some researchers suggest

that if the difference is in the predicted direction, one can consider only one half (one "tail") of

the probability distribution and thus divide the standard *p*-level reported with a *t*-test (a "two-

tailed" probability) by two (Keppel, & Wickens, 2004). Others, however, suggest that one should

always report the standard, two-tailed t-test probability (Cohen, 1983; Sawilowsky &

Blair,1992).

The Theory of Pearson Product Moment Correlation

A correlation is a measure of the relationship between two or more variables. The measurement scales used in correlation are usually interval scales. Correlation coefficients can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation, a value of +1.00 represents a perfect positive correlation, while a value of 0.00 represents a lack of correlation (Hinkle et al., 2003). The most widely-used type of correlation coefficient is *Pearson's r*, also called *linear* or *product- moment* correlation. The simple linear correlation (Pearson's r) assumes that the two variables are measured on at least interval scales and it determines the degree to which values of the two variables are comparative to each other (Keppel, & Wickens, 2004). Comparative means that the variables are linearly related; that is, the correlation is high if it can be expressed by a straight line (sloped upwards or downwards). This line is called the regression line or least squares line, because it is determined such that the sum of the squared distances of all the data points from the line is the lowest possible. When the correlation coefficient is squared, then the resulting value (r^2) will represent the proportion of common variation in the two variables (i.e., the "strength" or "magnitude" of the relationship). In order to evaluate the correlation between variables, it is important to know this "magnitude" or "strength" as well as the *significance* of the correlation (Keppel, & Wickens, 2004).

The test of significance is based on the assumption that the distribution of the residual values for the dependent variable (y) follows the normal distribution, and that the variability of the residual values is the same for all values of the independent variable (x) (Cohen, 1983). Many researchers follow a rule of thumb that if a sample size is 50 or more then serious biases are unlikely, and if a sample size is over 100 then normality may be assumed (Keppel & Wickens, 2004). Another common and possibly serious threat to the validity of correlation coefficient is the presence of outliers. Outliers are atypical or infrequent observations. Outliers

have a profound influence on the slope of the regression line and consequently on the value of the correlation coefficient (Hinkle et al 2003). A single outlier is capable of considerably changing the slope of the regression line and, consequently, the value of the correlation, especially when the sample size is small (Keppel, & Wickens, 2004). The issue of outliers was addressed in this study by generating an extreme values table and plots (scatter and box). As the results this researcher concluded that values have fallen within normal range of the distribution.

Theory of Šidák-Bonferroni Adjustment

Adjustments for repeated testing of hypotheses should not be overlooked by researchers because it may provide inaccurate results and misleading inferences as a consequence (Benjamini & Hochberg, 1995). The Bonferroni correction is a procedure that adjusts a researcher's test for significant effects, relative to how many repeated analyses are being done and repeated hypotheses are being tested (Shaffer, 1995). Normally in research, setting the α level to 0.05 provides sufficient protection against making the Type I error (Hinkle et al., 2003). However, as more tests are conducted, the likelihood that one or more are significant just due to chance (Type I error) increases. This inflated alpha level or cumulative Type I error is also known as the Familywise error (Klockars, Hancock, & McAweeney, 1995). To estimate the familywise error the following formula vas developed:

$$\alpha_{FWE} \leq 1 - (1 - \alpha_{EC})^{c}$$

The Bonferroni is not just post hoc tests with ANOVA but also a correction that simply calculates a new pairwise alpha to keep the familywise alpha value at .05 (Klockars, Hancock & McAweeney, 1995). The Bonferroni is highly flexible, very simple to compute, and can be used with any type of statistical test. The formula for Bonferroni correction is as follows:

$$\alpha_{B} = \frac{\alpha_{FWE}}{c}$$

In this calculation α_B is the new alpha based on the Bonferroni test that should be used to evaluate each comparison or significance test, α_{FWE} is the familywise error rate as computed in the first formula above, and *c* is the number of comparisons (Klockars, Hancock, & McAweeney, 1995).

According to Olejnik, Li, Supattathum, and Huberty, (1997), the traditional Bonferroni, however, tends to lack power for several reasons: (1) the familywise error calculation depends on the assumption that, for all tests, the null hypothesis is true. This is may not be the case within all research, (2) all tests are assumed to be independent or non-overlapping when calculating the familywise error test, (3) The test does not take into account whether the findings are consistent with theory and past research, and (4) Type II error rates are too high for individual tests, therefore, in many case the Bonferroni overcorrects for Type I error. Several alternatives to the traditional Bonferroni have been developed, providing greater power than the Bonferroni correction while retaining its flexible approach that allows for use with any set of statistical tests (e.g., t-tests, correlations, chi-squares) (Kromrey, & La Rocca, 1995). Šidák (1967) suggested a relatively simple modification of the Bonferroni formula that has less of an impact on statistical power but retain much of the flexibility of the Bonferroni method by offering the following formula:

$$\alpha_{S-B} = 1 - \left(1 - \alpha_{FWE}\right)^{1/c}$$

As an example, to test two independent hypotheses on the same data at 0.05 significance level, instead of using a *p* value threshold of 0.05, one would use a stricter threshold equal to 0.025, and with three tests it would be 0.017 (Abdi, 2007). With the Šidák-Bonferroni correction, adjustment is made to the critical p-values. The alpha value is lowered for each additional comparison to keep the overall error of erroneously rejecting the hypothesis of no-difference at a

pre-defined value. This method may also be extended this test to other statistical tests, such as correlations (Olejnik, et al, 1997). In the case of correlations, the researcher has to replace degrees of freedom (df) with the number of variables that are used in the group of correlations tests and c would represent the number of correlations in the correlation matrix (Olejnik, et al, 1997).

The purpose of the study and the outline of the research design along with the proposed research questions were provided in this chapter. Detailed information was provided on the instruments used for data collection. The next chapter will contain the results of this study following the data analysis procedure.

CHAPTER 4: RESULTS

This section reveals the results of a study of the effect of Loving-Kindness Meditation

(LKM) on student teachers stress and empathy outcome as well as the relationship between these

factors and time spent meditating. This chapter is divided into two parts. The first section offers

a description of the demographic characteristics of the participants in this study. Second, this

chapter addresses the three research questions investigated in this study by describing the results

of the statistical analyses based on chosen instrumentation: the IRI and the OQ45.2 (please see

Chapter 3 for psychometric properties of both instruments).

4.1 Descriptive Statistics

Participant demographic data was collected in order to gain some understanding of the

sample used in this study. The participants were pre-service teachers in their last year of training

at a large South-Eastern University. The total number of students that agreed to participate in this

study was 73; all 73 participated in the baseline data collection and were assigned to either

control or experimental groups. However, three of these students' scores and information were

withdrawn from the study because they did not complete the follow up (second posttests) leaving

the total number of participants at 70. Therefore, only the demographic data provided by the 70

participants that remained throughout the duration of the study is reported here. Demographic

data reported here includes participant gender, age, race, spiritual activities, and grade level

where student teachers were placed for field experiences.

Demographics

Out of the 70 participants in the sample 90% were female (n = 63) and 10% were male

(n= 7) (Table 4). The mean age of participants was 24 (SD= 2.074), with a range of 21 to 30

years of age (Table 5 and Table 6). The reported racial composition of the overall sample

included 78% White (n = 55), 9% Asian (n=6), 6% African-American (n=4), 6% Latino/Latina

(n=4), and 1% Native American-Indian (n=1) (Table 7). After demographic comparison of the

sample to the population was completed it became evident that the sample does not represent the

population demographics of the college where the study took place. This is also known as sample

bias and will be discussed in the limitation section of this manuscript (Chapter 5).

Table 4. Demographics—Participant Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
	1	63	90.0	90.0	90.0
Valid	2	7	10.0	10.0	100.0
	Total	70	100.0	100.0	

Table 5. Demographics— Mean Participant Age

N	Valid	70
	Missing	0
Mean		24.04
Median		24.00
Mode		24
Std. Deviation		2.074
Range		9

Table 6. Demographics—Participant Age Frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
	21	7	10.0	10.0	10.0
	22	12	17.1	17.1	27.1
	23	9	12.9	12.9	40.0
	24	15	21.4	21.4	61.4
	25	13	18.6	18.6	80.0
Valid	26	7	10.0	10.0	90.0
	27	2	2.9	2.9	92.9
	28	2	2.9	2.9	95.7
	29	2	2.9	2.9	98.6
	30	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

Table 7. Demographic—Participant Race-Self-Identified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	55	78.6	78.6	78.6
	2	6	8.6	8.6	87.1
	3	4	5.7	5.7	92.9
	4	4	5.7	5.7	98.6
	5	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

Prior spiritual activity

Since this study focused partially on spiritual activity (i.e., LKM), information on this was also collected prior to the intervention. Self-report data revealed that 86% of the sample (n=60) participated in some sort of spiritual activity compared to14% (n=10) who reported participating in no spiritual activity (Table 8). A majority of participants, 71% (n=50) reported that they have engaged in some type of prayer during the week prior to this study and 29% (n=20) reported they did not (Table 9). Of all the participants, 71% (n=50) reported they regularly attend a faith community (church, fellowship, temple, etc.) while 29% (n=20) indicated that they do not (Table 10). Fourteen percent (n=10) reported that they have practiced Meditation prior to this experiment, while 86% reported they had not (n=60) (Table 11). According to the a U.S. *National Health Statistics Report* published by the U.S. Department of Health and Human Services in 2008, there were approximately 15 million people (more than 9.4% of the population) who actively practiced in some form of meditation in their daily living (Barnes et al, 2008). Reflecting on this data, it must be noted that sample in this study is biased. Fourteen percent of this sample practiced Meditation compare to 9.4 percent. This bias may be due the general interest of the participants in the study. Some participants already have practiced

meditation prior to the study. Furthermore, in regard to physical spiritual practice (i.e., yoga or

Tai-Chi), 10% (n=7) while 90% (n=63) reported they had not (Table 12).

