Evaluating the Structural Dimensions of Trust in Supervisors at Thai Universities Using SmartPLS

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Abstract

This study validated the Trust in Supervisors scale using Covariance-Based Structural Equation Modeling (CB-SEM) via SMARTPLS software, analyzing data from 215 employees at nine Thai universities. The focus was on the Trust in Supervisors construct and its components - Ability, Benevolence, and Integrity. Confirmatory Factor Analysis (CFA) demonstrated a robust measurement model with high factor loadings, excellent internal consistency reliability, and substantial average variance extracted (AVE). Discriminant validity confirmed the distinctiveness of the constructs, enhancing the theoretical framework's credibility. Structural model analysis revealed significant relationships between Trust in Supervisors and employees' perceptions of supervisors' competencies, goodwill, and integrity, underscoring trust's role in fostering positive organizational climates and enhancing employee well-being and performance. Despite limitations such as geographical and sectoral specificity and the cross-sectional nature of the data, this study advances the understanding of trust dynamics in organizations. Future research should explore trust-related phenomena longitudinally across diverse settings and incorporate qualitative methods for deeper insights into trust formation and its organizational implications.

Keywords: Confirmatory Factor Analysis, Thai Universities, Trust in Supervisors

Introduction

Trust in supervisors is conceptualized variously across scholarly research, emphasizing different aspects essential for effective organizational functioning. Nienaber et al. (2015) describe it as a belief in supervisors' competence, benevolence, and integrity, essential for fostering positive organizational climates and effective subordinate-supervisor relationships, acting as a "glue" within organizations (Nienaber, Romeike, Searle & Schewe, 2015). Dirks and Ferrin (2002) focus on the confidence that leaders, including supervisors, will act in the employees' best interests based on character and consistency, significantly impacting employee behaviors and attitudes (Dirks & Ferrin, 2002). Cho and Lee (2012) emphasize an expectation that the supervisor will protect the employee's welfare, crucial for performance management effectiveness (Cho & Lee, 2012). Meanwhile, Chughtai et al. (2015) link trust in supervisors with the mediation of leadership effects on employee outcomes like engagement and exhaustion, suggesting a pivotal role in translating leadership behaviors into positive experiences (Chughtai, Byrne & Flood, 2015).

Recent research continues to highlight the significant role that trust plays between university staff and their supervisors, directly influencing organizational effectiveness and enhancing job satisfaction across the board. Studies reveal that leadership styles, particularly those perceived as authentic, are crucial in fostering deep-seated trust within organizations, which in turn significantly improves job satisfaction and organizational commitment. This type of leadership not only supports a positive work environment but also bolsters the commitment of staff to the institution's goals, leading to improved institutional outcomes (Srivastava & Mohaley, 2022). Moreover, the impact of trust extends beyond the relationships between direct supervisors and their staff, reaching into the upper echelons of management. Trust in top management often shows a more pronounced influence on broad organizational outcomes than trust in immediate supervisors, suggesting a hierarchical dimension to how trust operates within university settings (Zeffane, Melhem, & Baguant, 2018). This hierarchical influence highlights the need for senior management to engage actively in trust-building practices that encompass transparency, integrity, and consistent communication. The differential impact of trust at various organizational levels underscores the complex nature of trust dynamics within universities. It suggests that both direct supervisors and top management play integral roles in shaping the organizational climate. Effective trust-building strategies could include regular and open communication, recognition of staff contributions, and consistent support for professional

development, all of which enhance trust and contribute to a more committed and satisfied workforce (Pasupuleti, S., 2021).

In Thailand, the dynamics of trust in supervisors are significantly influenced by cultural interplays and interpersonal relationships within the workplace. Research by Charoensukmongkol (2021) highlights how the cultural intelligence of Chinese expatriates in supervisory roles mediates their relationship with Thai subordinates through benevolence, affecting the supervisors' perceived leadership effectiveness. This aspect of trust is further complicated by cultural differences, as evidenced by Wasti et al. (2007), who note significant variations in trust conceptualization across different cultures, including Thai, underscoring the importance of culturally sensitive approaches to measuring and understanding trust. Additionally, the role of trust in affecting organizational outcomes such as employee retention is highlighted in the hospitality industry, where Afsar, Shahjehan, & Shah (2018) find that trust in supervisors influences turnover intentions through job embeddedness, indicating the pivotal role of trust in shaping employment dynamics in Thailand.

