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The critical role of effective organizational learning to improve firm's innovation and performance in a market turbulence condition

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Abstract

Purpose – The purpose of this study is to identify the effects of market turbulence as a moderating construct in relation to effective organizational learning on the company's innovation and performance as well as on the antecedent of facilitative leadership competence.

Design/methodology/approach – This study used a cross-sectional and correlational research design. The period of data collection took place between March and May 2019 for three months. The questionnaires were distributed to 350 people who were randomly selected in the metal small and medium enterprises in Tegal district, Central Java, Indonesia. Analysis was conducted through the analysis of structural equation modeling (SEM).

Findings – Facilitative leadership competencies have a significant effect on effective organizational learning. Facilitative leadership competencies can support the learning climate and develop mechanisms for transferring learning from individuals and teams into organizational knowledge and experience. There is also an influence of organizational learning on the company's innovativeness and the company's performance. Contingency factors can be applied in situations that are always experiencing a change in turbulence

Research limitations/implications – This study contributes to the deepening of understanding of facilitative leadership concept and highlights the importance in the success of building effective learning, as well as its relationship with innovation performance and business performance.

Practical implications – This finding helps the management to understand the market forces and their impact on the company's innovation and performance. In this case, the leader plays an important role in fostering a culture of learning, changing the habits and ways of working so that they are ready to support the organizational culture of learning.

Originality/value – Developing a mechanism for transferring learning into organizational knowledge is very important because organizational learning is believed to be an important strategy in an organizational learning process. This is particularly true in a rapidly changing environment, as it can create business resilience.

Keywords Firm's performance, Market turbulence, Effective organizational learning, Facilitative leadership competence, Firm's innovation

Paper type Research paper

1. Introduction

Changes in information technology have caused changes in the external environment to be so complex, and these changes are not only evolutionary but are revolutionary, which

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results in turbulence. Turbulence is a change characterized by technological changes and unpredictable market turmoil (Calantone *et al.*, 2002). According to Hendar *et al.* (2017), in facing market turmoil, it takes the creativity of the company to anticipate by developing strategies, to provide the best values for companies and customers and to keep the company relevant in the midst of a turbulent business environment. Therefore, in anticipating changes in the business landscape that are fast and uncontrolled, this requires management to be more alert in managing the company. Business transformation that occurs is suggested as an effort to survive in the volatility, uncertainty, complexity and ambiguity (VUCA) era. Hence, a survival company is a company that is oriented to competitiveness and uses of resources and the ability to always innovate. This is all to direct its business strategy to new demands (Jofre, 2011). In a turbulent market, there is intense competition, in a passive perspective, organizational change is carried out as a reaction to environmental changes, and from a more proactive perspective requires a progressive figure of manager, who has facilitative leadership competencies and is able to communicate effectively, carry out dissemination information and keeping employees always having important and up-to-date information (Hirst *et al.*, 2004). Facilitative leadership competencies refer to the ability of leaders to change values and beliefs that can encourage their members to always learn and share experiences and develop people around them. It is one of the most significant ways to develop organizational learning. Chen *et al.* (2013) revealed that changes in the business world occur as a reaction to environmental changes. Successful changes not only make adjustments, but require adequate capabilities. Tushman and Nadler (1986) state facilitative leadership as a behavior that elevates the collective ability to adapt, solve problems and improve performance through the involvement of workers at all levels.

Previous literature emphasizes that there is a relationship between facilitative leadership competencies and organizational learning. This leadership is different from traditional leadership, which is very individualistic and systematic, making organizational learning difficult. The general assumption is that organizational learning can facilitate behavioral changes that lead to improved performance and competitiveness, but considering learning is a process of changing cognition and behavior, then the action of learning is not always followed by changes in performance, so learning negatively correlates to performance in the short term, when the company facing a new operating situation that has not been understood, but it is believed that organizational learning is an important strategy. A number of literatures explain the positive and significant relationship between effective organizational learning for the formation of unique knowledge, knowledge integration and effective use of knowledge (Hirst *et al.*, 2004). All of that is a mechanism that directly affects the company facing market turbulence and intensity of competition (Darroch and McNaughton, 2003). Organizational learning influences innovation activities (Chiva *et al.*, 2014) and indirectly increases performance (Nafei, 2015). According to Curado (2006), effective organizational learning is a market-driven organizational capability, thus companies operating in turbulent markets, companies are likely to modify products and markets to adapt to changes that occur and effective organizational learning leads companies to have flexibility and the ability to adapt to changes that are increasingly dynamic.

Knowledge that accumulates through effective organizational learning produces a superior knowledge base and is also associated with high performance (Lemon and Sahota, 2004). The concept of effective organizational learning is closely related to innovation firms (de Jesus Pacheco *et al.*, 2017) and is positively related to culture that emphasizes the formation of knowledge that is adaptive, innovative and unique (Ussahawanitchakit, 2005). Given the importance of understanding the competitiveness of companies in turbulent

conditions, creating and developing strategies to deal with changes in the environment under conditions of market turbulence is necessary (Easterby-Smith, 1997). This research was conducted in metal-producing small and medium enterprise (SME) industry in Tegal regency in Central Java, Indonesia. The presence of the disruption era caused turbulence for the business world, especially for metal SMEs. Companies that are not ready to deal with the changes that occur can be ascertained that the company will be crushed and will be accomplished. This research aims to examine the effect of effective organizational learning in increasing corporate innovation by assessing the moderating effect of market turbulence. Moreover, this study examines the effect of facilitative leadership on effective organizational learning, which in turn is expected to drive innovation and company performance.

2. Literature review and hypothesis development

2.1 Effective organization learning, firm innovation and market turbulence

Market turbulence is a change in the composition and preferences of customers (Jaworski and Kohli, 1993), usually influenced by changes in the downstream market and effectiveness in organizational learning (Saadat and Saadat, 2016). In a turbulent market, effective organizational learning is able to create new knowledge creation (Eisenhardt, 2000). Organizational learning occurs when organizational members always share knowledge and believe in new ideas, as well as practical skills that accumulate (Serrat, 2017). Organizational learning can also facilitate behavior changes that lead to improved performance (Curado, 2006). Through learning organizational, there will be changes in organizations that increase the organization's ability to produce unique knowledge formation, the occurrence of knowledge integration and broadening of holistic knowledge, as well as the effective use of knowledge (Argote, 2011).

In the formation of unique knowledge as knowledge created through socialization, externalization, combination and internalization will be able to resolve the demands of customers, because the increase in organizational knowledge produces changes in practice, strategies and higher values. Companies that emphasize the culture of forming adaptive, innovative and unique knowledge are very positive and significantly correlated with increasing company innovation (Ussahawanitchakit, 2005), because innovative activities in organizations require coordination and information dissemination to users and producers; this implies the formation of unique knowledge, which has strong interactions (Popper, 2000). The formation of unique knowledge is a mechanism that directly influences an organization's ability to deal with markets (Darroch and McNaughton, 2003) that influence company innovation and indirectly improve company performance (de Mello *et al.*, 2008).

Thus, effective organizational learning can use company resources and improve mutual connectedness (Anderson *et al.*, 1994). Organizational learning effectively configures and applies company innovation results dynamically to respond to changes in customer needs (Song *et al.*, 2005). Therefore, through effective organizational learning, it is considered capable of supporting success in changing technological innovations that pay attention to knowledge change (Fiol and Lyles, 1985) by involving the acquisition of knowledge, dissemination, improvement, manufacture and implementation. Likewise, the ability to develop insight, knowledge and dialogue with past activities is used to anticipate the future, and organizational learning effectively extends to quantum leaps and innovative breakthroughs that enable companies to compete for leadership positions (Mascitelli, 2000). The relationship between the two concepts is confirmed by Alegre and Chiva (2013) that organizational learning correlates significantly with company innovation. Based on the description of the literature review, the formulation of the first and second hypotheses can be formulated as follows:

H1. Effectivity organizational learning has a positive effect on firm innovation.

H2. Market turbulence moderates the relationship of organizational learning effectiveness to innovation firms.

2.2 Facilitative leadership competencies, effective organizational learning and corporate innovation

External factors greatly influence the company's decision to adopt organizational learning as a critical problem in preparing strategic plans, such as changes in consumer tastes, technological advances, globalization and competition. Popper and Lipshitz (2000) explain the responsibility of leaders in the process of organizational learning, as one of the priorities of organizations to build the foundation for transforming individual learning into organizations and make learning effective. Line managers can facilitate knowledge sharing in teams, support from management and learning strategies supporting the transfer of knowledge.

Other factors are also determined by practical human resources through selective recruitment, strategic training, employee participation in decision-making (Pérez-Lopez, 2006). In this case, the leader plays an important role in creating and communicating the vision of the learning organization and consider it as a solution to business problems, foster a culture of learning and to change habits and ways of working so that they are ready to support organizational learning culture (Prewitt, 2003). Facilitative leadership supports the learning climate and develops mechanisms for transferring learning from individuals and teams into organizational knowledge and experience (Sadler, 2003):

H3. Facilitative leadership competencies have a positive effect on organizational learning effectiveness.

H4. Facilitative leadership competencies have a positive effect on company innovation.

2.3 Corporate innovation has a positive effect on company performance

Global competition and technological change motivate companies to innovate, because innovation is an important and fundamental instrument of the company's growth strategy to enter new markets, to increase market share and to create competitive advantage (Ireland *et al.*, 2002). Technology that is fast changing, and global competition can erode the added value of products and services. Thus, the innovation carried out is an indispensable component of the company's business strategy, because there are several reasons such as implementing a new production process that is more productive, to do better competition in the market, to seek a positive reputation and, as a result, to get a sustainable competitive advantage. Innovation gives companies a strategic orientation to solve problems faced while trying to achieve sustainable competitive advantage (de Mello *et al.*, 2008).