Table 8. Participant Self-Reported Spiritual Activity

		Frequency	Percent	Valid Percent	Cumulative Percent
	0	10	14.3	14.3	14.3
Valid	1	60	85.7	85.7	100.0
	Total	70	100.0	100.0	

1=Does some type of spiritual activity, 0=no spiritual activity reported

Table 9. Participant Self-Reported Prayer Activity

		Frequency	Percent	Valid Percent	Cumulative Percent
	0	20	28.6	28.6	28.6
Valid	1	50	71.4	71.4	100.0
	Total	70	100.0	100.0	

1=Prayer, 0=no prayer

Table 10. Participant Self-Reported Attendance at Faith Community

		Frequency	Percent	Valid Percent	Cumulative Percent
	0	41	58.6	58.6	58.6
Valid	1	29	41.4	41.4	100.0
	Total	70	100.0	100.0	

1=Attending faith community activity (going to church), 0=no faith community activity

Table 11. Participant Self-Reported Meditation Practice

		Frequency	Percent	Valid Percent	Cumulative Percent
	0	60	85.7	85.7	85.7
Valid	1	10	14.3	14.3	100.0
	Total	70	100.0	100.0	

Table 12. Participant Self-Reported Spiritual-Physical Activity

		Frequency	Percent	Valid Percent	Cumulative Percent
	0	63	90.0	90.0	90.0
Valid	1	7	10.0	10.0	100.0
	Total	70	100.0	100.0	

1=Yoga or Tai-Chi, 0=No yoga or Tai Chi reported

Participants were asked to also report what grade level they served in their student teaching

placement. A majority of participants, were in elementary (n=38) and middle schools (n=28);

thus, 89% were respectively placed at these grade levels. Furthermore, of the entire participant

group, 5 % (n=3) reported being placed in pre-K-3, and 6% (n=5) reported placement in other

grades (music, history, and physical education) (Table 13).

Table 13. Participant Self-Report Grade Level

		Frequency	Percent	Valid Percent	Cumulative Percent
	1	3	5	5	5
	2	34	49	49	54
Valid	3	28	40	40	94
	4	5	6	6	100
	Total	70	100.0	100.0	

1=Prek-3, 2=Elementary School, 3=Secondary, 4=Other

4.2 Results of Research Question 1

This research study focused on three primary research questions. The first research

question was: Is there a statistically significant difference in levels of stress between student

teachers who receive LKM training and those who do not? The null hypothesis specified that

there is not a statistically significant difference in levels of stress between student teachers who

receive LKM training and those who do not. Conversely, the researcher's hypothesis stated that

there is a statistically significant difference in levels of stress between student teachers who receive LKM training and those who do not. The research used two measures independently to test this hypothesis: one of these was the Personal Distress (PD) scale of the IRI, and the second was the Total Score (TS) of the OQ45.2, both of which are designed to indicate levels of stress. The results for the investigation of the level of stress experienced by participants were mixed.

Results of IRI Personal Distress Subscale

An independent samples t-test was conducted to compare the stress levels of the experimental and control group at baseline (week 0), at posttest (week 6) and at follow up (week 12). Table 14 indicates that there were 36 participants in the experimental (*eg*) and 34 in the control group (cg). Respectively, data was collected at pretest (0 weeks), posttest (6 weeks) and follow up (12 weeks) with the following measures resulting: M*eg*= 22.36 with Standard Deviation (SD) *eg*= 2.045, M*cg*=22.53 with, (SD) cg=1.973 at baseline; M*eg*= 25.06 with SD*eg*= 2.137, M*cg*=25.26 with SDcg=2.287 at week 6; and M*eg*= 26.25 with SD*eg*= 2.644, M*cg*=26.53 with SDcg=2.820 at week 12. Levene's Test for equality of variances revealed that the significance was .894 at baseline, .652 at posttest, and .777at follow up. These values indicate that equal variances were assumed since the homogeneity of variance was greater than .05. The degrees of freedom (df) was set at 68 throughout each tests at baseline, at week 6, and at follow up. The result of the Independent Samples t-test for equality of means revealed no statistical difference at the baseline: p = 0.727 >.05, M= -.168 at posttest: p=.694 >.05 and at follow up: p=.67 >.05, M=.653. These results indicate that there is no statistically significant difference between the levels of stress experienced by the experimental group and the control group at baseline, at time of posttest as well as at follow up. Please see table 14.

Table 14. Group Data for IRI Personal Distress Scale

Group Statistics	Group	N	Mean	Std. Deviation	Std. Error Mean
IRI Pretest Personal Distress	Experimental	36	22.36	2.045	.341
	Control	34	22.53	1.973	.338
IRI Posttest Personal Distress	Experimental	36	25.06	2.137	.356
	Control	34	25.26	2.287	.392
IRI Follow Up Personal Distress	Experimental	36	26.25	2.644	.441
	Control	34	26.53	2.820	.484

Results of OQ45.2 total score

An Independent sample t-test was conducted of the OQ45.2 total score to compare the stress levels of the experimental and control group at baseline (week 0), at posttest (week 6) and at follow up (week 12). Table 15 indicates that there were 36 participants in the experimental (*eg*) and 34 in the control group (cg) with following measures resulting: M*eg*= 75.14, M*cg*=77.74 and with the Standard Deviations (SD) *eg*= 8.33, and SDcg=7.45 at baseline; at week 6: M*eg*= 66.28, M*cg*= 81.94 and with the Standard Deviation (SD) *eg*= 7.75, SDcg=6.5; and at follow up M*eg*= 61.47 M*cg*=71.47 with the Standard Deviation (SD) *eg*= 7.88, SDcg=5.59. Levene's Test for equality of variances revealed that homogeneity of variance with .675 at baseline, .256 at posttest, and .088 at follow up. These values indicate that equal variances were assumed since the homogeneity of variance was greater than .05. The degrees of freedom (df) were set at 68 throughout each tests at baseline, at week 6, and at follow up. The result of the Independent Samples t-test for equality of means revealed no statistical difference at the baseline: p=.175 > .05 M = -2.596. However, at posttest, results were statistically significant: p = .000 < .0025 with M = -15.663 as well as statistically significant differences between the experimental and control group at follow up: p = .000 < .025 with M = -9.998 (Table 16).

Table 15. Group Statistics for OQ.45.2 Composite Score

	Group	N	Mean	Std. Deviation	Std. Error Mean
OQ45.2Pre	Experimental	36	75.14	8.333	1.389
	Control	34	77.74	7.448	1.277
OQ45.2Post	Experimental	36	66.28	7.752	1.292
	Control	34	81.94	6.499	1.115
OQ45.2FollowUp	Experimental	36	61.47	7.883	1.314
	Control	34	71.47	5.593	.959

Table 16. Independent Samples Test for OQ.45.2 Composite

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
OQ45.2Pre	Equal variances assumed	.177	.675	-1.372	68	.175	-2.596	1.893	-6.374	1.181	
	Equal variances not assumed			-1.376	67.802	.173	-2.596	1.887	-6.362	1.169	
OQ45.2Post	Equal variances assumed	1.312	.256	-9.133	68	.000	-15.663	1.715	-19.086	-12.241	
	Equal variances not assumed			-9.180	67.078	.000	-15.663	1.706	-19.069	-12.258	
OQ45.2FollowUp	Equal variances assumed	2.996	.088	-6.088	68	.000	-9.998	1.642	-13.276	-6.721	
	Equal variances not assumed			-6.146	63.211	.000	-9.998	1.627	-13.249	-6.748	

4.3 Results of Research Question 2

The second research question was: Is there a statistically significant difference in levels of empathy between student teachers who receive LKM training and those who do not? The null hypothesis stated that there is not a statistically significant difference in levels of empathy between student teachers who receive LKM training and those who do not. Conversely, the researcher's hypothesis stated that there is a statistically significant difference in levels of empathy between student teachers who receive LKM training and those who do not.

