

An Evaluation Of Measurement Model For Teacher Emotional Intelligence Research: The Confirmatory Factor Analysis Approach

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Abstract

Emotional intelligence is indispensable in all types of professions today, especially for careers that practice expressive social relationships such as teachers. Emotional intelligence is also considered as the key to performance excellence in the teaching profession while ensuring positive student development. Thus, rigorous research is expected in this field. In line with that, this study intended to validate the measurement model for emotional intelligence research. The mixed-method study began with a qualitative approach and ended with a quantitative analysis. Emotional intelligence in the element of *Ibadah* constructs are *mujahadah*, the practice of *Dua*, *Istiqomah*, trust and surrender. In the qualitative phase, content analysis was conducted to generate items for the respective constructs. Confirmatory factor analysis (CFA) validated the measurement model of *mujahadah*, practice of *Dua*, *Istiqomah*, trust and surrender for unidimensionality, validity and reliability. Therefore, these measurement models can be assessed for future research improvements.

Introduction

The emotional intelligence aspect of teachers is gaining attention in the research field today. In educational institutions, the teacher is a career that carries large and complex responsibilities (Ng Geik Ying, 2017). Teacher is also considered as one of the most stressful professions, as their entire working hours involve social interactions that require the wisdom of managing their own emotions, students, parents and colleagues (Gkonou & Mercer, 2017). The ongoing challenges and reforms in the world of education have a negative impact, leading to emotional outbursts that can affect the professionalism of teachers themselves (Mohd Khairuddin et al., 2017).

The career as a teacher used to be an enjoyable job but over the past two decades, the situation has become increasingly contradictory. Over the past few years, studies have proven that the teaching profession has become one of the most stressful careers (Stergios, Dimitrios, George, & Christos, 2019). The study by Sandilos et al. (2018) also shows that teachers experience many negative emotions such as stress, frustration and depression as a string of burdens from various aspects in the teaching profession. In Malaysia, statistics released by the Division of Psychology and Counseling, Ministry of Education Malaysia showed that as many as 4.4 percent of 2,123 out of 48,258 teachers in

Malaysia suffer from moderate to high stress where the percentage of cases is increasing daily basis (Utusan Online, 2019).

The threat of the Covid 19 epidemic along with the movement control order enforced in most countries in the world also indirectly has a negative impact on the psychology and emotions of teachers resulting in stress and depression. The study by Nalara Ozamiz et. al (2020) found a string of these as 17 percent of teachers face anxiety, 19 per cent depression and 30 percent have stress. While anxiety among teachers in Asia is greater than in other countries. Othman and Subramanian's (2019) study of secondary school teachers in Klang Valley found that there were high levels of depressive symptoms among them (depression 43.0 percent and anxiety 68 percent), where 9.9% of them experienced depression, anxiety and stress at a highly serious rate. Teachers' emotional problems if not addressed will affect psychology causing them to easily feel angry, lose focus in work, lead to aggressive behavior (Othman & Sivasubramaniam, 2019), self-destructive behavior and deviant acts (Curci et al., 2014). The inability of teachers to deal with conflicts and challenges in the field of employment also results in decreased motivation, rude and cynical attitudes and unethical behavior among them (Ertürk, 2021). Therefore, continuous research has been conducted to produce

appropriate interventions as a solution while avoiding adverse implications in the world of education. Most studies had identified the main aspect that needs to be emphasized to achieve the goal of emotional wellbeing and harmony in life is emotional intelligence (Ng Geik Ying, 2017).

Emotional intelligence is an important element to cultivate the quality of teachers who are dynamic and consistent in performing responsibilities despite having to face challenging situations (Edannur, 2010). Therefore, being a teacher does not only require wisdom in terms of intellect and mastery of pedagogy, but it needs high morale and skills to control the emotions of oneself and others (Mohd Khairuddin, Maspiah and Halimah, 2017). However, there is still a lack of instruments that specifically measure the knowledge and skills of teachers who show emotional intelligence in building their social relationships with students, especially in the element of worship.