McAdam *et al.* (2019) investigated the relationship of corporate innovation with company performance, finding a tendency for companies to innovate in a competitive environment. Campos and de Pablos (2004) examined the effects of innovation and patents on various company performance such as profit, level of stock returns and company growth. Innovation can improve company performance in several aspects such as innovative performance, production performance and market performance. A large number of studies that focus on innovation–performance relationships provide a positive assessment, that

high innovation results in improved company performance (Calantone *et al.*, 2002). Many results of empirical studies have successfully identified the determinants of company performance, one of which is an important factor about innovation (Ibrahim and Mahmood, 2016). Based on the description of the literature review, the formulation of the fifth hypothesis is formulated as follows:

H5. Corporate innovation has a positive effect on company performance.

3. Conceptual framework

This conceptual model is the basic foundation using the contingency theory and stakeholder theory, as well as the theory of resource-based view. These theories state that the effectiveness and development of a business organization is based on the utilization of organizational resources, which, in this case, is the role of human resources as a company asset. Learning organization is a mechanism that influences a company's ability to deal with market turbulence. So, organizations that operate on market turbulence will modify products and markets to be flexible and adapt to changes that are increasingly fast and dynamic. The leader's responsibility in the organizational learning process is to make learning one of the priorities of the organization building the foundation for transforming individual learning into effective organizational learning. Jenkins and Jenkins (2006) emphasize that facilitative leadership allows all relevant new ideas to emerge, and at the same time, creates a constructive environment for generating dialogue, leading to innovative breakthroughs. Smart and agile innovation requires a series of paradigm shifts, namely, changes in mindset that continually question the change and strengthening of the company's innovative culture. This is achieved through the organizational learning process. Thus, this model hypothesizes the market turbulence position to moderate the relationship between the effectiveness of organizational learning and company innovation, which in turn influences corporate innovation on company performance. Overall, the relationship between concepts can be modeled in Figure 1.

4. Research method

This study uses a cross-sectional and correlational research design. A cross-sectional research design uses a specific sample of the study population at one point in time to obtain the data needed. In a cross-sectional research design, researchers provide unsystematic interpretations. Correlational research design assesses relationships between variables. The period of data collection takes place between March and May 2019 for three months. The questionnaire was distributed to 350 randomly selected in the metal SMEs of Tegal district, Central Java, Indonesia. The senior manager or CEO was chosen as the key informant. Only

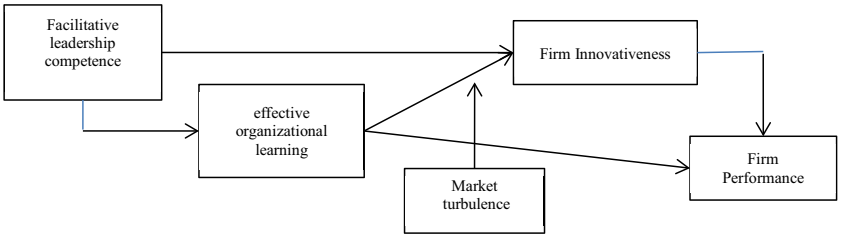

Figure 1.
Model of the relationship between effective organizational learning in relationship firm's innovation and firm's performance

213 metal SMEs filled out a complete questionnaire with a response rate of 71%. Variable measurements using a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree) for all concepts such as Table 1.

In the first step before data collection, the validity and reliability of the data are carried out first to determine the validity and reliability of the research instruments using the Cronbach α test and the Bartlett's Kaiser–Meyer–Olkin (KMO) test. Testing four hypotheses using the structural equation modeling (SEM) analysis, where the model has a direct or indirect relationship. But, in this analysis, an approach developed that allows the

Variable	Definition	Dimension and indicators	Reference
Facilitative leadership competence (FL)	Leaders who are able to communicate effectively, disseminate information and maintain that employees always have important and up-to-date information (Slater and Narver, 1995)	Selective recruitment (FL1) Strategic training (FL2) Participation in decision-making (FL_3)	Jenkins and Jenkins (2006)
Effective organizational learning	Ability to guide companies to have flexibility and adaptability to increasingly dynamic changes (Antoncic, 2001)	UK Cannot be imitated (UK_1) Rare (UK_2) More value than competitors (UK_3) Not easy to replace (UK_4) KI Sharing knowledge (KI1) Compact collaboration and collaboration (KI2) Transfer of knowledge (KI_3) Expansion of HK New idea (HK1) Knowledge development (HK2) Knowledge exploration (HK_3) EK Added value (EK1) New insight (EK2) Experience (EK_3)	Baker and Sinkula (1990)
Market turbulence (MT)	Changes in customer composition and preferences (Jaworski and Kohli, 1993)	Buyer preferences change fast (MT1) Wider needs (MT2) Exit and enter high buyers (MT3) Pressure of new product offerings (MT_4)	Lichtenthaler (2009)
Firm's Innovation (FI)	Companies respond to various environmental changes referring to new ideas, products, methods or services adopted in the organization (Vigoda-Gadot *et al.*, 2005)	Creativity (FI_1) Risk taking (FI_2) Openness to change (FI_3) Future orientation (FI_4) Proactivity (FI_5)	Vigoda-Gadot *et al.* (2005)
Firm's performance (FP)	Results made by management continuously (Campos and de Pablos, 2004)	Innovativeness performance (FP1) Production performance (FP2) Market performance (FP3) Financial performance (FP4) Firm growth (FP_5)	Antoncic (2001), Campos and de Pablos (2004)

Table 1. Measurement of variables

relationship between an independent variable to the dependent variable that is influenced by another latent variable is called moderated SEM. Moderating variables are variables that have a contingent effect that has a strong relationship between endogenous and exogenous variables. The process of moderating analysis uses an interaction model that is the multiplication between moderation and dependent variables. If the result is significant, then the variable is declared as pure.

Validity testing is to determine the extent to which the accuracy of an instrument in performing its measuring function so that the results is declared relevant, while the reliability test tests the consistency of the measured target. The test results using the KMO and Bartlett's test of sphericity, the results were greater than 0.60 and significant. Reliability test produces values greater than 0.7 (Table 2).

The results of the validity test also found that all indicators showed significant factor loading ($p < 0.01$). Test the reliability of all latent constructs > 0.7, extract variance test > 0.5. Fornell and Larcker (1981) suggest that extracted variances of 0.5 or greater than quadratic multiple correlation are good. The AVE value exceeds the correlation in all

Construct	Dimension	Item	KMO Bartlett's Component matrix	Significant	Cronbach's α	Validity
Effective organizational learning	UK	UK_1	0.796	0.000	0.851	0.651
		UK_2	0.906			0.813
		UK_3	0.851			0.715
		UK_4	0.780			0.625
	KI	KI_1	0.910	0.000	0.824	0.770
		KI_2	0.811			0.608
		KI_3	0.856			0.675
	HK	HK_1	0.884	0.000	0.848	0.735
		HK_2	0.859			0.690
		HK_3	0.892			0.749
	EK	EK_1	0.950	0.000	0.930	0.879
		EK_2	0.914			0.937
		EK_3	0.951			0.881
Facilitative leadership competence		FL_1	0.908	0.000	0.881	0.782
		FL_2	0.916			0.802
		FL_3	0.878			0.734
Firm's innovation		FI_1	0.727	0.000	0.824	0.662
		FI_2	0.789			0.742
		FI_3	0.640			0.797
		FI_4	0.756			0.635
		FI_5	0.788			0.751
		FI_6	0.879			0.784
Firm's performance		FP_1	0.773	0.000	0.835	0.729
		FP_2	0.873			0.766
		FP3	0.760			0.706
		FP_4	0.808			0.674
		FP_5	0.756			0.708
Market turbulence		MT_1	0.800	0.000	0.884	0.657
		MT_2	0.910			0.824
		MT_3	0.849			0.729
		MT_4	0.886			0.787

Table 2. Results of reliability and validity analysis of research

double-squared correlations. Therefore, the indicator variable of this study has good convergent validity. These values are considered adequate in testing the data (Table 2).

5. Results

5.1 Respondent characteristics

Empirical data found several things related to the demographic of the respondents, where the majority were male (84.04%). Their age is very productive and mature, they are seen at the age above 40 years (80.20%). Most of the education background is first and secondary elementary schools (75.26%), although some have already received higher education. The business experience of 76.53% has run its business for more than 20 years in the business of smelting and metal smelting in Tegal.

5.2 Goodness of fit

Figure 2 and Table 3 explain the second-order confirmatory factor analysis (CFA) organizational learning effectiveness. Overall, the second-order fit test model of effective

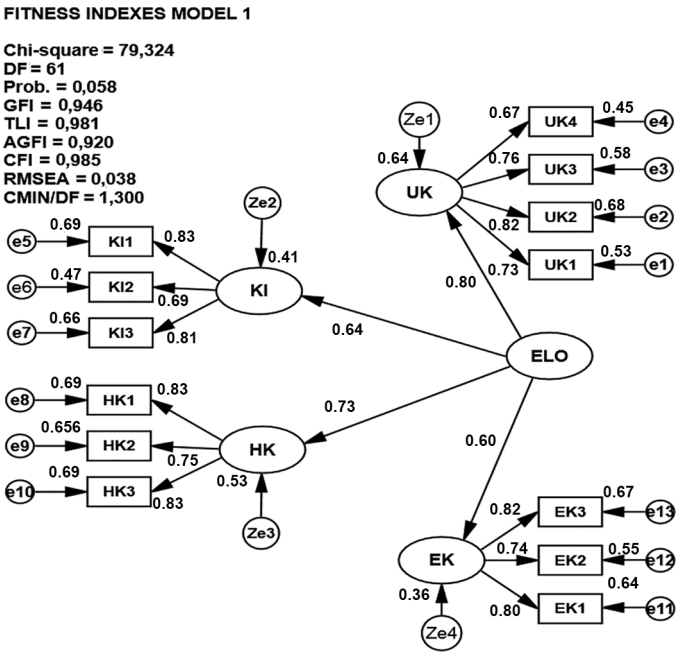

Figure 2.
The CFA for second-order construct, namely, organizational learning effectiveness

Table 3.
Results of second-order construct, namely, effectivity organizational learning (Model 1)

Path			Standardized path estimate	CR	*p*-value
Effective organizational learning	→	KI	0.640	5.211	***
	→	UK	0.798	5.509	***
	→	EK	0.604		
	→	Expansion of HK	0.725	5.567	***

organizational learning variables explains the suitability between the sample covariance matrix and the population; in general, it can be explained that the diversity in the sample has been repressive with the diversity of the population. Based on the test results, it is known that the measurement-of-fit results of the research model in this test produce a significance level = 0.058 (> 0.05), CMIN 79,324 (<80.23), GFI 0.94 (> 0.90), TLI 981 (> 0.95), CFI 0.989 (> 0.95), RMSEA 0.038 (<0.08) and CMIN/DF 1,300 (<2). This Model 2 shows a good level of compatibility, so that the overall measurement of organizational learning effectiveness variable second-order models proposed in this study is acceptable (Figure 2).

