

Learning Culture Assessment and Its Influence on Knowledge Creation Process (A Case Study of PT Pindad (Persero))

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Abstract. *To thrive and stay ahead of the competition in a world of Defence industry as well as to achieve its vision, PT Pindad (Persero), better known as Pindad, has a learning value shared within organization, which is expected to encourage employee to continuously seek new knowledge and skills. This study aims to know the influence of Learning Culture on Knowledge Creation Process in Pindad setting and to assess the Learning Culture implementation in this company. It used mixed methods research by using sequential explanatory strategy, which is characterized by the collection and analysis of quantitative data followed by qualitative data. Multiple regression- and descriptive analyses were used in quantitative approach, while in-depth interview was conducted for the qualitative approach. Data were collected from employees in Technology & Development- and Operation Division, which have substantial contribution to support product innovation at Pindad. The instrument in quantitative part is adopted from The Dimensions of Learning Organization Questionnaire (DLOQ) created by Watkins and Marsick (1993) to measure Learning Culture and the knowledge conversion theory (Nonaka & Takeuchi modified by Oh, 2001) to measure Knowledge Creation Process. The main result of this study shows that Learning Culture significantly influences Knowledge Creation Process in the context of Pindad. The value of Adjusted R² indicates Learning Culture can explain 58.5% of the variability in the Knowledge Creation Process. Moreover, there are six suggestions to optimize the implementation of learning culture in this company, viz. promote collegial atmosphere through the role of leaders, provide appropriate training, provide supporting system for learning, review current reward for learning, update its current competencies, and change its mechanistic structure to organic structure.*

Keywords. *Learning Culture; Knowledge Creation Process; Defence; DLOQ.*

I. INTRODUCTION

According to Deloitte, learning is still one of perennial issues of global human capital trends since it has been realized by most executives that without a strong learning culture, their organization will not succeed [6]. ATD Research and the Institute for Corporate Productivity (i4cp) released its 2016 report titled *Building a Culture of Learning: The Foundation of a Successful Organisation*. This research surveyed 832 Talent Development Leaders from around the world in 2015 and found that only 31 percent of organisations have welldeveloped learning culture. It revealed that learning culture is an indicator of high performance organization [4][39]: “Organizations that prioritize the on-going learning and development of employees are more likely to be successful, both in the business market and in the market for talented hires, than those that do not” [4]

With a healthy learning culture, people will develop new skills under their own initiative, thereby helping the organization compete more effectively [6]. Ellinger (2004) reveals that scholarly literature has shown that learning is a denotative source of competitive advantage for organization because it can enhance individual- and organizational performance [8].

State defence becomes one of notable aspects to ensure the existence and survival of the nation. A solid defence will be able to realize a strong nation. The contribution of the defence industry within the framework of the defence independence can be considered as an important matter. By independently providing Indonesia’s own defence equipment, it alleviates our country’s dependence on other countries, which is expected to build up Indonesian military as a force to be respected in the eyes of others.

PT Pindad (Persero) (hereinafter referred to as Pindad) takes an important role to equip Indonesian National Armed Forces with technology-advanced and sophisticated weaponry system. This company also improves its skills to produce commercial product, which has technology related to its defence and security products. Generally, technology-oriented products like defence products have a rapid product life cycle. Thus, Pindad views that innovation is the key to survive, thrive, and stay ahead of the competition in a world of defence industry in order to adapt well with the rapid change of its updated technology.

Knowledge is considered as an important element in innovation process [13]. Pindad realizes the importance of knowledge so that this company has learning value shared within organization, which is expected to encourage its people to continuously seek and share new knowledge, then those new knowledge become valuable element for this company to promote innovation. It will help Pindad to realize its vision.

Table 1. The 4 Interdependent Levels of Learning Organization

Level	Dimensions
Individual	<ul style="list-style-type: none"> • Create continuous learning opportunities (continuous learning) • Promote dialogue and inquiry (dialogue and inquiry)
Team	<ul style="list-style-type: none"> • Encourage collaboration and team learning (team learning)
Organization	<ul style="list-style-type: none"> • Establish systems to capture and share learning (embedded systems) • Empower people toward a collective vision (empowerment)
Global	<ul style="list-style-type: none"> • Connect the organization to its environment (systems connection) • Leaders model and support learning (supportive leadership)

Because learning orientation influences the product innovation performance and organizational performance [3].