Based on the literature, the researchers found that many studies have been conducted on the management of emotional intelligence but are more focused on modern psychological methods. Moreover, many measuring tools have been built by scholars to measure the level of emotional intelligence of a person. Among them are the Emotional Competency Inventory (Boyatzis & Sala, 2004), the Bar-On Emotional Quotient Inventory (EQ-i), and the Trait Emotional Intelligence Questionnaire (Tel Que) (Furnham & Petrides, 2003). Yet not many measurements of emotional intelligence are available on worship, from a spiritual point of view. Practitioners of Islamic counseling are still thirsty for the inventory of problem-solving, particularly that is related to emotions and psyche of Muslims from a spiritual point of view that is oriented to the Quran and Sunnah. Unfortunately, the use of Islamic-oriented inventory and management of emotional intelligence is still limited and has not been much developed by professionals. Therefore, this study aimed to look into the elements of worship for emotional intelligence found in Surah Yusuf as a guide for teachers to identify and practice emotional intelligence in themselves.

This paper is structured as follows: First, a comprehensive survey of the literature on emotional intelligence and its component, Ibadah, is presented. Next is the methodology

and creation of the scale items. EFA and CFA are discussed after the data analysis for item analysis is completed. The psychometric properties of the scales are then presented, followed by the results, theoretical and managerial implications. The study also concludes future research to assist the management in making decisions based on the findings. Furthermore, this study is one of the most recent studies in Malaysia that suggests validating the measuring item for the emotional intelligence component of Ibadah research. This most recent study will be a major motivator for future academics to pursue emotional intelligence research; in short, it will be a dependable source of knowledge for researchers and practitioners.

Methodology

To address the stated research question, this study explored related studies in this area to develop a valid instrument for subsequent analysis in future research. This is because there is no standard scale available to measure one endogenous construct recommended namely Ibadah which consists of five sub-constructs such as *mujahadah*, the practice of *Dua*, *Istiqomah*, trust and surrender. Therefore, a detailed procedure given by Churchill and Surprenant (1982) has been followed for generations in the development of scale items. Hence, both mixed methods were carried out to provide a more realistic instrument. Other researchers claimed that both approaches known as mixed methods or multi-method approaches in view of these criteria are deployed at the same time (Bryman, 2006). These studies generally use a combined approach. Mixed methods are one of the research methodologies used in systematic studies involving quantitative and qualitative data. However, qualitative methods are more dominant and applied in the majority of these studies.

The combined method is an integration process to produce more complete data rather than data separation or perform data analysis separately (Mohamad Zahir Zainudin, Roziah Omar, & Mohd Fauzi Kamarudin, 2005). This combined method emerged in 1959 when Cambell and Fisk used this method to examine the truth of psychological characters. After that, they began to encourage others to use this combined method matrix in the collection of research data (Creswell, 2009). Over the past

few years, these research procedures have been evolving and increasingly refined to meet the needs of various forms of research questions (Creswell & Plano Clark, 2011). Among the procedures are improving the accuracy of research methods, introducing various methods for combined study design, providing a more systematic memoir system to describe the type of design selected to encourage communication between fields, using diagrams, recording research questions that can provide advantages in a combined method and giving strong reasons to conduct a study (Mohamad Zahir Zainudin et al., 2005).

Researchers tend to use this method based on Giddings (2006) who stressed the advantages of qualitative and quantitative methods as the best approach in educational research. This combined method can also be carried out simultaneously and complementary. Using this approach, the data obtained through one method will be used to support the findings of other methods (Mohamad Zahir Zainudin et al., 2005). While according to Sekaran and Bougie (2010) combined study is based on the actions of the researchers to make a more in-depth investigation or meet their needs to obtain various types of information from the sample. The process of data collection and analysis of this study used Sequential Exploratory Design. It is one of the mixed research designs between qualitative and quantitative studies in which the researcher precedes the qualitative study and followed by quantitative study. The sequential Exploratory Design method according to Creswell (2013) is suitable for studies that involve the construction of constructs and research elements to be used as items in the questionnaire instrument to answer the research questions. Until now, this method has been approved to be used across studies.