To validate the main construction and four sub-constructs, namely: unique knowledge (UK), knowledge integration (IK), holistic knowledge (HK) and effective use of knowledge (EK). The four latent sub-constructs are measured using a number of certain items. The results of data processing indicate that all indexes of fit are in accordance with the expected model. Thus, there is no need to modify the model or eliminate the indicator or sub-construct, it can be seen that the value of the loading factor of four sub-constructs of the effectiveness of learning organizations is 0.80 (UK), 0.64 (KI), 0.73 (HK) and 0.60 (EK). Furthermore, R^2 for all the sub-constructs was stated to be high above 0.4 (UK = 0.64, KI = 0.41, HK = 0.63 and EK = 0.36), which reflected the contribution of the effectiveness of organizational learning to four sub-construction. In other words, the effectiveness of the learning organization of the four sub-constructions has been well supported by its dimensions.

5.3 Hypothesis testing

Testing of the full SEM 2 model with AMOS 22.0 resulted in chi-squared (χ^2 = 344.002 < 395.69) and was significant (p = 0.221 <0.05). Chi-square ratio with degrees of freedom (df) 1,060 for the measurement model of no more than 2 (Marsh and Hovecar, 1985). Goodness of fit of the model is represented by the root mean square error of approximation (RMSEA) 0.017. The RMSEA value < 0.08, therefore, shows the compatibility of the model with the data (Hu and Bentler, 1999). Goodness-of-fit index (GFI) = 0.898, adjustment of GFI (AGFI) = 0.878, comparative match index (CFI) = 0.992 and Tucker–Lewis index (TLI) = 0.991. These values indicate satisfactory matches for the measurement model (Kline, 2005). The compatibility index of the measurement and structural models shows that the theoretical model has an adequate level of empirical support (Table 4).

Hypothesis testing with AMOS 22.0 can be found through critical values (CR). The CR value is the *t-values* in the ordinary least square (OLS) regression, and the p-value is the level of probability of significance (Ghozali, 2006). Based on Figure 3 and Table 4, it was found

Path		Standardized path estimate	CR	p-value	Result
Facilitative leadership competence	→Effective organizational learning	0.432	4.265	***	Accepted
Effective organizational learning	→Firm's innovation	0.214	2.170	0.030	Accepted
Facilitative leadership competence	→Firm's innovation	0.235	2.559	0.010	Accepted
Effective organizational learning	→Firm's performance	0.249	2.761	0.006	Accepted
Firm's innovation	→Firm's performance	0.413	4.653	***	Accepted

Table 4. Structural model path coefficients (Model 2)

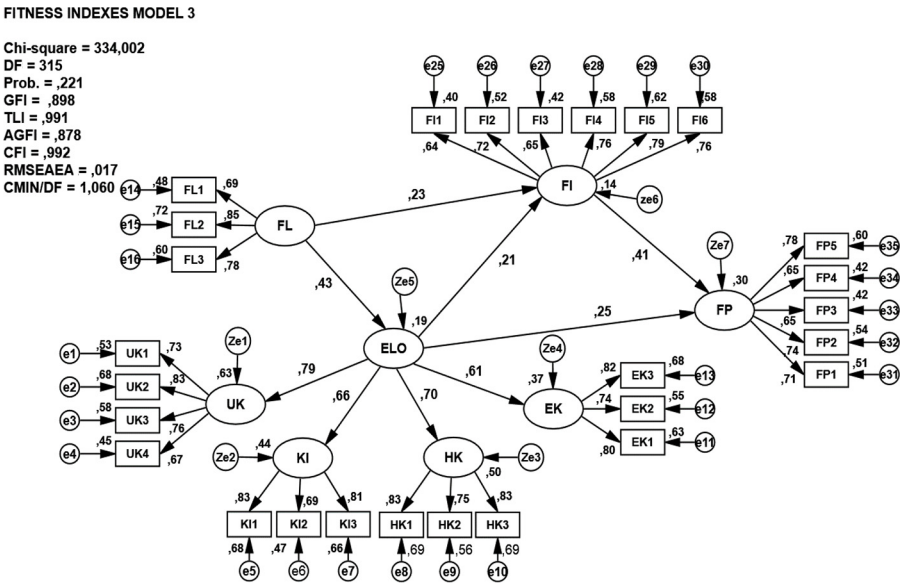

Figure 3.
Results of the hypothesis testing of Model 2

that the effect of organizational learning effectiveness on firm innovation proved significant ($\beta 1$ = 0.214), critical value (CR) = 2.170 > 1.96, with a significance probability of 0.030, meaning by default, smaller significance (<) than standard 0.05.

The influence of facilitative leadership competencies on organizational learning effectiveness has been shown to be significant ($\beta 2$ = 0.432), critical value (CR) = 4.265 > 1.96, with significance probability *** means by default significance 0.001 (smaller than standard 0.05). The effect of facilitative leadership competencies on company innovation proved significant ($\beta 3$ = 0.235), critical value (CR) = 2,559 > 1.96, with a significance probability of 0.010, meaning, by default, the significance was smaller (<) than standard 0.05. The effect of organizational learning effectiveness on company performance proved to be significant ($\beta 4$ = 0.249), critical value (CR) = 2.761 > 1.96, with significance probability 0.006, means, by default, significance 0.001 (smaller than standard 0.05). The influence of company innovation on company performance proved significant ($\beta 5$ = 0.413) critical value (CR) = 4.653 > 1.96, with probability significance ***, means, by default, significance 0.001 (<0.05). The conclusion of Model 2 test shows that this Model 2 is appropriate or fit with the available data. In general, constructs in the research model are acceptable.

5.4 Testing for moderating effects

Testing full SEM models with moderation in market turbulence (Model 3). The results of the analysis with AMOS 22.0 resulted in chi-squared (χ^2 = 379,800 < 395.69) and significant (p = 0.072 <0.05). Chi-square ratio with degrees of freedom (df) 1.114 for the measurement model no more than 2 (Marsh and Hovecar, 1985). Goodness of fit of the model is represented by the RMSEA 0.023. The RMSEA value is less than 0.08, because of that, it shows the suitability of the model with the data (Hu and Bentler, 1999). GFI = 0.890, AGFI = 0.870, CFI = 0.890 and TLI = 0.892. These values indicate satisfactory matches for the measurement model (Kline, 2005).

The compatibility index of the measurement model and structural model shows that the theoretical model has an adequate level of empirical support (Table 4). Thus, this Model 3 is in accordance with satisfactory data. The SEM procedure applies the maximum likelihood method to estimate the causal relationship between latent variables and confirm or reject the previously defined hypothesis (*H1* to *H5*).

The effect of facilitative leadership competencies on organizational learning effectiveness proved significant ($\beta 2 = 0.432$), CR = 4,258 > 1.96, with very little probability of significance (*** < 0.01). The influence of facilitative leadership competencies on company innovation proved significant ($\beta 3 = 0.211$), CR = 2.279 > 1.96, with a significance probability 0.023, means that by default, the significance is smaller than standard 0.05. The effect of organizational learning effectiveness on company performance proved to be significant ($\beta 4 = 0.248$), CR = 2.749 > 1.96, with a significance probability 0.006, means, by default, significance 0.01 (smaller than standard 0.05). The influence of corporate innovation on company performance proved significant ($\beta 5 = 0.414$), CR = 4.687 > 1.96, with probability of significance ***, means, by default, significance 0.001 (smaller than standard 0.05). The effect of organizational learning effectiveness on company innovation proved significant ($\beta 4 = 0.202$), CR = 2.044 > 1.96, with a significance probability of 0.041, means, by default, significance 0.01 (smaller than standard 0.05). The effect of organizational learning effectiveness on interaction variables (moderation) proved to be significant ($\beta 4 = 0.139$), CR = 2.229 > 1.96, with a significance probability 0.0454, means, by default, significance 0.05 (smaller than standard 0.05). Thus, market turbulence is truly expressed as a pure moderation variable (Ghozali, 2004). The testing for Model 3 test shows that the model is suitable or fit with the available data (Appendix). In general, constructs in the

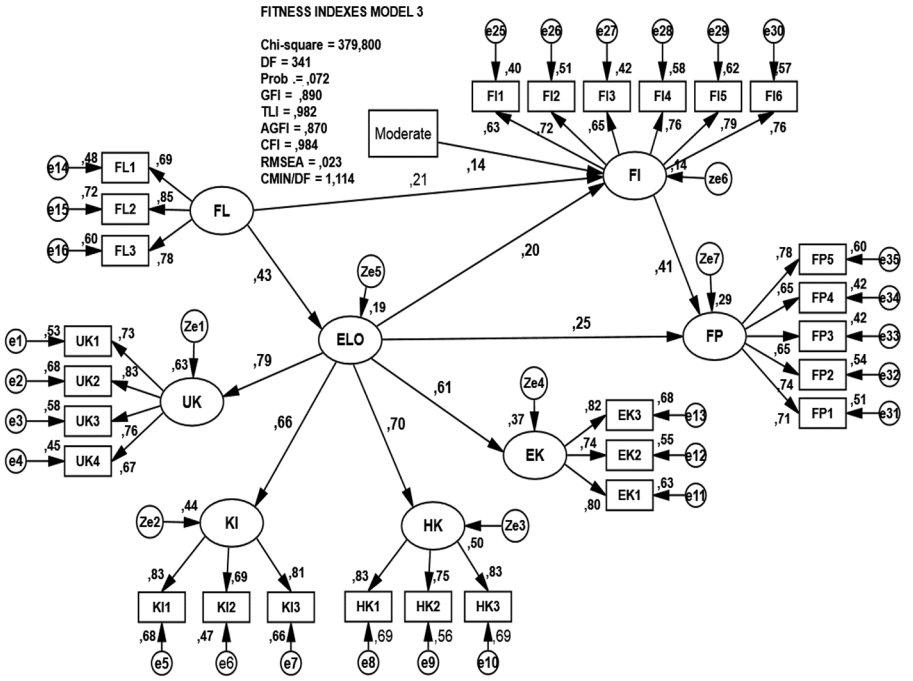

Figure 4.
Results of hypotheses testing Model 3 with moderating effect

research model are acceptable. Figure 4 presents standard parameter estimates for causal pathways and the results of quadratic correlation for endogenous factors.