Results of IRI Emphatic Concern (EC) Subscale

An Independent sample t-test was conducted of the IRI EC subscale to compare the empathy levels of the experimental and control group at baseline (week 0), at posttest (week 6) and at follow up (week 12). Table 17 indicates that there were 36 participants in the experimental (*eg*) and 34 in the control group (cg) with following measures resulting at baseline M*eg*= 23.42, SD = 2.93 and M*cg*=22.59, SD = 2.05; at week 6: M*eg*= 25.17, SD=2.44; M*cg*= 22.12, SD = 2.07; and at follow up M*eg*= 26.03, SD = 2.91, M*cg*=26.56, SD=2.68. Levene's Test for equality of variances revealed that homogeneity of variance with .018 at baseline, .506 at posttest, and .477 at follow up. These values indicate that equal variances were assumed since the homogeneity of variance was greater than .05. The degrees of freedom (df) was set at 68 throughout each tests at baseline, at week 6, and at follow up. The result of the Independent Samples t-test for equality of means revealed no statistical difference at the baseline: p=.177 > .05 M = .828 and at follow up: p = .431 > .05 with M = -.53. However, at posttest, results were statistically significant: p = .000 < .017 with M = 3.05 (Table 18). This result reflects the Šidák-Bonferroni correction including the adjusted significance level $1 - (1 - \alpha)^{1/n}$ where n is the number of tests involved in this case three.

Table 17. Group Statistics for IRI Empathic Concern Subscale

	Group	N	Mean	Std. Deviation	Std. Error Mean
IRI Pretest Emphatic Concern	Experimental	36	23.42	2.931	.489
	Control	34	22.59	2.047	.351
IRI Posttest Emphatic Concern	Experimental	36	25.17	2.444	.407
	Control	34	22.12	2.071	.355
IRI Follow Up Emphatic Concern	Experimental	36	26.03	2.913	.485
	Control	34	26.56	2.676	.459

Table 18. Independent Samples Test for IRI Emphatic Concern Subscale

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
									Lower	Upper
IRI Pretest Emphatic Concern	Equal variances assumed	5.886	.018	1.363	68	.177	.828	.608	-.384	2.041
	Equal variances not assumed			1.377	62.731	.173	.828	.602	-.374	2.031
IRI Posttest Emphatic Concern	Equal variances assumed	.447	.506	5.616	68	.000	3.049	.543	1.966	4.132
	Equal variances not assumed			5.642	67.235	.000	3.049	.540	1.970	4.128
IRI Follow Up Emphatic Concerm	Equal variances assumed	.512	.477	-.793	68	.431	-.531	.670	-1.868	.805
	Equal variances not assumed			-.795	67.952	.429	-.531	.668	-1.864	.802

Results of IRI Perspective Taking (PT) Subscale

An Independent samples t-test was conducted of the IRI PT subscale to compare the

levels perspective taking in social situations of the experimental and control group at baseline

(week 0), at posttest (week 6) and at follow up (week 12). Table 19 indicates that there were 36

participants in the experimental (*eg*) and 34 in the control group (cg) with following measures

resulting at baseline M*eg*= 22.53, SD = 2.39 and M*cg*=23.00, SD = 2.23; at week 6: M*eg*= 25.25,

SD=2.6; M*cg*= 23.29, SD = 2.30; and at follow up M*eg*= 26.05, SD = 2.93, M*cg*=26.59,

SD=2.71. Levene's Test for equality of variances revealed that homogeneity of variance with

.0415 at baseline, .493 at posttest, and .479 at follow up. These values indicate that equal

variances were assumed since the homogeneity of variance was greater than .05. The degrees of

freedom (df) was set at 68 throughout each tests at baseline, at week 6, and at follow up. The

result of the Independent Samples t-test for equality of means revealed no statistical difference at

the baseline: p=.397 > .017 M = -.472 and at follow up: p = 431 > .017 with M = -.531.

However, at posttest, results were statistically significant: p = .001 < .017 with M = 1.956

(Table 21). This result reflects the Šidák-Bonferroni correction including the adjusted

significance level $1 - (1 - \alpha)^{1/n}$ where n is the number of tests involved in this case three.

Table 19. Group Statistics for IRI Perspective Taking Subscale

	Group	N	Mean	Std. Deviation	Std. Error Mean
IRI Pretest Perspective Taking	Experimental	36	22.53	2.396	.399
	Control	34	23.00	2.229	.382
IRI Posttest Perspective Taking	Experimental	36	25.25	2.601	.433
	Control	34	23.29	2.303	.395
IRI Follow Up Perspective Taking	Experimental	36	26.05	2.931	.485
	Control	34	26.59	2.711	.459

Table 20. Independent Samples Test for IRI Perspective Taking Subscale

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
IRI Pretest Perspective Taking	Equal variances assumed	.672	.415	-.852	68	.397	-.472	.554	-1.578	.633

Table continued

IRI Posttest Perspective Taking	Equal variances assumed	.474	.493	3.323	68	.001	1.956	.589	.782	3.130
	Equal variances not assumed			3.335	67.729	.001	1.956	.586	.786	3.126
IRI Follow Up Perspective Taking	Equal variances assumed	.512	.477	-.793	68	.431	-.531	.670	-1.868	.805
	Equal variances not assumed			-.795	67.952	.429	-.531	.668	-1.864	.802

Results of IRI Fantasy Scale (FS)

An Independent samples t-test was conducted of the IRI FS to compare the levels empathy in imaginary situations by the experimental and control group at baseline (week 0), at posttest (week 6) and at follow up (week 12). Table 21 indicates that there were 36 participants in the experimental group (*eg*) and 34 in the control group (cg) with following measures resulting at baseline M*eg*= 22.78, SD = 2.34 and M*cg*=22.18, SD = 2.1; at week 6: M*eg*= 25.17, SD=2.44; M*cg*= 22.12, SD = 2.07; and at follow up M*eg*= 26.14, SD = 2.99, M*cg*=26.38, SD=2.65. Levene's Test for equality of variances revealed that homogeneity of variance with .406 at baseline, .313 at posttest, and .441 at follow up. These values indicate that equal variances were assumed since the homogeneity of variance was greater than .05. The degrees of freedom (df) was set at 68 throughout each tests at baseline, at week 6, and at follow up. The result of the Independent Samples t-test for equality of means revealed no statistical difference at the baseline: p=.263 > .017 M = .601; and at follow up: p = .720 > .017 with M = -.243. However, at posttest, results were statistically significant: p = .001 < .017 with M =2.325 (Table 23). This result reflects the Šidák-Bonferroni correction including the adjusted significance level $1 - (1 - \alpha)^{1/n}$ where n is the number of tests involved in this case three.

Table 21. Group Statistics for IRI Fantasy Scale

	Group	N	Mean	Std. Deviation	Std. Error Mean
IRI Pretest Fantasy Scale	Experimental	36	22.78	2.344	.391
	Control	34	22.18	2.096	.359
IRI Posttest Fantasy Scale	Experimental	36	25.17	2.444	.407
	Control	34	22.12	2.071	.355
IRI Follow Up Fantasy Scale	Experimental	36	26.14	2.987	.498
	Control	34	26.38	2.652	.455

Table 22. Independent Samples Test for IRI Fantasy Scale

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
IRI Pretest Fantasy Scale	Equal variances assumed	.699	.406	1.129	68	.263	.601	.533	-.461	1.664	
	Equal variances not assumed			1.133	67.805	.261	.601	.531	-.458	1.661	
IRI Posttest Fantasy Scale	Equal variances assumed	.447	.313	3.861	68	.000	3.052	.602	1.123	3.527	
	Equal variances not assumed			3.883	66.620	.000	3.052	.599	1.130	3.520	
IRI Follow Up Fantasy Scale	Equal variances assumed	.601	.441	-.360	68	.720	-.243	.677	-1.594	1.107	
	Equal variances not assumed			-.361	67.749	.719	-.243	.674	-1.589	1.102	

4.4 Results of Research Question 3

The third research question was: Is there a correlation between amounts of time spent participating in LKM and the level of stress as well as empathy experienced by participants? The null hypothesis stated that there is not a statistically significant difference in stress levels and empathy levels based on time spent engaging in LKM. The researcher's hypothesis was that the greater amount of time spent engaging in LKM exercises will result in greater stress level reduction and achieving higher levels of empathy. This question was broken down into two sections to be analyzed, one section addressing the relationship with LKM and empathy (3 tests) and one addressing the relationship between LKM and stress (2 tests).

To test the first components of research question three (relationship of time spent participating in LKM and level of empathy experienced by participants), three separate Pearson's Product Moment correlations were run. All correlations were evaluated on a conservative, 0.01 significance level. This level incorporates the the Šidák-Bonferroni adjustment for three individual test $1 - (1 - \alpha)^{1/n}$ where n is the number. The corrected value of $p = 0.017$ which is a fragment less conservative compared to the 0.01 level. To examine the direction and strength of the relationship between time spent doing LKM and participant Fantasy Scale scores a Pearson correlation was analyzed with the results indicating a statistically significant positive but moderate relationship (Cohen, 1992) N = 70, r = .447, p<0.001. Please see Table 23.