In its Annual Report of 2015, Pindad stated that its new corporate culture (Integrity, Learning, Excellent, Safety) has not presented significant impact toward its corporate performance [30]. Learning is one of its values, which can be defined as individuals in organization should practice *continuous learning and teaching; continuous selfdevelopment; continuous self-improvement* [29][30]. Literature shows that, to build a Learning Culture, it cannot only rely on individuals for continually learning, but also organization should build its capacity to bolster learning [22]. A simple learning process is not adequate to guarantee performance improvement because there is a role of knowledge creation practices to improve organizational performance [35][36]. For that reason, this study is interested to know exactly the current status of its learning culture by assessing it based on existing theory to enhance Pindad's perspective about how to improve its learning culture implementation. Moreover, this study is also willing to know the influence of learning culture on knowledge creation process in the context of Pindad.

II. LITERATURE REVIEW

A. Learning Organization

The concept of learning organization became far-famed since Senge (1990) introduced this term. However, he has been criticized [10] for leaving too many unanswered questions and too abstract since he does not provide guidance or a framework for the real implementation [23]. Albeit Senge was credited with the learning organization, this conceptualization was augmented by the theories and writings of others, for example Watkins and Marsick (1993) explored a more complete overview of the learning organization [15]. The literature showcases that Watkins and Marsick (1993) investigated a more comprehensive summary of the learning organization [14]. In addition, this theory and framework is chosen because it seems as the most appropriate model for the company to become a learning organization [26]. According to Watkins and Marsick (1993), there are four levels of learning organization with seven distinct, but interconnected dimensions as shown in Table 1.

B. Learning Culture Measurement

McShane and Glinow stated the definition of organizational culture on their book : *“Organizational culture consists of the values and assumptions shared within an organization. It defines what is important and unimportant in the company and, consequently, directs everyone in the organization toward the “right way” of doing things”* [24]

Edmonds (2014) stated that culture is the engine; it drives everything that happens in an organization each day [7]. Learning culture is a concept that portrays organizational behaviour in learning and development [45]. It is expected that this culture can drive people in organization to continuously learn as well as transform itself to be a better and competitive organization.

There are several definitions of learning organization and tools available for measuring it. Moilanen (2005) identified and compared some of the learning organization instruments in terms of scope, depth, and reliability. He indicated that Dimensions of the Learning Organization Questionnaire (DLOQ) developed by Watkins and Marsick meets the three criteria of comprehensiveness, depth, and validity, and also integrates important learning organization attributes [25]. It is also supported in journal written by Awasthy and Gupta (2012), who were reviewed several measurement instruments adapted from Moilanen (2001) [1].

The DLOQ is a popular survey instrument, comprehensive tool to examine learning organization, which has been extensively used, verified, and validated in several recent empirical studies conducted in different contexts [9][34][33][1][5].

The DLOQ offers a much-needed mechanism to empirically assess learning culture [9]. Its seven dimensions appropriately define learning organization culture [21][34]. Thus, the implementation of learning culture can be measured by using The DLOQ through the employee’s perception regarding its seven dimensions [19].

C. Knowledge Conversion Theory

The knowledge conversion concept is based on how two types of knowledge, which are tacit and explicit knowledge, interact to create new organizational knowledge [28]. Tacit knowledge is a knowledge that is arduous to transfer to another person through writings or verbal way because it is stored in individuals’ heads. This knowledge has two dimensions, viz. technical (skill and craft) and cognitive (beliefs and mental models), which can only be acquired through individual processes, such as direct experience and internalization [16].

On the other hand, explicit knowledge (or codified knowledge) is easily transmitted to others in formal and systematic language [27]. It can be stored in certain media like in the form of databases, videos, and manuals. There are four phases of the knowledge-conversion process: 1) Socialization (from tacit to tacit); Externalization (from tacit to explicit); 3) Combination (from explicit to explicit); and 4) Internalization (from explicit to tacit). Knowledge conversion theory is also known as Socialization, Externalization, Combination, and Internalization (SECI) model.

D. Knowledge Creation Process

Knowledge creation is a spiralling process of interactions between tacit and explicit knowledge. The interactions between both tacit and explicit knowledge lead to the creation of new knowledge. This process is not a single-time event, but a continuous and circulative process [34]. Oh (2001) developed an instrument based on organizational knowledge creation theory to measure knowledge creation activities consisting of knowledge sharing, ideas creation, concept justification, and model building [28].

