
**THE EFFECT OF DEVELOPING PROCESS STANDARDS AND
CONTENT STANDARD DEVELOPMENT ON IMPROVING THE
PERFORMANCE OF CHEMICAL TEACHERS OF NEGERI HIGH
SCHOOLS IN BANDUNG DISTRICT**

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Abstract

This study examines the problem of developing process standards and content standards which are important variables in improving teacher performance. Teacher performance is increasingly important to improve in line with the increasingly complex demands of teachers as professionals. The purpose of this study was to describe and analyze the influence and comparison of the development of process standards and content standards on improving teacher performance which focused on the main problems, namely: (1) the magnitude of the influence of developing process standards on teacher performance, (2) the magnitude of the influence of developing content standards on performance. teachers, and (3) the magnitude of the influence and comparison of the development of process standards and content standards simultaneously on improving the performance of state high school chemistry teachers in Bandung Regency. In this study, the Embedded Concurrent model of the Mix Methods approach was used. Data were analyzed using descriptive analysis techniques and inferential analysis techniques. The results of the analysis show that the development of process standards and content standards together contributes positively and significantly to improving teacher performance, which is stated based on the positive correlation coefficient and determination coefficient values with an effect of 76%, meaning that the effect is good, this proves that the better the development of standard processes and the development of content standards are carried out, the better the increase in teacher performance. Meanwhile, the remaining 24% is influenced by other variables

Keywords: Process Standards, Content Standards, Teacher Performance



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INTRODUCTION

The teacher is an important element in education. The quality of education in Indonesia in the future will largely depend on the quality of existing teachers. In the learning process the teacher is seen to have an important role, especially in helping students to develop their potential in cognitive, affective and psychomotor abilities, the teacher also seeks to arouse curiosity, encourage independence and accuracy of intellectual logic, and create conditions for success in learning. (Iskandar, 2013) One of the problems of education in Indonesia itself is the relatively low capacity of teachers. This is of course a big problem because the function of teachers in education needs to play a variety of talents to produce the expected results and ultimately achieve educational goals.

Performance-related to the learning process of subject teachers or classroom teachers, including planning and implementation of learning, evaluation and evaluation analysis of evaluation results and implementation of 4 (4) according to the (Peraturan Menteri Pendidikan Nasional, 2007), the field of competence that teachers are must-have. This is following (Peraturan Menteri Pendidikan dan Kebudayaan, 2016), which explains that the process standard includes planning the learning process, implementing the learning process, evaluating learning outcomes, and monitoring.

The government conducted a teacher competency survey through the Teacher Competency Test (UKG), to know the level of teacher mastery in teaching and professional competence. A professional teacher is people who have the ability and expertise in the field of teacher training or in other words it is well educated and trained. (Balqis, Ibrahim, & Ibrahim, 2014) Professional abilities discussed are the ability of educators to master learning material broadly and deeply which allows teachers to guide students to acquire certain abilities.

According (Asf & Mustofa, 2013), explained that teacher performance is the work that can be achieved by a teacher in school or madrasah according to the task and responsibilities in achieving goals education. Likewise (Susanto, 2013) explaining teacher performance can be interpreted as achievements, results, or abilities achieved or shown by the teacher in carry out educational and teaching tasks. Through this professionalization is expected later it can produce more teacher's quality. (Purbasari, 2015)

The Teacher Professional Examination (UKG) activity, as well as the supervision and evaluation process, are monitored through the Teacher Performance Assessment (PKG) to create professional teachers because professional dignity depends on the quality of their services. Performance evaluation can ensure that teachers can work or carry out their duties in a professional manner, and can provide quality education services to the community, especially students. Teacher performance criteria in relation to social competence include acting as an educator, designing and implementing learning, and evaluating learning. (Wijaya, 2018)

According to UKG performance data from 2015 to 2017, the average score of secondary school teachers has improved, but not satisfactorily across the country. Apart from the lack of preparation and the lack of measuring instruments for UKG, it turns out that the national teacher competency scores do not pass this category. As for the provincial level, the 2019 West Java UKG data is based on data on regional education income and expenditure of the Ministry of Education and Culture which is contained in the following bar chart.