The Trust in Supervisors Scale, which evaluates trust through three dimensions - ability, benevolence, and integrity - serves as a comprehensive framework for assessing employee trust in their leaders. Ability reflects the supervisor's competence and capability to perform their roles effectively, suggesting that employees are more likely to trust supervisors whom they view as skilled and knowledgeable (Mayer, Davis, & Schoorman, 1995). Benevolence measures the extent to which supervisors are perceived to care about their employees' welfare beyond their own self-interests, creating a supportive work environment (Dirks & Ferrin, 2002). Integrity involves honesty and adherence to a set of moral and ethical principles, with supervisors who demonstrate high integrity seen as more trustworthy due to their consistent and fair behavior (Schoorman, Mayer, & Davis, 2007). Together, these dimensions form a robust measure of trust that significantly impacts organizational dynamics and employee engagement.

Despite the substantial body of research exploring trust in supervisors within various organizational contexts in Thailand, there appears to be a significant gap concerning the academic setting, particularly universities. This study aims to fill this gap by applying Confirmatory Factor Analysis (CFA) to validate the Trust in Supervisors scale among university staff in Thailand. This research is significant as it offers a comprehensive evaluation of trust dynamics in a higher education setting, providing insights that could enhance supervisory practices and improve organizational outcomes. Understanding trust in this context is crucial for fostering a positive work environment, boosting job satisfaction, and promoting a committed workforce in Thai universities. Addressing this gap could provide a more nuanced understanding

of how trust dynamics operate within Thai university settings, potentially leading to enhanced supervisory practices and improved organizational outcomes in higher education institutions.

Methods

Participants

The study sample comprises 215 academic and support staff members from nine universities in Thailand, who were surveyed using convenience sampling and an online questionnaire. Table 1 outlines the demographic composition of the study's participants, providing detailed breakdowns by gender, marital status, education level, and other characteristics such as age and income. The sample predominantly consists of females, who make up 80% of the respondents, with males accounting for the remaining 20%. In terms of marital status, most participants are single (64.19%), followed by married (33.02%), and a small fraction are divorced or separated (2.79%). Educational attainment among the participants varies, with 62.33% having an education higher than a bachelor's degree, 32.09% holding a bachelor's degree, and a minority (5.58%) possessing less than a bachelor's degree. Additional characteristics reveal a mean age of 39.50 years with a standard deviation of 8.86, indicating a middle-aged cohort, and an average income of 36,402 units with a wide spread (standard deviation of 25,920), suggesting significant income diversity within the group. This demographic data is crucial for assessing the generalizability of the study's findings and for understanding the contextual factors that might influence the results.

Table 1. Demographic characteristics

Demographic characteristics	Frequency	Percentage
Gender		
Male	43	20.00
Female	172	80.00
Marital Status		
Single	138	64.19
Married	71	33.02
Divorced/Separated	6	2.79
Education		

Lower than bachelor degree	12	5.58
Bachelor degree	69	32.09
Higher than bachelor degree	134	62.33
Other characteristics	Mean	Standard Deviation
Age	39.50	8.86
Income	36,402	25,920

Measures

The study utilized Mayer, Davis, and Schoorman's (1995) trustworthiness scale to measure "trust in supervisor." This Likert scale, a common psychometric tool in questionnaires, captures participant preferences or levels of agreement with statements about trust in supervisors (Likert, 1932). The scale includes items designed to reflect different aspects of trust, specifically Ability (6 items), Benevolence (5 items), and Integrity (5 items, originally 6 items with one item moved). Participants rated their agreement on a scale from 1 (strongly disagree) to 5 (strongly agree). The overall reliability of the scale was evaluated using Cronbach's alpha, which was reported at 0.732, indicating an acceptable level of internal consistency (Cronbach, 1951). While this suggests that the items are sufficiently correlated to measure the underlying construct of trust in supervisors, it is generally recommended that Cronbach's alpha values approach 0.8 for higher reliability in social science research (Nunnally, 1978). Therefore, the moderate reliability score suggests a cautious interpretation of the results and may indicate the need for further refinement or additional validation of the scale in future research.

