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**Effects of Practicing Meditation in the East and the West: Leaders  
in the West Benefit More**

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**EFFECT OF MEDITATION ON LEADERS IN THE EAST AND THE WEST:  
ALL BENEFIT, BUT THE WEST HAS GREATER EFFECT-SIZE ADVANTAGE**

**Abstract**

To understand the effect of meditation on leaders in the East and the West, we conducted randomized-pretest-posttest experimental group studies for a period of 12 weeks on 144 CEOs/senior managers in the East (Bangkok: N=80) and the West (London: N=64) selected from a sampling frame of the companies registered in Bangkok, Thailand and London, UK. We measured the effects on 13 dependent variables that consisted of emotional intelligence (EI) and its 5 components, and self-perceived leadership skills (LS) and their 5 components, and EI and LS simultaneously. We find that both EI and LS were enhanced separately and simultaneously in both experimental groups. A number of individual components of EI and LS were also enhanced. The effect of meditation varied significantly for the two international samples. Overall, the London sample, in contrast to the Bangkok CEOs, gained greater effect-size advantage from meditating. The London sample gained on 12 of the 13 dependent variables, while Bangkok gained on 9 of 13. The effect size was medium for the Bangkok leaders, but large for the London leaders. We show that meditation helps managers attain higher emotional intelligence and leadership skills, and that leaders in the West can gain more by practicing meditation.

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For the last twenty-five years, there has been a growing interest in spirituality and meditation in America and Europe because of a prevalent belief that meditation can add quality to human life. There are several studies supporting this observation (Goyal et al., 2014). Meditation was introduced to the business world during the 1990s, when managers of different religious faiths found that it also added value to the work they do (McCormick, 1994; Wachholtz & Pargament, 2005). This translated into a growing interest in meditation practice for enhancing management performance (Gelles, 2012; Pickert, 2014). While the pace of accepting meditation in the corporate world is picking up mostly based on what is portrayed in the popular media, we tend to forget that the scientific research supporting benefits of meditation for management performance is actually scant. Some label the available research as flawed (Bowen et al., 2007; Chiesa, 2010: 37), or outright missing any reliable linkage of meditation to management performance. The latter is particularly so for the academic journal research articles documenting the effect of meditation on managers' behavior or performance. The works reported in some journal articles on meditation are described as 'poor-quality studies' (Chiesa, 2010: 37). The drawbacks include faulty sampling (Perez-De-Albeniz & Holms, 2000), lack of randomization (Coolican, 2004), and the absence of a control group (see, for example, the works by Bowen et al., 2008; Simpson et al., 2007; Emavardhana & Tori, 1997). Goyal et al. (2014) question the findings from uncontrolled meditation studies because they notice dire contrast between the outcomes from these studies and the similar controlled group studies. The methodologies of meditation studies conducted in Europe and America are especially criticized (Mead, 1988; Hicks & Turner, 1999; Saunders et al., 2000; Ghauri & Gronhaug, 2005).

## MEDITATION, LEADERSHIP AND DEVELOPMENT OF HYPOTHESES

### The Art of Meditation

Meditation, in its most original form of *Yoga Dhayana* (translated as the “Spiritual Discipline of Meditation”)<sup>1</sup>, is a structured process for detaching from the distracting physical environs to bring equanimity to the unsteady, turbulent, powerful, and obstinate mind for increasing the consciousness of the metaphysical, to bring mind to what is present, for transforming the individual into the one who is tranquil and has control over own mind. In this form, it is known as *mantra meditation* or “*transcendental meditation*”. It requires reciting a customized mantra<sup>2</sup>, which has religious connotation. Changes to mantra meditation were made by the Buddha during the first millennium BCE, which gave birth to the mindfulness meditation. Both kinds are very commonly used in the East as a spiritualized intellectual psychosomatic exercise to gain insight into how to handle predicaments, or find relief from all kinds of physiological and psychological issues anguishing them. Through meditation, these people seek answers and absolution of all their problems.

The practice of meditation varies from people to people; however, they all have one core element—mental concentration to attain consciousness. Walsh and Shapiro (2006) interpret meditation as a self-regulation structured process for mental training and development to gain capacities of the mind. The National Institutes for Health, at its National Center for Complementary and Alternative Medicine, broadly define it as the many kinds of “mind-body practice” (NIH, 2013). On combining with Goldstein and Kornfield (1987: 62), meditation involves some imagery and body posturing, maybe sitting, standing or walking, to gain awareness of what is happening every moment.

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<sup>1</sup> Meditation is covered in *Mahabharata* as “Song of God” (*Bhagavad Gita*), going back to 3137 BCE (Kak, 2012).

<sup>2</sup> A mantra out of the numerous available is selected for a specific individual, for a specific cause by a guru who diagnoses the issue and prescribes it for meditation as a “treatment” for the issue.

## **Leader**

The focus of this research is to study if meditation can make leaders, specifically, CEOs and top executives who play a key role in their organizations, more effective in their role. We begin with a broader understanding of leader and find that there is a multitude of ways the literature defines leader (Owen et al., 2004). Leadership is stated as a process of social influence whose effectiveness is characterized by an idealized behavior, inspirational motivation, and individualized consideration (Knippenberg & Hogg, 2003). A leader must be competent enough to help the group to reach the goal, and more importantly, to keep them loyal to the collective interests (Bass, 1990). One fosters in one's followers a higher moral maturity and moves them to go beyond their self-interest for the good of their group, the organization or the society as a whole (Bass, 1990: 171). Northouse (2004) treats leadership as a complex process with multiple dimensions. Thus he sees it not as a set of traits or characteristics, but as entailing transactional events that involve or occur between leaders and their followers.

## **Emotional Intelligence**

Leadership literature is still debating the role of emotional intelligence (EI) in leadership effectiveness and if EI is more important than intellectual intelligence (Gardner, 1983; Salovey & Mayer, 1990; Goleman, 1995; Owen et al., 2004; Potter et al., 2006). Some opine that anything that can be done to enhance emotional intelligence could potentially help improve leadership effectiveness (Feldman-Barret & Salovey, 2002). The literature also alludes to a connection of emotional intelligence with meditation (Specht & Sanlin, 1991); however, there are no scientific studies establishing the association. According to Tischler et al. (2002), meditation is understood to be about effecting emotional behavior or attitudes. Wachholtz and Pargament (2005) find meditation to bring a sense of independence, self-supportiveness, and self-motivation, thus, drawing a parallel between the awareness and skill competencies of EI and the behavioral, attitude, and personality variables. Zohar and Marshall (2001) associate meditation with intelligence.

According to McCollum (1999) and (Gustavsson, 2001), the ability to lead for success is improved when leaders focus on leadership by gaining consciousness of the issues surrounding the situation (Thorndike, 1937; Wechsler, 1943; Gardner, 1983; Salovey and Mayer, 1990; Goleman, 1995; Owen et al., 2004; Potter et al., 2006) because they also need non-cognitive intelligence (EI) for success (Salovey & Mayer, 1990)—a kind of social intelligence, which is the ability to observe one's own and others' feelings and emotions, to discriminate between them, and to let this information guide thinking and actions. Harung et al. (1995) describe EI as a tool for enabling concentration and self-awareness, and once people attain this they begin to better manage their emotional and social sensitivities towards themselves and others.

***Major characteristics of EI.*** Emotional intelligence, as emotional-social intelligence model, constitutes five major characteristics (Bar-On, 1997: 17, 18): *intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood.* The intrapersonal skills require acquiring the ability to be aware and understand feelings and emotions in the self, which is measured on five subscales that measure self-regard, emotional self-awareness, assertiveness, independence and self-actualization. The interpersonal skills, the second part of EI, consist of awareness and understanding the feelings, emotions and ideas in other people so as to determine one's own responses to the stimuli that originate in others. It is measured on three subscales: empathy, social responsibility, and interpersonal relationships. The third measure of EI, adaptability, is the ability to alter emotions and feelings as suited to the situation. It includes 'reality testing', which refers to the ability to assess the correspondence between what exists and what one experiences, and 'flexibility', which is the ability to adjust to emotions, thoughts, and behavior to changing situations and conditions. The third sub-factor of adaptability is 'problem solving', which is being able to identify, define, and generate and implement effective solutions. 'Stress management' is the fourth factor that constitutes EI. It consists of 'stress tolerance' which is being able to withstand stressful situations and adverse events without falling apart by positively and actively coping with stress and believing in one's ability to get out of the stressful situations. Stress management also consists of

‘impulse control’ that is being able to first accept, and then, resist or delay an aggressive unplanned, temptation or the drive to act. The fifth measure of EI is the ‘general mood’, which is being able to remain optimistic and express positive emotions to those for whom one is responsible. General mood is determined by ‘optimism’, that is looking at the bright side and maintaining a positive attitude, and ‘happiness’, which is being able to feel satisfied with life and enjoy oneself and others.

