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LEARNING CULTURE IN ISLAMIC BOARDING SCHOOLS: THE EXPLORATORY AND CONFIRMATORY FACTOR ANALYSIS

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Abstract
This research was intended to test the instrument's validity with data using exploratory factor analysis (EFA) using SPSS 23.0 to determine the structure and explore the factors in the indicator Learning Culture Variable. Confirmatory Factor Analysis (CFA) First Order was carried out to verify the factorial validity of the Learning Culture construct and to determine the nature of Learning Culture in the context of Islamic Boarding Schools in Jambi City. By using random sampling, a total of 162 samples were taken to test the quality of the instrument from 534 main respondents, namely teachers at Islamic boarding schools in Jambi City who were involved in the main research. This quantitative study used a cross-sectional survey design to analyze the factor structure of the Learning Culture variable. Quantitative data were analyzed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) using SPSS 23 and AMOS 18. The findings of this study are that EFA produces a similar structure from previous studies and this study. The CFA approach verified that the Learning Culture Variable questionnaire was satisfactory for Islamic boarding school teachers in Jambi City, Indonesia. This study explains that establishing validity is an important step for developing a scientific scale for measuring the questionnaire. The construct validity has substantially increased over time and through many previous studies. This scale requires further adjustments to increase the reliability and the ability to explain differences associated with constructs measured in different contexts, cultures and conditions.

Keywords: factor analysis, Islamic boarding school, learning culture

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Introduction

Changes in the organizational environment in various aspects and fields such as technological, social, economic, legal, and globalization trends demand and challenge the ability of organizations to overcome these challenges. Only capable organizations will survive, thrive and thrive and thrive. In other words, individuals belonging to organizations are very committed to their ability to explore new fields and generate innovations. This means that all individuals and all levels will develop their abilities to acquire the newest and greatest skills needed in their jobs and assignments (Cole, 2004). Organizations that have learning abilities need to continue to be involved in interactions between individuals and individuals or groups and their complex environment. The concept of learning organization also refers to organizations that have the skills to create, acquire and transfer knowledge and change behavior to acquire new and deeper knowledge (Bateman & Snell, 2002). In the end, there will be a collective learning power that will build the organization, develop organizational staff members and develop a bigger system. It is a system that will result in Knowledge Creation in the organizational innovation process. The essence of the Learning Organization (LO) is to create collaborative efforts among individuals in the organization and management as a highly needed and complementary system. The implication is that they create efficient organizations by adapting, transforming, developing, and transforming their future to meet the demands, demands and aspirations of society outside and within the organization (Coppieters, 2005; Bowen, Ware, Rose & Powers, 2007; Park, 2008). In general, the researcher found the concept proposed by Senge (1990) and adapted it into the Construct of Learning Culture Variables in the Islamic Boarding School System. It can be assumed that organizations are like living things and their survival is determined by their ability to adapt to the environment.

In the context of general education, for example, Schools and Islamic Boarding School are a form of organization that is recognized as a non-profit organization dedicated to student learning and teaching, the main objective of the school, as an organization for learning, is to educate community groups who will lead in society, especially "Professional expertise. ", Which then continues the professional development for a better civilization. Whereas, in the current context of the school as a Learning Organization, it is an organization where all staff members learn and use their learning to advance individual and organizational goals while teaching students to learn how to learn (Senge, 1990; Gaita, 1997; Ramsden, 1998). Indeed, the concept of learning organization (LO) in the school context is not widely recognized because there is an implicit assumption that schools are non-profit organizations. This is because research on learning organizations tends to be more closely applied to profit-seeking organizations such as companies and businesses, and industries (Senge, 1990; Stewart, 2001). Research and applications for non-profit organizations, including schools, are not yet widely known (Davis & Daley, 2008).

As part of the instrumentation process, it is necessary to ensure that the instruments remain valid when used in cultures other than those developed for the first time in previous research. In this case, the Learning Culture Variable was developed and validated in Europe, so that the aim of this study was to assess the cross-cultural validity of the learning culture variable in a sample of Islamic boarding school teachers in Indonesia. The existing literature shows that comparative research is important to test whether the generally accepted learning culture variable instrument is universal. Empirical research also reveals that the reliability of the learning culture variable instrument differs between countries. To the researchers' knowledge, the reliability and validity of the variable

instrument for the Indonesian context have not been tested. Therefore, this study aimed to determine the validity and reliability of the learning culture variable instrument.