6. Discussion

The results of the study prove that facilitative leadership competencies have a significant effect on effective organizational learning and have been tested in both Models 2 and 3 with moderation. These results explain that leaders play an important role in fostering an organizational learning culture to change habits and ways of working so that organizations are ready to support organizational learning culture (Prewitt, 2003). Facilitative leadership competencies can support the learning climate and develop mechanisms for transferring learning from individuals and teams into organizational knowledge and experience (Sadler, 2003). In other words, companies in facing market turmoil, the company must be flexible. The general assumption that organizational learning can facilitate behavioral changes that lead to improved performance, then the action of learning is positively correlated with performance, because it is believed that organizational learning is an important strategy, as an organizational learning process, especially in a rapidly changing environment. According to Blair (2010), leadership effectiveness can be measured from the results that are a general function of a leader's behavior and indirectly have an impact on leadership effectiveness, which also affects organizational performance. In addition, facilitative leadership must be able to build teams and provide direction, energy and provide support for the process of change in the organizational learning process. In addition, facilitative leadership can also encourage organizational learning by promoting intellectual stimulation, inspirational motivation and self-confidence in employees. Thus, facilitative leadership is increasingly needed, because the full participation of members of the organization is very important in an effort to achieve organizational goals.

The results of the study have proven the influence of organizational learning on corporate innovation and company performance. A number of literatures explain the existence of positive and significant relationships of effective organizational learning for the formation of unique knowledge, effective integration of knowledge and effective use of knowledge (Baker and Sinkula, 1990). All of that is a mechanism that directly affects companies facing market turbulence (Darroch and McNaughton, 2003) and also influences innovation activities (Moorman, 1995) and indirectly improves performance (Zahra and George, 2002). The formation of unique knowledge is a mechanism that influences a company's ability to deal with market turbulence. Thus, organizations that operate on market turbulence will modify products and markets in such a way that they are more flexible and adapt to changes that are increasingly fast and dynamic. In this case, the

Table 5. Structural model path coefficients (Model 3)

Path		Standardized path estimate	CR	*p*-value	Result
Facilitative leadership competence	→Effective organizational learning	0.432	4.258	***	Accepted
Moderate	→Firm's innovation	0.139	2.229	0.045	Accepted
Effective organizational learning	→Firm's innovation	0.202	2.044	0.041	Accepted
Facilitative leadership competence	→Firm's innovation	0.211	2.279	0.023	Accepted
Effective organizational learning	→Firm's performance	0.248	2.749	0.006	Accepted
Firm's innovation	Firm's performance	0.414	4.687	***	Accepted

manager's responsibility in the organizational learning process makes learning one of the priorities of the organization to build the foundation for transforming individual learning into effective organizational learning.

For sustainability in growth, continuous learning from both inside and outside the organization is very important; this organizational learning mechanism can create business resilience that has a significant positive influence on the effectiveness of management efforts so that relationships with customers can lead to better innovation and business performance (Abbas and Ul Hassan, 2017). Through organizational learning, line managers can facilitate knowledge sharing in teams, management support and learning strategies support the transfer of knowledge that leads to the development of innovation. A number of studies that focus on innovation–performance relationships provide a positive assessment. Higher innovation results in improved company performance (Calantone *et al.*, 2002). Agile innovation requires a series of paradigm shifts starting from a mindset that continually questions the change and strengthening of the company's innovative culture. In other words, innovative companies emphasize management techniques (Baldwin and Johnson, 1996) and achieve a sustainable level of higher performance. This condition can be explained that in a turbulent market, which is marked by changes in customer needs and preferences, organizational performance is increasing (bin Zainuddin, 2017).

7. Conclusion

Today's business organizations face increasingly challenging environmental complexity, so environmental turbulence also increases, one of which is market turbulence, so managers must be smart in achieving growth and profit targets. The condition of market turbulence allows a better understanding of the leadership abilities needed to respond to market turbulence to successfully survive. Therefore, companies do not only adjust to the increasing complexity of the environment by modifying processes, structures, routines and company rules. However, there is also a paradigm shift through continuous learning that can create business resilience. It is evident if members of learning organizations are continuously able to create new changes in thought so as to create innovation and improve performance.

The results of the study prove that facilitative leadership competencies have a significant effect on effective organizational learning. Moreover, facilitative leadership competencies can support the learning climate and develop mechanisms for transferring learning from individuals and teams into organizational knowledge and experience. The results of the study have proven the influence of organizational learning on corporate innovation and company performance. Recommendations for future research are suggested to try to analyze other external environmental turbulence such as turbulence technology and intensity of competition as a moderating factor, with the aim of obtaining a clearer picture of complex environmental changes. It is also recommended that a longitudinal method be like to further explore the movement of changes in activities due to turbulence.

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Appendix

Construct	Dimension	Item	Model 1: first-order analysis Loadings	Sign.	R^2	AVE	Reliability	Model 2: second-order analysis Loadings	Sign.
Effective organizational learning	UK	UK1	0.730	***	0.624	0.825	0.835	0.798	***
		UK2	0.825	***					
		UK3	0.760	***					
		UK4	0.671	***					
	KI	KI1	0.827	***	0.436	0.664	0.821	0.640	***
		KI2	0.688	***					
		KI3	0.814	***					
	HK	HK1	0.828	***	0.499	0.693	0.845	0.725	***
		HK2	0.747	***					
		HK3	0.832	***					
	EK	EK1	0.796	***	0.373	0.674	0.829	0.740	***
		EK2	0.739	***					
		EK3	0.823	***					
Facilitative leadership competence		FL1	0.720	***	Independent	0.670	0.827		
		FL2	0.845	***					
		FL3	0.782	***					
Firm's innovation		FI1	0.648	***	0.137	0.614	0.875		
		FI2	0.741	***					
		FI3	0.689	***					
		FI4	0.774	***					
		FI5	0.779	***					
		FI6	0.765	***					
Firm's performance		FP1	0.719	***	0.297	0.596	0.841		
		FP2	0.742	***					
		FP3	0.680	***					
		FP4	0.655	***					
		FP5	0.783	***					
Moderate (market turbulence * firm's innovation)		MT*FI							

(*continued*)

Table A1.
Structural equation model test

Table A1.

Construct	Model 2: second-order analysis			Model 3: moderate full SEM analysis				
	R^2	AVE	Reliability	Loadings	Sign.	R^2	AVE	Reliability
Effective organizational learning	0.636	0.573	0.788	0.730	***	0.630	0.630	0.715
				0.825	***			
				0.760	***			
				0.671	***			
	0.410			0.827	***	0.436	0.664	0.764
				0.688	***			
				0.814	***			
	0.526			0.828	***	0.497	0.693	0.789
				0.747	***			
				0.832	***			
	0.365			0.796	***	0.370	0.674	0.774
				0.739	***			
				0.823	***			
Facilitative leadership competence				0.720	***	Independent	0.659	0.767
				0.845	***			
				0.782	***			
Firm's innovation				0.648	***	0.141	0.596	0.768
				0.741	***			
				0.689	***			
				0.774	***			
				0.779	***			
				0.765	***			
Firm's performance				0.719	***	0.293	0.584	0.773
				0.742	***			
				0.680	***			
				0.655	***			
				0.783	***			
Moderate (market turbulence * firm's innovation)						0.139		

The critical role of effective organizational learning to improve firm's innovation and performance in a market turbulence condition

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Abstract

Purpose – The purpose of this study is to identify the effects of market turbulence as a moderating construct in relation to effective organizational learning on the company's innovation and performance as well as on the antecedent facilitative leadership competence.

Design/methodology/approach – This study used a cross-sectional and correlational research design. The period of data collection took place between March and May 2019 for three months. The questionnaires were distributed to 350 people who were randomly selected in the metal small and medium enterprises in Tegal district, Central Java, Indonesia. Analysis was conducted through the analysis of structural equation modeling (SEM).

Findings – Facilitative leadership competencies have a significant effect on effective organizational learning. Facilitative leadership competencies can support the learning climate and develop mechanisms for transferring learning from individuals and teams into organizational knowledge and experience. There is also an influence of organizational learning on the company's innovativeness and the company's performance. Contingency factors can be applied in situations that are always experiencing a change in turbulence

Research limitations/implications – This study contributes to the deepening of understanding of facilitative leadership concept and highlights the importance in the success of building effective learning, as well as its relationship with innovation performance and business performance.

Practical implications – This finding helps the management to understand the market forces and their impact on the company's innovation and performance. In this case, the leader plays an important role in fostering a culture of learning, changing the habits and ways of working so that they are ready to support the organizational culture of learning.

Originality/value – Developing a mechanism for transferring learning into organizational knowledge is very important because organizational learning is believed to be an important strategy in an organizational learning process. This is particularly true in a rapidly changing environment, as it can create business resilience.