There are three common models for measuring EI, which are developed based on the theoretical framework and empirical scientific study (Berrocal & Extremera, 2006; Ashkanasy & Daus, 2005). These are (1) the EI ability-based model (Mayer & Salovey, 1997); (2) the Bar-On model of emotional-social intelligence (Bar-On, 1997); and (3) the Goleman competency model that focuses on the workplace (Goleman, 1998; Boyatzis, Goleman, & Rhee, 2000). While each model may be acceptable, we decided in favor of using the Bar-On model (1997, 2000) because it has a good coverage of the important constituents of EI and has a widely applied, well-tested instrument designed for the leadership situations like the one presented in the study we have undertaken. To measure EI, using this model, we employ Bar-On (1997, 2000) 125-item instrument known as the Emotional Intelligence Quotient Inventory (EQ-i).

Based on the understanding developed above, we formulate the following null hypotheses,  $H_{01}$  to  $H_{06}$ , making the first part of our investigation studying the effect of meditation on leadership skills, specifically, the emotional intelligence:

*H<sub>01</sub>: Leaders who practice meditation do not gain higher emotional intelligence than leaders who do not practice meditation.*

*H<sub>02</sub>: Leaders who practice meditation do not gain higher intrapersonal emotional intelligence than leaders who do not practice meditation.*

*H<sub>03</sub>: Leaders who practice meditation do not gain higher interpersonal emotional intelligence than leaders who do not practice meditation.*

*H<sub>04</sub>: Leaders who practice meditation do not gain higher adaptability than leaders who do not practice meditation.*

*H<sub>05</sub>: Leaders who practice meditation do not gain higher stress management than leaders who do not practice meditation.*

*H<sub>06</sub>: Leaders who practice meditation do not gain enhanced general mood than leaders who do not practice meditation.*

### **Meditation and Leadership Skills**

Leadership is the ability of an individual to enlist the aid and support of others in the accomplishment of a common task (Chemers, 2002). House and Aditya (1997) describe it as facilitating the achievement of the group. In organizations, leadership is performed as a process involving a number of behaviors in accomplishment of the organization's goals (Amar, 2002). Leaders need certain competencies to perform effectively, and the literature clearly distinguishes between the effective and non-effective leaders (Knippenberg & Hogg, 2003). Effective leadership is that which results in the success of the organization and requires individual characteristics from the leader for contributing to the organization's success.

For the purposes of our research on the effect of meditation on leader's skills essential to lead organization to success, we collected important characteristics of leadership effectiveness. These include the capacity to act as a role model, the ability to inspire a shared vision, the ability to enable others to act, and the ability to encourage the heart (Kouzes and Posner, 2002). We also find that the literature places a special importance on leaders' ability to display moral intelligence (Kiel, 2005), which describes the capacity to understand the right from wrong, to have strong ethical convictions, and to act on them so that he/she behaves in a correct and honorable way (Lennick & Kiel, 2005). Specifically in this regard, we are looking for the part that meditation could play on leader's skills for



performing the above given abilities and capacities, and formulate null hypotheses  $H_07$  to  $H_012$  for the purpose.

*H<sub>07</sub>: Leaders who practice meditation do not gain higher leadership skills than leaders who do not practice meditation.*

*H<sub>08</sub>: Leaders who practice meditation do not gain higher skill of 'leader as a role model' than leaders who do not practice meditation.*

*H<sub>09</sub>: Leaders who practice meditation do not gain higher skill of 'inspiring a shared vision' than leaders who do not practice meditation.*

*H<sub>010</sub>: Leaders who practice meditation do not gain higher skill of 'moral intelligence' than leaders who do not practice meditation.*

*H<sub>011</sub>: Leaders who practice meditation do not gain higher skill of 'enabling others to act' than leaders who do not practice meditation.*

*H<sub>012</sub>: Leaders who practice meditation do not gain higher skill of 'motivating others' than leaders who do not practice meditation.*

### **Linking Meditation, EI and Leadership**

Among the several benefits of meditation practice reported by the research in medical and psychological sciences (McCollum, 1999; Davidson et al., 2003; Kabat-Zinn, 2003; Clarkson, 2005; McLaughlin, 2005; Cahn & Polich, 2006; Goyal et al., 2014) are the increased consciousness, reduced stress, greater concentration, higher ability to handle emotions, improved memory and creativity and better attention. Hence, the question that we are asking here is if meditation practice translates into increased EI and greater ability to lead in senior managers holding critical positions in organizations, and we formulate this into a comprehensive null hypothesis, Hypothesis 13, given below.

*H<sub>0</sub>13: Leaders who practice meditation do not gain higher ability to be leader as measured by their emotional intelligence and leadership skills simultaneously than leaders who do not practice meditation.*

## **METHODS**

Since we are using meditation practice as a treatment to study its effect on the several variables formulating our hypotheses, we employ experimental research methods to test them. Experimental research method is well regarded as being objective and factual (Mead, 1988). It requires controlling extraneous variables that might affect the study to ensure that only the manipulating variables are studied, and that the ensuing results show the causal relationships rather than the mere coincidences (Coolican, 2004). We also follow the structure and strategic design of the past experimental researches investigating the effect of meditation on physiological and psychological aspects of human life (see, for example, Davidson et al., 2003). Hence, we designed a randomized pretest-posttest two-group experimental design, detailed in the following sections.

### **Independent and Dependent Variables**

For this study, meditation is an independent variable, and emotional intelligence (EI) and leadership characteristics (LS) are the dependent variables. Two factors, labeled ‘Group’ (two conditions – experimental group, control group) and ‘State’ (two conditions – before and after) were identified as the first and second independent variables. All items on Emotional Intelligence and Leadership Skills questionnaires were measured on a 5-point Likert Scale from 1 to 5 and treated as an interval measure.

### **Operationalization of Variables**

**Leader.** Leader is an individual who enlists the aid and support of others in the accomplishment of a common task (Chemers, 2002), and has a crucial role in making decisions influencing the lives of many other people. This individual is operationalized as someone who, by appointment, gained a position

to be a senior manager in a company registered on the Stock Exchange of Thailand in Bangkok, or in London, UK. This person may be a chief executive officer (CEO) or a general manager of a company. One's inclusion in our sampling frame is not conditional on the strength of one's resume. One who inherited the position is as likely to be included as someone who acquired the position through the strength of one's personal abilities.

***Leadership.*** Leadership is the actions in which the successful leader engages and the behaviors one reflects in performing the leadership function. Effective leadership is facilitating achievement of the team goals (House & Aditya, 1997). To operationalize it, we collected the following constructs: *to be a role model, to inspire a shared vision, to enable others to act, to have a heart/motivate others* (Kouzes & Posner, 2002), and *to display moral intelligence with strong ethical convictions* essential to understand right from wrong and to act on them so that one behaves in a correct and honorable way (Lennick & Kiel, 2005). It is measured by the scores on the 25-Item Leadership Skills Inventory (LSI) Questionnaire.

***Emotional intelligence (EI).*** We take emotional intelligence as the intelligence to read and take into consideration one's own and others' social and emotional sensitivities in one's actions and decisions. It describes the capacity of an individual to identify, assess, manage and control one's own and others' emotions (Goleman, 1995). In contrast, intellectual intelligence (IQ) describes the capacity of an individual to reason, plan and solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience (Sternberg & Salter, 1982). It is operationalized by the dimensions of intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood with all their sub-factors as modeled by Bar-On (1997) and measured by the 125-Item EQ-i Bar-On Emotional Quotient Inventory Questionnaire (EQ-i).