Regent Bandung University UKG High School (SMA) in 2019 had an unsatisfactory score with a score of 66.4, teaching ability score of 54.67, and professional ability of 61.89. Although the government has a minimum expectation of 80, this category does not yet meet the minimum requirements. What is more worrying is that the average national chemistry UKG score is the lowest at 37.9. This result is far below the minimum proficiency standards set. The UKG results can also indirectly describe the ability of high school chemistry teachers at the Bandung Regent School collected through the chemical MGMP container, and researchers who are members of the Chemistry MGMP.

The relatively low ability of teachers is of course a big problem, especially for chemistry teachers, the Regent of Bandung. Even the teaching skills that should be the teacher's main ability are not functioning or functioning normally. Likewise, having the professional skills needed to carry out educational and teaching tasks, including mastery

Iis Suryani, Dr. Ujang Cepi Barlian, M.Si

of learning materials broadly and deeply, including mastery of school curriculum materials and knowledge of substance and scientific methodology and material structure.

The effect of developing process standards and content standard development on improving the performance of chemical teachers of Negeri High Schools in Bandung District

Based on the experience of researchers and the results of observations and discussion of the results of the UKG and PKG with several teachers from the MGMP at SMP Bupati Bandung, it was found that the implementation of the 2013 curriculum has been developing and developing in the context of improvement since it was launched in 2013. For issues related to the application of content standards and standards process, the content includes lesson planning, implementation, and evaluation, as well as follow-up on evaluation results.

The problems faced by chemistry teachers in the learning process include: (1) The difficulty of analyzing the relationship between SKL-KI-KD and the syllabus by determining the competency index (GPA) and subjects as learning and assessment materials. Achieving basic abilities (KD) strengthens character education through the development of 21st-century skills; (2) Difficulty designing teaching materials (KD) based on themes; (3) Difficulty in designing homework plans, resulting in differences in the implementation of the plan (RPP) and the suitability of learning. (4) Teachers are less creative in understanding various learning strategies with material coverage which is broader and follows the pace of development. Science, (5) The teaching methods used by teachers are less varied and not innovative, which results in students being less motivated so that students are less interested in learning, they have difficulty accepting chemistry lessons which are considered by most students, is one of the difficult subjects with unstable stability.

Although the learning process in the classroom is aimed at the child's ability to remember information, theoretically students will only be bothered by less specific information and interesting discussions. Students are not encouraged to develop their thinking skills, children's brains are forced to remember and accumulate various information without having to understand the stored information to relate it to everyday life. Whereas national education functions to develop abilities and shape character as well as a dignified national civilization in order to educate the nation's life. (Anggraeni, 2016)

Students have never been given the experience of observing chemical reactions directly, so students think that chemistry topics are abstract and difficult to understand so that when students graduate from school, they are smart in theory but lacking in application. It is difficult to fully assess attitudes, knowledge, and skills. In learning activities, they have not linked material with daily chemical products and have not provided lessons related to the manufacture of products from chemical material applications. (Utami, 2015) Based on the problems faced by public high school chemistry teachers in Bandung Regency, it can be concluded that the root of the problem of this study is that the high school chemistry teacher competence is still low which causes low teacher performance.

Based on the research conducted by the researchers, so far several studies that are relevant to the related topic have been carried out, but there has been no research regarding the issues raised. (AAF, 2020) Principal Leadership Contribution and Compensation on Teacher Performance in Bandung Regency. PPS Uninus Masters Thesis, Bandung. This study shows that there is a positive and significant contribution between principal leadership and collective compensation to the performance of high school teachers in Bandung Regency.

The research results of (Aldeska, Maharta, & Suana, 2018) concluded that the mistakes in making lesson plans were in the indicators of learning activities, assessment of learning outcomes, media, and learning resources. The results of the research by (Rahmawati, Darmawati, & Mahadi, n.d.) state that from the analysis of RPP data for Biology learning there are several components that are incomplete, such as in the formulation of learning objectives, learning materials, and learning scenarios in

preliminary activities and final activities. In addition to the problems described above, based on the research of Nurhamidah et al. (2014) it shows that there is no match between the competence of educators and education staff on the curriculum to be taught and the textbooks used, then most of the teachers still experience many difficulties and do not fully understand the related issues. preparation of the Learning Implementation Plan (RPP) and the implementation of learning in the implementation of the 2013 curriculum.

