

Development of Organizational Commitment Analysis Structural Equation Model for Makassar Industrial Estate Employees

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Abstract

This study discusses how a measuring tool of organizational commitment was developed through confirmatory factor analysis using a tool analysis structural equation model. This study was intended to achieve the validity and reliability of the organizational commitment that met the statistical requirements. This study also conducted a model test to obtain model fit from the results of confirmatory factor analysis constructs organizational commitment. The research was conducted by using a survey using a questionnaire from Google Forms which was distributed for 2 (two) months with a sample of 251 employees of the Makassar industrial area. The results showed that of the 5 dimensions and 25 indicators of organizational commitment, all of them showed a validity value above 0.5, thus fulfilling the cut off of the required value. The results of the reliability test of the dimensions and indicators of organizational commitment also show the cut off required statistical >0.7 . Apart from that, the indices of the model test results carried out are stated to have met the criteria of a good model.

Keywords

organizational commitment;
 confirmatory factor analysis;
 structural equation model



I. Introduction

Human resources are the most important capital of an organization (Joseph et al., 2017). Human resources are the movers and implementers of all management functions in the company (Horwitz & Horwitz, 2017; Zawawi et al., 2019). More than that, humans are also the ones who will shape the soul and values of a company (Ozhan et al., 2018). Therefore, the human resource problem is the most important problem that must be considered and solved logically and systematically (Weiherl & Frost, 2016). This study will examine the dimensions and indicators of organizational commitment (OC) as one of the concepts and goals to be achieved by the company (Ozhan et al., 2018; Phoa Siew Ching et al., 2020). High OC is one of the requirements to improve organizational performance and competitiveness. With a high OC, it will make it easier for organizations to control and direct all the potential of their human resources to the aspired goals (CS Lee et al., 2021). A good OC is also a sign that the organization has achieved a good and healthy standard of living (Sopiah et al., 2020). However, efforts to maintain or increase employee OC become a challenge that is not easy to realize (Jatmiko et al., 2020; Ozhan et al., 2018). There is a need for continuous adjustment between employee needs and organizational expectations (Nasution & Rafiki, 2020; Nguyen & Ngo, 2020). This has become one of the main studies in the development of self-determination theory (SDT) as well as being the root of this study (Van den Broeck et al., 2016). Self-determination theory (SDT) is one of the basic theories that discusses individual motivation, personality, and well-being. SDT focuses on the ability to control behavior that comes from within the individual and not from outside the individual (Legault, 2017).

Therefore, a person's decision is not influenced by external factors but is driven by internal factors so that each individual will have a tendency to seek knowledge needed to be applied in activities related to other people (Ryan & Deci, 2000; Spitzmuller et al., 2008). Various studies mention that SDT can be an effective psychological tool to grow internal motivation (Ryan et al., 2009). This internal motivation can be achieved by fulfilling the basic needs of individuals, which include: autonomy (autonomy), competence (competence), and relatedness (Deci & Ryan, 2008; Ryan & Deci, 2000). All dimensions and indicators in the OC study construct were built and developed with the SDT perspective.

Organizational commitment (OC) is a psychological bond with employees which is characterized by a desire to strive for the achievement of organizational interests and a desire to maintain a position as a member of the organization (CS Lee et al., 2021; Y. Liu & Werblow, 2019). So that OC becomes one of the determinants of organizational success (Cegarra-Navarro et al., 2020). Employees with high OC will tend to stay as members of an organization. He will show good attitudes and behavior so that he can improve his performance (Agung Trislianto et al., 2018; Ibidunni et al., 2018; Wahyunanti et al., 2018). Various previous studies have stated that employees with high OC will try to do better in completing their tasks. In addition, he will increase his work productivity and devote all his efforts to achieve company goals (Horwitz & Horwitz, 2017; Y. Liu & Bellibas, 2018; Rajabi et al., 2021). Good OC can be used as a force to increase individual engagement in the organization (Kilaberia, 2020).