***Meditation treatment.*** Meditation is taken as a structured self-regulation mind-body process for mental training and development to gain attention and awareness (Walsh & Shapiro, 2006; NIH, 2013),

and operationalize it in its form called “Vipassana”<sup>3</sup>, carried out under the supervision of an expert for twelve weekly one-hour sessions. After each session, the subjects are advised to follow self-practice during the in-between days of the weekly meetings, and engage in behavior that bans a number of activities, including doing other meditations, yoga, religious practices, watching TV shows and attending lectures on meditation, EI, religion and leadership, and participating in discussions on these topics, etc. for the duration of the study. A complete detail of these behaviors is given in the section titled Initial Instructions in the pages following.

***Treatment effect.*** The treatment effect is operationalized as the difference between the pre-treatment and post-treatment measures of the dependent variables of managers in the experimental groups (40 for Bangkok and 32 for London) who practiced meditation and those in the control groups (40 for Bangkok and 32 for London) who did not. Before the first meditation session, all participants in all groups completed the 125-Item EQ-i Bar-On Emotional Quotient Inventory Questionnaire (EQ-i) with an internal reliability of Cronbach’s alpha =0.76 (reliability above .60 is considered good (Aiken, 1997)) as well as the 25-Item Leadership Skills Inventory (LSI) with an internal reliability of Cronbach’s alpha =0.906. Scores on these questionnaires became the baseline of the treatment effect, which were compared against the scores on EQ-i and LSI questionnaires completed by the two groups in both countries at the end of the study period. The differences made the treatment effect.

## **Measuring Instruments**

We administered four instruments to measure variations in the various variables used in this study. These instruments are (1) the Screening Questionnaire (2) the Demographic Questionnaire; (3) the 125-Item EQ-i Emotional Quotient Inventory Questionnaire (Bar-On, 1997) and (4) the 25-Item

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<sup>3</sup> The word Vipassana, in Pali and Sanskrit, literally means “seeing in many ways.” It is a sitting meditation, in which the meditator focuses on an object, a central clear ball of the size of the eye pupil, imagined to be located two inches above the abdomen. As a certain level of concentration on the object is reached, the mind of the meditator becomes conscious of his/her surroundings and a true understanding of the self, called the ‘insight’, is developed.

Leadership Skills Inventory Questionnaire, adapted from the Leadership Practice Inventory (LPI) and the Moral Competence Inventory (MCI) (Kouzes & Posner, 2002; Lennick & Kiel, 2005).

*The Screening Questionnaire.* This questionnaire was used to screen and qualify for inclusion in the sample those executives who volunteered to participate in the study. It included information on gender, age, education, religion, marital status, position, and meditation practice experience.

*The Demographic Questionnaire.* This instrument was administered to all participants selected for inclusion. It collected detailed personal information, including gender, age, education, religion, marital status, position in the organization, and experience of meditation.

*The 125-Item EQ-i Emotional Quotient Inventory Questionnaire (EQ-i).* All participants, before and after the meditation sessions, in the experimental and control groups, completed the 125 items of the EQ-i Bar-On Emotional Quotient Inventory. The construction of this instrument is based on a comprehensive concept of emotional intelligence inventory developed since 1980 CE. This instrument has been tested on more than 10,000 people around the world in cross-sectional and longitudinal studies (Bar-On, 1997). It is designed to assess quantitatively the non-cognitive competencies and skills that influence an individual's ability to succeed in coping with environmental demands and psychological well-being. This questionnaire measures sub-characteristics of intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood. There are 15 emotional intelligence subscale scores describing cognitive intelligence, where the EQ score is based on a mean of 100. The individuals who score more than 100 on the EQ are considered emotionally intelligent, whereas, scores less than 100 indicate a need for change in some specific area of emotional intelligence. The individual total Emotional Intelligence scores were obtained from the MHS Online Assessments (<http://www.mhsassessments.com/UK>), scaling from 1 to 5. The internal consistency reliability of the instrument had Cronbach's alpha range from 0.69 to 0.86, with an overall average internal consistency of 0.76, which is considered good (Guilford & Fruchter, 1978).

*The 25-Item Leadership Skills Inventory Questionnaire (LSI)*. This questionnaire uses 5-point Likert Scale to collect data on various leadership actions and behaviors treated as an interval measure. It is adapted from the Leadership Practice Inventory (LPI) and some statements modified by adding moral intelligence from MCI to assess leader's self-awareness on integrity, responsibility, compassion, and forgiveness. After integrating moral intelligence with LPI, a newer version of the leadership inventory was created and passed for the content validity and internal reliability (Cronbach's  $\alpha = 0.906$ ).

### **Piloting the Instruments**

We conducted a pilot study employing an opportunistic/accidental strategy to gain some feedback on the clarity and understanding of the screening questions designed to measure variables in our study based on the general principle of demographic research (McNeill & Chapman, 2005). The pilot included the screening and demographic questionnaires as well as the leadership skills questionnaires. The first part of the questionnaire included demographic questions and the second part elicited relevant information regarding meditation practice. An introductory letter, project information and the screening questionnaires were distributed via an e-mail to the managers of large companies in London and Bangkok. Of those who agreed to participate in the pilot, 20 in London and 27 in Bangkok, were administered the questionnaires. Revisions to the questionnaires were made based on analysis of the responses from these managers. The revisions included clarified sentences and better communicated questions in the final versions of the screening and demographic questionnaires.

### **Selection of the Population**

We selected London as a representation of the West, and after considering a number of cities in Asia, picked Bangkok, Thailand as a good representation of the major commercialized Asian societies. Bangkok, like London, is a major commercial, cosmopolitan city of Asia. Thailand gives a very good representation of the Eastern cultures due to its traditions reflecting an amalgamation of the influences from most Asian cultures, particularly that of the Asian leaders, such as India, China, Japan, and

Cambodia. It embodies customs, lifestyles, and belief systems that are uniquely Asian. Additionally, Bangkok is a highly regarded commercial hub, not only in Thailand, but also in all of Asia. Firms, such as the PricewaterhouseCooper, JP Morgan, and J Walter Thompson, among many others, have opened their shops in Bangkok.

### **Sampling Frames and the Samples**

*Sample from the East (Bangkok).* Our sampling frame consisted of business leaders, such as the CEOs and senior managers, working for the large companies listed in Bangkok, primarily, on the Stock Exchange of Thailand. Each individual chief executive officer made a sampling unit of the sampling frame. After eliminating companies with missing contact information, we had a net sample of 11,489 companies. We used Excel random number generator and got a sample of 715 companies. We started the process of sample selection by emailing an introductory letter, project information, and the screening questionnaires to managers of all 715 companies in our sample. Two hundred twelve (212) of these managers showed interest in joining the study. However, on knowing the detail, 124 of them could not participate, leaving us 88 senior managers. Further, on intensive screening that took place by telephone, and e-mails, due to the conflicting circumstances, and some other reasons, finally, only 80 of them were selected to participate in the study and were randomly allocated into two groups of 40 each, one experimental group and one control group. The sample size of 40 in each experimental and control group qualified the groups to be analyzed as statistically large samples. Figure 1 gives the sampling scheme we used.

*Sampling from the West (London).* To represent the West, we picked the sample previously used by Tamwatin, et al. (2013) and Amar et al. (2014). This sample included 64 CEOs or senior managers working for the firms listed in London, UK, primarily those listed on the London Stock Exchange. These 64 managers were randomly divided into two groups of 32 each, making experimental and control groups

respectively. The sample size of 32 qualifies each sample to be analyzed as a large sample. The sampling scheme followed in picking these managers for this comparative study is depicted in Figure 1.

All four samples in the two countries were in line with our requirement that only one CEO or senior manager should be drawn from any one company to ensure that no sampling bias occurred (Coolican, 2004) and we allowed more organizations to participate. This, hence, assured enhanced validity and reliability of the outcome (Hicks, 1982).

