The Development and Validation of Mindfulness Measurement among Thai Buddhist Employees

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Abstract

This study aims to develop and test the mindfulness measurement instrument of Buddhist employees. The quantitative approach was applied to this study. The research population was defined as the Buddhist employees in Thai organizations. The research sample was divided into two groups for different purposes. One group consisted of 100 Buddhist employees, of which 50 were meditators and the rest weren't. This group was engaged in the instrument development phase. The second group comprised 509 participants and was used in testing the reliability and validity of the instrument. The data was gathered using questionnaires. The collected data was compiled and analyzed by computer programs. The statistics employed in the instrumental development process were: Item Congruence Index (IOC), Reliability, and Discriminant analysis, while Confirmatory Factor Analysis (CFA) was used to confirm the validity of the instrument construct. The analysis showed validity of the mindfulness measurement model according to the conceptual framework whereby 34 items of four-factor mindfulness measures: mindfulness of body, mindfulness of feelings, mindfulness of mind, and mindfulness of mind-object were psychometrically sound and conceptually supported the self-assessment of mindfulness for Thai Buddhist employees. This mindfulness scale is thus likely to provide future organizational researchers with a valuable tool for assessing mindfulness practice, and human resources development professionals with a reliable and valid instrument that can aid them in their development of individual training programs for employees.

Keywords: Mindfulness, Mindfulness of Body, Mindfulness of Feelings, Mindfulness of Mind, Mindfulness of Mind-Objects, Validation of Mindfulness Measurement, Thai Buddhist Employees

Introduction

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). The concept of mindfulness is believed to have originated from the Buddhist Vipassana and Zen meditation theories. Bodhi (1984) emphasized on the need to have a proper concentration with an undisturbed thoughts and serenity mind in the principle of mindfulness. To achieve this, mindfulness with the steady locus of awareness is a key. Mindfulness therapy is mainly used in the West in psychology and organizational management to reduce stress as an alternative form of behavior and cognitive therapy (Chiesa and Malinowski, 2011) and also to improve physical health and interpersonal relationships (Brown, Ryan and Creswell, 2007).

Historically, mindfulness was widely studied in philosophical and religious fields. The concept was considered too spiritual, with more Zen-like qualities than scientific ones, to be accepted as a systematic analysis (Dane, 2010). Nowadays, mindfulness has attracted interest of professionals in human resource management, educational, and academic fields with the belief that it can transform lives, organizations and society (Gonzalez, 2012). However, the effects of mindfulness in an organizational environment and its benefits and consequences for employees in daily decision-making and other important aspects have not been widely studied. Dane (2010) investigated the effect of mindfulness on workplace performance and

Dane and Brummel (2014) studied the relationship of workplace mindfulness with job performance and turnover intention. By the way, a few instruments for measuring the mindfulness of employees have been developed under Buddhism constructs, particularly those working in Eastern countries such as Thailand, where the majority of the workforce is Buddhist with experience in Vipassana and Zen meditation methods.

Therefore, there is a need for such a study in the present scenario of globalization to develop an appropriate instrument to address the particular characteristics and behavioral patterns of Thai employees from Eastern and Buddhist-oriented backgrounds. This study aims to shed the light of the lack of instrument in measuring the level of mindfulness in an organizational context as it is deeming to have an important effect on performance. This instrument will provide valuable data through the examination of different mindfulness constructs.

Literature Review

From the literature review and in-depth interviews with 15 Thai Buddhist employees with meditation experience, the psychometric characteristics of the mindfulness of Thai Buddhist employees were based on the four mindfulness constructs, such as mindfulness of body, mindfulness of feeling, mindfulness of mind and mindfulness of mind-objects. The four items of mindfulness are described as follows.

1. Mindfulness of Body

Observing can be described as noticing or attending to a range of stimuli. Anatta ('not-self') concept can be explained as the process of noting and observing the arising and ending of physical and mental objects. It should be simply to observe what is there, not what is expected or desired to be there, as body-objects of motion and posture. Posture refers to sitting, standing, walking and lying down.

2. Mindfulness of Feeling

Feeling refers to an experience which is pleasant, unpleasant, or neutral and which arises from either the body or the mind. Feelings are part of our automatic response to sensory inputs through any of the five sense doors or thoughts. Non-judging of inner experience involves refraining from an evaluation of thoughts and feelings and simply being aware of whether it has a pleasant, unpleasant, or neutral feeling tone.