RESEARCH METHODS

This study uses a mixed-methods approach by combining two forms of research, namely quantitative research and qualitative research. According to (Creswell, 2014), mix-methods is a research approach that combines or associates qualitative and quantitative forms. In this method, researchers used a quantitative approach as the primary method, while the qualitative approach was a secondary method. A quantitative approach with descriptive methods is used in conjunction with a qualitative approach. (Sugiyono, 2019)

In this study, the population was all chemistry teachers of class X SMA Negeri in Bandung Regency totaling 25 teachers. Researchers took samples using total sampling. Because the population in this study was less than 100, the sample in this study was a population study. Thus the number of samples in this study was 25 people.

In this study, there are two independent variables which are given the symbol X, namely the development of process standards (X1) and development of content standards (X2), and one dependent variable which is usually given the symbol Y, namely teacher performance (Y). The research instrument used in this study was a questionnaire developed by the researcher, covering three types of questionnaires developed, including the Process Standard instrument, Content Standard instrument, and Teacher Performance instrument. The Process Standard instrument consists of 56 positive statement items that measure the planning, implementation, assessment and monitoring sub-variables of learning. The Content Standard instrument consists of 5 positive statement items that measure the scope of the material and the level of competence developed in planning and implementing learning. The Teacher Performance Instrument consists of 32 statement items consisting of positive statements and negative statements which only measure the sub-variables of learning planning, implementation of learning, and assessment of the learning process.

This data analysis is carried out after the data obtained from the sample through the selected instrument will be used to answer problems in the study or to test the proposed hypothesis through data presentation. In this study, the data analysis used to test the hypothesis was quantitative data analysis with descriptive data analysis techniques. Each data group will also be processed and analyzed for the size of concentration and location such as mean, median, and mode, as well as deviation measures such as range, variance, and standard deviation.

RESULTS AND DISCUSSION

The results of this study are guided by the research hypothesis as the focus in presenting the research results. The results of this study are as follows:

A. Results of interviews, document studies, and field studies

The effect of developing process standards and content standard development on improving the performance of chemical teachers of Negeri High Schools in Bandung District

Iis Suryani, Dr. Ujang Cepi Barlian, M.Si

The standard of the learning process is one of the standards because it has a very important strategic role in ensuring the quality of education so that it continues to be improved, developed, and improved continuously. (CL.Yuniar.10.06.2020). Through this

The effect of developing process standards and content standard development on improving the performance of chemical teachers of Negeri High Schools in Bandung District

educational process standard, each teacher can determine the course of the learning process, because the teacher is the subject and object of learning that interacts directly with students. (CL.Edi.20.06.2020).

Regardless of a good and ideal education course, or complete educational facilities and infrastructure, if there is no balance in the teacher's ability to carry out this education, then all of it will be meaningless. This means that teachers who are successful in the learning process will be able to create an effective learning atmosphere following the curriculum set by the education office. (Nurdyansyah & Fahyuni, 2016). Primary and secondary school education department process standards are one of the main references for the Education Office in the entire learning process, from planning the learning process, implementing the learning process to increasing the efficiency and effectiveness of postgraduate students' abilities. (CL. Winny.20.06.2020).

At first, most teachers did not adjust the lesson plans that the teachers had during the learning process, so the lesson plans were only for administrative purposes, moreover, the lesson plans owned by the teachers were the result of copy-paste, but in this case, both supervisors and school principals supervised the class. This is why teachers are accustomed to teaching according to the set lesson plans. (CL Tun 20 June 2004).

If we understand and master these four abilities, especially those related to mastering the teacher's main tasks (planning learning, implementing, and evaluating learning), (Sulfemi, 2019) it can be said that the teacher is professional and can be based on his good performance as a teacher prove. (CL.Evie.20.06.2020).