***Initial Instructions.*** Selected CEOs/senior managers were required to give a consent to participate in the research project, but they were not revealed if they were to be in the experimental or control group. Only the researchers knew who was being put in which group. Additionally, all respondents were assured that their answers in the surveys would be kept confidential and used only for the research purposes. They were also informed of the general purpose of the research so that the congruence of the frame of reference of the researchers and the respondents were achieved. However, they were not informed of the objectives or propositions of the research to avoid any subject bias. Further, the participants were not given much attention by the expert instructor during the experiments to avoid any psychological stimulus that could enhance possibility of the Hawthorne Effect. Possible confounding variables were also eliminated. We will go over them in the next section.

## **EXPERIMENTS, DATA COLLECTION, AND ANALYSIS**

### **Experimentation**

***Controlled variables.*** Following the experiment design according to Hicks and Turner (1999) and Coolican (2004), for both cities, we controlled all confounding variables, the timing, instructional effect, and behavior outside the session chambers for the duration of the experiment such as the practice of any other meditation, other relaxation techniques such as yoga and Zen practices, travelling for relaxation purposes, group discussions on leadership skills, leadership training, television watching on EI or leadership, and visiting temples. For the convenience of the participants who, according to the Bangkok



business practices, worked 8-10 hours each day, the experiment sessions were held on the weekends. However, in London, because the weekends are typically reserved for social and family engagements, all sessions were held during the weekdays, after the usual work hours. The session timing for the next session, in each city, was scheduled collectively by a vote of the participants, at the end of each session.

As far as possible, the environmental conditions, under which the participants meditated, were controlled collectively by the participants. The meditation environment for both cultures, Eastern and Western, was a square room located in a peaceful area. To not allow religion to confound our findings, we designed this to be a secular study by not having religious mantras in meditation and removing any symbols connoting religion from the meditation area. The temperature was controlled by air conditioning set at 23°C, selected jointly by participants in Bangkok. In London, the experiment was arranged during the summer months where the room temperature varied between 20° to 25° C, as collectively desired by the participants.

### **Data Collection**

Before the beginning of the first session, all the research participants in both groups completed the 125-Item EQ-i Bar-On Emotional Quotient Inventory (Bar-On EQ-i) Questionnaire with an internal reliability of Cronbach's  $\alpha = 0.76$  (the instrument reliabilities above 0.60 are considered good (Aiken, 1997). They also completed the 25-Item Leadership Skills Inventory Questionnaire (adapted from the Leadership Practice Inventory (LPI) instrument), with an internal reliability of Cronbach's  $\alpha = 0.906$ . These two questionnaires were also completed by all participants after the last (12th) session of each experiment.

### **Method of Analysis (Statistical Treatment)**

The data were analyzed by using the Statistical Package for Social Sciences. The proposed hypotheses are tested by using MANOVA (multiple analysis of variance) and ANOVA as appropriate, to see the main and interaction effects on multiple dependent variables at 95 percent level of significance.

The factors labeled 'Group' and 'State' were identified as independent variables, Emotional Intelligence, and Leadership Skills were measured by post-meditation treatment. When measurements of the same variable were repeated on two or more occasions using the same subjects, as performed in the randomized pre-test post-test control group design, then a general linear model (GLM) including repeated measures (ANOVA, ANCOVA, MANOVA, or MANCOVA) were used to analyze the responses. The repeated measures design took the variability in the responses between the control and the experimental groups (the between subjects variance) and also individual variability (the within subjects variance) into account because the correlations between repeated measures are not modeled (Tabachnik & Fidell, 2007). A multivariate (MANOVA) model including repeated measures (pre-test and post-test) was used to test  $H_{013}$ , in which Emotional Intelligence (EI) and Self-Perception of Leadership Skills (LS) were the two dependent variables and the groups (experimental and control) were the main effect. A univariate ANOVA model including repeated measures (pre-test and post-test) was used to test  $H_{01}$  to  $H_{012}$ , with the groups (experimental and control) as the main effect.

Since, for the study of simultaneous effect of EI and Leadership Skills, there were two dependent variables in the MANOVA model and the independent variable consisted of two groups (experimental and control), Hotelling's Trace was used as the multivariate test statistic to determine if the main effect was significant. The p-values of the F statistics were interpreted to test for the main effects of the independent variable on each of the dependent variables using ANOVA.

The significance level used to test the null hypotheses in this study was  $\alpha=0.05$ . The decision rule was to reject the null hypothesis if the probability (p-value) of the test statistic was  $<0.05$ .

## **RESULTS**

### **Demographic Equivalence**

The experimental research design we used assumed that the demographic characteristics of the subjects in the control and experimental groups were equivalent. This assumption was tested with the

goodness of fit tests (Chi-square test). The  $\chi^2$  statistics based on the frequency distributions of the participants from London and Bangkok, separately (Bangkok ( $\chi^2$  (1, N = 80) = 0.417, p = 0.519); London ( $\chi^2$  (1, N = 64) = 0.166, p = 0.683) and collectively ( $\chi^2$  (1, N = 144) = 0.562, p = 0.453)), indicated no significant differences at  $\alpha=0.05$  between the control and experimental groups with respect to the participant gender, male and female.

No significant difference between the participant ages was observed in the Bangkok group ( $\chi^2$  (3, N = 80) = 3.851, p = 0.278). There were, however, significant differences between the ages of the subjects in the experimental and control groups in London ( $\chi^2$  (3, N = 64) = 17.163, p = 0.001\*) between the 36-45 age range and the 46-55 age range. However, collectively, these differences were relatively small. We could assume that the two groups were demographically equivalent ( $\chi^2$  (1, N = 144) = 2.097, p = 0.552). For complete detail, refer to Table 1.

In addition, there were clear differences based on the ethnicity of participants in London and Bangkok. For instance, participants in London were White/British and Asian/Thai in Bangkok. There were also major differences in their religions. In London, they were predominantly Christian, but Buddhist in Bangkok. These characteristics could not be controlled and became the subject of study for the comparison in these two populations.

### **Test of Normalcy and Reliability Analysis**

The experimental research design and the use of inferential statistics to test the null hypotheses assumed that the dependent variables were consistently and reliably measured, that is, the components of each variable were strongly inter-correlated so that they consistently measured the same unifying theme or construct. Values of Cronbach's alpha were estimated to determine the internal consistency reliability of all the dependent variables. This study adopted the convention that Cronbach's alpha must be at least 0.7, so reliability could be considered as adequate. The Cronbach's alpha above 0.8 indicates that reliability could be considered as good. Using the 0.8 threshold as the criterion for the reliability to be

considered good (Tabachnik & Fidell, 2007), the internal consistency of all of the dependent variables was good, as indicated by Cronbach's alpha values ranging from 0.858 to 0.934.

### **Descriptive Statistic Results and Test of Assumptions**

*Emotional intelligence and leadership skills are correlated.* Pearson's r coefficients between emotional intelligence and self-perception of leadership skills were performed to show that they were not highly correlated. However, the test results ( $\alpha=0.05$ ) show that there was significant correlation between EI and Leadership Skills (LS) for the samples in London (Pearson's r (N=64) =0.47;  $p=0.000^*$ ) and Bangkok (Pearson's r (N=80) =0.247;  $p=0.027^*$ ). However, as Pearson's r ranged from 0.247 to 0.470, MANOVA could be used. We computed Spearman's rho correlation coefficient (EI and Age: Bangkok= -0.135 ( $p=0.232$ ); London=0.029 ( $p=0.822$ ); LS and Age: Bangkok=0.070 ( $p=0.538$ ); London=0.02 ( $p=0.423$ )) and found that the correlation between EI, LS and participant age was not significant at  $\alpha=0.05$ .

### **Both the East and the West Benefit from Meditation**

ANOVA was used to test whether meditation affected each individual dependent variable. One of the major ANOVA assumptions is that the variances of dependent variables were equal across the groups. The null hypothesis of equality of variance using Levene's test was rejected at  $\alpha=0.05$  in 4 out of 6 tests. The mean (post-test minus pre-test) measures in EI and LS were consistently higher in the experimental groups than in the control groups. Thus, it can be inferred that subjects in the experimental group benefitted from practicing meditation, when compared against the control group. For a complete detail, see the descriptive statistics given in Table 2.