The development of scale items was aided by a survey of relevant literature. Finally, a quantitative study was conducted to back up the item scale that had been presented. The quantitative research was employed corresponding to the necessary statistical analysis and instruments to determine the actual probability of an accurate scale and to avoid measurement error. For relevant extract items to be composed of the same component or measurement, linked research on mujadah, the practice of Dua, Istiqomah, trust, and surrender were used from the onset. The content analysis study began with a discussion of

questionnaire design in relation to emotional intelligence in Malaysia.

Mixed Methods study

From the point of view of this study, the researcher conducted the research in two stages which were divided into two phases in succession. The first phase of this study used a qualitative design with a content analysis approach as the research method. A literature review was conducted continuously to obtain and analyze the information. In the context of this study, the author analyzed the original content of the text of the verses from the Qur'an in Surah Yusuf which contains 111 verses. Through Maudhu'i's tafsir approach, the researcher analyzed the elements that are appropriate to the constructs of faith, worship, dealings and morals in Surah Yusuf to be the basis for the construction of questionnaire items.

While the second phase of the study was the quantitative design. The survey study was conducted through the use of a questionnaire as the research instrument to a sample selected according to appropriate location and population. It also aimed to gather information on the variables of the study and appropriate to the purpose of the study conducted. According to Creswell (2009), this method is suitable to be carried out to achieve the objectives and answer the research questions related to individual behavior. The results obtained based on this study have a high-reliability value if carried out by established practices (Sekaran & Bougie, 2010).

The quantitative variable can be divided into two types: continuous and discrete. In this situation, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to evaluate the measurement model used in the investigation. In addition, standard evaluations such as Awang (2014) proposed establishing the reliability of each indication developed in the study. Composite reliability (CR) Awang (2014) was also recommended to extend the measurement model's reliability. Both of these techniques have the same principle, but CR seems a preferable choice (Afthanorhan et al., 2014). In addition, the measurement model was validated using discriminant and convergent validity. To date, the majority of academics and practitioners found that these validation exams are simple to use.

Before moving on to the next analysis, EFA was first completed (Afthanorhan et al., 2014). EFA has become one of the most extensively used statistical procedures, particularly in social science research. According to research, when each common component is represented by many measured variables that are either exogenous constructs or endogenous constructs in the analysis, the EFA approach produces more accurate results (MacCallum et al., 1999; Velicer and Fava, 1998). EFA uses principal component analysis (PCA) to reduce data and does not distinguish between common and unique variations (Bentler and Kano, 1990). Following the EFA method, the author suppresses the value at 0.60 or higher, as advised by Iskanto et al (2020). The high factor loading has been identified as a key signal. Furthermore, EFA proposes factor loading into the same component, which reduces the number of variables in this investigation. The presence of indicators in the same component indicates that this outer loading has the same goal of reflecting the measurement model. This component will be used in structural equation modeling once the authors have completed the EFA technique (SEM). SEM has two models in this context: measurement model (for CFA technique) and structural model (for path estimate).

The factor loading and measurement in this study were substantiated using CFA. Previously, the EFA technique was purely based on the outer loading, but this approach is problematic for two reasons: factor loadings and fitness indexes. In other words, as long as the fitness index fails to meet the condition, high factor loading is insufficient to be approved. The fitness index assessment is divided into three categories: parsimonious fit, absolute fit, and incremental fit. Although the Analysis Moment of Structure (AMOS) software provides a variety of fitness, the researcher has the right to choose any fitness as long as it represents each category. This is in line with Afthanorhan (2013), who recommends using at least one fitness indicator from each model fit category. As a result, the researchers must guarantee that both of these folds match the criteria. Furthermore, the use of CFA allows researchers to determine to what extent the strength of indicators and the measuring model is related to emotional intelligence. As a result, the researchers can use

the accurate measurement model to produce an accurate interpretation of the data.

Sample size requirement

This study took Muslim teachers teaching in Sekolah Menengah Kebangsaan under the administration of the Ministry of Education Malaysia in the state of Johor as the study population. The data obtained from the Basic Education Information Database of Johor State Education Department showed that the number of Muslim teachers teaching in Johor State National Secondary School is 16,308 people. The sample selection of this study was based on the sample size determinant table of Krejcie and Morgan (1970) which has a population of 16,308 respondents, the sample size required and calculated as appropriate is 377 people. The researcher selected the cluster and stratified the sampling method.

