# The Relationship of Innovative Working Activity with The Self-Development of Productive Teachers Automotive Engineering Programs

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**Abstract.** Productive teachers are required to develop their competence. Innovative working activity and self-development are part of the development of productive teacher competencies. The research was aimed to analyze the effect of innovative working activity on the self-development of productive teachers in the Automotive Engineering Expertise Program. The type of this research was correlational research with a quantitative approach. A questionnaire was used as the data collection method. Data analysis techniques were used for inferential statistics. The results showed that 1) the correlation value (R) was 0.679, 2) the significance value was 0.00, 3) the determination value was 46%, and 4) the regression value Y=11.160+0.200X. The conclusions of this study were innovative working activity strongly influences on productive teacher self-development. The innovative working activity can be an alternative solution for productive teachers in developing themselves..

**Keywords: c**ompetency, innovative work, productive teachers, self development.

## 1. Introduction

Industrial Revolution 4.0 brought influence in the world of education, especially vocational education. Vocational High Schools must be able to train and guide their students to deal with the changing characteristics of the world of work. Learners must easily adapt to changes that occur so quickly. Currently, Vocational High Schools are not only required to produce superior graduates but must be able to produce human resources who have competencies according to the needs of the workforce. The 21st century is synonymous with the development of technology that is increasingly fast. Many jobs that apply technology in the work process. This affects the competencies students must have. Students must have the knowledge, skills in mastering the field of technology, skills in processing information, the ability to innovate in all fields, and life and career skills [1].

In the 21st century, teachers must be able to create students who have superior personalities, resilient, and have high competitiveness. Productive teachers must be able to guide students in the mastery of knowledge, skills, attitudes, and values needed by the world of work. Therefore, productive teachers must have qualified knowledge and skills. Productive teachers are

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encouraged to always improve their quality following their functions and roles. The government through the Ministry of Education and Culture instructs vocational teachers to always develop their competence [2]. Vocational teachers must have a higher awareness to improve their quality, improve their competence and profession.

Self-development is an effort to improve self-professionalism so that it has competencies that are following the laws and regulations or national education policies and the development of science, technology, and / or art [3]. The development of productive teacher skills can be done in several ways, namely: independent learning (reading literature, conducting independent training using school learning facilities such as libraries, laboratories and the internet); work or group discussions with colleagues in the same field (through the MGMP / KKG forum); attend training from school and outside school; teaching supervision; and continuing education to a higher level [4]. Personal development activities can be carried out through functional training and/ or teacher collective activities to improve teacher competency and/ or professionalism [5]. Education and training activities will provide benefits for teacher professional development and teacher competence [6]. Training makes teachers able to work effectively to create quality education [7]. Training can increase teacher confidence in classroom teaching [8]. Discussions with fellow teacher communities can improve teacher professionalism, specifically in the application of their pedagogical and professional competencies. Community-based training/ teacher forums can increase teacher motivation to actively participate in ongoing learning efforts by forming a strong teacher network and can work collaboratively [9]. Workshops can improve the performance of teachers and improve their teaching competencies. Teaching competence provides an important role in improving teacher skills, knowledge, and performance to be more effective [10].

Innovative works are works that are development, modification or discoveries as a form of teacher's contribution to improving the quality of the learning process in schools and the development of education, science/ technology, and art [11]. Innovative work activities can be done in several ways, namely: finding appropriate technology, making/ modifying practical tools/ lessons, following the development of standards, guidelines, questions, and the like. Appropriate Technology Work is a work of design/ development/ experiment in the field of science and/ or technology that is used for education or the community so that education is helped by its smoothness or the life-assisted community [12].

At present the relationship of innovative work activities with productive teacher self-development is unknown. Therefore, this research focuses on innovative work activities and self-development. The results of this study can show how much the relationship between innovative work activities and self-development carried out by productive automotive engineering teachers in the city of Surakarta so that it can be a material consideration for productive automotive engineering teachers related to personal development and innovative crafts.

## 2. Research Method

This type of research is correlational research with a quantitative approach. The population in this study amounted to 76 productive teachers. The number is all productive teachers of the Automotive Engineering Expertise Program in Surakarta City. The sample in this study is the total of all populations or using sampling techniques using saturated sampling. This research was conducted in 10 Vocational High Schools (SMK) in Surakarta that has Automotive Engineering Skills Programs. The data collection tool used was a questionnaire. Instrument validity test to test the content validity of the questionnaire in this study uses the opinions of

experts (expert judgment) and the instrument reliability test uses the internal consistency method with Cronbach's Alpha. Data analysis techniques using inferential statistics. Before a regression analysis is performed first, the prerequisite analysis tests are (1) normality test with the Shapiro-Wilk test, (2) linearity test by conducting a Test For Linearity.

## 3. Results and Discussion

The purpose of this study is to analyze the effect of innovative work activities on the self-development of productive teachers in the Automotive Engineering Skills Program. Before conducting a regression analysis, a prerequisite analysis consists of tests of normality and linearity. The results of the test are as follows:

**Table 1.** Shapiro-Wilk Data Normality Test Results

| Variabel | Sig. | Information |
|---|---|---|
| Innovative Work | 0.304 | Normal |
| Self Development | 0.155 | Normal |

Based on the results of the normality test with Shapiro-Wilk shows all data are normally distributed because of the value of Sig. greater than 0.05.

Based on the results of the linearity test using SPSS, the Sig. Deviation from Linearity is 0.374 because the Sig value is greater than 0.05, it can be concluded that there is a linear relationship between the variable of innovative work and the variable of self-development. After the data is tested for normality and linearity, then the data are analyzed using simple regression analysis with the help of the SPSS program.

**Table 2.** Simple Regression Test Results

| Variabel | Sig. |
|---|---|
| Correlation coefficient (R) | 0.679 |
| Coefficient of Determination (R Square) | 0.460 |
| Significance level | 0.000 |
| Regression Equation Model | Y=11.160 + 0.200X |

The results of the analysis obtained a correlation value of 0.679 which means the relationship between innovative work and self-development in the strong category. The coefficient of determination is 0.460 which means that innovative work activities have a contribution of 46% towards self-development. The significance level value is 0.000 which means the value is smaller than 0.05, then it can be concluded that the results are significant. Based on the calculation, the regression equation model is obtained as follows:

$$Y=11.160+0.200X$$

## 4. Conclusion

The results of this study are innovative work activities that have a strong and significant influence on self-development. The activity of innovative work can be an alternative solution for productive teachers in the Automotive Engineering Expertise Program in their self-

development. As a suggestion, research is needed to analyze the factors that influence the self-development of productive teachers in the Automotive Engineering Skills Program.

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