

The Influence of Leader Member Exchange (LMX) And Self Efficacy on Vocational High School Teachers' Innovativeness

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Building relationship of a good quality between principals and teachers (LMX) and increasing self-confidence through teachers' self-efficacy are the most crucial indicators of teachers' innovativeness. In order to maintain the teachers' motivation in innovating in modern learning, LMX and self-efficacy are highly required. Thus, this study aims to determine the effect of LMX and Self-Efficacy on the innovativeness of teachers in Vocational High Schools. To meet this objective, the study uses analytical descriptive quantitative approach with surveys. The sample of this study consists of 89 teachers from 14 Vocational High Schools in West Lombok Regency, that are chosen using simple random sampling technique. The data were analyzed using simple regression, multiple regression, Pearson Product Moment correlation, and multiple correlation. The results of the study showed that: 1) LMX influences teachers' innovativeness, 2) self-efficacy influences teachers' innovativeness, and 3) LMX and self-efficacy have positive influences on teachers' innovativeness by contributing as much as 50.8%. From these results, it was thus concluded that, in order to increase teachers' innovativeness, LMX and self-efficacy of a high quality are required from the teachers.

Key words: *Leader Member Exchange (LMX), Self-efficacy, Teachers' Innovativeness*

1. Introduction

Education is one of the aspects that are subject to changes due to developments in science and technology (Adekantari et al., 2020). Educational paradigm has shifted from conventional, to modern education (Adekantari et al., 2020; Tarkhova et al., 2020; Huda et al., 2018) and hence requires innovative education (Aspiani et al., 2019; Pieters et al., 2019). Curriculum change and innovation in international context and broader educational reform issues (Pieters et al., 2019) demand the graduates to be able to compete and to be superior in international settings (Sukardi et al., 2019).

Curriculum renewal in Indonesia, which is implemented in Vocational High Schools, is based on Indonesian National Qualification Framework (IQF/KKNI). However, a study conducted by Aspiani et al., (2019) discovered that, based on the results of observations and interviews with teachers of SMK (Vocational High School) 1 Sakra, there are still plenty of teachers who haven't apprehended IQF-based curriculum; out of 84 teachers—47 teachers being civil servants while the other 37 are not—only 15 teachers (17.85%) understand IQF-based Vocational High School curriculum. In addition, based on the results of teacher competency tests, out of 5.6 million teachers in Indonesia, only 2% of the teachers are considered innovative while 98% of the teachers are regarded as not innovative (Iskandar, 2013). This proves that the number of innovative teachers in Indonesia is still very low. The level of teacher innovativeness can impact the quality of learning objectives, procedures, and assessments (Sukardi., 2016) as well as teacher effectiveness (Tampi, 2020; Halimah et al., 2019).

Factors that can affect the level of teachers' innovativeness are: the quality of the relationship between teachers and LMX principals (Wahardi et al., 2017; Pestalozzi et al., 2019), and teacher's self-efficacy (Khayati & Sarjana, 2015; Hsiao et al., 2011). Good communication between the principal and the school organization has positive influences on teacher performance in the quality of learning (Mudena et al., 2017). The results of the study by Wahardi et al. (2017) show that there is a positive relationship between the principal's situational leadership and teachers' innovativeness, in that the principal's situational leadership contributes as much as 34.5% to teachers' innovativeness. In addition, it also gives charisma effects on individual performance, which is channeled through leadership vision dimension (Meslec et al., 2020). Furthermore, a study conducted by Altunoğlu and Gürel (2015) at a technopark in Denizli, Turkey, shows that when leader-member exchange (LMX) increases, the level of organizational innovation also increases. Thus, it is necessary to maintain a positive relationship between the leader (principal) and the subordinates (teacher), in order to increase the success rate in forging innovativeness.