Keywords Firm's performance, Market turbulence, Effective learning, Organizational, Facilitative leadership competence, Firm's innovation

Paper type Research paper

1. Introduction

Changes in information technology have caused changes in the external environment to be so complex, and these changes are not only evolutionary but are revolutionary, which

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results in turbulence. Turbulence is a change characterized by technological changes and unpredictable market turmoil (Calantone *et al.*, 2002). According to Hendar *et al.* (2017), in facing market turmoil, it takes the creativity of the company to anticipate by developing strategies, to provide the best values for companies and customers and to keep the company relevant in the midst of a turbulent business environment. Therefore, in anticipating changes in the business landscape that are fast and uncontrolled, this requires management to be more alert in managing the company. Business transformation that occurs is suggested as an effort to survive in the volatility, uncertainty, complexity and ambiguity (VUCA) era. Hence, a survival company is a company that is oriented to competitiveness and uses of resources and the ability to always innovate. This is all to direct its business strategy to new demands (Jofre, 2011). In a turbulent market, there is intense competition, in a passive perspective, organizational change is carried out as a reaction to environmental changes, and from a more proactive perspective requires a progressive figure of manager, who has facilitative leadership competencies and is able to communicate effectively, carry out dissemination information and keeping employees always having important and up-to-date information (Hirst *et al.*, 2004). Facilitative leadership competencies refer to the ability of leaders to change values and beliefs that can encourage their members to always learn and share experiences and develop people around them. It all as one of the most significant ways to develop organizational learning, Chen *et al.* (2013) revealed that changes in the business world occur as a reaction to environmental changes. Successful changes not only make adjustments, but require adequate capabilities. Tushman and Nadler (1986) state facilitative leadership as a behavior that elevates the collective ability to adapt, solve problems and improve performance through the involvement of workers at all levels.

Previous literature emphasizes that there is a relationship between facilitative leadership competencies and organizational learning. This leadership is different from traditional leadership, which is very individualistic and systematic, making organizational learning difficult. The general assumption is that organizational learning can facilitate behavioral changes that lead to improved performance and competitiveness, but considering learning is a process of changing cognition and behavior, then the action of learning is not always followed by changes in performance, so learning negatively correlates to performance in the short term, when the company facing a new operating situation that has not been understood, but it is believed that organizational learning is an important strategy. A number of literatures explain the positive and significant relationship between effective organizational learning for the formation of unique knowledge, knowledge integration and effective use of knowledge (Hirst *et al.*, 2004). All of that is a mechanism that directly affects the company facing market turbulence and intensity of competition (Darroch and McNaughton, 2003). Organizational learning influences innovation activities (Chiva *et al.*, 2014) and indirectly increases performance (Nafei, 2015). According to Curado (2006), effective organizational learning is a market-driven organizational capability, thus companies operating in turbulent markets, companies are likely to modify products and markets to adapt to changes that occur and effective organizational learning leads companies to have flexibility and the ability to adapt to changes that are increasingly dynamic.

Knowledge that accumulates through effective organizational learning produces a superior knowledge base and is also associated with high performance (Lemon and Sahota, 2004). The concept of effective organizational learning is closely related to innovation firms (de Jesus Pacheco *et al.*, 2017) and is positively related to culture that emphasizes the formation of knowledge that is adaptive, innovative and unique (Ussahawanitchakit, 2005). Given the importance of understanding the competitiveness of companies in turbulent

conditions, creating and developing strategies to deal with changes in the environment under conditions of market turbulence is necessary (Easterby-Smith, 1997). This research was conducted in metal-producing small and medium enterprise (SME) industry in Tegal regency in Central Java, Indonesia. The presence of the disruption era caused turbulence for the business world, especially for metal SMEs. Companies that are not ready to deal with the changes that occur can be ascertained that the company will be crushed and will be accomplished. This research aims to examine the effect of effective organizational learning in increasing corporate innovation by assessing the moderating effect of market turbulence. Moreover, this study examines the effect of facilitative leadership on effective organizational learning, which in turn is expected to drive innovation and company performance.

2. Literature review and hypothesis development

2.1 Effective organization learning, firm innovation and market turbulence

Market turbulence is a change in the composition and preferences of customers (Jaworski and Kohli, 1993), usually influenced by changes in the downstream market and effectiveness in organizational learning (Saadat and Saadat, 2016). In a turbulent market, effective organizational learning is able to create new knowledge creation (Eisenhardt, 2000). Organizational learning occurs when organizational members always share knowledge and believe in new ideas, as well as practical skills that accumulate (Serrat, 2017). Organizational learning can also facilitate behavior changes that lead to improved performance (Curado, 2006). Through learning organizational, there will be changes in organizations that increase the organization's ability to produce unique knowledge formation, the occurrence of knowledge integration and broadening of holistic knowledge, as well as the effective use of knowledge (Argote, 2011).

In the formation of unique knowledge as knowledge created through socialization, externalization, combination and internalization will be able to resolve the demands of customers, because the increase in organizational knowledge produces changes in practice, strategies and higher values. Companies that emphasize the culture of forming adaptive, innovative and unique knowledge are very positive and significantly correlated with increasing company innovation (Ussahawanitchakit, 2005), because innovative activities in organizations require coordination and information dissemination to users and producers; this implies the formation of unique knowledge, which has strong interactions (Popper, 2000). The formation of unique knowledge is a mechanism that directly influences an organization's ability to deal with markets (Darroch and McNaughton, 2003) that influence company innovation and indirectly improve company performance (de Mello *et al.*, 2008).

Thus, effective organizational learning can use company resources and improve mutual connectedness (Anderson *et al.*, 1994). Organizational learning effectively configures and applies company innovation results dynamically to respond to changes in customer needs (Song *et al.*, 2005). Therefore, through effective organizational learning, it is considered capable of supporting success in changing technological innovations that pay attention to knowledge change (Fiol and Lyles, 1985) by involving the acquisition of knowledge, dissemination, improvement, manufacture and implementation. Likewise, the ability to develop insight, knowledge and dialogue with past activities is used to anticipate the future, and organizational learning effectively extends to quantum leaps and innovative breakthroughs that enable companies to compete for leadership positions (Mascitelli, 2000). The relationship between the two concepts is confirmed by Alegre and Chiva (2013) that organizational learning correlates significantly with company innovation. Based on the description of the literature review, the formulation of the first and second hypotheses can be formulated as follows:

H1. Effectivity organizational learning has a positive effect on firm innovation.

H2. Market turbulence moderates the relationship of organizational learning effectiveness to innovation firms.

2.2 Facilitative leadership competencies, effective organizational learning and corporate innovation

External factors greatly influence the company's decision to adopt organizational learning as a critical problem in preparing strategic plans, such as changes in consumer tastes, technological advances, globalization and competition. Popper and Lipshitz (2000) explain the responsibility of leaders in the process of organizational learning, as one of the priorities of organizations to build the foundation for transforming individual learning into organizations and make learning effective. Line managers can facilitate knowledge sharing in teams, support from management and learning strategies supporting the transfer of knowledge.

Other factors are also determined by practical human resources through selective recruitment, strategic training, employee participation in decision-making (Pérez-Lopez, 2006). In this case, the leader plays an important role in creating and communicating the vision of the learning organization and consider it as a solution to business problems, foster a culture of learning and to change habits and ways of working so that they are ready to support organizational learning culture (Prewitt, 2003). Facilitative leadership supports the learning climate and develops mechanisms for transferring learning from individuals and teams into organizational knowledge and experience (Sadler, 2003):

H3. Facilitative leadership competencies have a positive effect on organizational learning effectiveness.

H4. Facilitative leadership competencies have a positive effect on company innovation.

2.3 Corporate innovation has a positive effect on company performance

Global competition and technological change motivate companies to innovate, because innovation is an important and fundamental instrument of the company's growth strategy to enter new markets, to increase market share and to create competitive advantage (Ireland *et al.*, 2002). Technology that is fast changing, and global competition can erode the added value of products and services. Thus, the innovation carried out is an indispensable component of the company's business strategy, because there are several reasons such as implementing a new production process that is more productive, to do better competition in the market, to seek a positive reputation and, as a result, to get a sustainable competitive advantage. Innovation gives companies a strategic orientation to solve problems faced while trying to achieve sustainable competitive advantage (de Mello *et al.*, 2008).

McAdam *et al.* (2019) investigated the relationship of corporate innovation with company performance, finding a tendency for companies to innovate in a competitive environment. Campos and de Pablos (2004) examined the effects of innovation and patents on various company performance such as profit, level of stock returns and company growth. Innovation can improve company performance in several aspects such as innovative performance, production performance and market performance. A large number of studies that focus on innovation–performance relationships provide a positive assessment, that

high innovation results in improved company performance (Calantone *et al.*, 2002). Many results of empirical studies have successfully identified the determinants of company performance, one of which is an important factor about innovation (Ibrahim and Mahmood, 2016). Based on the description of the literature review, the formulation of the fifth hypothesis is formulated as follows:

H5. Corporate innovation has a positive effect on company performance.

3. Conceptual framework

This conceptual model is the basic foundation using the contingency theory and stakeholder theory, as well as the theory of resource-based view. These theories state that the effectiveness and development of a business organization is based on the utilization of organizational resources, which, in this case, is the role of human resources as a company asset. Learning organization is a mechanism that influences a company's ability to deal with market turbulence. So, organizations that operate on market turbulence will modify products and markets to be flexible and adapt to changes that are increasingly fast and dynamic. The leader's responsibility in the organizational learning process is to make learning one of the priorities of the organization building the foundation for transforming individual learning into effective organizational learning. Jenkins and Jenkins (2006) emphasize that facilitative leadership allows all relevant new ideas to emerge, and at the same time, creates a constructive environment for generating dialogue, leading to innovative breakthroughs. Smart and agile innovation requires a series of paradigm shifts, namely, changes in mindset that continually question the change and strengthening of the company's innovative culture. This is achieved through the organizational learning process. Thus, this model hypothesizes the market turbulence position to moderate the relationship between the effectiveness of organizational learning and company innovation, which in turn influences corporate innovation on company performance. Overall, the relationship between concepts can be modeled in Figure 1.