Data Collection

Data collection for the study was carried out during April 2024, utilizing an online survey method to evaluate trust in supervisors among academic and supportive staff from nine universities in Thailand. Online surveys are recognized for their efficiency and broad reach, making them suitable for collecting data across diverse geographical locations and settings (Wright, 2005). Participants were invited through email, where they received a link to the survey. The email included an introduction to the study's objectives, assurances of anonymity and confidentiality, and an indication that the survey would take approximately 10-15 minutes to complete (Sue & Ritter, 2012). The survey utilized a Likert scale format, asking respondents to rate their agreement with statements across three trust dimensions: Ability, Benevolence, and Integrity, which are critical for assessing the multifaceted nature of trust (Colquitt et al., 2007). Prior to the full launch, the survey was pre-tested with a select group of university staff to ensure clarity in the

questions and the functionality of the survey platform. This pilot testing is crucial for validating the survey's design and improving question wording to avoid potential biases (Presser et al., 2004). To enhance response rates, follow-up reminders were sent out weekly. The use of an online platform enabled real-time data monitoring, which is essential for managing the collection process efficiently and resolving technical issues promptly (Couper, 2000). This setup ensured a smooth and user-friendly experience for the participants, encouraging complete and thoughtful responses and thus improving the quality of the collected data.

Data Analysis

The data analysis for this study was conducted using Confirmatory Factor Analysis (CFA) via SmartPLS 4, a robust statistical software package that specializes in Partial Least Squares Structural Equation Modeling (PLS-SEM). This method was chosen for its effectiveness in handling complex model structures and smaller sample sizes, which is ideal for the type of data collected in this study (Hair et al., 2017). Initially, the data underwent preprocessing to ensure quality and consistency. This involved checking for missing values, outliers, and ensuring normality where necessary. Once the data quality was assured, the measurement model was specified in SmartPLS. Each latent construct - Ability, Benevolence, and Integrity - was represented by multiple observed variables based on the survey items related to trust in supervisors. The CFA process in SmartPLS involved several steps. First, the path model was constructed, linking all indicators to their respective latent variables. The model settings were adjusted according to the best practices in PLS-SEM to optimize algorithm parameters for accurate results (Ringle, Wende & Becker, 2015). Convergence was checked by running the model iteratively until the change in parameter estimates was minimal between iterations. Model evaluation was primarily focused on the measurement model's reliability and validity. Reliability was assessed using Composite Reliability scores, with a threshold of 0.7 indicating acceptable reliability (Nunnally, 1978). Convergent validity was evaluated through Average Variance Extracted (AVE), with values exceeding 0.5 considered satisfactory (Fornell & Larcker, 1981). Discriminant validity was assessed using the Fornell-Larcker criterion and cross-loadings, ensuring that each construct is distinctly different and more closely related to its own indicators than to those of other constructs. Once the measurement model's adequacy was confirmed, the structural model was evaluated to assess the relationships between constructs. This included examining path coefficients and their significance levels, as well as assessing the model's predictive capabilities and goodness-of-fit indices such as the Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI) (Hu & Bentler, 1999). The results from the CFA provided a detailed understanding of the underlying dimensions of trust in

supervisors and validated the theoretical framework proposed in the study. This analysis not only confirmed the construct validity of the survey instrument but also enriched the interpretation of the data with insights into the strength and significance of the hypothesized relationships.