The OC construct in this study is built from 5 dimensions, where 5 indicators are embedded in each dimension. The OC construct will be measured by adopting the views of Edward Bashaw and Stephen Grant (1994), where it is explained that OC consists of 3 main dimensions, namely: employee willingness (employee willingness), employee loyalty (employee loyalty), and employee pride (employee pride). Furthermore, the researchers made modifications by adding the dimension of intention to stay (intention to stay). and employee indebtedness (employees feel indebted). Modification of this dimension is based on the idea that the indicator of intention to stay (intention to stay) and employee indebtedness (employees feel indebted) is part of OC inherent in an employee. In addition, this modified dimension is an exclusive part of the existing dimensions. The contents of each dimension and indicator of OC can be seen in table 1 below:

Table 1. Dimensions and Indicators of *Organizational Commitment (OC)*

	Dimension s	Code	Indicator
<i>Organizational Commitment</i>	<i>Employee Willingness (EW)</i>	EW1	Desire to survive because I feel part of the family of this company
		EW2	to survive because I have obligations to the people in this company
		EW3	Desire to survive because of strong encouragement from family to serve in this company
		EW4 Willi ng	to survive because I like doing my job as an employee in this company until I retire
		EW5	Desire to stay because I don't like to change offices/jobs
	<i>Employee Loyalty (EL)</i>	EL1	My loyalty because this company is my source of livelihood
		EL2	loyalty because I feel I belong to the company this is
		EL3	My loyalty because I am happy with this job and I will not leave this company even if there is a better job offer

		EL4	My loyalty has an emotional/emotional bond with this office
		EL5	My loyalty because I have no strong reason to leave this company
	<i>Employee Pride (EP)</i>	EP1	Desire to stay in this place because I am proud of the achievements of this company
		EP2	Desire to stay in this place because I am proud of the excellent working relationship in this company
		EP3	Desire to remain in this place because I am proud of the image positive and good name of this company
		EP4	Desire to stay in this place because I am proud of the better facilities and infrastructure in this company
		EP5	Desire to stay in this place because I am proud of the commitment that exists in this company
	<i>Intention to Stay (IS)</i>	IS1 Willingness	to stay in this place because I have no alternative job if I leave this company
		IS2 Willingness	to stay in this place because I will have difficulty getting a job with status and position as good as it is now
		IS3 Willingness	to stay in this place because I have a wide open career opportunity at perus IS4
		Desire	Desire to stay in this place because I feel more positive personal growth
		IS5	to stay in this place Another office will not provide better welfare than my current office
	<i>Employee Indebtedness (EI)</i>	EI1	Desire to stay in this place because of the promise of development that I have not fulfilled in this company
		EI2 The	desire to stay in this place because of the valuable assistance that has been given to me from this company
		EI3 The	desire to stay in this place because of the past history that is meaningful to me in this company
		EI4	Desire to stay in this place because of the leadership's mandate not to leave this company
		EI5	Desire to stay in this place because of special requests from employees in this company

II. Research Methods

This study was conducted using a quantitative survey approach (Coulter et al., 2014). Data collection was carried out for 2 months using a digital questionnaire in google form distributed through the whatsapp application (Wiemken et al., 2018). The population in this study were employees who worked in the Makassar Industrial Estate (KIMA) with a research sample of 251 people. The number of sample data obtained through questionnaires distributed as many as 295 with a response rate of 85%. Descriptive analysis of research respondents included 66% were male, and the other 34% were female. The average age is 30-40 years (57%), the average education level is high school (52%), and the average tenure is > 3 years (63%).

This study develops 3 research hypotheses including:
H1: The results of the data quality test in this study meet the statistical requirements set
H2: The value of factorial test weights, validity, and reliability on the OC indicator meets the statistical requirements set
H3: Model test results /goodness of fit the OC construct meets the requirements of a good fit model