4. Research method

This study uses a cross-sectional and correlational research design. A cross-sectional research design uses a specific sample of the study population at one point in time to obtain the data needed. In a cross-sectional research design, researchers provide unsystematic interpretations. Correlational research design assesses relationships between variables. The period of data collection takes place between March and May 2019 for three months. The questionnaire was distributed to 350 randomly selected in the metal SMEs of Tegal district, Central Java, Indonesia. The senior manager or CEO was chosen as the key informant. Only

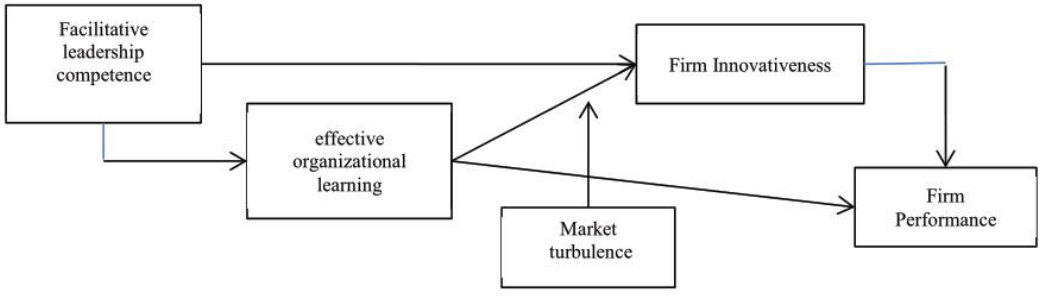

Figure 1.
Model of the relationship between effective organizational learning in relationship firm's innovation and firm's performance

213 metal SMEs filled out a complete questionnaire with a response rate of 71%. Variable measurements using a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree) for all concepts such as Table 1.

In the first step before data collection, the validity and reliability of the data are carried out first to determine the validity and reliability of the research instruments using the Cronbach α test and the Bartlett's Kaiser–Meyer–Olkin (KMO) test. Testing four hypotheses using the structural equation modeling (SEM) analysis, where the model has a direct or indirect relationship. But, in this analysis, an approach developed that allows the

Variable	Definition	Dimension and indicators	Reference
Facilitative leadership competence (FL)	Leaders who are able to communicate effectively, disseminate information and maintain that employees always have important and up-to-date information (Slater and Narver, 1995)	Selective recruitment (FL1) Strategic training (FL2) Participation in decision-making (FL_3)	Jenkins and Jenkins (2006)
Effective organizational learning	Ability to guide companies to have flexibility and adaptability to increasingly dynamic changes (Antoncic, 2001)	UK Cannot be imitated (UK_1) Rare (UK_2) More value than competitors (UK_3) Not easy to replace (UK_4) KI Sharing knowledge (KI1) Compact collaboration and collaboration (KI2) Transfer of knowledge (KI_3) Expansion of HK New idea (HK1) Knowledge development (HK2) Knowledge exploration (HK_3) EK Added value (EK1) New insight (EK2) Experience (EK_3)	Baker and Sinkula (1990)
Market turbulence (MT)	Changes in customer composition and preferences (Jaworski and Kohli, 1993)	Buyer preferences change fast (MT1) Wider needs (MT2) Exit and enter high buyers (MT3) Pressure of new product offerings (MT_4)	Lichtenthaler (2009)
Firm's Innovation (FI)	Companies respond to various environmental changes referring to new ideas, products, methods or services adopted in the organization (Vigoda-Gadot *et al.*, 2005)	Creativity (FI_1) Risk taking (FI_2) Openness to change (FI_3) Future orientation (FI_4) Proactivity (FI_5)	Vigoda-Gadot *et al.* (2005)
Firm's performance (FP)	Results made by management continuously (Campos and de Pablos, 2004)	Innovativeness performance (FP1) Production performance (FP2) Market performance (FP3) Financial performance (FP4) Firm growth (FP_5)	Antoncic (2001), Campos and de Pablos (2004)

Table 1. Measurement of variables

relationship between an independent variable to the dependent variable that is influenced by another latent variable is called moderated SEM. Moderating variables are variables that have a contingent effect that has a strong relationship between endogenous and exogenous variables. The process of moderating analysis uses an interaction model that is the multiplication between moderation and dependent variables. If the result is significant, then the variable is declared as pure.

Validity testing is to determine the extent to which the accuracy and accuracy of an instrument in performing its measuring function so that the data is declared relevant, while the reliability test tests the consistency of the measured target. The test results using the KMO and Bartlett's test of sphericity, the results were greater than 0.60 and significant. Reliability test produces values greater than 0.7 (Table 2).

The results of the validity test also found that all indicators showed significant factor loading ($p < 0.01$). Test the reliability of all latent constructs > 0.7, extract variance test > 0.5. Fornell and Larcker (1981) suggest that extracted variances of 0.5 or greater than quadratic multiple correlation are good. The AVE value exceeds the correlation in all

Construct	Dimension	Item	KMO Bartlett's Component matrix	Significant	Cronbach's α	Validity
Effective organizational learning	UK	UK_1	0.796	0.000	0.851	0.651
		UK_2	0.906			0.813
		UK_3	0.851			0.715
		UK_4	0.780			0.625
	KI	KI_1	0.910	0.000	0.824	0.770
		KI_2	0.811			0.608
		KI_3	0.856			0.675
	HK	HK_1	0.884	0.000	0.848	0.735
		HK_2	0.859			0.690
		HK_3	0.892			0.749
	EK	EK_1	0.950	0.000	0.930	0.879
		EK_2	0.914			0.937
		EK_3	0.951			0.881
Facilitative leadership competence		FL_1	0.908	0.000	0.881	0.782
		FL_2	0.916			0.802
		FL_3	0.878			0.734
Firm's innovation		FI_1	0.727	0.000	0.824	0.662
		FI_2	0.789			0.742
		FI_3	0.640			0.797
		FI_4	0.756			0.635
		FI_5	0.788			0.751
		FI_6	0.879			0.784
Firm's performance		FP_1	0.773	0.000	0.835	0.729
		FP_2	0.873			0.766
		FP3	0.760			0.706
		FP_4	0.808			0.674
		FP_5	0.756			0.708
Market turbulence		MT_1	0.800	0.000	0.884	0.657
		MT_2	0.910			0.824
		MT_3	0.849			0.729
		MT_4	0.886			0.787

Table 2. Results of reliability and validity analysis of research

double-squared correlations. Therefore, the indicator variable of this study has good convergent validity. These values are considered adequate in testing the data (Table 2).

5. Results

5.1 Respondent characteristics

Empirical data found several things related to the demographic of the respondents, where the majority were male (84.04%). Their age is very productive and mature, they are seen at the age above 40 years (80.20%). Most of the education background is first and secondary elementary schools (75.26%), although some have already received higher education. The business experience of 76.53% has run its business for more than 20 years in the business of smelting and metal smelting in Tegal.

5.2 Goodness of fit

Figure 2 and Table 3 explain the second-order confirmatory factor analysis (CFA) organizational learning effectiveness. Overall, the second-order fit test model of effective

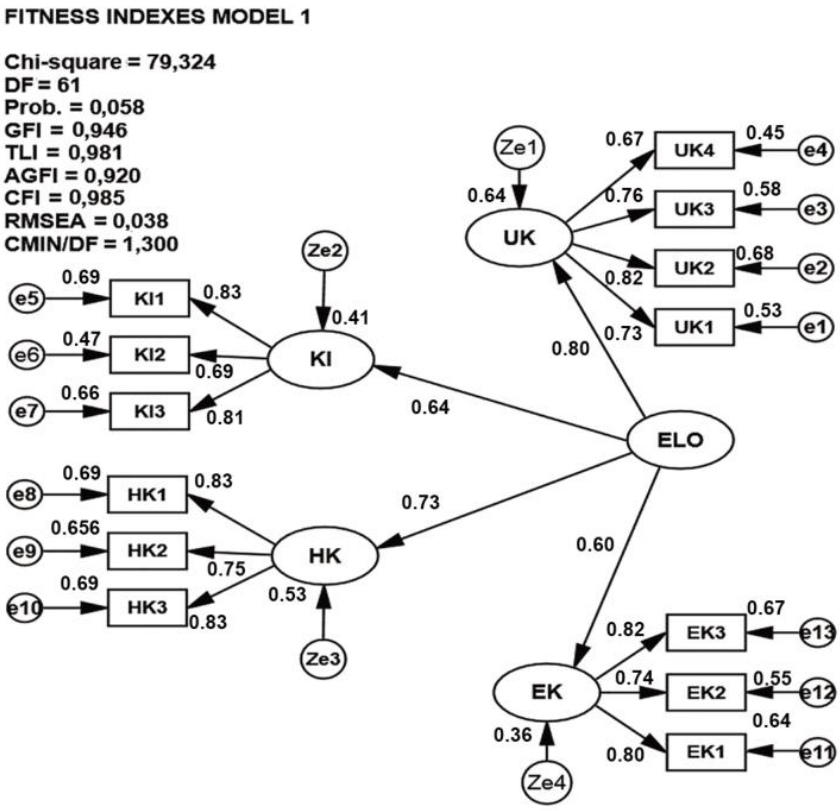

Figure 2.
The CFA for second-order construct, namely, organizational learning effectiveness

Table 3.
Results of second-order construct, namely, effectivity organizational learning (Model 1)

Path			Standardized path estimate	CR	*p*-value
Effective organizational learning	→	KI	0.640	5.211	***
	→	UK	0.798	5.509	***
	→	EK	0.604		
	→	Expansion of HK	0.725	5.567	***

organizational learning variables explains the suitability between the sample covariance matrix and the population; in general, it can be explained that the diversity in the sample has been repressive with the diversity of the population. Based on the test results, it is known that the measurement-of-fit results of the research model in this test produce a significance level = 0.058 (> 0.05), CMIN 79,324 (<80.23), GFI 0.94 (> 0.90), TLI 981 (> 0.95), CFI 0.989 (> 0.95), RMSEA 0.038 (<0.08) and CMIN/DF 1,300 (<2). This Model 2 shows a good level of compatibility, so that the overall measurement of organizational learning effectiveness variable second-order models proposed in this study is acceptable (Figure 2).