### **Effect of Meditation on Emotional Intelligence and Its Characteristics**

*Effect on emotional intelligence.* For the London sample, the variances between the two groups were not equal by Levene's test (Levene's  $F=12.365$  and  $p=0.001^*$ ). Hence, the null hypothesis,  $H_0I$ , was

rejected at  $\alpha=0.05$ . However, the null hypothesis of equality of variance in EI using Levene's test (Leven's  $F=0.002$ ) was not rejected at  $\alpha=0.05$  for the Bangkok sample (p-value =0.967), so the variances were statistically equal. Nevertheless, the mean measures (post-test minus pre-test) of treatment effect were higher for EI and LS in the experimental group; hence, it is inferred that meditation did enhance EI and LS in the East and the West. For the Bangkok sample, the descriptive statistics (see Table 2 for more detail) indicated that the mean (post-test minus pre-test) measures of emotional intelligence in the experimental group were consistently higher when compared to the control group. It means that the meditation did enhance emotional intelligence level in the experimental group by 15.38%. The London experimental group had its EI go up by 7.34%. However, when it came to the effect-size, the story had been the opposite. London had an effect-size of 0.523 against Bangkok's 0.204.

***Effect on Intrapersonal EI.*** Using Levene's test, null hypothesis  $H_02$  of equality of variance for intrapersonal EI was rejected at  $\alpha=0.05$  (p-value =0.003) for the London sample. The assumption of ANOVA was violated. For the Bangkok sample, using Levene's test at  $\alpha=0.05$  (p-value =0.653), the null hypothesis of equality of variance was not rejected. Nevertheless, the null hypothesis of ANOVA was rejected for both samples, London at  $\alpha=0.05$  (p-value =0.000) and Bangkok at  $\alpha=0.05$  (p-value =0.004). We conclude that for both London and Bangkok samples, intrapersonal emotional intelligence was statistically, significantly improved by the practice of meditation. The Intrapersonal characteristic went up by 5.73% for the London group and by 7.22% for the Bangkok sample. However, again, the case was different for the effect-size increase. London had effect-size of 0.747 against Bangkok's 0.102. We accept that meditation does increase Intrapersonal EI.

***Effect on Interpersonal EI.*** The null hypothesis of equality of variance using Levene's test was accepted at  $\alpha=0.05$  (p-value =0.128 for London, 0.431 for Bangkok) in both samples (Table 4). The null hypothesis of ANOVA was rejected at  $\alpha=0.05$  (p-value =0.000) for the London leaders (Table 4). Hence, meditation did enhance interpersonal emotional intelligence of the London sample for which  $H_03$  is

rejected. The null hypothesis,  $H_{03}$ , of ANOVA was not rejected at  $\alpha=0.05$  (p-value =0.389) for the Bangkok leaders.

***Effect on Adaptability.*** The null hypothesis of equality of variance of Adaptability in the experimental and control groups,  $H_{04}$ , using Levene's test, was rejected at  $\alpha=0.05$  (p-value =0.000) for the London sample (Table 4). The assumption of ANOVA was violated for the London sample. Hence, meditation did enhance Adaptability characteristic of emotional intelligence for the London sample. However, the null hypothesis of ANOVA was not rejected at  $\alpha=0.05$  (p-value =0.295) for the Bangkok sample. The effect-size was small for the Bangkok sample but medium for the London sample.

***Effect on Stress Management.*** Using Levene's test at  $\alpha=0.05$  (p-value =0.004) and ANOVA at  $\alpha=0.05$  (p-value =0.000) (Table 4), null hypothesis of equality of variance of Stress Management,  $H_{05}$ , was rejected for the London sample. The effect-size was 0.527 (Medium). However, the null hypothesis of equality of variance using Levene's test was not rejected at  $\alpha=0.05$  (p-value =0.254) for the Bangkok sample. The effect-size was small (0.149). When we look at the mean statistics for Stress Management, we find that both London and Bangkok had good increases (11.03% for London and 10.72% for Bangkok; see Table 2). Hence, based on these results, we can say that meditation does enhance Stress Management characteristic of emotional intelligence for both London and Bangkok populations.

***Effect of meditation on General Mood.*** The null hypothesis of equality of variance using Levene's test was rejected at  $\alpha=0.05$  (p-value =0.002) for the London sample (Table 4). However, for the Bangkok sample, the null hypothesis of equality of variance using Levene's test was accepted at  $\alpha=0.05$  (p-value =0.063). The null hypothesis of ANOVA was rejected at  $\alpha=0.05$  (p-value =0.000) for the London sample (Table 4). Hence, meditation did enhance General Mood characteristic of emotional intelligence of the London sample. The null hypothesis of ANOVA was not rejected at  $\alpha=0.05$  (p-value =0.534) for the Bangkok sample. The effect-size was negligible for the Bangkok sample but medium for the London sample.

## **Effect of Meditation on Leadership Skills and Its Components**

*Effect on Self-Perceived Leadership Skills.* The mean (post-test minus pre-test) measures of self-perception of leadership skills were consistently higher in the experimental groups than in the control groups (Table 3). The null hypothesis of equality of variance using Levene's test was rejected at  $\alpha=0.05$  for both samples (p-value =0.000), so the variances were not equal. The null hypothesis of ANOVA was also rejected for both samples (p-value =0.000). Hence, meditation did enhance self-perception of leadership skills for both population groups. Null hypothesis  $H_{07}$  is rejected. Just as for the emotional intelligence, while Bangkok sample experienced an increase of 10.89% in the mean effect versus London's 5.18%, the effect-size in London was 0.370 against Bangkok's 0.249. Table 3 gives detail on the changes.

*Effect on Leader as Role Model.* ANOVA assumed that the variances in the measures of self-perception of leadership skills for the Role Model component were equal across the two groups. However, the null hypothesis of equality of variance using Levene's test was rejected at  $\alpha=0.05$  (p-value =0.001) and by ANOVA at  $\alpha=0.05$  (p-value =0.000) for the Bangkok sample (Table 4). For the London sample, the null hypothesis of equality of variance using Levene's test at  $\alpha=0.05$  (p-value =0.199) and ANOVA at  $\alpha=0.05$  (p-value =0.358) were not rejected, although, the effect-size was negligible. Meditation did not help leaders in London to be better role model for their followers. However, meditation, by a small but statistically significant amount, did enhance leader's ability to be better role model in the Bangkok sample. The descriptive statistics (Table 3) indicated that the mean (post-test minus pre-test) measures of self-perception of leadership skills for acting as role model in the experimental group was consistently higher than in the control group for the Bangkok sample, on the average by 13.57%, and London by 3.42% (Table 3). Hypothesis  $H_{08}$  is rejected for the Bangkok sample but not for the London sample.

***Effect on Inspiring a Shared Vision.*** ANOVA assumed that the variances in the measures of inspiring a shared vision were equal across the groups; however, the null hypothesis of equality of variance using Levene's test was rejected at  $\alpha=0.05$  (p-value =0.003 for the London sample, 0.019 for the Bangkok sample) for the two samples (Table 4). The assumption of ANOVA was violated for both samples. The null hypothesis of ANOVA was rejected at  $\alpha=0.05$  (p-value =0.007) for the London sample (Table 4). Hence, meditation did enhance inspiring a shared vision in the London sample. The null hypothesis of ANOVA was not rejected at  $\alpha=0.05$  (p-value =0.091) for the Bangkok sample also. The effect-size was small for both samples. The descriptive statistics (Table 3) show that the mean (post-test minus pre-test) measures of inspiring a shared vision in the experimental group were consistently higher in both samples, 8.13% in the Bangkok sample and 7.67% in the London sample (Table 3). The null hypothesis  $H_0$  is rejected for both populations.

***Effect on Moral Intelligence.*** ANOVA assumed that the variances in the measures of moral intelligence were equal across the samples. However, the null hypothesis of equality of variance using Levene's test was rejected at  $\alpha=0.05$  (p-value =0.000) for the Bangkok sample (Table 4), but not for the London sample at  $\alpha=0.05$  (p-value =0.211). Nevertheless, the assumption of ANOVA was violated for both samples, at  $\alpha=0.05$  (p-value =0.002 for Bangkok and 0.011 for London) (Table 4). Hence, based on these test on the two samples, meditation does enhance moral intelligence in both populations. The effect-size was small for both samples, 0.100 for London and 0.115 for Bangkok. The descriptive statistics (Table 3) indicated that the mean (post-test minus pre-test) measures of moral intelligence in the experimental group were consistently higher than in the control group in both samples, 3.96% for London and 10.58% for Bangkok (Table 3).