Table 23. Results of Pearson Product Moment Correlation for Time Spent Meditating and IRI Fantasy Scale

		Time	IRI Posttest Fantasy Scale
	Pearson Correlation	1	.447[**]
Time	Sig. (2-tailed)		.000
	N	70	70

Table continued

	Pearson Correlation	.447**	1
IRI Follow Up Fantasy Scale	Sig. (2-tailed)	.000	
	N	70	70

**. Correlation is significant at the 0.01 level (2-tailed).

The second Pearson product-moment correlation coefficient was computed to assess the relationship between the amounts of time spent meditating (LKM) and the participants' level of emphatic concern. To examine the direction and strength of the relationship between time spent doing LKM and participant Empathic Concern a Pearson correlation was analyzed with the results indicating a statistically significant positive, strong relationship (Cohen, 1992) N = 70, r = .551, p<0.001. Please see Table 24.

Table 24. Results of Pearson Product Moment Correlation for Time Spent Meditating and IRI Empathic Concern Subscale

		Time	IRI Posttest Emphatic Concern
	Pearson Correlation	1	.551**
Time	Sig. (2-tailed)		.000
	N	70	70
	Pearson Correlation	.551**	1
IRI Follow Up Empathic Concern	Sig. (2-tailed)	.000	
	N	70	70

**. Correlation is significant at the 0.01 level (2-tailed).

The third Pearson product-moment correlation coefficient was computed to assess the relationship between the amounts of time spent meditating (LKM) and the participants' level of perspective taking in social situations. To examine the direction and strength of the relationship between time spent doing LKM and participant perspective a Pearson correlation was analyzed with the results indicating a statistically significant, but very weak negative relationship N = 70, r = -.104, p<0.001. (Cohen, 1992) Please see Table 25.

Table 25. Results of Pearson Product Moment Correlation for Time Spent Meditating and IRI Perspective Taking Subscale

		Time	IRI Follow Up Perspective Taking
Time	Pearson Correlation	1	-.104
	Sig. (2-tailed)		.391
	N	70	70
IRI Follow Up Perspective Taking	Pearson Correlation	-.104	1
	Sig. (2-tailed)	.391	
	N	70	70

The second part of the research question focused on the investigation of the relationship between the amount of time spent doing LKM and the level of stress participants experienced. Two separate Pearson's Product Moment correlations were run. All correlations were evaluated on a conservative 0.01 levels which is more conservative that the significant level the Šidák-Bonferroni adjustment calls for in case a of two individual test $1 - (1 - \alpha)^{1/n}$ where n is the number and the *p* value would equal .025. To examine the direction and strength of the relationship between time spent doing LKM and participant Personal Distress scores a Pearson correlation was analyzed with the results indicating a non-significant relationship N = 70, r = -.084, p>0.001. (Cohen, 1992) Please see Table 26.

Table 26. Results of Pearson Product Moment Correlation for Time Spent Meditating and IRI Personal Distress Subscale

		Time	IRI Posttest Personal Distress
Time	Pearson Correlation	1	-.084
	Sig. (2-tailed)		.488
	N	70	70
IRI Follow Up Personal Distress	Pearson Correlation	-.084	1
	Sig. (2-tailed)	.488	
	N	70	70

However, when examining the direction and strength of the relationship between time spent doing LKM and the Total Scores of OQ45.2 at the time of follow up the participants' test scores a Pearson correlation revealed results indicating a statistically significant, strong and negative relationship N = 70, r = -.489, p<0.01. (Cohen, 1992) Please see Table 27.

Table 27. Results of Pearson Product Moment Correlation for Time Spent Meditating and OQ.45.2 Composite Score

		Time	OQ45.2FollowUp
Time	Pearson Correlation	1	-.489[**]
	Sig. (2-tailed)		.000
	N	70	70
OQ45.2TotalFollowUp	Pearson Correlation	-.489[**]	1
	Sig. (2-tailed)	.000	
	N	70	70

**. Correlation is significant at the 0.01 level (2-tailed).

4.5 Conclusion

This section discussed the results of the statistical analysis for the effect of Loving-Kindness Meditation (LKM) on student teachers stress and empathy outcome as well as the relationship between these factors and time spent meditating. This chapter presented a description of the demographic characteristics of the participants in this study and addresses the three research questions investigated in this study by describing the results of the statistical analysis based the two chosen instrumentation: the IRI and the OQ45.2 (please see Chapter 3 for psychometric properties of both instruments). Discussion and implications of this study follow in Chapter 5.

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter will first offer a short description of the study, including the reasoning behind the research and a description of the research design. Following, discussion of the study results will be given. Limitations, implications for educators and for higher education, and recommendations for future research will conclude this chapter.

There were several relevant research studies conducted focusing on the effectiveness of Loving Kindness Meditation (LKM) in the past decade. The authors of all of these studies demonstrated varying degrees of effectiveness of LKM involving many factors and suggested further research on this subject. One of the purposes of this study was to answer this call and investigate the effectiveness of a loving-kindness meditation intervention on variables linked with pre-service teachers. A vast amount of literature indicates the presence and effects of stress experienced by teachers. A number of other publications highlight the importance of multiple variables, specifically empathy and compassion, as factors of the student – teacher bond and as a vital part of teacher effectiveness and student outcomes. Since other studies have had some promising results with other pre-service student participants this study was designed to investigate the possibility of using LKM as an instrument in order to assist this population decrease stress levels as well as to promote their development of empathy thought and skills. For the purposes of this study, empathy was operationalized through the use of the Interpersonal Reactivity Index (IRI), (Davis, 1980) and stress was operationalized through the Outcome Questionnaire 45.2 (OQ45.2) (Lambert et al., 2004) in order to answer to investigative the researcher's questions. In addition, the relationship between the quantity of LKM and the stress

level experienced, as well as the level of empathy (i.e., thoughts, and feeling of empathy) was examined.

For this study, 217 students were presented with the opportunity to participate. Of the students invited to participate, 73 students were interested in taking part in this study. The researcher was only able to collect data on 70 of the participants (3 did not complete the study). Participants were randomly assigned into an experimental or control group and the researcher employed a staggered design (please see Chapter 3 for details). The researcher collected data at baseline (pretest: week one), at posttest (week six), and at follow up (week 12) on both groups. The experimental group received LKM training at baseline and provided with a compact disc with different track length of LKM meditation. The control group received LKM training at week six along with the same compact disk the experimental group received. Both groups logged time spent doing LKM once they have received their training and compact disks.

Discussion

This section deliberates on the findings and assumptions based on the results of this study (please see Chapter 4 for Results). The discussion is framed by the proposed research questions. Preceding studies will also be discussed and compared with the outcomes of this study.

5.2 Research Question One

The first research question of this study was: Is there a statistically significant difference in levels of stress between student teachers who receive LKM training and those who do not? The two instruments used to investigate this question provided different results. The IRI (Davis, 1980) showed no statistically significant differences between the experimental and control groups at any of the testing times. Conversely, the OQ45.2 (Lambert et al., 2004) did show significant differences in the two groups at posttest as well as at follow up. This begets the

question of why did two instruments used to measure stress have such different results. Were the participants stressed or not?

The reason for this difference in results might be attributable to the two instruments used in this study and the variation in how these instruments measure stress. The first instrument used to measure stress in this study was a subscale, the Personal Distress Scale (PD), of the IRI that was designed to measure participants' level of stress. On the other hand, the OQ45.2 (Lambert et al., 2004) was also used. The OQ45.2 takes a comprehensive and clinical measurement of stress experienced by participants (social stress, work stress) and uses 45 questions to ascertain stress levels making the scope of stress measured by the OQ45.2 fairly vast compared to the IRI PD-Scale. There are only seven particular questions in the IRI Personal Distress subscale focusing on and measuring the emotional responses of the participants particularly in times of distress. Furthermore, this subscale measures the kind of feelings that inhibit individuals from helping others. IRI-PD subscale addresses the tendency to experience distress in stressful situations (e.g. "In emergency situations, I feel apprehensive and ill-at-ease."), whereas the OQ.45.2 assesses current stress symptoms (within the past week). Therefore one may find that the IRI is limited in scope when it comes to evaluating stress.

Lepma (2011) conducted a similar study with pre-service master level counselors on the effectiveness of LKM. Contrary to the results of this outcome, Lepma found that PD scores decreased in her treatment group, suggesting that the LKM intervention may reduce self-focused distress resulting from witnessing the suffering of others. This raises further questions that warrant investigation. Specifically, why did Leppma's group experience stress reductions on the IRI and the participants in this study did not?

As previously noted, the OQ 45.2 results on the level of stress experienced by participants were in contrast with the findings of the IRI-PD subscale. There was a statistically significant difference between the scores of the experimental and control group at posttest as well as at follow up. This difference suggests that the timing of the intervention may have had an influence on the results. In particular, observing the mean score difference (MD) of the two groups may assist in understanding this finding.

At the beginning of the semester both groups experienced similar levels of stress as the test scores indicated with a MD of -2.6. However, as the semester progressed, as indicated by mean score differences, the stress levels of the control group continued to increase creating a significant difference between the control and experimental groups (MD = -15.6). At follow up, the difference between the groups did decrease from posttest (MD = -9.9); however, the statistically significant difference between the experimental and control group remained. Participants placed in the experimental group at the beginning of the semester may have been able to adjust to LKM and include it in their daily schedules making it become part of their routine as they faced the demands of the semester. This may have helped them in handling stress in a more constructive manner compared to the participants in the control group who were only able to learn and apply the new skills provided by LKM starting from midway through the semester when stress, demands of school and other activities may have already been high.