To validate the main construction and four sub-constructs, namely: unique knowledge (UK), knowledge integration (IK), holistic knowledge (HK) and effective use of knowledge (EK). The four latent sub-constructs are measured using a number of certain items. The results of data processing indicate that all indexes of fit are in accordance with the expected model. Thus, there is no need to modify the model or eliminate the indicator or sub-construct, it can be seen that the value of the loading factor of four sub-constructs of the effectiveness of learning organizations is 0.80 (UK), 0.64 (KI), 0.73 (HK) and 0.60 (EK). Furthermore, R^2 for all the sub-constructs was stated to be high above 0.4 (UK = 0.64, KI = 0.41, HK = 0.63 and EK = 0.36), which reflected the contribution of the effectiveness of organizational learning to four sub-construction. In other words, the effectiveness of the learning organization of the four sub-constructions has been well supported by its dimensions.

5.3 Hypothesis testing

Testing of the full SEM 2 model with AMOS 22.0 resulted in chi-squared (χ^2 = 344.002 < 395.69) and was significant (p = 0.221 <0.05). Chi-square ratio with degrees of freedom (df) 1,060 for the measurement model of no more than 2 (Marsh and Hovecar, 1985). Goodness of fit of the model is represented by the root mean square error of approximation (RMSEA) 0.017. The RMSEA value < 0.08, therefore, shows the compatibility of the model with the data (Hu and Bentler, 1999). Goodness-of-fit index (GFI) = 0.898, adjustment of GFI (AGFI) = 0.878, comparative match index (CFI) = 0.992 and Tucker–Lewis index (TLI) = 0.991. These values indicate satisfactory matches for the measurement model (Kline, 2005). The compatibility index of the measurement and structural models shows that the theoretical model has an adequate level of empirical support (Table 4).

Hypothesis testing with AMOS 22.0 can be found through critical values (CR). The CR value is the *t-values* in the ordinary least square (OLS) regression, and the p-value is the level of probability of significance (Gozhali, 2006). Based on Figure 3 and Table 4, it was found

Table 4. Structural model path coefficients (Model 2)

Path		Standardized path estimate	CR	p-value	Result
Facilitative leadership competence	→Effective organizational learning	0.432	4.265	***	Accepted
Effective organizational learning	→Firm's innovation	0.214	2.170	0.030	Accepted
Facilitative leadership competence	→Firm's innovation	0.235	2.559	0.010	Accepted
Effective organizational learning	→Firm's performance	0.249	2.761	0.006	Accepted
Firm's innovation	→Firm's performance	0.413	4.653	***	Accepted

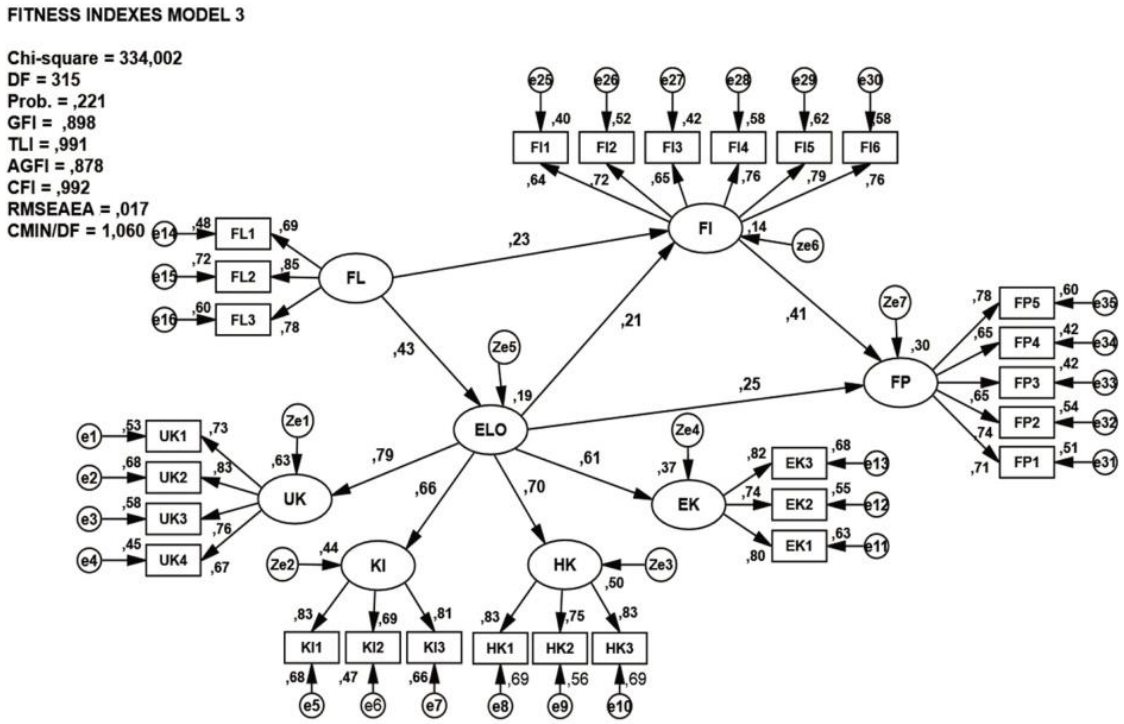

Figure 3.
Results of the hypothesis testing of Model 2

that the effect of organizational learning effectiveness on firm innovation proved significant ($\beta 1 = 0.214$), critical value (CR) = 2.170 > 1.96, with a significance probability of 0.030, meaning by default, smaller significance (<) than standard 0.05.

The influence of facilitative leadership competencies on organizational learning effectiveness has been shown to be significant ($\beta 2 = 0.432$), critical value (CR) = 4.265 > 1.96, with significance probability *** means by default significance 0.001 (smaller than standard 0.05). The effect of facilitative leadership competencies on company innovation proved significant ($\beta 3 = 0.235$), critical value (CR) = 2,559 > 1.96, with a significance probability of 0.010, meaning, by default, the significance was smaller (<) than standard 0.05. The effect of organizational learning effectiveness on company performance proved to be significant ($\beta 4 = 0.249$), critical value (CR) = 2.761 > 1.96, with significance probability 0.006, means, by default, significance 0.001 (smaller than standard 0.05). The influence of company innovation on company performance proved significant ($\beta 5 = 0.413$) critical value (CR) = 4.653 > 1.96, with probability significance ***, means, by default, significance 0.001 (<0.05). The conclusion of Model 2 test shows that this Model 2 is appropriate or fit with the available data. In general, constructs in the research model are acceptable.

5.4 Testing for moderating effects

Testing full SEM models with moderation in market turbulence (Model 3). The results of the analysis with AMOS 22.0 resulted in chi-squared (χ^2 = 379,800 < 395.69) and significant ($p = 0.072 < 0.05$). Chi-square ratio with degrees of freedom (df) 1.114 for the measurement model no more than 2 (Marsh and Hovecar, 1985). Goodness of fit of the model is represented by the RMSEA 0.023. The RMSEA value is less than 0.08, because of that, it shows the suitability of the model with the data (Hu and Bentler, 1999). GFI = 0.890, AGFI = 0.870, CFI = 0.890 and TLI = 0.892. These values indicate satisfactory matches for the measurement model (Kline, 2005).

The compatibility index of the measurement model and structural model shows that the theoretical model has an adequate level of empirical support (Table 4). Thus, this Model 3 is in accordance with satisfactory data. The SEM procedure applies the maximum likelihood method to estimate the causal relationship between latent variables and confirm or reject the previously defined hypothesis (*H1* to *H5*).

The effect of facilitative leadership competencies on organizational learning effectiveness proved significant ($\beta 2 = 0.432$), CR = 4,258 > 1.96, with very little probability of significance (*** < 0.01). The influence of facilitative leadership competencies on company innovation proved significant ($\beta 3 = 0.211$), CR = 2.279 > 1.96, with a significance probability 0.023, means that by default, the significance is smaller than standard 0.05. The effect of organizational learning effectiveness on company performance proved to be significant ($\beta 4 = 0.248$), CR = 2.749 > 1.96, with a significance probability 0.006, means, by default, significance 0.01 (smaller than standard 0.05). The influence of corporate innovation on company performance proved significant ($\beta 5 = 0.414$), CR = 4.687 > 1.96, with probability of significance ***, means, by default, significance 0.001 (smaller than standard 0.05). The effect of organizational learning effectiveness on company innovation proved significant ($\beta 4 = 0.202$), CR = 2.044 > 1.96, with a significance probability of 0.041, means, by default, significance 0.01 (smaller than standard 0.05). The effect of organizational learning effectiveness on interaction variables (moderation) proved to be significant ($\beta 4 = 0.139$), CR = 2.229 > 1.96, with a significance probability 0.0454, means, by default, significance 0.05 (smaller than standard 0.05). Thus, market turbulence is truly expressed as a pure moderation variable (Ghozali, 2004). The testing for Model 3 test shows that the model is suitable or fit with the available data. In general, constructs in the research model