III. Discussion

In order to develop a measuring tool and test hypotheses in this study, data analysis was carried out using *SPSS 23* and *SEM-AMOS 23* (Byrne, 2016; Jak & Cheung, 2020). The reason for choosing the SEM technique over *multivariate* is because of the consideration that SEM is an analytical technique that can simultaneously test the meaning and weight of the variable indicators used while simultaneously testing the causality relationships contained in a model (Rodrigues et al. , 2020; Venturini & Mehmetoglu, 2019; L. Zhou et al., 2021). In addition, SEM allows for *confirmatory factor analysis* to get valid indicators in measuring research variables by looking at the loading factor of each indicator (Hair et al., 2012). Furthermore, with SEM researchers can develop a fit model in addition to finding the most suitable model supported by data (Blunch, 2012; Civelek, 2018; Tabri & Elliott, 2012). This study uses 3 stages of testing in the data processing process. The first stage is analysis using KMO test to see whether factorial analysis is feasible or not (Blunch, 2012; Woody, 2011).analysis *confirmatory factor* to ensure that all variables used in the study have been identified properly (Byrne, 2013; Schreiber et al., 2006). The third stage is factorial testing in a full *structural model* (Byrne, 2013; Hair et al., 2012; Hooper et al., 2008).

3.1 Results

a. Feasibility Analysis with KMO Test (Kaiser-Meyer-Olkin) and Bartlett's Test of Sphericity

The KMO test was carried out using SPSS 23 analysis tool which aims to determine the feasibility of the number of samples from the factorial analysis to be carried out. The weight value set for the KMO test ranges from 0 – 1. If the weight of the KMO test results shows the number > 0.5, then the factor analysis is declared feasible to continue (Uzir et al., 2020). To complete the prerequisite test for data quality, the Bartlett's Test of Sphericity test was also carried out to determine the absence of correlation between indicators in a built factor (Hayes, 2009; Woody, 2011).area of KMO and Bartlett's Test of Sphericity presented in the following table:

Table 2. Results of KMO and Bartlett's Test of Sphericity
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.976
Bartlett's Test of Sphericity	Approx. Chi-Square
	14317,228
	df
	300
	Sig.
	.000

Through table 2 it can be seen that the KMO test value = 0.976 and the *Bartlett Test of Sphericity* = 14317,228 with df 300 at sig: 0.000. Thus, the KMO test and the *Bartlett Test of Sphericity* Were declared to meet the statistical requirements and the analysis could be continued.

To complete this prerequisite test, the results of the *communalities* of all OC indicators are also displayed as follows:

Table 3. Test Results of *Communalities* Factorial

Communalities		
	Initial	Extraction
Indicators EW1	1,000	.959
EW2	1,000	.967
EW3	1,000	.900
EW4	1,000	.883
EW5	1,000	.923
EL1	1,000	.774
EL2	1,000	.981
EL3	1,000	.974
EL4	1,000	.942
EL5	1,000	.947
EP1	1,000	.756
EP2	1,000	.825
EP3	1,000	.832
EP4	1,000	.795
EP5	1,000	.789
IS1	1,000	.725
IS2	1,000	.961
IS3	1,000	.921
IS4	1,000	.956
IS5	1,000	.915
EI1	1,000	.951
EI2	1,000	.951
EI3	1,000	.960
EI4	1,000	.937
EI5	1,000	.923

Extraction Method: Principal Component Analysis.

From table 3, it is known that all developed indicators are able to explain the factors well and meet the statistical requirements with a test value of > 0.50 . Therefore, the analysis can be continued and the hypothesis H1 is declared accepted.

b. Confirmatory Factor Analysis (CFA)

This analysis was carried out by performing *confirmatory factor analysis (CFA)* on each of the dimensions and OC indicators developed. In the first trial of this analysis, it was found that there were indications of data that had an abnormal distribution, so that data normalization was carried out first to produce a normal distribution. Next, the *skewness* of the indicators was observed. The results of the analysis show that the data has a *substantial negative skewness* (above moderate), so based on the advice of Tabanick & Fidell (2003), data transformation is carried out with the formula $X_n = \lg_{10}(KX)$ where X = *normalized variable*, K = *constant number*. The reduction in X is the observed variable is still positive, therefore, as suggested by Tabanick & Fidell (2003), $K = 11$ is used, because the measurement scale of this study uses numbers 1-10 (Castro-Jiménez et al., 2020; Ghazali, 2017). Furthermore, after the data is normalized and the confirmatory test is run, the results of the analysis show that each indicator has a *lambda* or factor weight that has met the statistical requirements. This means that the indicators developed can be a representation of

the dimensions and variables. The results of the *confirmatory factor analysis* of the OC construct can be seen in the following figure:

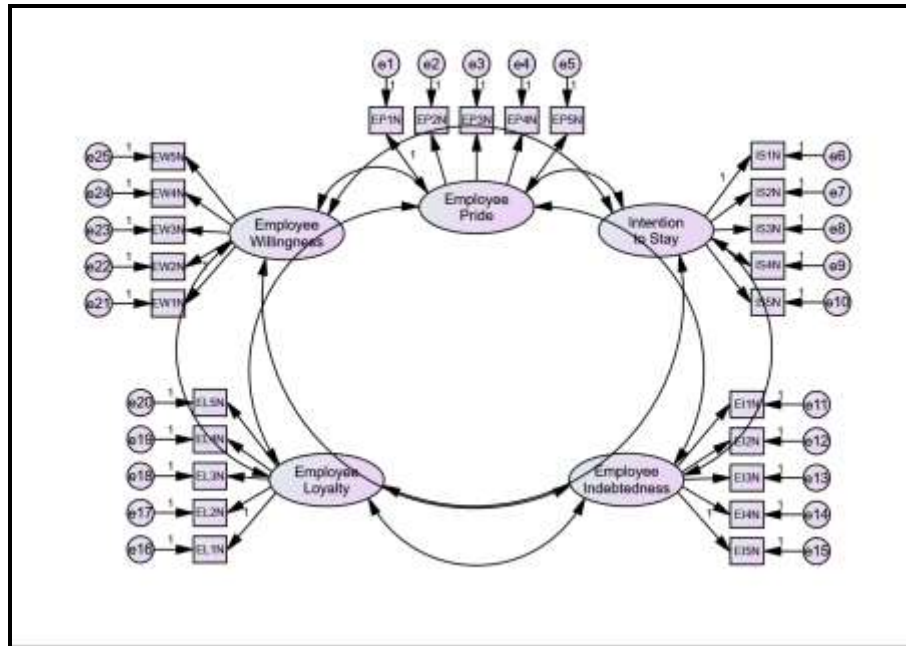


Figure 1. Confirmatory Factor Analysis Construct Organizational Commitment

This study also calculates *convergent validity* (AVE) and *construct reliability* (CRI) of the results of *confirmatory factor analysis* of the OC construct that can be used. seen in the following table:

Table 4. Convergent Validity and Construct Reliability Construct Organizational Commitment

Dimensions	Indicator	Standard Loading (Lambda Value)*	Critical Ratio $\geq 1.96^*$	Convergent Validity (AVE) ≥ 0.50	Construct Reliability (CRI) $\geq 0, 70$
Employee Willingness (	EW1	0.802	33,196	0.933	0.735
	EW2	48.003	EW3		
	0.908	33,250	29.186		
	EW4	0.835	0.851		
	EW5	36,414	4		
EL	EL1	0.800	24.960	0.980	EL2
	0.996	52.784	60.691		
	0.976	0.907	EL		
	0.886	Employee	)		
	Loyalty	(	EW		
)	EP1	0.970	18.600	EP2	0.984 0.924
	0.964	16.620	EP3		
	0.978	17.211	EP4		
	0.948	15.258	EP5		
	0.945	15.674	Intention		
to Stay (IS)	IS1	0.850	20.867	0.9 76	0.893
	IS2	0.991	65,867		
	IS3	0.976	76.996		

	IS4	95.398	IS5		
	64,943	0.960	0.941		
EI	EI1	0.974	37,119	0.975	35,655
	0.974	EI3	0.924		
	38,793	EI4	0.899		
	32.821	37	.		
	EI2	0.888	Indebtedness		

(Employee dimensions) and OC indicators with a good lambda value > 0.5 . All indicators of the 5 OC dimensions have a convergent validity index (AVE) greater than the required one, which is ≥ 0.50 . From the results of calculations carried out, all dimensions of OC show very good validity, namely EW (0.735), EL (0.907), EP (0.924), IS (0.893), and EI (0.888). measurement *construct reliability* that was carried out also resulted in a very good level of consistency above *cut of value*, which was ≥ 0.70 . The results of the reliability test on each OC dimension were EW (0.933), EL (0.980), EP (0.984), IS (0.976), and EI (0.975). On the basis of these results, the hypothesis H2 is declared accepted.

