Contribution of teaching performance, learning satisfaction and achievement motivation to students' competence achievement

Hary Suswanto, Khoirudin Asfani & Aji P. Wibawa

Universitas Negeri Malang
Malang, Indonesia

ABSTRACT: School as a learning environment has as one of its goals creating skilled and knowledgeable graduates. This goal can be achieved if the graduates reach their expected level of competence. Student achievement is influenced by several factors, which have been discussed in previous studies. This research presents the contributions of several factors that influence a student's achievement. The factors discussed are teachers' teaching performance, students' learning satisfaction and achievement motivation. Path analysis was used to reveal the extent of the contribution of each factor. It was found that these factors made significant contributions to students' achievement. Achievement motivation was the main contributor, therefore, it can be concluded that achievement motivation is a very important factor to be considered.

INTRODUCTION

Education is an important matter for everyone to gain knowledge and insight. It can be reached by learning, and the learning environment can be anywhere, including at school. One of the aims of school is to create graduates who are skilled and knowledgeable. This goal can be achieved, if the graduates reach their expected level of competence.

Every graduate has a different level of achievement, produced by several factors. These factors have been comprehensively described in a previous study [1]. To find out how much these factors contribute to students' achievement, this research has been undertaken, and it has reveals the influencing the factors.

Several selected factors that have influence on students' achievement are teachers' teaching performance [2-5], students' learning satisfaction [6][7] and achievement motivation [8][9]. These factors play an important role and influence a student's achievement [1].

Furthermore, this study used a quantitative approach with design that aims to see contributions of independent variables on the dependent variable through a causal relationship. Students at vocational high schools in Malang were chosen as subjects of the study. Here, data were drawn from the students' competence achievement and questionnaires. Questionnaires were used to collect data about teachers' teaching performance, students learning satisfaction and achievement motivation, based on students' perceptions.

RESEARCH METHOD AND RESULT

The stages of data analysis are: 1) descriptive statistics; 2) the assumptions test; and 3) path analysis. The variables used in this research have been determined. These are: X1 (teachers' teaching performance), X2 (students' learning satisfaction), Y (students' achievement motivation) and Z (students' competence achievement).

Descriptive Statistics

Descriptive statistics were used to describe the data used in this study. The data descriptions include mean, median, mode, standard deviation (SD), range, minimum and maximum values, and are shown in Table 1.

Table 1: Presentation of descriptive statistics.

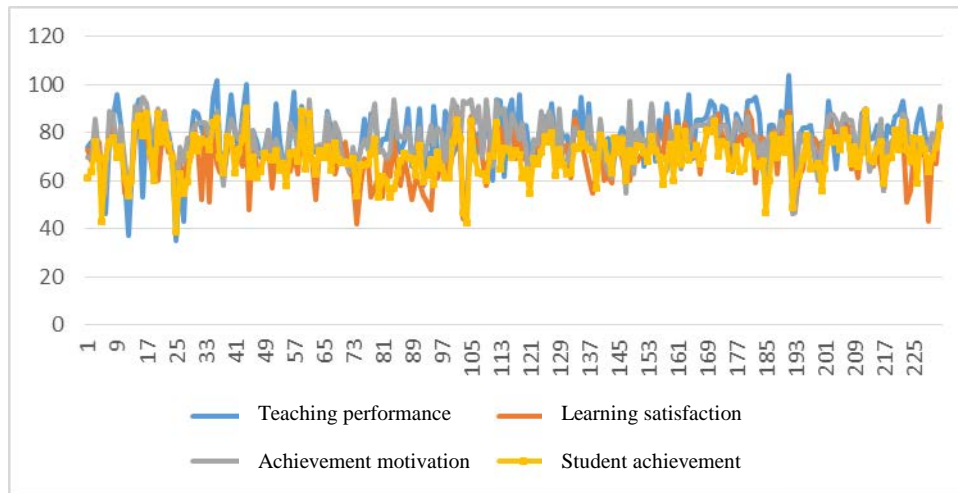|	Mean	Median	Mode	SD	Range	Min.	Max.	N
X_1	77.72	78.00	80.00	11.27	69.00	35.00	104.00	232
X_2	70.31	71.00	72.00	10.01	49.00	42.00	91.00	232
Y	77.37	78.00	77.00	9.38	46.00	46.00	95.00	232
Z	69.94	70.00	70.00	8.71	51.00	39.00	90.00	232

Figure 1: Frequency distribution of research data.