E. Learning Culture and Knowledge Creation Process

According to the study conducted by Song (2008), learning culture shows a strong and positive impact on organizational knowledge creation practices [34]. Song and Kolb (2012) stated that learning culture is not directly related to financial performance because there is knowledge creation as the mediating effect [36]. Lee and Choi also confirm that knowledge creation is associated with cultural factors, such as collaboration, trust, and learning [18].

In accordance with literatures, this study will statistically prove the influence of learning culture developed by Watkins and Marsick (1993) on knowledge creation process in Pindad setting with hypothesis is illustrated in Figure 1.

H1: Learning culture positively influence knowledge creation process

This study also wants to know the influence of each learning culture dimension on knowledge creation process:

H2: Continuous learning positively influence knowledge creation process

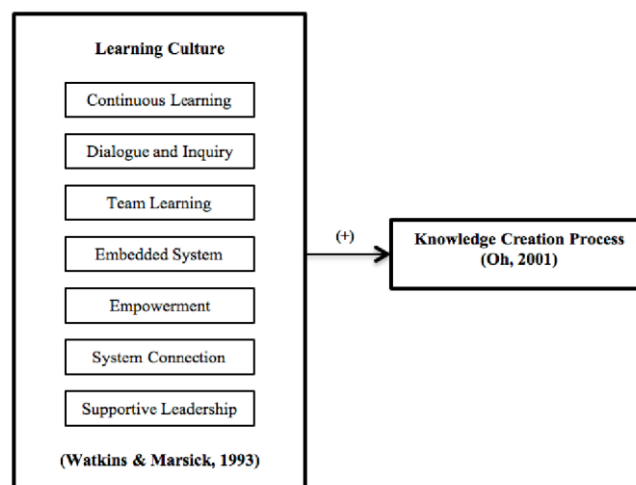


Figure 1 Research Model

- H3: Dialogue and inquiry positively influence knowledge creation process
- H4: Team learning positively influence knowledge creation process
- H5: Embedded system positively influence knowledge creation process
- H6: Empowerment positively influence knowledge creation process
- H7: System connection positively influence knowledge creation process
- H8: Supportive leadership positively influence knowledge creation process

III. METHODOLOGY

Survey was conducted by distributing questionnaire to several departments under Technology and Development as well as Operation Division since both of them have a huge contribution for product innovation at Pindad. The samples involved in this study consisted of 220 respondents. All items in the questionnaire were adapted from existing questionnaire. DLOQ was used to measure the seven dimensions of learning culture and the questionnaire developed by Oh (2001) was employed to gauge knowledge creation process based on knowledge conversion theory introduced by Nonaka and Takeuchi (1995) [34][35][28][43]. In this study, the author used 21 measurement items (DLOQ-A) and added six questions from 43 item-based DLOQ. Those additional statements were considered as crucial in Pindad context. Furthermore, the author modified questionnaire items for knowledge creation process developing by Oh (2001) from 23 items to 21 items [28][34]. There are no right or wrong answers for these questionnaire items and they were measured using a 5-point Likert-type scale (1=Strongly Disagree to 5=Strongly Agree). Moreover, these questionnaire items were translated into Indonesian language.

The quantitative data was analysed by using SPSS software (IBM Corp. version 21.0). The instrument validity and reliability test were conducted for 30 respondents to confirm that adopted instrument can be implemented in Pindad setting. Validity can be assessed by Pearson product moment [31], while reliability can be tested by Cronbach's alpha [32]. All indicators and statements are proven as valid ($r_{\text{calculation}} > 0.361$) [37] and also reliable ($\alpha > 0.6$) [38][41][40].

IV. FINDINGS

A. Respondent Profile

Based on Table 2, it can be concluded that most respondents are male (87.27%). Gen X dominates Pindad and this study has shown that the majority of respondents are classified as Gen X (56.36%). Thereunto, most respondents are in the job level 4 (56.36%) with the level of Expert Beginner or Head of Section, followed by job level 3 (30%) with the level of Head of Sub-department or Young Expert. The job level 5 is for the skilled employees (10.91%) and job level 2 is for Head of Department or Functional Expert. Most of them have more than five service years (85%).