***Effect on Enabling Others to Act.*** ANOVA assumed that the variances in the measures of enabling others to act were equal across the groups, but the null hypothesis was rejected using Levene's test at  $\alpha=0.05$  (p-value =0.041) for the Bangkok sample. The Enabling Others to Act variable did not see statistically significant improvement in the London sample based on the rejection by Levene's test (Table



4). The null hypothesis of ANOVA was rejected at  $\alpha=0.05$  (p-value =0.002) for the Bangkok sample (Table 4). Hence, while meditation does enhance Enabling Others to Act in the Bangkok sample, it did not do it for the London sample at  $\alpha=0.05$  (p-value =0.054). The effect-size, 0.058 for London and 0.097 for Bangkok, was small for both samples. The descriptive statistics (Table 3) indicated that the mean (post-test minus pre-test) measures of Enabling Others to Act in the experimental group were higher for the Bangkok sample by 8.38% and by 3.58% in the London (Table 3). Consequently,  $H_{011}$  is rejected for Bangkok but not for London.

***Effect on Encouraging the Heart/Motivating.*** Variances in the measures of Encouraging the Heart/Motivating were not equal across the experimental and control groups. The null hypothesis of equality of variance using Levene's test was rejected at  $\alpha=0.05$  (p-value =0.03) for London, and (p-value=0.04) for Bangkok (Table 4). The null hypothesis of ANOVA was also rejected at  $\alpha=0.05$  (p-value =0.000 for Bangkok, and 0.028 for London) for the two samples (Table 4). Hence, meditation does enhance motivating skill in leaders. Nevertheless, the effect size was small for both samples, 0.077 for London and 0.268 for Bangkok. The descriptive statistics (Table 3) indicate that the mean (post-test minus pre-test) measures of encouraging/motivating in the experimental groups were consistently higher than in the control groups of both samples, by 11.27% in the Bangkok sample and 7.27% in the London sample (Table 3) for the Bangkok sample. Null hypothesis  $H_{012}$  is rejected based on the results from both samples.

### **The Effect of Meditation on Emotional Intelligence and Leadership Skills (simultaneously)**

***Emotional intelligence increases leadership skills.*** Correlational tests performed on the dependent variables in this study, i.e., Emotional Intelligence (EI) and Leadership Skills (LS), have shown that there is a statistically significant correlation between the two variables for both the samples, Bangkok (Pearson's  $r=0.247$  at  $p=0.027$ ) and London (Pearson's  $r=0.47$  at  $p=0.0$ ). Additionally, we also found that both variables are not correlated with extraneous variables, such as the age (EI London

Spearman's  $\rho=0.029$  ( $p=0.822$ ), and Bangkok =  $-0.135$  ( $p=0.232$ ); LS London Spearman's  $\rho=0.102$  ( $p=0.423$ ) and Bangkok =  $0.07$  ( $p=0.538$ ). From these results, we conclude that EI and LS are correlated and implicate that EI increases leadership skills. To study this further using hypothesis  $H_{013}$ , we test the effect using MANOVA. The results from Hotelling's T (Bangkok =  $0.571$ ; London =  $1.601$ ) and Multivariate F (Bangkok =  $21.973$ ; London =  $1.601$ ) statistics were significant at  $\alpha=0.001$ . The null hypothesis,  $H_{013}$  was rejected ( $p\text{-value}=0.000$ ). The alternative hypothesis, that meditation does simultaneously enhance emotional intelligence and self-perception of leadership skills, was accepted.

### **Effect on Individual Samples**

Since one of the goals of this study has been to compare the effect of meditation on samples in the East and the West, through Bangkok and London, we review the results to seek answer to this question. The overall results of the study are tabulated in Table 5 as outcomes from the tests performed on the hypotheses. Discussion on individual samples is given in the following sections.

*Effect-sizes ( $\eta^2$ ) in the two samples.* When comparing the summary of results from testing of the 13 hypotheses included in this study, given in Table 6, we find that London leaders had negligible effect measure on only one dependent variable (Leader as Role Model). On the remaining dependent variables of EI and LS, 12 of 13, the effect measure was meaningful. On the contrary, Bangkok leaders had negligible effect measure on 3 (Interpersonal EI, Adaptability, and General Mood) of the 13 dependent variables.

London leaders also gained more on the effect-size for simultaneous improvement in EI and LS. The effect-size for this comprehensive dependent variable was large in the London sample ( $\eta^2 = 0.616$ ), but medium in Bangkok sample ( $\eta^2 = 0.363$ ). Thus, London leaders gained more from meditation in the form of both, the higher emotional intelligence and higher self-perceived leadership skills, taken together. These issues are detailed further in the sections below.

***Improvement in EI and LS skills for the Bangkok sample.*** Practicing meditation helps senior managers in Bangkok to improve their emotional intelligence, intrapersonal management, stress management, self-perceived leadership skills, leader as a role model skill, moral intelligence skill, enabling others to act skill, and encouraging/motivating skill. Meditation also helped them simultaneously gain higher emotional intelligence and leadership skills. Statistical analysis has shown that meditation did not help them in interpersonal emotional intelligence management, adaptability, and general mood management. We rationalize this lack of gain from the practice of meditation for Bangkok due to their previously existing habit of practicing meditation and the prevalence of these behaviors before the meditation experiment we conducted.

Since Bangkok has been taken as a valid representation of the East, by implication, we may extend the results to the East as a whole.

***Improvement in EI and LS skills for the London sample.*** London senior managers who practiced meditation significantly improved their intrapersonal EI, interpersonal EI, adaptability, stress management, general mood management, inspiring a shared vision, moral intelligence, enabling others to act, encouraging/motivating, and simultaneously gaining EI and LS. The only dependent variable that did not gain for the London sample was *Leader as a Role Model*. Overall, by this count, London senior manager sample gained more from practicing meditation than did their Bangkok counterpart. In fact, they gained an average effect size advantage of 12.003 against the Bangkok managers (Table 6). Hence, we deduce that leaders in the West can potentially gain more from practicing meditation. It may be because the population at large in the West, such as London, does not engage in meditation at the rate and frequency as does the population in the East, such as Bangkok, and gained more on meditation than their counterpart CEOs and senior managers in Bangkok.

## **DISCUSSION AND CONCLUSION**

In essence, our experiments show that businesses in America and Europe that have started meditation practice for managers at their workplaces, and some even during the work hours, assuming its positive effect on performance, are not wrong. We find that meditation does increase emotional intelligence and self-perceived leadership skills simultaneously when also improving most of the individual components that constitute these two comprehensive variables. The validity of business interest in meditation is further endorsed by the fact that a large number of CEOs/senior managers accepted our invitation to volunteer to participate in our meditation study. Though it is possible that business interest in meditation could have been influenced by general increase of interest in meditation in America and Europe, nevertheless, there is enough evidence in our study to support the decision of these businesses. Meditation can indeed enhance managers' emotional intelligence and leadership performance through an increased self-perception of leadership skills (Bandura, 1977, 1994).

When we look at all 144 CEOs/senior managers from the East and the West included in our study, we find that, in addition to simultaneously enhancing emotional intelligence and leadership skills across all samples included in our study, meditation improves intrapersonal skills that is attributed to behaviors involving self-regard, emotional self-awareness, assertiveness, independence, and self-actualization. We also learn that meditation improves leaders' ability to manage their stress that includes being able to cope with, and tolerate, stress and control impulse or temptation to act when under stress. The third finding from our experiments on the two populations of leaders is that meditation enhances leaders' moral intelligence, which helps them do the right thing, have strong ethical conviction, and behave in an honorable way, which are generally considered essential requirements to be a senior manager. The last benefit from meditation based on our study across the two samples is that, it gives leaders the ability to motivate others. All put together, meditation could have a significant effect on the development of leaders and can be deployed as a tool for that purpose.

