THE DEVELOPMENT AND VALIDATION OF MINDFULNESS MEASUREMENT IN THAI BUDDHIST EMPLOYEES

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A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
Doctor of Philosophy
(Human Resource and Organization Development)
School of Human Resource Development
National Institute of Development Administration
2016

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July 2017

ABSTRACT

Title of Dissertation	The Development and Validation of Mindfulness Measurement in Thai Buddhist Employees
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Degree	Doctor of Philosophy (Human Resource and Organization Development)
Year	2016

There are several evidence proved that mindfulness can increase and improve many psychological and behavioral activities. The benefits of mindfulness get the interest of researchers to develop tools to measure mindfulness. Different types of tools have been continuously develop to measure basic to comprehensive levels.

The primary purpose of this study is to develop a valid and reliable tool to measure mindfulness in Thai Buddhist employees. The study also utilize this new tool to investigate the relationship between mindfulness and self-regulation whether mindfulness could help to increase the ability of self-regulation. Using a mixed methods study design, different types of validity evidence were gathered and investigated. Open ended questionnaire conducted with 15 Buddhist employees and literature review provided preliminary information of the psychometric properties of the mindfulness measure. Five experts evaluated the content and appropriateness of the mindfulness measure to Thai. A pilot-test administered in 100 employees and the final participants of the study were 509 Thai Buddhist employees in Thailand.

Results from the various dimensions of validity and reliability analyses showed that the 34 item-four-factor mindfulness measures were psychometrically sound and conceptually supported self-assessment of Thai Buddhist employees' mindfulness. This study underscored a discrepancy of mindfulness between meditators and non-meditators. It was emphasized that meditators showed higher level of mindfulness.

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to the members of my dissertation committee for their supportive efforts, input, and taking time from their busy schedule to be part of my committee. I would especially like to thank Associate Prof. Dr. Nanta Sooraksa who is my doctoral advisor throughout my degree program, for taking time to encourage and give invaluable suggestions that helped me finalize this study. My sincere thank go to Associate Prof. Dr. Bung-on Sorod, for serving as my dissertation chair, for not only providing methodological and practical guidance in this dissertation but also for her tireless support during my graduate study. I would also like to express my sincere appreciation to Dr. Nash Siamwalla who gave me an opportunity to attend the great Vipassana meditation class in order to exposure myself into a new experience which was very helpful for this dissertation.

I would like to thank all my five experts throughout the development of the questionnaire in my study. Recognition must be given to Dr. Seksan and Mr. Todsaphon for their statistical expertise. I am also thankful to all my friends and colleague who participated in this study for their time, effort, and insightful comments in data collection process of the current study.

My deepest thanks go to my family, the most important people in my life, for their continuous love, support, and encouragement throughout my life. Most importantly, my special thanks to my boss, Mr. Ardhiwat Vacharakul, for financial support, continuous encouragement and friendship during this process.

Matsorn Kitbumrung

February 2016

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ABBREVIATIONS

Abbreviations	Equivalence
FA	Factor Analysis
TBMM	Thai Buddhist Mindfulness Measurement
MB	Mindfulness of Body
MF	Mindfulness of Feeling
MM	Mindfulness of Mind
MO	Mindfulness of Object
SR	Self-Regulation
EVAL	Evaluating
TRIG	Triggering
SEAR	Searching
FORM	Formulating
IMPL	Implementing
ASSE	Assessing

CHAPTER 1

INTRODUCTION

1.1 Rationale and Problem Statement

Mindfulness can be defined as the self-regulation of attention to the present moment by becoming aware of the mental events at that time and taking a precise coordination of one's experiences in the present moment through curiosity, openness and acceptance (Bishop, et al., 2004). Although the concept of mindfulness has been a topic of research in the modern medical especially in psychology and organizational management in the West, it is believed that it is originated from the Buddhist Vipassana and Zen meditation theories. Mindfulness therapy is mainly used in the West for reducing stress, and as alternative form of behavior and cognitive therapy (Chiesa & Malinowski, 2011) and also to improve the physical health and interpersonal relationships (Brown, Ryan, & Creswell, 2007).

At beginning, mindfulness was widely studied in philosophy and religious field. This was because mindfulness was considered as being too spiritual with more Zen-like qualities than scientific ones for it to be accepted as a systematic analysis (Dane, 2010). In the present, mindfulness was also the interest of human resource management, education field and many other academic. It was believed that mindfulness transforms lives and organizations, and it had the potential to transform society (Gonzalez, 2012). In Buddhism, mindfulness plays significant role. According to this religious culture, it is not easily to separate mindfulness from other related concepts and analyze it in single content, as it is one part of the eight fold path which is major guidance for Buddhist (Christopher, Christopher, & Charoensuk, 2009). According to Bhikkhu Bodhi (1984) proper concentration needs a focus that is undisturbed by other thoughts and a serenity of the mind. This can be achieved only through mindfulness in order to steady the locus of awareness. However, the effects of mindfulness in the organizational environment

and its benefits and consequences for the employees in their decision making, and other important aspects has not been widely studied, although some of a few studies such as study of Dane (2010) on the effect of mindfulness on workplace performance and Dane and Brummel (2013) on workplace mindfulness and the relationship between job performance and turnover intention. In the same manner, there are various instrument developed for measuring mindfulness, it seems to have no instrument developed under Buddhism construct for measuring employees' mindfulness by particularly those working in organizations in Eastern such as Thailand where majority of people is Buddhist and has more experience in Vipassana and Zen meditation methods. The purpose of this research is to develop an instrument to measure mindfulness in Thai Buddhist employees by examining factor structure and psychometrics of mindfulness in Buddhism perspective and also validate the instrument with other mediating factors as meditation experience. Finally the study also finds out whether the instrument correlates with one of the well-known factors of coping with work life such as self-regulation.

1.2 Objectives of the Study

The purposes of this research are

1.2.1 To examine the psychometric characteristics of the mindfulness in Thai Buddhist employees

1.2.2 To develop an instrument to measure mindfulness within more Buddhism concept, to test whether a tool is efficient and valid for measuring mindfulness in Buddhist employees working in Thailand organizations who are familiar with mindfulness because of their Eastern and Buddhist orientation

1.2.3 To examine the effect of meditation experience on mindfulness

1.2.4 To examine the relationship of mindfulness and self-regulation in Thai Buddhist employees

This instrument is further developed from content analysis of the existing Western formulated mindfulness scale and the Buddhism right mindfulness. This study reviewed the effectiveness and validity of a Western constructed mindfulness

measurement scale, such as the Five Facet Mindfulness Questionnaire (FFMQ) by Baer, Smith, Hopkins, Kritemeyer, & Toney, (2006), and the Mindfulness Attention Awareness Scale (MAAS) by Brown & Ryan, (2003). The instrument developed in this study is aimed to be used for evaluating the mindfulness among employees of organizations in Thailand. There is a need for such a study in the present scenario of globalization to find out an instrument which is appropriate to the particular characteristics and behavioral patterns present in Thai employees who come from Eastern and Buddhist-oriented backgrounds.

It is anticipated that the newly developed instrument would be a contribution to the field due to providing valuable data with different constructs.

1.3 Research Questions

In specific terms, the research questions of this research would be:

1.3.1 To what extent does Thai Buddhist Mindfulness Measurement (TBMM) instrument appear to be a valid measure?

1.3.1.1 Does the hypothesized four factor structure of mindfulness scales appear to be a valid measure?

1.3.1.2 What is the reliability of Thai Buddhist Mindfulness Measurement (TBMM) formed by a set of items in the underlying scales?

1.3.2 Is there significant differences in Mindfulness between meditators and non - meditators?

1.3.3 Is there a relationship between mindfulness and self-regulation

1.4 Scope of the study

This study consists of two sections. The first of which was a systematic review of self-report measures of mindfulness which will be found in Chapter 2. The review aimed to evaluate the psychometric properties of each of the identified measures and

examine their utility for research. Definitions of mindfulness were gathered between measures, and this review provides an overview of how mindfulness has been conceptualized in the literature, its benefits, and the present mindfulness measurement tools.

The second section, this study developed an instrument in form of questionnaire being used to measure the mindfulness in Thai Buddhist employees. The reliability and validity were tested. This would be followed by Chapter 3 explaining the methodology in this research along with other details of the participants and data collection procedures. Chapter 4 would detail the various analyses done on the collected data from the measurement instrument and discuss the results from the research objective perspective in Chapter 5.

1.5 Significance of the Study

Even though, many researches on mindfulness are focused on mental health disciplines such as clinical psychology, there are an increasing number of research which pay attention to the importance of how mindfulness affects the attention of the employees in organizations to their work tasks and in related disciplines such as human resource management and strategic decision making processes improvement (Nadkarni & Barr, 2008), whether they pay attention to risks (Bazerman & Watkins, 2004), and whether they take into consideration as the important resources that are available to them (Dane, 2010).

Marques (2010) prepared a SWOT analysis of Buddhist practices in the workplace and found the following: Strengths of the Buddhist practices were seen to be pro-scientific, increased personal responsibility, and the development of a healthy non-attachment. The weaknesses of the same were found to be problems such as non-harming, less volatility, and decreased competition levels. The author listed the opportunities of Buddhist practices in workplaces with issues such as re-education of the world business environment, greater personal ownership with a more vigorous society, and enumerated the threats such as the creation of various disparities, indifference, and stagnant development.

In the present unsettled environments in organizations, the vulnerability of employees to unexpected and rapidly changing scenarios is becoming more prevalent. Hence, there is a need for replacing their automatic habits of thinking and behavior to more alert and level headed condition by encouraging mindfulness to the present events and circumstances and adapting to new practices that are more resilient and effective (Ray, Baker, & Plowman, 2011).

At the organizational level, mindfulness is shown to enhance such aspects as job performance, building better relationships, more empathetic behavior and awareness (Bhikkhu Bodhi, 2000) and thus important for the organizations as mindfulness improves clear thinking, thus leading to better decision making (Weick & Putnam, 2006).

Hunter and McCormick (2008) found that work place practice of mindfulness benefits the employees with: enhanced external awareness, greater acceptance of their work conditions, in making better practical and achievable goals, become less materialistic in their aims, in evaluating with more internally, developing greater meaningfulness than just doing their tasks mechanically, to become more adept at handling difficult situations and maintaining composure, change the perspective of threats into challenges, increase in work satisfaction and in interpersonal relationships.

Research in psychotherapy and other psycho-medical fields have shown that mindfulness can increase and improve many psychological and behavioral activities in people (Davis & Hayes, 2011) . Bishop et al. (2004) have identified mindfulness as an enhancing factor for self-control. Others such as Masicampo and Baumeister (2007) have also shared the same view while still others such as (Brown, Ryan, & Creswell, 2007; Leary & Tate, (2007) have differentiated objectivity to be enhanced by mindfulness along with Adele and Feldman (2004) who add enhanced flexibility to the list of benefits.

While Young (1997) indicates improved concentration and mental clarity, Fulton (2005) points out factors like tolerance and the capacity to associate with others as well as one's own self with kindness, acceptance, and compassion. Improved emotional intelligence that is so important in the workplace was also identified as being one of the benefits of mindfulness by Walsh and Shapiro (2006). Enhancement in processing of information (Moore & Malinowski, 2009), reduced task effort and focus on the task in

hand (Lutz, Slagter, Rawlings, Francis, Greischar, & Davidson, 2009) are other work related benefits.

Affective benefits such as the regulation of emotion, reduced reactivity and improved cognitive flexibility; interpersonal benefits such as satisfaction, management of stress constructively, enhanced communication skills in dealing with conflict, negative emotions and greater empathy; and intrapersonal benefits that concern the practitioner of mindfulness such as intuition, morality, self-awareness and understanding and even the tempering of negative emotions such as fear (Davis & Hayes, 2011). Mindfulness is useful in enhancing the emotional intelligence of employees that enables the ability to observe and identify the emotional states of others and to adjust one's own emotional state in order to improve workplace interactions (Thomas, 2006).

According to Petchsawanga and Duchong (2009), '…workplace spirituality is about feeling connected with and having compassion toward others, experiencing a mindful inner consciousness in the pursuit of meaningful work and that enables transcendence' (Petchsawanga & Duchon, 2009, p. 461). Research about whether mindfulness really matters in the workplace and if yes, how it operates and what are the benefits and outcomes would be useful to the human resource field. The instrument developed can provide a useful tool for human resource department to measure the level of their staff mindfulness.

1.6 Chapter Summary

This chapter introduces the overview of the structure of study, explaining the rational and background why this study is important. In the present unsettled environments in organizations, the vulnerability of employees to unexpected and rapidly changing scenarios is becoming more prevalent. Hence, there is a need for replacing their automatic habits of thinking and behavior to more alert and level headed condition by encouraging mindfulness to the present events and circumstances and adapting to new practices that are more resilient and effective. This leads to the objective of this study in examining the psychometric characteristics of the mindfulness in Thai Buddhist employees and developing an efficient and valid tool to measure

mindfulness in Buddhist employees working in Thailand organizations. Additionally, the tool was used to examine its relationship with self-regulation.

CHAPTER 2

LITERATURE REVIEW

Mindfulness studies are being carried out both in the medical/behavioral research as well as in the organizational behavior arena. In the psycho-medical field, mindfulness meditation practice is offered as a therapy for disorders such as depression, cognitive impairment, for reducing stress using methods such as mindfulness-based stress reduction (MSBR) (Kabat-Zinn, 1990), mindfulness-based cognitive therapy (MBCT) (Segal, Williams, & Teasdale, 2002) and so on. However, these therapy practices are not relevant as this research is related towards organizational behavior and the behavior of employees in organizations. Also, there is no plan to administer any form of therapy for improving mindfulness, but only to measure it as it is widespread among the employees.

This literature review explores the different aspects and facets of Mindfulness such as: the Definitions of Mindfulness, the Concept of Mindfulness and Meditation in Buddhism, the Concept of Mindfulness in the West, Mindfulness Measurement in the West and its Variances in the Cross-Cultural Studies, Measuring Mindfulness in the Workplace.

2.1 Definitions of Mindfulness

Mindfulness is the English translation of the Sati combined with Sampajañña, from the ancient language. This as a whole can be translated defined “Sati” as mindfulness, attentiveness, detached watching and awareness, ability to remember what one has done and spoken (P.A. Payutto, 1972). Mindfulness also explained as awareness, alertness, perspicacity, and retention (Christopher, Christopher, & Charoensuk, 2009). Bhikkhu Bodhi (Wallace & Bodhi, 2006), incorporates all these factors of mindfulness into one expression that suggests bearing in mind to pay

attention to what is taking place in one' immediate experience with care and discernment. Mindfulness has been defined as a method of fulfilling a specific attribute of attention to one's moment-to-moment experience (Kabat-Zinn, 1990). Other definitions are given in Table 2.1 below.

Table 2.1 Definitions of Mindfulness

Source	Domain	Definition of Mindfulness
Hanh (Hanh, 1976, p. 11)	Buddhism	"Keeping one's consciousness alive to the present reality."
Nyanaponika (1972, p. 5)	Buddhism	"The clear and single-minded awareness of what actually happens to us and in us at the successive moments of perception."
Thondup (1996, p. 48)	Buddhism and Academia	"Giving full attention to the present, without worries about the past or future."
Brown, Ryan, and Creswell (2007, p. 212)	Academia	"A receptive attention to and awareness of present moment events and experience."
M. Epstein (1995, p. 96)	Academia	"Bare attention in which moment-to-moment awareness of changing objects of perception is cultivated."
Harvey (2000, p. 38)	Academia	"A state of keen awareness of mental and physical phenomena as they arise within and around [oneself]."
Herndon (2008, p. 32)	Academia	"Being attentively present to what is happening in the here and now."
Kabat-Zinn (2005, p. 4)	Academia and Medical Practice	"Paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally."
Lau et al. (2006, p. 1447)	Academia	"A mode, or state-like quality, that is maintained only when attention to experience is intentionally cultivated with an open, nonjudgmental orientation to experience."
Rosch (2007, p. 259)	Academia	"A simple mental factor that can be present or absent in a moment of consciousness. It means to adhere, in that moment, to the object of consciousness with a clear mental focus."
Weick and Sutcliffe (2006, p. 518)	Academia	"Eastern mindfulness means having the ability to hang on to current objects, to remember them, and not to lose sight of them through distraction, wandering attention, associative thinking, explaining away, or rejection."

Source: Dane, 2010: 100.

2.2 The Concept of Mindfulness in the West

Christopher and Gilbert (2007) maintain that "Western psychology mandates that constructs must be explicated and operationalized to be accurately assessed. However, most Buddhist traditions dictate that mindfulness cannot be easily extracted and analyzed in isolation from inherently interrelated concepts." (Christopher & Gilbert, 2007, p. 1). They base their argument on the writings of Buddhadasa Bhikkhu (1997). Because of this modern psycho-scientific definitions of mindfulness use terms and expressions that are mainly drawn from the science of psychology and designed in the surrounding of the present-day psychological and medical research (Chiesa & Malinowski, 2011). Additionally, the definition of mindfulness has also to follow suit in order to make to more accessible and acceptable to the western psychological context: Mindful awareness as the outcome and mindful practice as a process in cognitive area.

According to Shapiro (2009), Mindful awareness is an enduring phenomenon that helps in understanding the stage of mind which is a freedom of the mind. This stage arises from factors such as reflexive conditioning and delusion. In the same manner, Mindful practice is the systematic procedure that is deliberate, open, caring and perceptive attention paid in order to understand and shape the mind (Shapiro, 2009)

2.2.1 Mindfulness Measurement in the West and its Variances in the Cross-Cultural Studies

There are several self-report mindfulness tools that have been developed including: the Mindfulness Attention Awareness Scale (MAAS) (Brown & Ryan, 2003); The Kentucky Inventory of Mindfulness Skills (KIMS) (Baer, Smith, & Allen, 2004); the Southampton Mindfulness Questionnaire (MQ) (Chadwick, Hember, Symes, Peters, Kuipers, & Dagnan, 2008) The Freiburg Mindfulness Inventory (FMI) (Buchheld, Grossman, & Walach, 2001); the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) (Feldman G. C., Hayes, Kumar, Greeson, & Laurenceau, 2007); the Five Facet Mindfulness Questionnaire (FFMQ) (Baer R. , Smith, Hopkins, Krietemeyer, & Toney, 2006); the Philadelphia Mindfulness Scale (PHLMS)
(Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008); and the Toronto Mindfulness Scale (Lau, et al., 2006). These scales can be classified under two broad categories:

those that are based on formal meditation practices and those that support the development of mindfulness through practice and improvement of behavioral skills (Lau, et al., 2006).

Research and practice of mindfulness is growing fast in Western psychology and behavioral studies. However, it is argued that the mindfulness which is based in the Eastern culture is measured using tools and scales that have been developed for Western subjects. For instance, Western oriented and developed scales such as the Kentucky Inventory of Mindfulness Skills (KIMS) and Mindful Attention Awareness Scale (MAAS) have been found to lack the cross-cultural validation which is necessary to make them reliable and appropriate for use in traditionally Buddhist cultures such as in Thailand (Christopher, Charoensuk, Gilbert, Neary, & Pearce, 2009).

Christopher, Charoensuk, Gilbert, Neary, & Pearce, (2009) conducted a study to test the cross-cultural validation of two scales: the KIMS and the MAAS on two groups of students from Thai and American backgrounds. The authors found that while the KIMS fell short of the configural invariance across the two groups, thus hampering ensuing tests on invariance, MAAS did show configural, metric and some scalar invariance but failed to provide an appreciable latent mean MAAS differences between the two culturally diverse groups. In other words, the results from the KIMS scale seem to show that the Thai students have ‘‘a much more fluid conceptualization of mindfulness’’ because, unlike the American students with mindfulness training, they do not tend to draw clear lines between the various elements of mindfulness such as observing, describing, acting with awareness, and accepting without judgment. On the other hand, the results from the MAAS scale brought a lot of similarity in the attentional component of mindfulness on which it based. This study shows that the MAAS scale is more suited for cross cultural studies, especially for those involving Thai subjects, although its main drawback is its focus on a single element (Christopher, Charoensuk, Gilbert, Neary, & Pearce, 2009).

Some authors argue that the scales used for measurement have been found to have significant differences in measuring certain variables (Chiesa & Malinowski,

2011) and not entirely reliable in measuring mindfulness across the Easter-Western cultural divide. Taking the example of the MAAS instrument (Brown & Ryan, 2003), and a sample such as one referring to the automatic actions and unawareness of the

present actions as well as the inattentiveness to them, the Western design of the instrument does not exclude actions that are in keeping with the development of the Eastern, non-conceptual mindfulness in a specific manner (Weick & Putnam, 2006).

Most of these models have been used to test the effects of meditational interventions and the outcomes of such interventions as a before-and-after tool to test the efficacy of the intervention (Shapiro S. L., Carlson, Astin, & Freedman, 2006) and not as for measuring mindfulness per se. There are also other considerations that could cause variations in the measurement using such tools, such as age, gender and ethnicity. For instance, mindfulness training shows more effectiveness in women than in men (Shapiro S. L., Carlson, Astin, & Freedman, 2006). Also, the scales need to be adaptable to the ethnicity of Thai subjects who are already well aware of the practice of mindfulness because of their Buddhist background (Kitsumban, Thapinta, Pramaha, & Anders, 2009).

Some authors, such as Rapgay and Bystrisky (Classical Mindfulness, 2009) have reservations about the appropriateness of trying to integrate the classical theories of meditation with modern mindfulness-based interventions and question what components the practitioners are assessing when they profess to measure mindfulness in the subjects. Bergomi, Tschacher and Kupper (2013) maintain that each one of the existing scales for measuring mindfulness have their own advantages as well as drawbacks and believe that none of them have been demonstrated to deliver a comprehensive assessment of all the different aspects of mindfulness.

2.3 Measuring Mindfulness in the Workplace

Mindfulness can be categorized into two types: trait and state. The trait type signifies mindfulness that is present at all times in an individual, whereas state mindfulness is that which is observed only during or just after meditation therapy. Although both these types seem closely related, the theoretical and operational distinction between them is appropriate and research has found little or no common

relationship between them (Thompson & Waltz, 2007).

As the characteristics of both these types are different, the scales that measure mindfulness of each type should also be different. For instance, TMS is used to measure

mindfulness during meditation and other scales such as FFMQ, CAMS-R, and MAAS for the measurement of trait mindfulness (Bergomi, Tschacher, & Kupper, 2013; Thompson & Waltz, 2007). The study by Thompson and Waltz (2007) found that persons with trait mindfulness may not be more mindful during meditation than those who do not have everyday mindfulness.

There are some new approaches where mindfulness is applied to organizational environment (Weick & Putnam, 2006) and those that seek to increase mindfulness in workers and managers to enhance creativity and decrease stress related factors (Langer, Heffernan, & Kiester, 1988) as well as a few that explore the mindfulness behavior in the context of the Eastern countries, such as China and Thailand, but in participants such as students for example (Christopher, Charoensuk, Gilbert, Neary, & Pearce, 2009) or elderly Thai women as another example (Kitsumban, Thapinta, Pramaha, & Anders, 2009). However, there is a dearth of literature on the measurement of mindfulness in Thai employees working in Thai organizations, although a few such as the doctoral dissertation by Park K-r (1990) based on businessmen from another Buddhist oriented country – Korea that showed the efficacy of mindfulness in increasing the productivity (Langer & Moldoveanu, 2000).

However, it is heartening to note that mindfulness measurement in organizations is slowly becoming an important stream of organizational research as a contrast to the older and more ample course of research that lay stress on routine and less-mindful work behavior. Some authors, such as Levinthal and Rerup (2006) argue that 'less-mindful processes are necessary elements underlying mindfulness' when considering work performance. (Levinthal & Rerup, 2006). Therefore, in order to assess mindfulness, the routine and habitual actions that are required for establishing mindfulness must be identified. Additionally, the components of mindfulness that help in decision making regarding the appropriate actions for the given circumstances would also be useful in learning reinforcement at the workplace by predicting the outcomes of these actions. For instance, even the positive and negative wording of the measurement scales are purported to make a difference in the measurement of

mindfulness (Van Dam, Hobkirk, Danoff-Burg, & Earleywine, 2012).

Petchsawanga and Duchon (2009) measured spirituality in the workplace in a Thai organization including factors such as connection, compassion, mindfulness,

meaningful work and transcendence. Of particular note is the use of eight items of the MAAS scale (Brown & Ryan, 2003) and one from the Freiburgh Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001; Walach, Buchheld, Buttermuller, Kleinknecht, & Schmidt, 2006). The items in the questionnaire were translated into Thai and checked by backward translation into English and then administered to more than 250 randomly selected Thai employees. The employees responded to these items demonstrating their experience of 'a mindfulness inner consciousnesses in their work time and place.

2.4 Standard Mindfulness Measuring Scales

The most commonly used scales for self-report mindfulness tools are: the Mindfulness Attention Awareness Scale (MAAS) (Brown & Ryan, 2003); the Kentucky Inventory of Mindfulness Skills (KIMS) (Baer, Smith, & Allen, 2004); the Freiburg Mindfulness Inventory (FMI) (Buchheld, Grossman, & Walach, 2001); the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) (Feldman G. C., Hayes, Kumar, Greeson, & Laurenceau, 2007); the Five Facet Mindfulness Questionnaire (FFMQ) (Baer R. , Smith, Hopkins, Krietemeyer, & Toney, 2006); the Philadelphia Mindfulness Scale (PHLMS) (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008); the Toronto Mindfulness Scale (Lau, et al., 2006) and the Southampton Mindfulness Questionnaire (MQ) (Chadwick, Hember, Symes, Peters, Kuipers, & Dagnan, 2008); Experiences Questionnaire (EQ) (Fresco, et al., 2007), Self-Compassion Scale (SCS) (Neff, 2003). Some of these are explored in this section.

2.4.1 The Mindful Attention Awareness Scale (MAAS)

The Mindful Attention Awareness Scale or the MAAS (see Appendix I) as it is commonly referred to, was designed in 2003 by K W Brown and R M Ryan to measure mindfulness, or according to their definition of it, "present-centered

attention-awareness" (2003, p. 824). It consists of a structured questionnaire with 15 items on it and scored using a six point Likert-type scale where 1 = almost always and 6 = almost never. It is a self-reported behavioral measurement of the respondents' level of awareness in the present events and experiences in which they are involved. Sample MAAS items include "I find it difficult to stay focused on what's happening in the

present" and "I do jobs or tasks automatically, without being aware of what I'm doing" and so on. The mean score is determined and higher scores demonstrate a greater level of mindfulness. When it was used by the authors on Western subjects, it proved to be internally consistent ($\alpha = 0.80 - 0.87$) and was also found reliable on re-testing after one month ($r = 0.81$). On an average, one's score could be about 3.86 out of 6. Convergent validity of the instrument was found to be satisfactory. The scale is seen to correlate negatively to the measurement of anxiety and depression and positively to the measurement of positive affect and self-esteem and can be utilized to distinguish between those who practice mindfulness and those who do not and also to predict well-being effects.

The items in the instrument reveal an indirect approach across several areas such as those that relate to the cognitive, emotional, interpersonal, physical, and general ones. The negatively worded sentences are formed to show mindlessness rather than mindfulness, for example: "I break or spill things because of carelessness, not paying attention, or thinking of something else" or "I find it difficult to stay focused on what's happening in the present." The measure is non-judgmental in character and focuses on the present moment attention and showing an 'open receptivity' to it with perception and is not evaluative.

Attitudinal elements, such as acceptance, are deliberately left out from it or are only peripheral in reference. Because of this some researchers such as Catak (2012) argue that the scale is not multi-dimensional like some of the others and its single dimensional nature does not measure mindfulness as comprehensively. Also, Shapiro (2009), referring to the research of Christopher et al., (2009), points out that the uni-dimensional approach of MAAS may not be sufficiently comprehensive to measure mindfulness across cultures. Moreover, the self-reporting and quantitative nature of the instrument would also limit the exploration of the complex mindfulness thoroughly. Instead, he recommends other more qualitative methods such as

observation, narratives, proxy reporting, and so on. Other researchers such as (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007; Bergomi, Tschacher, & Kupper, 2013) also agree to the view that a multi-dimensional scale that measures attitudinal factors such as non-judgment and acceptance are also important for a more comprehensive measurement of mindfulness.

The developers of the MAAS scale (Brown & Ryan, 2003) argue that a positively worded version of their questionnaire was not found as psychometrically sound as the usually used negatively worded version (Van Dam, Hobkirk, Danoff-Burg, & Earleywine, 2012). However, Höfling, Moosbrugger, Schermelleh-Engel, & Heidenreich, (2011) have shown that both the positively worded version and the negatively worded one are found to have psychometric limitations.

2.4.2 The Kentucky Inventory of Mindfulness Skills (KIMS)

The KIMS scale developed by Baer, Smith and Allen (2004) is designed to evaluate four skills of mindfulness, namely: observation, describing, acting with awareness and acceptance without judgment. The KIMS scale was inspired by the works on Linehan and his Dialectical Behavior Therapy (Linehan, 1993). The KIMS was designed to include characteristics not normally found in other instruments, for instance, the assessment of mindfulness in daily life, being comprehensible to all individuals irrespective of their experience in meditation, and ability to measure different aspects of mindfulness (Baer, Smith, & Allen, 2004).

There are 39 items on this 5 point Likert scale with items ranging from 1= never or very rarely true, to 5= almost always or always true. The authors found that there was a high level of internal consistency, satisfactory to good for reliability in test and retest and also in validation analysis that reinforced the linkages between mindfulness and mental well-being (Baer, Smith, & Allen, 2004).

2.4.3 The Toronto Mindfulness Scale (TMS)

The Toronto Mindfulness Scale (TMS) was developed and tested for validation by Lau et al. (2004) to measure the attainment of a mindful condition immediately after a meditation exercise. This instrument consists of ten items assessing the single factor of awareness and openness to the experiences they
underwent during the meditation. The five point Likert scale ranges from 0=not at all to 4=very much, with the higher scores indicating a heightened level of mindfulness. The items are in the past tense to indicate the experiences just gone through. The TMS has been found reliable for people who may or may not have previous mindfulness meditation experience (Bishop, et al., 2004).

The main factors evaluated by the TMS are curiosity and de-centering. Because of this, it has the advantage of being able to evaluate the de-centered attitude to experiences, which is not found in other scales. As such, the TMS is almost the only extant scale to measure state mindfulness as opposed to trait mindfulness (Bergomi, Tschacher, & Kupper, 2013). However, the factor relating to self-regulation of attention is not given much importance in this scale. Moreover, the subscale for measuring curiosity is more suitable for those undergoing MSBR than for measuring normal mindfulness (Bergomi, Tschacher, & Kupper, 2013).

2.4.4 The Self-Compassion Scale (SCS)

Self-compassion is also a concept that is derived from the Buddhist philosophy. One's compassionate acceptance of one's own deficiencies, shortfalls, disappointments and suffering as being part of the general human consciousness (Neff, 2003). Self-compassion not only involves showing kindness towards one's shortcomings but also in maintaining a balanced awareness of troublesome thoughts and feelings (Neff, Rude, & Kirkpatrick, 2007). In order to assess, self-compassion, Katrina Neff developed the Self Compassion Scale (SCS) (Neff, 2003). This is a self-report questionnaire with twenty-six items, and a shorter version that was developed later. The advantages of this tool are: the ease of administration and the short amount of time needed for the exercise. The shorter version has also been found as effective and exhibited high internal consistency as well as almost perfect correlation to the longer one (Raes, Pommier, Neff, & Van Gucht, 2011). Additionally this instrument has also been successfully translated and used in cross-cultural studies and among different ethnic groups (Deniz, Kesici, & Sumer, 2008). However, some cross-cultural studies have brought to light the differences in the levels and expression of self-compassion among the different cultures, for instance, in the study conducted by Neff, Pisitsungkagarn, and Hsieh (2008) using participants from the United States, Thailand

and Taiwan.

According to Neff (2003), the Self Compassion Scale includes mindfulness as a subscale as it is part of self-compassion. This negative subscale for mindfulness is titled as over-identification (Neff & Germer, 2012) and represents both the directions of this on the same continuum: this is because, while mindfulness describes the

awareness one has about the thoughts and feelings at the present moment, over-identification signifies the person's state being overwhelmed and taken over by the reactivity of his emotions (Neff, 2003).

2.4.5 The Experiences Questionnaire (EQ)

Fresco et al. (2007) developed the Experiences questionnaire (EQ) for assessing the ability to de-center which is the capability to consider thoughts and feelings as being of temporary or transient in nature. This is part of cognitive therapy and regarded as one of the most significant factors in the mechanism of change. The three most important core concepts of de-centering are the perspective of distancing oneself from one's thoughts, non-judgmental view of negative experiences without the habitual reactions to them and the capacity for self-compassion.

For evaluating the changes in de-centering and rumination brought about by Mindfulness-Based Cognitive Therapy (MBCT), two extra sub-scales are included in this questionnaire as the control to check bias in response. The preliminary two factor model was later changed to focus more on de-centering to provide more internal consistency. This amended EQ consists of eleven items associated with factors such as depressive rumination, avoidance of experiences, review of cognition, and suppression of feelings. The results from this 11-item questionnaire validated the EQ or de-centering scale and found to be negatively linked to self-report and assessment of the symptoms for depression (Fresco, et al., 2007).

2.4.6 The Cognitive and Affective Mindfulness Scale-Revised (CAMS-R)

The Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) (Feldman G. C., Hayes, Kumar, Greeson, & Laurenceau, 2007) for measuring the factors of mindfulness such as awareness, attention, present focus and non-judgmental acceptance. The CAMS-R is more focused on the thought and feeling aspects rather than the experience one. This instrument is not meant for teaching mindfulness skills and does not need training in meditation skills but can evaluate mindfulness that is acquired by the normal day to day living experiences, religious practices such as in Buddhism or therapeutic practices (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006).

The CAMS-R is the revised scale that was originally called the CAMS. The earlier 16 item instrument was meant to be used to measure the responsiveness of mindfulness training during therapy for depression. The revised scale has 12 items and rate on a four point Likert scale ranging from 1=not at all to 4=almost always. Higher scores on the CAMS-R reflected lesser circumvention to experiences, suppression of thoughts, contemplation, anxiety, and overgeneralization or a comparison of negative events to negative sense in oneself (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). The authors of the CAMS-R reported internal consistencies of .74 -.80, as well as negative correlations with factors such as experiential avoidance, cogitation, suppression of thoughts, worry, depression as well as anxiety. They found positive correlations with factors such as feeling clarity, repairing of mood, flexibility in cognition and in well-being. Those who had undergone integrative therapy displayed higher mindfulness scores in this scale (Hayes & Harris, 2000).

2.4.7 The Freiburg Mindfulness Inventory (FMI)

The FMI questionnaire developed by Buchheld, Grossman and Walach (2001) is a self-assessment instrument consisting of 30 items. As it was mainly meant to be used by the participants of mindfulness meditation retreats, the assessment is about the two factors of present moment observation that is non-judgmental in nature and the acceptance of negative experiences and how often these experiences are sensed during a given time period. The items are rated on a four point Likert scale that range from: almost never, occasionally, and fairly often to almost always with the higher scores depicting greater mindfulness.