B. Multiple Regression Result

Before conducting multiple regression analysis, several classic assumption tests were carried out, viz. normality test, heteroscedasticity test, and multicollinearity test analyses. It aims to make sure that the measurement will give a linear, unbiased, and right result.

Normality Test

This test was used to find whether the data has normal distribution or not. It becomes one of key assumptions to conduct regression analysis. In this study, the data has normal distribution with the P-value of Kolmogorov-Smirnov test is more than 0.05 [12], which is 0.193. Besides that, according to Normal P-Plot test in Figure 2, the output shows that the residuals has normal distribution since they spread close to the diagonal or follow the direction of the diagonal line:

Dependent Variable: Knowledge Creation Process

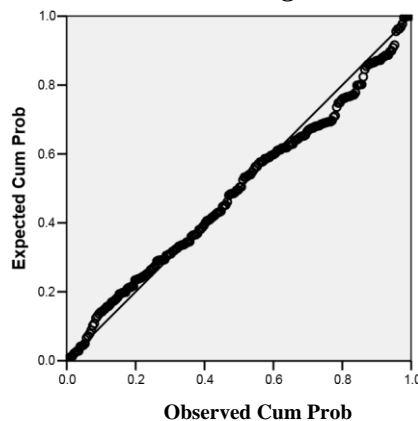


Figure 2 Normal P-Plot of Regression Standardized Residual

Table 2 Respondent Profiles

Variables	Values	Frequency	%
Gender	Male	192	87.27
	Female	28	12.73
Generation	Baby Boomers (<1966)	31	14.09
	Gen X (1966 – 1975)	124	56.36
	Gen Y (1976 – 1995)	65	29.55
Job Level	Level 2	6	2.73
	Level 3	66	30
	Level 4	124	56.36
	Level 5	24	10.91
Department	Techno. & Dev. Weapon	22	10
	Special Vehicle	42	19.09
	Forging & Casting	33	15
	Commercial Explosives	33	15
	Heavy Equipment	26	11.82
	Railways	33	15
Service Year	<1	4	1.82
	1-5	29	13.18
	>5	187	85

Heteroscedasticity Test

It is another key assumption to figure out whether the data has the same variants or not. From the Figure 3, it can be seen that the dots spread out and do not form a pattern as well as its distribution above and below zero. It means that the disturbance variance is constant or homogeneous. For that reason, it can be concluded that this assumption is accepted.

Dependent Variable: Knowledge Creation Process

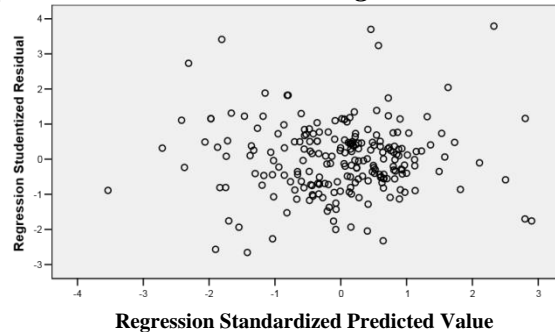


Figure 3. Heteroscedasticity Test Result

Multicollinearity Test

Multicollinearity happens when any single independent variable is highly correlated with a set of other independent variables [17]. A good regression model should not have strong correlation among its independent variables. The value of Variance Inflation Factors (VIF) was used to detect multicollinearity. Generally, the cut-off value for VIF is no more than 10 [12]. In this study, the value of VIF for each dimension ranges from 1.704 – 2.312, which is less than 10. Therefore, there is no multicollinearity among independent variables.

Table 3 Learning Culture and Its Influence on Knowledge Creation Process

Learning Culture Dimensions	Mean	S.D.	%	Category	B	S.E.	Beta	t	R	Adj. R ²	F(p)
Continuous Learning	3.53	0.509	71	Good	0.554	0.279	0.119	1.985**	.774 ^a	.585	45.113***
Dialogue and Inquiry	3.55	0.523	71	Good	0.502	0.281	0.118	1.787*			
Team Learning	3.53	0.523	71	Good	1.250	0.278	0.289	4.493***			
Embedded System	3.37	0.595	67	Average	0.091	0.206	0.029	0.442			
Empowerment	3.33	0.565	67	Average	0.716	0.316	0.129	2.269**			
System Connection	3.72	0.466	74	Good	0.592	0.245	0.139	2.413**			
Supportive Leadership	3.66	0.537	73	Good	0.863	0.296	0.170	2.911***			