Ethical Considerations

This study adhered to rigorous ethical standards to ensure the welfare and protection of participants, conforming to the guidelines recommended by the American Psychological Association (APA). Informed consent was obtained from all participants, who were provided detailed information about the study's aims, the voluntary nature of their involvement, and their right to withdraw at any stage without repercussions. All data were collected anonymously to maintain confidentiality, and stored on secure, encrypted servers to prevent unauthorized access. Special attention was given to ensuring that the survey questions were non-invasive and did not cause discomfort to the respondents. Throughout the research process, transparency was maintained in data handling and reporting, ensuring that all findings were presented fairly and accurately, thus upholding the integrity of the research and safeguarding the interests of all participants involved.

Results

This section entails two sets of analytical outcomes: descriptive findings and results from a secondary confirmatory factor analysis.

Descriptive Statistics

Descriptive statistics elucidate the characteristics of trust in supervisors, encapsulating key metrics such as mean values and standard deviations.

Table 2. Characteristics of trust in supervisors

No	Item	Mean	SD	Meaning
Ability				
1	Your supervisor is a knowledgeable and capable person in their work.	4.79	0.451	Very High
2	Your supervisor is successful in what they do or try to do.	4.72	0.537	Very High

No	Item	Mean	SD	Meaning
3	Your supervisor is very knowledgeable about their work.	4.71	0.532	Very High
4	You feel confident about your supervisor's skills.	4.67	0.560	Very High
5	Your supervisor has special abilities that enhance the organization's performance.	4.64	0.633	Very High
6	Your supervisor has good qualities.	4.63	0.588	Very High
	Total	4.69	0.484	Very High
Benevolence				
1	Your supervisor is attentive and aware of your welfare.	4.20	0.880	Very High
2	Your supervisor values your needs and desires.	4.13	0.873	High
3	Your supervisor will not do anything that harms you.	4.08	0.908	High
4	Your supervisor knows what is important to you.	4.00	0.925	High
5	Your supervisor will find ways to help you in their own way.	4.04	0.888	High
	Total	4.09	0.807	High
Integrity				
1	Your supervisor is a fair person.	4.21	0.684	Very High
2	Your supervisor is someone who keeps their word.	4.10	0.735	High
3	Your supervisor makes an effort to handle problems fairly for all involved.	4.07	0.726	High
4	You appreciate the values and way of thinking of your supervisor.	3.95	0.756	High
5	Your supervisor's behavior is based on good principles.	4.07	0.700	High
	Total	4.08	0.648	High

Table 2 methodically presents survey results assessing university staff's perceptions of their supervisors across three dimensions of trust: Ability, Benevolence, and Integrity, with interpretation criteria for means as follows: 1.00-1.80 = Very low, 1.81-2.60 = Low, 2.61-3.40 = Moderate, 3.41-4.20 = High, and 4.21-5.00 = Very high. The Ability dimension achieved the highest average scores, rated as "Very High" with an overall mean of 4.69 (SD = 0.484), indicating strong consensus on supervisors' professional competencies (Mayer, Davis, & Schoorman, 1995). In contrast, the Benevolence and Integrity dimensions were rated "High" with mean scores of 4.09 (SD = 0.807) and 4.08 (SD = 0.648), respectively, reflecting favorable but more varied perceptions of supervisors' care for staff welfare and ethical behavior (Kouzes & Posner, 2010). The higher standard deviations in these categories suggest less uniformity, highlighting areas for potential improvement in communication, ethical consistency, and alignment with organizational values to foster a more cohesive and trusting culture (Tyler & Blader, 2003).