To measure the construct of the learning culture variable, an instrument from Garvin, Edmondson, and Gino (2008) was re-developed by Gil, Carrrillo, & Fonseca-Pedrero (2019), which produced the educational learning organizations questionnaire. This instrument includes four dimensions of educational learning organizations to support a collaborative and sustainable organizational learning process, namely learning leadership, learning structure, learning opportunities, learning culture. The purpose of this study was to test the reliability and validity of the learning culture variable instrument for the context of Indonesia and Jambi City in particular. This study is guided by two research questions: (1) Does the correlating structure of the four factors of the learning culture variable instrument optimally fit the data in the Indonesian context? (2) Is the learning culture variable instrument reliable and valid to measure the perceptions of the attitudes of Islamic Boarding School teachers in the city of Jambi and in the Indonesian context? In particular, this study will ascertain the extent to which the learning culture variable is a reliable instrument to measure the attitudes of Islamic boarding school teachers in terms of the factorial and construct validity.

Literature Review

Concept of learning culture

Teacher empowerment through participatory decision making is increasingly associated with learning in organizations (Leithwood & Louis, 1990). The concept of teacher empowerment and organizational learning is not new but is linked to historical efforts to create more participatory workplaces in the industry while also increasing organizational productivity (Marks and Louis, 1997). The creation of a dynamic learning climate is a major part of organizational learning (Senge, 1990; Watkins and Marsick, 1993). The relationship between teacher empowerment and school organizational capacity has been well documented (Malen et al., 1990; Wohlsetter & Mohrman, 1995, cited in Marks & Louis, 1999). In addition, this relationship has been studied as part of research on the impact of organizational learning on organizational performance, particularly in terms of process innovation and performance improvement (Song, 2008; Yang et al., 2004). An organization that learns easily adapts to change, detects and corrects errors, and continues to increase its effectiveness (Argyris & Schon, 1974). Linking the continuous learning process with supportive environmental conditions promotes dynamic knowledge creation and organizational innovation (Song and Chermack, 2008).

Learning cannot happen without a knowledge base and access to new ideas. In schools, knowledge and ideas may come from several sources such as individual knowledge, knowledge brought into the organization by experts and other school experiences, and knowledge created by members of the school community (Kruse, 1995). Sharing this knowledge systematically requires connections and boundaries that can be penetrated within the organization. In addition, leadership that includes shared knowledge and decision making is essential for successful knowledge sharing (Newman & Associates, cited in Marks & Louis, 1999). Components for creating a supportive learning culture include continuous learning, inquiry and dialogue, dynamic team-based learning, empowerment, systems connections, embedded systems and strategic leadership (Watkins &

Marsick, 1993). These components contribute to increasing organizational capacity and fostering innovative work processes.

Theory learning organization Peter Senge

The concept of Learning Organization (LO) was brought to the world of education with the term learning organization in an educational environment, namely schools. Observing behaviour and making it more meaningful in reality is also an aspect of personal mastery. Meanwhile, the development of learning organizations in today's world shows that all individuals in organizations continue to learn, with the aim of learning and improving their abilities to be more professional (Stoll, Bolam, Mcmahon, Wallace, & Thomas, 2006). Meanwhile, Huffman and Hipp (2003) said that individuals who stop learning will risk their lives and suggest that the learning organization described by Senge (1990) is a learning organization. The future of organizational success is an organization that emphasizes the importance of learning (Abdullah, 2016).

This study used the Senge's (1990) learning organization theory as a learning organization (LO) model. Previous research has shown the concept of organizational learning focuses on various areas and focuses on business organizations or companies. Only around the 80s of the LO concepts have concentrated on educational organizations in developed countries, especially the United States and Europe, and experts have stated that the role of learning organizations is increasingly important. (Senge, 1990; Hord, 2004; Abdullah & Ghani, 2013; DuFour, 2004). The idea of learning organization can be said to have been created by Peter Senge in 1990, with the famous book The Fifth Discipline: The Art and Practice of the Learning Organization (Senge, 1990). Since then, Senge's name has been almost synonymous with the idea of a learning organization and he is often regarded as a teacher of learning organizations (Jackson, 2001. The Learning Organization as used today can be assumed to be the result of two distinct developmental processes. The word Learning Organization is used for "organized learning", that is, a specific learning activity within an organization. How to use this term appears in the field of pedagogy and education science for the first time by (Hofstetter, 1967).

This dimension presented by Senge (1990) is a series of disciplines which are the principles and principles of everyday human life that can be tested, mastered and practised together. To make these five dimensions possible, every individual in an organization needs to make a complete change of mind. The essence of Learning Organization (LO) is a culture where individuals always learn and are responsive to one another. LO is defined as developing a learning culture to learn, teachers learn, students also learn, the whole community in the school learns together. Personal mastery is the first discipline in Senge's (1990) learning organization. To create a learning organization, individuals and teachers, in particular, must continuously learn. In other words, if individual development does not occur, then the organization does not change or become rigid (Senge, 1990). Self-mastery is a discipline that goes beyond competence and skills (Abdullah & Ghani, 2013). Personal mastery is concerned with an individual's deeper vision, focusing on energy and enthusiasm, building patience and seeing things more objectively. Personal mastery is also a lifelong disciplinary process. Humans with high levels of personal mastery have sharp and sensitive minds. These groups will always be sensitive to the unknown and know about their competencies and what areas they need to master (Senge, 1990).