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, dependent variable is perceived levels of the knowledge creation process

B = Unstandardized Coefficients, $S.E.$ = Standard Error, $Beta$ = Standardized Coefficients, R^2 = Coefficient of Determination $F(p)$ = F-Value, Scale range from “1 = strongly disagree” to “5 = strongly agree”

F Test Analysis

It was used to measure overall significance in regression analysis. In accordance with literature review, the learning culture theoretically influence on creating knowledge in organization [34][35][36]. This section aims to prove first alternative hypothesis (H1):

learning culture positively influence knowledge creation process. According to Table 3, it can be seen that there is a significant influence between learning culture and knowledge creation process in the context of Pindad ($F = 45.113$) because the P-value is less than significance level of 0.01. Thus, the null hypothesis (H_0) can be rejected.

T Test Analysis

It was conducted to measure the significance of partial regression coefficients individually with separate hypothesis test. It intends to prove the resuming alternative hypotheses (H2, H3, H4, H5, H6, H7, H8). Table 3 indicates that, from all of the seven dimensions of learning culture, it can be seen that embedded system ($t = 0.442$) is statistically not significant to influence knowledge creation process at Pindad since the Pvalue is more than significance level of 0.1, therefore it fails to reject null hypothesis (H_0). The other dimensions are statistically significant to influence knowledge creation process in this company. The most two influencing dimensions are team learning ($t = 4.493$) and supportive leadership ($t = 2.992$) because P-value less than significance level of 0.01. Continuous learning ($t = 1.985$), empowerment (2.269), and system connection ($t = 2.413$) have P-value less than significance level of 0.05, while dialogue and inquiry ($t = 1.787$) has P-value less than significance level of 0.1.

Multiple Regression Equation

In this study, the value of intercept or constant is 10.453. Based on Table 3, regression coefficient can be seen from the unstandardized coefficient (B) column so that the equation can be formulated as follows:

$$Y = 10.453 + 0.554X_1 + 0.502X_2 + 1.250X_3 + 0.091X_4 + 0.716X_5 + 0.592X_6 + 0.863X_7 \quad (1)$$

This equation can be interpreted in this way:

- 1) $b_0 = 10.453$; if the value of $X_1, X_2, X_3, X_4, X_5, X_6,$ and X_7 is nil (0), the value of knowledge creation process (dependent variable) is 10,453 units
- 2) $b_1 = 0.554$; on average, if continuous learning (X_1) increases by one unit and other variables are constant, knowledge creation process will increase by 0.554 units
- 3) $b_2 = 0.502$; on average, if dialogue and inquiry (X_2) increases by one unit and other variables are constant, knowledge creation process will increase by 0.502 units
- 4) $b_3 = 1.250$; on average, if team learning (X_3) increases by one unit and other variables are constant, knowledge creation process will increase by 1.250 units
- 5) $b_4 = 0.091$; on average, if embedded system (X_4) increases by one unit and other variables are constant, knowledge creation process will increase by 0.091 units
- 6) $b_5 = 0.716$; on average, if empowerment (X_5) increases by one unit and other variables are constant, knowledge creation process will increase by 0.716 units
- 7) $b_6 = 0.592$; on average, system connection (X_6) increases by one unit and other variables are constant, knowledge creation process will increase by 0.592 units
- 8) $b_7 = 0.863$; on average, if the value of supportive leadership (X_7) increases by one unit and other variables are constant, knowledge creation process will increase by 0.863 units

It can be concluded that, though embedded system is statistically not significant to influence knowledge creation process at Pindad, it does not mean that this dimension does not have any influence on knowledge creation process at all. From the equation, embedded system positively influences knowledge creation process with a small value compared to others, which are 0.091 units.

R and Adjusted R²

Correlation coefficient (R) indicates the strength of the relationship between any two metric variables - a group of independent variables and a dependent variable [17][42]. According to Table 3, R-value is 0.774, which indicates that the relationship between learning culture and knowledge creation process has a strong positive linear relationship [37]. The value of adjusted R² is 0.585, which means 58.5% of the variability in knowledge creation process can be explained by learning culture.