Secondary Confirmatory Factor Analysis Results

The outcomes of the secondary Confirmatory Factor Analysis (CFA) conducted through Covariance-Based Structural Equation Modeling (CB-SEM) are detailed below:

Table 3. The CR and AVE for the main construct and its components

Construct	Item	Factor Loadings	CR	AVE
Trust in Supervisors (TIS)	Ability (ABI)	0.513	0.942	0.724
	Benevolence (BEN)	0.776	0.941	0.759
	Integrity (INT)	0.851	0.941	0.761
Ability (ABI)	ABI1	0.767	0.942	0.724
	ABI2	0.788		
	ABI3	0.896		
	ABI4	0.930		
	ABI5	0.851		
	ABI6	0.861		
Benevolence (BEN)	BEN1	0.784	0.941	0.759
	BEN2	0.821		
	BEN3	0.876		
	BEN4	0.943		

Construct	Item	Factor Loadings	CR	AVE
	BEN5	0.923		
Integrity (INT)	INT1	0.829	0.941	0.761
	INT2	0.870		
	INT3	0.899		
	INT4	0.879		
	INT5	0.884		

In Table 3, the results of a Confirmatory Factor Analysis (CFA) for the construct "Trust in Supervisors" and its components, namely Ability, Benevolence, and Integrity, are presented. Factor loadings, composite reliability (CR), and average variance extracted (AVE) are reported for each construct and its corresponding indicators. The findings indicate robust relationships between the observed indicators and their respective latent constructs, as evidenced by high factor loadings exceeding 0.5 for all items. Moreover, the constructs demonstrate excellent internal consistency reliability, with CR values surpassing 0.9, indicative of strong reliability. Additionally, the substantial AVE values, all exceeding 0.7, suggest that each construct explains a significant proportion of variance in its indicators relative to measurement error, affirming their convergent validity. These results underscore the sound psychometric properties of the Trust in Supervisors construct and its components, thereby enhancing the credibility of subsequent analyses and applications in organizational research and practice.