Mental models is the second discipline, according to Senge (1990), which is to have a deep generalized picture of the mind that can influence how a person understands the world and his

approach to action. Mental Models are assumptions and generalizations that are held by individuals and organizations. Personal mental models describe what people can or cannot detect (Senge, Kleiner, Roberts, Ross & Smith, 1994). To become a learning organization, these models must be identified and challenged. Individuals tend to support the theory, which they want to follow, and the theory used, which they actually do (Argyris, 1999). This mental model also looks at a person's ability to reflect on a world view of the environment that leads to actions while performing daily tasks. These models are the forces and processes that actively influence all actions, behaviors, and actions that determine a person's behavior. This model is deeply embedded in the conscious state of a person's thinking and is difficult to understand (Senge, 1990).

Shared vision is the third discipline of Senge (1990) that will keep the organization engaged in learning. Many still have a misconception about the only school principal that has the right and responsibility to shape the vision of the organization. In other words, only one person has the right to determine the vision of the organization. The determination of the organizational vision can be implemented publicly and collectively. However, school leaders can move from their existing mindset to understand long-term systems of complexity and exercise real control over strategic change in organizations (Caldwell, 2012). This belief is also explained by Senge (1990), who said that the vision building by leaders would not last long. This is because everyone has their own idea in an organization. For example, a teacher has a vision for their teaching practice. They consider their teaching practice to be the best teaching in the classroom. In fact, students have their own aspirations, especially in identifying what they want to learn. Conversely, parents may have a vision that their children can read, write, and count (Senge, 1990).

Team Learning is a discipline that brings together individuals in school organizations who carry out tasks to achieve school goals by adhering to two main dimensions: building self-control and sharing a vision. The team learning dimension begins with dialogue and discussion. Individual abilities in the team can provide opportunities for teachers to express ideas and thoughts before giving responses (Abdullah & Ghani, 2013). Thus it can be concluded that team learning is intended to achieve overall organizational goals and that teachers who are individuals in the organization need to form a mix of knowledge so that their dependence on one another can be maintained. System thinking is the fifth discipline that combines all four dimensions in an intelligible form. One aspect of systems thinking is the emphasis on seeing things in a comprehensive and holistic manner. Each part is related to each other and seen as a unit (Senge, 1990). The system in this organization will identify problems or problems that arise. In other words, the Systems thinking dimension is a competency that can be seen in the whole sequence of things, not just focusing on a small series of problems or events. This discipline refers to the capacity to improve situations and to find solutions as a whole. According to Peter Senge, this problem-solving cycle is a series of actions that are quick and easy to do. Contrary to common practise finding the best way to deal with each crisis leads to a long-term problem-solving process (Senge, 2000). Senge (1990) also identified several systems thinking practices that refer to each of them having different levels, approaches and perspectives. Every thought about a system can be applied to various goals and situations (Senge, 2000).

Methodology

Research design, site and participants

A survey research design was used in this study. The cross-sectional survey in this study is a procedure in quantitative research that provides an opportunity to administer a survey for a sample

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or the entire population to describe the attitudes, opinions, behavior or characteristics of the population at one time (Creswell, 2014). This research stage (EFA & CFA) is part of the main research phase that tests a complex and unique model using SEM analysis. The study was conducted in 14 Islamic Boarding Schools that have formal education programs (MIN, MTs, MAN) in Jambi City. With a random sampling technique, this study was conducted by randomly selecting individuals (Fraenkel & Wallen, 2009). Furthermore, after the data screening process is carried out on all samples that return the questionnaire. Data screening is part of the method of compiling data to provide maximum information. Especially when analyzing data quantitatively, it is advisable to screen the data first. Data screening aims to predict missing or missing data. Of the total samples which returned the questionnaire after going through the screening process, only 587 data were accepted for analysis as the research sample. After that, testing was carried out to fulfill the SEM assumptions, so 162 samples were taken as a pilot study.