C. Descriptive Result

Table 3 also represents the percentage level of agreement (%) for each learning culture dimension. It can be interpreted to qualitative result based on the interpretation categories portrayed in Table 4 aiming to make it easier for understanding the meaning of percentage score.

Table 4 Score Category and Interpretation

Score Category (%)	Interpretation
20% - 36%	Poor
37% - 52%	Fair
53% - 68%	Average
69% - 84%	Good
85% - 100%	Excellent

Continuous Learning

Continuous learning can be defined as the efforts of organization to encourage its people to keep learning. As company attempts to become learning organizations, it is important to build learning capability at the individual level if they want to promote group- and organizational level [8]. Some employees may be aware how important their selfdevelopment and some others may be not. Continuous learning requires employees to be willing to change, adapt, grow, and take control of work-related decisions [43]. Overall, the respondents' perception about the implementation of continuous learning at Pindad can be classified as good (Mean = 3.53).

Dialogue and Inquiry

According to Watkins and Marsick, inquiry involves critical questions that challenge assumptions without attacking the individual, while dialogue calls for open minds and open communication. Dialogue and inquiry describes an atmosphere where everyone in organization is able to express their mind, ask questions about the impact of a decision or action, listen and be open to others' viewpoint, and trust each other [43][44]. Garvin, Edmondson, and Francesca (2008) views that organization should pay attention to the psychological safety of its working environment where employees cannot fear being belittled or marginalized when they have a different thought or opinion from peers or authority figures as well as allow them to ask questions and concede their mistakes [11]. It is necessary for organization to make their people believe that their working environment are safe enough to

express and act on any idea to stimulate innovation [2]. In this study, the dialogue and inquiry dimension has a good result (Mean = 3.55) as indicated in Table 3.

Team Learning

Furthermore, team learning means that organization should encourage its people to work collaboratively through teams. It aims to access disparate thoughts of people in organization. Team learning is augmented when employees share and create new ideas, new perspectives, and prominent skills [43][44]. Overall, respondents perceive that the implementation of team learning in this company can be categorized as good (Mean = 3.53).

Embedded System

Embedded system emphasizes the importance of systems to capture, share, and document learning activities and make it integrated with work. Organization should have a collective memory in which information can be acquired, stored, retrieved, managed, and disseminated [43][44]. Based on Table 3, this dimension is the second lowest learning culture dimension and still in average category (Mean = 3.37).

Empowerment

Empowerment is a practice of distributing responsibility to the people in organization, allowing them to have autonomy to act on their initiative, emboldening them to take calculated risks, and trusting them to participate in decision-making or problem solving in accordance with their capabilities, which might create a room for learning from their success, mistake, or failure. Moreover, to empower people, it should be driven by a collective vision so that they can align with the vision and have guidance to participate in achieving it [43][44]. For instance, employees can decisively decide what they should learn or act in order to contribute in realizing collective vision. It is the lowest learning culture dimension and can be classified as average (Mean = 3.33).

System Connection

Organizations implementing learning culture acknowledge the interdependencies between organization and its internalexternal environment [43][44]. Being connected to the internal environment means for being responsive to its employees and their work-life needs, while being connected to the external environment can be interpreted as being responsive to customer, society, competitors, or legislative bodies. Learning becomes complex in this stage because individuals in organization must interact within successfully larger social units and they should obtain more insights from outside the organization. The respondents perceive that Pindad has done system connection dimension with a good result and obtain the highest score compare to other dimensions (Mean = 3.72).

Supportive leadership

Leaders are key figures to strengthen learning culture because they are able to think strategically about how to use learning to create changes and move the organization toward new direction [44]. They should model and support learning as well as empower their subordinates through coaching, mentoring, or facilitating learning [8]. Watkins and Marsick also stated that, to create more room for learning, it is necessary for leaders to ask their employees what must be done instead of telling them (1993:14). According to the perspective of respondents, supportive leadership can be classified as good (Mean = 3.66).