The increase of a teacher's innovativeness relies on whether the teacher possesses high self-efficacy (Khayati & Sarjana, 2015). Self-efficacy can affect how individuals perceive burdens, demands, and obligations that individuals must fulfill (Pamardi & Widayat, 2014). A study by

Lodjo (2013) proves that self-efficacy affects one's job satisfaction. In addition, a study by Tampi (2020) reveals that there is a positive and significant relationship between innovativeness, trust, job satisfaction and teacher performance. Therefore, self-efficacy can increase someone's motivation in developing their potential, pursuing achievements they want to achieve, as well as increasing their confidence when socializing in society.

The ability to innovate must be supported by harmonious relationships between every element of the school organization. This includes relationships with school principals and self-efficacy. Such LMX is established by the leader and the members in work relationships based on trust, respect for professional abilities and mutual obligations (Graen & Uhl-Bien, 1995). Meanwhile, self-efficacy is necessary to form a person's belief that he is capable of performing certain tasks (Schermerhorn, 2012). Therefore, this study aims to determine the effects of LMX and self-efficacy on the innovativeness of Vocational High School teachers (SMK).

2. Literature Review

Innovativeness plays an important role in the current world's progression and development. This innovativeness referred to the changes, including in which, the creativity in creating ideas, practices, or objects that are considered novel by individuals or other units of adopter (Rogers, 2010). Milles (1973) states that innovation is a change that is specific in nature, and that which contains novelty, is deliberate and planned in advance (planned and deliberate), and is designed to achieve a desired goal through a certain system (goals of the system). One thing that determines the pace of the innovation process is the diffusion nature of innovation (Aspiani et al., 2019).

There are five characteristics of innovation (Rogers, 1995), namely: 1) relative advantage; 2) compatibility; 3) complexity; 4) trialability; and 5) observability. Characteristics of innovation greatly affect the level of its adoption (Aspiani et al., 2019). Thus, it can be concluded that, the greater the relative advantage, compatibility, trialability, and the observability are—and the lesser the complexity is—the sooner the innovation is likely to be adopted.

Innovativeness is not created and developed spontaneously; it requires encouragement from both the person himself, and other parties. In the world of education, a good relationship between superiors (school principals) and subordinates (teachers) can influence the teacher's innovation or Leader Member Exchange (LMX). According to Achua and Lussier (Bhoki, 2015) Leader Member Exchange (LMX) can be defined as the quality of exchanges between a leader and his subordinates. This means that the superiors and the subordinates engage in a reciprocal relationship (Yukl, 2010), possess higher job satisfaction (Martin et al., 2019), and develop a degree of mutual respect and trust (Hsieh, 2012).

The LMX theory involves four main dimensions, namely: 1) affect, 2) contribution, 3) loyalty, and 4) professional respect (Dienesch & Liden, 1986). Each dimension of the LMX may develop differently and may vary in accordance to the relationship between the superior and the subordinates. Thus, it can be concluded that the quality of the LMX will be established if there exist: affection or concern between superiors and subordinates; contribution; loyalty or mutual support between superiors and subordinates; and professional respect between superiors and subordinates.

Apart from LMX, innovativeness may exist due to good self-efficacy. Self-efficacy is a teacher's belief in their own abilities (Hsiao et al., 2011)—whether they are able to do good or bad, right or wrong actions (Bandura, 1997). It also refers to an individual's belief that he or she is capable of a certain task (Slocum & Hellriegel, 2009; Kreitner & Kinicki, 2010). The level of an individual's self-efficacy can be viewed from the aspects of self efficacy. Lauster (2005) states that people who have positive self-efficacy can be seen from the following aspects: 1) confidence; 2) optimism; 3) objectivity; 4) responsibility; as well as 5) rationality and realism. Hence, self-efficacy will arise when the person is confident, optimistic in solving a problem, objective in viewing the problem, responsible, rational, and realistic. It is expected of LMX and self-efficacy to be able to develop teachers' innovativeness so that Indonesia can generate internationally competitive graduates based on the factors stated in Diamond Porter theory (Sukardi et al., 2019).