Measurement

This research begins by translating the original questionnaire into Indonesian before the question items are used to test its validity and reliability. The results of the translation of the questionnaire into Indonesian were consulted with four bilingual language experts. The measurement of this variable was carried out using the four construct dimensions of the Learning Culture variable adapted from the instrument from Garvin, Edmondson, and Gino (2008), which was re-developed by Gil, Carrrillo, and Fonseca-Pedrero (2019), which produced the educational learning organizations questionnaire. This instrument includes four dimensions of educational learning organizations to support a collaborative and sustainable organizational learning process, namely learning leadership, learning structure, learning opportunities, learning culture. Each sub-construct had two to four-item statements; the questionnaire consisted of 16 questions measured on a Likert scale on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Data collection and analysis

This research stage aimed to test the validity of the instrument with the quantitative data which were analyzed by using the exploratory factor analysis (EFA) through using the SPSS 23.0 application. EFA (Exploratory Factor Analysis) is carried out to determine the structure and explore the factors in the indicator of the Learning Culture Variable question. Since this study uses an existing scale originally developed in Europe (Spain), it is important to refine the scale and check its validity. EFA as an analysis is used to explore how any of the factors can be used, whether these factors are correlated, and the observed variables seem to best measure every single factor (Schumacker & Lom ax, 2010). This study identified the Kaiser Meyer Olkin (KMO) value, Bartlett's value, loading factor, eigenvalue, scree plot, and rotation of Oblimin with Kaiser Normalization. The KMO index lies between 0 and 1, with a value of more than 0.50 appropriate for factor analysis (Chua, 2014), while a score of more than 0.80 is considered very satisfactory (Frohlich & Westbrook, 2001). Bartlett's Test of Sphericity is significant ($p < 0.05$). For Hair et al. (2010), the overall loading factor score for each item above 0.50 is significant to confirm the significance of the questionnaire. The eigenvalue and scree plots also show the proportion of the variance contribution extracted by each factor through factor analysis (Chua, 2014), where factors with an eigenvalue value lower than 1.0 are omitted from the factor list. Furthermore, the data in this study were also

analyzed by Confirmatory Factor Analysis (CFA) using AMOS 23.0 applied to the first order. Brown (2014) explains that indications of the goodness of fit are evaluated using chi-square ($\chi 2$) (P> 0.05), Comparative Fit Index (CFI> 0.90), Tucker Lewis Index (TLI> 0.90) and Root. Mean-Square Error of Approximation (RMSEA <0.08).

Findings

Exploratory factor analysis

The main purpose of factor analysis is to explain the structure of the relationship among many variables in the form of factors or latent variables or formed variables. Factors formed are random quantities that previously could not be observed or measured or determined directly. This research stage aims to test the validity and reliability of the learning culture variable instrument and to determine the suitability of the learning culture questionnaire instrument for teachers at the Islamic boarding school in Jambi City as research respondents. From the total questionnaire that deserves to be analyzed, 587 samples were obtained. A total of 162 respondents participated, selected using cluster random sampling. The survey design was used to investigate the factor structure of the Learning Culture variable. Furthermore, in the first stage, the data in this study were analyzed using EFA (Exploratory Factor Analysis) to determine the structure and explore the factors in the learning culture variable question indicator.

As this study used an existing scale originally developed in western countries, it is important to refine the judgment and check its validity before adaptation. EFA as the analysis is used to explore how many factors can be used, whether these factors are correlated and the observed variables seem to best measure every single factor (Schumacker & Lomax, 2010). This study identified the Kaiser Meyer Olkin value (KMO), Bartlett value, loading factor, eigenvalue, scree plot, and varimax rotation with Kaiser Normalization. The standard value of the KMO Index must lie between 0 and 1, with a value of more than 0.50 considered suitable for factor analysis (Chua, 2014), while a score of more than 0.80 is considered very satisfactory (Frohlich & Westbrook, 2001). Bartlett's test of sphericity is significant (p <0.05). Meanwhile, a statistician, Hair et al. (2010), suggest that the overall value of the factor loading for each item must be above 0.50 in order to be significant and to confirm the meaning of the questionnaire. The eigenvalues and scree plots also show the proportion of the variance contribution extracted by each factor through factor analysis (Chua, 2014), where factors with eigenvalues lower than 1.0 are removed from the factor list. The results of statistical processing for factor analysis (EFA) of Learning Culture variables are as follows:

Table 1. *KMO and Bartlett's test (learning culture)*

EFA Eligibility Assumptions		Results
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		.750
Bartlett's Test of Sphericity	Approx. Chi-Square	1876.754
	df	105
	Sig.	.000

Exploratory factor analysis (EFA) is also used to determine the construct and convergent validity using the principal component analysis technique with the Varimax rotation method as shown in Table 9. The statistical criteria in this study are to meet the criteria (satisfactory). The KMO value is 0.750> 0.60 which provides information about the availability of an adequate number of items for each factor analyzed (n = 162). In addition, the Bartlett's Test of Sphericity result showed that the emerging score was statistically significant [$\chi 2$ = 1876,754; Sig. <0,000]. Thus, it can be concluded that the use of factor analysis (EFA) is acceptable for the data collected in this study. The EFA begins by considering all 16 items that measure the four dimensions of learning leadership (ll), learning structure (ls), learning opportunities (lo) and learning culture (LC) dimensions. Each dimension aspect is measured by several items. The results of EFA processing are as follows:

Table 2. *Results of EFA*

Construct	Sub-Construct	Items	Communal-ities	Eigen value	% of Variance	Component Matrix			
						1	2	3	4
Learning Culture	Learning Structure (LS)	LS7	.916	4.148	27.651	.954			
		LS8	.879			.934			
		LS9	.821			.903			
		LS6	.727			.847			
	Learning Opportunities (LO)	LO13	.943	3.028	20.189		.955		
		LO11	.924				.947		
		LO10	.680				.816		
		LO12	.643				.775		
	Learning Leadership (LL)	LL5	.622	2.622	17.483			.786	
		LL2	.642					.769	
		LL4	.599					.758	
		LL3	.550					.731	
		LL1	.549					.727	
	Learning Culture (LC)	LC15	.857	1.352	9.011				.910
		LC16	.798						.861

The table above provides the values of the extraction communalities, eigenvalues, percentage of variances and component matrix factor loading described by the four sub-constructs of the Learning Culture variable. First, the extraction communality values represent the variance in each item calculated before and after the factor analysis. These communalities values for each item less than 0.50 were excluded from further analysis (Hair, Black, Babin, Anderson, & Tatham, 2006). From the analysis results, only item code LC14 items were aborted because of Value (<0.50). Then, the values of the extraction communalities show that all the values of the extraction communalities item range from 0.549 to 0.943, which exceeds the 0.50 level, which means that the resulting values of the extraction communalities are sufficient.

Furthermore, from the table above there are four factors with an eigenvalue> 1 appearing from the EFA. The factors of learning culture variables and their contribution are as follows: learning leadership (ll) contributed 17,483%, learning structure (ls) contributed 27.65%, learning opportunities (lo) contributed 20,189%, and learning culture (lc) contributed 9,011%. The matrix

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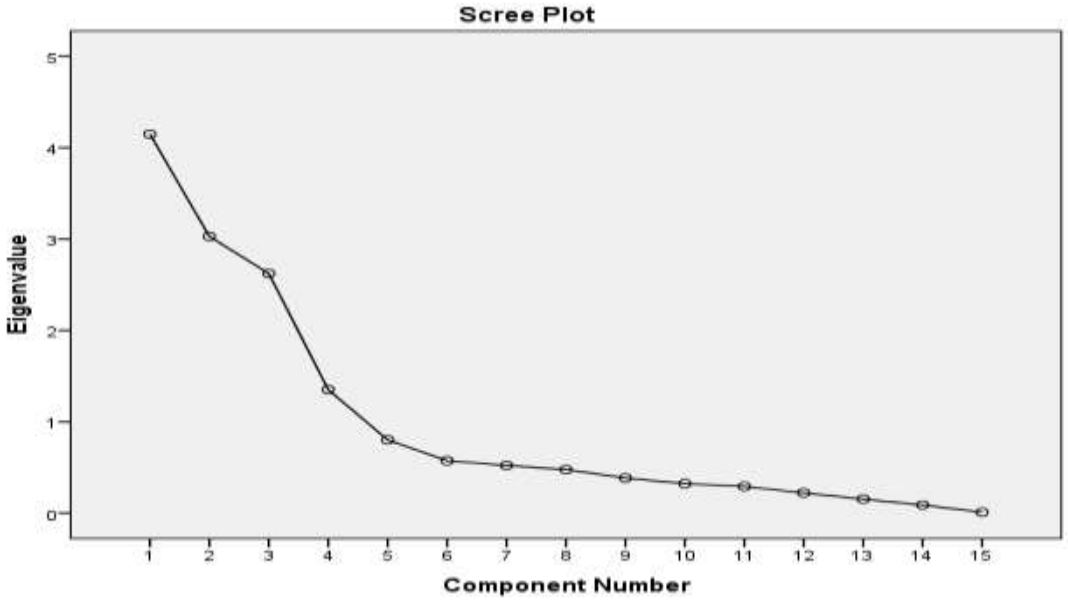
components after the varimax rotation were used to identify items that were more related to each factor. In this study (16 items) in the recommended component matrix to measure the learning culture variable met the criteria by a fairly high factor loading with values ranging from 0.727 to 0.955 (> 0.50). Another method of seeing the correct number of factors to extract is to investigate the scree plot image (Figure 4.1). As shown in Figure 10, the scree plot shows the four factors that can be determined by eigenvalue (> 1).

Figure 1. *Scree plot (Eigen Value>1)*



To assess the construct validity and reliability of the Learning Culture variable, the construct validity assessment method was used by Hair et al. (2016), Cronbach's alpha (CA) and Composite Reliability (CR) were used to check and test the reliability (instrument reliability). The construct reliability is calculated using CA (Cronbach, 1971) and Composite Reliability (CR) (Straub, Boudreau & Gefen, 2004), whose value is acceptable if it is above 0.7 (Babin et al. 2010) and while the AVE value must be equal to or more than 0.500 (Hair et al., 2017).