3. Mindfulness of Mind

Generally, a person is conditioned to react to pleasant sensations with a sense of desire and attachment. It is believed that the pleasant feeling will lead to happiness, so a person desires more pleasant feelings. Also, a person is conditioned to react to unpleasant sensations with anger, fear, and aversion. Everyone wants to escape from unpleasant thoughts and believes that doing so will lead to happiness. The constant effort to attain the pleasant and avoid the unpleasant and neutral prevents people from finding peacefulness by simply living the moment, whether things are pleasant, unpleasant, or neutral. Non-reactivity to inner experience refers to noticing thoughts and feelings without showing a reaction towards them.

4. Mindfulness of Mind-Objects

The ability to recognize the feeling of an experience allows us to break the identification with it, to become unstuck from the experience. A person can begin to see it as just an experience that is happening rather than "my experience" or "me". This awareness of how a person reacts creates the possibility of responding to feelings with more flexibility and appropriateness for each situation rather than simply reacting based on past conditioning. Acting with awareness refers to focusing attention on current activities.

The objectives of this study were:

1. To examine the psychometric characteristics of the mindfulness in Thai Buddhist employees

2. To develop an instrument to measure the mindfulness of employees working in Thai organizations within the Buddhism concept

3. To test the reliability and validity of the instrument developed to measure the mindfulness of employees working in Thailand within the Buddhism concept

Method and Materials

The mixed research approach which includes qualitative and quantitative method was applied to the research procedure. In regard to the qualitative part, interview scripts were used in the interviews with 15 randomly selected Thai Buddhist employees who had experience in meditation. It was done to collect data regarding the meaning and factors of mindfulness. Moreover, the author attended Vipassana Meditation for eight days to gain a better comprehension of mindfulness as the understanding of each participant regarding the concept was different. The psychometric properties of mindfulness were examined in terms of the four foundations as body, feelings, mind, and mind-objects.

As for the quantitative procedure, the participants, Thai Buddhist employees, were randomly selected by convenience sampling from organizations in Thailand and structured into two groups. The first group was assigned as a pilot group to test the developed instrument while the second was chosen to test the revision of the instrument.

Research Instrument

The interview scripts were initially developed and reviewed by experts for comprehensiveness and clarity. Later, a pilot study was conducted to practice asking the questions and to see whether participants could understand and answer the questions. Finally, we corrected our questions based on the pilot interview. The scripts consisted of three parts which were: 1) the informed consent form; 2) short demographic of participants such as gender, type of business and working position; 3) the eight opened ended questions. The eight questions were as follows:

1. How long have you practiced meditation or mindfulness?

2. What is your motivation to practice meditation or mindfulness?

3. Do you have any idea about the difference between meditation or mindfulness practice of each instructor or institute?

4. Of which instructor or institute do you follow the practice method?

5. Do you find any difference in yourself after practicing meditation or mindfulness?

6. Do you think meditation or mindfulness can help you to increase your level of mindfulness?

7. What is mindfulness for you?

8. Can you share your experience about being mindful?

Next, the research instrument was developed as a questionnaire with a series of structured questions. Responses were graded on a five point Likert scale from almost always to very rarely/never (1 = strongly disagree, 5 = strongly agree). Mindfulness measurements consisted of 43 items in 4 factors as follows: mindfulness of body 10 items, mindfulness of feelings (10 items), mindfulness of mind (10 items) and mindfulness of mind-objects (13 items).

1. Instrument Development

An initial version of the instrument measuring mindfulness in Thai Buddhist employees was developed based on the conceptual framework in the Thai language as follows:

1. An initial item pool was constructed based on the conceptual framework, theory, and related research. Previous research was analyzed to generate statements for use.

2. The initial item pool was then reviewed for correctness by a dissertation advisor and adjusted to

ensure that the items covered the operational definition of each component.

3. All defined items were then assessed for content validity by five mindfulness experts and adjusted accordingly. Items with an item-objective congruence (IOC) value less than 0.50 were removed.

4. The content experts reviewed the items and offered recommendations on clarity and wordiness, including removing and adding items to ensure completeness of measurement regarding each component.

5. Based on the recommendations all items were finalized and the instruments were prepared in both Thai and English languages and resubmitted to rate content and validity.

2. Pilot Test

The revised measurements were then evaluated by a pilot group to investigate the reliability of the instrument in 100 Thai Buddhist employees divided into two groups: 50 meditators and 50 non-meditators.