Since our experiments also find that meditation practice simultaneously increases leaders' emotional intelligence and the self-perception of leadership skills, it is safely hypothesize that leaders can enhance their leadership skills by increasing their emotional intelligence. Further, since research correlates higher levels of emotional intelligence with positive personal and social behaviors, we further can hypothesize that meditation practice can be used to improve personal and social performance. However, their proofs are left to the future research.

### **Leaders from London Gain More**

What is indeed an interesting finding from our experiments is that leaders from London in our sample gained more from practicing meditation than did the leaders from Bangkok who had received identical treatment under identical conditions. For example, London leaders gained statistically significantly higher levels of interpersonal emotional intelligence than did the leaders from Bangkok. In other words, London leaders gained better ability to be aware, understand and appreciate others' feelings, be socially responsible, and establish and maintain mutually satisfying relationships. Meditation practice also gave them better ability to assess situations and alter emotions and feelings as demanded by the situations. In addition, meditation better helped them improve their general mood and inspire a shared vision in their followers than it did to the Bangkok managers.

**Higher effect-size advantage.** Meditation practice gave the London leaders an average effect-size advantage over Bangkok leaders of 12.003 per effect for all 13 effects we studied (Table 6). London's biggest advantage, 71.02, came in the effect-size for General Mood. It means that meditation gave them more optimism and the ability to feel satisfied. Another area in which London population did very well is the interpersonal EI for which they had the effect-size advantage of 25. It implies that London leaders walked away feeling more empathy, more social responsibility, and more able to build mutually satisfying relationships. They also had a huge effect-size advantage on Adaptability, in fact of 21.36. In other words, meditation practice gave them better ability to judge reality, adjust emotions, and solve

problems. While both leadership samples, London and Bangkok, gained on how to manage stress, the effect-size advantage that the London leaders enjoyed over the Bangkok leaders was 19.52. In sum, London managers came out gaining significantly more from meditation than did the Bangkok leaders.

### **Interpretations and Extensions**

The overall findings from our experiments suggest that meditation practice enhances emotional intelligence and self-perceived leadership skills of senior managers. Connecting our findings with the research on self-efficacy that positively links perception with performance (Bandura, 1977; 1994), we deduce that enhancement of self-perception of leadership skills translates into higher performance on these skills in organizational setting. Moreover, from the finding that emotional intelligence and leadership skills can be developed simultaneously, we interpret that some benefit could come to leadership skills of managers when they work only to improve their emotional intelligence. Further, because our study included samples from the East and the West, it can be extended that organizations, irrespective of the differences in cultures and belief systems of their managers, should see some improvement in leadership performance as a benefit of practicing meditation. Lastly, although the study was conducted on CEOs/senior managers, however, since leadership is an important management function for managers at all levels, we could say that practice of meditation can bring a positive effect to all managers.

Hence, based on the generalization given above, we can state that businesses in America and Europe that have started the practice of meditation for all their management employees are probably doing what is correct for developing them.

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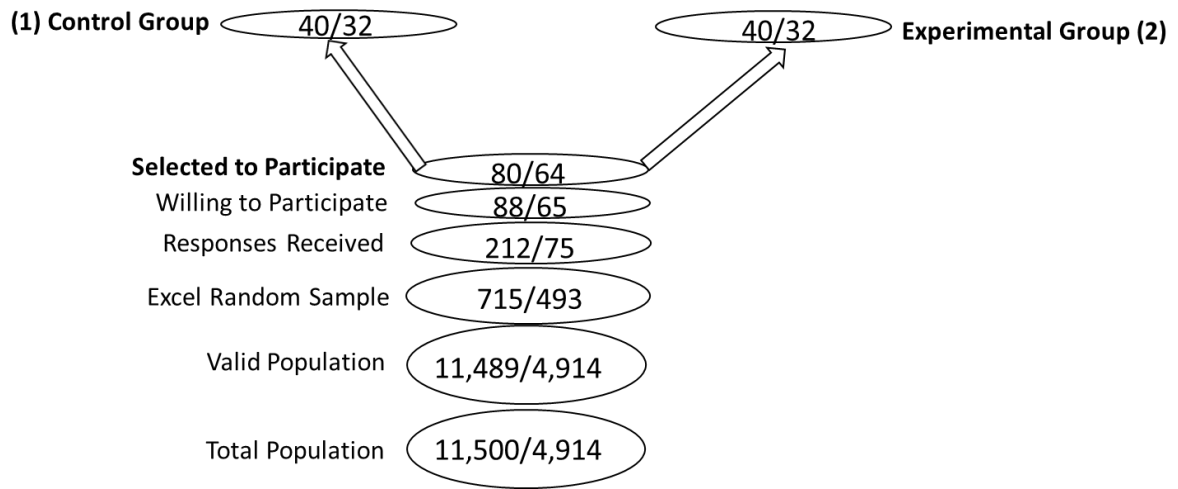
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**FIGURE 1**  
**Sample Drawing Plan for Participants in Bangkok and London**  
**(N Bangkok/N London)**



**TABLE 1**  
**Chi-Square Analysis of the Distribution of Gender and Age between the Groups**

Age	Control (Observed)		Experimental (Observed)		$\chi^2$		p Value	
	Bangkok	London	Bangkok	London	Bangkok	London	Bangkok	London
26-35	1	3	2	1	3.851	17.163	.278	.001*
36-45	14	2	9	10				
46-55	16	18	19	10				
56+	9	9	10	11				
<b>Gender</b>								
<b>Female</b>	18	9	16	24	.417	.166	.519	.683
<b>Male</b>	22	23	24	24				

**TABLE 2**  
**Descriptive Statistics of East-West Emotional Intelligence Experiments on CEOs**

Effect	Population	Group	N	Mean Effect	Increase %	Std Dev	Effect-size= $\eta^2$	London Advantage
EI	London	Control	32	-4.38		3.108		
		Experimental	32	7.34	8.6	7.412	0.523	2.56373
	Bangkok	Control	40	-0.4		14.025		
		Experimental	40	13.5	15.38	13.79	0.204	
EI-Intrapersonal	London	Control	32	-3.69		2.934		
		Experimental	32	5.13	5.73	5.983	0.63	7.875
	Bangkok	Control	40	1.7		7.776		
		Experimental	40	2.48	7.22	6.494	0.08	
EI-Interpersonal	London	Control	32	-2.47		4.859		
		Experimental	32	5.19	5.96	8.082	0.254	25.4
	Bangkok	Control	40	2.35		1.247		
		Experimental	40	3.75	4.7	1.03	0.01	
EI-Adaptability	London	Control	32	-2.88		3.883		
		Experimental	32	5.22	6.55	8.313	0.299	21.3571
	Bangkok	Control	40	2.68		1.634		
		Experimental	40	4.88	5.11	1.299	0.014	
Stress Mgmt	London	Control	32	-5.19		5.343		
		Experimental	32	9.88	11.03	8.754	0.527	19.5185
	Bangkok	Control	40	2.48		9.061		
		Experimental	40	10.53	10.72	10.172	0.027	
General Mood	London	Control	32	-3.84		8.202		
		Experimental	32	5.84	7.02	5.956	0.356	71.2
	Bangkok	Control	40	2.63		8.202		
		Experimental	40	1.63	1.9	5.956	0.005	

**TABLE 3**  
**Descriptive Statistics of East-West Leadership Skills Experiments on CEOs**  
(Leadership is denoted as L-)