Weibel (2007) found similar results in his research where he utilized LKM with undergraduate psychology students (N=71) investigating the effects of meditation. The Weibel (2007) study was similar in nature to this current study; however he used different measures and focused on levels of anxiety and compassion. Weibel (2007) concluded that the control group that engaged in LKM with a delayed treatment in the experiment exhibited progressive scores

but not in the same degree as his experimental group. Therefore, it appears that the implementation of the treatment may matter in the benefits achieved by participants.

Fredrickson et al. (2008) conducted several studies on the effectiveness of LKM although she used different measurements than this researcher. Similarly, Fredrickson et al. (2008) found decreased symptom distress when Meditation was used as an intervention. In the discussion of that study, Fredrickson et al. (2008) provided some explanation for the failure of LKM to reduce stress in some participants. Fredrickson and colleagues theorized that beginning a meditation program was similar to starting any self-change project when individuals realize they must actually do the work. Beginning meditation practice involves doing something unfamiliar and difficult without immediate rewards. Fredrickson et al. postulated that this may be due to "increased awareness of challenging inner states" participants were not aware of (p. 1059). Doing LKM meditation at mid-semester may have been more challenging for the control group then beginning with LKM at the beginning of the semester (incorporating it into one's daily routine) for the experimental group.

Hutcherson, Seppala, & Gross (2008) and later Seppala (2009) in a separate project applied LKM participation as an intervention toward targeted individuals in order to investigate the level of positive and negative emotions. In both of these aforementioned studies the researchers had similar results to this current study in regard to decreased negative emotions and increased of positive emotions (Hutcherson, Seppala, & Gross, 2008; Seppala, 2009). Other researchers also had similar findings when a six-week compassion-based meditation intervention down-regulated distress responses to psychosocial stress (Pace, Negi, Adame, Cole, Sivilli, Brown, Issa, & Raison, 2009).

5.2 Research Question Two

The second research question of this study was: Is there a statistically significant difference in levels of empathy between student teachers who receive LKM training and those who do not? Three subscales of the IRI (Davis 1980) were utilized in order to investigate this matter. The three subscales were the Empathic Concern (EC), Perspective Taking (PT), and Fantasy Scale (FC).   The EC subscale evaluates the person's ability to feel empathy toward someone else; the PT subscale assesses how someone instinctively assumes another person's views and ideas; and the FS measures the persons' responses in imaginary situations of distress where another may need support. Three separate independent t-tests were executed for each subscale at baseline (week one), at posttest (week six) and at follow up (week twelve) producing consistent and similar results. There were no statistically significant difference between the experimental and the control group at baseline as well as at follow up. However, there was a statistically significant difference between the two groups at posttest.

For the EC subscale, the result of the Independent Samples t-test for equality of means revealed no statistical difference at the baseline: p=.177 > .017 M = .828 and at follow up: p = .431 > .017 with M = -.53. However, at posttest, results were statistically significant: p = .000 < .017 with M = 3.05. For the PT subscale, the result of the Independent Samples t-test for equality of means revealed no statistical difference at the baseline: p=.397 > .017 M = -.472 and at follow up: p = 431 > .017 with M = -.531. However, at posttest, results were statistically significant: p = .001 < .017 with M = 1.956. For the Fantasy Subscale, the result of the Independent Samples t-test for equality of means revealed no statistical difference at the baseline: p=.263 > .017 M = .601; and at follow up: p = .720 > .017 with M = -.243. However, at posttest, results were statistically significant: p = .001 < .017 with M = -3.052.

Evaluating these outcomes it seems that both groups had similar levels of empathy at baseline. It could be postulated that following the LKM intervention (independent variable) the levels of empathy (dependent variable) showed statistically significant difference between the experimental and the control group. Furthermore, the absence of statistical difference at follow up does not necessarily indicate that either group's levels of empathy scores had changed; rather, it is an indication that once treatment was introduced and maintained with both groups the level of change remained similar. The main difference at baseline (M = .828), follow up (M = -.53.), and posttest (M = 3.05) for EC. The main difference at baseline (M =-.472), follow up (M = -.531.), and posttest (M = 1.956) for PT. The main difference at baseline (M = .601), follow up (M = -.243.), and posttest (M = 3.052) for FS.

Empathy may be an innate skill in certain individuals, however there is a growing body of evidence that it can be developed as a skill, it may grow overtime if it is nurtured, and has close ties with cognitive development. The influence of cognitive development and the time provided to participants in LKM may also have contributed to the difference between the experimental and the control group. Piaget (1969) elaborated on how cognitive development shapes formal abstract thoughts. Hindley (1983) discussed that cognitive development influences and sets the foundation for how people act, view their world, and how they evaluate social situations. Furthermore Eisenberg, Miller, Shell, McNalley, and Shea (1991) also demonstrated in their research the relationship of cognitive development and the growth of personal and interpersonal relationships (i.e. pro-social interest, empathy, compassion). Based on the cognitive developmental literature, most of the participants probably have the cognitive structures (i.e., formal abstract thought) for empathy and perspective taking, but may not have had the chance to apply it consistently as a skill prior to participating in this study. The difference at post-test

between groups may be due to the fact that the experimental group was actively practicing their empathy skills through LKM. .

The increase in the measured scores of empathy resulting from the LKM intervention in the current study is consistent with the findings of Fredrickson et al. (2008) who utilized hierarchical linear models with time nested design focusing on individual participants to investigate the impact of the intervention, passage of time, and time spent meditating on self-reported emotions. Lepma (2011) also concluded similar results with pre-service masters level counselors. Lempa worked with counselors-in-training and her results suggest that a wellness intervention that includes a LKM component may be an effective means for increasing the cognitive aspects of empathy. Numerous other studies have been conducted on the effectiveness of mindfulness training with varying degrees of LKM components (Carson et al., 2005.; Fredrickson et al., 2008.; Hutcherson, Seppala, & Gross, 2008.; Seppala, 2009.; Isen, Daubman, & Nowickie, 2009; Salzberg, 2011). This study has joined these previously mentioned studies in support of the effectiveness of the application of LKM in improving empathy scores. However, one must also take the development of higher empathy scores with caution. People who seem to exhibit greater awareness of other's distress and lack the skills of handling this type of stress may eventually experience burnout. Maslach (1982) and Lepma (2011) both warned that improved empathy scores, as in the present study, are associated with burnout.

5.3 Research Question Three

The third research question of this study was: is there a correlation between the amounts of time spent participating in LKM and the level of empathy as well as the level of stress experienced by participants? All participants (N=70) self-reported time sheets were used in conjunction with their scores of three multidimensional scale of empathy (IRI – FS, EC, PT) to

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address the first part of the question focusing on empathy. The same self-reported time sheet indicating the total amount of time spent with LKM throughout the semester were used in evaluating the relationship of the IRI-PD score and total scores of the OQ45.2 with the level of stress experienced.

   Relationship of Empathy and time spent participating in LKM. This was evaluated with three subscales of the IRI: the Fantasy Scale (FS) scores, the Empathic Concern (EC) and the Perspective Taking (PT) subscales. A Pearson correlation was applied with the results indicating a statistically significant positive but moderate relationship N = 70, r = .447, p<0.01. (Cohen, 1992) Please see Table 21 on the FS. A second Pearson correlation was analyzed with the results indicating a statistically significant positive, strong relationship N = 70, r = .551, p<0.01. (Cohen, 1992) Please see Table 22. on the EC subscale. And a final Pearson correlation was analyzed with the results indicating a statistically significant, but very weak negative relationship N = 70, r = -.104, p<0.01. (Cohen, 1992) Please see Table 27 on the PT subscale. One must be aware that these results do not reflect a causal relationship; however, it appears that there is a positive relationship between the amount of time spent doing LKM and the scores of emphatic concern and fantasy subscales meaning that those participants who spent more time with LKM has experienced greater level of empathic concern as well as were able to experience deeper emotions in imaginary situation on a statistically significant level.

   The Perspective Taking subscale of the IRI is a reversed scored scale; therefore, interpreting the results of this instrument needs to be done with caution. A weak negative relationship was detected projecting that participants who spent less time with LKM have scored lower on the PT subscale, however, lower scores on the PT subscale means greater ability to accept others' perspectives. This finding is in contrast with Lepma's (2011) research where she

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found no statistically significant difference between the amount of time spent with LKM and the subscales scores of the IRI. There can be many possible speculations existing for this difference in findings: different sample, other controlled and uncontrolled variables, etc. Furthermore Lepma had a sample of master's level pre-service counselors. The fact that the cognitive development, social awareness, and moral reasoning capabilities of these participants may have been introduced in the training program could have predisposed them to higher scores at the baseline of the study. In addition, the participants of the Lepma study may also have been predisposed to the practice of empathy skills (as part of their counselor training) resulting in a statistically non-significant finding.