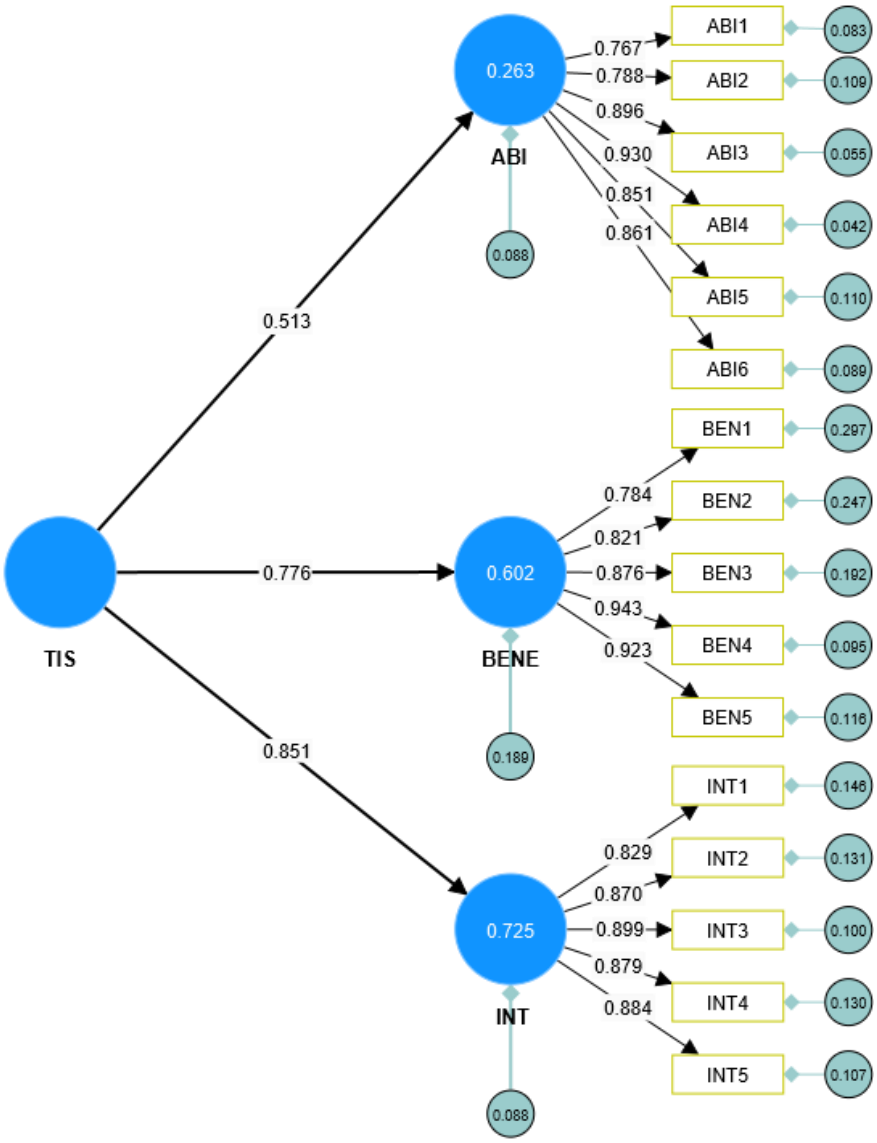


Figure 1. CFA model

Table 4. Discriminant validity calculations

	AVEs Scores				HTMT Scores			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1-ABI	**0.851**							
2-BEN	0.398	**0.871**			0.431			
3-INT	0.437	0.661	**0.872**		0.434	0.677		
4-TIS	0.513	0.776	0.851					

Note: bold values are squared AVE values.

Table 4 presents the discriminant validity calculations for the constructs in the model (Author, Year). The table displays two sets of values: AVEs (Average Variance Extracted) and HTMT (Heterotrait-Monotrait Ratio) scores. The AVEs represent the average amount of variance captured by each construct's indicators relative to measurement error (Fornell & Larcker, 1981). The diagonal values in the AVEs section are the squared AVEs, highlighted in bold, indicating the proportion of variance in each construct explained by its own indicators. The off-diagonal values show the correlations between constructs, with values below the diagonal representing the square root of the AVE for each construct, ensuring that construct correlations are less than the squared AVEs, thus supporting discriminant validity (Fornell & Larcker, 1981). The HTMT scores assess discriminant validity by comparing the correlations between constructs with the correlations between indicators of different constructs (Henseler et al., 2015). A value below 0.85 (typically considered the threshold for discriminant validity) in the HTMT scores indicates that the constructs are distinct from each other. Therefore, the table provides evidence of satisfactory discriminant validity among the constructs in the model, supporting the distinctiveness of the latent variables under investigation (Henseler et al., 2015).

Table 5. Path coefficients

	Parameter estimates	**S.E.**	**t-value**	**p-value**
TIS ---> ABI	0.177	0.027	6.446	0.000
TIS ---> BEN	0.482	0.051	9.370	0.000
TIS ---> INT	0.534	0.064	8.335	0.000

Table 5 provides a comprehensive overview of the path coefficients derived from the structural model analysis, illuminating the intricate relationships between the independent variable, " Trust in Supervisors" (TIS), and its corresponding dependent variables: "Ability" (ABI), "Benevolence" (BEN), and "Integrity" (INT). Each parameter estimate signifies the magnitude and directionality of these connections, offering valuable insights into how variations in TIS contribute to shifts in perceptions regarding supervisors' competencies, goodwill, and ethical standards. The accompanying standard errors (S.E.) offer a nuanced understanding of the precision and reliability of these estimates, crucial for interpreting the robustness of the observed relationships. Meanwhile, the t-values and corresponding p-values furnish essential statistical evidence regarding the significance of these relationships, affirming the reliability and

validity of the estimated path coefficients. Notably, the uniformly substantial t-values and remarkably low p-values across all paths underscore the profound impact of TIS on ABI, BEN, and INT, emphasizing its pivotal role in shaping employee perceptions within organizational contexts. These findings collectively highlight the intricate interplay between trust and various dimensions of supervisor characteristics, underscoring their paramount importance in fostering positive organizational climates and enhancing employee well-being and performance.