The initial testing of the questionnaire on participants who had undergone intensive meditation therapy revealed around 0.94 internal consistency with the mean score displaying 1 standard deviation increase from before to after meditation therapy. However, the authors themselves found that the four factor structure did not show the requisite stability from the pre-therapy to post-therapy duration and more useful for participants with prior meditation experience. Thus they advised that the scores be interpreted uni-dimensionally and as a single total score (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). However some researchers such as (Bergomi, Tschacher, & Kupper, 2013; Walach, Buchheld, Buttermuller, Kleinknecht, & Schmidt,

2006) argue that the facets in the FMI questionnaire cannot be differentiated clearly using the factor analysis method unlike in the KIMS instrument.

2.4.8 The Five Facet Mindfulness Questionnaire (FFMQ)

The Five Facet Mindfulness Questionnaire (FFMQ) includes 39 items for the assessment of the different aspects of mindfulness such as: non-reactivity to inner experience; observing sensations, thoughts and feelings; acting with awareness and concentration; describing and labelling verbally; non-judging of experience (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). This instrument was developed by choosing the items that refer to these facets from different scales such as the MAAS, KIMS, CAMS and MQ.

The questionnaire contains 39 items on a five-point Likert scale similar to the one used in KIMS and was designed to find out how different facets are related to each other and the strength of these relationships. The retest values have not been evaluated although the KIMS scale on which it is based showed reliability figures of .65 and .83 for the observing and non-judging facets respectively. However, a later test of this scale by Carmody, Baer, Lykins and Olendzki (2009) included items that measured patience and compassion for their study on the role of mindfulness in reducing stress.

Van Dam, Earleywine and Danoff-Burg (2009) argue that mindfulness cannot be evaluated from the total score of the FFM questionnaire because it does not have a superior and inclusive factor for mindfulness and the various factors evaluated cannot be regarded to be incorporated by a hierarchical factor and so the evaluation for each factor must each be considered separately. A later analysis using this questionnaire by these authors (Van Dam, Hobkirk, Danoff-Burg, & Earleywine, 2012) led them to conclude that the wording of the items supported the validation of the FFMQ because

negative wording can be associated with the behavioral inhibitions

Table 2.2 Overview of Existing Mindfulness Measurement Scale

Measure	Source	Items	Description	No. of Construct	Construct
MAAS	Brown & Ryan (2003)	15	Behavioral measurement of the respondents' level of awareness in the present	3	Present, Centered attention, Awareness

			events and experiences in which they are involved.		
KIMS	Baer, et al. (2004)	39	Based on DBT conceptualization of mindfulness skills, assesses general tendency to be mindful in daily life.	4	Observing, Describing, Acting with awareness, and Non-judmental acceptance
TMS	Lau, et al. (2004)	13	A scale to measure state mindfulness rather than trait by measuring the attainment of a mindfulness condition immediately after a meditation exercise.	2	Curiosity, Decentering
SCS	(Neff, 2003)	26	Assess self-compassion. Describes the awareness one has about the thoughts and feelings at the present moment, over-identification signifies the person's state being overwhelmed and taken over by the reactivity of his emotions	6	Self-Kindness, Self-Judgment, Common humanity, Isolation,
EQ	(Fresco, et al., 2007)	11	Mindfulness, Over-identified, De-centering	4	Depression rumination, Avoidance of experiences, Review of cognition, Suppression of feelings
CAMS-R	Feldman, et al. (2007)	12	Assess the ability to de-center which is the capability to consider thoughts and feelings as being of temporary or transient in nature.	2	De-centering, Rumination

2.5 The Concept of Mindfulness in Buddhism

As described in the previous section, various studies have attempted to define the term mindfulness in their own context such as awareness, attention, consciousness, etc. Although mindfulness has been described in several aspects, research needs to define and clearly conceptualize the construct first and then proceed further study. Describing mindfulness as a phenomenon in its facility of changing individual and transactional capabilities and actions, Thich Nhat Hanh (1976) specified the "Seven Miracles of Mindfulness" that explain the different ways in which the three characteristics of attention, acceptance, and engagement can change intrapersonal and interpersonal transactions: being fully aware and present in the moment; enabling the presence and awareness of others; promoting and reinforcing the object of one's

attention; wish for to end suffering; observing at great length (vipassana) one's own as well as other's character and how they link to each other; being aware of and understanding the relationships between people, their lives, situations, and ourselves; and transforming suffering into being.

Analayo (2006) explains that the Pali discourses that memory will be enhanced by 'Sati' or mindfulness. This is because, the internal and external phenomena are difficult to change and would ultimately lead to dhukkha or suffering and the practitioner of mindfulness should be able to identify between predictions and misinterpretations. The clarity and awareness achieved through mindfulness reveal the truth of the present occurrence, before and beyond what the person's conceptual and categorization of the event (Chiesa & Malinowski, 2011). In this manner, mindfulness can be distinguished from wakefulness that is typified by different forms of preconceptions, barricades and reflective thinking (Brown, Ryan, & Creswell, 2007).

By combining the two approaches to cognitive processes of the Buddhist experiential and phenomenological methods of thought, perception and awareness with the modern technical studies conducted by the neuroscientists, it would be possible to achieve a more thorough understanding of the brain and its processes (DeCharms, 1998). As such, observing and labelling of the cognitive states and processes are more important than judging or transforming them (Kelly, 2008).

There are evident differences in the manner in which mindfulness is conceptualized in Buddhist oriented practices and in the psycho-therapeutic interventions visualized in the West. Because of this the measurement of mindfulness using a purely Western construct may not be suitable to measure mindfulness in a traditionally Buddhist country such as Thailand (Christopher, Charoensuk, Gilbert, Neary, & Pearce, 2009; Christopher, Christopher, & Charoensuk, 2009). The above
authors have demonstrated that Thai Theravāda Buddhist monks possessed a higher level of mindfulness than the control group of American students and the Thai students tested were placed in-between these two groups.

2.5.1 Meditation in the Buddhist Concept

Historically, the state of mindfulness was considered to be achievable only through meditational practices, such as those practiced by the Buddhists (Conze, 1956). However, it has to be noted that only some of the modern techniques of mindfulness

are based on meditation, such as the methods practiced for stress reduction (Kabat-Zinn, 1990), cognitive therapy that is centered on mindfulness practice (Segal, Williams, & Teasdale, 2002). Martin (1997) proposed that mindfulness should be considered to be a common factor in psychotherapy in general.

Thera (1962) defines meditation as being the very essence of Buddhism. Meditation involves concentration and in Sanskrit concentration is called Samadhi or the concentration on one thing (Kabat-Zinn, 2005). Meditation in the Buddhist concept has developed from the various places which adopted the faith predominantly, such as Zen meditation of the Far East, Vipassana meditation in South East Asia, Tibetian meditation and also as Yoga in the Indian subcontinent (Soler, et al., 2014). All these different types of meditations are used in the development of mindfulness. 'Vi' denotes the three qualities of mentality and physicality: impermanence (anicca), suffering (dukkha), and no-self or no-ego (anatta), whereas the term 'pasana' means realization or understanding through deep concentration of these processes (Upananda, 2012).

The term Bhavana in the Pali language signifies meditation through development of the mind and is used to denote the vast number of practical methods that are used in mental training, the system itself as well as other practices that have derived from them (Upananda, 2012). This cultivation of the mind is expected to remove negativities such as 'impurities, disturbances, lustful desires, skeptical doubts' and inculcating positive qualities such as 'concentration, awareness, intelligence, will, energy, the analytical faculty, confidence, joy, tranquility' thus leading to the ultimate realization of the highest wisdom to see things as they are and understand the ultimate truth nibbana or the Buddhist enlightenment (Upananda, 2012, p. 495)

There are two types of meditation methods that are important for developing mindfulness: the calmness or stillness meditation that is practiced first and the insight meditation that follows. However, there are some scholars who argue that insight meditation is seen as essential for liberation while stillness meditation is considered subordinate and not viewed as being important for attainment of nirvana (Kuan, 2008)

2.5.1.1 Calmness Meditation

Stillness meditation is also known as Samatha. "Samatha is the development of concentration where the mind is directed to a single point of concentration and rest on it" like breath, the tip of the nose and so on. Samantha is a training in concentration by adjustments of the body, breath, and mind towards the single point. (Cheng, 2012).

Samantha or the concentration to a single point, such as the breath serves to attain deep meditation techniques such as absorption or appana samadhi / jhana and access concentration or upacara samadhi. The concentration also serves to render calmness and tranquility to the mind by preventing harmful thoughts and feelings such as lust, greed, hatred, desire, conceit, ignorance from defiling the mind. Samantha results in achieving a certain amount of happiness through deep concentration leading to the two samadhi states of appana and upcara. However, Samantha meditation does not lead to the proper understanding of the physical and mental phenomena in their actuality (Sayadaw, 2014)

2.5.1.2 Insight Meditation

Vipasana or Insight meditation is development of mindful awareness where the tranquility arises from Samantha to see the impermanence and changing nature of our experiences. (Cheng, 2012)

The purpose of Vipassana meditation, is to conquer suffering by the proper perception of the various physical and mental phenomena in their true nature. Concentration meditation helps in attaining this. However, the regular practice of concentration is necessary and constant mindfulness of the physical and mental processes. Unlike the concentration meditation, the classification of these processes is available for concentration such as happiness, sorrow, anger, pain, stiffness and so on. Any of these mental or physical phenomena can be used as the object of insight meditation (Sayadaw, 2014).

Hence, mindfulness can be considered as the very core of Buddhism and can be equated to Buddhism itself according to Edward Conze (1962). In Satipaṭṭhāna Sutta, Buddha classifies mindfulness into four foundations: based in the body, the feelings, the mind states and the mental objects.

From the standpoint of the Buddhists, our everyday consciousness is narrowly restricted and thus causes limitations. Through practicing meditation, the individual becomes capable of emerging from these boundaries and make use of one's full range of conscious and unconscious potentialities (Kabat-Zinn, 2005). The noble eightfold path of Buddhist traditions enumerate right mindfulness as one of the most important – the other seven being: right view, right thought, right speech, right action, right livelihood, right effort and right concentration (Bucknell & Kang, 1997).

Right mindfulness involves the contemplation of the body, the feelings, the mental states and mental objects as themselves, without the addition of worldly desires or sadness (Bucknell & Kang, 1997). The Theravāda tradition of Buddhism meditation is used in the Eight Fold Path concepts of right mindfulness and right concentration and implicit in right view. Samatha and Vipassanā are the two main types of Buddhist meditation. Vipassanā being the oldest of the meditation practices, includes mindfulness at its core and traces its origin to Satipaṭṭhāna Sutta of Majjima Nikāya (Kuan, 2008). Vipassanā is practiced to attain the termination of suffering by understanding true nature of the body and mind processes (Upananda, 2012).

2.5.2 The Four Foundations of Mindfulness (Right Mindfulness)

The four foundations of mindfulness include Mindfulness of the Body (kayasati), Mindfulness of the Feelings (vedanasati), Mindfulness of the Mind (cittasati) and Mindfulness of the Mental Objects (dhammasati). According to the Sacca-vibhanga Sutta, during each of these four stages of mindful meditation, the monk contemplates the body as merely body, feelings as feelings, mental states as mental states and mental objects as mental objects, while being resolute, aware and mindful, without any worldly desires, or sadness (Bucknell & Kang, 1997).

2.5.2.1 Mindfulness of body

Mindfulness of the Body is also referred to as Kayagata-sati Sutta or mindfulness immersed in the body (Buddhadasa Bhikkhu, 1997).

Buddhadasa Bhikkhu (1997) renders a translation of the original Pali Text, Majjima Nikāya 119 that explains the method of practicing mindfulness immersed of the body: sitting cross-legged and erect in a quiet place, the individual contemplates his breathing in and out while discerning each inhalation and exhalation, concentrating only on the breathing and shutting out all other thoughts (ānāpāna-sati). This results in the settling of the mind inwardly, unified and centered. Similar mindfulness meditation is followed while sitting, walking, looking, eating, sleeping, and all other daily functions of the body. The different parts of the body are also reflected on, right from the hair on the head to the soles of the feet, both inside and out, as well as on the different aspects and properties of the body in relation to the rest of the earth including death. This dispassionate discernment of the body and its aspects serves in gathering the mind inwardly, thus becoming unified and centered, abandoning pleasure (sukha)

and pain (dukkha) and worldly worries while remaining alert, enthusiastic and determined (Buddhadasa Bhikkhu, 1997; Upananda, 2012).

Upanananda (2012) further classifies the discernment of the body and its different aspects into six stages:

1. Mindfulness of breathing
2. Understanding the four postures
3. Acting in full awareness in daily life (the sati-sampajañña formula)
4. Reviewing the body as full of various kinds of impurity
5. Reviewing the body by way of the four elements
6. Contemplating a corpse in nine different states of decomposition (Upananda, 2012)

Such contemplation practices would lead to awareness, alertness and centering and unifying the mind inwardly.

2.5.2.2 Mindfulness of the feelings

The contemplation of feelings or vedana is another practice in Vipassana or insight meditation, and undertaken as when the feelings (that can become harmful) arise in daily life – the feelings are not recalled intentionally for practicing the contemplation. Regular practice would make the individual alert and calm when such incipient emotions arise (Buddhadasa Bhikkhu, 2004). The feelings are observed as such: pleasant, unpleasant, or neutral without mixing them to take two or more of these characteristics. Feelings can arise due to the contact of the senses such as sight, smell, taste, hearing, or touch but can also arise from the intellectual contact. All these feelings are impermanent and variable and mutable (Buddhadasa Bhikkhu, 2004).

According to Nayanaponika Thera in his treatise: (Contemplation of Feeling: The Discourse-Grouping on the Feelings, 1995), mindful contemplation of the feeling has to be maintained throughout the short duration that the feeling arises to its disappearance. This is important because, repeated contemplation of the vanishing point of the feeling would enable the practitioner to snare it and thus be able to put a stop to the consequent emotions, thoughts and desires: for instance, pleasant feelings give rise to pleasure and desires, unpleasant ones to aversion or anger and neutral ones to tediousness or misperception. But these could be improperly perceived and lead to the formation of erroneous interpretations. However, the alertness in becoming aware of these feelings from their beginning to their cessation and according them bare

attention would prevent the further contaminating additions. In time, the feelings can be identified as they arise and being acquainted with their characteristics can be made to stop increasing in strength. Thus, the constant alertness in stopping the feelings from growing and adapting into craving or aversion would serve in weakening and finally severing the link between them and freeing the mind for the development of better emotions such as kindheartedness, concern, serenity, patience and self-control (Thera, 1995).

Nayanasatta Thera in his translation of the Satipattahana Sutta (1994) states thus:

> Thus he [a monk] lives contemplating feelings in feelings internally, or he lives contemplating feelings in feelings externally, or he lives contemplating feelings in feelings internally and externally. He lives contemplating origination factors in feelings, or he lives contemplating dissolution factors in feelings, or he lives contemplating origination-and-dissolution factors in feelings. Or his mindfulness is established with the thought, "Feeling exists," to the extent necessary just for knowledge and mindfulness, and he lives detached, and clings to nothing in the world. Thus, monks, a monk lives contemplating feelings in feelings.

In other words, feelings should be observed as merely feelings without assigning ownership as mine, yours etc. because feelings exist by themselves and not to the person ascribed to feeling them. This would indicate that feeling do not give a definition to an individual and should not be identified by those emotions. By understanding the impermanence and insubstantial nature of feelings, the three unhealthy roots of feelings are terminated so that there is no more greed for pleasure, aversion to pain or misconception about neutral feelings, and without any substance for involving oneself with them (Bhikkhu Bodhi, 1984).

2.5.2.3 Mindfulness of mind

The contemplation of the mind is similarly explained by Nayanasatta Thera (1994). He translates mind as consciousness. The practitioner of mindfulness of mind observes the mind dispassionately, without judgment, observing the mental states as they arise and disappear, simply as themselves: for instance, recognition of the consciousness of lust, hate, ignorance distraction, contracted state, the developed as well as the undeveloped states, mentally superior states, concentration, non-concentration, freed state as well as un-freed states, as in themselves, without ascribing them to the consciousness. Instead, the consciousness is contemplated in itself, internally as well as externally, the origination and dissolution factors in consciousness in a detached manner without assigning ownership to anything in the world, without forming opinions or ideas, through simple un-judgmental observation. This observation or contemplation brings the pattern of these states as they arise and disappear and gradually, the practitioner understands his true self.

According to Bhikkhu Bodhi (1984), in the Buddhist concept, the mind is not considered as a permanent faculty that keeps its identity even while undergoing experiences that succeed one another and are ever changing, while the mind itself is little altered by the experiences and remains the same. Buddha taught that the mind or consciousness is not a permanent subject of thought feeling and volition, but is a sequence of mental acts that are not long-lasting, although each mental act is different and separate with casual, insubstantial links to one another.

The citta or a single act of consciousness or state of mind is made up of many mental factors called cetasikas, including the most important is consciousness. Feelings, perceptions, emotions, desires are all cetasikas while the citta is the chief

consciousness that experiences them. However the citta cannot be distinguished by itself but can only be perceived through the cetasikas that bestow the citta its unique character and it can thus be accessed for meditation only through the cetasikas. The consciousness with consciousness of lust, hate, ignorance distraction, contracted state, the developed as well as the undeveloped states, mentally superior states, concentration, non-concentration, freed state as well as un-freed states without ascribing ownership to it or showing a desire for the pleasant states or aversion to the unpleasant ones, without judging them, but simply accepting them as such.

The repeated practice of such contemplation of the mind serves to lessen the crowdedness of the mind with the inappropriate thoughts, imagination and emotion and increases clarity, awareness and observation of itself evolving into an increasingly solid and stable state with streams of cittas appearing and disappearing continuously without any break, even the constant presence of the observer disappearing after some time (Bhikkhu Bodhi, 1984).

2.5.2.4 Mindfulness of objects

The contemplation of mind objects or phenomena are taught to the disciples by the Buddha in the Sattipattahana Sutta of the Pali Tiptika, included in the Majjhima Nikaya 10. Buddha explains to his disciples about the contemplation of the Dhamma (or dharma) which term signifies two values that are interlinked: the cetasikas, that are contemplated in their own right without their influence on the consciousness, (as explained in vedana-sati); and the essential features of actuality or reality, which are the ultimate components of experience. Unlike in the literary meaning of phenomenon, dhamma indicates without any noumenal assistance. Thus Buddha explains that the basic quality of this suddha dhamma or bare phenomenon is anatta or egoless-ness (Bhikkhu Bodhi, 1984).

Buddha explains the five dhammas as:

1) The five hindrances are sensual desire, animosity or resentment, sloth, restiveness and uncertainty.

2) The five aggregates are also known as the five skandhas that refer to the aggregates that are formed by the senses and are the characteristics that form an individual. Buddhas warns his disciples of clinging to the skandhas of clinging to the five sense organs and objects. By contemplating on the skandhas, and understanding

that: form or rupam, vedana or feeling, perception or sanna, mental activities or sankhara, and consciousness or vinnanam are not permanent factors, subject to suffering and are egoless (Upananda, 2012).

3) The six internal and six external sense bases are the fetters formed by the five senses and the mental objects in the mind. The practitioner contemplates them internally and externally, understands their impermanence and becomes detached and forms no attachment to anything in the world (Upananda, 2012)

4) The seven factors of enlightenment are: enlightenment factor of mindfulness, of investigation of mental factors, of energy, of joy, of tranquillity, of concentration, and that of equanimity. These factors are also contemplated upon in the same manner (Upananda, 2012).

5) The Four Noble Truths form the very foundation of Buddhism and explained as the truth of suffering or dukkha, the truth of the cause of suffering or samudaya, the truth about the end of suffering or nirodha, and the truth of the path that makes us free of suffering or magga (Upananda, 2012).

Thich Nhat Hanh (1976) further explained that the contemplation of dhamma, especially the Four Noble Truths and the other seven elements from the Eight Fold Path that forms the very core of Buddha's teaching.

Bodhi Bhikku maintains that with regards to the attainment of wisdom, the five hindrances and the seven factors of enlightenment are the narrower mental factors and should be given more important as they are the physical obstacles and help in attainment of liberation. He adds that mindfulness leads to investigation, which in turn recalls energy and then hapiness, leading ultimately to tranquillity, one-point concentration and being clam even under the stress and confused situation. As a result the mind becomes clear, cognizant and balanced.

From literature review and interview with 15 Thai Buddhist employees who have meditation experience, the psychometric characteristics of the mindfulness in Thai Buddhist employees was based on the four right mindfulness. Mindfulness construct consists of 4 factors: mindfulness of body, mindfulness of feeling, mindfulness of mind and mindfulness of object.

The first hypothesized was to test the validity and reliability of four factor structure of mindfulness scales.

Hypothesized 1: The four factor structure of mindfulness scales are valid and reliable.

2.6 The effect of Meditation Experience on Mindfulness

Kabat-Zinn (2005) describes mindfulness as "waking up" to the world around us and examining ourselves and our place and relationship with the rest of the world so as to share a harmonious existence with it. According to the Buddhist tradition, this kind of alertness, observation and examination is not found in the wakeful period normally and the consciousness is limited to a serious degree and more dream-like than actual awareness. Kabat-Zinn (2005) adds that meditation is able to mend this deficit and gain access into all the conscious as well as the unconscious aspects of our lives and derive the maximum benefits. Hence, meditation can be considered to be the very heart of mindfulness.

Meditation has been revealed to be the main factor of enhancing the fundamental principles of mindfulness such as awareness of the present moment and the mindfulness acceptance of the emotional condition (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008). In addition, it has been shown that self-reported mindfulness is higher in those who practice meditation regularly than those who were new to meditation (Moore & Malinowski, 2009), suggesting that mindfulness is closely associated to enhancements in attentional functions as well as cognitive flexibility (Moore & Malinowski, 2009).

According to Kabat-Zinn (2005), mindfulness creates greater awareness, clarity and acceptance of the present moment and makes one realize and experience the richness and depth of life and opens one's mind to the opportunities for development. However, lack of mindfulness produces problems by impacting on the automatic behaviours and actions, mainly caused by entrenched fears and anxieties. Hence, mindfulness must be cultivated in order for the over-all improvement in the everyday life of an individual. Several authors, for instance (Bodhi , 1984; Kabat-Zinn, 1990; Linehan, 1993) have pointed out that mindfulness can be learnt by everyone. Studies have also shown that meditation can enhance the inherent capability of a non-meditative individual to achieve mindfulness (Soler, et al., 2014). Hence, meditation can provide the necessary inputs to create and enhance mindfulness in persons lacking such quality

(Kabat-Zinn, 2005).

Meditation has been in use for spiritual and healing therapy for more than 5000 years and the word itself is derived from the Latin *meditari* that signifies engagement in contemplation and reflection. As such, meditation can be both a process as well as a state which factors are also attributed to mindfulness as well (Chiesa & Malinowski, 2011). The Yoga Sutras define meditation as a transitional stage between simple attention and thorough immersion in an object and the term is more equivalent to cultivation' rather than 'contemplation or reflection' (Chiesa & Malinowski, 2011). Hence, mindfulness meditation is not contemplative as it specifies non-engagement with the object. (Chiesa & Malinowski, 2011). Rapgay and Bystrisky (2009) have suggested that the meditation techniques used in enhancing mindfulness skills are very specific and appropriate for this condition.

The beneficial effects of meditation as a therapeutic intervention in mental healthcare have long been understood and utilized. Programs such as the Mindfulness-based Stress Reduction (MSBR) (Kabat-Zinn, 1984) are widely used as a complementary procedure to the classical medical and psychological interventions (Kabat-Zinn, Lipworth, & Burney, 1985). Mindfulness meditation is non-religious and non-esoteric and can enhance perception of reality and decrease negative distress and thus improve the ability to cope with pain and depression in patients as well as in the day to day living of normal individuals (Grossman, Niemann, Schmidt, & Walach, 2004). Methods used in meditation for developing mindfulness is separate and distinct from the religious and spiritual meditation practiced in the Eastern Buddhist traditions and is more scientific and incorporated into psychological understanding of the Western concepts (Hayes, 2002). The mindfulness meditation involves directing and concentrating one's attention on the moment to moment experiences of thoughts, emotions, and bodily perceptions, observing them non-judgmentally as they appear and come to an end (Hölzel, Lazar, Gard, Schuman-Olivier, Vago, & Ott, 2011).

There are various types of meditation, such as Mindfulness Meditation or Vipassana, Zen Meditation, Tibetan Meditation, Yoga and so on. Although Vipassana is the most widely recommended for improving mindfulness, research has found no significant differences between these different types in developing mindfulness traits (Soler, et al., 2014). Typically, formal mindfulness meditation can be practised in

different ways, such as sitting meditation, walking meditation and mindful movements (Kabat-Zinn, 1990), although sitting meditation is the most widely practised method.

Teasdale et al., (1995, p. 33) state:

"In formal mindfulness practice, the student sits quietly in an erect and dignified posture and attempts, non-strivingly, to maintain attention on a particular focus, commonly his or her own breathing. When the attention wanders from the breath to the thoughts and feelings that inevitably arise, the student 'acknowledges and accepts' the thoughts or feelings, 'lets go' of them, and gently redirects attention back to the breath. This procedure is repeated many times, whenever the student notices that the attention has wandered. In informal practice, students apply the same general approach as often as possible during the course of their normal day, bringing the attention back to the 'here and now', using a focus on the breath as an 'anchor', whenever they notice that attention has been diverted to streams of thought, worries, reverie, or general lack of awareness".

Through this method of meditative practice, the various factors of mindfulness, such as attention, awareness of the present moment and non-judgmental acceptance can replace the general lack of awareness, distress and automatic behavior that could be detrimental to mental and physical well-being.

Using functional and structural neuro-imaging techniques, researchers have been able to discover the neuro-scientific processes that occur during and after mindfulness meditation practice: they have observed neuroplastic changes in the anterior cingulate cortex, insula, temporo-parietal junction, fronto-limbic network, and default mode network structures (Hölzel, Lazar, Gard, Schuman-Olivier, Vago, & Ott, 2011). In an investigation using EEG, fMRI and PET studies of the brain activities of a Tibetan monk during meditative states that suggest positive emotions like compassion and devotion, observations revealed patterns of neural signatures that
are capable of being replicated at the will of the participant. This indicates that it is possible to control how we process and express feelings through specific forms of training in meditation (Kabat-Zinn, 2003).

Recently, the study of how different aspects of mindfulness can be cultivated through meditation and how effective this can be has become popular and widespread. For instance, Shapiro et al., (2008) studied how mindfulness can be enhanced by

meditation-based interventions and found that there was marked increase in mindfulness scores as well as reduction in stress and rumination.

Similarly, another study by Soler et al., (2014) measured how the various factors of mindfulness were influenced by meditative practice. The internet-based participants included those with and without previous meditative practice. They found that those with previous meditative practice scored higher in the Five Facets Mindfulness Questionnaire and the Experiences Questionnaire that were used for the measurement. The authors found that frequency and life-time practice of meditation was relevant for development of higher mindfulness skills, and that the type of meditation or the length of the sessions were not so relevant. They further selected three aspects that were most influenced by meditation: observing, non-reactivity, being the most responsive to improvement by practice and decentering to a certain level. The authors recommend that life-time practice of meditation had an accumulative effect on the development levels of mindfulness skills and it is more useful to meditate for short periods of time on a daily basis than to meditate for longer periods on a weekly basis (Soler, et al., 2014).

Other researchers have found that brief periods of training in mindfulness meditation is not only able to reduce distress and enhance positive mood conditions, it also scores over somatic relaxation techniques because of its capability in decreasing distraction and rumination in thoughts and behaviors. This factor is useful in reducing distress to a greater extent (Jain, Shapiro, Swanick, Roesch, Mills, & Bell, 2007).

Jha, Krompinger and Baime (2007) suggest that mindfulness meditation practice enhances attention-related behavioral responses through influencing certain components of attention such as alerting, orienting, and conflict monitoring. They also found that while first-time mindfulness meditation improved attention orientation, continued mindfulness meditation improved these skills further and resulted in the further development of receptive attention skills such as alerting.

Meditation was observed to increase brain electrical activity as well as enhance immunity function. Meditation improved the positive influence while decreasing the negative affect over time on subjects who were regular meditators, when compared to that of non-meditators. This evidently proves that even a short training program in mindfulness meditation can bring about changes in the brain activity in a positive

manner, leading one to conclude that meditation can not only enhance mindfulness but also increase positive affect while reducing the negative ones (Davidson, et al., 2003).

This study was to determine whether there are any significant differences between the mean of level of mindfulness in different groups based on meditation experience. It was hypothesized that level of mindfulness exhibited in employees who have meditation experience would be higher than those exhibited by employees who have no meditation experience.

Hypothesis 2: Employees with different meditation experience revealed different level of mindfulness.

2.7 Mindfulness and Self-Regulation

With the advent of the modern methods of communication and information and the fast paced life styles, the levels of stress and distractions have been continuously increasing. Due to this there is a need for more self-regulation of thoughts, feelings and actions. There are many self-regulation interventions and techniques that have been devised to enhance self-control such as relating posture, using one's non-dominant hand, speech, studying, financial monitoring and so on (Masicampo & Baumeister, 2007). This study explores the different facets of self-regulation through studying the Self-Regulation Questionnaire (SRQ) formatted by Brown, Miller and Lawendowski (1999), and then, investigates the relationship between self-regulation and mindfulness, especially with reference to the four foundations of mindfulness. This investigation is also studied to validate the reliability of mindfulness instrument developed.

2.7.1 Self-Regulation and the Self-Regulation Questionnaire

To define the concept: "Self-regulation is the ability to develop, implement, and flexibly maintain planned behavior in order to achieve one's goals" (Brown, et al., 1999, p. 281) or in simpler terms it is a constant behavioral adjustments made by individuals to sustain the harmony between one is doing and what one would like to do (Bermudez, 2006). Self-regulation skills are seen as desirable in order "to delay gratification in the short term to achieve desired outcomes in the future" (Carey, et al., 2004, p. 253).

The Buddhist teachings in the Abidharma describe the twelve nidanas or links through which a person are able to perceive or consider an object, evaluate its desirableness or otherwise and act according to that inclination (Taylor & Mireault, 2008)

Kanfer (1970) suggested a three-step theory of self-regulation of one's behaviour: self-monitoring, self-evaluation and self-reinforcement. Later, Carver and Scheier (1982) added the feedback loop concept and suggested that the process of self-regulation required a certain goal or standard for comparing one's present behavior and deciding on the change required and after the implementation of the change, re-visiting the earlier set goals to find out if it has been achieved or whether there is need for further changes. This was still further elaborated into seven steps by Miller and Brown (1991).

Brown, Miller and Lawendoski developed the SRQ questionnaire as a self-report tool to measure the processes of self-regulation. They based this questionnaire on the work of Miller and Brown's seven step model (Miller & Brown, 1991) of receiving, and evaluating information about the relevant behavior, triggering changes that are needed, by searching for options, and then formulating and implementing a suitable plan and assessing its efficacy by looping back to the first two steps. The questionnaire consists of 63 items categorized into these seven sub-processes and scaled after the Likert scale with five points ranging from strongly disagree to strongly agree and scored on the reverse scale. A shorter version of the scale called the short self-regulation scale (SSRQ) was developed by Carey, Neal and Collins (2004) for assessing self-regulation capacity with a single factor to represent the overall self-regulation capacity.

The SRQ has been tested many times to prove the psychometric qualities of the concept, for instance to evaluate the self-regulation in widely ranging subjects such as those who have problems with alcohol, drug abuse: (Neal & Carey, 2005; Patock-Peckham, et al., 2001), in psychological well-being of communities who are faced with socio-economic disparities (Potgieter & Botha, 2009; Vosloo, et al., 2013), the relationships between different time perspectives, self-regulation and achievement motivation (Stănescu & Iorga, 2015) and so on.

2.8 The Relationship between the Four Foundations of Right Mindfulness and Self-Regulation

Suffering or dukkha in the traditional Buddhist context, is a result of a lack of awareness of the two fundamental factors of experience: habitual yearning or attachment and aversion; and the impermanence of all phenomena. To reduce this suffering, four meditative practices such as ātāpi (well-adjusted force of effort and diligence), sampajaña (the perception of perfect discernment), mindful awareness and freedom from desire and discontent (Vago & Silbersweig, 2012). Right mindfulness includes the contemplation of the body, the feelings, the mental states and mental objects as distinct entities without the addition of worldly desires or sadness (Bucknell & Kang, 1997).

The four foundations of right mindfulness include Mindfulness of the Body (kayasati), Mindfulness of the Feelings (vedanasati), Mindfulness of the Mind (cittasati) and Mindfulness of the Mental Objects (dhammasati). The Sacca-vibhanga Sutta describes the state of the monk during each of these four stages of mindful meditation: the monk considers the body as merely body, feelings as feelings, mental states as mental states and mental objects as mental objects, and at the same time being resolute, aware and mindful, devoid of any worldly desires, or sadness (Bucknell & Kang, 1997). The four qualities of mindfulness, including self-awareness form an advanced system for self-monitoring (Vago & Silbersweig, 2012) leading to self-regulation.

Bishop et al., (2004) define mindfulness as the self-regulation of attention to the present moment by enhancing the awareness of mental events at the present time and accepting a detailed harmonization of the experiences at that time by way of openness, curiosity and acceptance. One of the two features suggested by Bishop et al. (2004) that is based on the operational aspects of mindfulness as defined by Kabat-Zinn (1990), is the self-regulation of attention towards the present moment. This classifies mindfulness as a state or skill that emerges only when the person is directing the attention resolutely (Chiesa & Malinowski, 2011). Thus, self-regulation is one of the main components of mindfulness and conversely, self-regulation can be achieved using the techniques of mindfulness. However, Lau et al. (2006) found that the active self-regulation of

attention as defined by Bishop et al could not be substantiated in their study.

According to the Buddhist traditional teachers of meditation, the practitioners are expected to just sit without any aim or goal, and that is contrary to the self-regulation process of working towards a goal (Taylor & Mireault, 2008). There is also the view that sustained attention to the present moment is not possible while actively being open and inviting to other experiences at the same time (Brown & Ryan, 2004). However, most researchers agree that both the processes of self-regulation and mindfulness overlap somewhat, and many have used the mindfulness techniques to study the efficacy of mindfulness as a self-regulation intervention: for instance, (Chambers, et al., 2008; Chambers, et al., 2009; Vago & Silbersweig, 2012)

According to Taylor and Mireault (2008), mindfulness skills have been observed as aiding and enhancing the ability to monitor the progress one makes towards the desired goal, and also in scrutinising the urges that affect with this progress. Taylor and Mireault (2008) substantiate their claim by citing four studies that have made use of mindfulness interventions such as intensive meditation that was shown to decrease substance abuse among prisoners (Bowen, et al., 2006); the study by Linehan et al. (2006) that successfully used mindfulness technique known as Dialectical Behavioral Therapy to decrease self-harming tendencies in patients with borderline personality disorders; Kristeller and Hallet (1999) and also Telch Agaras and Linehan (Telch, et al., 2001) used MBI techniques to treat women with binge-eating disorders. However, all these studies deal with impulse behavior modification and not directly on behavioral self-regulation.

The traditional Buddhist concept of attention is a constantly changing factor of consciousness whereas awareness is a specific state that is stable (Rapgay & Bystrisky, 2009). Because of this some researchers feel that mindfulness training may not be the suitable intervention for problems that need to focus on changing thoughts, feelings and behavior (Teasdale, et al., 2003).