2.1 Discriminant analysis

Discriminant analysis was performed to assess classification adequacy of group membership and assign objects to groups. An item-total correlation test was run for each item to ensure that the standard value was greater than 0.20, all items with an item-total correlation of less than 0.20 were removed (Ebel and Frisbie, 1986). The corrected item-total correlation results indicated that 13 items had to be removed as they did not measure the same construct. The removal of 13 items helped to increase the reliability. Discrimination results showed that 34 out of a total of 43 (79.07%) mindfulness measurements passed the standard score (Table 1).

Table 1 Discrimination of Mindfulness Questionnaire

Measurement	No. of items developed	No. of items passed	Item-total correlation 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-Objects	13	11	0.348-0.647

Table 2 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-Objects	11	0.863

2.2 Reliability test

Following discrimination analysis, the reliability scores for mindfulness were estimated using Cronbach's coefficient alpha (Table 2).

3. Instrument Revision and Validation

The instrument was trialed on 509 participants to test its reliability and revised based on the statistical results to validate the scales developed in the previous section and enhance its internal consistency.

3.1 The instrument was examined using factor analysis (FA) to determine whether the hypothesized four-factor structure of the four foundations of mindfulness in Buddhism fitted the study data and to discover the latent factors.

3.2 Measurements of goodness of fit were designed to indicate general overall model fit with respect to the sample data and variances.

Results

Five hundred and nine participants were randomly selected from employees in Thai organizations with a range of different backgrounds, gender, age, qualifications and work experience. The respondents were: 323 or 63.46% females, and 186 or 36.54% males. Respondents who worked at operational level numbered 285 (55.99%), section head level, 123 (24.17%) and management or executive level, 38 (7.47%). The average work experience was mainly 15-20 years comprising 145 respondents (28.49%), over 20 years 126 (24.75%), 10-14 years 112 (22.00%) and less than 1 year 17 (3.34%).

LISREL was used to prepare the mindfulness model. Results for each factor analysis (FA) model are explained below.

1. Mindfulness of Body (MB)

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 am aware of the sensations of the water on my body.

MB5 = When I brush my teeth, I deliberately notice the continuous movement of the brush on my teeth.

MB6 = When I eat a meal, I deliberately notice my hand moving to take the food and my chewing.

MB7 = When I am "running on automatic", I am aware of what I'm doing.

Results of the correlation coefficient (Table 3) for the mindfulness of body (MB) factors indicated positive correlations among the factors and the Kaiser-Meyer-Olkim (KMO) value at 0.855 was found acceptable for factor analysis.

Table 3 Correlation Coefficient of Observed Variables of the 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 factor analysis (FA) (Table 4) revealed that all loading factors were significant at the 0.01 level. The construct reliability model structure was 86.70%. The average variance extracted (ρ_v) = 0.485 indicated that the mindfulness of body (MB) model could explain 48.50% of the variance among the observed variables (Diamantopoulos and Siguaw, 2000).

Table 4 Factor Loading (λ_i), Standard Error ($SE\lambda_i$), Significant Test (t), Square Multiple Correlation (SMC) of the MB Measurement Model

Mindfulness of Body	Factor loading (λ_i)	Standard error ($SE\lambda_i$)	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

Validation of the mindfulness of body measurement model was presented by the goodness of fit indices (Table 5). The confirmatory factor analysis (CFA) model showed that the mindfulness of body sample data would support the seven observed variables.

Table 5 Goodness of Fit Indices of the 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

2. Mindfulness of Feeling (MF)

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

MF2 = When I lose my things, I feel sad.

MF3 = When something miserable happens, I can feel that emotion.

MF4 = When I feel 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, or dissatisfaction, I feel frustrated.

MF7 = When I see things or people I don't like, I feel depressed and annoyed.

Correlation coefficient results (Table 6) for the mindfulness of feeling (MF) factors indicated positive correlations among factors and the Kaiser-Meyer-Olkim (KMO) value at 0.855 was found acceptable for factor analysis.

Table 6 Correlation Coefficient of Observed Variables of the 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

Results of factor analysis (FA) (Table 7) indicated that all loading factors were significant at the 0.01 level. The construct reliability of the model structure was 81.90%. Average variance extracted (ρ_v) = 0.395 indicated that the mindfulness of feelings (MF) model could explain 39.50% of the variance among the observed variables (Diamantopoulos and Siguaw, 2000) (Table 7).

Table 7 Factor Loading (λ_i), Standard Error ($SE\lambda_i$), Significance Test (t), Square Multiple Correlation (SMC) of MF the Measurement Model

Mindfulness of Feeling	Factor loading (λ_i)	Standard Error ($SE\lambda_i$)	Significance 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 the mindfulness of feeling measurement model was presented by the goodness of fit indices (Table 8). The confirmatory factor analysis (CFA) model showed that the mindfulness of feeling sample data would support the seven observed variables.