   Relationship of Stress Level and time spent participating in LKM. This factor was evaluated with one subscale of the IRI: the Personal Distress (PD) sub scores, and the Total Score (TC) of the OQ45.2. A Pearson moment product correlation was analyzed with the results indicating a non-significant relationship N = 70, r = -.084, p>0.01. (Cohen, 1992) Please see Table 28 on the result of OQ45.2. Lepma's (2011) had similar results in her research in the Personal Distress sub score investigating the relationship of to time spent doing LKM and stress levels. Since both of these studies show no significance with different populations it would be interesting to investigate the reliability of this subscale with the calculation of Cronbach's alpha. Davis (the author of the IRI) and several other studies have noted that among the four subscales the PD subscale has shown the least reliability (Davis, 1983; Endresen, & Olweus, 2002; Carlo, Hausmann, Christiansen, & Randall, 2003).

   Another issue may have relevance to this factor; specifically, the PD subscale is reverse scored and participants may be used to answering the scales one way when encountering this subscale marking the answers that are not representing their responses correctly. Furthermore,

the IRI was created in 1980 and has not been revised contrary to the OQ45.2 that has been repeatedly updated and revised.

Evaluating the relationship between time spent doing LKM and the Total Scores of OQ45.2 at the time of follow up, a second Pearson product moment correlation revealed results indicating a statistically significant, strong and negative relationship N = 70, r = -.489, p<0.01. (Cohen, 1992) Please see Table 28. This result may be interpreted as the more time participants engage in LKM activity the less is their level of stress.

Numerous previous studies were conducted with adult students, in community settings, and with clinical populations that provided evidence that meditation not only reduces negative mental health symptoms, including stress and anxiety, but the time and quality of meditation is consequential to the outcome of lowering the levels of stress and anxiety (e.g., Baer, 2003; Brown, Ryan, & Creswell, 2007; Murphy & Donovan, 1997). Several such studies have been conducted with students in higher education settings (e.g., Jain, Shapiro, Swanick, Roesch, Bell, & Schwartz, 2007; Rosenzweig et al., 2003; Shapiro, Schwartz & Bonner, 1998). Although much of this research has examined the potential benefits of mindfulness-based meditation with the application of the Mindfulness Based Stress Reduction (MBSR) intervention model the results of these studies still have relevant support to this current study since the LKM approach was developed from the MBSR model as a specific type of Meditation.

Studies of mindfulness meditation have yielded mixed results with regard to the effects of time spent in meditation outside group sessions (Baer, 2003; Shapiro et al., 2006; Weibel, 2007). The study by Carson et al. (2005) indicated that minutes practicing LKM predicted daily anger scores the following day, but it did not predict improvement in pain or other psychological symptoms. Beddoe and Murphy (2004), in a study with16 nursing students, found a significant

relationship between regular home mindfulness Meditations and the belief in the ability to improve one's health, awareness of stress and its causes, better self-care, and hopefulness. Fredrickson et al. (2008) found that the amount of time spent in meditation was a significant predictor of positive emotions. Weibel (2007) has also found some relationship between amount of time spent in loving-kindness meditation between sessions and improvement in outcome measures in his study of 71 undergraduate psychology students. On the other hand, Shapiro, Brown, and Biegel (2007), in a study involving 54 master's level counseling psychology students, found no relationship between the amounts of mindfulness meditation practice and changes in stress or well-being. Similarly, Davidson and colleagues (2003) found no relationship between amount of mindfulness meditation practice and physiological outcome measure in a sample of 41 biotech employees.

In conclusion, it remains unclear if the quantity of LKM time has a significant impact on variables important to development of empathy. Shapiro et al. (2007) suggested that there may be a critical threshold of practice time necessary to significantly affect psychological variables. Other researchers further suggested that quality of meditation may be a more potent factor than quantity (Beddoe & Murphy, 2004; Weibel, 2007; Fredrickson et al. 2008). Similar to Shapiro et al., actual time spent in weekly meditation for the present study was very limited (week/hour/participant, N=70, M=.78) when compared with studies that demonstrated higher number of hours spent with meditation practice (e.g., Carson et al., 2005) or with Mindfulness Based Stress Reduction, in which participants average 80 minutes per week (Baer, 2003). Nonetheless, the fact that the current study revealed a statistically significant positive correlation between quantity of LKM and the level of empathy as well as a negative correlation between level of stress experienced and amount of time spent LKM suggests that both increasing the

amount of practice as well as the quality of the Meditation may present critical factors in the results reached.

5. 4 Limitations

No matter how carefully and well a research study is planned and implemented there may be limitations to factors, design, instrumentation, variables, etc. in the inquiry (Krathwohl, 1993). There are several limitations of this research influencing the generalizability of the findings for other populations. These limitations include: sample size, the lack of diversity of the sample, the religious background and nature of the community, the probability of the participants' familiarity with the independent variable (previous knowledge, practice, and/or involvement of LKM or Meditation), instrumentation, and the possibility of making Type I or Type II error. These limitations will be discussed in the section below.

Sample

According to Jaeger, (1984), larger samples are more likely to produce accurate estimates of their populations than are smaller samples. One of the limitations of this research project was the sample size. An investigation of minimum sample size requirement was conducted as part of the priory power analysis resulting a minimum number of participants as 15 in each the control and experimental group. Although the total number of participants in this study was 70 (36 in the experimental and 34 in the control group) yet this relatively small sample size may still result in the lack of statistical representation of the phenomenon in both the population of the sample (pre-service student teachers N=217) and in the general population.

Statistically, a sample is likely to reflect the population from which it was derived from. When a sample fails to represent the population, sample bias may occur making the results of the study not transferable to the population (Bostrom, 2002). This study used a convenience sample

from the population of pre-service student teachers; however, after consulting with the Office of Field Experiences at the College of Education it was found that both the gender and ethnic makeup of the sample was skewed compared to the population. Furthermore, it was very likely that only those participants signed up for the study whom showed particular interest for meditation specifically for LKM.

Diversity

Another crucial limitation of this research is the lack of diversity of the sample. Sleeter, (2001) warns against making generalizations from any research endeavor to the general population where significant underrepresentation of ethnic and racial groups may create bias. Another concern for the current study was that the participants were overwhelmingly female. The group contained a highly homogeneous 70 student teachers at a predominantly white Southern university. Out of these students 63 of them were females and seven were males. The seven males consisted of one Asian and six white students. Out of the 63 female students indicated that they five indicated that their ethnicity was Asian, four that they were of African American heritage, one Native American, four Latinas, and 49 of them were Whites.

Previous Spiritual Activity

Potential limitation of the research project may also be found in the religious background and nature of the community in which the study took place. Newport (2012) discusses that according to a Gallup poll the south is the most religious region of the United States. The geographic influence of location may have influenced the population (student teachers). Since "meditation is often associated with new age cult followings and mystical practices of eastern religion" (Fontaine, 2011. p.) many potential participants may have been turned away from the

possibility of participating in the study due to their own religious upbringing, conviction, and their predisposition towards Meditation.

Furthermore, predisposition to meditation practices may also have created further bias within the sampling pool. According to the National Center for Disease Control's (CDC) *National Health Statistics Report #12*, in 2007 there were more than 20 million adults in the U. S. practicing meditation which translated to closely 9.4 % of the adult population at that time. In this study, of the 70 participants four (5.9%) indicated that they have previously participated in some sort of Meditation practices and 11 (16%) designated that some sort of meditation practice is part of their spiritual/prayer lives. Thus, the participants in this study were not reflective of the general population in that they had more exposure to meditation prior to this study than members of the U.S. population on average. Therefore, the degree of previous involvement with any sort of Meditation practices (mindfulness, yoga, prayer, guided, etc.) as well as individuals' time spent with LKM during the research project may have indeed created a bias and may have influenced the results of the outcome measurements consequently creating a limitation.

Instrumentation

A further limitation of the research was that the instruments applied were self-report. Self-report measures allow for ease of administration and provide access to phenomenological perceptions of the participants (Heppner et al., 1992). However, it is possible that participants answered in ways that they believed were preferable and/or expected for student teachers. This phenomenon is called the social desirability response (Stoeber, 2001). Beyond the social desirability response, self-evaluation and self-awareness of the participants of their own selves may have created bias (Bender, Negi & Fowler, 2010). Some participants may have evaluated themselves as less stressed, more emphatic, and vice versa when indeed they may have not been

such. In addition, the use pretests for both groups, at the beginning at the middle as well as at the end of the intervention, may have familiarized participants with the tests, alerting them to the constructs being examined (Campbell & Stanley, 1963; Heppner et al., 1992). Finally, maturation of the participants may have also threatened internal validity since there were opportunities for participants to grow developmentally during the time of the research project (Campbell & Stanley, 1963).