3. Methods

This study used analytical descriptive quantitative approach with surveys. The study used descriptive survey method to obtain a systematic, in-depth, and comprehensive analysis of the information (Ary et al., 2010) regarding the influence of Leader Member Exchange (LMX) and Self Efficacy on Vocational High School teacher innovativeness.

The population for the study consists of 877 teachers from 14 Vocational High Schools in West Lombok Regency, and a total of 89 teachers is made as samples for the respondents. The sample was taken using simple random sampling technique since all members of the population are considered homogeneous (Sugiyono, 2016).

The data from LMX variables were collected using questionnaire containing a number of statements. These statements were developed from the LMX dimension. Dienesch and Liden (1986) stated that LMX involves four main dimensions, namely: affect, loyalty, contribution, and professional respect. The dimension of self-efficacy consists of four aspects, namely: self-confidence, optimism, objectivity, responsibility, rationality and realism (Lauster, 2005), whereas teacher innovativeness variable consists of 5 dimensions, namely: relative advantage, compatibility, complexity, trialibility, and observability (Rogers 1995).

The data in this study were analyzed using regression to see the effect of each independent variable (LMX and Self-Efficacy) on the dependent variable (Teacher Innovativeness). Furthermore, the study used correlation analysis to determine the determinants of each independent variable on the dependent variable. Prior to the test, analysis requirement test was conducted. All analysis were conducted using the assistance of the *SPSS* program version 22.00 for windows.

4. Results and Discussion

4.1 Instrument Test Results

Instrument tests include validity and reliability test. From the results of validity test for teacher innovativeness variable, an average correlation coefficient of 0.499 was obtained for 13 questions. Thus, all of the statements were declared valid. Meanwhile, reliability test for teacher innovativeness variable resulted in a coefficient alpha of 0.685. This is greater than the critical value of the coefficient that stands at 0.600, and thus, it is declared reliable. Furthermore, validity test for LMX variable discovered an average correlation coefficient of 0.443 for 15 questions. Hence, all of the questions were declared valid. Lastly, a coefficient alpha of 0.637 was obtained from the reliability test for LMX variable. Therefore, teacher innovativeness variable was declared reliable.

The result of validity test for self-efficacy variable for 12 questions revealed an average correlation coefficient of 0.460. Thus, it was declared valid. Meanwhile, a coefficient alpha of 0.697 was discovered from reliability test for self efficacy, thus declaring it reliable.

4.2 Analysis Requirement Test Results.

Analysis requirement tests for this study encompass normality, homogeneity, linearity, and autocorrelation test. The results of these analysis requirements test are shown in table 1 below:

Table 1. Analysis Prerequisite Test Results

Variable	Normality	Homogeneity	Linearity	Autocorrelation	Multicollinearity	
					Tolerance	VIF
LMX	0.200	0.192	0.212	2.092	0.915	1.092
Self Efficacy	0.200	0.115	0.209	2.092	0.915	1.092

From the results of normality test using Kolmogorov Smirnov test, a significance of 0.200 was obtained for teacher innovativeness variable based on LMX and self efficacy variable. If compared with Liliefors test score, $\alpha = 0.05$; $N \geq 30 = 0.886$ or $0.200 < 0.886$, it can be concluded that these variables are normally distributed.

Homogeneity test was conducted using the Bartlett test, from which a Levene statistic value of 1.444 with probability value of $0.192 > 0.05$ was obtained for the significance of homogeneity of variance for teacher innovativeness variable based on LMX variable. Based on this result, it can be concluded that the data for teacher innovativeness variable based on LMX variable consist of the same variant, or is homogeneous. Meanwhile, as for the significance of homogeneity of variance for teacher innovativeness variable that is based on self-efficacy variable, a Levene statistical value of 1.685 with a probability value of $0.115 > 0.05$ was obtained. Based on this result, it can be concluded that the data for teacher innovativeness variable that is based on self-efficacy variable encompass the same variant, or is homogeneous.