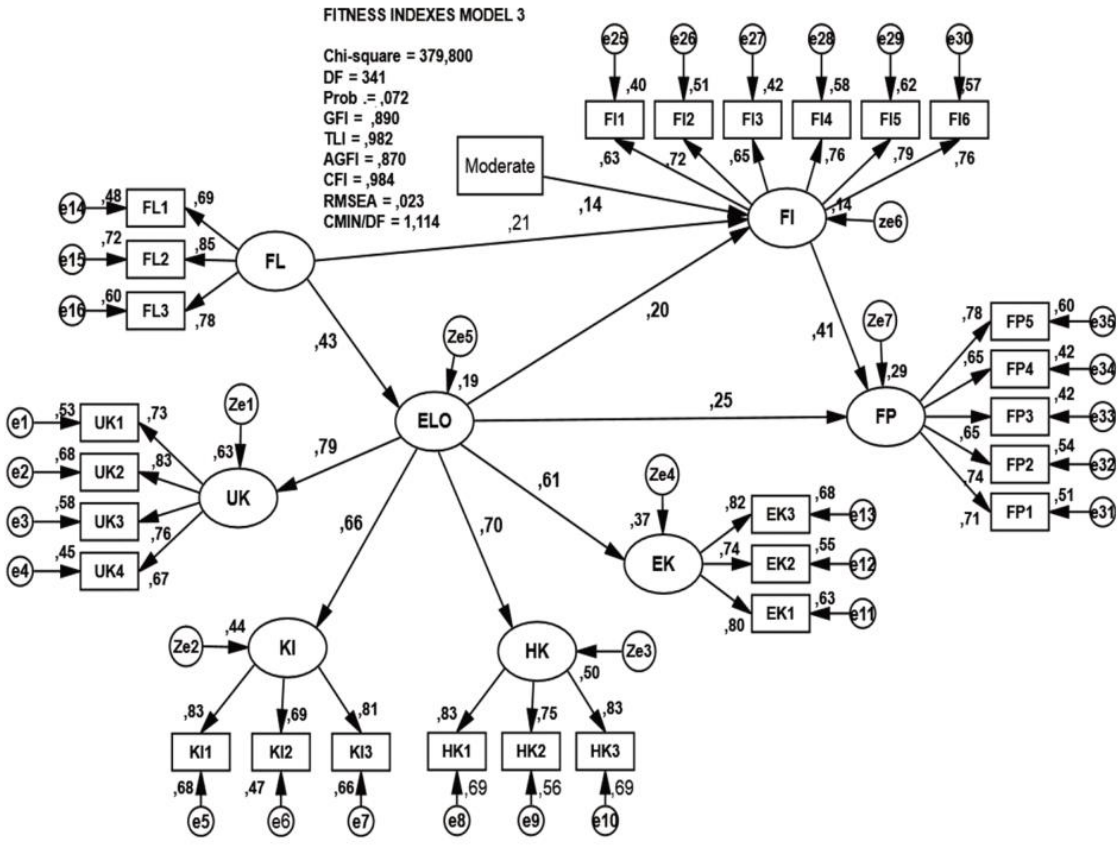

Figure 4.
Results of hypotheses testing Model 3 with moderating effect

are acceptable. Figure 4 presents standard parameter estimates for causal pathways and the results of quadratic correlation for endogenous factors.

6. Discussion

The results of the study prove that facilitative leadership competencies have a significant effect on effective organizational learning and have been tested in both Models 2 and 3 with moderation. These results explain that leaders play an important role in fostering an organizational learning culture to change habits and ways of working so that organizations are ready to support organizational learning culture (Prewitt, 2003). Facilitative leadership competencies can support the learning climate and develop mechanisms for transferring learning from individuals and teams into organizational knowledge and experience (Sadler, 2003). In other words, companies in facing market turmoil, the company must be flexible. The general assumption that organizational learning can facilitate behavioral changes that lead to improved performance, then the action of learning is positively correlated with performance, because it is believed that organizational learning is an important strategy, as an organizational learning process, especially in a rapidly changing environment. According to Blaire (2012), leadership effectiveness can be measured from the results that are a general function of a leader's behavior and indirectly have an impact on leadership effectiveness, which also affects organizational performance. In addition, facilitative leadership must be able to build teams and provide direction, energy and provide support for the process of change in the organizational learning process. In addition, facilitative leadership can also encourage organizational learning by promoting intellectual stimulation, inspirational motivation and self-confidence in employees. Thus, facilitative leadership is increasingly needed, because the full participation of members of the organization is very important in an effort to achieve organizational goals.

The results of the study have proven the influence of organizational learning on corporate innovation and company performance. A number of literatures explain the existence of positive and significant relationships of effective organizational learning for the formation of unique knowledge, effective integration of knowledge and effective use of knowledge (Baker and Sinkula, 1990). All of that is a mechanism that directly affects companies facing market turbulence (Darroch and McNaughton, 2003) and also influences innovation activities (Moorman, 1995) and indirectly improves performance (Zahra and George, 2002). The formation of unique knowledge is a mechanism that influences a company's ability to deal with market turbulence. Thus, organizations that operate on market turbulence will modify products and markets in such a way that they are more

Table 5. Structural model path coefficients (Model 3)

Path		Standardized path estimate	CR	*p*-value	Result
Facilitative leadership competence	→Effective organizational learning	0.432	4.258	***	Accepted
Moderate	→Firm's innovation	0.139	2.229	0.045	Accepted
Effective organizational learning	→Firm's innovation	0.202	2.044	0.041	Accepted
Facilitative leadership competence	→Firm's innovation	0.211	2.279	0.023	Accepted
Effective organizational learning	→Firm's performance	0.248	2.749	0.006	Accepted
Firm's innovation	Firm's performance	0.414	4.687	***	Accepted

flexible and adapt to changes that are increasingly fast and dynamic. In this case, the manager's responsibility in the organizational learning process makes learning one of the priorities of the organization to build the foundation for transforming individual learning into effective organizational learning.

For sustainability in growth, continuous learning from both inside and outside the organization is very important; this organizational learning mechanism can create business resilience that has a significant positive influence on the effectiveness of management efforts so that relationships with customers can lead to better innovation and business performance (Abbas and Ul Hassan, 2017). Through organizational learning, line managers can facilitate knowledge sharing in teams, management support and learning strategies support the transfer of knowledge that leads to the development of innovation. A number of studies that focus on innovation–performance relationships provide a positive assessment. Higher innovation results in improved company performance (Calantone *et al.*, 2002). Agile innovation requires a series of paradigm shifts starting from a mindset that continually questions the change and strengthening of the company's innovative culture. In other words, innovative companies emphasize management techniques (Baldwin and Johnson, 1996) and achieve a sustainable level of higher performance. This condition can be explained that in a turbulent market, which is marked by changes in customer needs and preferences, organizational performance is increasing (bin Zainuddin, 2017).

7. Conclusion

Today's business organizations face increasingly challenging environmental complexity, so environmental turbulence also increases, one of which is market turbulence, so managers must be smart in achieving growth and profit targets. The condition of market turbulence allows a better understanding of the leadership abilities needed to respond to market turbulence to successfully survive. Therefore, companies do not only adjust to the increasing complexity of the environment by modifying processes, structures, routines and company rules. However, demanding a paradigm shift through continuous learning that can create business resilience, it is evident if members of learning organizations are continuously able to create new changes in thought so as to create innovation and improve performance.

The results of the study prove that facilitative leadership competencies have a significant effect on effective organizational learning. Moreover, facilitative leadership competencies can support the learning climate and develop mechanisms for transferring learning from individuals and teams into organizational knowledge and experience. The results of the study have proven the influence of organizational learning on corporate innovation and company performance. Recommendations for future research are suggested to try to analyze other external environmental turbulence such as turbulence technology and intensity of competition as a moderating factor, with the aim of obtaining a clearer picture of complex environmental changes. It is also recommended that a longitudinal method be like to further explore the movement of changes in activities due to turbulence.

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Ta1 Appendix

Construct	Dimension	Item	Model 1: first-order analysis					Model 2: second-order analysis	
			Loadings	Sign.	R^2	AVE	Reliability	Loadings	Sign.
Effective organizational learning	UK	UK1	0.730	***	0.624	0.825	0.835	0.798	***
		UK2	0.825	***					
		UK3	0.760	***					
		UK4	0.671	***					
	KI	KI1	0.827	***	0.436	0.664	0.821	0.640	***
		KI2	0.688	***					
		KI3	0.814	***					
	HK	HK1	0.828	***	0.499	0.693	0.845	0.725	***
		HK2	0.747	***					
		HK3	0.832	***					
	EK	EK1	0.796	***	0.373	0.674	0.829	0.740	***
		EK2	0.739	***					
		EK3	0.823	***					
Facilitative leadership competence		FL1	0.720	***	Independent	0.670	0.827		
		FL2	0.845	***					
		FL3	0.782	***					
Firm's innovation		FI1	0.648	***	0.137	0.614	0.875		
		FI2	0.741	***					
		FI3	0.689	***					
		FI4	0.774	***					
		FI5	0.779	***					
		FI6	0.765	***					
Firm's performance		FP1	0.719	***	0.297	0.596	0.841		
		FP2	0.742	***					
		FP3	0.680	***					
		FP4	0.655	***					
		FP5	0.783	***					
Moderate (market turbulence * firm's innovation)		MT*FI							

(*continued*)

Table A1.
Structural equation model test

Table A1.

Construct	Model 2: second-order analysis R^2	AVE	Reliability	Model 3: moderate full SEM analysis Loadings	Sign.	R^2	AVE	Reliability
Effective organizational learning	0.636	0.573	0.788	0.730	***	0.630	0.630	0.715
				0.825	***			
				0.760	***			
				0.671	***			
	0.410			0.827	***	0.436	0.664	0.764
				0.688	***			
				0.814	***			
	0.526			0.828	***	0.497	0.693	0.789
				0.747	***			
				0.832	***			
	0.365			0.796	***	0.370	0.674	0.774
				0.739	***			
				0.823	***			
Facilitative leadership competence				0.720	***	Independent	0.659	0.767
				0.845	***			
				0.782	***			
Firm's innovation				0.648	***	0.141	0.596	0.768
				0.741	***			
				0.689	***			
				0.774	***			
				0.779	***			
				0.765	***			
Firm's performance				0.719	***	0.293	0.584	0.773
				0.742	***			
				0.680	***			
				0.655	***			
				0.783	***			
Moderate (market turbulence * firm's innovation)					***	0.139		

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