The procedure of measuring instruments using a qualitative study

In the first phase, content analysis was conducted to identify the important aspects needed in shaping the emotional intelligence of Muslims. The data obtained in this phase are crucial for the process of accurate construct formation in the study. Through a review of the literature on previous theories and studies, the researcher found that four important aspects need to be taken into account by Muslims in every action when facing the challenges of life, namely faith, worship, dealings and morals. These four aspects are used as constructs of emotional intelligence from the Islamic point of view. Based on the constructs that have been determined, the researcher conducted a content analysis of 111 verses in Surah Yusuf to identify other elements related to the constructs. Thematic analysis based on tafsir mawdu'i was carried out to achieve this goal. The identified elements were referred to field experts while the items of the questionnaire were developed with reference to the constructs and elements that had been identified and validated.

Qualitative data are narrative data collected through different approaches to quantitative data (Creswell 2013). Qualitative research is conducted through the research of study materials to gain a deeper understanding as well as translate and interpret the data collection obtained (Creswell, 2013). Among

the common approaches used to obtain qualitative data is through content analysis. In this study, the researcher used the method of content analysis of Surah Yusuf to collect the information qualitatively. Premier data collection was done with reference to the Quran, in Surah Yusuf which contains 111 verses. The focus was on sentences that contain elements of emotional intelligence. While the secondary data were obtained based on the study of books of tafsir and hadith that are authoritative, books, articles and journals and some authentic library sources as the supporting data for the study. Verses that contain elements of emotional intelligence were grouped into four aspects or parts, namely faith, worship, dealings and morals.

The library method was also used as the secondary data collection for this study. The deductive approach helps the researcher to analyze the data and information of the phenomena studied to form an approach in solving the research problem (Pandey, 2019). Analysis of documents such as reference books, authoritative journals and articles, master's and PhD theses, reports, and papers related to the topic is done to obtain accurate data on the study. It also aims to support and add in the knowledge of the researcher from the theoretical aspect of the study. Thus, as a whole, qualitative analysis in this study applied the method of tafsir mawdu'i through two basic steps, namely collecting verses that discuss a mawdu 'and doing detailed research on the verse by identifying the relationship or relationship of the verse with other verses in discussing the topic. Based on this information, the researcher came up with a thorough conclusion as a reflection of the Qur'an's answer to the mawdu 'discussed. This study also took into account the support of hadith and the study of scholars to further strengthen the findings of mawdu 'discussion.

The procedure of measuring instruments using a quantitative study

In the preceding subtopic, it was suggested that EFA and CFA are used to validate the measurement model. After the pilot testing was completed, this method was used. For each item relating to emotional intelligence, the questionnaire was developed to use a 5-point scale. In Johor Bharu, 377 questions were given to 11 districts. A number of statistical tools and methodologies were used to analyze

the data and confirm the theoretical framework, including the Statistical Package for Social Science (SPSS) and AMOS version. Between EFA and CFA requirements, there is a threshold that must be met.

Factor analysis is a group of algorithms that does the same sorts of classification or segmentation as the methods mentioned in the previous section based on parameter convergence. Jöreskog's (1967) work on maximum likelihood factor analysis and its later extensions to the estimation of structural equation systems (Jöreskog, 1973), in which SEM becomes one of the most important methods of empirical research, has been applied in a variety of fields, including psychology (MacCallum and Austin, 2000), and management research (Williams et al., 2003) (Baumgartner & Homburg, 1996). The character of covariance-based SEM (CB-SEM) is used to carry out this estimator, which focuses on estimating a set of model parameters as well as minimizing the observed and estimated covariance matrices. The maximum likelihood estimator (MLE), on the other hand, necessitates the fulfillment of a set of assumptions to establish the consistency of parameter estimates in the structural model. A confirmatory study is reliable and valid for hypothesis testing when it comes to the properties of CB-SEM. In this scenario, EFA was used as the initial stage in quantitative analysis, followed by CFA. Most academics have used these approaches to construct the tool for model development today.