In conclusion, the following facts were understood from this literature review: Self-regulation is a necessary skill for removing stress and strain from the fast-paced life in the modern world, and change one's undesirable behavior to move towards a chosen goal. The SRQ delineates seven steps for achieving Self-regulation interventions involves the seven steps of receiving, evaluating, looking for options, initiating change,

planning and implementing the modified behavior and assessing whether the goal has been achieved.

As self-regulation is widely used to modify behavior or study the behavioral changes of special groups of people who are undergoing undesirable challenges, many intervention methods are being used. One of these is the mindfulness based intervention technique. As mindfulness is based on the control of self-awareness and attention, it is seen as a suitable and comparatively easy method of self-regulation. This research also examine the relationship of mindfulness and self-regulation. It was hypothesized a positive relationship between mindfulness and self-regulation. Employees who have higher mindfulness would reflect higher level of self-regulation

Hypothesis 3: There is a positive relationship between mindfulness and self-regulation

2.9 Conceptual Framework

This step is to prepare conceptual framework to perform confirmatory factor analysis of definition and factor defined. Apart from literature review, this study performs depth interview with 15 Thai Buddhist employees who has experience in meditating. Surveys through depth interview have the added advantages of making it possible to get data regarding the meaning and factor of mindfulness from Thai Buddhist employees. From this depth interview, the author would understand more about mindfulness in Thai people. Purposive sampling has been used in this study to prepare conceptual framework to perform confirmatory Factor Analysis of definition and factor defined, depth interview will help to get procedures, conditions or opinions of the participants at a particular point that is relevant for mindfulness in Thai Buddhist employees. This study defines to study 15 participants which has been randomly selected and interviewed. Together with the 15 participants, author also shared the experience of attending the Vipassana meditation for 8 days which helps the author to have more understanding on the mindfulness and meditation. From interview and author's experience, it has been found out that the understanding of eah participant about mindfulness concept as Buddhist are different

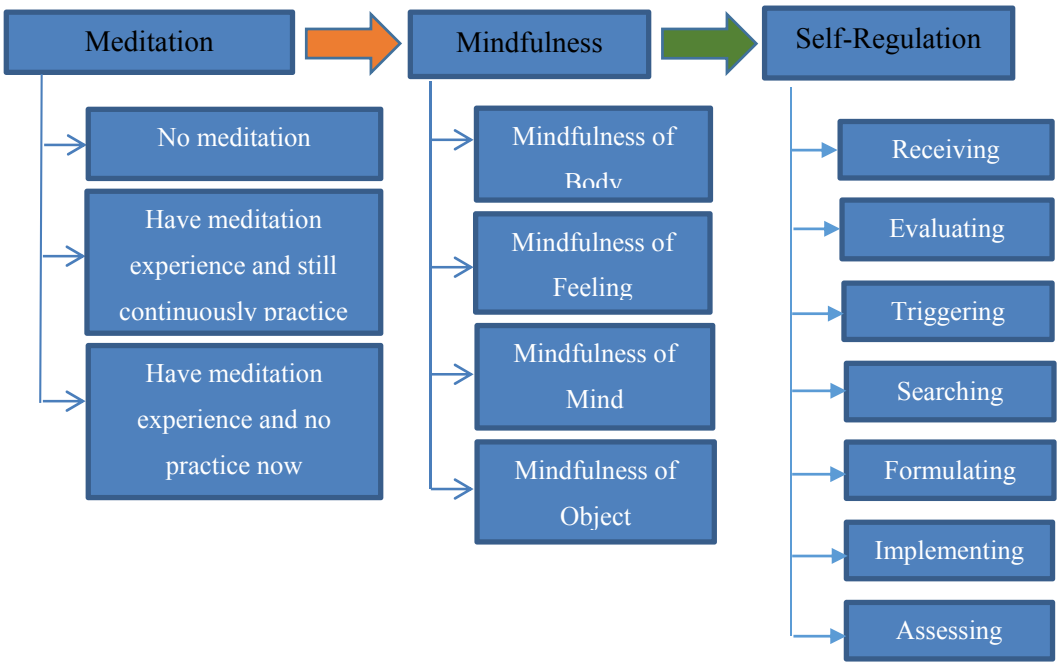

Figure 2.1 Conceptual Framework

2.10 Chapter Summary

This chapter explained the definition and benefit of mindfulness from several previous research and study. Mindfulness can be categorized into two types: trait and state. As the characteristics of both these types are different, the scales that measure mindfulness of each type should also be different. From the literature review, the concept of mindfulness from Eastern and Western perspective has been explained which shows similarities and differences. Thai Theravāda Buddhist monks possessed a higher level of mindfulness than the control group of American students and the Thai students tested were placed in-between these two groups. Buddhist follows the four foundations of mindfulness include Mindfulness of the Body (kayasati), Mindfulness of the Feelings (vedanasati), Mindfulness of the Mind (cittasati) and Mindfulness of the Mental Objects (dhammasati). According to the Sacca-vibhanga Sutta, during each of these four stages of mindful meditation, the monk contemplates the body as merely body, feelings as feelings, mental states as mental states and mental objects as mental objects, while being resolute, aware and mindful, without any worldly desires,

Additionally, there is an effect of meditation on mindfulness. The meditation can

help to improve the level of mindfulness. There are two types of meditation methods that are important for developing mindfulness: the calmness or stillness meditation that is practiced first and the insight meditation. The review also summarized the eight existing mindfulness measurement; the concept of each measurement, what are the construct, the reliability and validity which shows that a person could score highly on mindfulness on one measure and low on another, which brings into question what exactly is being measured and how valid these tools of assessment really are. In terms of selecting a measure for research or practice, it is important to choose a measure which best captures the aspects of mindfulness which need to be changed.

Research examining the consequences of mindfulness on self-regulation which focused on the intrapersonal consequences, leaving potential interpersonal consequences of self-regulation largely unexamined. This study will examine the relationship of mindfulness and self-regulation.

CHAPTER 3

METHODOLOGY

This chapter describes research methods used in this study. As the research was to examine the psychometric characteristics of the mindfulness among Buddhist employees of organizations in Thailand, this research will first define the meaning of mindfulness, the factor of being mindfulness in Buddhist Thai employees which was based on the Buddha doctrine: The Four Foundation of Mindfulness. Next, the development process was described. The tool would then be tested for reliability and validation by disseminating it among employees of Thai organizations. The data from the different scales would be analyses and compared to find out the validity and reliability of the instrument.

3.1 Research Paradigm and Approach

The objective of this study was to develop an instrument to measure mindfulness of Thai Buddhist employees. The instrument was developed in form of questionnaire. The questionnaire have had a series of structured questions and the responses graded on a six point Likert scale from almost always to very rarely/never. This would facilitate the analysis of the data through quantitative analytical methods. In addition, the items were administered in a survey format. Surveys through a questionnaire had the added advantages of making it possible to get data regarding procedures, conditions or opinions of the participants at a particular point that is relevant for measuring the mindfulness. The study has adopted research process as follow:

3.2 Sampling and Data Collection

The sample frame of this study would be designed from Thai Buddhist employees. The participants were convenience randomly selected from Thai

organizations. The sampling participant was structured into two (2) groups. The first group of participants were selected to be a pilot group to test the instrument developed. The second group of participants were selected to try out the revision of instrument. The details are as follows.

Group 1: Instrument Development

Hundred (100) participants were selected to test the instrument developed. Instrument was distributed to two (2) groups of participants. First group of fifty (50) participants was purposive random selected from those who were meditators and second group of fifty (50) participants consists of non-meditator.

Group 2: Instrument Revision and Validation

Instrument was finally tried out in five hundred and nine (509) participants to test reliability and validity.

3.3 Instrument Development

The study examined and defined the psychometric of mindfulness in terms of four foundation of mindfulness: body, feeling, mind and object. An initial version of the instrument measuring mindfulness in Thai Buddhist employee was developed based on the conceptual framework in Thai language as follows:

1. Initial item pool was constructed based on conceptual framework, theory and related researches. The researcher analyzed all the information provide by previous research and generated statements that could be used.
2. The initial item pool was then reviewed by dissertation advisor in order to investigate the correctness and proceed with the adjustment to make sure the items can cover the operational definition of each component.
3. All of items defined was assessed by five (5) mindfulness expert for the examination of content validity. The purpose of this expert review is to investigate whether the instrument and its instruction are understandable. Five experts are identified based on two criteria which are as: experience as mindfulness practitioner and active as a trainer or a coach in the mindfulness.
4. The content experts reviewed items and provided recommendations on each item's clarity and wordiness including removing and adding items to cover the

completeness of measurement on each component.

5. The researcher finalized the revision of all items based on all the recommendations. The instruments were then prepared in Thai and English and submitted to the 5 experts again for rating of content and face validity. The mindfulness measurement consisted of 43 items in 4 factors as follows:
    - Mindfulness of Body contains 10 items
    - Mindfulness of Feeling contains 10 items
    - Mindfulness of Mind contains 10 items
    - Mindfulness of Object contains 13 items

3.3.1 Self-Regulation Questionnaire

The Self-Regulation Questionnaire (SRQ) measures beliefs about one's ability to ''develop, implement, and flexibly maintain planned behavior'' (Brown, Miller, & Lawendowski, 1999, p. 281). These components comprise 7 factors are 1) Receiving, 2) Evaluating, 3) Triggering, 4) Searching, 5) Formulating, 6) Implementing and 7) Assessing. The SRQ measurement consisted of 63 items in 7 factors as follows:

- Receiving contains 9 items
- Evaluating contains 9 items
- Triggering contains 9 items
- Searching contains 9 items
- Formulating contains 9 items
- Implementing contains 9 items
- Assessing contains 9 items

3.3.2 Content Validity

The content validity was assessed by 5 content experts to judge the construct relevancy of items, the wording clarity, and design of items using the Index of congruence (IOC). They reviewed each item and then used 3 scale to judge the items. Experts were asked to rate the quality of item as "+1", "0" and "-1".

+1 when agree that the item was relevant with the construct and behavior

0 when hesitate that the item was relevant with the construct and behavior

-1 when disagree that the item was relevant with the construct and behavior

Table 3.1 Example of IOC

Factor	Item	Opinion			Recommendation
		+1	0	-1	
1. Mindfulness of Body	I am now aware of my breathing; in-out/ short-long.				
	When I stand, I deliberately notice the sensations of my body from head to toe.				
	When I'm walking, I deliberately notice the sensations of my body moving.				
	.....				

The result of content validity by IOC was show in Appendix C. The items were adjusted according to the recommendation from the experts. The items with IOC value less than 0.50 was removed.

3.3.2.1 Item Scale

The mindfulness measurement and self-regulation measurement were presented in a five-point Likert format (1 = strongly disagree, 5 = strongly agree).

Table 3.2 Example of Mindfulness Questionnaire and Self-Regulation Questionnaire

Instructions: Please mark (✓) the number which best reflects your opinion					
Items	**Opinion**				
	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
0. I usually keep track of my progress toward my goals.....					
00. My behavior is not that different from other people's.....					
000. Others tell me that I keep on with things too long.....					

3.3.3 Pilot Test

The revised measurement were evaluated with the pilot group. A pilot test was administered to investigate the reliability of instrument in 100 Thai Buddhist employees which was divided into 2 groups; 50 meditators and 50 non-meditators.

Discrimination analysis was run to assess the adequacy of a classification, given the group membership and assign objects to one of a number of groups of objects. An item-total correlation test was run for each of the item which the standard value must be greater than 0.20. The items with less than 0.20 were removing. The result from the analysis of the pilot data was shown below.

Table 3.3 Mindfulness Pilot Test Discrimination

Items	**CITC**	**t**	**Sig.**	**Results**
Mindfulness of Body				
1. I am now aware of my breathing; in-out/short long	0.514	2.945*	0.005	Accepted
2. When I stand, I deliberately notice the sensations of my body from head to toe	0.569	3.744*	0.001	Accepted
3. When I'm walking, I deliberately notice the sensations of my body moving.	0.648	5.314*	0.000	Accepted
4. When I take a shower or bath, I stay alert to the sensations of water on my body	0.592	5.202*	0.000	Accepted

Table 3.3 (Continued)

Items	CITC	t	Sig.	Results
5. When I brush my teeth, I notice the movement of move-take-brush my teeth continuously	0.590	2.838*	0.007	Accepted
6. While I have my meal, I feel my hand moving to take food, I feel my chewing	0.672	3.475*	0.001	Accepted
7. When I am "running on automatic", I can aware what I'm doing	0.328	2.589*	0.013	Accepted
8. I do jobs or tasks automatically without being aware of what I'm doing	0.182	1.279	0.207	Rejected
9. I find it difficult to stay focused on what's happening in the present	0.103	1.278	0.100	Rejected
10. I find myself doing other activity while at the same time listening to other people	-0.009	1.824	0.075	Rejected
Mindfulness of Feeling				
11. When I have a pain in my body, I can usually describe how I feel at the moment in considerable detail	0.192	-1.956	0.057	Rejected
12. I watch my feelings of pain without getting lost in them	0.077	1.240	0.093	Rejected
13. When I depart from beloved people things, I feel sad	0.080	1.980	0.054	Rejected
14. When I lose my things, I feel sad	0.523	4.880*	0.000	Accepted
15. When miserable happened, I feel that	0.572	2.853*	0.006	Accepted
16. When I have a pain in my body, I also feel pain in my mind	0.413	2.809*	0.007	Accepted
17. When I face difficulties in my life, I feel sad	0.591	6.055*	0.000	Accepted
18. When I see or hear about sadness, depress, unsatisfied, I feel frustrated	0.536	3.054*	0.004	Accepted
19. When I see un liked things or people, I feel depress, annoyed	0.478	2.546*	0.014	Accepted
20. I perceive my feelings and emotions without having to react to them	0.560	2.051*	0.046	Accepted
Mindfulness of Mind				
21. I am aware of anxiety, I just notice it and accept the nature of it	0.590	2.159*	0.036	Accepted
22. I find myself not stay focused but I can step back to what's happening in the present	0.562	3.199*	0.002	Accepted
23. I am able just to notice my thoughts without any judgment	0.585	2.208*	0.032	Accepted

24. When I feel muddle, I am able to notice it	0.445	2.440*	0.019	Accepted
25. When I feel annoyed, I am able just to notice them without reacting	0.555	5.214*	0.000	Accepted

Table 3.3 (Continued)

Items	**CITC**	**t**	**Sig.**	**Results**
26. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it	0.534	3.519*	0.001	Accepted
27. When I miss someone, I can notice that feeling and not let myself feel sad on that feeling of missing	0.573	4.205*	0.000	Accepted
28. I am sad, I am able just to notice without getting taken over by it	0.551	3.099*	0.003	Accepted
29. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted	-0.065	0.383	0.704	Rejected
30. When I have distressing thoughts or images, I feel calm soon after	0.405	8.291*	0.000	Accepted
Mindfulness of Object				
31. When my emotion starts to change, I can notice it	0.576	8.014*	0.000	Accepted
32. When I have a sensation in my body, I can describe how I feel such as cold, hot, soft, hard	0.633	7.178*	0.000	Accepted
33. When I see things, I am aware of that seeing	0.618	6.073*	0.000	Accepted
34. When I hear sounds of things, I am aware of that hearing	0.647	6.206*	0.000	Accepted
35. I notice the smells and aromas of things	0.628	5.063*	0.000	Accepted
36. I notice the taste of food with my tongue	0.630	5.671*	0.000	Accepted
37. I am able to notice and understand well of the change in my body	0.491	5.527*	0.000	Accepted
38. When I do not get things being under my will such as not to be old, not to be sick, I feel sad	0.150	1.458	0.152	Rejected
39. I am able to smile to the difficulties in my life	-0.296	1.144	0.259	Rejected
40. When I have distressing thoughts or images, I just notice them and let them go	0.475	3.354*	0.002	Accepted
41. I am able to deliberately consider what happened to me from the beginning to the end without any reacting	0.419	3.851*	0.000	Accepted
42. I am able to accept things which I cannot change	0.510	3.876*	0.000	Accepted

43. When I am separated from my beloved people such as parents, I feel really sad and cannot accept that	0.348	3.172*	0.003	Accepted

Note: * Significant at the 0.05 level

Table 3.4 Self-Regulation Pilot Test Discrimination

Items	CITC	t	Sig.	Results
Receiving				
1. I usually keep track of my progress toward my goals	0.140	-1.247	0.219	Rejected
2. My behavior is not that different from other people's	0.124	0.083	0.935	Rejected
3. Others tell me that I keep on with things too long	0.445	5.661*	0.000	Accepted
4. I doubt I could change even if I wanted to	-0.013	1.994	0.052	Rejected
5. I have trouble making up my mind about things	0.328	-2.800*	0.007	Accepted
6. I get easily distracted from my plans	0.262	4.155*	0.000	Accepted
7. I reward myself for progress made toward my goals	0.489	4.208*	0.000	Accepted
8. I don't notice the effects of my actions until it's too late	0.323	2.280*	0.027	Accepted
9. My behavior is similar to that of my friends	0.334	5.410*	0.000	Accepted
Evaluating				
10. It's hard for me to see anything helpful about changing my ways	-0.296	-0.006	0.995	Rejected
11. I'm able to accomplish goals I set for myself	0.096	0.065	0.948	Rejected
12. I put off making decisions	0.492	2.198*	0.037	Accepted
13. I have so many plans that it's hard for me to focus on any one of them	0.490	5.410*	0.000	Accepted
14. I change the way I do things when I see a problem with how things are going	0.261	-3.167*	0.003	Accepted
15. It's hard for me to notice when I've had enough (alcohol, food, sweets)	-0.096	0.797	0.430	Rejected
16. I think a lot about what other people think of me	0.363	-2.105*	0.041	Accepted
17. I am willing to consider other ways of doing things	0.393	5.316*	0.000	Accepted
18. If I wanted to change, I am confident that I could do it	-0.146	-1.808	0.077	Rejected
Triggering				

19. When it comes to deciding about a change, I feel overwhelmed by the choices	0.277	2.527*	0.015	Accepted
20. I have trouble following through with things once I've made up my mind to do something	0.374	-2.498*	0.016	Accepted
21. I don't seem to learn from my mistakes	0.214	3.485*	0.001	Accepted
22. I'm usually careful not to overdo it when working/eating/drinking	0.242	2.359*	0.023	Accepted

Table 3.4 (Continued)

Items	**CITC**	**t**	**Sig.**	**Results**
23. I tend to compare myself with other people	-0.143	1.880	0.066	Rejected
24. I enjoy a routine, and like things to stay the same	0.266	4.788*	0.000	Accepted
25. I have sought out advice or information about changing	0.409	4.804*	0.000	Accepted
26. I can come up with lots of ways to change, but it's hard for me to decide which one to use	-0.060	0.923	0.361	Rejected
27. I can stick to a plan that is working well	-0.173	-0.047	0.963	Rejected
Searching				
28. I usually only have to make a mistake one time in order to learn from it	0.206	3.387*	0.001	Accepted
29. I don't learn well from punishment	0.202	2.517*	0.015	Accepted
30. I have personal standards, and try to live up to them	-0.038	1.137	0.261	Rejected
31. I am set in my ways	-0.121	0.158	0.875	Rejected
32. As soon as I see a problem or challenge, I start looking for possible solutions	0.276	4.929*	0.000	Accepted
33. I have a hard time setting goals for myself	0.293	7.583*	0.000	Accepted
34. I have a lot of willpower	0.274	4.059*	0.000	Accepted
35. When I'm trying to change something, I pay attention to how I'm doing	0.205	-3.199*	0.002	Accepted
36. I usually judge what I'm doing by the consequences of my actions	-0.360	-0.457	0.650	Rejected
Formulating				
37. I don't care if I'm different from most people	0.535	2.592*	0.013	Accepted
38. As soon as I see things aren't going right I want to do something about it	0.574	2.088*	0.042	Accepted
39. There is usually more than one way to accomplish something	0.297	-3.250*	0.002	Accepted
40. I have trouble making plans to help me reach goals	0.533	2.672*	0.010	Accepted
41. I am able to resist temptation	0.618	7.829*	0.000	Accepted

42. I set goals for myself and keep track of my progress	0.581	5.516*	0.000	Accepted
43. Most of the time I don't pay attention to what I'm doing	0.327	5.157*	0.000	Accepted

Table 3.4 (Continued)

Items	CITC	t	Sig.	Results
Implementing				
44. I try to be like people around me	0.269	5.323*	0.000	Accepted
45. I tend to keep doing the same thing, even when it doesn't work	0.299	3.993*	0.000	Accepted
46. I can usually find several different possibilities when I want to change something	-0.068	-1.282	0.206	Rejected
47. Once I have a goal, I can usually plan how to reach it	0.441	2.304*	0.026	Accepted
48. I have rules that I stick by no matter what	0.294	3.486*	0.001	Accepted
49. If I make a resolution to change something, I pay a lot of attention to how I'm doing	-0.125	1.852	0.070	Rejected
50. Often I don't notice what I'm doing until someone calls it to my attention	0.320	4.917*	0.000	Accepted
51. I think a lot about how I'm doing	0.252	6.223*	0.000	Accepted
52. Usually I see the need to change before others do	-0.034	1.488	0.143	Rejected
53. I'm good at finding different ways to get what I want	0.402	4.883*	0.000	Accepted
54. I usually think before I act	0.491	3.604*	0.001	Accepted
52. Usually I see the need to change before others do	-0.034	1.488	0.143	Rejected
Assessing				
55. Little problems or distractions throw me off course.	0.146	1.027	0.310	Rejected
56. I feel bad when I don't meet my goals	0.377	5.089*	0.000	Accepted
57. I learn from my mistakes	0.522	4.547*	0.000	Accepted
58. I know how I want to be	0.464	3.032*	0.004	Accepted
59. It bothers me when things aren't the way I want them	0.536	4.468*	0.000	Accepted
60. I call in others for help when I need it	0.546	4.064*	0.000	Accepted

61. Before making a decision, I consider what is likely to happen if I do one thing or another	0.345	4.564*	0.000	Accepted
62. I give up quickly	0.264	2.742*	0.009	Accepted
63. I decide to change and expect the best result	0.230	3.016*	0.003	Accepted

Note: * Significant at the 0.05 level

Results from Corrected Item-Total Correlation (CITC) shown indicated that some items should be removed since they are not concurrent with other items in order (less than 0.20) to increase the reliability.

Mindfulness 9 items

Item 8: I do jobs or tasks automatically without being aware of what I'm doing

Item 9: I find it difficult to stay focused on what's happening in the present

Item 10: I find myself doing other activity while at the same time listening to other people

Item 11: When I have a pain in my body, I can usually describe how I feel at the moment in considerable detail

Item 12: I watch my feelings of pain without getting lost in them

Item 13: When I depart from beloved people or things, I feel sad

Item 29: I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted

Item 38: When I do not get things being underder my will such as not to be old, not to be sick, I feel sad

Item 39: I am able to smile to the difficulties

Self-Regulation 17 items

Item 1: I usually keep track of my progress toward my goals

Item 2: My behavior is not that different from other people's

Item 4: I doubt I could change even if I wanted to

Item 10: It's hard for me to see anything helpful about changing my ways

Item 11: I'm able to accomplish goals I set for myself

Item 15: It's hard for me to notice when I've had enough (alcohol, food, sweets)

Item 18: If I wanted to change, I am confident that I could do it

Item 23: I tend to compare myself with other people

Item 26: I can come up with lots of ways to change, but it's hard for me to

decide which one to use

Item 27: I can stick to a plan that is working well

Item 30: I have personal standards, and try to live up to them

Item 31: I am set in my ways

Item 36: I usually judge what I'm doing by the consequences of my actions

Item 46: I can usually find several different possibilities when I want to change something

Item 49: If I make a resolution to change something, I pay a lot of attention to how I'm doing

Item 52: Usually I see the need to change before others do

Item 55: Little problems or distractions throw me off course.

Table 3.5 Discrimination of Mindfulness Questionnaire and Self-Regulation Questionnaire

Measurement	No. of items developed	No. of items passed	CITC range
1. Mindfulness	**43**	**34**	**0.328-0.672**
1.1 Mindfulness of Body	10	7	0.328-0.672
1.2 Mindfulness of Feeling	10	7	0.413-0.591
1.3 Mindfulness of Mind	10	9	0.405-0.590
1.4 Mindfulness of Mind-Object	13	11	0.348-0.647
2. Self-Regulation	**63**	**46**	**0.202-0.618**
2.1 Receiving	9	6	0.262-0.489
2.2 Evaluating	9	5	0.261-0.492
2.3 Triggering	9	6	0.214-0.409
2.4 Searching	9	6	0.202-0.293
2.5 Formulating	9	9	0.269-0.618
2.6 Implementing	9	6	0.249-0.491
2.7 Assessing	9	8	0.230-0.546

The discrimination result shown that the number of 34-item of mindfulness measurement passed the standard score which was calculated as 79.07% of total 43-

initial items. The score for self-regulation measurement reflected the 46-item which passed the standard score at 73.02%. The total items for both measurement was 80 items.

3.3.4 Reliability Analysis

Following discrimination analysis, the reliability of scores for both mindfulness and self-regulation measurement were estimated. The method chosen for this study was Cronbach's Coefficient alpha.

Table 3.6 Pilot Test Reliability

Factor	No. of Items	Reliability
1. Mindfulness	**34**	**0.886**
1.1 Mindfulness of Body	7	0.854
1.2 Mindfulness of Feeling	7	0.822
1.3 Mindfulness of Mind	9	0.836
1.4 Mindfulness of Mind-Object	11	0.863
2. Self-Regulation	**46**	**0.852**
2.1 Receiving	6	0.643
2.2 Evaluating	5	0.686
2.3 Triggering	6	0.600
2.4 Searching	6	0.623
2.5 Formulating	9	0.771
2.6 Implementing	6	0.685
2.7 Assessing	8	0.723

3.4 Data Analysis and Statistical

3.4.1 Instrument Development *(In chapter 3)*

3.4.1.1 Content Validity

All of items of Mindfulness questionnaire and Self-Regulation questionnaire defined will be reviewed by five (5) mindfulness expert and target respondents for the examination of content validity using the index of congruency (IOC). The purpose of this expert review is to investigate whether the instrument and

its instruction are understandable. Five experts are identified based on two criteria which are as: experience as mindfulness practitioner and active as a trainer or a coach in the mindfulness.

3.4.1.2 Discrimination analysis

A pilot test was administered to investigate the discrimination analysis using the Corrected Item-Total Correlation (CITC). Discrimination analysis will be run to assess the adequacy of a classification, given the group memberships and assign objects to one of a number of groups of objects. A frequency count will run to determine the ability of each item to discriminate between each item. An item-total test correlation will be run for each of the remaining items after the frequency count running.

3.4.1.3 Reliability analysis

Reliability analyses of the initial full set of instrument which combined two variables i.e. mindfulness and self-regulation. The overall and each factor reliability estimate of Cronbach's Coefficient alpha.

3.4.2 Instrument Revision and Validation *(In chapter 4)*

The instrument developed from previous stage will be revised based on the statistics and result and then will be tried out with Thai Buddhist employees. This study is designed to validate the scale developed in previous section and enhance its internal consistency.

3.4.2.1 Validation of Measurement Model: Using the confirmatory factor analysis (CFA)

CFA is a confirmatory technique—it is theory driven. Therefore, the planning of the analysis is driven by the theoretical relationships among the observed and unobserved variables. When a CFA is conducted, the researcher uses a hypothesized model to estimate a population covariance matrix that is compared with the observed covariance matrix. Technically, the researcher wants to minimize the difference between the estimated and observed matrices.

All 34 items in Mindfulness questionnaire and 46 items in Self-Regulation questionnaire will be entered into a factor analysis procedure. The purpose of this initial analysis is to confirm the factor structure to identify adequate items for further analysis. Then a principal components factor analysis will be then separately run on each factor.

The factor analysis is run to determine the appropriate assignment of an individual item to a factor. Factor loading score will be used to assign the items to each factor. It is suggested that the top of that factor is contributing significantly to the construct.

A LISREL program, the first order confirmatory factor analysis will be used to examine the construct validity of the measurement model. The purpose of this analysis is to examine whether the total items could form an adequate measurement model in assessing mindfulness. Data analysis will show the Factor loading (λ_i), Standard Error (SE_{λ_i}), Significant test (t), Square multiple correlation (SMC), Goodness of fit indices such as χ^2, χ^2/df, RMSEA, RMR, SRMR, CFI, NFI, NNFI, GFI, AGFI, PGFI, The internal consistency: Construct reliability (ρ_C) and Average variance extracted (ρ_V).

The four factors of Mindfulness Model named MB, MF, MM, MO and seven factors of Self-Regulation Model named RECI, EVAL, TRIG, SEAR, FORM, IMPL and ASSE were assumed to be latent variables. Latent variables cannot be measured directly but rather must be represented by one or more observed variables. Therefore, a total of 34 items in the mindfulness questionnaire and a total of 46 items in the Self-Regulation questionnaire referred to the observed factor indicators in the model.

3.4.2.2 Construct validity

Validation of construct validity of Mindfulness Model and Self-Regulation Model using the secondary order confirmatory factor analysis. The 2nd Order CFA indicated that all sub-factors were under one main factor and which sub-factors most important and to measure a construct model and validated a good fit between the conceptual model and the empirical data. Data analysis will show the Factor loading (λ_i), Standard Error (SE_{λ_i}), Significant test (t), Square multiple correlation (SMC), Goodness of fit indices such as χ^2, χ^2/df, RMSEA, RMR, SRMR, CFI, NFI, NNFI, GFI, AGFI, PGFI, The internal consistency: Construct reliability (ρ_C) and Average variance extracted (ρ_V).

The Use of Goodness of Fit Measures as Criteria for Confirmatory Factor Analysis

In order to confirm the factor structure of the Model, LISREL software was

used to perform a series of confirmatory factor analyses. Goodness of fit measures is designed to indicate the general overall model fit with respect to the sample data and variances. In Structural Equation Modeling, there is no single or omnibus goodness of fit measure. Thus, a number of such measures are calculated and reported as each contribute different analytical information and collectively provide insight into the overall fit of the model or factor solution to the analyzed data. In line with this practice, results from CFA will be compared with the criteria shown in Table 3.6.

Table 3.7 The Criterion of Model Fit Indices (Schemelleh, Moosbrugger and Müller, 2003, pp. 23 – 27)

Fit indices	**Criterion**
1. Chi-square: χ^2	No significant
2. p-value	$p > .05$
3. Relative Chi-square: χ^2 /df	$\chi^2/df < 2.00$
4. Root Mean Square Error of Approximation: RMSEA	RMSEA < .05
5. Normed Fit Index: NFI	NFI >.90
6. Non-Normed Fit Index: NNFI	NNFI > .90
7. Comparative Fit Index: CFI	CFI > .90
8. Root Mean Square Residual: RMR	RMR < .05
9. Standardized Root Mean Square Residual: SRMR	SRMR < .05
10. Goodness of Fit Index: GFI	GFI > .90
11. Adjusted Goodness of Fit Index: AGFI	AGFI > .90
12. Parsimony Goodness of Fit Index: PGFI	PGFI > .49

3.4.2.3 The Hypothesis Analysis *(In chapter 4)*

To examine the effect of meditation experience on mindfulness

In the second part of TBMM instrument, meditation experience and meditation practice program were shown and asked participants to provide their meditation whether they have meditation experience or not. If yes, they continued their meditation practice until today or not. Moreover, participants were asked to explain what meditation program, they followed; Put Thor, Anapanasati, Yup Nor-Pong Nor, Samma Arahung or others.

The objective of this part of the study was to investigate the effects of some meditation experience on their mindfulness measured by the 34 items of TBMM. Data analysis have separated into 3 groups of experiences were 1) No Experience, 2) Have Experience but not practice now, 3) Have Experience and still practice. MANOVA (Analysis of Variant) were performed to estimate how much variance of the mean scores of the factor dimensions in the mindfulness measure can be account for by employee meditation experience variance to answer to research question of a reliable measure of mindfulness of Thai Buddhist employees can be developed to reflect adequate content of mindfulness identified in the literature. As earlier study, the mindfulness scale was consisted of four factors as Mindfulness of Body (MB), Mindfulness of Feelings (MF), Mindfulness of Mind (MM) and Mindfulness of Object. Therefore, analyses were conducted for each factor on mindfulness scale.

To examine the relationship of mindfulness and self-regulation in Thai Buddhist employees

Descriptive Statistic of Mindfulness questionnaire and Self-Regulation questionnaire in overall and each factor. Data analysis will show the mean ($\overline{X}$) and standard deviation (*SD*).

The relationship of mindfulness and self-regulation

One of the purposes of this study was to test the relationship between mindfulness and self-regulation. It was hypothesized that there could be a positive relationship between mindfulness and self-regulation. The incremental of mindfulness should support the incremental of self-regulation. The degree of relationship between score on mindfulness measure of TBMM and self-regulation measure of SRQ was assessed at the subscale level using Pearson's Correlation Coefficient. A correlation coefficient is a calculation of the strength of the relationship between variables and is measured on a scale of -1.00 to +1.00. If there is no relationship, the correlation is close to zero.

3.5 **Chapter Summary**

This chapter presents a broad overview of the research participants, the type of data collected and the techniques used, the measures used in the quantitative research,

and the data analysis procedures employed. This research methodology consists of two (2) main sections. First section is development of mindfulness measurement instrument based on conceptual framework. Second section is instrument revision and validation. The developed instrument is subjected to test to determine psychometric characteristics. The data from the different scales would be analyzed and compared to find out the validity and reliability of the instrument. Several psychometric analyses will be run to identify adequate measurement items. The results of the quantitative analyses appear in Chapter 4.

CHAPTER 4

RESULTS

The primary purpose of this chapter is to develop and validate the newly developed 34-item-four-factor structure of the Thai Buddhist Mindfulness Measurement (TBMM). The total participants for this study defined 500 Thai Buddhist employees. The participants have been randomly selected from Buddhist employees who may have meditation experience and no meditation experience by using convenience sampling method. The instrument in form of questionnaire have been distributed and collected from 509 Thai Buddhist employees which is a greater than the defined sample size in order to protect some errors in data collected. The data collected have been analyzed by statistics of Factor Analysis, MANOVA, and Correlation to illustrate internal consistency of scales of the instrument, to assess the measurement of standard self-regulation questionnaire in Thailand environment, and the results of correlations among items and latent factors of the mindfulness scales in order to examine the level of relations between mindfulness and self-regulation. Furthermore, this chapter demonstrates information about meditation experience toward mindfulness and level of significance of several contextual factors on mindfulness.

Symbols for data analysis

n = Number of samples

$\overline{X}$ = Mean

SD = Standard deviation

p = Probability of the hypothesis testing

r = Pearson's correlation coefficient

λ_i = Factor loading

$SE\,\lambda_i$ = Standard error of factor loading

χ^2 = Chi-square

χ^2 /df = Relative Chi-square

SMC = Square multiple correlations

RMSEA = Root mean square error of approximation

NFI = Normed fit index

NNFI = Non-normed fit index

CFI = Comparative fit index

RMR = Root mean square residual

SRMR = Standardized root mean square residual

GFI = Goodness of fit index

AGFI = Adjusted goodness of fit index

PGFI = Parsimony goodness of fit index

Symbols of the model variables

TBMM = Mindfulness

MB = Mindfulness of Body

MF = Mindfulness of Feeling

MM = Mindfulness of Mind

MO = Mindfulness of Mind-Object

SR = Self-Regulation

RECI = Receiving

EVAL = Evaluating

TRIG = Triggering

SEAR = Searching

FORM = Formulating

IMPL = Implementing

ASSE = Assessing

4.1 Descriptive Statistics

The respondents came from a range of different backgrounds with respect to gender, age, degree earned, and working experience.

