



Teacher performance on students learning outcomes in applied chemistry

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Abstract

Teacher performance affect the students' learning outcomes. End of semester instructional process evaluated by teacher and students. This study aimed to analyze the effect of Pedagogic, Professional, Personality, and Social as Teacher Performance on Students' Learning Outcome in Applied Chemistry course. The population of this study is student's took Applied Chemistry course which academic year is: 2017/2018 and 2018/2019 in Polytechnic of Tanjungbalai. The sampling is total sampling. Research method using Partial Least Square – Structural Equation Modelling (PLS – SEM). Questionnaire evaluation in the end of semester as instrument for Teacher Performance and Student's assessment sheet as instrument for Students' Learning Outcome. The result showed that there is a direct effect of negative and not significant correlation between Pedagogic and Social Teacher Performance on Students' Learning Outcome Disclosure and there is a direct effect of positive and not significant between Professional and Personality Teacher Performance on Students' Learning Outcome Disclosure.

Keywords: Teacher performance; Learning outcomes; Applied chemistry; PLS – SEM

1. Introduction

The context of teacher performance, teacher is a professional educator which has the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students (Dewi and Djohar, 2018; Sibuea et al. 2019). Teacher appraisal as an important vehicle for promoting educational quality which is believed it have potential to facilitate teachers' professional development and to stimulate instructional improvement (Kagama and Irungu, 2018). Teachers' performance affect the effectiveness of school (Özgenel, 2019).

For many years the words “assessment” was used primarily to describe processes of evaluating the effectiveness of sequence of instructional activities

when the sequence was completed (William, 2011). In higher education, assessment is one of the most important factors in a learning environment. The assessment are for teacher performance and students' learning outcomes. Assessments quality refers to more than the quality of a single assessment; it encompasses the quality of all the evaluation practice's elements (i.e. the assessment the questions, the assignments, the criteria, the score reports, the procedures, the feedback, the programs, and the policies) (Gerritsen-van Leeuwenkamp et al. 2017). Assessment quality are related to their learning approaches (i.e. their intentions, motives, and processes they use to learn) and their learning outcomes (i.e. grades) (Gerritsen-van Leeuwenkamp et al. 2019). Thinking ability that is formed from the projects that are done by students generic science skill will influence learning outcomes (Harefa et al. 2019).

Some teacher doubted the results of students' evaluation end of semester. University teacher who doubted the validity of students' evaluation of teaching (SETs) as an instrument for measuring teaching quality. That SETs are affected by strong biasing effects of how likeable students find a teacher and by weak biasing effects of how strongly there are interested in the course subject. It seem to reflect likability but not teaching quality (Feistauer and Richter, 2018).

Applied Chemistry one of courses in second of the semester in study program Refrigeration and Air Conditioning Engineering and Maintenance and Repair Mechanical Engineering, Polytechnic of Tanjungbalai. As a vocational education, Polytechnic Tanjungbalai arrange curriculum adopted Government Program Industry Revolution 4.0 with 60% for practical and 40% for theory. The end of semester each teacher was evaluated by students.

2. Methods

This study taken in Polytechnic of Tanjungbalai. The population of this study is all student's took Applied Chemistry course which academic year is: 2017/2018 and 2018/2019. The sampling is total sampling. This study used instrument are teacher evaluation in the end of semester (questioner data) for Teacher Performance. The questioner has 4 indicator and 32 items for lecture. Responses were provided on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Students' Learning Outcome analysed of assessment sheet final semester. This study method using Partial Least Square – Structural Equation Modelling (PLS – SEM). War PLS software to assess the effect of Lecture Performance on student's learning outcome in Applied Chemistry course.

3. Results and Discussion

The research consists of two variable as independent and dependent variables. Research variable is presented in Table 1.

Table 1

Research Variable	
Variables	Independen/ Dependen
	Teacher Performance
X1	Pedagogic
X2	Professional
X3	Personality
X4	Social
Y	Students' Learning Outcome

Testing Goodness of Fit using predictive value-relevance (Q^2). The value of R^2 endogenous variables in the study of 0.19 or 19%. Indicated that the diversity of data that can be explained by the model was 19%. While the remaining 81% explained by other variables (which are not yet contained in the model and error).

Analysis of the results is contained the analysis of PLS – SEM and presented in Fig 1. Hypothesis testing is formed on each line partially direct effect is presented in Table 2.