According to Figure 1, most of the data show that when teachers' teaching performance and students' learning satisfaction are high, students' motivation and achievement are also high. Otherwise, when teaching performance and learning satisfaction are low, the motivation and achievement are also low. It indicates that there are linear relationships between the variables.

Assumptions Tests

Contributions of the independent variables to the dependent variable were tested through analysis of direct and indirect effects among a number of variables. The amount of the contribution shown by causal relationships on variables X1 and X2 to Y and X1, X2, and Y to Z has been tested using path analysis (Figure 2).
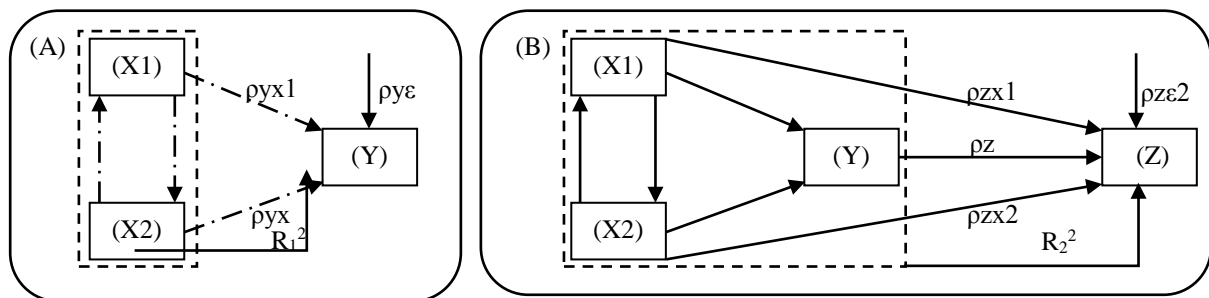

Figure 2: Diagram of path analysis of first sub-structure (A) and second sub-structure (B).

Several tests are required before proceeding to path analysis, i.e. normality, linearity, multicollinearity and heteroscedasticity test. The normality test was used to determine whether the data were normally distributed or not. The normality test was conducted using the Kolmogorov-Smirnov test (K-S). The test results showed that all variables had normally distributed data, and there were no symptoms of multicollinearity between independent variables, and they did not have any heteroscedasticity.

Path Analysis

The first sub-structure analysis was started with a simultaneous test (linear regression analysis). It was done to determine the simultaneous contribution of X1 and X2 (independent variables) on Y (dependent variable). The test showed a score of determinant coefficient (R^2) of 0.269, which meant that the simultaneous contribution score on X1 and X2 to Y was 26.9% (Table 2). The sig. score was 0.000 (< 0.05), so there was a significant contribution of the independent variables on the dependent variable, thus, the simultaneous test had been met and, therefore, could be followed by individual tests.

Table 2: Result of first sub-structure simultaneous analysis.

Model	Model Summary		Anova
	R	R Square	Sig.
	0.519	0.269	-
Regression	-	-	0.000

Linear regression analysis was used in the individual test to reveal the direct contributions of X1 to Y (ρyx1) and X2 to Y (ρyx1), and also the indirect contributions of ρyx1 through X2 and ρyx2 through X1. First, the direct contribution score of ρyx1 was gained from the square of standardised coefficients beta's score in linear regression analysis, whose value was 0.369 (Table 3). The sig. value of X1 was 0.000 (< 0.05); thus, there was a significant contribution on teachers teaching performance on students' achievement motivation for $(0.369)^2 = 0.136$ or 13.6% [10]. Next, ρyx2 score was 0.222 and X2's sig. was 0.001. Therefore, learning satisfaction had a significant contribution on students achievement motivation of 4.9% [11][12].