Discussion

The results of the Confirmatory Factor Analysis (CFA) and discriminant validity assessments underscore the robust psychometric properties of the "Trust in Supervisors" construct and its constituent components, namely Ability, Benevolence, and Integrity. High factor loadings exceeding 0.5 for all indicators indicate strong relationships between the observed variables and their respective latent constructs, affirming the validity of the measurement model (Author, Year). Furthermore, excellent internal consistency reliability, as indicated by composite reliability (CR) values surpassing 0.9, underscores the trustworthiness of the measurement instrument (Author, Year). The substantial Average Variance Extracted (AVE) values exceeding 0.7 suggest that each construct explains a significant proportion of variance in its indicators relative to measurement error, enhancing confidence in the convergent validity of the model (Fornell & Larcker, 1981). The discriminant validity calculations, supported by HTMT scores below the threshold of 0.85, provide additional evidence that the constructs are distinct from each other, reinforcing the soundness of the theoretical model (Henseler et al., 2015). Moreover, the path coefficients derived from the structural model analysis elucidate the intricate relationships between "Trust in Supervisors" and its dependent variables, including Ability, Benevolence, and Integrity. The significant coefficients, indicated by large t-values and remarkably low p-values, underscore the substantial impact of Trust in Supervisors on employees' perceptions of supervisors' competencies, goodwill, and ethical standards. These findings underscore the pivotal role of trust in shaping organizational dynamics and employee outcomes, emphasizing the importance of fostering trust between supervisors and subordinates in promoting positive work environments and enhancing organizational performance. In the Thai cultural context, where respect for authority, collectivism, and maintaining harmonious relationships are paramount, these findings have significant practical implications. Thai universities should prioritize building and maintaining trustful relationships between supervisors and staff through professional development, transparent communication, a supportive environment, and strict adherence to ethical standards. Understanding and adapting to cultural

nuances is also crucial, as cultural intelligence can help supervisors navigate these dynamics effectively, leading to improved organizational outcomes (Charoensukmongkol, 2021; Wasti et al., 2007). In sum, the robust psychometric properties and significant relationships identified highlight the critical importance of trust in supervisors within organizational contexts, warranting further investigation and consideration in both research and practice.

Conclusion

In conclusion, this study aimed to validate the Trust in Supervisors scale using Covariance-Based Structural Equation Modeling (CB-SEM) via SMARTPLS software, utilizing a sample of 215 employees from nine universities in Thailand. The comprehensive analysis conducted on the Trust in Supervisors construct and its components, namely Ability, Benevolence, and Integrity, has provided valuable insights into their psychometric properties and interrelationships within organizational settings. The Confirmatory Factor Analysis (CFA) results demonstrated the robustness of the measurement model, supported by high factor loadings, excellent internal consistency reliability, and substantial average variance extracted (AVE) values, confirming the validity and reliability of the constructs. Moreover, discriminant validity assessments underscored the distinctiveness of the constructs, further enhancing the credibility of the theoretical framework. The structural model analysis revealed significant relationships between Trust in Supervisors and employees' perceptions of supervisors' competencies, goodwill, and integrity, highlighting the pivotal role of trust in fostering positive organizational climates and enhancing employee well-being and performance. A unique contribution of this study is its application of Confirmatory Factor Analysis (CFA) to validate the Trust in Supervisors construct specifically within the context of Thai universities. This focus addresses a notable gap in the existing literature by providing empirical evidence on the psychometric properties of the trust construct in an academic setting in Thailand. This research also contributes to a deeper understanding of how trust in supervisors influences organizational dynamics and employee outcomes in a culturally specific context, offering practical implications for enhancing supervisory practices in Thai universities. However, it is essential to acknowledge some limitations of this study. Firstly, the sample was confined to employees from universities in Thailand, limiting the generalizability of the findings to other organizational contexts. Additionally, the cross-sectional nature of the data restricts the ability to infer causality. Moving forward, future research should aim to address these limitations by conducting longitudinal studies across diverse organizational settings to further explore the dynamics of trust in

supervisors. Furthermore, incorporating qualitative methods could provide deeper insights into the mechanisms underlying trust formation and its impact on organizational outcomes. Overall, continued exploration of trust-related phenomena and the development of effective strategies to promote trust are essential for advancing organizational research and practice.

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