Linearity test was conducted using analysis of variance (ANOVA), from which a significance value of 0.212 was obtained for teacher innovativeness variable that is based on LMX variable. This value is greater than 0.05, which means that there is a significant linear relationship between LMX variable and teacher innovativeness variable. Meanwhile, the significance value of teacher innovativeness variable that is based on self-efficacy variable stands at 0.209. This value is also greater than 0.05, which means that there is also a significant linear relationship between self-efficacy variable and teacher innovativeness variable.

The autocorrelation test employed Durbin Watson test, from which a value of 2.092 was obtained. This DW value is greater than the upper bound (du) that stands at 1.7013, and is less than $(4-du) - 1.7013 = 2.2987$. Thus, it can be concluded that there is no autocorrelation.

Statistical test was employed to test whether multicollinearity occurs between leader member exchange (LMX) and self-efficacy variable. From this test, a tolerance value of 0.915 was obtained for leader member exchange and self-efficacy variable. Meanwhile, VIF value for leader member exchange and self-efficacy variable stands at 1.092. The tolerance value above indicates that multicollinearity is not present among the independent variables because the tolerance value is greater than 0.10. Likewise, since the VIF value is smaller than 10.00, it is concluded that there is no multicollinearity present.

4.3 Correlation and Regression Test Results

Correlation and regression test results are summarized in table 2 below:

Table 2. Correlation and Regression Coefficient Test Result Calculation

Variable	Correlation coefficient	Regression coefficient	t-value	F-value
LMX	0.559	0.225	7.584	-
Self-efficacy	0.620	0.215	9.393	-
LMX and self-efficacy	0.713	-	-	44.46

Based on these results, it can be concluded that the influence of LMX on teacher innovativeness can be determined from its regression coefficient. The regression coefficient for LMX is 0.225. A regression coefficient of 0.225 indicates that the value of LMX will contribute to an increase in teacher innovativeness score as much as 0.225 with the probability of 0.003. Therefore, LMX has a significant influence on teacher innovativeness. The degree to which LMX variable influences teacher innovativeness can also be observed from its correlation coefficient. Correlation coefficient for LMX variable is 0.559. This indicates that LMX imposes a fairly strong influence on teacher innovativeness.

Regression coefficient for self efficacy stands at 0.215. Regression coefficient of 0.215 indicates that the value of self efficacy will increase teacher innovativeness score as much as 0.215, with the probability of 0.001. Thus, self-efficacy has a significant influence on teacher innovativeness. Meanwhile, the degree to which self-efficacy variable influences teacher innovativeness which is calculated using correlation coefficient shows a value of 0.620. This indicates that self efficacy strongly influences teacher innovativeness.

Correlation analysis for LMX and teacher innovativeness variable results in a value of 0.559. Thus, the contribution that LMX provides to teacher innovativeness, that is, its coefficient of determination, amounts to $r^2 \times 100\%$, or $0.5592 \times 100\% = 31.24\%$. Whereas, the remaining 68.76% is determined by other variables. Meanwhile, the result of correlation analysis for self-efficacy and teacher innovativeness variable shows a value of 0.620. Hence, self-efficacy variable's contribution to teacher innovativeness variable, that is, its coefficient of determination, amounts to $r^2 \times 100\%$ or $0.6202 \times 100\% = 38.44\%$. Other variables then determine the remaining 61.56%. The simultaneous correlation between LMX variable, together with self-efficacy variable, and teacher innovativeness stands at 0.713. Thus, joint (simultaneous) contribution of LMX and self-efficacy variable on teacher innovativeness amounts to $r^2 \times 100\%$ or $0.7132 \times 100\% = 50.83\%$. Meanwhile, the remaining 49.17% is determined by other variables.