The score of indirect contributions through each variable in first sub-structure were obtained by multiplying each standardised coefficient's beta score and the Pearson correlation's value of each independent variable. The indirect contribution of ρyx1 through X2 was calculated from 0.369*0.222*0.508 (Table 3) and equal to 0.042 or 4.2%, as it consists of two independent variables; then, the indirect contribution of ρyx2 through X1 was the same. Eventually, the simultaneous contribution of X1 and X2 to Y (26.9%) consisted of direct and indirect contributions in the individual test (13.6%, 4.9%, 4.2% and 4.2%).

Table 3: Result of first sub-structure individual analysis.

Model	Coefficients		Pearson correlation	
	Standardised coefficients (beta)	Sig.	Correlation with X1	Correlation with X2
X1	0.369	0.000	-	0.508
X2	0.222	0.001	0.508	-

The second sub-structure analysis test showed a score of R^2 for 0.529, which meant that the simultaneous contribution score of X1, X2, and Y to Z was 52.9%, and the sig. score was 0.000 (Table 4). The results indicated that the contribution of independent variables and intervening dependent variable was significant.

Table 4: Result of second sub-structure simultaneous analysis.

Model	Model summary		Anova
	R	R square	Sig.
	0.727	0.529	-
Regression	-	-	0.000

The individual test of the second sub-structure analysis produced several results. Linear regression and Pearson's correlation were used to reveal the direct contributions of X1 to Z (ρzx1), X2 to Z (ρzx2) and Y to Z (ρzy), and also indirect contributions of X1 to Z and X2 to Z through Y. The direct contributions of ρzx1, ρzx2 and ρzy, respectively, were shown by squaring the standardised coefficients beta and the sig. values were less than 0.05 (Table 5). The teachers' teaching performance had a significant contribution to students' competence achievement [13-15] for 5.7%.

Next, there was a significant contribution to learning satisfaction by students' competence achievement [6][7][16] for 10.2%. Achievement motivation also made a significant contribution to students' competence achievement [17][18]. The score was 12% and the highest score that achieved motivation had an important role in improving students' achievement [19].

For indirect contributions through each variable in the second sub-structure analysis, the score was obtained by multiplying ρzx1 or ρzx2, each standardised coefficient's beta score and the Pearson's correlation value of each independent variable. The score of X1 through Y and Y through X1 were 0.040 or 4.0% contribution to Z. Next, X2 through Y and Y through X2 had a 4.5% contribution. Then, X1 through X2 and X2 through X1 contributed 3.9%.

Table 5: Result of second sub-structure individual analysis.

Model	Coefficients		Pearson correlation		
	Standardised coefficients (beta)	Sig.	Correlation with X1	Correlation with X2	Correlation with Y
X1	0.239	0.000	-	0.508	0.482
X2	0.320	0.000	0.508	-	0.410
Y	0.346	0.000	0.482	0.410	-

DISCUSSION

The first sub-structure analysis was done to find the contribution of teachers' teaching performance and students' learning satisfaction to students' achievement motivation. It showed that both independent factors made a significant contribution to students' achievement motivation. The results were consistent with a statement that student motivation was influenced by four keys: 1) student; 2) teacher; 3) content; and 4) method/process [20]. Teachers' teaching performance was a factor from the teacher (extrinsic) and students' learning satisfaction was a factor from the students themselves (intrinsic).

The teachers' factor had a higher contribution. This can be explained, because teachers have an important role in motivating students to improve their performance [21]. Extrinsic factors have an important role that can evoke motivation [22]. Without extrinsic factors, intrinsic motivation will not be able to rise or will not appear optimally.

The second sub-structure analysis sought to find the contribution of teachers' teaching performance, students' learning satisfaction and achievement motivation on students' competence achievement. This finding stated that independent and intervening factors had a significant contribution on students' competence achievement. Achievement motivation had the highest direct contribution (12%), followed by the students' learning satisfaction (10.2%) and the teachers' teaching performance (5.7%).

Student achievement motivation is an important factor that is able to influence the students' learning achievement [9][18]. The motivation improvement in the application of learning strategies needs to be considered. It plays a key role in encouraging students to learn independently, and has an impact on the improvement of learning outcomes [23].

Student satisfaction also needs to be considered; it is one of the important indicators that affects the success and quality of learning experiences [24]. The satisfaction levels are influenced by several factors: the performance of teachers, facilities and infrastructure to support learning, the learning environment and the quality of the material being taught [11][25].