Table 3. *Validity and reliability construct of learning culture*

Sub Construct	Cronbach's Alpha >0,7	Composite Reliability (CR) >0,7	(AVE) >0,5
Learning Culture	0.796	0.907	0.830
Learning Leadership	0.814	0.869	0.572
Learning Opportunities	0.910	0.938	0.793
Learning Structure	0.935	0.954	0.838

As shown in the table above, all Cronbach Apha and Composite Reliability (CR) are greater than (> 0.7) and AVE exceeds the acceptable value (> 0.5) and thus the questionnaire items meet and ensure reliability. Instrument (indicators are consistent in measuring the construct). The table above proves that the Cronbach Alpha value is the item reliability value (reliability) which ranges from 0.796 to 0.935. The respondents considered that the item included the "good" category, and the respondent was consistent in providing an attitude assessment.

Confirmatory factor analysis (CFA)

In testing the quality of this instrument, EFA suggests a four-factor structure to build a learning culture variable, namely the dimensions of learning leadership (ll), learning structure (ls), learning opportunities (lo) and learning culture (lc). CFA was conducted to verify or confirm the validity of the Learning Culture factorial analysis of the EFA results. The CFA can provide further evidence of the suitability of a suggested model by considering the structure of the factors identified through the EFA. The results of the analyzed model will be compared using chi-square ($\chi 2$), CFI, TLI and RMSEA.

Table 4. presents the model specifications for post hoc CFA. The CFA results for the four-factor model are hypothesized to be very good. The factor structure achieves an acceptable model suitable for the research context Islamic boarding school in Jambi City. The measurement model for variable learning culture in this test shows an acceptable suitability of the model, $\chi 2 = 84.095$, $\chi 2$ / df = 1.201, RMSEA = 0.035, TLI = 0.989 and CFI = 0.992. Therefore, the CFA model presented in Figure 11 is the final measurement model showing the structure of Learning Culture in the context of the study site. The first order CFA results found the following results:

Figure 2. *Result of (CFA-first order) learning culture*

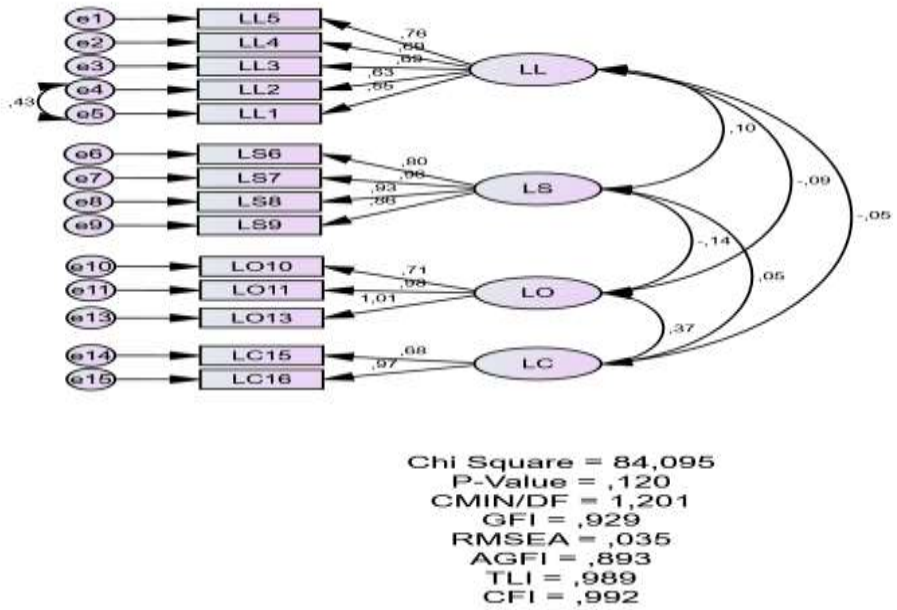


Table 4. *Model specification for post hoc (CFA-first order)*

Goodness-of-fit index	Cut of-value	Result	Judgment
χ2		84,095	
p-value	*>0,05*	0,120	*Fit*
χ2 / df		1,201	
TLI	≥ 0,90	0,989	*Fit*
CFI	≥ 0,90	0,992	*Fit*
RMSEA	≤ 0,08	0,035	*Fit*

Note. χ2: Chi -square goodness of fit; df: Degrees of Freedom; CFI: Comparative Fit Index; TLI: Tucker-Lewis fit index; RMSEA: Root Mean Square Error