From the analysis, an R-square of 0.508 was obtained. This indicates LMX and self-efficacy variable contribute a total of 50.8% to teacher innovativeness, while the remaining 49.2% is explainable by other accounts. Thus, LMX and self-efficacy together contribute a total of 50.8% on teacher innovativeness. From the results of ANOVA or F-test, an F-value of 44.56 was obtained, with a significance level of 0.000. Since the probability (0.000) is smaller than 0.05, the regression model can thus be used to predict teacher innovativeness.

The analysis results indicate that the innovativeness level of vocational high school teachers is influenced by the quality of principal-teacher relationship and self confidence. This implies that in performing their professional duties, teachers and school principals must maintain the relationship quality by providing loyalty (Yukl, 2010), mutual support, assistance and opportunities to develop (Bauer & Erdogan, 2015). The support that exist between the principal

and the teachers in the form of affection, loyalty, contribution, as well as respect, are certain to have a significant impact on teacher innovativeness level. This helps the subordinates feel motivated because the efforts they have made in their work are valued and therefore will reciprocate it by working more innovatively in return (Janssen, 2000; Hamid, 2018).

The results of this study are in line with a previous research conducted by Altunoğlu and Gürelb (2015). The results of regression test on LMX variable show that LMX has a positive effect on organizational innovation. A quality relationship pattern from the leader as well as the organization's appreciation for the subordinates' contribution impact the development of the organization in innovation. In addition, Yeoh and Mahmood's (2013) research results reveal that there is a significant positive relationship between pro-innovation organizational climate, LMX and innovative work behavior.

Apart from LMX, self-efficacy or self-confidence also influences Vocational High School teacher innovativeness. Teachers who have high self-efficacy will be able to develop self-efficacy in order to increase their innovativeness. Innovativeness does not only refer to academic abilities, but the teacher's confidence in developing their self-potencies also plays a very important role (Bandura, 1997).

The differences in vocational high school teachers' innovativeness in relation to self-efficacy is reflected in coefficient of determination which indicates that the consistency level of innovativeness can be predicted by self-efficacy variable. The results of these studies prove that self-efficacy can increase the innovativeness of Vocational High School teachers.

The results of this study are in line with research conducted by Sunardi et al. (2019) which illustrates that self efficacy can influence increases on innovativeness. In addition, the results of the study by Widowati, 2020; Hsiao et al., 2011 reveal that teachers with high self-efficacy seem to be more ready to experiment, and also to apply new educational practices. Self-confidence or self-efficacy will also create innovative work culture so that it can improve work performance. Innovative work behavior has a positive and significant effect on work performance (Karmawan, et al., 2015; Sakti, et al., 2018; Naguib & Naiem, 2018; Zuraik & Kelly, 2019).

The coefficient of determination indicates that LMX and Self-Efficacy contribute highly to increasing Vocational High School teacher innovativeness. Likewise, the R-squared shows that together, LMX and self-efficacy, make a significant contribution to teacher innovativeness. Thus, it can be concluded that there is a joint influence of LMX and self-efficacy variable on teacher innovativeness variable. These results prove that the quality of relationships and self-confidence is considered high if it can increase teacher innovativeness. Likewise, with quality relationships and high self-confidence, Vocational High School teachers can increase their innovativeness. Changes in the quality of relationships and the teacher's confidence in



performing their duties will occur with changes in teachers' attitudes and perspectives on the management of their relationships with school principals and self-confidence. Teacher confidence is demonstrated by their innovativeness, or the ability to make new innovations in performing various tasks assigned by the school.

5. Conclusion

Based on the research result above, it can be concluded that Leader Member Exchange (LMX) and self-efficacy influence teacher innovativeness both partially, and collectively. The existence of quality relationships between superiors and subordinates as well as high self-confidence will increase teacher innovativeness. Therefore, Leader Member Exchange (LMX) and self-efficacy serve as supplements to strengthen one's self-confidence in generating new innovations so that teacher innovativeness is formed.

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