V. DISCUSSION

It has been discussed before that learning culture is not directly related to organizational financial improvement because there is a mediating effect through knowledge creation process [36]. Pindad is willing to make learning, as one of its values, give impact to its corporate performance and realize its vision through product innovation. It has been proven through multiple regression analysis that learning culture takes an important role to support knowledge creation process in the context of Pindad because the P-value is less than significance level of 0.01 ($F = 45.113$). According to the value of Adjusted R^2 , 58.5% of the variability in the knowledge creation process can be explained by the learning culture, while the remaining 41.5% are influenced by other factors. According to the B-value, all learning culture dimensions positively influence knowledge creation process in Pindad setting. However, referring to the t-value, almost all learning culture dimensions are statistically significant to influence knowledge creation process at Pindad, except embedded system. The most two influencing dimensions are team learning and supportive leadership.

Pindad should be appreciated for its learning culture implementation because no dimension that have poor or fair category. However, there is no learning culture dimension that can be classified as excellent. Descriptive result indicates that empowerment got the lowest score among other dimensions (Mean = 3.33) and system connection got the highest score (Mean = 3.72). This study found that all learning culture dimensions could be categorized as good, except empowerment and embedded system.

In short, in the context of Pindad, all learning culture dimensions have statistically proven that they positively influence knowledge creation process. Nevertheless, not all of them are significant to give impact on creating knowledge at Pindad. As mentioned before, the learning culture dimension that does not show significant influence is embedded system. For that reason, although descriptive result represents that this learning culture dimension is still in average category, this study does not prioritize it to become proposed suggestions to make learning culture implementation at Pindad become better. The one and only significant learning culture dimension that should be improved in the context of Pindad is empowerment.

Empowerment is a psychological concept in which individuals experience self-determination, meaning, competence, and impact in their working environment. Empowered employees experience self-determination when having freedom, independence, and discretion over their tasks. Organization gives them high degree of autonomy and minimal bureaucratic control. They must feel that their work has meaning, which means they believe what they do is important and care about it. Moreover, it is important for empowered employee to have competence, which will make them confident about their ability to perform the work as well as to make a decision.

Lastly, employees experience impact when they are able to actively participate in decision-making and their actions have an influence on the success of their organization [24].

Watkins and Marsick revealed that a rigid structure constrains autonomy [43]. Literature shows that the unsatisfied score of empowerment could be related to centralized hierarchical structure [19]. Empowered people should experience autonomy; a rigid and bureaucratic structure constrain their autonomy [43][24]. Besides that, to make empowerment successful, it is important to equip employee with requisite competence [24][20]. McShane and Von Glinow stated that, to empower people in organization and to create organizational learning, the suitable organizational structure should be organic structure. This structure is characterized by: 1) many people report directly to manager; 2) low degree of formalization;

3) high degree of decentralization. It is also more suitable for organization that wants to flexibly adapt in fast changing business environment. However, to embrace this structure, the organization should ensure that its employees have clear role and expertise. The opposite of organic structure is mechanistic structure, which has several characteristics: 1) very few people report directly to a manager; 2) high degree of formalization in which organization standardize behaviour through rules, procedures, etc.; and 3) high degree of centralization. It prefers to be applied in stable environment because it relies on efficiency and routine behaviours [24].

VI. CONCLUSION

All Learning Culture dimensions positively influence Knowledge Creation Process, however, not all of them are statistically significant in the context of Pindad, namely embedded system. The assessment result shows that empowerment should be improved to make Learning Culture implementation at Pindad become better. This study offers two main suggestions to improve empowerment dimension. First, Pindad should review its current organizational structure whether it tends to apply mechanistic or organic structure. If it is prone to implement mechanistic structure (high degree of centralization and formalization), it is necessary to consider embracing organic structure (high degree of decentralization and low level of formalization). The critical note to apply organic structure is Pindad should ensure that all people in organization have clear role and expertise because, without both requirements, employees cannot coordinate effectively with each other and may cause inefficiencies and chaos [24][20]. Second, this company should make sure its employees have requisite competency to perform their job. It may embolden them to become more independent in taking- resolves or risks regarding their tasks. By equipping employees with right competencies, leaders can empower them to take calculated risks that might create mistakes, but might also lead to learning, and to act on their own initiative (autonomy).

VII. STUDY LIMITATION

This study focused on certain departments in Bandung factory without considering sample size at Pindad's factory in Turen, Malang. Besides that, the instrument type used in this research was self-reported responses based on the perception of the respondents. Furthermore, it used cross-sectional study, which was carried out at short period. Therefore, in the future research, longitudinal study with in-depth observation is recommended.

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