Discussion

Based on the results of the validity and reliability test using Factor Analysis (EFA & CFA) and the results of statistical analysis, the questionnaire derived from the four learning culture variables adapted into the Indonesian version of the four English instruments stated that it was quite acceptable overall. Overall, the data collected as many as 162 samples (outside the main data sample) through a questionnaire stated that they are quite reliable and valid for this study. The first variable construct is Learning Culture, adapting the instrument from Garvin, Edmondson & Gino (2008), which was re-developed by Gil, Carrrillo, & Fonseca-Pedrero (2019) resulted in the educational learning organizations questionnaire. This instrument includes four dimensions of educational learning organizations to support a collaborative and sustainable organizational learning process, namely learning leadership, learning structure, learning opportunities, learning culture. The results of testing the quality of the instrument and learning culture variable data, at the efa and cfa stage, the researcher aborted two-item questions because the output modification indices value was too high so that to reach the ideal threshold value, the item had to be dropped from the confirmatory factor analysis. It was found that the item LO12. "In your Islamic Boarding School, the leadership provides time and resources to identify problems and challenges for the organization." This results in the Output Modification Indices value being too high so that to reach the ideal threshold value, LO12 items must be dropped from the Confirmatory Factor Analysis. Next item LC14 question "In your Islamic boarding school, you are interested in trying various alternatives to improve your professional work" it was decided to get EFA conformity value of communalities Item LC14 less than 0.50 was aborted.

Regarding why there is a problem, some instrument items from the four construct variables should be removed from the next analysis based on validity and reliability in the context of this Islamic boarding school in Jambi City. There are two possible explanations that need to be explored. First, some items appear confusing due to language and cultural context differences and thus result in low consistency of internal scale in the context of Islamic boarding schools in Jambi City. Second, some items need to be revised or replaced because these items fail to adapt to the educational context, such as those in Islamic Boarding School, which are not-for-profit institutions. For example, according to Marsick and Watkins (2003), the learning organizations variable questionnaire was originally designed for samples in large organizations. Thus, several items are questioned about being proposed to be an assessment of attitudes and responses in the context of Islamic boarding schools in Jambi City. Thus, the researcher decided that items that were not in accordance with the

respondent's social, cultural and understanding context were removed and used other items that were more relevant in order to meet the needs in educational organizations, especially in Islamic boarding schools.

Conclusion and Recommendations/Implications

The validity test of this study was carried out with several approaches, one of which was construct validity. Construct validity is a test carried out to see whether the items in the research instrument are appropriate to measure the existing theoretical constructs. This factor analysis validation with EFA & CFA procedure is also called factorial validity. In or measuring psychology, an item is usually derived from an aspect or dimension. Factor analysis is carried out to see whether the existing items represent the aspects or dimensions that should be measured. In addition, factor analysis is also carried out to show whether these aspects or dimensions are related or not (independent). This study has used an ideal research method to present some of the most important empirical data in placing validity in the dimensions of the proposed learning culture variable. This instrument has developed a variable measure of Learning Culture that is validated in the context of the study, namely the Islamic Boarding School teachers in Jambi City. There are few and limited reports on empirical research conducted to develop the quality of the learning culture variable instrument in Indonesia Islamic boarding school organizations, in other country previous research has assessed many instruments in public schools such as (Gil, Carrrillo, & Fonseca-Pedrero, 2019); Song, Joo & Chermack, 2009; Watkins, Yang & Marsick, 1997). This article brings with it a number of research implications and directions for academics and practitioners to test the variable instrument learning culture. The defined framework offers a thorough understanding of the nature and complexity of the learning culture variables. Overall, the exploratory analysis and confirmatory factors suggest that the learning culture variable scale has four constructs and needs to be used with caution. By removing LO12 and LC14 items with the lowest load factor, it is perfect for balancing the acquired 16 item version.

Establishing validity is an important step for the scientific development of the questionnaire measurement scale. The construct validity has substantially increased over time and through many previous studies. This scale requires further adjustments to increase the level of reliability and the ability to account for differences associated with constructs measured in different contexts, cultures and conditions. It is recommended that future research be examined, with a randomly selected sample, of the generalizability and validity of the model. It is also proposed to validate different cross-cultural instruments with a variety of methods covering habits, Focus Group Discussion with peer interviews and face-to-face.

References

Abdullah, Z., & Ghani, M. F. A. (2013). Professional learning community: A guideline to improve education system in Malaysia. *Hope Journal of Research, 1(4),* 1-26.

Argyris, C., & Schön, D. A. (1997). Organizational learning: A theory of action perspective. *Reis, (77/78),* 345-348.

Argyris, C. (1999). *On organizational learning*. 2nd Ed. Oxford: Blackwell Publishing.

Chiva, R., & Alegre, J. (2005). Organizational learning and organizational knowledge: towards the integration of two approaches. *Management learning, 36(1)*, 49-68.

Chua, Y. P. (2014). *Ujian regresi, analisis faktor, dan analisis SEM*. Shah Alam: McGraw Hill Education.