Table 8 Goodness of Fit Indices of the 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

Table 8 (Cont.)

Fit indices	Value	Criterion	Meaning
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

3. Mindfulness of Mind (MM)

MM1 = I am aware of my anxiety. I just notice that anxiety and accept the nature of it.

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

MM3 = When I find myself straying from my focus, I can step back to what's happening in the present.

MM4 = When I feel muddled, I am able to notice it.

MM5 = When I feel annoyed by someone or something, I am able to just notice that annoying feeling without reacting.

MM6 = When I experience distressing thoughts or images, I can "step back" and be aware of these thoughts or images without becoming consumed by them.

MM7 = When I miss someone, I can notice that feeling and avoid feeling sad about it.

MM8 = If I am sad, I am able to just notice it without being overwhelmed by it.

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

Correlation coefficient results (Table 9) for the mindfulness of mind (MM) factors indicated positive correlations among factors and the Kaiser-Meyer-Olkim (KMO) value at 0.871 was found acceptable for factor analysis.

Table 9 Correlation Coefficient of Observed Variables of the 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

Results of factor analysis (FA) (Table 10) indicated that all loading factors were significant at the 0.01 level with construct reliability model structure at 83.70%. The average variance extracted (ρ_v) = 0.413 and indicated that the mindfulness of mind (MM) model could explain 41.30% of the variance among the observed variables (Diamantopoulos and Siguaw, 2000).

Table 10 Factor Loading (λ_i), Standard Error ($SE\lambda_i$), Significance Test (t), Square Multiple Correlation (SMC) of the MM Measurement Model

Mindfulness of Mind	Factor loading (λ_i)	Standard Error ($SE\lambda_i$)	Significance 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 the mindfulness of mind measurement model was presented by the goodness of fit indices (Table 11). The confirmatory factor analysis (CFA) model showed that the mindfulness of mind sample data would support the nine observed variables.

Table 11 Goodness of Fit Indices of the 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

4. Mindfulness of Mind-Objects (MO)

MO1 = When my emotions start to change, I can notice change.

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

MO3 = When I see things, I am aware of seeing them.

MO4 = When I hear the sounds of things, I am aware of hearing them.

MO5 = I notice the smells and aromas of things.

MO6 = I notice the taste of food on my tongue.

MO7 = I am able to notice and understand the changes that occur in my body.

MO8 = When I am separated from my loved ones, such as my parents, I feel really sad and cannot accept it.

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

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

MO11 = I am able to accept those things that I cannot change.

Correlation coefficient results (Table 12) for the mindfulness of mind-objects (MO) factors indicated positive correlations among the factors and the Kaiser-Meyer-Olkim (KMO) value at 0.880 was found acceptable for factor analysis.

Table 12 Correlation Coefficient of Observed Variables of the 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 factor analysis (FA) (Table 13) showed that all loading factors were significant at the 0.01 level. The construct reliability of model structure was 84.40% (very high). The average variance extracted (ρ_v) = 0.415 and indicated that the mindfulness of mind-object (MO) model could explain 41.50% of the variance among the observed variables (Diamantopoulos and Siguaw, 2000).

Table 13 Factor Loading (λ_i), Standard Error ($SE\lambda_i$), Significance Test (t), Square Multiple Correlation (SMC) of the MO Measurement Model

Mindfulness of mind-objects	Factor loading (λ_i)	Standard Error ($SE\lambda_i$)	Significance 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 the mindfulness of mind-objects measurement model was presented by the goodness of fit indices (Table 14). The confirmatory factor analysis (CFA) model showed that the mindfulness of mind-objects sample data would support the eleven observed variables.

Table 14 Goodness of Fit Indices of the 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

The standard factors loading of the latent variables as show in table 15 were significant at the 0.01 level.

Table 15 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			R^2
	B (γ)	*SE*γ	*t*	
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

Discussion

Baer (2011) mentioned that one of the main challenges of developing an assessment of mindfulness is to maintain consistency with the Buddhist concept of mindfulness. Indeed, existing mindfulness instruments may significantly distort this conceptualization. Various studies have attempted to define the term mindfulness in their own context, using terms such as "awareness," "attention," and "consciousness" to do so. Hanh (1976), who described mindfulness in terms of its ability to change individual and interaction capabilities and actions, specified the "Seven Miracles of Mindfulness", which refer to the different ways in which the three characteristics of mindfulness—attention, acceptance, and engagement—can change intrapersonal and interpersonal interaction: being fully aware and present in the moment; enabling the presence and awareness of others; promoting and reinforcing the object of one's attention; wishing for an end to suffering; observing at great length (vipassana) one's own as well as other's character and how they are linked to each other; being aware of and understanding the relationships between people, their lives, situations, and ourselves; and transforming suffering into being.