National education standards are the basis for planning the implementation and supervision of education in the context of achieving quality national education. There must be the importance of reference standards in realizing national education. (Hidayat & Machali, 2012) SNP also aims to guarantee the quality of national education, to educate people's lives, and to form a dignified national character and civilization.

With the existence of SNPs, educational units can make SNPs as benchmarks for the implementation of education, SNPs are also used as a basis for monitoring and evaluating the implementation of education in Indonesia, especially in educational units to make it easier to measure and assess its quality. The scope of the National Education Standards includes (1) content standards, (2) process standards, (3) graduation competency standards, (4) teachers and education staff standards, (5) facilities and infrastructure standards, (6) management standards, (7) Financing standards, and (8) education assessment standards. The achievement of standards can be used as a benchmark for determining steps for improvement and policies that will be taken to improve the quality of education. (CL.Yuniar.15.06.2020).

When talking about teacher performance, this cannot be separated from the abilities of the teacher, which means that a teacher with good performance means that he has good abilities according to the level of mastery of his abilities. Talking about ability, this is inseparable from the main task of the teacher in the learning process, the learning process is directly related to processing standards, process standards include learning planning, learning implementation, evaluation of learning achievement, and monitoring the learning process. This cannot be separated from the content standard as a process standard reference, which means that the process standard refers to the content standard as a conceptual framework for realizing SKL learning. (CL.Entun.25.07.2020.Edi.20.06.2020).

1. Questionnaire / Questionnaire Results
 - a. Test Results Data Validity and Instrument Reliability Variables Process Standards, Content Standards Variables and Teacher Performance Variable

Table 1

Number	Variable		Valid	Invalid	Number of Item	Information
1	Process Standard	validity	50 questions	6 questions	56	Valid & Realibel
		reliability	Cronbach Alpha 0,950			
2	Standard of Content	validity	4 questions	1 questions	5	Valid & Realibel
		reliability	Cronbach Alpha 0,701			
3	Teacher performance	validity	26 questions	4 questions	30	Valid & Realibel
		reliability	Cronbach Alpha 0,685			

Thus the Cronbach's Alpha value > 0.60, meaning that it can be concluded that all items/questions from the process standard variables, content standards, and teacher performance are reliable.

Table 2

Percentage	Interpretation
80,00% - 100%	Very Good
60,00% - 79,99%	Good
40,00% - 59,99%	Pretty Good
20,00% - 39,99%	Not Good
< 20,00%	Not Very Good

Percentage Value Conversion adapted from the PPM correlation coefficient table

- a) The status of the Process Standard variable which gets 97.36% which means that the interpretation is very good
 - b) The status of the Content Standard variable which gets 89.20%, which means the Interpretation is Very Good
 - c) The status of the Teacher Performance variable who obtained 81%, which means that the interpretation is very good
2. Classical Regression Assumption Test
 - a. Normality Test

Table 3

One Sample Kolmogorov – Smirnov Test

		Process Standard	Standard of Content	Teacher performance
N		25	25	25
Normal Parameters ^{a,b}	Mean	194,72	17,84	73,68
	Std. Deviation	10,233	1,993	3,838
Most Extreme Differences	Absolute	0,226	0,252	0,267
	Positive	0,142	0,139	0,267
	Negative	-0,226	-0,252	-0,173
Test Statistic		0,226	0,252	0,267
Asymp. Sig. (2-tailed) ^c		0,002	0,000	0,000
Monte Carlo Sig. (2-tailed) ^d	Sig		0,002	0,000
	99%	Lower Bound	0,001	0,000
	Confidence Interval	Upper Bound	0,004	0,001

Based on the test table above, it can be concluded that the results of the Normality test with the Kolmogorov-Smirnov test on the Process Standard, Content Standards and Teacher Performance variables can be seen in the table below.