Coakes, S. J., Steed, L. G., & Dzidic, P. (2006). *SPSS version 13.0 for Windows: Analysis without Anguish*. John Wiley & Sons Australia.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative science quarterly, 35(1),* 128-152.

Cohen, D., & Prusak, L. (2001). *In good company: How social capital makes organizations value*. Boston, MA: Harvard Business School Press.

Cohen, L., Manion, L., & Morrison, K. (2002). *Research methods in education*. routledge.

Davis, D., & Daley, B. J. (2008). The learning organization and its dimensions as key factors in firms' performance. *Human Resource Development International, 11(1),* 51-66.

Fitzgerald, S. M., Rumrill, P. D., & Schenker, J. D. (2004). Perspectives on scientific inquiry causal-comparative research designs. *Journal of Vocational Rehabilitation*, 20, 143–150.

Fraenkel, J. R., & Wallen, N. E. (2009). *How to Design and Evaluate Research in Education*. New York: McGraw-Hill.

Frohlich, M. T., & Westbrook, R. (2001). Arcs of integration: an international study of supply chain strategies. *Journal of operations management*, 19(2), 185-200.

Gaita, R. (1997). Truth and the idea of a university," Australian University Review, vol. 40 no2 pp 13- 18.

Garson, G. D. (2012). *Testing statistical assumptions*. Asheboro, NC: Statistical Associates Publishing.

Gil, A. J., Carrillo, F. J., & Fonseca-Pedrero, E. (2019). Assessing a learning organization model: A teacher's perspective. *Management in Education, 33(1),* 21-31.

Gorard, S. (2001). *Quantitative methods in educational research: The role of numbers made easy*. A&C Black.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis 6th Edition. Pearson Prentice Hall. New Jersey. humans: *Critique and reformulation. Journal of Abnormal Psychology*, 87, 49-74.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis (7th Edition).* Englewood Cliffs, NJ: Prentice Hall.

Laeeque, S. H., Babar, S. F., & Ahmad, H. M. (2017). The Integrative Determinants of Innovation Performance: The Role of Learning Organization and Knowledge Creation. *Pakistan Journal of Commerce and Social Sciences, 11(1),* 167-184..

Leithwood, K., Leonard, L., & Sharratt, L. (1998). Conditions fostering organizational learning in schools. *Educational administration quarterly, 34(2),* 243-276.

Marks, H., Louis, K. S., & Printy, S. (2000). The capacity for organizational learning: Implications for pedagogical quality and student achievement. *Understanding schools as intelligent systems*, 239-266.

Nonaka, I. (1991). The Knowledge-Creating Company. *Harvard Business Review, 69(6),* 96-105.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford university press.

Nonaka, I., Konno, N., & Toyama, R. (2001). *Emergence of "Ba": A conceptual framework for the continuous and self-transcending process of knowledge creation*. In I. Nonaka & T. Nishiguchi (Eds.), Knowledge emergence: Social, technical, and evolutionary dimensions of knowledge creation (pp. 13-29). New York, NY: Oxford University Press.

Nonaka, I., & Toyama, R. (2007). *Why do firms differ? The theory of the knowledge-creating firm*. In K. Ichijo & I. Nonaka (Eds.), Knowledge creation and management: New challenges for managers (pp. 13-31). New York, NY: Oxford University Press.

Ramsden, P. (1998). *Learning to lead in higher education.* Routledge, London

Senge, P., Kleiner, A., Roberts, C., Ross, R. B., & Smith, B. J. (1994). *The fifth discipline fieldbook: Strategies and tools for building a learning organization*.

Senge, P. (1995). On schools as learning organizations: A conversation with Peter Senge. *Educational Leadership, 52(7),* 20-23.

Senge, P. M., Cambron-McCabe, N., Lucas, T., Smith, B., & Dutton, J. (2012). *Schools that learn (updated and revised): A fifth discipline fieldbook for educators, parents, and everyone who cares about education*. Crown Business.

Senge, P. M. (2014). *The fifth discipline fieldbook: Strategies and tools for building a learning organization*. Crown Business.

Song, J. H., & Chermack, T. J. (2008). A theoretical approach to the organizational knowledge formation process: Integrating the concepts of individual learning and learning organization culture. *Human Resource Development Review, 7(4),* 424-442.

Song, J. H., Joo, B. K., & Chermack, T. J. (2009). The dimensions of learning organization questionnaire (DLOQ): A validation study in a Korean context. *Human Resource Development Quarterly*, *20*(1), 43-64.

Watkins, K. E., & Marsick, V. J. (1993). *Sculpting the learning organization: Lessons in the art and science of systemic change*. Jossey-Bass Inc., 350 Sansome Street, San Francisco, CA 94104-1310.

Watkins KE., Yang B and Marsick, VJ. (1997). *Measuring dimensions of the learning organization*. Paper presented at the Academy of Human Resource Development Conference, Atlanta, GA.