4.1.1 Demographic

Detailed demographic characteristics of the participants for the present study are listed in Table 4.1 showed the majority of respondents are female of 323 which is 63.46 percentage and the second rank is male of 186 which equals to 36.54 percentage

Most of sample population are 30-39 years old which is 211 respondents equals to 41.45 percentage, the second rank is 40-49 years old whish is 123 respondents equals to 24.17 percentage, the third rank is age less than 29 years old at 109 respondents equals to 21.41 percentage and the last group is who is over 60 years old equals to 0.79 percentage.

The majority of education background is bachelor degree which is 289 respondents equals to 56.78 percentages. The master degree or higher is 127 respondents equals to 24.95 percentage and diploma or less is 93 respondents equals to 18.27 percentage

The majority of working level is the operational level which is 285 respondents at 55.99 percentages. The section head is 123 respondents at 24.17 percentages and the last group is the management or executive which is 38 respondents at 7.47 percentage.

The working experience of major respondents is 15-20 year which is 145 respondents calculated at 28.49 percentages. The more than 20 year is 126 respondents at 24.75 percentages. The 10-14 year is 112 respondents at 22.00 percentages. The last group is respondents who have working experience less than 1 year. They are 17 respondents at 3.34 percentages.

Table 4.1 Sample Population Demographic (n=509)

Demographic	Frequency	Percentage
Gender		
Male	186	36.54
Female	323	63.46
Total	**509**	**100.00**
Age		
Less than 29 year	109	21.41
30-39 year	211	41.45
40-49 year	123	24.17
50- 59 year	62	12.18
More than 60 year	4	0.79
Total	**509**	**100.00**
Education Level		
High school or less	16	3.14
Diploma	77	15.13
Bachelor degree	289	56.78
Master degree or higher	127	24.95
Total	**509**	**100.00**
Position level		
Operation	285	55.99
Section head	123	24.17
Manager	63	12.38
Executive/Management	38	7.47
Total	**509**	**100.00**
Working experience		
Less than 2 year	17	3.34
2-4 year	74	14.54
5-9 year	35	6.88
10-14 year	112	22.00
15-20 year	145	28.49
More than 20 year	126	24.75
Total	**509**	**100.00**

4.1.2 Meditation Experience

Table 4.2 shows the majority of respondent has the meditation experience at 387 which equals to 76.0 percentage. This group of respondent is divided into 2 groups which is who have experience but not practice now are 118 respondents at 23.18 percentage and have experience and still practice are 269 respondents at 52.85 percentage. The respondent who have no meditation experience equals to 122 which is 23.97 percentage.

The table presents the majority of 148 respondents having meditation experience for less than 1 year which is 29.1 percentage. Next group is who do practice for 1-5 year equals to 134 at 26.3 percentage and for more than 10 years

equals to 67 respondent at 13.2 percentage.

The method of meditation practice data found that the majority respondents perform Vipassana equals to 143 calculated at 28.1 percentage. Meditators who are not sure which method they perform practice equals to 135 or 26.5 percentage. Meditators who perform both Viapssana and Samatha equals to 77 or 15.1 percentage.

Table 4.2 Meditation Experience (n=509)

Meditation Experience	Frequency	Percentage
Meditation/ mindfulness practice Experience		
No Experience	122	23.97
Have Experience but not practice now	118	23.18
Have Experience and still practice	269	52.85
Total	**509**	**100.00**
Duration to practice meditation/ mindfulness		
No Experience	122	23.97
1 year	148	29.08
1-5 years	134	26.33
5-10 years	38	7.47
More than 10 years	67	13.16
Total	**509**	**100.00**
Type of meditation/ mindfulness		
No Experience	122	23.97
Sammatha	32	6.29
Vipassana	143	28.09
Both Sammatha and Vipassana	77	15.13
Not sure which one	135	26.52
Total	**509**	**100.00**
Place to practice meditation/ mindfulness		
No Experience	122	23.97
Private organization	26	5.11
Temple	246	48.33
Meditation Center	92	18.07
Self-Practice	23	4.52
Total	**509**	**100.00**

Table 4.2 (Continued)

Meditation Experience	Frequency	Percentage
How often to practice meditation or mindfulness		
No Experience	122	23.97
1 time/year	139	27.31
2-4 times/year	81	15.91
5-6 times/year	31	6.09
More than 6 times/year	51	10.02
In daily life	85	16.70
Total	**509**	**100.00**
Method to practice meditation or mindfulness		
No Experience	122	23.97
Breathing In, Breathing Out (Put Thor)	193	37.92
Ananpanasati	92	18.07
Rising, Falling (Pong-Nor,Yup-Nor)	58	11.39
Samma Arahung	23	4.52
Define abstract without action	15	2.95
Others	6	1.18
Total	**509**	**100.00**
Duration to do meditation / mindfulness each time		
No Experience	122	23.97
Less than 15 Minutes	213	41.85
16 – 30 Minutes	124	24.36
31 – 60 Minutes	39	7.66
More than 60 Minutes	11	2.16
Total	**509**	**100.00**

4.2 **Validation of Measurement model**

In the first stage, all 34 items in Mindfulness questionnaire and 46 items in Self-Regulation questionnaire were validated through factor analysis procedure. The purpose of this initial analysis was to confirm the factor structure to identify adequate items for further analysis. Then a principal components factor analysis was then separately run on each factor. The factor analysis was run to determine the appropriate assignment of an individual item to a factor. Factor loading score was used to assign

the items to each factor. It was suggested that the top of that factor is contributing significantly to the construct. Results for each factor analysis models were explained below.

4.2.1 Mindfulness Model Analysis

First of all, the instrument were examined using a factor analytic technique (FA) to determine whether the hypothesized four-factor structure of the Buddhism four foundations of mindfulness fit the data for the current study and to discover the latent factor. The instrument was comprised of 34 items measuring four constructs termed as: Mindfulness of the Body (Kayasati), Mindfulness of the Feelings (vedanasati), Mindfulness of the Mind (cittasati) and Mindfulness of the Mental Objects (dhammasati). Mindfulness of body (MB) was measure with the first seven items, Mindfulness of feeling (MF) measured with items from 8 through 14, Mindfulness of mind (MM) measured with items from 15 to 23, and finally Mindfulness of object (MO) measured with the last thirteen items from item 24 to item 34. Following FA analysis, LISREL were used to prepare mindfulness model. Results for each FA models are explained below.

4.2.1.1 Mindfulness of Body (MB)

Mindfulness of Body (MB) consists of 7 items, as following,

MB1 = I am now aware of my breathing; in-out/short-long
MB2 = When I stand, I deliberately notice the sensations of my body from head to toe
MB3 = When I'm walking, I deliberately notice the sensations of my body moving.
MB4 = When I take a shower or bath, I stay alert to the sensations of water on my body.
MB5 = When I brush my teeth, I notice the movement of move-take-brush my teeth continuously
MB6 = While I have my meal, I feel my hand moving to take food, I feel my chewing
MB7 = When I am "running on automatic", I can aware what I'm doing.

Results of the correlation coefficient as shown in Table 4.3 for the mindfulness of body (MB) factor indicated positive correlations among factor and the KMO value 0.855 was acceptable for factor analysis.

Table 4.3 Correlation Coefficient of Observed Variables of MB Measurement

Model

	MB1	MB2	MB3	MB4	MB5	MB6	MB7
MB1	1.000						
MB2	0.600**	1.000					
MB3	0.506**	0.531**	1.000				
MB4	0.363**	0.391**	0.651**	1.000			
MB5	0.396**	0.411**	0.526**	0.533**	1.000		
MB6	0.447**	0.518**	0.580**	0.541**	0.669**	1.000	
MB7	0.390**	0.392**	0.309**	0.215**	0.390**	0.391**	1.000
KMO = 0.855, Bartlett's Test of Sphericity: Approx. Chi-Square = 1501.986, *df* = 21, p = .000							

Note: ** Significant at the 0.01 level

Results of FA as shown in Table 4.4 revealed that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.567-0.779, Standard error 0.072-0.109 and square multiple correlations (SMC) 0.321-0.607. The construct reliability (ρ_c) = 0.867, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 86.70% (very high). The average variance extracted (ρ_v) = 0.485 indicated that the MB model could explain 48.50% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.4 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square

Multiple Correlation (*SMC*) of MB Measurement Model

Mindfulness of Body	**Factor loading (λ_i)**	**Standard Error (SE λ_i)**	**Significant test (t)**	**(SMC)**
MB1	0.647**	-	-	0.419
MB2	0.692**	0.072	14.916	0.479
MB3	0.779**	0.098	12.305	0.607
MB4	0.757**	0.109	10.751	0.573
MB5	0.689**	0.089	12.005	0.475
MB6	0.720**	0.087	12.800	0.518
MB7	0.567**	0.090	9.788	0.321
Construct reliability (ρ_c) = 0.867, Average variance extracted (ρ_v) = 0.485				

Note: ** Significant at the 0.01 level

The validation of mindfulness of body measurement model were presented by goodness of fit indices as Table 4.5 and Figure 4.1. Results of the CFA for the mindfulness of body measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 6.263, df = 5, p = 0.281, χ^2/df = 1.253, RMSEA = 0.232, NFI = 0.997, NNFI = 0.998, CFI = 0.999, RMR = 0.009, SRMR = 0.009, GFI = 0.996, AGFI = 0.980 and PGFI = 0.578. The CFA model tested that the mindfulness of body sample data would support the seven observed variables structure.

Table 4.5 Goodness of Fit Indices of MB Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	6.263	-	-
2. *df*	5	-	-
3. *p*	0.281	*p*> .05	Accurate
4. χ^2/df	1.253	χ^2/df < 2.00	Accurate
5. RMSEA	0.232	RMSEA < .05	Accurate
6. NFI	0.997	NFI >.90	Accurate
7. NNFI	0.998	NNFI > .90	Accurate
8. CFI	0.999	CFI > .90	Accurate
9. RMR	0.009	RMR < .05	Accurate
10. SRMR	0.009	SRMR < .05	Accurate
11. GFI	0.996	GFI > .90	Accurate
12. AGFI	0.980	AGFI > .90	Accurate
13. PGFI	0.578	PGFI > .49	Accurate

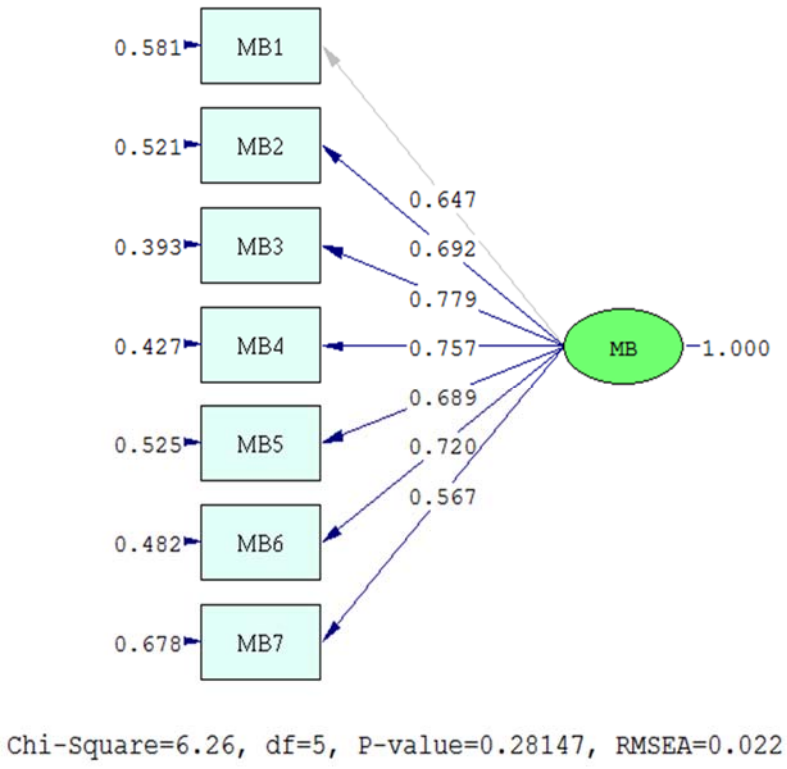

Figure 4.1 MB Measurement Model

4.2.1.2 Mindfulness of Feeling (MF)

Mindfulness of Feeling (MF) consists of 7 items, as following,

MF1 = I perceive my feelings and emotions without having to react to them.

MF2 = When I lose my things, I feel sad

MF3 = When miserable happened, I feel that

MF4 = When I have a pain in my body, I also feel pain in my mind

MF5 = When I face difficulties in my life, I feel sad

MF6 = When I see or hear about sadness, depression, dissatisfaction, I feel frustrated

MF7 = When I see un-liked things or people, I feel depressed, annoyed

Results of the correlation coefficient as shown in Table 4.6 for the mindfulness of feeling (MF) factor indicated positive correlations among factor and the KMO value 0.855 was acceptable for factor analysis.

Table 4.6 Correlation Coefficient of Observed Variables of MF Measurement Model

	MF1	MF2	MF3	MF4	MF5	MF6	MF7
MF1	1.000						
MF2	0.515**	1.000					
MF3	0.307**	0.392**	1.000				
MF4	0.425**	0.505**	0.318**	1.000			
MF5	0.385**	0.431**	0.360**	0.477**	1.000		
MF6	0.277**	0.313**	0.277**	0.397**	0.546**	1.000	
MF7	0.442**	0.436**	0.290**	0.472**	0.407**	0.456**	1.000
KMO = 0.855, Bartlett's Test of Sphericity: Approx. Chi-Square = 1059.201, *df* = 21, p = .000							

Note: ** Significant at the 0.01 level

Result of FA as shown in Table 4.7 indicated that all factors loading were significant at the 0.01 level. (λ_i Should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.500-0.713, Standard error 0.088-0.102 and square multiple correlations (SMC) 0.250-0.508. The construct reliability (ρ_c) = 0.819, indicated convergent validity which is the ratio of observed variables covariance in the same

latent variable (Should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 81.90% (very high). The average variance extracted (ρ_v) = 0.395 indicated that the MF model could explain 39.50% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.7 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of MF Measurement Model

Mindfulness of Feeling	**Factor loading (λ_i)**	**Standard Error (SE_{λ_i})**	**Significant test (*t*)**	**SMC**
MF1	0.621**	-	-	0.386
MF2	0.699**	0.088	12.844	0.489
MF3	0.500**	0.089	9.065	0.250
MF4	0.713**	0.099	11.538	0.508
MF5	0.646**	0.095	10.888	0.417
MF6	0.546**	0.102	8.600	0.298
MF7	0.646**	0.095	10.891	0.417
Construct reliability (ρ_c) = 0.819, Average variance extracted (ρ_v) = 0.395				

Note: ** Significant at the 0.01 level

The validation of mindfulness of feeling measurement model were presented by goodness of fit indices as Table 4.8 and Figure 4.2. Results of the CFA for the mindfulness of feeling measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 13.055, *df* = 9, *p* = 0.160, χ^2/df = 1.451, RMSEA = 0.029, NFI = 0.993, NNFI = 0.994, CFI = 0.994, RMR = 0.018, SRMR = 0.018, GFI = 0.993, AGFI = 0.977 and PGFI = 0.519. The CFA model tested that the mindfulness of feeling sample data would support the seven observed variables structure.

Table 4.8 Goodness of Fit Indices of MF Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	13.055	-	-
2. *df*	9	-	-
3. *p*	0.160	*p*> .05	Accurate
4. χ^2/df	1.451	χ^2/df < 2.00	Accurate
5. RMSEA	0.029	RMSEA < .05	Accurate
6. NFI	0.993	NFI >.90	Accurate
7. NNFI	0.994	NNFI > .90	Accurate
8. CFI	0.998	CFI > .90	Accurate
9. RMR	0.018	RMR < .05	Accurate
10. SRMR	0.018	SRMR < .05	Accurate
11. GFI	0.993	GFI > .90	Accurate
12. AGFI	0.977	AGFI > .90	Accurate
13. PGFI	0.519	PGFI > .49	Accurate

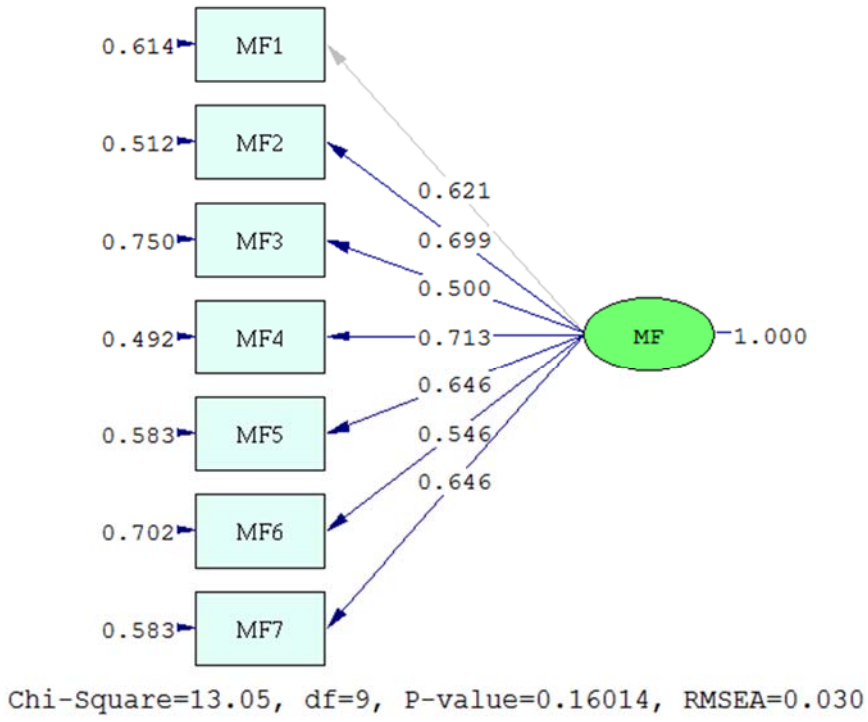

Figure 4.2 MF Measurement Model

4.2.1.3 Mindfulness of Mind (MM)

MM1 = I am aware of anxiety, I just notice it and accept the nature of it

MM2 = I am able just to notice my thoughts without any judgment

MM3 = I find myself not stay focused but I can step back to what's happening in the present

MM4 = When I feel muddle, I am able to notice it

MM5 = When I feel annoyed, I am able just to notice them without reacting

MM6 = When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.

MM7 = When I miss someone, I can notice that feelings and not let myself feel sad on that feeling of missing

MM8 = I am sad, I am able just to notice without getting taken over by it

MM9 = When I have distressing thoughts or images, I feel calm soon after.

Results of the correlation coefficient as shown in Table 4.9 for the mindfulness of mind (MM) factor indicated positive correlations among factor and the KMO value 0.871 was acceptable for factor analysis.

Table 4.9 Correlation Coefficient of Observed Variables of MM Measurement Model

	MM1	MM2	MM3	MM4	MM5	MM6	MM7	MM8	MM9
MM1	1.000								
MM2	0.492**	1.000							
MM3	0.458**	0.483**	1.000						
MM4	0.331**	0.416**	0.507**	1.000					
MM5	0.380**	0.386**	0.427**	0.249**	1.000				
MM6	0.369**	0.316**	0.400**	0.219**	0.559**	1.000			
MM7	0.416**	0.334**	0.338**	0.205**	0.422**	0.439**	1.000		
MM8	0.417**	0.300**	0.347**	0.235**	0.403**	0.469**	0.503**	1.000	
MM9	0.299**	0.231**	0.236**	0.234**	0.258**	0.246**	0.406**	0.351**	1.000

KMO = 0.871, Bartlett's Test of Sphericity: Approx. Chi-Square = 1391.931, *df* = 36, p = .000

Note: ** Significant at the 0.01 level

Result of FA as shown in Table 4.10 indicated that all factors loading were significant at the 0.01 level. (λ_i Should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.440-0.680, Standard error 0.082-0.110 and square multiple

correlations (SMC) 0.194-0.462. The construct reliability (ρ_c) = 0.837, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (Should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 83.70% (very high). The average variance extracted (ρ_v) = 0.413 indicated that the MF model could explain 41.30% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.10 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of MM Measurement Model

Mindfulness of Mind	**Factor loading (λ_i)**	**Standard Error (SE_{λ_i})**	**Significant test (*t*)**	**SMC**
MM1	0.636**			0.404
MM2	0.557**	0.084	10.430	0.310
MM3	0.670**	0.102	10.274	0.449
MM4	0.520**	0.110	7.402	0.270
MM5	0.621**	0.086	11.321	0.386
MM6	0.617**	0.091	10.680	0.381
MM7	0.669**	0.102	10.356	0.448
MM8	0.680**	0.105	10.214	0.462
MM9	0.440**	0.082	8.417	0.194
Construct reliability (ρ_c) = 0.837, Average variance extracted (ρ_v) = 0.413				

Note: ** Significant at the 0.01 level

The validation of mindfulness of mind measurement model were presented by goodness of fit indices as Table 4.11 and Figure 4.3. Results of the CFA for the

mindfulness of mind measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 15.979, *df* = 10, *p* = 0.160, χ^2/df = 1.598, RMSEA = 0.034, NFI = 0.994, NNFI = 0.991, CFI = 0.998, RMR = 0.018, SRMR = 0.018, GFI = 0.993, AGFI = 0.969 and PGFI = 0.521.

The CFA model tested that the mindfulness of mind sample data would support the nine observed variables structure.

Table 4.11 Goodness of Fit Indices of Mindfulness of Mind Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	15.979	-	-
2. *df*	10	-	-
3. *p*	0.100	*p*> .05	Accurate
4. χ^2/df	1.598	χ^2/df < 2.00	Accurate
5. RMSEA	0.034	RMSEA < .05	Accurate
6. NFI	0.994	NFI >.90	Accurate
7. NNFI	0.991	NNFI > .90	Accurate
8. CFI	0.998	CFI > .90	Accurate
9. RMR	0.018	RMR < .05	Accurate
10. SRMR	0.018	SRMR < .05	Accurate
11. GFI	0.993	GFI > .90	Accurate
12. AGFI	0.969	AGFI > .90	Accurate
13. PGFI	0.521	PGFI > .49	Accurate

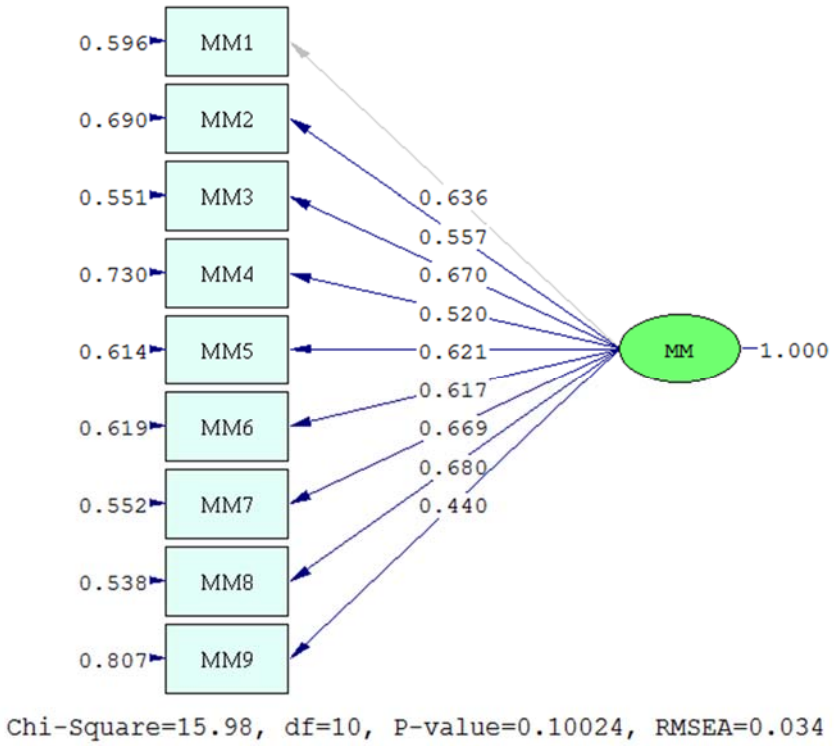

Figure 4.3 MM Measurement Model

4.2.1.4 Mindfulness of Object (MO)

Mindfulness of Object (MO) consists of 11 items, as following,

MO1 = When my emotion starts to change, I can notice it

MO2 = When I have a sensation in my body, I can describe how I feel such as cold, hot, soft, hard

MO3 = When I see things, I am aware of that seeing

MO4 = When I hear sounds of things, I am aware of that hearing

MO5 = I notice the smells and aromas of things.

MO6 = I notice the taste of food with my tongue

MO7 = I am able to notice and understand well of the change in my body

MO8 = When I am separated from my beloved people such as parents, I feel really sad and cannot accept that

MO9 = When I have distressing thoughts or images, I just notice them and let it go.

MO10 = I am able to deliberately consider what happened to me from the beginning to the end without any reaction

MO11 = I am able to accept things which I cannot change

Results of the correlation coefficient as shown in Table 4.11 for the mindfulness of object (MO) factor indicated positive correlations among factor and the KMO value 0.880 was acceptable for factor analysis.

Table 4.12 Correlation Coefficient of Observed Variables of MO Measurement Model

	MO1	MO2	MO3	MO4	MO5	MO6	MO7	MO8	MO9	MO10	MO11
MO1	1.000										
MO2	0.558**	1.000									
MO3	0.453**	0.614**	1.000								
MO4	0.429**	0.656**	0.739**	1.000							
MO5	0.460**	0.626**	0.661**	0.705**	1.000						
MO6	0.418**	0.632**	0.600**	0.708**	0.738**	1.000					

MO7	0.342**	0.340**	0.396**	0.342**	0.392**	0.427**	1.000				
MO8	0.282**	0.197**	0.201**	0.219**	0.157**	0.193**	0.370**	1.000			
MO9	0.283**	0.175**	0.165**	0.152**	0.169**	0.217**	0.395**	0.580**	1.000		
MO10	0.407**	0.245**	0.240**	0.185**	0.176**	0.220**	0.329**	0.533**	0.542**	1.000	
MO11	0.239**	0.109**	0.115**	0.108**	0.084**	0.092**	0.293**	0.503**	0.417**	0.486**	1.000

KMO = 0.880, Bartlett's Test of Sphericity: Approx. Chi-Square = 2813.214, *df* = 55, p = .000

Note: ** Significant at the 0.01 level

Result of FA as shown in Table 4.12 shown that all factors loading were significant at the 0.01 level. (λ_i Should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.137-0.858, Standard error 0.078-0.117 and square multiple correlations (SMC) 0.019-0.736. The construct reliability (ρ_c) = 0.844, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (Should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 84.40% (very high). The average variance extracted (ρ_v) = 0.415 indicated that the MF model could explain 41.50% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.13 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of MO Measurement Model

Mindfulness of object	**Factor loading (λ_i)**	**Standard Error (SE_{λ_i})**	**Significant test (*t*)**	**SMC**
MO1	0.582**			0.339
MO2	0.761**	0.095	13.839	0.579
MO3	0.805**	0.110	12.559	0.648
MO4	0.858**	0.117	12.617	0.736
MO5	0.819**	0.110	12.808	0.671
MO6	0.831**	0.115	12.417	0.691
MO7	0.497**	0.092	9.280	0.247
MO8	0.263**	0.083	5.413	0.069
MO9	0.241**	0.080	5.119	0.058

MO10	0.302**	0.078	6.590	0.091
MO11	0.137**	0.079	2.953	0.019

Construct reliability (ρ_c) = 0.844, Average variance extracted (ρ_v) = 0.415

Note: ** Significant at the 0.01 level

The validation of mindfulness of object measurement model were presented by goodness of fit indices as Table 4.13 and Figure 4-4. Results of the CFA for the mindfulness of object measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 29.028, *df* = 19, *p* = 0.066, χ^2/df = 1.528, RMSEA = 0.032, NFI = 0.994, NNFI = 0.994, CFI = 0.998, RMR = 0.027, SRMR = 0.028, GFI = 0.990, AGFI = 0.964 and PGFI = 0.585. The CFA model tested that the mindfulness of object sample data would support the eleven observed variables structure.

Table 4.14 Goodness of Fit Indices of MO Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	29.028	-	-
2. *df*	19	-	-
3. *p*	0.066	*p*> .05	Accurate
4. χ^2/df	1.528	χ^2/df < 2.00	Accurate
5. RMSEA	0.032	RMSEA < .05	Accurate
6. NFI	0.994	NFI >.90	Accurate
7. NNFI	0.994	NNFI > .90	Accurate
8. CFI	0.998	CFI > .90	Accurate
9. RMR	0.027	RMR < .05	Accurate
10. SRMR	0.028	SRMR < .05	Accurate
11. GFI	0.990	GFI > .90	Accurate

12. AGFI	0.964	AGFI > .90	Accurate
13. PGFI	0.585	PGFI > .49	Accurate

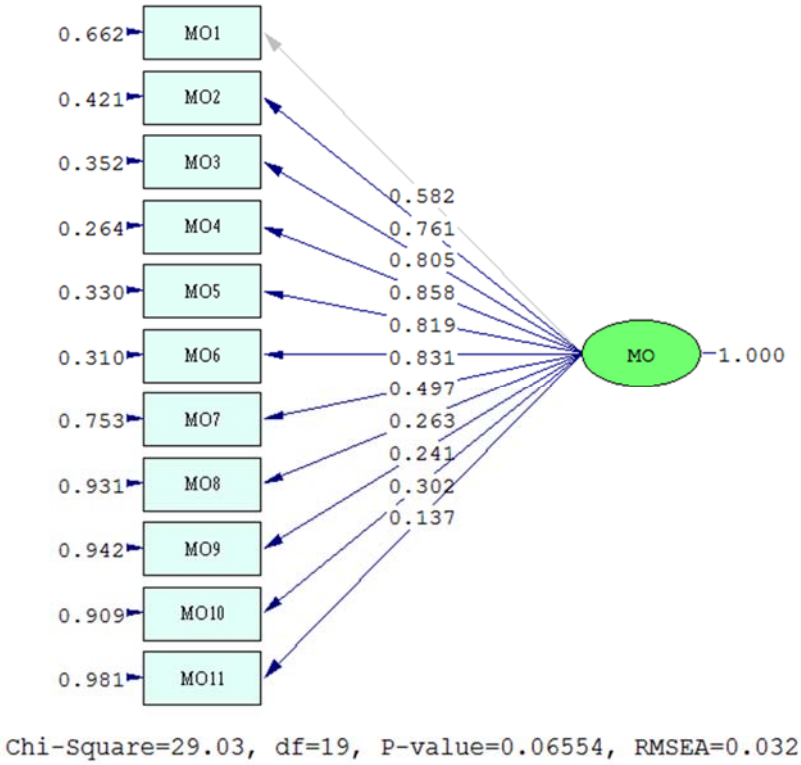

Figure 4.4 MO Measurement Model

4.2.2 Self-Regulation Model Analysis

The analysis of self-regulation model adopted the same methodology of mindfulness model. Factor analyses were firstly used to remove non-performing variables and then follow by CFA in LISREL. Self-regulations consists of 7 factors; Receiving, Evaluating, Triggering, Searching, Formulating, Implementing, Assessing.

4.2.2.1 Receiving (RECI)

Receiving consists of 6 items, as following,

RECI1 = Others tell me that I keep on with things too long

RECI2 = I have trouble making up my mind about things

RECI3 = I get easily distracted from my plans

RECI4 = I reward myself for progress made toward my goals

RECI5 = I don't notice the effects of my actions until it's too late

RECI6 = My behavior is similar to that of my friends

Results of the correlation coefficient as shown in Table 4.14 for receiving (RECI) factor indicated positive correlations among items and the KMO value 0.793 which was acceptable.

Table 4.15 Correlation Coefficient of Observed Variables of Receiving Measurement Model

	RECI1	RECI2	RECI3	RECI4	RECI5	RECI6
RECI1	1.000					
RECI2	0.316**	1.000				
RECI3	0.202**	0.290**	1.000			
RECI4	0.453**	0.304**	0.244**	1.000		
RECI5	0.306**	0.270**	0.214**	0.400**	1.000	
RECI7	0.284**	0.247**	0.280**	0.283**	0.305**	1.000
KMO = 0.793, Bartlett's Test of Sphericity: Approx. Chi-Square = 415.82, *df* = 15, p = .000						

Note: ** Significant at the 0.01 level

Result of FA as shown in Table 4.15 shown that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.410-0.622, Standard error 0.118-0.138 and square multiple correlations (SMC) 0.168-0.387. The construct reliability (ρ_c) = 0.702, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 70.20% (very high). The average variance extracted (ρ_v) = 0.342 indicated that the RECI model could explain 34.20% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.16 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square multiple Correlation (*SMC*) of Receiving Measurement Model

Receiving	**Factor loading**	**Standard Error**	**Significant test (*t*)**	**SMC**

	(λ_i)	(SE_{λ_i})		
RECI1	0.553**	-	-	0.306
RECI2	0.496**	0.128	7.036	0.246
RECI3	0.410**	0.120	6.200	0.168
RECI4	0.622**	0.118	9.522	0.387
RECI5	0.586**	0.138	7.694	0.343
RECI6	0.512**	0.127	7.273	0.262
Construct reliability (ρ_c) = 0.702, Average variance extracted (ρ_v) = 0.342				

Note: ** Significant at the 0.01 level

The validation of receiving measurement model were presented by goodness of fit indices as Table 4.16 and Figure 4-5. Results of the CFA for the receiving measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 11.622, *df* = 7, *p* = 0.1114, χ^2 /*df* = 1.660, RMSEA = 0.036, NFI = 0.983, NNFI = 0.985, CFI = 0.993, RMR = 0.023, SRMR = 0.023, GFI = 0.992, AGFI = 0.977 and PGFI = 0.531. The CFA model tested that the receiving sample data would support the six observed variables structure.