Finding using quantitative research methods

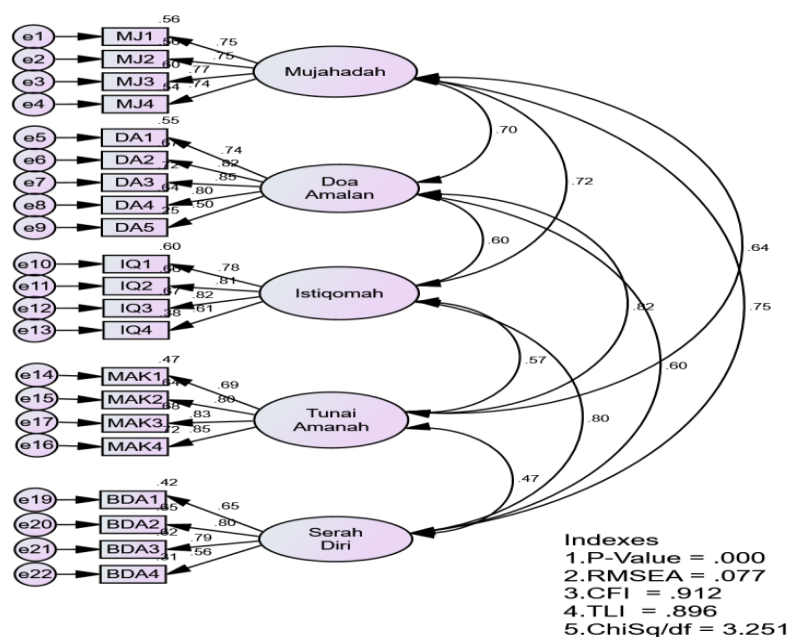
Before analyzing the data, descriptive statistics were used to ensure that emotional intelligence is normal. Normally, the data should be obtained to determine the quality of the data so that the developing model can be used with parametric techniques in future studies. Our data were reported as very significant using the skewness technique, indicating that they are normal data. In addition, imputation regression was used to fill in the missing value in the model. This method would aid researchers in filling in the missing value with a high probability of being the same as the prior value.

The reliability of the scale was determined in the second stage by determining the coefficient alpha. As a result, the standard approach of determining the reliability of the

items included in the study, especially Cronbach alpha, was used. According to Sekaran and Bougie (2010) recommendations, a better coefficient alpha is more than 0.70. According to him, Cronbach alpha is a constant coefficient that indicates that the relationships among the elements in the set are proportionally related to each other. Furthermore, he considered that a model with dependability of less than 0.60 is deemed as a weak model. We met the condition of the dependability test, which was an absolute 0.952 in this study. To establish the reliability test, we tested all of the components, including exogenous and endogenous factors, to see how strong our reliable model is. Furthermore, to improve the internal consistency of the scale items, the item to total correlation (0.15) and inter-item correlation (0.25) criteria were used to eliminate uncorrelated items from the scales. As a result, one item was detected and eliminated to improve data internal consistency. Hayes and Krippendorff (2007) recently presented the Krippendorff kalpha approach, which is ideal for the dependability test. He believes that this method is appropriate for content validity in the context of this investigation. The threshold for this method should be greater than 0.80 for the datasets to be identified as real datasets. As the revealed result was 0.825, we met the reliability requirement in this example.

Using the data acquired as a result of the sampling, EFA was used to categorise which items were best suited to be made up of the same component. SPSS version 25 was used to analyze the data. The software has been employed not only for EFA method, but also for the reliability of measuring the goodness of acts. We used EFA on 377 datasets to assess and purify the scale items, as well as to determine whether items should be grouped in the same component. The level data were subjected to a PCA with varimax rotation. The term "varimax" refers to a maximum of variance that is determined using the maximum variation of estimated values. He stated that Kaiser-Meyer-Olkin (KMO) values of greater than 0.50 were utilized to purify the measurement items, according to Iskanto et al. (2020). However, in this investigation, factor loadings above 0.60 were employed such that only the high factor loadings that remained could be processed for the next phase. Furthermore, if the factor loadings are greater than 0.60, the validity of the CFA measurement model can be acknowledged.

For *Ibadah* construct, EFA suggests adopting only one component and thus the second-order model was implemented as *mujahadah*, the practice of *Dua*, *Istiqomah*, trust and surrender. Henceforth, *Ibadah* construct can be classified as the first-order model. The diagram for each latent construct can be seen in Figure 1.