The fact that Lepma's (2011) had similar outcomes on the Personal Distress sub score investigating the relationship of time spent doing LKM and stress levels warrant some caution. Since both of these studies show no significance with different populations it call into question the reliability of this subscale. It also must be noted that Davis (the author of the IRI) and several other studies have found that among the four subscales the PD subscale has shown the least reliability (Davis, 1983; Endresen, & Olweus, 2002; Carlo, Hausmann, Christiansen & Randall, 2003). This scale is a seven item scale and such low number of items on this scale may have not created sufficient variance to detect the difference in score (Cribbie & Jamieson 2004) as well as may have not create statistically significant regression to the mean (Samuels, 1991). This subscale may also need to be examined for its construct validity. Construct validity expresses how well a test measures up to its assertions (Hinkle et al, 2003). Construct validity is a method used almost entirely in education, social sciences, and psychology (Kendell & Jablensky, 2003). A construct refers to a "theorized psychological construct" (Kendell, & Jablensky, 2003; p. 5) and whether a scale or test reflects the construct. The questions arising here is does the Personal Distress scale really measure personal distress? And does the theoretical concept match up with a specific measurement / scale used in research? Construct validity has also has a

lot to do with language, semantics and labeling (Kendell & Jablensky, 2003). It is possible that the language used in this subscale the invalidated the scores.

Error

Lastly, it is possible that Type I or Type II error may have posed a limiting threat this research. It is a probability to make either of these inaccuracies at the final, decision making phase of hypothesis testing (Hinkle et al, 2003). A Type I error arises when the researcher rejects a null hypothesis when it is true. A Type II error occurs when the researcher fails to reject a null hypothesis that is false (Hinkle et al, 2003). Careful considerations and multiple calculations were performed in order to avoid these pitfalls as part the conclusion in this research. Overall evaluation concluded that neither of these miscalculations is evident; however, there may be some unseen factors that may render the result of the research unfunded.

<div align="center">5.5 Implications and Future Research</div>

This current study was designed to further investigative applications of LKM as an alternative for coping with stress technique for pre-service student teachers. Regardless of the limitations, this study offers implications for further research, teaching in P-16 settings, and in higher education practice. Pre-service student teachers are under enormous amounts of stress and may not be equipped with proper stress managing skills. In addition, scholars have contended that the cultivation of empathy has a positive impact on the relationship between students and teachers (Smith, 2000; Cooper, 2003; Whang & Nash, 2005; Bloch, 2009; Crippen, 2010; Tucker et al., 2010). Furthermore, this empowered relationship highly influences the effectiveness of teachers and has great impact on student outcomes. Even more, as some research indicated, the proper practice of compassion has social justice relevance that may have great impact not only in education but even in general society.

Several other questions may be investigated in the future to advance this study. Future statistical analyses would result in the discovery of empirical evidence that may advance the use of LKM with the pre-service student population and possibly with other populations. The amount of collected data and the design of the research would allow for the application of ANOVA focusing on either of the groups: control and experimental along with the time of testing (pre- post- and follow up). ANCOVA may also be applied to investigate the relationship and statistical significance between groups and throughout the duration of the study using the pre and post test results as covariates. Scores may also be compared between subsets in two different variations: pretest to follow up, post-test to follow up. This researcher also received qualitative information through the participants' feedback. This would aid the development of qualitative and or mixed method study in the future.

5. 6 Conclusions

The results of this research indicated that LKM training assisted pre-service teachers in stress management as well as helping them develop greater understanding of empathy and compassion towards themselves and their students. However, further research is needed because the sample participating in this study was highly homogeneous. Further inquiry would also be needed to determine if this approach may be effective when applied in a higher education practice with graduate students as well as with faculty. These studies would assist students and educators alike in gaining a useful tool in stress management, developing and deepening their feeling of empathy (in an essence cultivating pro-social action) and broadening the use of this technique to other populations.

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The following statements ask about your thoughts and feelings in a variety of situations. For each item, show how well it describes you by choosing the appropriate number on the scale at the top of the page: 1, 2, 3, 4, or 5. When you have decided on your answer, circle the number under the question that fits with your response. **READ EACH ITEM CAREFULLY BEFORE RESPONDING.** Answer as honestly and as accurately as you can. Thank you. (*Italics are reverse scored items*)

ANSWER SCALE:

1	2	3	4	5
DOES NOT				**DESCRIBES ME**
DESCRIBE ME				**VERY WELL**
WELL				

1. I daydream and fantasize, with some regularity, about things that might happen to me.

1	2	3	4	5

2. I often have tender, concerned feelings for people less fortunate than me.

1	2	3	4	5

3. *I sometimes find it difficult to see things from the "other guy's" point of view.*

1	2	3	4	5

4. *Sometimes I don't feel very sorry for other people when they are having problems.*

1	2	3	4	5

5. I really get involved with the feelings of the characters in a novel.

1	2	3	4	5

6. In emergency situations, I feel apprehensive and ill-at-ease.

1	2	3	4	5

7. *I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.*

1	2	3	4	5

8. I try to look at everybody's side of a disagreement before I make a decision.

1	2	3	4	5

9. When I see someone being taken advantage of, I feel kind of protective towards them.

1	2	3	4	5

ANSWER SCALE:

1	2	3	4	5
DOES NOT				**DESCRIBES ME**
DESCRIBE ME				**VERY WELL**
WELL				

10. I sometimes feel helpless when I am in the middle of a very emotional situation.

1	2	3	4	5

11. I sometimes try to understand my friends better by imagining how things look from their perspective.

1	2	3	4	5

12. *Becoming extremely involved in a good book or movie is somewhat rare for me.*

1	2	3	4	5

13. *When I see someone get hurt, I tend to remain calm.*

| | **1** | **2** | **3** | **4** | **5** |

14. *Other people's misfortunes do not usually disturb me a great deal.*

| | **1** | **2** | **3** | **4** | **5** |

15. *If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.*

| | **1** | **2** | **3** | **4** | **5** |

16. After seeing a play or movie, I have felt as though I were one of the characters.

| | **1** | **2** | **3** | **4** | **5** |

17. Being in a tense emotional situation scares me.

| | **1** | **2** | **3** | **4** | **5** |

18. *When I see someone being treated unfairly, I sometimes don't feel very much pity for them.*

| | **1** | **2** | **3** | **4** | **5** |

19. *I am usually pretty effective in dealing with emergencies.*

| | **1** | **2** | **3** | **4** | **5** |

20. I am often quite touched by things I see happen.

| | **1** | **2** | **3** | **4** | **5** |

ANSWER SCALE:

1	**2**	**3**	**4**	**5**
DOES NOT DESCRIBE ME WELL				**DESCRIBES ME VERY WELL**

21. I believe that there are two sides to every question and try to look at them both.

| | **1** | **2** | **3** | **4** | **5** |

22. I would describe myself as a pretty soft-hearted person.

| | **1** | **2** | **3** | **4** | **5** |

23. When I watch a good movie, I can very easily put myself in the place of a leading character.

| | **1** | **2** | **3** | **4** | **5** |

24. I tend to lose control during emergencies.

| | **1** | **2** | **3** | **4** | **5** |

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

| | **1** | **2** | **3** | **4** | **5** |

26. When I'm reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

| | **1** | **2** | **3** | **4** | **5** |

27. When I see someone who badly needs help in an emergency, I go to pieces.

| | **1** | **2** | **3** | **4** | **5** |

28. Before criticizing somebody, I try to imagine how I would feel in their place.

| | **1** | **2** | **3** | **4** | **5** |

Outcome Questionnaire (OQ®-45.2)

Instructions: Looking back over the last week, including today, help us understand how you have been feeling. Read each item carefully and mark the box under the category which best describes your current situation. For this questionnaire, work is defined as employment, school, housework, volunteer work, and so forth. Please do not make any marks in the shaded areas.

Name:_____ Age:____yrs.

Sex

ID#_____ M ☐ · F ☐

Session #_____ Date____/____/____

	Never	Rarely	Sometimes	Frequently	Almost Always	SD	IR	SR DO NOT MARK BELOW
1. I get along well with others.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
2. I tire quickly.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
3. I feel no interest in things.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
4. I feel stressed at work/school.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
5. I blame myself for things.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
6. I feel irritated.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
7. I feel unhappy in my marriage/significant relationship.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
8. I have thoughts of ending my life.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
9. I feel weak.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
10. I feel fearful.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
11. After heavy drinking, I need a drink the next morning to get going. (If you do not drink, mark "never")	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
12. I find my work/school satisfying.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
13. I am a happy person.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
14. I work/study too much.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
15. I feel worthless.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
16. I am concerned about family troubles.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
17. I have an unfulfilling sex life.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
18. I feel lonely.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
19. I have frequent arguments.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
20. I feel loved and wanted.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
21. I enjoy my spare time.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
22. I have difficulty concentrating.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
23. I feel hopeless about the future.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
24. I like myself.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
25. Disturbing thoughts come into my mind that I cannot get rid of.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
26. I feel annoyed by people who criticize my drinking (or drug use). (If not applicable, mark "never")	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
27. I have an upset stomach.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
28. I am not working/studying as well as I used to.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
29. My heart pounds too much.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
30. I have trouble getting along with friends and close acquaintances.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
31. I am satisfied with my life.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
32. I have trouble at work/school because of drinking or drug use. (If not applicable, mark "never")	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
33. I feel that something bad is going to happen.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
34. I have sore muscles.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
35. I feel afraid of open spaces, of driving, or being on buses, subways, and so forth.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
36. I feel nervous.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
37. I feel my love relationships are full and complete.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
38. I feel that I am not doing well at work/school.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
39. I have too many disagreements at work/school.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
40. I feel something is wrong with my mind.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
41. I have trouble falling asleep or staying asleep.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
42. I feel blue.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
43. I am satisfied with my relationships with others.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0			
44. I feel angry enough at work/school to do something I might regret.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			
45. I have headaches.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4			

+   +

Total=

130

...tion for Exemption from Institutional Oversight

LSU

Institutional Review Board
Dr. Robert Mathews, Chair
131 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.6792
irb@lsu.edu
lsu.edu/irb

...as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/
...ng living humans as subjects, or samples, or data obtained from humans, directly or indirectly, with or without their
...it, must be approved or exempted in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted,
...is used to request an exemption.

Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-E, listed
...ow, when submitting to the IRB. Once the application is completed, please submit two copies of the completed
...plication to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can
found at http://www.lsu.edu/screeningmembers.shtml

A Complete Application Includes All of the Following:
(A) Two copies of this completed form and two copies of part B thru E.
(B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1&2)
(C) Copies of all instruments to be used.
  *If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
(D) The consent form that you will use in the study (see part 3 for more information.)
(E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are
  involved with testing or handling data, unless already on file with the IRB. Training link: (http://phrp.nihtaining.com/users/login.php.)
(F) IRB Security of Data Agreement: (http://www.lsu.edu/irb/IRB%20Security%20of%20Data.pdf)

Principal Investigator: Roland Mitchell		**Rank:** Associate Professor

...ot: ETPP   Ph: 225-578-2156   E-mail: rwmitch@lsu.edu

...o Investigator(s): please include department, rank, phone and e-mail for each

...e (Emeric) Csaszar
...P, Doctoral Candidate
...-578-1258
...csaszar@gmail.com

IRB# **E5792** LSU Proposal #_____

Ⓧ Complete Application

Ⓧ Human Subjects Training

...roject Title: The Relationship Between Loving Kindness Meditation and Student Teachers'
Stress, Emotional Exhaustion, Empathy and Compassion

Study Exempted By:
Dr. Robert C. Mathews, Chairman
Institutional Review Board
Louisiana State University
203 B-1 David Boyd Hall
225-578-8692 | www.lsu.edu/irb
Exemption Expires: 11-13-2014

...roposal? (yes or no) no   If Yes, LSU Proposal Number [   ]

Also, if YES, either   ◯ This application **completely** matches the scope of work in the grant
                OR   ◯ More IRB Applications will be filed later

...ubject pool (e.g. Psychology students) Student teachers in field placement

  *Circle any **"vulnerable populations"** to be used: (children <18; the mentally impaired,
  pregnant women, the ages, other). Projects with incarcerated persons cannot be exempted.

...l Signature [signature]   Date 11/10/11   (no per signatures)

...ertify my responses are accurate and complete. If the project scope or design is later changes, I will resubmit for review. I will
...in written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also
...erstand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I
...e LSU before that time the consent forms should be preserved in the Departmental Office.

...eening Committee Action: Exempted ✓____   Not Exempted ____   Category/Paragraph ____

Kristin A. Gansle

...iewer _____   Signature [signature]   Date 11/14/2011

Please read this informed consent document carefully before you decide whether or not to participate in this study.

<u>**Project Title**</u>**: The Relationship Between Loving-Kindness Meditation and Student Teachers'
Stress, Emotional Exhaustion, Empathy and Compassion**

<u>**Purpose of the Study:**</u> The purpose of this study is to investigate the relationship between loving-kindness meditation practice and empathy and compassion of student teachers.

<u>**What you will be asked to do in the study**</u>**:** You are being requested to participate in a control group. Therefore you will not partake in any intervention. If you choose to participate in the control group, I will ask you to fill out a pretest and a post test. The pretest includes a demographic sheet, a 45 item questionnaire about stress symptoms, and a 28 item questionnaire about empathy.

<u>**Time Required:**</u> In all, it will require approximately 20 minutes of your time for each—the pretest and the post test to fill out the questionnaires.

<u>**Anticipated Risks of Participation:**</u> There are no anticipated risks to participants.

<u>**Compensation/Benefits:**</u> There is no compensation or other direct benefit to you for participation. However, Loving Kindness Meditation is associated with many physical and mental health benefits.

<u>**Confidentiality:**</u> Your identity will be kept confidential.   All identifying information will be removed from the data sets.   When the study is complete and the data is analyzed, the list of participants will be destroyed.   Your name will not be used in any report.   The consent forms will be stored in a locked cabinet SEPARATE from paper or electronic copies for a minimum of 3 years.

<u>**Voluntary Participation:**</u> Your participation in this study is strictly voluntary.   There is no penalty for not participating and you may withdraw at any time during the study if you choose to participate.

<u>**Whom to contact if you have questions**</u>**:** Please contact either Emeric Csaszar (225) 578-1258, imicsaszar@gmail.com or Dr.   Roland Mitchell, rwmitch3@lsu.edu.

<u>**Whom to contact about your rights in the study**</u>**:** Research at Louisiana State University involving human participants is overseen by the Institutional Review Board (IRB).   For information about participants' rights please contact: Institutional Review Board, Dr.   Robert Mathews (Chair), 203 B-1 David Boyd Hall, Baton Rouge, LA 70803, (225) 578-8692.

_____   I have read and understand the informed consent.
_____   I voluntarily agree to participate in this study.

_____
Participant Signature   Date

Please read this informed consent document carefully before you decide whether or not to participate in this study.

Project Title: The Relationship Between Loving-Kindness Meditation and Student Teachers' Stress, Emotional Exhaustion, Empathy and Compassion

Purpose of the Study: The purpose of this study is to investigate the relationship between loving-kindness meditation practice and empathy and compassion of student teachers.

What you will be asked to do in the study: During the study, you will receive free training on how to practice loving kindness meditation. You will be given a free CD with Loving Kindness meditation guides and a log to record the amount of time you spend each week meditating.

Time Required: The amount of time you spend meditating will be up to you.

Anticipated Risks of Participation: There are no anticipated risks to participants.

Compensation/Benefits: There is no compensation or other direct benefit to you for participation. However, Loving Kindness Meditation is associated with many physical and mental health benefits.

Confidentiality: Your identity will be kept confidential. All identifying information will be removed from the data sets. When the study is complete and the data is analyzed, the list of participants will be destroyed. Your name will not be used in any report. The consent forms will be stored in a locked cabinet SEPARATE from paper or electronic copies for a minimum of 3 years.

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_____   I have read and understand the informed consent.
_____   I voluntarily agree to participate in this study.

_____
Participant Signature   Date

APPENDIX F: LOVING KINDNESS MEDITATION LOG

	Sunday 1/22	Monday 1/23	Tuesday 1/24	Wednesday 1/25	Thursday 1/26	Friday 1/27	Saturday 1/28
Time Spent Meditating							
Total Hours _____							

	Sunday 1/29	Monday 1/30	Tuesday 1/31	Wednesday 2/1	Thursday 2/2	Friday 2/3	Saturday 2/4
Time Spent Meditating							
Total Hours _____							

	Sunday 2/5	Monday 2/6	Tuesday 2/7	Wednesday 2/8	Thursday 2/9	Friday 2/10	Saturday 2/11
Time Spent Meditating							
Total Hours _____							

APPENDIX G: DEMOGRAPHIC QUESTIONNAIRE

1. How many months/ years have you worked in schools?_____

2. What is your current age? _____

3. What types of spiritual activities do your currently practice in your life (for example, prayer, meditation, yoga, church attendance):_____

   _____

4. What subject do you most enjoy teaching and why?_____

   _____

   _____

5. Please indicate your race (check one):

   _____ Latino/Latina   _____Native American
   _____Asian/Pacific Islander   _____ White, non-Hispanic
   _____Black   _____Other

6. Grade levels of the school you are doing your student teaching in in:

   _____ Pre K-3   _____ Elementary School
   _____ Middle School   _____ _ High School (9-12)
   _____ Multi-Level (i.e. 7-12)

VITA

Imre Emeric Csaszar was born and raised in Budapest, Hungary. Prior to the communist regime change he immigrated to the US; he has been living in the states the last 23 years and he became a U. S. citizen in 2006. He has earned his undergraduate degree in behavioral sciences and pastoral counseling at Toccoa Falls College in Georgia. He holds a master's degree from Stetson University in Florida in Marriage, Family, and Couples Therapy. He started his PhD program at the University of Central Florida in counselor education; however he decided he wanted to switch to administration and he earned his doctoral degree in Higher Education Administration at LSU. He is a licensed professional counselor/supervisor in the state of Louisiana and also holds a certification as nationally certified counselor. His experience includes working in mental health triage, substance abuse counseling, and experiential, adventure based therapy with at-risk youth. His main focus is teaching and education administration although he has a research interest in stress reduction, holistic wellness and meditation: particularly loving kindness meditation.