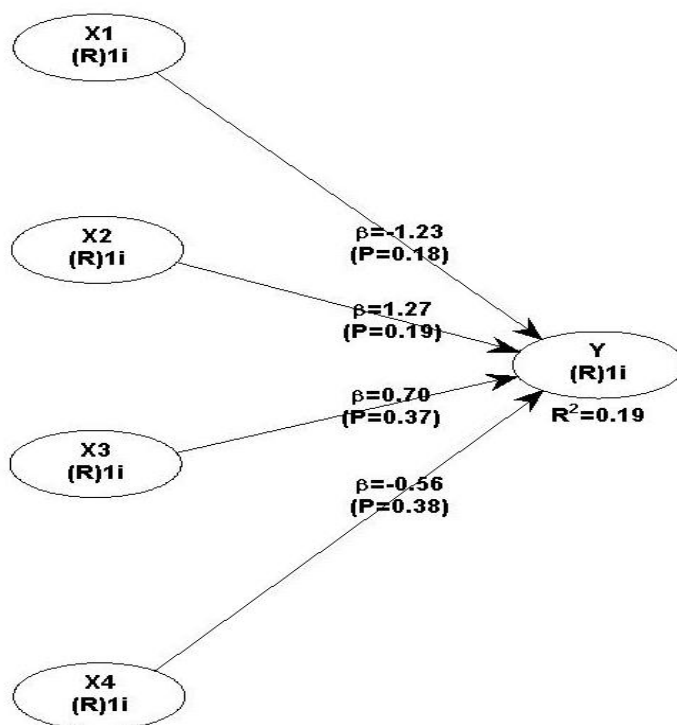


Fig 1. PLS – SEM Analysis Result

Testing direct effect between the Pedagogic Teacher Performance on Students' Learning Outcome Disclosure, coefficients of inner weight is equal -1.225; with a *p*-value of 0.178 > 0.05. It indicate direct effect is not significant between the Pedagogic Teacher Performance on Students' Learning Outcome. Considering the

inner weight is negative, indicating that relations are both negative. The higher Pedagogic Teacher Performance, will result in the lower Students; Learning Outcome.

Testing direct effect between the Professional Teacher Performance on Students' Learning Outcome Disclosure, coefficients of inner weight is equal 1.226; with a *p-value* of $0.185 > 0.05$. It indicate direct effect is not significant between the Professional Teacher Performance on Students' Learning Outcome. Given, the inner weight is positive, indicating that relations are both positive. It means, the higher Professional Teacher Performance, will result in the higher Students' Learning Outcome.

Testing direct effect between the Personality Teacher Performance on Students' Learning Outcome Disclosure, coefficients of inner weight is equal 0.703; with a *p-value* of $0.367 > 0.05$. It indicate direct effect is not significant between the Personality Teacher Performance on Students' Learning Outcome. The inner weight is positive, indicating that relations are both positive. It means, the higher Personality Teacher Performance, will result in the higher Students' Learning Outcome.

Testing direct effect between the Social Teacher Performance on Students' Learning Outcome Disclosure, coefficients of inner weight is equal -0.562; with a *p-value* of $0.378 > 0.05$. It indicate direct effect is not significant between the Social Teacher Performance on Students' Learning Outcome. Considering the inner weight is negative, indicating that relations are both negative. The higher Social Teacher Performance, will result in the lower Students; Learning Outcome.

Table 2
Hypothesis Testing PLS – SEM Model

Relationship	Path Coefficient	<i>p-value</i>	Information
X1 → Y	-1.225	0.178	Not significant
X2 → Y	1.266	0.185	Not significant
X3 → Y	0.703	0.367	Not significant
X4 → Y	-0.562	0.378	Not significant

Many factors effect teacher performance to get the best in instructional and students' have a good achievement in cognitive, affective, psychomotor, and skill. Teacher tries to show best performance both in the planning and implementation aspects of students. Teacher must get respect and welfare they deserve and be ready to innovate (Sriyadi, 2019).

Some teacher doubted the results of students' evaluation in the end of semester. Previous study that likability bears no conceptual relationship to teaching quality, these finding point to a compromised validity of students' evaluation (Feistauer and Richter, 2018).

4. Conclusion

There is no significant effect of Pedagogic, Professional, Personality, and Social Teacher Performance on Students' Learning Outcome. Pedagogic and Personality given that the coefficient of *inner weight* has negative mark, it indicates that the relationship between Pedagogic and Personality on Students' Learning Outcome is negative. It means that the higher Pedagogic and Personality Teacher Performance, the lower Students' learning outcome. Professional and Social Teacher Performance given that the *inner weight* has positive mark, it means that the relationship between Professional and Social Teacher Performance on Students' Learning Outcome is positive. It means that the higher Professional and Social Teacher Performance the higher the Students' Learning Outcome.

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