In the beginning, items with the highest factor loadings using EFA approach were used in the measurement model for CFA approach. Some of the items from each factor should be deleted from the measurement model to meet the requirements of CFA, notably the fitness index, reliability, and discriminant validity. Researchers are advised to eliminate one of the factor loadings or confine both factor loadings to solve the multicollinearity problem. However, the deletion process takes precedence for the construct to define effectively in the

presence of high factor loadings and uncorrelated items. In this study, we removed three items at a time to attain the lowest fitness index possible. As we had to consider the bilateral method in obtaining the fitness index and latent variable correlation, this approach is rather difficult. Hair et al (2010) recommend that the latent variable correlation be less than 0.85 for the researchers to confirm their theory of measurement model. Next is the final stage of the measurement model evaluation procedure.

Table 3 Reliability and construct validity

Sub Construct	Item	Factor Loading	CR	AVE
<i>Mujahadah</i>	MJ1	0.75	0.839	0.566
	MJ2	0.75		
	MJ3	0.77		
	MJ4	0.74		
Practice of Dua	DA1	0.74	0.657	0.864
	DA2	0.82		
	DA3	0.85		
	DA4	0.80		
Surrender	DA5	0.50	0.797	0.500
	BDA1	0.65		
	BDA2	0.89		
	BDA3	0.79		
	BDA4	0.56		
	BDA5	Removed		
<i>Istiqomah</i>	BDA6	Removed	0.844	0.577
	IQ1	0.78		
	IQ2	0.81		
	IQ3	0.82		
Trust	IQ4	0.61	0.872	0.632
	MAK1	0.69		
	MAK2	0.80		
	MAK3	0.83		
	MAK4	0.85		
	MAK5	Removed		

The results of discriminant validity are shown in Table 4. According to Awang (2014), a correlation of less than 0.85 is justified because there are no redundant constructs. If the result is larger than 0.85, the researchers are instructed to eliminate one of the latent constructs because a redundant construct has

been found. However, we met the condition of discriminant validity and the structural model can be used in a future study. The goal of this study was to create a measurement model utilizing a qualitative and quantitative approach, as this way appears to be more useful in creating a measurement model.

Table 4: Discriminant Validity

	<i>Mujahadah</i>	Practice of Dua	Surrender	<i>Istiqomah</i>	Trust
<i>Mujahadah</i>	.752				

Practice of	.705	.929			
Dua					
Surrender	.759	.602	.707		
<i>Istiqomah</i>	.721	.606	.801	.759	
Trust	.634	.823	.468	.582	.794

Conclusions

Teachers bear a great deal of responsibility, as they also have a great impact on the development of students' emotional intelligence and social intelligence. Teachers who are good at dealing with emotions can achieve an excellent teaching process and even better in the teaching industry. Therefore, every teacher must develop emotional intelligence to cultivate a balanced human being in terms of physical, mental, emotional and intellectual as well as contribute to the well-being of themselves, society and the country. Emotional intelligence is sorely needed in all types of professions today, especially for teachers and other professions that have expressive social connections. In the context of a teacher's job, emotional intelligence plays an important role in ensuring that teachers successfully establish positive relationships with students, colleagues, parents, and the community. Emotional intelligence is also considered to be the key to achieving outstanding performance in the teaching industry while ensuring the active development of students. As the world of education today is facing various forms of challenging changes and reforms, emotional intelligence has become one of the increasingly needed professional abilities of teachers. Increased teacher workload makes it difficult for teachers to deal with emotions. The findings of this study can be used as a reference for future researchers who are interested in studying the aspects of psychology and counseling from the Islamic point of view based on the principles of the Quran. There are many more values found in the Qur'an, especially Surah Yusuf, to be dismantled and excavated as a guide to solve the problems of the ummah. This is because the uniqueness and miracles of the Qur'an are unlimited and require a constant study by Muslims. Hopefully, the effort to establish the Qur'an as the main source of reference and guide for all human life will not stop here. At least this study is expected to further boost the field of Islamic research and become a trigger for ideas for academics in

finding a formula to solve the problems of Muslims by making the Quran as a reference.

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