c. Model Test /Goodness of Fit (GOF)

In order to obtain the results of the fit model test, a *full SEM* out on the AMOS 23 program. To improve the quality of advanced data, after a *full SEM* data is cleaned outlier according to the figure suggested *mahalanobis distance* in the *text output*.data limit is *Outlier* calculated using an excel formula with the formula = $\text{chiinv}(\text{probability, number of indicators})$. By setting a probability of 0.05 and the number of indicators as much as 25, the result = 37.65, so that the deletion of the outlier data is at a distance of ≥ 37.65 (Ghozali, 2017; Jak & Cheung, 2020; Preacher, 2011). Furthermore, in order to obtain a *fit model* on the model test results, correlations between factors were carried out as stated and it was suggested that *modification indices* in the *text output*. The final results of the *goodness of fit* carried out show indices in the form of *GFI* (Goodness Of Fit Index), *TLI* (Tucker Lewis index), *Normed Fit Index (NFI)*, *Incremental Fit Index (IFI)*, *Relative Fit Index (RFI)* *CFI* *Comparative Fit Index*, *RMSEA* (The Root Mean Square Error of Approximation), *CMIN/DF* (The Minimum Sample Discrepancy Function), and *Probability (p)* are good and meet the requirements. A summary of the results of our model tests is presented in Figure 2 and Table 5 below:

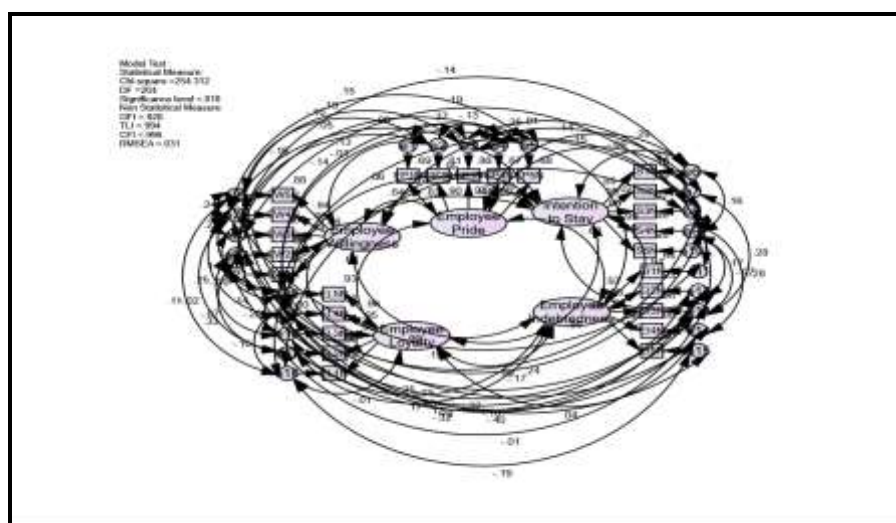


Figure 2. The Results of the Model Test Using Confirmatory Factor Analysis of the OC Construct

Table 5. Model Test Results /*Goodness of Fit (GOF)*

Criteria Goodness Of Fit (GOF)	Test Value
<i>Chi Square</i>	254.312
<i>Probability (p)</i>	0.010
<i>CMIN/DF</i>	1.247
<i>GFI</i>	0.928
<i>TLI</i>	0.996
<i>CFI</i>	0.973
<i>NFI</i>	0.981
<i>RFI</i>	0.996
<i>IFI</i>	RMSEA
<i>The</i>	0.031

The table above shows that the indexes of the model/*goodness of fit* obtained have met the requirements of good models (Arbuckle, 2014; Kwan & Chan, 2011; Tarka, 2018). Thus, the hypothesis H3 is declared accepted.

3.2 Discussion

The test results show that the OC measuring instrument developed in this study has high validity and reliability. All indicators of the 5 OC dimensions show the *cut off* that meets the statistical requirements. In addition, the test results also support all developed hypotheses. In this section, 2 main indicators will be reviewed from each of the dominant and decisive dimensions in forming employee OC. On the dimension of *Employee Willingness (EW)*, the indicator is EW3; “desire to survive due to strong encouragement from family to serve in this company”, and EW2; “The desire to survive because I have an obligation to the people in this company” are the 2 components that are the main representations that make up the OC construct. This means that family support and the existence of formal and moral obligations to people in the company are the main factors that present the desire to stay (Joseph et al., 2017; Kilaberia, 2020).