Table 4.17 Goodness of Fit Indices of Receiving Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	11.622	-	-
2. *df*	7	-	-
3. *p*	0.114	*p*> .05	Accurate
4. χ^2 /*df*	1.660	χ^2/*df* < 2.00	Accurate
5. RMSEA	0.036	RMSEA < .05	Accurate
6. NFI	0.983	NFI >.90	Accurate
7. NNFI	0.985	NNFI > .90	Accurate
8. CFI	0.993	CFI > .90	Accurate
9. RMR	0.023	RMR < .05	Accurate
10. SRMR	0.023	SRMR < .05	Accurate

11. GFI	0.992	GFI > .90	Accurate
12. AGFI	0.977	AGFI > .90	Accurate
13. PGFI	0.533	PGFI > .49	Accurate

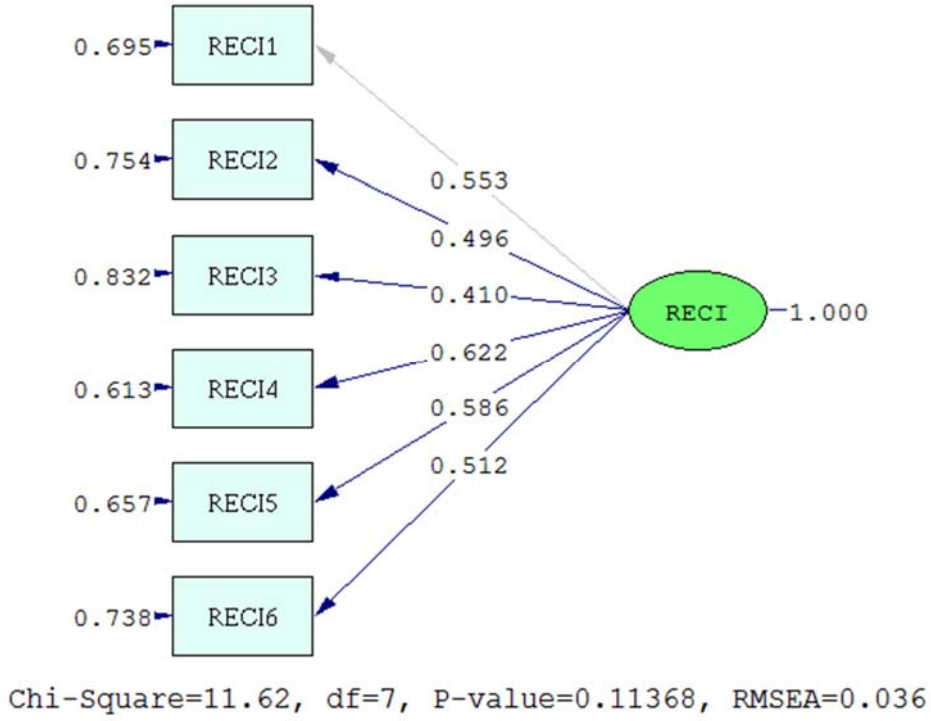

Figure 4.5 Receiving Measurement Model

4.2.2.2 Evaluating (EVAL)

Evaluating consists of 5 items, as following,

EVAL1 = I put off making decisions

EVAL 2 = I have so many plans that it's hard for me to focus on any one of them

EVAL3 = I change the way I do things when I see a problem with how things are going

EVAL4 = I think a lot about what other people think of me

EVAL5 = I am willing to consider other ways of doing things

Results of the correlation coefficient as shown in Table 4.17 for evaluating (EVAL) factor indicated positive correlations among items and the KMO value 0.792 which was acceptable.

Table 4.18 Correlation Coefficient of Observed Variables of Evaluating Measurement Model

	EVAL1	EVAL2	EVAL3	EVAL4	EVAL5
EVAL1	1.000				
EVAL2	0.512**	1.000			
EVAL3	0.227**	0.240**	1.000		
EVAL4	0.325**	0.501**	0.206**	1.000	
EVAL5	0.428**	0.317**	0.207**	0.230**	1.000

KMO = 0.792, Bartlett's Test of Sphericity: Approx. Chi-Square = 451.226, *df* = 10, p = .000

Note: ** Significant at the 0.01 level

Result of FA as shown in Table 4.18 shown that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.332-0.779, Standard error 0.070-0.088 and square multiple correlations (SMC) 0.110-0.607. The construct reliability (ρ_c) = 0.687, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 68.70%. The average variance extracted (ρ_v) = 0.403 indicated that the EVAL model could explain 40.30% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.19 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of Evaluating Measurement Model

Evaluating	**Factor loading** (λ_i)	**Standard Error** (SE_{λ_i})	**Significant test** (*t*)	**SMC**
EVAL1	0.779**	-	-	0.607
EVAL2	0.648**	0.088	9.443	0.420
EVAL3	0.332**	0.070	6.099	0.110
EVAL4	0.431**	0.078	7.082	0.186
EVAL5	0.536**	0.077	8.915	0.287

Construct reliability (ρ_c) = 0.687, Average variance extracted (ρ_v) = 0.403

Note: ** Significant at the 0.01 level

The validation of evaluating measurement model were presented by goodness of fit indices as Table 4.19 and Figure 4-6. Results of the CFA for the Evaluating measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 6.850, *df* = 4, *p* = 0.1$_{44,}$ χ^2 /*df* = 1.713, RMSEA = 0.037, NFI = 0.988, NNFI = 0.987, CFI = 0.995, RMR = 0.022, SRMR = 0.022, GFI = 0.953, AGFI = 0.980 and PGFI = 0.565. The CFA model tested that the Evaluating sample data would support the five observed variables structure.

Table 4.20 Goodness of Fit Indices of Evaluating Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	6.850	-	-
2. *df*	4	-	-
3. *p*	0.144	*p*> .05	Accurate
4. χ^2 /*df*	1.713	χ^2/*df* < 2.00	Accurate
5. RMSEA	0.037	RMSEA < .05	Accurate
6. NFI	0.988	NFI >.90	Accurate
7. NNFI	0.987	NNFI > .90	Accurate
8. CFI	0.995	CFI > .90	Accurate
9. RMR	0.022	RMR < .05	Accurate
10. SRMR	0.022	SRMR < .05	Accurate
11. GFI	0.995	GFI > .90	Accurate
12. AGFI	0.980	AGFI > .90	Accurate
13. PGFI	0.565	PGFI > .49	Accurate

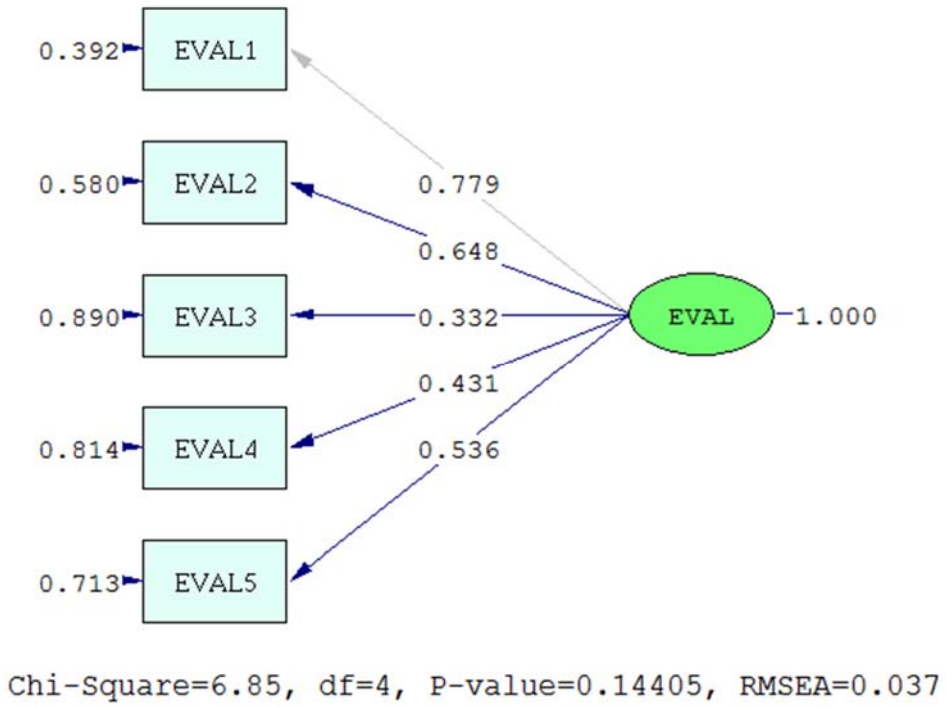

Figure 4.6 Evaluating Measurement Model

4.2.2.3 Triggering (TRIG)

Triggering (TRIG) consists of 6 items, as following,

TRIG1 = When it comes to deciding about a change, I feel overwhelmed by the choices

TRIG 2 = I have trouble following through with things once I've made up my mind to do something

TRIG3 = I don't seem to learn from my mistakes

TRIG4 = I'm usually careful not to overdo it when working/eating/drinking

TRIG5 = I enjoy a routine, and like things to stay the same

TRIG6 = I have sought out advice or information about changing

Results of the correlation coefficient as shown in Table 4.20 for triggering (TRIG) factor indicated positive correlations among items and the KMO value 0.788 which was acceptable.

Table 4.21 Correlation Coefficient of Observed Variables of Triggering Measurement Model

	TRIG1	TRIG2	TRIG3	TRIG4	TRIG5	TRIG6

TRIG1	1.000					
TRIG2	0.391**	1.000				
TRIG3	0.243**	0.255**	1.000			
TRIG4	0.272**	0.288**	0.234**	1.000		
TRIG5	0.230**	0.206**	0.259**	0.207**	1.000	
TRIG7	0.345**	0.495**	0.267**	0.407**	0.277**	1.000

KMO = 0.788, Bartlett's Test of Sphericity: Approx. Chi-Square = 394.515, *df* = 15, p = .000

Note: ** Significant at the 0.01 level

Result of FA as shown in Table 4.21 shown that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.371-0.728, Standard error 0.109-0.143 and square multiple correlations (SMC) 0.138-0.530. The construct reliability (ρ_c) = 0.711, indicated convergent validity which is the ratio of observed variables covariance in the Same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 71.10% (very high). The average variance extracted (ρ_v) = 0.362 indicated that the TRIG model could explain 36.20% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.22 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of Triggering Measurement Model

Triggering	**Factor loading** (λ_i)	**Standard Error** (SE_{λ_i})	**Significant test** (*t*)	**SMC**
TRIG1	0.534**	-	-	0.285
TRIG2	0.658**	0.132	9.302	0.433
TRIG3	0.398**	0.110	6.750	0.158
TRIG4	0.518**	0.119	8.164	0.268
TRIG5	0.371**	0.109	6.393	0.138
TRIG6	0.728**	0.143	9.565	0.530

Construct reliability (ρ_c) = 0.711, Average variance extracted (ρ_v) = 0.362

Note: ** Significant at the 0.01 level

The validation of triggering measurement model were presented by goodness of fit indices as Table 4.22 and Figure 4-7. Results of the CFA for the triggering measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 14.585, *df* = 8, *p* = 0.0680, χ^2 /*df* = 1.823, RMSEA = 0.040, NFI = 0.978, NNFI = 0.981, CFI = 0.990, RMR = 0.024, SRMR = 0.024, GFI = 0.991, AGFI = 0.975 and PGFI = 0.577. The CFA model tested that the triggering sample data would support the six observed variables structure.

Table 4.23 Goodness of Fit Indices of Triggering Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	14.585	-	-
2. *df*	8	-	-
3. *p*	0.068	*p*> .05	Accurate
4. χ^2 /*df*	1.823	χ^2/*df* < 2.00	Accurate
5. RMSEA	0.040	RMSEA < .05	Accurate
6. NFI	0.978	NFI >.90	Accurate
7. NNFI	0.981	NNFI > .90	Accurate
8. CFI	0.990	CFI > .90	Accurate
9. RMR	0.024	RMR < .05	Accurate
10. SRMR	0.024	SRMR < .05	Accurate
11. GFI	0.991	GFI > .90	Accurate
12. AGFI	0.975	AGFI > .90	Accurate
13. PGFI	0.577	PGFI > .49	Accurate

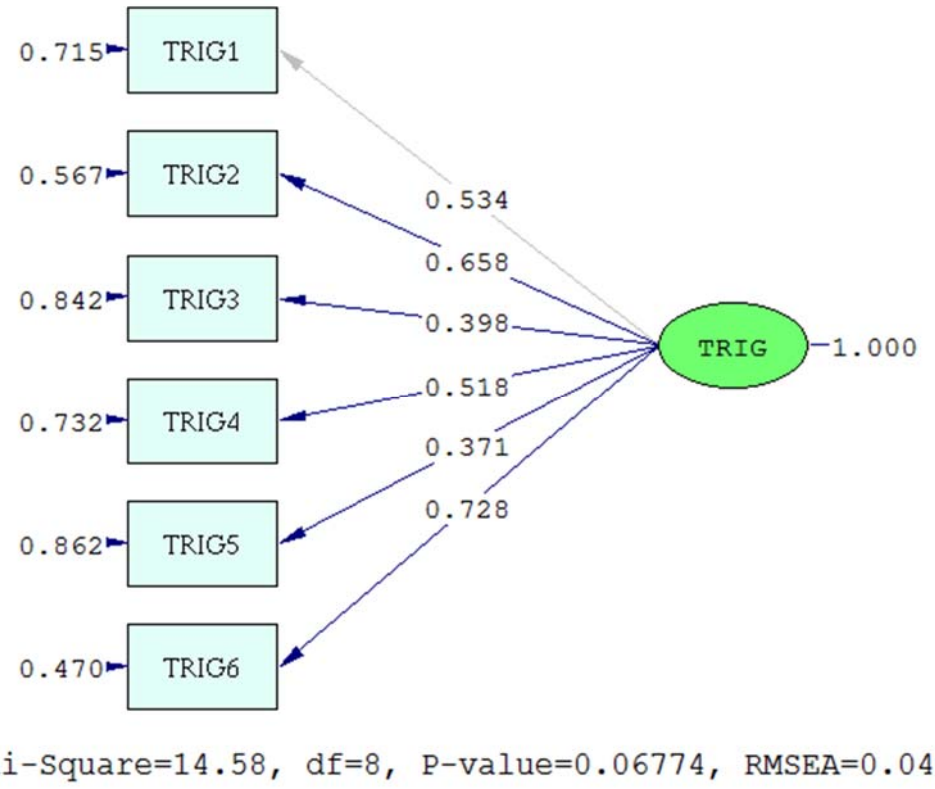

Figure 4.7 Triggering Measurement Model

4.2.2.4 Searching (SEAR)

Searching (SEAR) consists of 6 items, as following,

SEAR1 = I usually only have to make a mistake one time in order to learn from it

SEAR 2 = I don't learn well from punishment

SEAR3 = As soon as I see a problem or challenge, I start looking for possible solutions

SEAR4 = I have a hard time setting goals for myself

SEAR5 = I have a lot of willpower

SEAR6 = When I'm trying to change something, I pay attention to how I'm doing

Results of the correlation coefficient as shown in Table 4.23 for searching (SEAR) factor indicated positive correlations among items and the KMO value 0.759 which was acceptable.

Table 4.24 Correlation Coefficient of Observed Variables of Searching Measurement Model

	SEAR1	SEAR2	SEAR3	SEAR4	SEAR5	SEAR6

SEAR1	1.000					
SEAR2	0.248**	1.000				
SEAR3	0.237**	0.295**	1.000			
SEAR4	0.265**	0.201**	0.314**	1.000		
SEAR5	0.295**	0.262**	0.388**	0.356**	1.000	
SEAR7	0.246**	0.261**	0.208**	0.285**	0.212**	1.000

KMO = 0.759, Bartlett's Test of Sphericity: Approx. Chi-Square = 254.372, *df* = 15, p = .000

Note: ** Significant at the 0.01 level

Results of FA as shown in Table 4.24 shown that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.441-0.595, Standard error 0.139-0.165 and square multiple correlations (SMC) 0.194-0.354. The construct reliability (ρ_c) = 0.699, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 69.90% (very high). The average variance extracted (ρ_v) = 0.338 indicated that the SEAR model could explain 33.80% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.25 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of Searching Measurement Model

Searching	**Factor loading** (λ_i)	**Standard Error** (SE_{λ_i})	**Significant test** (*t*)	**SMC**
SEAR1	0.475**			0.226
SEAR2	0.504**	0.154	6.879	0.254
SEAR3	0.564**	0.155	7.655	0.318
SEAR4	0.586**	0.165	7.488	0.343
SEAR5	0.595**	0.160	7.840	0.354
SEAR6	0.441**	0.139	6.693	0.194

Construct reliability (ρ_c) = 0.699, Average variance extracted (ρ_v) = 0.338

Note: ** Significant at the 0.01 level

The validation of searching measurement model were presented by goodness of fit indices as Table 4.25 and Figure 4-8. Results of the CFA for the searching measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 13.698, *df* = 8, *p* = 0.090, χ^2/df = 1.712, RMSEA = 0.037, NFI = 0.977, NNFI = 0.982, CFI = 0.990, RMR = 0.026, SRMR = 0.026, GFI = 0.991, AGFI = 0.977 and PGFI = 0.578. The CFA model tested that the searching sample data would support the six observed variables structure.

Table 4.26 Goodness of Fit Indices of Searching Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	13.698	-	-
2. *df*	8	-	-
3. *p*	0.090	*p*> .05	Accurate
4. χ^2/df	1.712	χ^2/df < 2.00	Accurate
5. RMSEA	0.037	RMSEA < .05	Accurate
6. NFI	0.977	NFI >.90	Accurate
7. NNFI	0.982	NNFI > .90	Accurate
8. CFI	0.990	CFI > .90	Accurate
9. RMR	0.026	RMR < .05	Accurate
10. SRMR	0.026	SRMR < .05	Accurate
11. GFI	0.991	GFI > .90	Accurate
12. AGFI	0.977	AGFI > .90	Accurate
13. PGFI	0.578	PGFI > .49	Accurate

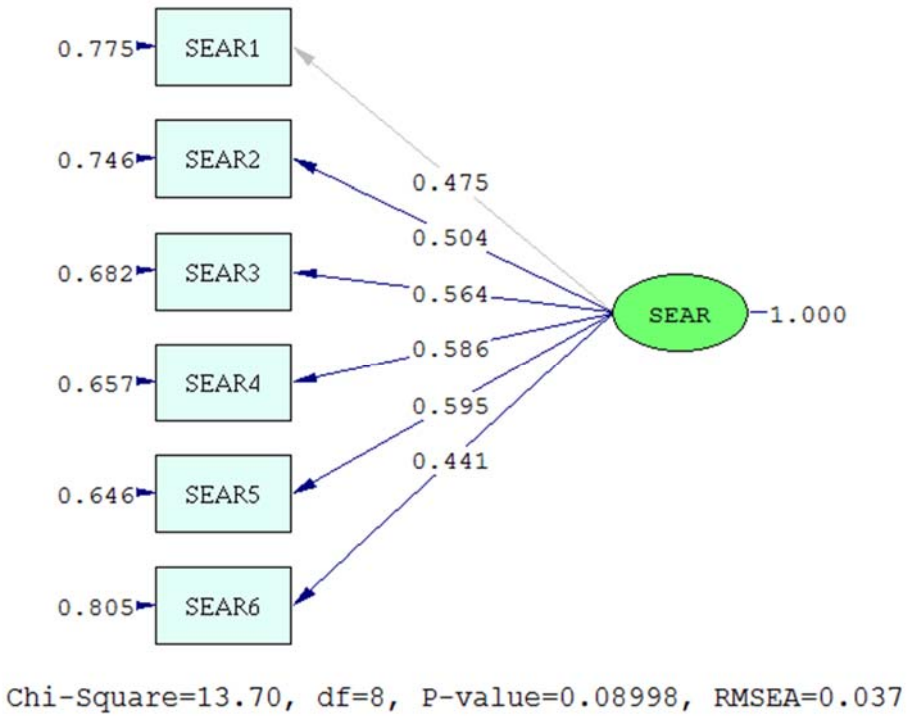

Figure 4.8 Searching Measurement Model

4.2.2.5 Formulating (FORM)

Formulating (FORM consists of 9 items, as following,

FORM1 = I don't care if I'm different from most people

FORM2 = As soon as I see things aren't going right I want to do something about it

FORM3 = There is usually more than one way to accomplish something

FORM4 = I have trouble making plans to help me reach goals

FORM5 = I am able to resist temptation

FORM6 = I set goals for myself and keep track of my progress

FORM7 = Most of the time I don't pay attention to what I'm doing

FORM8 = I try to be like people around me

FORM9 = I tend to keep doing the same thing, even when it doesn't work

Results of the correlation coefficient as shown in Table 4.26 for formulating (FORM) factor indicated positive correlations among items and the KMO value 0.782 which was acceptable.

Table 4.27 Correlation Coefficient of Observed Variables of Formulating Measurement Model

	FORM1	FORM2	FORM3	FORM4	FORM5	FORM6	FORM7	FORM8	FORM9
FORM1	1.000								
FORM2	0.515**	1.000							
FORM3	0.263**	0.268**	1.000						
FORM4	0.397**	0.425**	0.364**	1.000					
FORM5	0.418**	0.409**	0.240**	0.465**	1.000				
FORM6	0.351**	0.456**	0.296**	0.409**	0.649**	1.000			
FORM7	0.262**	0.220**	0.220**	0.286**	0.230**	0.305**	1.000		
FORM8	0.255**	0.270**	0.204**	0.226**	0.232**	0.205**	0.351**	1.000	
FORM9	0.275**	0.214**	0.241**	0.210**	0.213**	0.264**	0.304**	0.437**	1.000
KMO = 0.782, Bartlett's Test of Sphericity: Approx. Chi-Square = 1148.630, *df* = 36, p = .000									

Note: ** Significant at the 0.01 level

Results of FA as shown in Table 4.27 indicated that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.369-0.682, Standard error 0.084-0.110 and square multiple correlations (SMC) 0.136-0.465. The construct reliability (ρ_c) = 0.793, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 79.30% (very high). The average variance extracted (ρ_v) = 0.348 indicated that the FORM model could explain 34.80% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.28 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of Formulating Measurement Model

Formulating	**Factor loading (λ_i)**	**Standard Error (SE_{λ_i})**	**Significant test (*t*)**	**SMC**
FORM1	0.619**	-	-	0.383

FORM2	0.623**	0.084	12.051	0.388
FORM3	0.452**	0.095	7.671	0.204
FORM4	0.646**	0.101	10.340	0.417
FORM5	0.682**	0.109	10.084	0.465
FORM6	0.675**	0.110	9.967	0.456
FORM7	0.429**	0.091	7.593	0.184
FORM8	0.369**	0.088	6.807	0.136
FORM9	0.389**	0.090	7.002	0.151
Construct reliability (ρ_c) = 0.793, Average variance extracted (ρ_v) = 0.348				

Note: ** Significant at the 0.01 level

The validation of formulating measurement model were presented by goodness of fit indices as Table 4.28 and Figure 4-9. Results of the CFA for the formulating measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 26.477, *df* = 17, *p* = 0.066, χ^2/df = 1.557, RMSEA = 0.033, NFI = 0.986, NNFI = 0.989, CFI = 0.995, RMR = 0.022, SRMR = 0.022, GFI = 0.989, AGFI = 0.970 and PGFI = 0.573. The CFA model tested that the formulating sample data would support the nine observed variables structure.

Table 4.29 Goodness of Fit Indices of Formulating Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	26.477	-	-
2. *df*	17	-	-
3. *p*	0.066	*p*> .05	Accurate
4. χ^2/df	1.557	χ^2/df < 2.00	Accurate
5. RMSEA	0.033	RMSEA < .05	Accurate
6. NFI	0.986	NFI >.90	Accurate
7. NNFI	0.989	NNFI > .90	Accurate
8. CFI	0.995	CFI > .90	Accurate
9. RMR	0.022	RMR < .05	Accurate

10. SRMR	0.022	SRMR < .05	Accurate
11. GFI	0.989	GFI > .90	Accurate
12. AGFI	0.970	AGFI > .90	Accurate
13. PGFI	0.573	PGFI > .49	Accurate

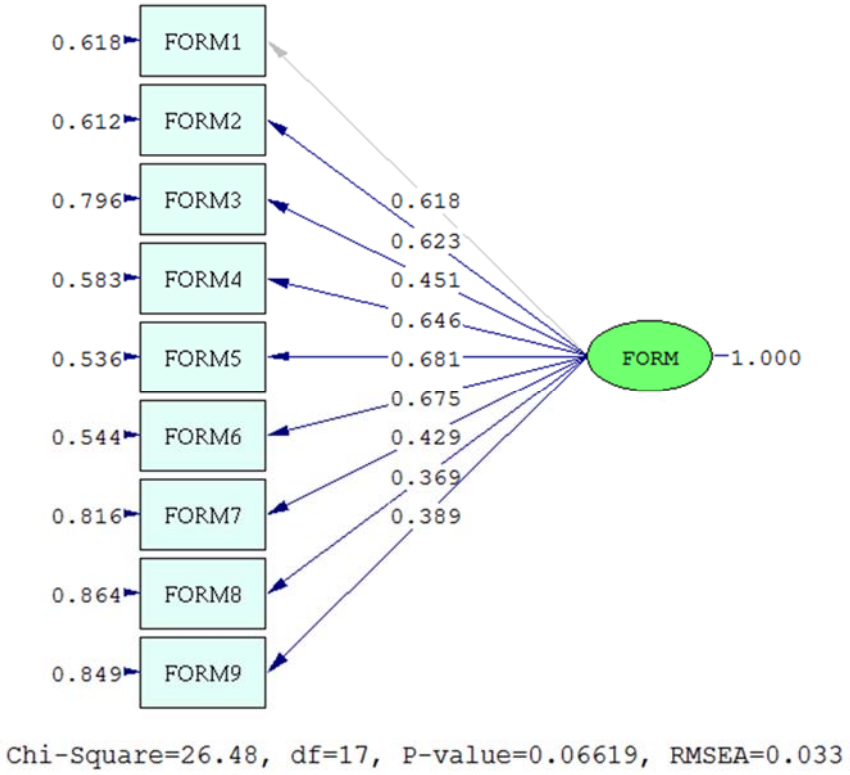

Figure 4.9 Formulating Measurement Model

4.2.2.6 Implementing (IMPL)

Implementing (IMPL) consists of 6 items,as following,

IMPL1 = Once I have a goal, I can usually plan how to reach it

IMPL2 = I have rules that I stick by no matter what

IMPL3 = Often I don't notice what I'm doing until someone calls it to my attention

IMPL4 = I think a lot about how I'm doing

IMPL5 = I'm good at finding different ways to get what I want

IMPL6 = I usually think before I act

Results of the correlation coefficient as shown in Table 4.29 for implementing (IMPL) factor indicated positive correlations among items and the KMO value 0.795 which was acceptable.

Table 4.30 Correlation Coefficient of Observed Variables of Implementing Measurement Model

	IMPL1	IMPL2	IMPL3	IMPL4	IMPL5	IMPL6
IMPL1	1.000					
IMPL2	0.458**	1.000				
IMPL3	0.227**	0.220**	1.000			
IMPL4	0.299**	0.216**	0.412**	1.000		
IMPL5	0.383**	0.375**	0.220**	0.252**	1.000	
IMPL7	0.441**	0.341**	0.266**	0.256**	0.507**	1.000

KMO = 0.795, Bartlett's Test of Sphericity: Approx. Chi-Square = 578.570, *df* = 15, p = .000

Note: ** Significant at the 0.01 level

Results of FA as shown in Table 4.30 shown that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.360-0.717, Standard error 0.076-0.087 and square multiple correlations (SMC) 0.130-0.514. The construct reliability (ρ_c) = 0.722, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 72.20%. The average variance extracted (ρ_v) = 0.375 indicated that the IMPL model could explain 37.50% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.31 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of Implementing Measurement Model

Implementing	**Factor loading** (λ_i)	**Standard Error** (SE_{λ_i})	**Significant test** (*t*)	**SMC**
IMPL1	0.717**	-	-	0.514
IMPL2	0.617**	0.084	10.231	0.381
IMPL3	0.360**	0.076	6.606	0.130
IMPL4	0.406**	0.077	7.374	0.165
IMPL5	0.569**	0.086	9.265	0.324
IMPL6	0.603**	0.087	9.700	0.364
Construct reliability (ρ_c) = 0.722, Average variance extracted (ρ_v) = 0.375				

Note: ** Significant at the 0.01 level

The validation of implementing measurement model were presented by goodness of fit indices as Table 4.31 and Figure 4-10. Results of the CFA for the implementing measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 9.685, *df* = 7, *p* = 0.207, χ^2/df = 1.383, RMSEA = 0.027, NFI = 0.989, NNFI = 0.992, CFI = 0.996, RMR = 0.019, SRMR = 0.0198, GFI = 0.994, AGFI = 0.981 and PGFI = 0.531. The CFA model tested that the implementing sample data would support the six observed variables structure.

Table 4.32 Goodness of Fit Indices of Implementing Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	9.685	-	-
2. *df*	7	-	-
3. *p*	0.207	*p*> .05	Accurate
4. χ^2/df	1.384	χ^2/df < 2.00	Accurate
5. RMSEA	0.027	RMSEA < .05	Accurate
6. NFI	0.989	NFI >.90	Accurate
7. NNFI	0.992	NNFI > .90	Accurate
8. CFI	0.996	CFI > .90	Accurate
9. RMR	0.019	RMR < .05	Accurate
10. SRMR	0.019	SRMR < .05	Accurate
11. GFI	0.994	GFI > .90	Accurate
12. AGFI	0.981	AGFI > .90	Accurate
13. PGFI	0.531	PGFI > .49	Accurate

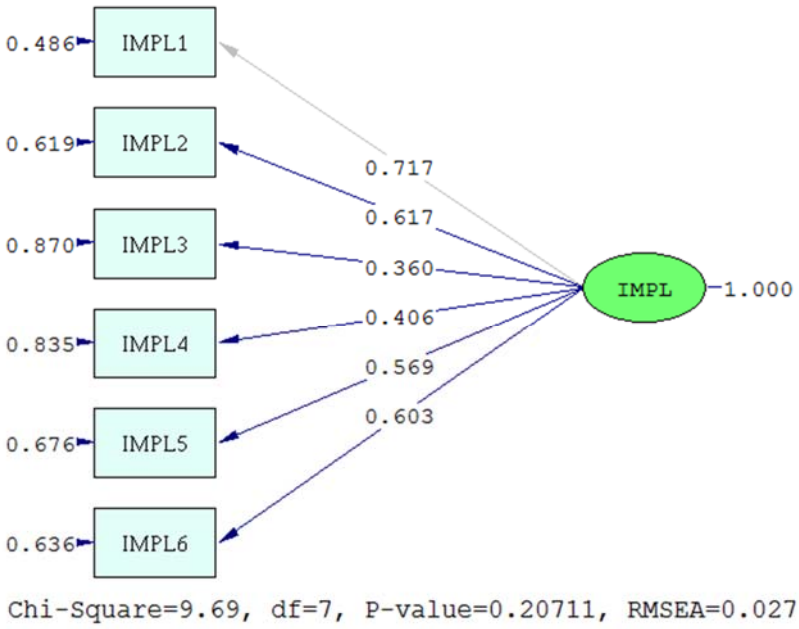

Figure 4.10 Implementing Measurement Model

4.2.2.7 Assessing (ASSE)

Assessing (ASSE) consists of 8 items, as following,

ASSE1 = I feel bad when I don't meet my goals

ASSE2 = I learn from my mistakes

ASSE3 = I know how I want to be

ASSE4 = It bothers me when things aren't the way I want them

ASSE5 = I call in others for help when I need it

ASSE6 = Before making a decision, I consider what is likely to happen if I do one thing or another

ASSE7 = I give up quickly

ASSE8 = I decide to change and expect the best result

Results of the correlation coefficient as shown in Table 4.32 for assessing (ASSE) factor indicated positive correlations among items and the KMO value 0.815 which was acceptable.

Table 4.33 Correlation Coefficient of Observed Variables of Assessing Measurement Model

	ASSE1	ASSE2	ASSE3	ASSE4	ASSE5	ASSE6	ASSE7	ASSE8
ASSE1	1.000							
ASSE2	0.293**	1.000						
ASSE3	0.205**	0.362**	1.000					
ASSE4	0.289**	0.390**	0.457**	1.000				
ASSE5	0.361**	0.420**	0.494**	0.466**	1.000			
ASSE6	0.249**	0.223**	0.271**	0.369**	0.297**	1.000		
ASSE7	0.208**	0.212**	0.238**	0.272**	0.246**	0.291**	1.000	
ASSE8	0.253**	0.290**	0.207**	0.289**	0.295**	0.258**	0.280**	1.000

KMO = 0.815, Bartlett's Test of Sphericity: Approx. Chi-Square = 707.933, *df* = 28, p = .000

Note: ** Significant at the 0.01 level

Results of FA as shown in Table 4.33 shown that all factors loading were significant at the 0.01 level. (λ_i should higher than 0.60) (Kline, 2005, p. 178). Ranged of factor loading 0.385-0.687, Standard error 0.120-0.153 and square multiple correlations (SMC) 0.148-0.472. The construct reliability (ρ_c) = 0.780, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 78.0% (very high). The average variance extracted (ρ_v) = 0.329 indicated that the ASSE model could explain 32.90% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.34 Factor Loading (λ_i), Standard Error (SE_{λ_i}), Significant Test (*t*), Square Multiple Correlation (*SMC*) of Assessing Measurement Model

Assessing	Factor loading (λ_i)	Standard Error (SE_{λ_i})	Significant test (*t*)	SMC
ASSE1	0.494**	-	-	0.244
ASSE2	0.583**	0.138	8.531	0.340
ASSE3	0.617**	0.153	8.143	0.381
ASSE4	0.686**	0.151	9.175	0.471
ASSE5	0.687**	0.153	9.086	0.472
ASSE6	0.472**	0.127	7.546	0.223
ASSE7	0.385**	0.120	6.516	0.148
ASSE8	0.440**	0.124	7.205	0.194
Construct reliability (ρ_c) = 0.780, Average variance extracted (ρ_v) = 0.329				

Note: ** Significant at the 0.01 level

The validation of assessing measurement model were presented by goodness of fit indices as Table 4.34 and Figure 4-11. Results of the CFA for the assessing measurement model validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 21.080, *df* = 16, *p* = 0.175, χ^2/df = 1.3171, RMSEA = 0.025, NFI = 0.985, NNFI = 0.993, CFI = 0.996, RMR = 0.024, SRMR = 0.024, GFI = 0.990, AGFI = 0.977 and PGFI = 0.540. The CFA model

tested that the assessing sample data would support the eight observed variables structure.

Table 4.35 Goodness of Fit Indices of Assessing Measurement Model

Fit indices	Value	Criterion	Meaning
1. χ^2	21.080	-	-
2. *df*	16	-	-
3. *p*	0.175	*p*> .05	Accurate
4. χ^2/df	1.318	χ^2/df < 2.00	Accurate
5. RMSEA	0.025	RMSEA < .05	Accurate
6. NFI	0.985	NFI >.90	Accurate
7. NNFI	0.993	NNFI > .90	Accurate
8. CFI	0.996	CFI > .90	Accurate
9. RMR	0.024	RMR < .05	Accurate
10. SRMR	0.024	SRMR < .05	Accurate
11. GFI	0.990	GFI > .90	Accurate
12. AGFI	0.977	AGFI > .90	Accurate
13. PGFI	0.540	PGFI > .49	Accurate

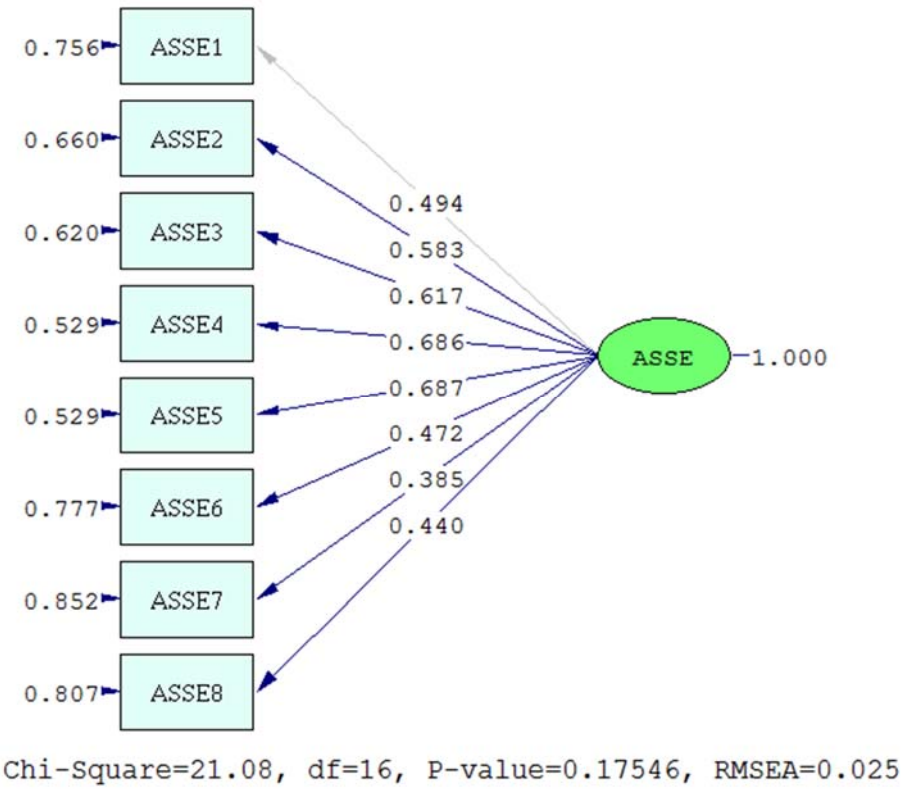

Figure 4.11 Assessing Measurement Model

4.2.3 Construct validity

Validation of construct validity of Mindfulness Model and Self-Regulation Model using the secondary order confirmatory factor analysis. The 2nd Order CFA indicated that all sub-factors were under one main factor and which sub-factors most important and to measure a construct model and validated a good fit between the conceptual model and the empirical data. Data analysis will show the Factor loading (λ_i), Standard Error (SE_{λ_i}), Significant test (t), Square multiple correlation (SMC), Goodness of fit indices such as χ^2, χ^2/df, RMSEA, RMR, SRMR, CFI, NFI, NNFI, GFI, AGFI, PGFI, The internal consistency: Construct reliability (ρ_C) and Average variance extracted (ρ_V).