Teachers' teaching performance had a significant contribution to students' competence achievement. It was consistent with other studies that showed that there was a positive significant relationship between teachers' quality and students' academic achievement [26][27]. However, another study had different results that showed no significant relationship between teachers' effectiveness and students' academic performance [28]. This occurred due to other factors that may be more influential. Therefore, that was exactly what might cause the teachers' teaching performance to have the lowest contribution.

CONCLUSIONS

This study produced several findings. First, there are several factors that have a significant contribution to students' competence achievement. These are teachers' teaching performance, students' learning satisfaction and achievement motivation.

Second, teachers' teaching performance has an important role in improving students' achievement motivation. Then, the student's achievement motivation has the highest score in contributing to students' competence achievement. It indicates that achievement motivation is an important factor, and that it needs to be considered. As well as education, teachers as educators are also obliged to motivate their students to learn better. They will be able to generate a competitive atmosphere, so that students are competing to achieve the best results.

Third, students' achievement is not only influenced by teachers' teaching or students' learning, but also by the student's psychological condition. If students are happy and interested in participating in learning, they will achieve a good learning experience, and this will have an impact on their study results.

Fourth, there are some suggestions for stakeholders to raise the student's competence achievement by:

- Improving teachers' teaching performance:

  The government in the education sector should organise activities, such as educational training, seminars and workshops to improve teacher performance. Activities should be carried out periodically, but at least once a year and the results should be evaluated for further development of teacher performance.

  The school principal should conduct a teacher's evaluation programme to monitor the performance of teachers. The programme can be done by holding an assessment through questionnaires filled by students at the end of semester. The results can be used as a reference in making plans to improve teachers' teaching performance.

  Teachers must undertake activities, such as educational training, seminars, comparative studies, as well as higher educational paths to improve performance. These activities should be adapted to the weaknesses in the teacher, so that efforts to improve teacher performance become more effective and efficient.

- Improving students' learning satisfaction:

  Principals should create a conducive learning climate in schools. This can be done by improving the quality and completeness of school facilities and infrastructure. The ideal conditions of a school's facilities and infrastructure would be able to realise a conducive learning climate for the students at the school.

  Teachers should make learning become more effective and fun. This can be done by applying the engaging and effective learning method, teaching by utilising appropriate resources/media learning and by providing proper guidance to students.

- Improving students' achievement motivation:

  Principal should conduct school agendas/activities that are able to raise student achievement. Such activities may include competence contests and writing scientific papers at school.

  Teachers should be able to create a conducive and competitive classroom atmosphere, and engage students in learning, use media and learning resources optimally, so that students interested to participate in learning, provide inspiration and good experiences for students to promote the student's learning passion, and give appreciation to every active and excellent student.

Finally, several factors that affect student competence achievement have been mentioned in a previous study [1], but not examined in this study. In a future study, it is expected that other researchers could examine those factors more deeply.

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BIOGRAPHIES

Dr Hary Suswanto is a lecturer at Universitas Negeri Malang, Indonesia. In 2006, he worked as coordinator of the distance education study programme for the Diploma of Computer and Network Engineering. He was awarded a doctoral degree in technology and vocational education from Universitas Negeri Yogyakarta (2013). He has worked in the Engineering Faculty of Universitas Negeri Malang since 2013, first as secretary and now as a senior lecturer and Vice Dean II.

Khoirudin Asfani has a Bachelor's degree in educational informatics engineering from Universitas Negeri Malang (2014). He had been teaching computer and network subjects at the Vocational High School in Malang for a year, and is now studying in the postgraduate vocational education study programme at Universitas Negeri Malang.

Aji Prasetya Wibawa received his Bachelor of Electrical Engineering from Brawijaya University and Master of Information Technology Management from the Technology Institute of Sepuluh Nopember, both in Indonesia. He obtained his PhD in Electrical and Information Engineering from the University of South Australia, Adelaide, Australia. Currently, he conducts lectures in the Department of Electrical Engineering, Universitas Negeri Malang. His current research interests are educational applications of artificial intelligence and social-informatics.