A sense of belonging can only be created if employees have high enthusiasm for work so that they can integrate and fully immerse themselves in their work activities (Jung et al., 2021; Sulistiono et al., 2020). As for giving a broad role with the freedom to innovate, it can create an emotional bond with the company. Ideas and works created in the work environment can represent the soul of an employee. Ideas and works that can be implemented and get appreciation from the company will create an emotional connection between employees and the company (Mahjoub et al., 2018; Suharto et al., 2019). The increase in the value of the company's shares, the higher the company value, the higher it will be (Katharina, 2021). In the current economic development, manufacturing companies are required to be able to compete in the industrial world (Afiezan, 2020). The existence of the company can grow and be sustainable and the company gets a positive image from the wider community (Saleh, 2019). The existence of good autonomy and respect also strengthens the inner/emotional bond of employees to the company (C. Liu et al., 2020). A sense of belonging and a high emotional bond can empirically create employee loyalty to the company where they work. Next to the *Employee Pride (EP) dimension*, there are 2 dominant indicators that have an influence in shaping the OC construct, namely the EP3 indicator; “desire to stay in this place because I am proud of the positive image and good name of the company”, and EP1; “I want to stay in this place because I am proud of the achievements of the company”. This means that the OC in the aspect of *employee pride* is influenced by the company's image and the achievements of the company.

The good name of the company can create pride for employees. Those who join companies with great reputations will have pride and high self-confidence because in their view it is not easy to join the company they work for and not everyone gets the opportunity to become a member of the organization or company (Princy & Rebeka, 2019). In terms of company achievements, employees perceive that these achievements are the result of working together and everyone makes an equally important contribution to the company. Teamwork that produces great achievements will create high job satisfaction and bring a sense of pride to employees so that they no longer think about leaving the company where they work (Ghouri et al., 2019; Wang et al., 2020). dimension *Intention to Stay (IS)* there are also 2 main indicators that make up the OC, namely the IS2 indicator; “I want to stay in this place because it will be difficult for me to get a job with the current status and position”, and IS3; “I want to stay in this place because I have wide open career opportunities in this company”. This means that the desire to stay is driven by considerations about the difficulty of getting a job with the current status and position as well as the wide open career opportunities in the company. These two things are the main considerations because employees perceive that their current work status is a very valuable job for themselves and their families (Sopiah et al., 2020). The position held as an employee at this time is a rare opportunity and it would be very unfortunate if it had to be left. Likewise with the opportunity to have a career in the company, in the employee's view this is a very good opportunity to improve their standard of living as well as an answer to their expectations as well as a tangible form of the company's attention to their hard work (Hidayah & Tobing, 2018).

In addition to the *Employee Indebtedness (EI) dimension*, there are also 2 dominant indicators forming OC, namely the EI1 indicator; “desire to stay in this place because of development promises that I have not fulfilled at this company”, and EI2; “desire to stay in this place because of the valuable help that was given to me from this company”. This indicator plays an important role because they directly touch the psychological side of employees quite deeply. The promise of development that has been said to the company is one of the obstacles for employees to leave the company (Pranita, 2018). The promise of development can also become a new spirit for employees to push themselves to achieve maximum productivity. In the process of achieving this, employees will present positive behaviors that are very good for the growth and performance of the company. Likewise with the feeling of indebtedness of employees because of the valuable assistance the company has given, employees will think about how to return the favor for the company's kindness (Kirimanop et al., 2020). Staying and continuing to contribute maximally to the company is one of the best ways to repay the company (S. Zhou et al., 2020).

IV. Conclusion

The results of the study indicate the acceptance of all research hypotheses, where research data from the development of this OC measuring instrument has good quality with high validity and reliability. In addition, all indicators of the 5 dimensions of OC show cut off values that meet statistical requirements. Furthermore, the results of the model tests carried out also show good model acceptance indices. Thus, these OC indicators and dimensions can be used in model testing with more complex research constructs.

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