4.2.3.1 Mindfulness Model

Mindfulness construct model (TBMM) consists of 4 factors, 34 observed variables. Data analysis showed the Factor loading (λ_i), Standard Error (SE_{λ_i}), Significant test (t), Square multiple correlation (SMC) as following.

The standard factors loading of observed variables were significant at the 0.01 level. Ranged of factor loading 0.363-0.853, Standard error 0.094-0.174 and square multiple correlations (SMC) 0.132-0.728 as shown in Table 4.35.

Table 4.36 Factor Loading (λ_y), Standard Error (SE_{λ_y}), Significant Test (t), Square Multiple Correlation (SMC) of Observed Variables of Mindfulness Model

Observed Variables	Factor Loading			
	$B(\lambda_y)$	SE_{λ_y}	t	R^2
Mindfulness of Body				
MB1	0.534**	-	-	0.285
MB2	0.600**	0.094	10.880	0.360
MB3	0.506**	0.123	9.603	0.256
MB4	0.363**	0.133	9.230	0.132
MB5	0.396**	0.118	9.315	0.157
MB6	0.447**	0.113	9.932	0.200
MB7	0.390**	0.110	7.777	0.152

Table 4.36 Continued

Observed Variables	Factor Loading			
	$B(\lambda_y)$	$SE\,\lambda_y$	*t*	R^2
Mindfulness of Feeling				
MF1	0.608**	-	-	0.370
MF2	0.681**	0.111	10.167	0.464
MF3	0.512**	0.113	7.490	0.262
MF4	0.73**	0.129	9.477	0.533
MF5	0.66**	0.127	8.604	0.436
MF6	0.524**	0.127	6.809	0.275
MF7	0.659**	0.127	8.596	0.434
Mindfulness of Mind				
MM1	0.627**	-	-	0.393
MM2	0.634**	0.114	8.921	0.402
MM3	0.641**	0.116	8.611	0.411
MM4	0.497**	0.117	6.820	0.247
MM5	0.586**	0.106	8.701	0.343
MM6	0.582**	0.109	8.364	0.339
MM7	0.644**	0.117	8.669	0.415
MM8	0.649**	0.117	8.808	0.421
MM9	0.527**	0.107	7.831	0.278
Mindfulness of Object				
MO1	0.548**	-	-	0.300
MO2	0.738**	0.132	10.514	0.545
MO3	0.789**	0.154	9.625	0.623
MO4	0.853**	0.174	9.141	0.728
MO5	0.794**	0.155	9.600	0.630
MO6	0.773**	0.161	9.001	0.598
MO7	0.575**	0.136	7.894	0.331
MO8	0.463**	0.132	6.580	0.214
MO9	0.509**	0.140	6.697	0.259
MO10	0.515**	0.148	6.330	0.265
MO11	0.486**	0.153	5.841	0.236

Note: ** Significant at the 0.01 level

The standard factors loading of 4 latent variables as show in Table 4.36 were significant at the 0.01 level. Mindfulness of Mind (MM) has the highest factor loading which is γ= 0.827, $SE\,\gamma_y$= 0.055, SMC = 0.684. The second is Mindfulness of Object (MO) which is γ= 0.785, $SE\,\gamma_y$= 0.049, SMC = 0.616, Mindfulness of Body (MB) which is γ= 0.737, $SE\,\gamma_y$= 0.053, SMC = 0.543 and Mindfulness of Feeling (MF) which is γ= 0.484, $SE\,\gamma_y$= 0.047, SMC = 0.234 respectively.

Table 4.37 Factor Loading (λ_y), Standard Error ($SE\,\lambda_y$), Significant Test (t), Square Multiple Correlation (SMC) of Latent Variables of Mindfulness Model

Latent Variables	Factor Loading			
	***B* (γ)**	***SE*** γ	***t***	***R²***
Mindfulness of Body (MB)	0.737**	0.053	9.098	0.543
Mindfulness of Feeling (MF)	0.484**	0.047	6.265	0.234
Mindfulness of Mind (MM)	0.827**	0.055	9.477	0.684
Mindfulness of Object (MO)	0.785**	0.049	8.502	0.616

Note: ** Significant at the 0.01 level

The validation of mindfulness construct model (TBMM) were presented by goodness of fit indices as Table 4.37 and Figure 4-12. Results of the 2nd order CFA for the mindfulness construct model (TBMM)validation indicated a good fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 418.947, df = 376, p = 0.063, χ^2/df = 1.114, RMSEA = 0.019, NFI = 0.971, NNFI = 0.994, CFI = 0.996, RMR = 0.041, SRMR = 0.041, GFI = 0.926, AGFI = 0.903 and PGFI = 0.585. The CFA model tested that the assessing sample data would support the eight observed variables structure. The construct reliability (ρ_c) = 0.949, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 94.90% (very high). The average variance extracted (ρ_v) = 0.362 indicated that the ASSE model could explain 36.20% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.38 Goodness of Fit Indices of Mindfulness Construct Model (TBMM)

Fit indices	Value	Criterion	Meaning
1. χ^2	418.947	-	-
2. *df*	376	-	-
3. *p*	0.063	*p*> .05	Accurate
4. χ^2/df	1.114	χ^2/df < 2.00	Accurate
5. RMSEA	0.019	RMSEA < .05	Accurate
6. NFI	0.971	NFI >.90	Accurate
7. NNFI	0.994	NNFI > .90	Accurate
8. CFI	0.996	CFI > .90	Accurate
9. RMR	0.041	RMR < .05	Accurate
10. SRMR	0.041	SRMR < .05	Accurate
11. GFI	0.926	GFI > .90	Accurate
12. AGFI	0.903	AGFI > .90	Accurate
13. PGFI	0.585	PGFI > .49	Accurate
Construct reliability (ρ_c) = 0.949, Average variance extracted (ρ_v) = 0.362			

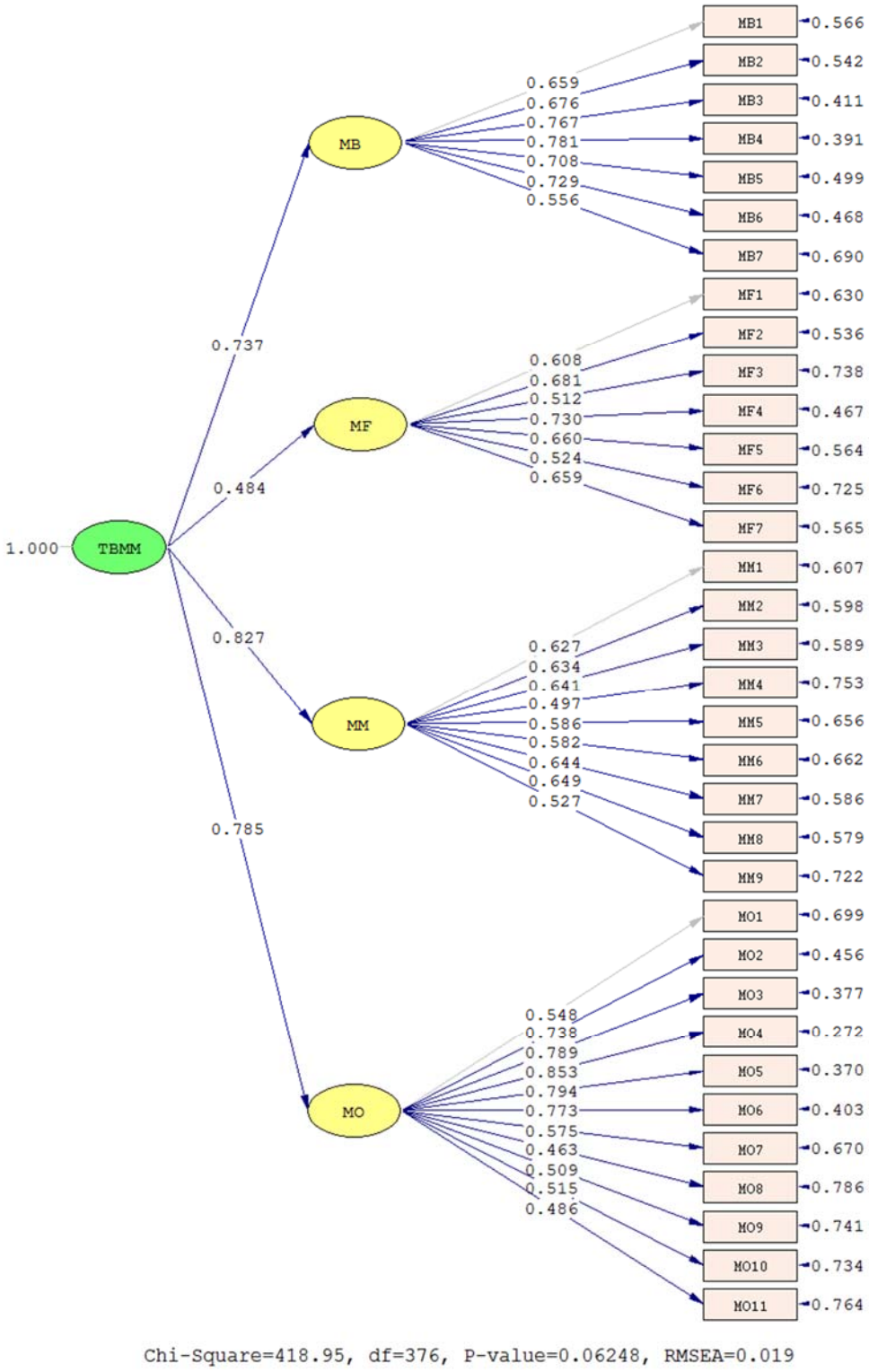

Figure 4.12 Thai Buddhist Mindfulness Model (TBMM)

The factor analyses for the mindfulness measurement developed indicated that mindfulness consists of 4 factors as follow:

1. Mindfulness of Body consists of 7 indicators
2. Mindfulness of Feeling consists of 7 indicators
3. Mindfulness of Mind consists of 9 indicators
4. Mindfulness of Object consists of 11 indicators

Overall, the four factor structure represents a fit to mindfulness model. The confirmatory factor analyses for mindfulness model (TBMM) on the remaining 34 items provided absolute and relative fit indices that were indicative of a strong fit of the model to the data. The single indicators on each factor and the estimated loadings of each latent are statistically significant relatively high at 0.01. Furthermore, the set of indicators shows internal consistency and convergent validity. The mindfulness measurement model is valid according to conceptual framework.

4.2.3.2 Self- Regulation Model

Self- Regulation construct model (SR) consists of 7 factors, 46 observed variables. Data analysis showed the Factor loading (λ_i), Standard Error (SE_{λ_i}), Significant test (t), Square multiple correlation (SMC) as following.

The standard factors loading of observed variables were significant at the 0.01 level. Ranged of factor loading 0.326-0.702, Standard error 0.094-0.338 and square multiple correlations (SMC) 0.106-0.493 as shown in Table 4.38.

Table 4.39 Factor Loading (λ_y), Standard Error (SE_{λ_y}), Significant Test (t), Square Multiple Correlation (SMC) of Observed Variables of Self- Regulation Model

Observed Variables	Factor Loading			
	$B(\lambda_y)$	SE_{λ_y}	t	R^2
Receiving				
RECI1	0.639**			0.408
RECI2	0.456**	0.096	7.375	0.208
RECI3	0.365**	0.094	5.934	0.133
RECI4	0.690**	0.102	10.446	0.476
RECI5	0.526**	0.099	8.358	0.277
RECI6	0.501**	0.097	7.995	0.251
Evaluating				
EVAL1	0.593**			0.352
EVAL2	0.641**	0.108	9.924	0.411
EVAL3	0.423**	0.112	6.401	0.179
EVAL4	0.619**	0.127	8.333	0.383
EVAL5	0.462**	0.105	7.466	0.213

Table 4.39 (Continued)

Observed Variables	Factor Loading			
	$B(\lambda_y)$	$SE\,\lambda_y$	t	R^2
Triggering				
TRIG1	0.528**			0.279
TRIG2	0.598**	0.139	8.249	0.358
TRIG3	0.365**	0.120	5.642	0.133
TRIG4	0.555**	0.134	7.859	0.308
TRIG5	0.326**	0.116	5.206	0.106
TRIG6	0.687**	0.146	8.979	0.472
Searching				
SEAR1	0.330**			0.109
SEAR2	0.368**	0.264	4.224	0.135
SEAR3	0.566**	0.338	4.989	0.320
SEAR4	0.440**	0.287	4.560	0.194
SEAR5	0.493**	0.305	4.793	0.243
SEAR6	0.450**	0.285	4.777	0.203
Formulating				
FORM1	0.590**			0.348
FORM2	0.625**	0.106	9.988	0.391
FORM3	0.437**	0.112	6.727	0.191
FORM4	0.579**	0.115	8.475	0.335
FORM5	0.702**	0.122	9.649	0.493
FORM6	0.685**	0.126	9.214	0.469
FORM7	0.523**	0.111	7.762	0.274
FORM8	0.408**	0.109	6.240	0.166
FORM9	0.457**	0.112	6.925	0.209
Implementing				
IMPL1	0.656**			0.430
IMPL2	0.673**	0.101	10.116	0.453
IMPL3	0.489**	0.100	7.387	0.239
IMPL4	0.373**	0.096	5.913	0.139
IMPL5	0.580**	0.099	8.968	0.336
IMPL6	0.643**	0.100	9.774	0.413
Assessing				
ASSE1	0.438**			0.192
ASSE2	0.536**	0.200	6.163	0.287
ASSE3	0.569**	0.220	5.959	0.324
ASSE4	0.625**	0.215	6.609	0.391
ASSE5	0.654**	0.223	6.672	0.428
ASSE6	0.406**	0.175	5.276	0.165
ASSE7	0.378**	0.176	5.019	0.143
ASSE8	0.406**	0.181	5.219	0.165

Note: ** Significant at the 0.01 level

The standard factors loading of 7 latent variables of Self- Regulation Model were significant at the 0.01 level and values were very high (λ_i should higher than 0.60) (Kline, 2005, p. 178) as shown in Table 4.39 arranging in descending order as below.

1. Triggering which is γ= 0.995, $SE\,\gamma_y$= 0.054, SMC = 0.990.
2. Receiving which is γ= 0.979, $SE\,\gamma_y$= 0.053, SMC = 0.958.
3. Evaluating which is γ= 0.962, $SE\,\gamma_y$= 0.054, SMC = 0.925.
4. Formulating which is γ= 0.960, $SE\,\gamma_y$= 0.053, SMC = 0.922.
5. Implementing which is γ= 0.952, $SE\,\gamma_y$= 0.053, SMC = 0.906.
6. Searching which is γ= 0.918, $SE\,\gamma_y$= 0.056, SMC = 0.843.
7. Assessing which is γ= 0.824, $SE\,\gamma_y$= 0.051, SMC = 0.679.

Table 4.40 Factor Loading (λ_y), Standard Error ($SE\,\lambda_y$), Significant test (*t*), Square Multiple Correlation (*SMC*) of Latent Variables of Self- Regulation Model

Latent Variables	Factor Loading			
	***B* (γ)**	***SE*** γ	***t***	***R*²**
Receiving	0.979**	0.053	11.942	0.958
Evaluating	0.962**	0.054	10.484	0.925
Triggering	0.995**	0.054	9.694	0.990
Searching	0.918**	0.056	5.428	0.843
Formulating	0.960**	0.053	10.663	0.922
Implementing	0.952**	0.053	11.876	0.906
Assessing	0.824**	0.051	6.999	0.679

Note: ** Significant at the 0.01 level

The validation of self-regulation construct model were presented by goodness of fit indices as Table 4.40 and Figure 4-13. Results of the 2nd order CFA for the self-regulation construct model (SR)validation indicated a good fit between the

conceptual model and the observed data with the goodness of fit statistics: χ^2= 713.572, *df* = 665, *p* = 0.094, χ^2/df = 1.073, RMSEA = 0.015, NFI = 0.971, NNFI = 0.998, CFI = 0.999, RMR = 0.045, SRMR = 0.046, GFI = 0.908, AGFI = 0.901 and PGFI = 0.559. The CFA model tested that the assessing sample data would support the eight observed variables structure.

The construct reliability (ρ_c) = 0.946, indicated convergent validity which is the ratio of observed variables covariance in the same latent variable (should higher than 0.60, (Hair et al., 2010, p. 680)) that means the reliability of model structure is 94.60% (very high). The average variance extracted (ρ_v) = 0.313 indicated that the ASSE model could explain 31.30% of observed variables variance. (Diamantopoulos & Siguaw, 2000, p. 91).

Table 4.41 Goodness of Fit Indices of Self- Regulation Construct Model (SR)

Fit indices	Value	Criterion	Meaning
1. χ^2	713.572	-	-
2. *df*	665	-	-
3. *p*	0.094	*p*> .05	Accurate
4. χ^2/df	1.073	χ^2/df < 2.00	Accurate
5. RMSEA	0.015	RMSEA < .05	Accurate
6. NFI	0.971	NFI >.90	Accurate
7. NNFI	0.998	NNFI > .90	Accurate
8. CFI	0.999	CFI > .90	Accurate
9. RMR	0.045	RMR < .05	Accurate
10. SRMR	0.046	SRMR < .05	Accurate
11. GFI	0.908	GFI > .90	Accurate
12. AGFI	0.901	AGFI > .90	Accurate
13. PGFI	0.559	PGFI > .49	Accurate

Construct reliability (ρ_c) = 0.946, Average variance extracted (ρ_v) = 0.313

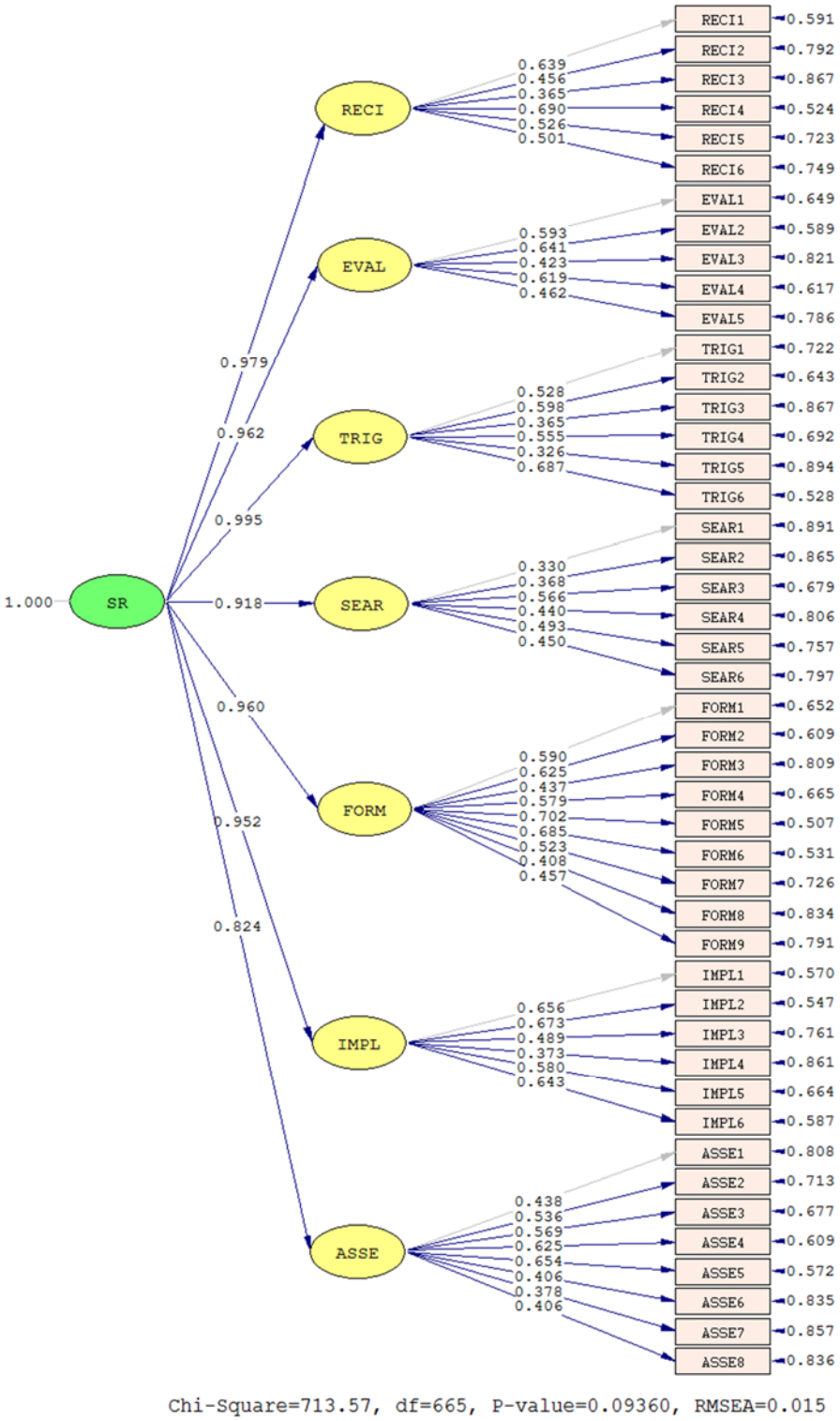

Figure 4.13 Self- Regulation Model (SR)

The factor analyses for the self-regulation measurement developed indicated that mindfulness consists of 7 factors as follow:

1. Receiving consists of 6 indicators
2. Evaluating consists of 5 indicators
3. Triggering consists of 6 indicators
4. Searching consists of 6 indicators
5. Formulating consists of 9 indicators
6. Implementing consists of 6 indicators
7. Assessing consists of 8 indicators

The confirmatory factor examining of the self-regulation model indicate the strong fit of the model to the observed data. The single indicators on each factor and the estimated loadings of each latent are statistically significant relatively high at 0.01. Furthermore, the set of indicators shows internal consistency and convergent validity. The mindfulness measurement model is valid according to conceptual framework.

4.2.4 The effect of meditation experience on mindfulness

The objective of this part of the study was to investigate the effects of some meditation experience on their mindfulness measured by the 34 items of TBMM. Data analysis have been separated into 3 groups of experiences as 1) No Experience, 2) Have Experience but not practice now, 3) Have Experience and still practice. MANOVA (Multivariate Analysis of Variant) were performed to estimate how much variance of the mean scores of the factor dimensions in the mindfulness measure can be account for by employee meditation experience variance to answer to research question of a reliable measure of mindfulness of Thai Buddhist employees can be developed to reflect adequate content of mindfulness identified in the literature. As earlier study, the mindfulness scale was consisted of four factors as Mindfulness of Body (MB), Mindfulness of Feelings (MF), Mindfulness of Mind (MM) and Mindfulness of Object. Therefore, analyses were conducted for each factor on mindfulness scale.

Descriptive statistic of meditation experience as shown in Table 4.41were explained as follow:

Group 1: The level of total mindfulness in participants who has no meditation experience were at moderate level ($\overline{X}$ = 3.303). Considering each factor found that the average score is at high level in 2 dimensions: Mindfulness of Object ($\overline{X}$ = 3.836) and Mindfulness of Body ($\overline{X}$ = 3.604), Mindfulness of Mind was at moderate level

($\overline{X}$ = 3.234) and Mindfulness of Feeling was at low level ($\overline{X}$ = 2.254) respectively.

Group 2: The level of total mindfulness in participants who have experience meditation but not currently continue the practice were at moderate level (M = 3.226). Considering each factor found that the average score is at high level in 2 dimensions: Mindfulness of Object ($\overline{X}$ = 3.805) and Mindfulness of Body ($\overline{X}$ = 3.552), Mindfulness of Mind was at moderate level ($\overline{X}$ = 3.086) and Mindfulness of Feeling was at low level ($\overline{X}$ = 2.168) respectively.

Group 3: The level of total mindfulness in participants who has continuous meditation practice experience were found to be high level ($\overline{X}$ = 3.578). Considering each factor finds, the mean score of 3 factors are at high level; Mindfulness of Object ($\overline{X}$ = 4.033), Mindfulness of Body ($\overline{X}$ = 3.913) and Mindfulness of Mind ($\overline{X}$ = 3.6586). Contrast to the three factors, Mindfulness of Feeling is at a low level ($\overline{X}$ = 2.423)

Table 4.42 Descriptive Statistic of Meditation Experience

Mindfulness	**Meditation experience**					
	No Experience (*n* = 112)		**Have Experience but not practice now (*n* = 118)**		**Have Experience and still practice (*n* = 269)**	
	$\overline{X}$	***SD***	$\overline{X}$	***SD***	$\overline{X}$	***SD***
MB	3.604	0.678	3.552	0.736	3.913	0.625
MF	2.254	0.578	2.168	0.660	2.423	0.738
MM	3.234	0.557	3.086	0.658	3.658	0.584
MO	3.836	0.546	3.805	0.561	4.033	0.530
Total	**3.303**	**0.356**	**3.226**	**0.461**	**3.578**	**0.386**

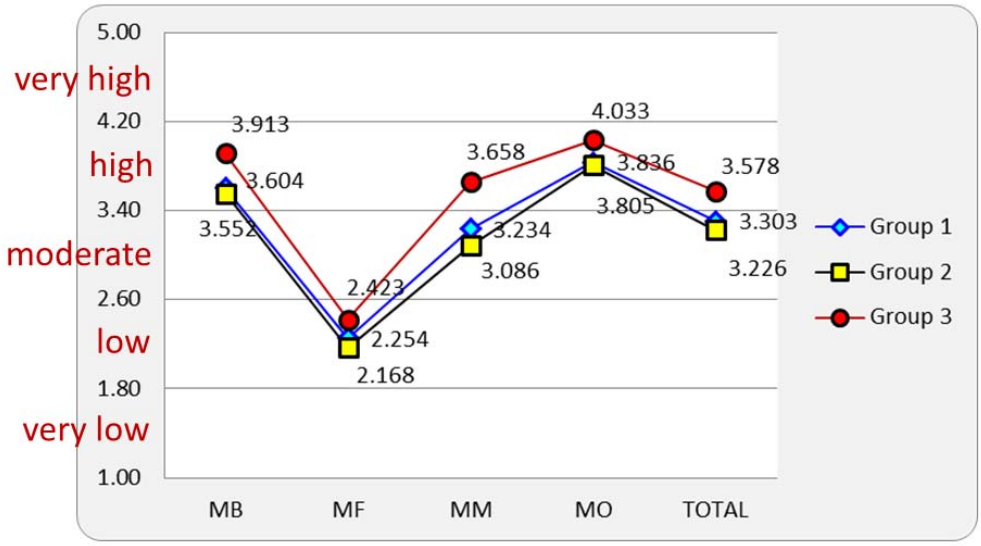

Figure 4.14 Group 1 = No Experience; Group 2 = Have Experience but Not Practice Now; Group 3 = Have Experience and Still Practice

The multivariate analysis of variance (MANOVA) was used to determine whether there are any significant differences between the vectors of mean values of level of mindfulness in three independent groups: meditation experience at the significance level of 95%.

The analysis of Box's Test of Equality of Covariance Matrices is to test the equality of the variance-covariance matrices by considering the sig. value, if sig. value is less than significant level at .05. This explains the inequality of the variance-covariance matrices of sample sizes which contrast to the assumption that the within-group covariance matrices are equal.

Table 4.43 Box's Test of Equality of Covariance Matrices

Box's M	48.562
F	2.396
df_1	20.000
df_2	439956.916
Sig.	0.000

Wilk's Lambda is used to test the null hypothesis that the means of all the independent variables are equal across groups of the dependent variables. If sig. value is less that the significant level (0.05), it explains that there is a relationship between the dependent groups and the independent variables.

Table 4.44 Multivariate Test

	Effect	Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	0.985	8376.274	4	503	0.000
	Wilks' Lambda	0.015	8376.274	4	503	0.000
	Hotelling's Trace	66.611	8376.274	4	503	0.000
	Roy's Largest Root	66.611	8376.274	4	503	0.000
Meditation experience	Pillai's Trace	0.177	12.225	8	1008	0.000
	Wilks' Lambda	0.823	12.839	8	1006	0.000
	Hotelling's Trace	0.214	13.454	8	1004	0.000
	Roy's Largest Root	0.213	26.885	4	504	0.000

The comparison of difference between mean score of mindfulness level and meditation experience found that p <0.01. The alternative hypothesis was accepted. In other words, participants who have difference meditation experience showed the difference level of mindfulness as shown in Table 4.44.

Table 4.45 Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Mindfulness of Body	14.386	2	7.193	16.258	0.000
	Mindfulness of Feeling	6.079	2	3.040	6.483	0.002
	Mindfulness of Mind	32.583	2	16.292	45.884	0.000
	Mindfulness of Object	5.792	2	2.896	9.887	0.000
Intercept	Mindfulness of Body	6010.096	1	6010.096	13584.256	0.000
	Mindfulness of Feeling	2298.104	1	2298.104	4901.505	0.000
	Mindfulness of Mind	4882.447	1	4882.447	13750.908	0.000
	Mindfulness of Object	6684.879	1	6684.879	22823.969	0.000
Meditation experience	Mindfulness of Body	14.386	2	7.193	16.258	0.000
	Mindfulness of Feeling	6.079	2	3.040	6.483	0.002
	Mindfulness of Mind	32.583	2	16.292	45.884	0.000
	Mindfulness of Object	5.792	2	2.896	9.887	0.000
Error	Mindfulness of Body	223.870	506	0.442		
	Mindfulness of Feeling	237.242	506	0.469		
	Mindfulness of Mind	179.662	506	0.355		
	Mindfulness of Object	148.202	506	0.293		
Total	Mindfulness of Body	7417.245	509			
	Mindfulness of Feeling	2990.816	509			
	Mindfulness of Mind	6177.864	509			
	Mindfulness of Object	8028.264	509			
Corrected Total	Mindfulness of Body	238.256	508			
	Mindfulness of Feeling	243.321	508			
	Mindfulness of Mind	212.246	508			
	Mindfulness of Object	153.993	508			

Also considering, the factor MB, MF, MM and MO found that p is less than 0.01, this explained that participants with difference meditation experience had difference level of mindfulness in every dimensions. The post hoc multiple comparison of LSD for four factors of TBMM as shown in Table 4.46, 4.47, 4.48, 4.49 confirmed that participants who have experience and still continuously practice had higher mindfulness level than participants who have no meditation experience

and have meditation experience but not currently practice (MB: 3.913 > 3.604, 3.552, p<.01; MF: 2.423>2.254, p<.05 and 2.423>2.168, p<.01; MM: 3.658>3.234, 3.086, p<.01; MO: 4.033>3.836, p<.05, 4.033>3.805<.01)

Table 4.46 Post-Hoc Multiple Comparison of MB

Group	Meditation Experience	$\overline{X}$	1	2	3
			3.604	**3.552**	**3.913**
1	No experience	3.604	-	0.052	0.309**
2	Have experience but not practice now	3.552		-	0.361**
3	Have experience and still practice	3.913			-

Note: ** Significant at the 0.01 level

Table 4.47 Post-Hoc Multiple Comparison of MF

Group	Meditation Experience	$\overline{X}$	1	2	3
			2.254	**2.168**	**2.423**
1	No experience	2.254	-	0.086	0.169*
2	Have experience but not practice now	2.168		-	0.254**
3	Have experience and still practice	2.423			-

Note: *Significant at the 0.05 level, ** Significant at the 0.01 level

Table 4.48 Post-Hoc Multiple Comparison of MM

Group	Meditation Experience	$\overline{X}$	1	2	3
			3.234	**3.086**	**3.658**
1	No experience	3.234	-	0.148	0.424**
2	Have experience but not practice now	3.086		-	0.572**
3	Have experience and still practice	3.658			-

Note: ** Significant at the 0.01 level

Table 4.49 Post-Hoc Multiple Comparison of MO

Group	Meditation Experience	$\overline{X}$	1	2	3
			3.836	**3.805**	**4.033**
1	No experience	3.836	-	0.031	0.197*
2	Have experience but not practice now	3.805		-	0.228**
3	Have experience and still practice	4.033			-

Note: *Significant at the 0.05 level, ** Significant at the 0.01 level

4.2.5 The relationship of mindfulness and self-regulation in Thai Buddhist employees

Descriptive statistic of mindfulness questionnaire and self-regulation questionnaire in overall and each factor were shown below. Mindfulness score for each factor was shown in Table 4.50, the order of factors from the highest to lowest score was Mindfulness of Object (M=3.933), Mindfulness of Body (M=3.756), Mindfulness of Mind (M=3.423) and Mindfulness of Feeling (M=2.323) respectively.

Table 4.50 Descriptive Statistic of Mindfulness (*n* = 509)

Mindfulness	Mean	SD
Mindfulness of Body	3.756	0.685
Mindfulness of Feeling	2.323	0.692
Mindfulness of Mind	3.423	0.646
Mindfulness of Object	3.933	0.551
Over all	3.430	0.428

Considering each factor of self-regulation as shown in Table 4.51 indicated that 2 factors showing high level of mean scores. Ranking from highest to lowest, the order was Assessing (M=3.820), Searching (M=3.748), Triggering (M=3.344), Receiving (M=3.332), Formulating (M=3.290), Implementing (M=3.228) and Evaluating (M=3.209) respectively.