Table 4
Conclusion of the normality test results

Variable	P	> / <	α	Conclusion
Process Standard	0,200	>	0,05	Normally Distributed Data
Standard of Content	0,200	>	0,05	Normally Distributed Data
Teacher performance	0,200	>	0,05	Normally Distributed Data

b. Multicollinearity Test

Table 5

Coefficients ²								
Unstandarized Coefficients			Standarized Coefficients	t	Sig.	Collinearity Statistics		
Model	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	16,510	10,772		1,533	.140		
	Total_X1	.259	.091	.689	2,853	.009	.185	5.399
	Total_X2	.382	.465	.199	.822	.420	.185	5.399

a. Dependent Variable: Teacher performance.

Based on the table above, it is known that the VIF value is still less than 10, meaning that there is no multicollinearity. Thus it can be stated that the regression equation model is declared free of multicollinearity cases.

3. Heteroscedasticity Test

Based on the scatterplot, it appears that the dots spread above and below zero on the Y-axis (Teacher Performance) and do not form a certain pattern. Based on the facts above, it can be concluded that there is no heteroscedasticity in the regression model.

Teacher Performance Autocorrelation Test with Process Standards and Content Standards

Based on the results of the SPSS version 26 output and paying attention to the Autocorrelation test criteria above, it is clear that the Durbin Watson value from the Model Summary table is 1.711 which if confirmed in the Autocorrelation test criteria table, it can be concluded that between the independent and dependent variables there tends to be no Autocorrelation. Based on the results of testing the Classical Assumptions for Multiple Linear Regression Analysis, it can be concluded that all tests have been fulfilled with the following conclusions: 1) all variable data are normally distributed; 2) no multicollinearity; 3) No Autocorrelation; 4) no heteroscedasticity. Thus the linear regression model is called a good model.

4. Inference Statistical Test

1) Correlation Test of Process Standard (X1) and Content Standards (X2)

Tests were carried out to find the correlation coefficient r_{X1X2} . The correlation coefficient for the Process Standard variable (X1) and the Content Standard (X2) is 0.903 or strong enough. Hypothesis testing is done by looking at the sig value. = 0.000 < 0.05 then H_0 is rejected, which means it is significant. Thus it can be concluded that "There is a significant relationship between the variables of Process Standards and Content Standards".

2) Multiple Regression Test

a) Variable Regression Test X1 – Y

Table 6

Regression Equation	1) If there is no addition or improvement to the Process Standard variable (X1), then the Teacher Performance variable value (Y) is the same as the constant value of 10,239 plus the influence of other variables (E) of 0.791
	2) Each addition or one point increase in the Standard Process variable (X1) will have an effect on the increase in the value of the Teacher Performance variable (Y) of 0.326 plus the influence of other variables (E) of 0.791
Determinant Coefficient (The effect of the Process Standard	Teacher Performance variable (Y) is influenced by the Standard Process variable (X1) of 76%, the rest is influenced by other variables outside the variables not examined
The influence of other variables on teacher performance variables	the teacher performance variable (Y) is influenced by other variables by 24%
Hypothesis test	rejection of H_0 because sig F (0.000) < 0.05, which means that there is a significant effect of Standard Process (X1) on Teacher Performance (Y)

b) Variable Regression Test X2 – Y

Table 7

Regression Equation	1) If there is no addition or increase in the Content Standard variable (X2), then the Teacher Performance variable value (Y) is the same as the constant value of 45,483 plus the influence of other variables (E) of 0.837 2) Each addition or one point increase in the content standard variable (X2) will have an effect on the increase in the value of the Teacher Performance variable (Y) by 1.581 plus the influence of other variables (E) of 0.837
Determinant Coefficient (The effect of the Process Standard	Teacher Performance variable (Y) is influenced by the Content Standard variable (X2) of 67%, the rest is influenced by other variables outside the research variable
The influence of other variables on teacher performance variables	Teacher Performance variable (Y) is influenced by other variables by 33%
Hypothesis test	rejection of Ho because of sig. F (0.000) < 0.05, which means that there is a significant positive contribution from the Standard Content (X2) to Teacher Performance (Y)