To response to Baer (2011) and to answer our research question, we interviewed 15 Buddhist employees to understand what mindfulness means to them. We found out that most of them referred to mindfulness in term of the four foundations. Thus, we used these four foundations to define mindfulness. Drawing on this definition, we then examined the Thai Buddhist Mindfulness Measurement (TBMM)'s validity and reliability. To do so, the 34-item Thai Buddhist Mindfulness Measurement (TBMM) was distributed to 509 Thai Buddhist employees in Thailand. Our underlying assumption was that mindfulness comprises four specific dimensions. This investigation showed that the mindfulness constructs were shaped by the factors of body, feelings, mind, and mind-objects. The alpha coefficients of this instrument indicated acceptable levels of homogeneity and reliability for all four factors—in other words, all items under mindfulness of body measured the same construct, as did all items under mindfulness of feelings, and so on.

The factor analyses of the Thai Buddhist Mindfulness Measurement (TBMM) indicated that the four-factor structure was a good fit to the data, as indicated by the absolute and relative fit indices. Furthermore, the individual loadings on each factor and the estimated loadings of each latent variable were statistically significant ($p < 0.01$). Hence, the mindfulness measurement model was valid in light of the conceptual framework and aligned with Satipatthana which is translated as the four foundations of mindfulness or another word for the four ways of establishing mindfulness (Goldstein, 2013).

Furthermore, mindfulness of the mind was the latent variable that best explained variance in mindfulness, followed by mindfulness of dhammas, mindfulness of body, and mindfulness of feeling. This suggests that having high mindfulness of mind is equated with a high level of mindfulness in general. Mindfulness of feeling, by contrast, could only just meet the criteria of a factor loading of at least 0.4 (Costello and Osborne, 2005) and a squared multiple correlation of 0.3 (Jöreskog and Sörbom, 1989), suggesting that it is a weak indicator of mindfulness.

Overall, our analyses confirmed the Thai Buddhist Mindfulness Measurement (TBMM) as a valid measure of mindfulness in Thai Buddhist employees, thus providing a good evidence for the future application of the Thai Buddhist Mindfulness Measurement (TBMM).

Conclusions and Suggestions

The hypothesis was tested by instrument development and instrument validation studies. Mindfulness in the Thai Buddhist employees was proposed to have four factors. The items were developed and tested with the pilot study and CFA testing. The finalized version of the Thai Buddhist Measurement developed for this study included 34 items that measured the four flowing factors of mindfulness: body (seven items); feelings (seven items); mind (nine items), and mind-objects (eleven items). The validation study confirmed that the 34 items provides adequate validity and reliability as supported by the results of the CFA.

The main contribution of this study is that it provides another perspective on mindfulness, including what mindfulness means for Thai Buddhists, and adds to the dialogue between scholars and psychologists working on mindfulness. The result might assist broadening existing knowledge regarding mindfulness, especially in the Buddhism aspect. The TBMM can offer useful information for mindfulness practitioners through measuring changes in their mindfulness levels. Similarly, the TBMM could be administered before and after a meditation program to assess the changes in mindfulness levels as a result of the program.

The results suggested several implications for current organization situations. The development, validation, and application of the Thai Buddhist Mindfulness Measurement yielded important findings that have practical applications for the human resource (HR) and organization development field. The HR

department can utilize the Thai Buddhist Mindfulness Measurement (TBMM) to measure the level of mindfulness among its employees and further cultivate mindfulness in the workplace. Mindfulness can help to improve both the ability and efficiency of employees and provide an additional organizational tool to increase performance through training programs.

Future research should replicate the construct of the Thai Buddhist Mindfulness Measurement (TBMM) to continue examining whether these findings would be valid in a wider population, as this would provide additional evidence of the construct's validity. Another method of affirming the construct's validity would be comparing mindfulness assessment correlation patterns with other qualities, such as emotional intelligence, and well-being.

Moreover, this study was conducted at one point in time. Future research could be designed as a longitudinal study to examine whether mindfulness alters over time. It would be beneficial if the Thai Buddhist Mindfulness Measurement (TBMM) was utilized as a pre-post approach to evaluate the effectiveness of a mindfulness training program.

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