Table 4.51 Descriptive Statistic of Self-Regulation (*n* = 509)

Self-Regulation	Mean	SD
Receiving	3.332	0.640
Evaluating	3.209	0.702
Triggering	3.344	0.587
Searching	3.748	0.460
Formulating	3.290	0.594
Implementing	3.228	0.647
Assessing	3.820	0.488
Over all	3.438	0.353

4.2.5.1 The relationship of mindfulness and self-regulation

One of the purposes of this study was to test the relationship between mindfulness and self-regulation using Pearson's Correlation Coefficient. Pearson's correlation coefficient between mindfulness and self-regulation as shown in Table 4.52 indicated that:

Mindfulness of body has no relationship with Receiving, Evaluating, Triggering, Formulating and Implementing. Furthermore, the relationship of mindfulness of body showed relationship at low level with Searching (r = 0.232) and Assessing (r = 0.153) significant at the 0.01 level respectively.

Mindfulness of feeling has no relationship with Assessing. Furthermore, the relationship of mindfulness of feeling showed relationship at moderate level with Evaluating (r = --0.381), Formulating (r = 0.346), Implementing (r = 0.328) and at low level with Triggering (r = 0.199), Receiving (r = 0.195) and Searching (r = -0.140) respectively.

Mindfulness of mind has no relationship with Receiving, Evaluating, Triggering, Formulating and Implementing. Furthermore, the relationship of mindfulness of mind showed relationship at low level with Assessing (r = 0.178) and Searching (r = 0.174) significant at the 0.01 level respectively.

Table 4.52 Pearson's Correlation Coefficient between Mindfulness and Self-Regulation (*n*=509)

	MB	MF	MM	MO	RECI	EVAL	TRIG	SEAR	FORM	IMPL	ASSE
Mindfulness of Body	1.000	-0.073	0.496**	0.507**	-0.020	0.045	-0.069	0.232**	-0.015	0.050	0.153**
Mindfulness of Feeling		1.000	0.091*	-0.066	0.195**	-0.381**	0.199**	-0.140**	0.346**	0.328**	-0.040
Mindfulness of Mind			1.000	0.562**	-0.069	0.037	-0.042	0.174**	-0.014	0.060	0.178**
Mindfulness of Object				1.000	0.216**	-0.047	0.203**	0.362**	0.154**	0.233**	0.432**
Receiving					1.000	-0.533**	0.729**	0.229**	0.677**	0.644**	0.340**
Evaluating						1.000	-0.541**	0.140**	-0.563**	-0.574**	0.069
Triggering							1.000	0.252**	0.709**	0.627**	0.398**
Searching								1.000	0.211**	0.184**	0.670**
Formulating									1.000	0.670**	0.327**
Implementing										1.000	0.354**
Assessing											1.000

Note: *Significant at the 0.05 level, ** Significant at the 0.01 level

4.2.5.2 Linear structural relation analysis between mindfulness and self-regulation

This section of linear structural relation analysis used Structural Equation Model (SEM) by LISREL 8.72 covering the Standard factor loading (λ_x), Standard Error ($SE\,\lambda_x$), Significant test (t) and Square Multiple Correlations (SMC)

All factors loading of the external observed variables (Mindfulness) as shown in Table 4.53 ranging from 0.085 to 0.336 were not significant, standard error were 0.810-2.246 and square multiple correlations (SMC) were 0.007-0.113.

Table 4.53 Factor Loading (λ_x), Standard Error ($SE\,\lambda_x$), Significant Test (*t*), Square Multiple Correlation (*SMC*) of External Observed Variables (Mindfulness). (*n* = 509)

External observed variables of Mindfulness	Factor loading (λ_x)	Standard Error ($SE\,\lambda_x$)	Significant t test (*t*)	SMC
Mindfulness of Body	0.085	-	-	0.007
Mindfulness of Feeling	0.336	2.246	1.772	0.113
Mindfulness of Mind	0.092	0.810	1.339	0.008
Mindfulness of Object	0.265	1.803	1.740	0.070

All factors loading of the internal observed variables (self-regulation) as shown in Table 4.54 ranging from 0.309 to 0.841 were significant at the 0.01 level. Standard error 0.046-0.055 and square multiple correlations (SMC) 0.093-0.707.

Table 4.54 Factor Loading (λ_y), Standard Error ($SE\,\lambda_y$), Significant Test (*t*), Square Multiple Correlation (*SMC*) of Internal Observed Variables (Self-Regulation). (*n* = 509)

Internal observed variables of self-regulation	Factor loading (λ_y)	Standard Error ($SE\,\lambda_y$)	Significant t test (*t*)	SMC
Receiving	0.824**	-	-	0.679
Evaluating	0.656**	0.050	15.770	0.430
Triggering	0.841**	0.046	21.950	0.707
Searching	0.309**	0.055	6.784	0.095
Formulating	0.834**	0.047	21.703	0.696
Implementing	0.788**	0.048	20.059	0.621
Assessing	0.433**	0.054	9.729	0.187

Note: ** Significant at the 0.01 level

Path coefficients analysis as shown in Table 4.55 and Figure 4-15 indicated the external variable (Mindfulness) has no direct effect to the internal variable (self-regulation).

Table 4.55 Path Coefficients and Direct Effects from External Variable(Mindfulness) to Internal Variable (Self-Regulation). (n = 509)

External variable (Cause)	**Internal variable (Effect)**		
	Self-regulation		
	DE	**IE**	**TE**
Mindfulness	1.000 (SE=5.360) (t=1.818)	-	1.000 (SE=5.360) (t=1.818)

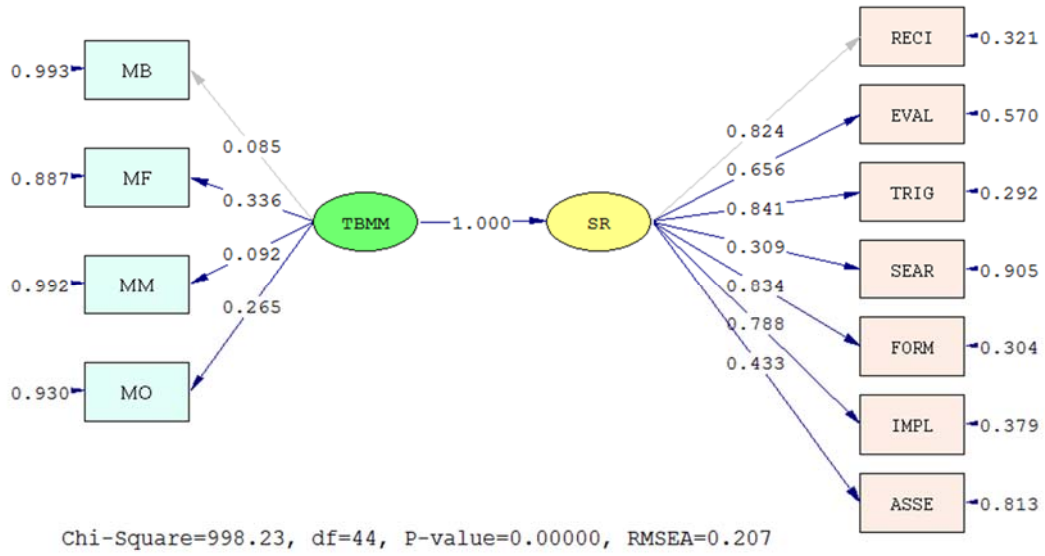

Figure 4.15 Path Coefficients and Direct Effects

4.2.5.3 The validation of self- regulation construct model were presented by goodness of fit indices

Results of the linear structural relation between mindfulness and self-regulation validation indicated a bad fit between the conceptual model and the observed data with the goodness of fit statistics: χ^2= 998.232, df = 44, p = 0.000, χ^2/df = 22.687, RMSEA = 0.207, NFI = 0.736, NNFI = 0.681, CFI = 0.745, RMR = 0.150, SRMR = 0.150, GFI = 0.737, AGFI = 0.605 and PGFI = 0.491. The construct model showed that mindfulness has no effect to self-regulation as shown in Table 4.56.

Table 4.56 Goodness of Fit Indices of Linear Structural Relation between Mindfulness and Self-Regulation

Fit indices	Value	Criterion	Meaning
1. χ^2	998.232	-	-
2. *df*	44	-	-
3. *p*	0.000	*p*> .05	Not Accurate
4. χ^2/df	22.687	$\chi^2/df < 2.00$	Not Accurate
5. RMSEA	0.207	RMSEA < .05	Not Accurate
6. NFI	0.736	NFI >.90	Not Accurate
7. NNFI	0.681	NNFI > .90	Not Accurate
8. CFI	0.745	CFI > .90	Not Accurate
9. RMR	0.150	RMR < .05	Not Accurate
10. SRMR	0.150	SRMR < .05	Not Accurate
11. GFI	0.737	GFI > .90	Not Accurate
12. AGFI	0.605	AGFI > .90	Not Accurate
13. PGFI	0.491	PGFI > .49	Not Accurate

CHAPTER 5

DISCUSSION AND CONCLUSION

The purpose of this chapter is to summarize and discuss the outcomes of the study and also to present the implications arising from these findings for the field of human resource and organizational development and future research. A summary of major findings on the development and testing of the instrument developed to measure mindfulness in Thai Buddhist employees is explained. The result of the study are then discussed in relation to the context of the previous research. This chapter also presents the implications and recommendations for future research. Finally, a discussion of the limitation of the study completes this chapter.

5.1 Summary of the study

This study has three main objectives. The first objective is to develop an efficient and valid instrument for measuring mindfulness in Buddhist employees working in Thailand organizations who are familiar with mindfulness because of their Eastern and Buddhist orientation. The second objective is to examine the relation of mindfulness and meditation experience including comparison the effect of the different type of Buddhist meditation program. The final objective is to investigate the relationship of mindfulness and self-regulation capability. It is anticipated that the mindfulness measure developed would provide an additional tool for the organization to increase its employee performance through training program. Moreover, outcomes of the study might assist to broaden the existing knowledge about mindfulness especially in Buddhism aspect.

The research findings have also revealed that there are several self-report mindfulness measurement being developed including; MAAS by Brown & Bryan, 2003, KIMS by Baer, Smith & Allec, 2004, FMI by Buchheld, Grossman, & Walalch,

2001, FFMQ by Baer R., Smith, Hopkins, Krietemeyer & Toney, 2006. However, most of current mindfulness measurements have been develop by using Western construct and not entirely reliable in measuring mindfulness across the Easter-Western cultural divide. Recent literature provides evidence that a growing number of organizations have been adopting the mindfulness practice in an attempt to enhance their employees' performance. Assessment has become an increasingly critical part of these agenda.

This dissertation research examined the mindfulness definition in aspect of four right mindfulness in Buddhism doctrine. In the light of this purpose, the study sought to develop a valid and reliable instrument, primarily for organization in Thailand, and to measure mindfulness and also to investigate the relationship of meditation experience and level of mindfulness. An extensive literature research of existing instruments in the field of psychology and social science also confirm that current instruments are rarely available to measure mindfulness in term of Buddhism mindfulness concept. Therefore, designing and validating such an instrument would allow organization in Thailand to have an instrument to measure employees' mindfulness level which would contribute to the development of training program which finally leads to employees' performance.

The instrument had been firstly developed by generating item pool based on literature review, theory and conversation with others. Then the items in the initial pool were assessed by the five content experts in the field. The content experts reviewed items to judge the construct relevancy of items in each scale. All items in the scale were on a five-point Likert scale. The instruments were distributed to 50 non-meditators and 50 meditators as a pilot test. The reliability test were performed. Data were then collected using convenience sampling from 509 participants.

Statistical analysis started with factor analysis to investigate the factor loading score in order to remove non- performing variables before a confirmatory factor analysis using LISREL was conducted to test the model for both mindfulness and self-regulation scale. MANOVA was used to investigate the effect other meditating factors i.e. meditation experience, meditation practice program to mindfulness. Lastly the relationship of mindfulness and self-regulation had been analyzed by Pearson's correlation.

5.2 Summary and discussion of results

5.2.1 The development and validation of mindfulness instrument

The comprehensive development of the four factor mindfulness instrument integrated substantial statistical and qualitative processes to create the initial item pool. A total of 5 content area experts and author's own experience were involved in the item development and refinement stages of the study. The content and construct validity assisted in refining the original measure of the instrument. The initial version of 43 items was validated down to a model of 34 items, measuring a total of four factors of assessment mindfulness. The first set of 7 items measured mindfulness of body, the next 7 items measured mindfulness of feelings, the following 9 items measured mindfulness of mind, and the last 11 items measured mindfulness of object in the proposed four factor of TBMM instrument.

The 34 item TBMM instrument was distributed to the Thai Buddhist employees in Thailand. A total of 509 participants were attended in this study. Results from the descriptive statistics of the data revealed that the participants came from a range of different backgrounds with respect of gender, age, degree earned, occupation and working level in organization. As stated previously, the primary purpose of this study was to develop a psychometrically acceptable measure of mindfulness in Thai employees. Considering the first research question of the study, the mindfulness constructs of the TBMM was tested to establish structural aspect of validity and reliability evidence. The underlying assumption in this study was that mindfulness in included multiple dimensions. Therefore the development of four dimensions as hypothesized aimed to measure mindfulness in Thai Buddhist employees. With this regard, a separate series of confirmatory factor analyses were performed for each dimension data until defensible models for these measures were reached. Determination for each revision was derived from the factor analyses. During the process of instrument modification, each dimensions was examined in terms of effects of refinement on content of four factors. This process assisted to provide further evidence for strong construct validation. 9 items were removed from the original 43 items of the TBMM.

During the item development and content validity analysis, each individual item in the initial instrument was evaluating in view of meaning of each construct. Although all 43 items in the initial TBMM instrument were theoretically represent and important for the overall context of four construct, some of items in the instrument did not perform well enough under psychometric testing. The 34 items remaining items in the final instrument not only sufficiently represented the content of four factors but also

performed ideally under psychometric testing as hypothesized. Overall, the results from the final 34 items instrument showed a good model fit. This was a significant indicator for future application of Thai Buddhist Mindfulness Measurement.

Once factor structure were stable, the reliabilities of each factor of TBMM were examined. Cronbach's alpha statistic were used to test each factor to confirm the overall reliability. Throughout the modification, the changes in the reliability were also monitored to make sure that removing items had no any effect on the overall reliability of each factor. The alpha coefficients for the final instrument indicated an acceptable levels of homogeneity and reliability for all four factors.

Key findings of the present investigation were that mindfulness were multifaceted constructs shaped by the factors of body, feelings, mind and object. The proposed four –factor structure of the TBMM were examined from statistical, theoretical, and practical standpoints and confirmed as a valid measure for mindfulness in Thai Buddhist employees.

5.2.2 The effect of meditation experience on mindfulness

One of the main purpose of this study was to explore the relation of mindfulness and meditation experience. The degree of difference and interactions score were accessed at the each subscale level using statistical of MANOVA. It was anticipated that there could be a variation between groups of participant who has different experience of meditation. The correlations between mindfulness and meditation experience were high and positive and statistically significant. These correlations reflected the fact that level of mindfulness depended on the meditation experience. Participants who had meditation experience showed higher mindfulness level than participants who had no meditation experience. In other words, meditation experience could be a predictor of his or her mindfulness.

5.2.3 The self-regulation model

The 63 item self-regulation questionnaire by Brown, Miller, & Lawendowski, 1999 instrument was distributed to the pilot group of 100 participants. The 17 items were removed after the discrimination analysis. The final version of 46 was then again distributed to 509 participants. With the assumption in this study followed the existing literature, therefore, the 46 items aimed to measure 7 content areas. A separate analysis

of confirmatory factor and Cronbach's Alpha performed for each subscale showed that the self-regulation of 46 items model was valid and reliable.

5.2.4 The relationship between mindfulness and self-regulation

One of the main intentions of this study was to explore the relations between mindfulness and self-regulation. To this end, the interactions between scores on both instruments; mindfulness and self-regulation were assessed at the subscales level using Pearson Correlation. It was anticipated that there could be a relation between mindfulness and self-regulation. Anyway, the analysis showed that all intercorrelations among the subscales were at very low. These very low correlations reflected the fact that the level of self-regulation was not dependent on the level of mindfulness. In other words, an individual's mindfulness could not be a predictor of his or her self-regulation capability and this evidence was contradictory to the existing literature.

However, the result of this study need more validation. It might not be suitable for Thai Buddhist employees. This result might arise because the participants came from a range of different backgrounds with respect of nationality, social background and norm, time period.

5.3 Implications for practice

The results of this study suggest several implications for the current organization situation. The development, validation, and application the newly developed mindfulness assessment instrument yielded important findings that have practical application for human resource and organization development field. Training program developers can utilize the TBMM to measure the level of mindfulness in their employees. It has been recognized that mindfulness can help to improve employees' ability especially self-regulation capability which is investigated in this study (Bishop et al., (2004); Masicampo & Baumeister (2007); Masicampo & Baumeister (2007)). It is beneficial for training department to develop individual development program from the result of measurement to increase the mindfulness. Also knowing that meditation improving the level of mindfulness, this result can better assist training department to arrange a training program of meditation to fit with their employees. The meditation

training program must be effective and suitable to their employees in term of the method of meditation and duration of training program.

5.4 Recommendation to future research

The development and validation of the Thai Buddhist Mindfulness Measurement (TBMM) is an importation outcome for the organization development area. The instrument extend the understanding of mindfulness in term of Buddhism concept. The findings in the current study also contribute to the understandings of the effect of meditation on mindfulness.

There are several important issues that must be addressed in future studies. First, as mentioned previously, this study aim to develop the instrument to measure mindfulness based on Buddhism concept of four right mindfulness. Even though the validity of TBMM were established, the other dimensions of validity must be evaluated in a future study such as external evidence of validity which refer to relationship between the TBMM and other similar or dissimilar measures (i.e. FFMQ, MAAS). The other word, this dimension of validity must be evaluated whether the results of TBMM will be consistency with other measures.

Another potential avenue for future research also could replicate and cross validate the findings of this study on the other measures which are the benefit of mindfulness apart from self-regulation such as emotional intelligence, ability of enhancing information processing, ability to reduce task effort and focus on the task in hand (Lutz, Slagter, Rawlings, Francis, Greischar, & Davidson, 2009; Moore & Malinowski, (2009); Walsh & Shapiro (2006)). The future research would allow for further evaluation of the construct of the TBMM. Moreover, this study is a spot
design in nature. Future research could be designed as a longitudinal study to examine whether mindfulness will alter over time. It would be beneficial when the TBMM is utilized in a pre-post approach to evaluate the effective of the meditation training program.

Apart from mindfulness measurement, self-regulation measurement model by Brown, Miller, & Lawendowski, 1999 can be further studied in Thai Buddhist employee by using exploratory factor analysis which will be useful for Thai organization.

5.5 Limitation of the study

The major limitation in this study was the survey format. The self-regulation questionnaire was placed next to the TBMM (see Appendix A and B). Therefore, the total items for this survey is 116 which were very long. Perhaps, this kind of design might have caused a response bias in reporting. One possible bias could be that participants might try to finish the assessment without the actual reflection of their assessment. Another issue of the design was the participant try to be consistency in indicating their mindfulness and self-regulation ability even though these two instrument were independent from each other. Participants might not reflect their actual self-assessment. Anyway, this limitation could be overcome in the final version of instrument. The final version of instrument is 34 items which was reduced from 43 items and in reality the TBMM will be singly utilized, not together with self-regulation instrument.

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APPENDICES

Appendix A

THAI BUDDHIST MINDFULNESS MEASUREMENT (TBMM)
(English Version)

In order to have an effective tool to measure level of mindfulness in Thai Buddhist employees, this questionnaire has been developed to gather information regarding what are your experiences about mindfulness. We value your honest and detailed responses. The questionnaire should take approximately 15 minutes to complete. Your responses are completely anonymous. If you would like a statistical summary of the survey results, please contact us at am.vk@hotmail.com

SECTION 1:

Instructions: The following information is needed to help with the statistical analysis of the data. Again, be assured that all your responses are strictly confidential and will be treated anonymously. Please answer each of the questions below by putting a tick (x) that best describes your answers.

1.	Gender	□ Female	□ Male	
2.	Age	□ <29 year	□ 30-39 year	□ 40-49 year
		□ 50- 59 year	□ > 60 year	
3.	Education Level	□ High School	□ Diploma	□ Bachelor
		□ Master or higher		
4.	Position Level	□ Operation	□ Section Head	□ Manager
		□ Management		
5.	Working Department	□ Administrative/Human Resource	□ Finance and Accounting	□ Sales & Marketing
		□ Technician/Maintenance/After sale Service	□ Others	
6.	Working Experience	□ < 1 year	□ 2-4 year	□ 5-9 year
		□ 10-14 year	□ 15-20 year	□ > 20 year

SECTION 2:

Instructions: You will find a series of statements listed below. Each represents a commonly held opinion, and there is no right or wrong answer. You will probably disagree with some items and agree with others. We are interested in the extent to which you agree or disagree with such matters of opinion. Please mark (X) the number which best reflects your opinion.

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I am now aware of my breathing; in-out/short-long					
2	When I stand, I deliberately notice the sensations of my body from head to toe					
3	When I'm walking, I deliberately notice the sensations of my body moving.					
4	When I take a shower or bath, I stay alert to the sensations of water on my body.					
5	When I brush my teeth, I notice the movement of move-take-brush my teeth continuously					
6	While I have my meal, I feel my hand moving to take food, I feel my chewing					
7	When I am "running on automatic", I can aware what I'm doing.					
8	I do jobs or tasks automatically without being aware of what I'm doing.					
9	I find it difficult to stay focused on what's happening in the present.					
10	I find myself doing other activity while at the same time listening to other people					
11	When I have a pain in my body, I can usually describe how I feel at the moment in considerable detail.					
12	I watch my feelings of pain without getting lost in them.					
13	I feel sad, when I depart from beloved people or things					

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
14	When I lose my things, I feel sad					
15	When miserable happened, I feel that					
16	When I have a pain in my body, I also feel pain in my mind					
17	When I face difficulties in my life, I feel sad					
18	When I see or hear about sadness, depress, unsatisfied, I feel frustrated					
19	When I see un-liked things or people, I feel depressed, annoyed					
20	I perceive my feelings and emotions without having to react to them,					
21	I am aware of anxiety, I just notice it and accept the nature of it					
22	I find myself not stay focused but I can step back to what's happening in the present					
23	I am able just to notice my thoughts without any judgment					
24	When I feel muddle, I am able to notice it					
25	When I feel annoyed, I am able just to notice them without reacting					
26	When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.					
27	When I miss someone, I can notice that feeling and not let myself feel sad on that feeling of missing					
28	I am sad, I am able just to notice without getting taken over by it					
29	I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.					
30	When I have distressing thoughts or images, I feel calm soon after.					

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
31	When my emotion starts to change, I can notice it					
32	When I have a sensation in my body, I can describe how I feel such as cold, hot, soft, hard					
33	When I see things, I am aware of that seeing					
34	When I hear sounds of things, I am aware of that hearing					
35	I notice the smells and aromas of things					
36	I notice the taste of food with my tongue					
37	I am able to notice and understand well of the change in my body					
38	When I do not get things being under my will such as not to be old, not to be sick, I feel sad					
39	I am able to smile to the difficulties in my life					
40	When I have distressing thoughts or images, I just notice them and let them go.					
41	I am able to deliberately consider what happened to me from the beginning to the end without any reaction					
42	I am able to accept things which I cannot change					
43	When I am separated from my beloved people such as parents, I feel really sad and cannot accept on that					

SECTION 3:

Instructions: You will find a series of statements listed below. Each represents a commonly held opinion, and there is no right or wrong answer. You will probably disagree with some items and agree with others. We are interested in the extent to which you agree or disagree with such matters of opinion. Please mark (X) the number which best reflects your opinion.

	Self-Regulation	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I usually keep track of my progress toward my goals					
2	My behavior is not that different from other people's					
3	Others tell me that I keep on with things too long					
4	I doubt I could change even if I wanted to					
5	I have trouble making up my mind about things					
6	I get easily distracted from my plans					
7	I reward myself for progress made toward my goals					
8	I don't notice the effects of my actions until it's too late					
9	My behavior is similar to that of my friends					
10	It's hard for me to see anything helpful about changing my ways					
11	I'm able to accomplish goals I set for myself					
12	I put off making decisions					
13	I have so many plans that it's hard for me to focus on any one of them					
14	I change the way I do things when I see a problem with how things are going					
15	It's hard for me to notice when I've had enough (alcohol, food, sweets)					

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
16	I think a lot about what other people think of me					
16	I think a lot about what other people think of me					
17	I am willing to consider other ways of doing things					
18	If I wanted to change, I am confident that I could do it					
19	When it comes to deciding about a change, I feel overwhelmed by the choices					
20	I have trouble following through with things once I've made up my mind to do something					
21	I don't seem to learn from my mistakes					
22	I'm usually careful not to overdo it when working/eating/drinking					
23	I tend to compare myself with other people					
24	I enjoy a routine, and like things to stay the same					
25	I have sought out advice or information about changing					
26	I can come up with lots of ways to change, but it's hard for me to decide which one to use					
27	I can stick to a plan that is working well					
28	I usually only have to make a mistake one time in order to learn from it					
29	I don't learn well from punishment					
30	I have personal standards, and try to live up to them					
31	I am set in my ways					
32	As soon as I see a problem or challenge, I start looking for possible solutions					

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
33	I have a hard time setting goals for myself					
34	I have a lot of willpower					
35	When I'm trying to change something, I pay attention to how I'm doing					
36	I usually judge what I'm doing by the consequences of my actions					
37	I don't care if I'm different from most people					
38	As soon as I see things aren't going right I want to do something about it					
39	There is usually more than one way to accomplish something					
40	I have trouble making plans to help me reach goals					
41	I am able to resist temptation					
42	I set goals for myself and keep track of my progress					
43	Most of the time I don't pay attention to what I'm doing					
44	I try to be like people around me					
45	I tend to keep doing the same thing, even when it doesn't work					
46	I can usually find several different possibilities when I want to change something					
47	Once I have a goal, I can usually plan how to reach it					
48	I have rules that I stick by no matter what					
49	If I make a resolution to change something, I pay a lot of attention to how I'm doing					
50	Often I don't notice what I'm doing until someone calls it to my attention					

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
51	I think a lot about how I'm doing					
52	Usually I see the need to change before others do					
53	I'm good at finding different ways to get what I want					
54	I usually think before I act					
55	Little problems or distractions throw me off course.					
56	I feel bad when I don't meet my goals					
57	I learn from my mistakes					
58	I know how I want to be					
59	It bothers me when things aren't the way I want them					
60	I call in others for help when I need it					
61	Before making a decision, I consider what is likely to happen if I do one thing or another					
62	I give up quickly					
63	I decide to change and expect the best result					

SECTION 4:

Instructions: The following information is needed to help with the statistical analysis of the data. Again, be assured that all your responses are strictly confidential and will be treated anonymously. Please answer each of the questions below by putting a tick (x) that best describes your answers.

1	Do you have meditation / mindfulness practice experience? If not, please continue question no. 115			
	□ Yes		□ No	
2	How long do you practice meditation/ mindfulness?			
	□ < 1 year	□ 1- 5 year	□ 5- 10 year	□ > 10 year
3	Which type of meditation/ mindfulness do you practice?			
	□ Sammatha	□ Vipassana	□ Both Sammatha and Vipassana	□ Not sure which one
4	From which place do you learn how to do meditation/ mindfulness?			
	□ Private organization	□ Temple	□ Meditation Center	
	□ Hike	□ Self practice	□ Others _____	
5	How often do you practice meditation or mindfulness?			
	□ < 1 time/year	□ 2-4 time/year	□ 4-6 time/year	□ > time/year
	□ In daily life			
6	Which pattern do you practice meditation or mindfulness?			
	□ Phut Thor	□ Ananpanasati	□ Pong-nor Yup-nor	
	□ Samma Arahung	□ Define abstract without action	□ Others_____	
7	Do you still continue practice meditation of mindfulness?			
	□ Yes		□ No	
8	How long do you do meditation / mindfulness each time?			
	□ < 15 Minute	□ 16 – 30 Minute	□ 31 – 60 Minute	□ > 60 Minute

Appendix B

THAI BUDDHIST MINDFULNESS MEASUREMENT (TBMM)
(Thai Version)

แบบสอบถามนี้พัฒนาขึ้นเพื่อรวบรวมข้อมูลของประสบการณ์ของการวัดระดับการมีสติในตัวบุคคล ซึ่งจะใช้ในการพัฒนาแบบเครื่องมือวัดระดับการมีสติในพนักงานคนไทย ผู้วิจัยขอขอบคุณสำหรับท่านที่สละเวลาในการตอบคำถามนี้ ขอความกรุณาท่านตอบคำถามในแบบสอบถามชุดนี้ซึ่งอาจใช้เวลาประมาณ 15-20 นาที โดยข้อมูลของแบบสอบถามจะถูกเก็บเป็นความลับและไม่ถูกเผยแพร่นอกเหนือจากผู้วิจัยและคณะกรรมการดุษฎีนิพนธ์เท่านั้น หากท่านต้องการบทสรุปข้อมูลทางสถิติจากแบบสอบถามในครั้งนี้ สามารถติดต่อได้ที่ am.vk@hotmail.com

ส่วนที่ 1:

คำชี้แจง: แบบสอบถามในส่วนที่ 4 ประกอบด้วยชุดข้อมูลเพื่อการวิเคราะห์ทางสถิติในการเปรียบเทียบกลุ่มของผู้ตอบแบบสอบถามและองค์การ โดยขอให้ท่านใส่เครื่องหมายถูก (x) หน้าคำตอบที่สอดคล้องกับข้อมูลส่วนตัวของท่าน ทั้งนี้ผู้วิจัยขอยืนยันอีกครั้งว่าข้อมูลที่สามารถใช้ระบุตัวตนของผู้ทำแบบสอบถามได้ จะถูกเก็บเป็นความลับและไม่ถูกเผยแพร่นอกเหนือจากผู้วิจัยและคณะกรรมการดุษฎีนิพนธ์เท่านั้น

1.	เพศ	☐ หญิง	☐ ชาย	
2.	อายุ	☐ <29 ปี	☐ 30-39 ปี	☐ 40-49 ปี
		☐ 50- 59 ปี	☐ > 60 ปี	
3.	ระดับการศึกษา	☐ มัธยมศึกษาหรือต่ำกว่า	☐ อนุปริญญา	☐ ปริญญาตรี
		☐ ปริญญาโทหรือสูงกว่า		
4.	ตำแหน่ง	☐ ระดับปฏิบัติการ	☐ หัวหน้างาน	☐ ผู้จัดการ
		☐ ผู้บริหาร		
5.	ส่วนงาน	☐ แผนกบุคคล/ ธุรการ	☐ แผนกบัญชีและการเงิน	☐ แผนกการตลาดและขาย
		☐ แผนกเทคนิค/ซ่อมบำรุง/บริการหลังการขาย	☐ อื่น ๆ	
6.	ประสบการณ์ทำงาน	☐ < 1 ปี	☐ 2-4 ปี	☐ 5-9 ปี
		☐ 10-14 ปี	☐ 15-20 ปี	☐ > 20 ปี

<u>ส่วนที่ 2:</u>

คำชี้แจง: แบบสอบถามด้านล่างนี้ประกอบด้วยชุดข้อความเพื่อวัดระดับความมีสติในชีวิตประจำวัน โดยในแต่ละข้อความจะขอให้ท่านแสดงความคิดเห็นในลักษณะของระดับการเห็นด้วยและไม่เห็นด้วย โดยขอให้ท่านกากบาท (X) ในช่องที่ตรงกับความเห็นของท่านมากที่สุด ซึ่งจะเป็นคำตอบที่ไม่มีถูกและไม่มีผิด

		เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยเฉย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1	ณ ขณะนี้ฉันรู้สึกถึงจังหวะลมหายใจเข้าออก สั้น-ยาว					
2	ในขณะที่ฉันยืนอยู่ ฉันรู้สึกถึงอาการยืน ตั้งแต่ศรีษะจรดฝ่าเท้า					
3	ในขณะที่ฉันเดินอยู่ ฉันรู้สึกถึงการเคลื่อนไหวของร่างกาย					
4	ในขณะที่ฉันอาบน้ำ ฉันรู้สึกถึงการสัมผัสของน้ำบนร่างกายฉัน					
5	ในขณะที่แปรงฟัน ฉันรู้สึกถึงการเคลื่อนไหวในการเอื้อม-หยิบ-แปรง-ขณะแปรงฟันต่อเนื่อง					
6	ในขณะรับประทานอาหาร ฉันรู้สึกถึงมือที่ตักอาหาร รู้สึกถึงอาการขณะเคี้ยวอาหาร					
7	ในขณะที่ฉันเผลอเดินไป แต่ฉันก็รู้อาการของความเผลอที่เดินไปนั้นได้ทัน					
8	ฉันทำสิ่งต่าง ๆ โดยอัตโนมัติ โดยไม่ได้รู้สึกถึงสิ่งที่กำลังทำอยู่นั้น					
9	ฉันพบว่าเป็นเรื่องยากที่จะจดจ่ออยู่กับสิ่งที่กำลังเกิดขึ้น ณ ขณะนั้น ๆ					
10	ฉันพบว่าตัวเองกำลังฟังผู้อื่นในขณะที่ทำสิ่งอื่นไปด้วยในเวลาเดียวกัน					
11	เมื่อฉันมีอาการปวดเมื่อย ฉันรู้สึกถึงอาการปวดเมื่อยนั้น					
12	ฉันเฝ้าดูความเจ็บปวดของฉัน โดยไม่ตกอยู่ในห้วงความเจ็บปวดนั้น					
13	ฉันรู้สึกอาลัยเสียดายทุกครั้ง เมื่อต้องพลัดพรากจากบุคคลหรือสิ่งของซึ่งเป็นที่รักที่ชอบใจ					
14	เมื่อสิ่งของเครื่องใช้ของฉันเสียหายไป ฉันรู้สึกได้ว่ามีความเศร้าใจ					

		เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยเฉย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
15	เมื่อความทุกข์ใจอย่างใดอย่างหนึ่งเกิดขึ้น ฉันรู้สึกได้ว่ามีความร่ำไรรำพัน					
16	เมื่อความไม่สบายกายเกิดขึ้น เช่น ปวดหัว เป็นไข้ ฉันรู้สึกเป็นทุกข์ทางใจด้วย					
17	เมื่อประสบเรื่องราวไม่ดีในชีวิต ฉันรู้สึกได้ว่ามีความเศร้าโศกเสียใจ					
18	เมื่อได้เห็นหรือได้ยิน ความเศร้าใจ หดหู่ ความไม่น่าชอบใจมากระทบ ฉันรู้สึกคับแค้นใจ					
19	ฉันรู้สึกอึดอัด รำคาญใจทุกครั้งที่ได้พบเห็นผู้คนหรือสิ่งของซึ่งไม่เป็นที่ชอบใจ ไม่เป็นที่รัก					
20	ฉันมองเห็นความรู้สึกและอารมณ์ของฉัน โดยไม่แสดงอาการโต้ตอบต่อความรู้สึกและอารมณ์นั้น					
21	ฉันรู้ทันความวิตกกังวล จึงปล่อยวางอย่างเข้าใจตามความเป็นจริงได้เท่าทัน					
22	บางครั้งจิตของฉันก็เผลอไปคิดเรื่องอื่น แต่ฉันก็รู้ในความเผลอนั้นได้ทันปัจจุบัน					
23	ฉันสามารถสังเกตถึงความคิดของฉันขณะนั้นๆ ได้โดยไม่ตัดสินใด ๆ					
24	ฉันสามารถสังเกตถึงฟุ้งซ่านในจิตใจของฉันได้					
25	ในขณะที่ฉันรู้สึกรำคาญกับสิ่งต่าง ๆ ฉันเพียงแต่เฝ้าดูความรู้สึกนั้น โดยไม่ตอบโต้ใดๆ					
26	เมื่อฉันมีความคิดหรือมโนภาพที่น่ากลัว ฉันสามารถสังเกตุเห็นมันได้โดยไม่มีปฏิกิริยาตอบโต้ใด ๆ					
27	ฉันรู้ทันความคิดถึงของตัวเองที่มีต่อบุคคลหรือสิ่งของ จึงไม่ปล่อยให้ตัวเองเศร้าใจต่อความคิดถึงนั้น					
28	เมื่อฉันกำลังซึมเศร้าอยู่ ฉันเพียงแต่เฝ้าดูความซึมเศร้านั้นโดยไม่ตกอยู่ในห้วงความซึมเศร้านั้น					
29	ฉันมักไม่ได้ใส่ใจต่อสิ่งที่ฉันกำลังทำอยู่เพราะว่าฉันกำลังเพ้อฝัน กังวล หรือถูกรบกวน					
30	ฉันไม่ให้ตัวเองมีเรื่องรบกวนจิตใจได้นาน					
31	ฉันรู้สึกได้เมื่ออารมณ์เริ่มเปลี่ยนแปลง					
32	เมื่อฉันได้รับความรู้สึกสัมผัส ทางกาย ฉันสามารถอธิบายถึง ความรู้สึกนั้นได้ เช่น เย็น ร้อน อ่อน แข็ง					
33	เมื่อฉันเห็นภาพทางตา ฉันรู้สึกถึงการเห็นนั้น					

		เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยเฉย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
34	เมื่อฉันได้ยินเสียงทางหู ฉันรู้สึกถึงการได้ยินนั้น					
35	เมื่อฉันได้กลิ่นอาหารทางจมูก ฉันรู้สึกถึงการได้กลิ่นนั้น					
36	เมื่อฉันได้รับรสของอาหารทางลิ้น ฉันรู้สึกถึงการรับรสนั้น					
37	ฉันสามารถตามรู้เห็นและเข้าใจความเปลี่ยนแปลงของสภาพร่างกายได้เป็นอย่างดี					
38	เมื่อฉันปรารถนาสิ่งใดแล้วไม่ได้ดังความปรารถนานั้น เช่น ไม่อยากแก่ ไม่อยากเจ็บไข้ เป็นต้น ฉันจะรู้สึกเป็นทุกข์ใจ					
39	ฉันสามารถยิ้มได้เมื่อฉันเห็นถึงความยุ่งยากในชีวิตที่ฉันสร้างขึ้นมา					
40	เวลาพบกับวิกฤติในชีวิต ฉันสามารถรับรู้วิกฤตินั้นให้สอดคล้องกับความเป็นจริงได้					
41	ฉันสามารถพิจารณาสิ่งหนึ่งสิ่งใดที่เกิดขึ้นกับฉัน จนสามารถเห็นได้ถึงอาการเกิดขึ้นตั้งอยู่ ดับไป					
42	ฉันสามารถยอมรับสิ่งต่าง ๆ ที่ฉันไม่สามารถเปลี่ยนแปลงได้					
43	เมื่อฉันต้องพลัดพรากจากบุคคลอันเป็นที่รัก มีมารดาบิดาเป็นต้น ฉันเป็นทุกข์ใจจนเป็นเรื่องยากมากที่จะทำใจยอมรับ					

ส่วนที่ 3:

คำชี้แจง: แบบสอบด้านล่างนี้ถามประกอบด้วยชุดข้อความเพื่อวัดระดับความสามารถในการกำกับตนเอง โดยในแต่ละข้อความจะขอให้ท่านแสดงความคิดเห็นในลักษณะของระดับการเห็นด้วยและไม่เห็นด้วย โดยขอให้ท่านกากบาท (X) ในช่องที่ตรงกับความเห็นของท่านมากที่สุด ซึ่งจะเป็นคำตอบที่ไม่มีถูกและไม่มีผิด

		เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยเฉย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1	ฉันหมั่นตรวจสอบความก้าวหน้าในงานของฉันเพื่อให้บรรลุเป้าหมาย					
2	พฤติกรรรมของฉันไม่ได้ดูแตกต่างจากคนทั่วไป					
3	เพื่อนๆ บอกฉันว่าฉันทำสิ่งต่างๆ นานเกินไป					
4	ฉันไม่แน่ใจว่าฉันสามารถเปลี่ยนแปลงแม้ว่าฉันต้องการที่จะทำ					
5	ฉันไม่สามารถตัดสินใจในสิ่งต่างๆ ได้ง่าย					
6	ฉันมักจะเบี่ยนเบงจากแผนงานที่ทำอยู่ได้ง่าย ๆ					
7	ฉันให้รางวัลตัวเองอยู่เสมอเมื่อฉันมีความคืบหน้าในงานที่ทำเพื่อบรรลุเป้าหมาย					
8	ฉันไม่สังเกตุเห็นผลของการกระทำของฉันจนกระทั่งสายเกินไป					
9	พฤติกรรรมของฉันคล้ายคล้ายกับคนทั่วไป					
10	มันเป็นการยากสำหรับฉันที่จะเห็นถึงสิ่งที่มีประโยชน์ที่ช่วยเกื้อหนุนในการเปลี่ยนแปลงการทำงานของฉัน					
11	ฉันสามารถบรรลุเป้าหมายที่ฉันตั้งไว้					
12	ฉันลังเลที่จะตัดสินใจในสิ่งต่าง ๆ					
13	ฉันมีแผนงานที่ต้องทำหลายๆอย่างจนฉันไม่สามารถที่จะจดจ่ออยู่กับอันใดอันหนึ่งได้					
14	ฉันเปลี่ยนวิธีการทำงานเมื่อฉันพบว่ามีปัญหาเกิดขึ้นกับสิ่งที่ทำอยู่					
15	เป็นการยากสำหรับฉันที่จะรู้ตัวว่าฉันพอแล้ว เช่น การดื่มแอลกอฮอล์ ทานอาหารและขนมของหวานต่าง ๆ					
16	ฉันเป็นกังวลว่าคนอื่นคิดอย่างไรเกี่ยวกับตัวฉัน					

		เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยเฉย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
17	ฉันชอบที่จะพิจารณาถึงวิธีการหลายๆวิธีในการทำสิ่งต่าง ๆ					
18	ถ้าฉันต้องการที่จะเปลี่ยนแปลงสิ่งต่างๆ ฉันมั่นใจว่าฉันสามารถทำมันได้					
19	เมื่อถึงเวลาที่ต้องตัดสินใจที่จะเปลี่ยนแปลง ฉันมักจะรู้สึกถาโถมไปด้วยทางเลือกต่างๆ					
20	ฉันมีความยุ่งยากในการที่จะทำตามสิ่งต่าง ๆ ที่ฉันได้ตัดสินใจไปแล้ว					
21	ฉันไม่ค่อยเรียนรู้จากความผิดพลาดของฉันเอง					
22	ฉันระมัดระวังในการไม่ทำสิ่งต่าง ๆ มากเกินไป เช่น ทำงาน กิน ดื่ม					
23	ฉันมักจะเปรียบเทียบตัวเองกับคนอื่น ๆ					
24	ฉันชอบที่จะทำสิ่งเดิม ๆ และชอบที่จะให้สิ่งต่างๆ เป็นเหมือนเดิม					
25	ฉันมองหาคำแนะนำหรือข้อมูลสำหรับการเปลี่ยนแปลง					
26	ฉันสามารถหาวิธีต่าง ๆ มากมายเพื่อที่จะเปลี่ยนแปลง แต่เป็นการยากสำหรับฉันที่จะตัดสินใจว่าจะเลือกใช้วิธีไหน					
27	ฉันสามารถที่จะยึดติดอยู่กับดำเนินแผนงานที่ดำเนินไปได้ด้วยดี					
28	ฉันมักจะต้องทำความผิดหนึ่งครั้งก่อนเสมอเพื่อที่จะเรียนรู้จากมัน					
29	ฉันเรียนรู้ได้ไม่ดีจากการถูกลงโทษ					
30	ฉันมีมาตรฐานส่วนตัว และพยายามที่จะอยู่กับมาตราฐานนั้น					
31	ฉันพอใจในวิถีทางของฉัน					
32	ทันทีที่ฉันประสบปัญหาหรือความท้าทาย ฉันจะเริ่มต้นมองหาวิธีรับมือกับมัน					
33	เป็นการยากสำหรับฉันที่จะตั้งเป้าหมายให้ตนเอง					
34	ฉันมีพลังใจมากมาย					
35	เมื่อฉันพยายามที่จะเปลี่ยนแปลงบางสิ่ง ฉันใส่ใจในวิธีการที่ฉันกำลังทำ					

		เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยเฉย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
36	ฉันตัดสิน สิ่งที่ฉันกำลังทำอยู่จากผลที่ได้ของการกระทำนั้น					
37	ฉันไม่ใส่ใจว่าตัวฉันต่างจากคนส่วนใหญ่					
38	ทันทีที่ฉันพบว่าสิ่งต่างๆ ไม่เป็นไปตามที่ต้องการ ฉันต้องการที่จะทำอะไรบางอย่างกับมัน					
39	มีมากกว่าหนึ่งวิธีในการที่จะทำให้สิ่งต่างๆ สำเร็จลุล่วง					
40	เป็นการยากสำหรับฉันที่จะวางแผนงานเพื่อช่วยให้ฉันบรรลุเป้าหมาย					
41	ฉันสามารถอดทนต่อสิ่งล่อใจต่างๆ ได้					
42	ฉันตั้งเป้าหมายให้ตนเองและหมั่นตรวจสอบความก้าวหน้าเพื่อให้บรรลุเป้าหมาย					
43	โดยส่วนมากฉันไม่ใส่ใจกับสิ่งที่ฉันกำลังทำอยู่					
44	ฉันพยายามเป็นเหมือนคนที่อยู่รอบตัวฉัน					
45	ฉันมักจะทำสิ่งต่างๆ แบบเดิม ๆ ถึงแม้ว่ามันจะไม่ได้ผลก็ตาม					
46	ปกติฉันมักจะคิดถึงหลาย ๆ หนทางเท่าที่จะเป็นไปได้เมื่อฉันต้องการที่จะเปลี่ยนแปลงบางสิ่งบางอย่าง					
47	ทันทีที่ฉันมีเป้าหมาย ฉันจะวางแผนเพื่อให้บรรลุเป้าหมายนั้น					
48	ฉันมีกฎที่ฉันยึดถือไม่ว่าจะเกิดอะไรขึ้น					
49	เมื่อฉันต้องการที่จะเปบี่ยนแปลงบางสิ่งบางอย่าง ฉันจะใส่ใจในวิธีการที่ฉันกำลังจะทำ					
50	บ่อยครั้งที่ฉันไม่ได้สังเกตุถึงสิ่งที่ฉันกำลังทำอยู่จนกระทั่งมีคนมาบอกฉัน					
51	ฉันคิดมากเกี่ยวกับวิธีการที่ฉันทำสิ่งต่างๆ					
52	โดยปกติฉันเห็นถึงความจำเป็นที่จะต้องเปลี่ยนแปลงก่อนคนอื่นเสมอ					
53	ฉันเก่งในการหาวิธีที่แตกต่างเพื่อให้ได้ในสิ่งที่ฉันต้องการ					
54	ฉันมักจะคิดก่อนทำ					

		เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยเฉย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
55	ปัญหาหรือสิ่งกวนใจเล็กๆ มักจะทำให้ฉันออกนอกแผนเสมอ					
56	ฉันรู้สึกเสียใจเมื่อฉันไม่บรรลุเป้าหมาย					
57	ฉันเรียนรู้จากความผิดพลาด					
58	ฉันรู้ว่าฉันต้องการเป็นอย่างไร					
59	มันรบกวนฉันเมื่อสิ่งต่างๆ ไม่เป็นไปตามที่ฉันต้องการ					
60	ฉันขอความช่วยเหลือจากคนอื่นเมื่อฉันต้องการ					
61	ก่อนที่ฉันจะตัดสินใจ ฉันจะพิจารณาถึงผลที่จะตามมา					
62	ฉันล้มเลิกในการทำสิ่งต่าง ๆ ได้ง่าย					
63	ฉันตัดสินใจที่จะเปลี่ยนแปลงและหวังให้ผลออกมาดีที่สุด					

ส่วนที่ 4:

คำชี้แจง: แบบสอบถามในส่วนที่ 3 ประกอบด้วยชุดข้อมูลเพื่อการวิเคราะห์ทางสถิติของประสบการณ์การปฏิบัติธรรม โดยขอให้ท่านใส่เครื่องหมายถูก (x) หน้าคำตอบที่สอดคล้องกับข้อมูลส่วนตัวของท่าน ทั้งนี้ผู้วิจัยขอยืนยันอีกครั้งว่าข้อมูลที่สามารถใช้ระบุตัวตนของผู้ทำแบบสอบถามได้ จะถูกเก็บเป็นความลับและไม่ถูกเผยแพร่นอกเหนือจากผู้วิจัยและคณะกรรมการดุษฎีนิพนธ์เท่านั้น

1	ท่านมีประสบการณ์ ปฏิบัติธรรม / ฝึกเจริญสติ หรือไม่			
	☐ เคย		☐ ไม่เคย	
2	ท่านเคยฝึกปฏิบัติธรรม / เจริญสติ มานานเท่าใด			
	☐ ต่ำกว่า 1 ปี	☐ 1- 5 ปี	☐ 5- 10 ปี	☐ > 10 ปี
3	ท่านเคยปฏิบัติธรรม (กัมมัฏฐาน) / เจริญสติ แบบใดมาก่อน			
	☐ สมถกัมมัฏฐาน	☐ วิปัสสนากัมมัฏฐาน	☐ ทั้งสมถและวิปัสสนา	☐ ไม่แน่ใจว่าเป็นสมถหรือวิปัสสนา
4	ท่านเคยรับการฝึกปฏิบัติธรรม จากที่ใด			
	☐ สมาคม/ องค์กรเอกชน/ ที่ทำงาน	☐ วัด	☐ สำนักปฏิบัติธรรม	
	☐ ธุดงค์ในป่า	☐ ฝึกเอง	☐ อื่น ๆ_____	
5	ท่านปฏิบัติธรรม / เจริญสติ บ่อยเท่าใด			
	☐ < 1 ครั้ง/ปี	☐ 2-4 ครั้ง/ปี	☐ 4-6 ครั้ง/ปี	☐ > 6 ครั้ง/ปี
	☐ เป็นประจำในชีวิตประจำวัน			
6	ท่านเคยปฏิบัติธรรม ด้วย การใช้บริกรรมภาวนา รูปแบบใด			
	☐ พุทโธ	☐ อานาปานสติ นับลมหายใจ	☐ พองหนอ-ยุบหนอ	
	☐ สัมมา อะระหัง	☐ กำหนดรูปนาม โดยไม่มีคำบริกรรม	☐ อื่น ๆ _____	
7	ทุกวันนี้ท่านยังปฏิบัติธรรม / เจริญสติ อยู่หรือไม่			
	☐ ใช่		☐ ไม่ใช่	
8	ท่านใช้ระยะเวลาเท่าไหร่การปฏิบัติธรรม/เจริญสติในแต่ละครั้ง			
	☐ < 15 นาที	☐ 16 – 30 นาที	☐ 31 – 60 นาที	☐ > 60 นาที

Appendix C

Content validity of mindfulness questionnaire by experts

การใช้สติในชีวิตประจำวัน (Mindfulness)		ความคิดเห็น					
		1	2	3	4	5	IOC
กายานุปัสสนาสติ (สติความรู้เห็นกาย)							
1	ณ ขณะนี้ ฉันรู้สึกถึงจังหวะลมหายใจเข้าออก สั้น-ยาว	1	1	1	1	1	1.0
2	ในขณะที่ฉันยืนอยู่ ฉันรู้สึกถึงอาการยืน ตั้งแต่ปลายผม จรดฝ่าเท้า	1	-1	1	1	1	0.6
3	ในขณะที่ฉันเดินอยู่ ฉันรู้สึกถึงการเคลื่อนไหวของร่างกาย	1	1	1	1	1	1.0
4	ในขณะที่ฉันอาบน้ำ ฉันรู้สึกถึงการสัมผัสของน้ำบนร่างกายฉัน	0	1	1	1	1	0.8
5	ในขณะที่แปรงฟัน ฉันรู้สึกถึงการเคลื่อนไหวในการเอื้อม-หยิบ-แปรง-ขณะแปรงฟันต่อเนื่อง	1	1	1	1	1	1.0
6	ในขณะรับประทานอาหาร ฉันรู้สึกถึงมือที่ตักอาหาร รู้สึกถึงอาการขณะเคี้ยวอาหาร	1	1	1	1	1	1.0
7	ในขณะที่ฉันเผลอเดินไป แต่ฉันก็รู้อาการของความเผลอที่เดินไปนั้นได้ทัน	0	0	1	1	1	0.6
8	ฉันทำสิ่งต่าง ๆ โดยอัตโนมัติ โดยไม่ได้รู้สึกถึงสิ่งที่กำลังทำอยู่นั้น	1	1	1	1	1	1.0
9	ฉันพบว่าเป็นเรื่องยากที่จะจดจ่ออยู่กับสิ่งที่กำลังเกิดขึ้น ณ ขณะนั้น ๆ	1	1	1	1	1	1.0
10	ฉันพบว่าตัวเองกำลังฟังผู้อื่นในขณะที่ทำสิ่งอื่นไปด้วยในเวลาเดียวกัน	1	1	1	1	1	1.0
เวทนานุปัสสนาสติ (สติตามรู้เห็นความรู้สึก)							
11	เมื่อฉันมีอาการปวดเมื่อย ฉันรู้สึกถึงอาการปวดเมื่อยนั้น	1	1	1	1	1	1.0
12	ฉันเฝ้าดูความเจ็บปวดของฉัน โดยไม่ตกอยู่ในห้วงความเจ็บปวดนั้น	1	1	1	1	1	1.0
13	ฉันรู้สึกอาลัยเสียดายทุกครั้ง เมื่อต้องพลัดพรากจากบุคคลหรือสิ่งของซึ่งเป็นที่รักที่ชอบใจ	1	1	1	1	1	1.0

14	เมื่อสิ่งของเครื่องใช้ของฉันเสียหายไป ฉันรู้สึกได้ว่ามีความเศร้าใจ	1	1	1	1	1	1.0
15	เมื่อความทุกข์ใจอย่างใดอย่างหนึ่งเกิดขึ้น ฉันรู้สึกได้ว่ามีความร่ำไรรำพัน	1	1	1	1	1	1.0
16	เมื่อความไม่สบายกายเกิดขึ้น เช่น ปวดหัว เป็นไข้ ฉันรู้สึกเป็นทุกข์ทางใจด้วย	1	1	1	1	1	1.0
17	เมื่อประสบเรื่องราวไม่ดีในชีวิต ฉันรู้สึกได้ว่ามีความเศร้าโศกเสียใจ	1	0	1	1	1	0.8
18	เมื่อได้เห็นหรือได้ยิน ความเศร้าใจ หดหู่ ความไม่น่าชอบใจมากระทบ ฉันรู้สึกคับแค้นใจ	1	1	1	1	1	1.0
19	ฉันรู้สึกอึดอัด รำคาญใจทุกครั้งที่ได้พบเห็นผู้คนหรือสิ่งของซึ่งไม่เป็นที่ชอบใจ ไม่เป็นที่รัก	1	1	1	1	1	1.0
20	ฉันมองเห็นความรู้สึกและอารมณ์ของฉัน โดยไม่แสดงอาการโต้ตอบต่อความรู้สึกและอารมณ์นั้น						
จิตตานุปัสสนาสติ (สติตามรู้เห็นความคิด)							
21	ฉันรู้ทันความวิตกกังวล จึงปล่อยวางอย่างเข้าใจตามความเป็นจริงได้เท่าทัน	1	1	1	1	1	1.0
22	บางครั้งจิตของฉันก็เผลอไปคิดเรื่องอื่น แต่ฉันรู้ในความเผลอนั้นได้ทันปัจจุบัน	1	1	1	1	1	1.0
23	ฉันสามารถสังเกตถึงความคิดของฉันขณะนั้น ๆ ได้โดยไม่ตัดสินใดๆ	1	1	1	1	1	1.0
24	ฉันสามารถสังเกตถึงความฟุ้งซ่านในจิตใจของฉันได้	1	1	1	1	1	1.0
25	ในขณะที่ฉันรู้สึกรำคาญกับสิ่งต่าง ๆ ฉันเพียงแต่เฝ้าดูความรู้สึกนั้น โดยไม่โต้ตอบใด ๆ	1	1	1	1	1	1.0
26	เมื่อฉันมีความคิดหรือมโนภาพที่น่ากลัว ฉันสามารถสังเกตมันได้โดยไม่มีปฏิกิริยาโต้ตอบใด ๆ	1	1	1	1	1	1.0
27	ฉันรู้ทันความคิดุงของตัวเองที่มีต่อบุคคลหรือสิ่งของจึงไม่ปล่อยให้ตัวเองเศร้าใจต่อความคิดถึงนั้น	1	1	1	1	1	1.0
28	เมื่อฉันกำลังซึมเศร้าอยู่ ฉันเพียงแต่เฝ้าดูความซึมเศร้านั้นโดยไม่ตกอยู่ในห้วงความซึมเศร้านั้น	1	1	1	1	1	1.0
29	ฉันมักไม่ได้ใส่ใจต่อสิ่งที่ฉันกำลังทำอยู่เพราะว่าฉันกำลังเพ้อฝัน กังวล หรือถูกรบกวน	1	1	1	1	1	1.0
30	ฉันไม่ให้ตัวเองมีเรื่องรบกวนจิตใจได้นาน						
ธัมมานุปัสสนาสติ (สติตามรู้เห็นสภาวะธรรม)							

31	ฉันรู้สึกได้เมื่ออารมณ์เริ่มเปลี่ยนแปลง	1	1	1	1	1	1.0
32	เมื่อฉันได้รับความรู้สึกสัมผัสทางกาย ฉันสามารถอธิบายถึงความรู้สึกนั้นได้ เช่น เย็น ร้อน อ่อน แข็ง	1	1	1	1	-1	0.6
33	เมื่อฉันเห็นภาพทางตา ฉันรู้สึกถึงการเห็นนั้น	1	1	1	1	1	1.0
34	เมื่อฉันได้ยินเสียงทางหู ฉันรู้สึกถึงการได้ยินนั้น	1	1	1	1	1	1.0
35	เมื่อฉันได้กลิ่นอาหารทางจมูก ฉันรู้สึกได้ถึงการได้กลิ่นนั้น	1	0	1	1	1	0.8
36	เมื่อฉันได้รับรสของอาหารทางลิ้น ฉันรู้สึกถึงการรับรสนั้น	1	1	1	1	1	1.0
37	ฉันสามารถตามรู้เห็นและเข้าใจความเปลี่ยนแปลงของสภาพร่างกายได้เป็นอย่างดี	1	1	1	1	1	1.0
38	เมื่อฉันปรารถนาสิ่งใดแล้วไม่ได้ดังความปรารถนานั้น เช่นไม่อยากแก่ ไม่อยากเจ็บไข้ เป็นต้น ฉันจะรู้สึกเป็นทุกข์ทางใจ	1	1	1	1	1	1.0
39	ฉันสามารถยิ้มได้ เมื่อฉันเห็นถึงความยุ่งยากในชีวิตที่ฉันสร้างขึ้นมา	1	1	1	1	1	1.0
40	เวลาพบกับวิกฤติในชีวิต ฉันสามารถรับรู้วิกฤตินั้นให้สอดคล้องกับความเป็นจริงได้	1	0	1	1	1	0.8
41	ฉันสามารถพิจารณาสิ่งหนึ่งสิ่งใดที่เกิดขึ้นกับฉัน จนสามารถเห็นได้ถึงอาการเกิดขึ้น ตั้งอยู่ ดับไป	1	1	1	1	1	1.0
42	ฉันสามารถยอมรับสิ่งต่าง ๆ ที่ฉันไม่สามารถเปลี่ยนแปลงได้	1	1	1	1	1	1.0
43	เมื่อฉันต้องพลัดพรากจากบุคคลอันเป็นที่รัก มีมารดาบิดา เป็นต้น ฉันเป็นทุกข์ใจจนเป็นเรื่องยากมากที่จำทำใจยอมรับ	1	1	1	1	1	1.0

Appendix D

Content validity of Self-Regulation questionnaire by experts

Self-Regulation		ความคิดเห็นจาผู้เชี่ยวชาญ					
		1	2	3	4	5	IOC
การได้รับ							
1	ฉันหมั่นตรวจสอบความก้าวหน้าในงานของฉันเพื่อให้บรรลุเป้าหมาย	1	1	1	1	1	1.0
2	พฤติกรรรมของฉันไม่ได้ดูแตกต่างจากคนทั่วไป	1	1	1	1	1	1.0
3	เพื่อนๆ บอกฉันว่าฉันทำสิ่งต่างๆ นานเกินไป	1	1	1	1	1	1.0
4	ฉันไม่แน่ใจว่าฉันสามารถเปลี่ยนแปลงแม้ว่าฉันต้องการที่จะทำ	1	1	1	1	1	1.0
5	ฉันไม่สามารถตัดสินใจในสิ่งต่างๆ ได้ง่าย	1	1	1	1	1	1.0
6	ฉันมักจะเบี่ยงเบนจากแผนงานที่ทำอยู่ได้ง่าย ๆ	1	1	1	1	1	1.0
7	ฉันให้รางวัลตัวเองอยู่เสมอเมื่อฉันมีความคืบหน้าในงานที่ทำเพื่อบรรลุเป้าหมาย	1	1	1	1	1	1.0
8	ฉันไม่สังเกตเห็นผลของการกระทำของฉันจนกระทั่งสายเกินไป	1	1	1	1	1	1.0
9	พฤติกรรมของฉันคล้ายคล้ายกับคนทั่วไป	1	1	1	1	1	1.0
การประเมินผล							
10	มันเป็นการยากสำหรับฉันที่จะเห็นถึงสิ่งที่มีประโยชน์ที่ช่วยเกื้อหนุนในการเปลี่ยนแปลงการทำงานของฉัน	1	1	1	1	1	1.0
11	ฉันสามารถบรรลุเป้าหมายที่ฉันตั้งไว้	1	1	1	1	1	1.0
12	ฉันลังเลที่จะตัดสินใจในสิ่งต่าง ๆ	1	1	1	1	1	1.0
13	ฉันมีแผนงานที่ต้องทำหลายๆอย่างจนฉันไม่สามารถที่จะจดจ่ออยู่กับอันใดอันหนึ่งได้	1	1	1	1	1	1.0
14	ฉันเปลี่ยนวิธีการทำงานเมื่อฉันพบว่ามีปัญหาเกิดขึ้นกับสิ่งที่ทำอยู่	1	1	1	1	1	1.0
15	เป็นการยากสำหรับฉันที่จะรู้ตัวว่าฉันพอแล้ว เช่น การดื่มแอลกอฮอล์ ทานอาหารและขนมของหวานต่าง ๆ	1	1	1	1	1	1.0

16	ฉันเป็นกังวลว่าคนอื่นคิดอย่างไรเกี่ยวกับตัวฉัน	1	1	1	1	1	1.0
17	ฉันชอบที่จะพิจารณาถึงวิธีการหลายๆวิธีในการทำสิ่งต่าง ๆ	1	0	1	1	1	0.8
18	ถ้าฉันต้องการที่จะเปลี่ยนแปลงสิ่งต่างๆ ฉันมั่นใจว่าฉันสามารถทำมันได้	1	1	1	1	1	1.0
การชักนำ							
19	เมื่อถึงเวลาที่ต้องตัดสินใจที่จะเปลี่ยนแปลง ฉันมักจะรู้สึกถาโถมไปด้วยทางเลือกต่างๆ	1	1	1	1	1	1.0
20	ฉันมีความยุ่งยากในการที่จะทำตามสิ่งต่าง ๆ ที่ฉันได้ตัดสินใจไปแล้ว	1	1	1	1	1	1.0
21	ฉันไม่ค่อยเรียนรู้จากความผิดพลาดของฉันเอง	1	1	1	1	1	1.0
22	ฉันระมัดระวังในการไม่ทำสิ่งต่าง ๆ มากเกินไป เช่น ทำงาน กิน ดื่ม	1	1	1	1	1	1.0
23	ฉันมักจะเปรียบเทียบตัวเองกับคนอื่น ๆ	1	1	1	1	1	1.0
24	ฉันชอบที่จะทำสิ่งเดิม ๆ และชอบที่จะให้สิ่งต่างๆ เป็นเหมือนเดิม	1	1	1	1	1	1.0
25	ฉันมองหาคำแนะนำหรือข้อมูลสำหรับการเปลี่ยนแปลง	1	1	1	1	1	1.0
26	ฉันสามารถหาวิธีต่าง ๆ มากมายเพื่อที่จะเปลี่ยนแปลง แต่เป็นการยากสำหรับฉันที่จะตัดสินใจว่าจะเลือกใช้วิธีไหน	1	1	1	1	1	1.0
27	ฉันสามารถที่จะยึดติดอยู่กับดำเนินแผนงานที่ดำเนินไปได้ด้วยดี	1	1	1	1	1	1.0
การค้นหา							
28	ฉันมักจะต้องทำความผิดหนึ่งครั้งก่อนเสมอเพื่อที่จะเรียนรู้จากมัน	1	1	1	1	1	1.0
29	ฉันเรียนรู้ได้ไม่ดีจากการถูกลงโทษ	1	1	1	1	1	1.0
30	ฉันมีมาตรฐานส่วนตัว และพยายามที่จะอยู่กับมาตราฐานนั้น	1	1	1	1	1	1.0
31	ฉันพอใจในวิถีทางของฉัน	1	1	1	1	1	1.0
32	ทันทีที่ฉันประสบปัญหาหรือความท้าทาย ฉันจะเริ่มต้นมองหาวิธีรับมือกับมัน	1	1	1	1	1	1.0
33	เป็นการยากสำหรับฉันที่จะตั้งเป้าหมายให้ตนเอง	1	1	1	1	1	1.0
34	ฉันมีพลังใจมากมาย	1	1	1	1	1	1.0

35	เมื่อฉันพยายามที่จะเปลี่ยนแปลงบางสิ่ง ฉันใส่ใจในวิธีการที่ฉันกำลังทำ	1	0	1	1	1	0.8
36	ฉันตัดสิน สิ่งที่ฉันกำลังทำอยู่จากผลที่ได้ของการกระทำนั้น	1	1	1	1	1	1.0
การกำหนด							
37	ฉันไม่ใส่ใจว่าตัวฉันต่างจากคนส่วนใหญ่	1	1	1	1	1	1.0
38	ทันทีที่ฉันพบว่าสิ่งต่างๆ ไม่เป็นไปตามที่ต้องการ ฉันต้องการที่จะทำอะไรบางอย่างกับมัน	1	1	1	1	1	1.0
39	มีมากกว่าหนึ่งวิธีในการที่จะทำให้สิ่งต่างๆ สำเร็จลุล่วง	1	1	1	1	1	1.0
40	เป็นการยากสำหรับฉันที่จะวางแผนงานเพื่อช่วยให้ฉันบรรลุเป้าหมาย	1	0	1	1	1	0.8
41	ฉันสามารถอดทนต่อสิ่งล่อใจต่างๆ ได้	1	1	1	1	1	1.0
42	ฉันตั้งเป้าหมายให้ตนเองและหมั่นตรวจสอบความก้าวหน้าเพื่อให้บรรลุเป้าหมาย	1	-1	1	1	1	0.6
43	โดยส่วนมากฉันไม่ใส่ใจกับสิ่งที่ฉันกำลังทำอยู่	1	1	1	1	1	1.0
44	ฉันพยายามเป็นเหมือนคนที่อยู่รอบตัวฉัน	0	1	1	1	1	0.8
45	ฉันมักจะทำสิ่งต่างๆ แบบเดิม ๆ ถึงแม้ว่ามันจะไม่ได้ผลก็ตาม	1	1	1	1	1	1.0
การนำไปใช้							
46	ปกติฉันมักจะคิดถึงหลาย ๆ หนทางเท่าที่จะเป็นไปได้เมื่อฉันต้องการที่จะเปลี่ยนแปลงบางสิ่งบางอย่าง	1	1	1	1	1	1.0
47	ทันทีที่ฉันมีเป้าหมาย ฉันจะวางแผนเพื่อให้บรรลุเป้าหมายนั้น	0	0	1	1	1	0.6
48	ฉันมีกฎที่ฉันยึดถือไม่ว่าจะเกิดอะไรขึ้น	1	1	1	1	1	1.0
49	เมื่อฉันต้องการที่จะเปลี่ยนแปลงบางสิ่งบางอย่าง ฉันจะใส่ใจในวิธีการที่ฉันกำลังจะทำ	1	1	1	1	1	1.0
50	บ่อยครั้งที่ฉันไม่ได้สังเกตถึงสิ่งที่ฉันกำลังทำอยู่จนกระทั่งมีคนมาบอกฉัน	1	0	1	1	1	0.8
51	ฉันคิดมากเกี่ยวกับวิธีการที่ฉันทำสิ่งต่างๆ	1	1	1	1	1	1.0
52	โดยปกติฉันเห็นถึงความจำเป็นที่จะต้องเปลี่ยนแปลงก่อนคนอื่นเสมอ	1	-1	1	1	1	0.6
53	ฉันเก่งในการหาวิธีที่แตกต่างเพื่อให้ได้ในสิ่งที่ฉันต้องการ	1	1	1	1	1	1.0

54	ฉันมักจะคิดก่อนทำ	0	1	1	1	1	0.8
การวัดผล							
55	ปัญหาหรือสิ่งกวนใจเล็กๆ มักจะทำให้ฉันออกนอกแผนเสมอ	1	1	1	1	1	1.0
56	ฉันรู้สึกเสียใจเมื่อฉันไม่บรรลุเป้าหมาย	1	1	1	1	1	1.0
57	ฉันเรียนรู้จากความผิดพลาด	1	1	1	1	1	1.0
58	ฉันรู้ว่าฉันต้องการเป็นอย่างไร	1	1	1	1	1	1.0
59	มันรบกวนฉันเมื่อสิ่งต่างๆ ไม่เป็นไปตามที่ฉันต้องการ	1	1	1	1	1	1.0
60	ฉันขอความช่วยเหลือจากคนอื่นเมื่อฉันต้องการ	1	1	1	1	1	1.0
61	ก่อนที่ฉันจะตัดสินใจ ฉันจะพิจารณาถึงผลที่จะตามมา	1	1	1	1	1	1.0
62	ฉันล้มเลิกในการทำสิ่งต่าง ๆ ได้ง่าย	0	1	1	1	1	0.8
63	ฉันตัดสินใจที่จะเปลี่ยนแปลงและหวังให้ผลออกมาดีที่สุด	1	1	1	1	1	1.0

Appendix E

รายชื่อผู้เชี่ยวชาญตรวจทานเครื่องมือวัด

1. พระมหาวัชร ติกขญาโณ (เชย รัมย์) ปธ. 9

   ผู้ช่วยเจ้าอาวาส วัดสามพระยา

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PRESENT POSITION	Managing Director, A. Mec Co., Ltd.