c) Variable Regression Test X1 X2 – Y

Table 8

Regression Equation	1) If there is no addition or improvement to the Process Standard (X1) and Content Standards (X2) variables, then the Teacher Performance variable value (Y) is equal to the constant value of 16.510 plus the influence of other variables (€) of 0.721 2) Each addition or one point increase in the Content Standard variable (X2) will have an effect on the increase in the Teacher Performance variable value (Y) of 0.689 plus the influence of other variables (€) of 0.721
Determinant Coefficient (The effect of the Process Standard	Teacher Performance variable (Y) is influenced by the Process Standard variable (X1) and the Process Standard Content (X2) variable, 76%, the rest is influenced by other variables, both those that have been identified by theory or not yet by 24%
The influence of other variables on teacher performance variables	Teacher performance variable (Y) is influenced by other variables by 24%
Hypothesis test	rejection of Ho because sig F (0.000) < 0.05, which means that there is a significant effect of Process Standards (X1) and Content Standards (X2) simultaneously on Teacher Performance (Y)

5. Empirical Model of Regression Analysis

Based on the results of the linear variable regression test (X1X2) - Y above, it can be seen that the effect of the Process Standard (X1) and Content Standard (X2) variables simultaneously on Teacher Performance (Y) is 0.76 (76%), meaning that if converted to

the Pearson Product Moment Correlation Coefficient table, then the effect is strong. The results of hypothesis testing concluded that the rejection of H_0 was due to $\text{sig } F (0.000) < 0.05$, which means that there is a significant effect of Process Standards (X_1) and Content Standards (X_2) simultaneously on Teacher Performance (Y).

Based on the data from the results of the Multiple Regression Test above, it can then be presented in the Empirical Model of Multiple Linear Regression as follows.

1) Path Analysis Results

Path analysis is carried out to determine the direct effect, indirect effect, and total effect of the variables. Based on the regression output data above, the data for path analysis can be formulated as follows:

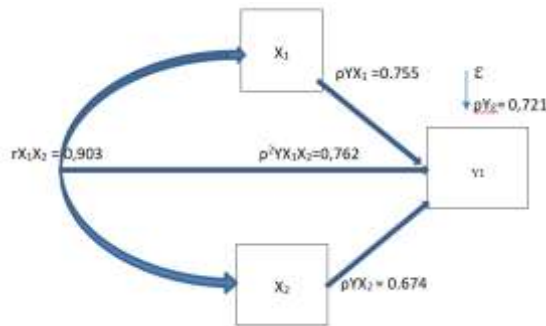


Figure 1

Path Analysis Results

Path analysis is carried out to determine the direct effect, indirect effect, and total effect of the variables. Based on the regression output data above, the data for path analysis can be formulated as follows.

Table 9
Path Analysis Result Table

Elements	Data
rX_1X_2	0.903
Koefisien Jalur X_1 ke ρYX_1	0,755
Koefisien Jalur X_2 ke ρYX_2	0,674
Koefisien Jalur X_1 dan X_2 ke $\rho^2 YX_1X_2$	0,762
$\rho Y\epsilon$	0,721

CONCLUSION

Based on the analysis of the results of the discussion regarding the impact of the formulation of process standards and content standards on improving the performance of chemistry teachers at SMA Regent Bandung, it can be concluded that the formulation of process standards has made a positive contribution. improve teacher performance significantly. This is stated following the value of the correlation coefficient and coefficient value. The effect of a positive judgment is 76% indicating that the effect is very good, which proves that the development of standard procedures can be better. implemented and improving teacher performance is getting better. At the same time, the remaining 24% is influenced by other variables, regardless of whether this variable has been determined theoretically.

The development of content standards has contributed positively and significantly

to improving teacher performance, this is based on the positive correlation coefficient and the coefficient of determination. Effect 76% indicates that the effect is good which proves better implementation. standards for content development. Better to improve teacher performance. At the same time, the remaining 24% is influenced by other variables, regardless of whether this variable has been determined theoretically. The development of process standards and content standards together has contributed positively and significantly to improving teacher performance, this is based on the value of the positive correlation coefficient and the value of the coefficient of determination. The effect is 76%, indicating that the effect is good, which proves the standard. The better the development process, the better the teacher's performance. Meanwhile, the remaining 24% is influenced by other variables.

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