<b>Effect</b>	<b>Population</b>	<b>Group</b>	<b>N</b>	<b>Mean Effect</b>	<b>Increase %</b>	<b>Std Dev</b>	<b>Effect-size=<math>\eta^2</math></b>	<b>London Advantage</b>
Leadership	London	Control	32	-1		2.155		
		Experimental	32	4.41	5.18	4.585	0.37	1.48594
	Bangkok	Control	40	0.15		5.981		
		Experimental	40	10.53	10.89	11.447	0.249	
L-As Role Model	London	Control	32	0.037		0.271		
		Experimental	32	0.113	3.42	0.369	0.014	0.08046
	Bangkok	Control	40	0		0.359		
		Experimental	40	0.515	13.57	0.714	0.174	
L-Shared Vision	London	Control	32	-0.04		0.28		
		Experimental	32	0.25	7.67	0.508	0.112	3.11111
	Bangkok	Control	40	0.125		0.375		
		Experimental	40	0.305	8.13	0.547	0.036	
L-Moral Intelligence	London	Control	32	-0.14		0.35		
		Experimental	32	0.14	3.96	0.493	0.1	0.86957
	Bangkok	Control	40	0		0.391		
		Experimental	40	0.41	10.58	0.727	0.115	
L-Enabling Others	London	Control	32	-0.05		0.356		
		Experimental	32	0.125	3.58	0.358	0.058	0.59794
	Bangkok	Control	40	-0.02		0.373		
		Experimental	40	0.125	8.38	0.567	0.097	
L-Encouraging	London	Control	32	-0.01		0.313		
		Experimental	32	0.25	7.27	0.574	0.077	0.28731
	Bangkok	Control	40	-0.07		0.358		
		Experimental	40	0.445	11.27	0.493	0.268	

**TABLE 4**

**Levene's Test for Equality of Variance and ANOVA Test for Characteristics of EI and Leadership Skills**

Effect	Levene's Test		ANOVA Statistics		Effect-size
	Levene's F London/ Bangkok	p-Value London/Bangkok	F London/Bangkok	p-Value London/Bangkok	
<b>Emotional Intelligence</b>	12.365/.002	0.001*/0.967	41.575 <sup>a</sup> /19.977	0.000*/0.000*	0.523/0.204
<b>Intrapersonal</b>	9.374/.203	0.003*/0.653	55.972 <sup>a</sup> /.234	0.000*/0.630	0.474/0.102
<b>Interpersonal</b>	2.378/.627	0.128/0.431	21.093/.75	0.000/0.389	0.254/0.01
<b>Adaptability</b>	15.666/.003	0.000*/0.959	26.440/1.11	0.000*/0.295	0.299/0.014
<b>Stress Management</b>	9.207/1.243	0.004*/20.68	69.03 <sup>a</sup> /2.139	0.000*/0.148	0.527/0.149
<b>General Mood</b>	10.590/3.545	0.002*/0.063	34.246 <sup>a</sup> /.389	0.000*/0.534	0.356/0.005
<b>Leadership Skills</b>	20.94/17.878	0.967/0.000*	18.858/21.973	0.000*/0.000*	0.370/0.249
<b>Role Model</b>	1.682/11.243	0.199/0.001*	.857/16.477 <sup>a</sup>	0.358/0.000*	0.014/0.174
<b>Inspiring a Shared Vision</b>	9.718/5.772	0.003*/0.019*	7.858 <sup>a</sup> /2.943	0.007*/0.091	0.112/0.036
<b>Moral Intelligence</b>	1.598/16.131	0.211/0.000*	6.923/10.102 <sup>a</sup>	0.011*/0.002*	0.100/0.115
<b>Enabling Others to Act</b>	.734/4.299	0.395/0.041*	3.846/10.647 <sup>a</sup>	0.054/0.002*	0.058/0.097
<b>Encouraging the Heart</b>	9.346/4.36	0.003*/0.04*	5.149 <sup>a</sup> /28.568	0.028*/0.000*	0.077/0.268
<b>EI &amp; Leadership Simultaneous</b>	<b>Hotelling T</b> 1.601/.571		<b>Multivariate F</b> 48.838/21.973	p-Value 0.000/0.000	<b>Effect-size</b> 0.616/0.363

Notes

1. DOF: London, 1,62; Bangkok: 1,78

2. \* Significant at  $\alpha=0.05$

3. a Using Welch's correction (robust test for equality of means)

**TABLE 5**  
**Summary of Results from Test of Significance on Null Hypothesis**

Null Hypotheses		Populations	
		London	Bangkok
<i>H<sub>01</sub></i>	<i>Leaders who practice meditation do not gain higher emotional intelligence than leaders who do not practice meditation.</i>	Rejected	Rejected
<i>H<sub>02</sub></i>	<i>Leaders who practice meditation do not gain higher intrapersonal emotional intelligence than leaders who do not practice meditation.</i>	Rejected	Rejected
<i>H<sub>03</sub></i>	<i>Leaders who practice meditation do not gain higher interpersonal emotional intelligence than leaders who do not practice meditation.</i>	Rejected	Not Rejected
<i>H<sub>04</sub></i>	<i>Leaders who practice meditation do not gain higher adaptability than leaders who do not practice meditation.</i>	Rejected	Not Rejected
<i>H<sub>05</sub></i>	<i>Leaders who practice meditation do not gain higher stress management than leaders who do not practice meditation.</i>	Rejected	Rejected
<i>H<sub>06</sub></i>	<i>Leaders who practice meditation do not gain enhanced general mood than leaders who do not practice meditation.</i>	Rejected	Not Rejected
<i>H<sub>07</sub></i>	<i>Leaders who practice meditation do not gain higher self-perceived leadership skills than leaders who do not practice meditation.</i>	Rejected	Rejected
<i>H<sub>08</sub></i>	<i>Leaders who practice meditation do not gain higher skill of leader as a role model than leaders who do not practice meditation.</i>	Not Rejected	Rejected
<i>H<sub>09</sub></i>	<i>Leaders who practice meditation do not gain higher skill of inspiring a shared vision than leaders who do not practice meditation.</i>	Rejected	Not Rejected
<i>H<sub>010</sub></i>	<i>Leaders who practice meditation do not gain higher skill of moral intelligence than leaders who do not practice meditation.</i>	Rejected	Rejected
<i>H<sub>011</sub></i>	<i>Leaders who practice meditation do not gain higher skill of enabling others to act than leaders who do not practice meditation.</i>	Not Rejected	Rejected
<i>H<sub>012</sub></i>	<i>Leaders who practice meditation do not gain higher skill of motivating others than leaders who do not practice meditation.</i>	Rejected	Rejected
<i>H<sub>013</sub></i>	<i>Leaders who practice meditation do not gain higher ability to be leader as measured by their emotional intelligence and leadership skills simultaneously than leaders who do not practice meditation.</i>	Rejected	Rejected

**TABLE 6**

**A Comparison of Meditation Effect on Bangkok and London Populations**

<b>Effect</b>	<b>Population</b>	<b>Effect Measure</b>	<b>Mean Effect</b>	<b>Effect-size<sup>^</sup>=<math>\eta^2</math></b>	<b>London Effect-size Advantage*</b>
Emotional Intelligence	London	Medium	7.34	0.523	2.5637255
	Bangkok	Medium	13.5	0.204	
Intrapersonal	London	Large	5.13	0.63	7.875
	Bangkok	Small	6.48	0.08	
Interpersonal	London	Medium	5.19	0.254	25.4
	Bangkok	Negligible	3.75	0.01	
Adaptability	London	Medium	5.66	0.299	21.357143
	Bangkok	Negligible	4.88	0.014	
Stress Mgmt	London	Large	9.88	0.527	19.518519
	Bangkok	Small	10.53	0.027	
General Mood	London	Medium	5.84	0.356	71.2
	Bangkok	Negligible	1.63	0.005	
Leadership	London	Medium	4.41	0.37	1.4859438
	Bangkok	Medium	10.52	0.249	
As Role Model	London	Negligible	0.113	0.014	0.0804598
	Bangkok	Small	0.515	0.174	
Shared Vision	London	Small	0.25	0.112	3.1111111
	Bangkok	Small	0.305	0.036	
Moral Intelligence	London	Small	0.14	0.1	0.8695652
	Bangkok	Small	0.41	0.115	
Enabling Others	London	Small	0.125	0.058	0.5979381
	Bangkok	Small	0.33	0.097	
Encouraging the Heart	London	Small	0.25	0.077	0.2873134
	Bangkok	Medium	0.445	0.268	
EI and Leadership (simultaneously)	London	Large		0.616	1.6969697
	Bangkok	Large		0.363	
<b>London Average Effect-size Advantage</b>					<b>12.003361</b>

^Effect-sizes are computed by ANOVA (MANOVA in case of EI and Leadership simultaneously)

\*London Effect-size Advantage is the ratio of London's Effect-size over Bangkok's.