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The influence of professional teachers on Padang vocational school students' achievement



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ABSTRACT

This study determined: (1) the competency of professional teachers teaching in the classroom, (2) students' achievement in vocational schools in Padang, and (3) the influence of professional teachers on vocational school students' achievement in Padang. The population was 2,647 students in vocational schools. The sample, consisting of 160 students, was selected using a multistage, random sampling technique. Data were collected using questionnaires and documentation, and then analyzed and presented using the SPSS software. The results showed: (1) overall, the professional teachers of vocational schools in Padang had good qualifications in pedagogical competence, professional competence, social competence, and personal competence, (2) the learning process of vocational schools in Padang was going well and in general, student achievement was at a good level of performance, and (3) there was a significant influence of professional teachers on vocational school students' achievement in Padang.

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Introduction

Student achievement is an interesting study for much research, especially in the field of educational research because student achievement is one of the benchmarks of success for a person's education. Student achievement, both at a basic and advanced level, is an issue that has always been considered important in the world of education. Therefore, vocational schools as one of the types of educational institution that prepares graduates to enter the world of work, provide improved quality of learning, which in turn can improve student achievement. The learning process should be able to equip students with the knowledge, skills, and values that can be changed into competence for students. The learning process will take place if it is supported by a professional teacher, able to master and implement the skills taught in the learning process. As

stated by Sudjana (2002), student achievement depends on the mastery of the subject teachers and their teaching skills.

The level of achievement of learning-controlled students can be seen and measured through a skills competency test. Skills competency tests held at vocational high school accord with the theory of vocational practices in accordance with the performance criteria. A skills competency test at a vocational high school is also part of the National Examination that acts as an indicator of achievement of the competency standards, while the stake holders use the information to evaluate the competency of the person (Direktorat Pendidikan Menengah Kejuruan, 2012). Graduate competencies include attitudes, knowledge, and skills. This means that the learning achievement of students should develop competencies related to the affective, cognitive, and psychomotor skills (PP No. 19 of 2005 on Standar Nasional Pendidikan of Article 25, paragraph 4).

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Research Objectives

The purpose of this study was to determine: (1) the extent of professionalism of vocational teachers teaching in the classroom, (2) how the level of vocational schools students' achievement in Padang, and (3) whether or not professional teachers have a significant influence on improving vocational high school students' achievement in Padang.

Literature Review

Student achievement is the result of learning in the academic field that reflects the capability and performance of students in mastering the multidimensional subject matter that includes cognitive, affective, and psychomotor skills (Syah, 2001). The cognitive realm associated with thinking skills, knowledge, recognition, understanding, conceptualization, determination, and affective reasoning deals with feelings, emotions, attitudes, the degree of acceptance or rejection of an object, and psychomotor skills related to the competence to do the job involving the limbs and competencies related to physical movement. Student achievement is a target measured by the competence of the learner in learning which is indicated by a score as an indicator, though the score is not the final expectation. Learning achievement is the level of student success in learning the subject matter in schools that is expressed in the form of scores obtained from the results of tests on a particular subject matter (Feng, Fan, & Yang, 2013).

In implementing learning, vocational teachers now are basically academically educated as vocational teachers with limited industry experience. This limited experience makes vocational teachers more text-book oriented and more academic, and thus they tend to enjoy a more theoretical learning pattern. Vocational teachers are required to have capability not only to teach the theory in class, but they are also required to be able to educate, teach, train, and guide learners in the workplace, whether it is in the workshop or the laboratory, and to guide students to be able to work in business or industry in their prospective careers. Reforms in the field of vocational teacher education demands changes in teachers' character who have to date got used to the pattern of leadership instruction, so that teachers lose creativity. Yet to be able to compete in the global era a sophisticated era that demands a high level of adaptation to changes teachers are required to have high competency.

Undang-Undang Nomor 14 Tahun 2005 on teachers and lecturers in Article 1 (1) forcefully argues that teachers are professional educators with the primary task of educating, teaching, guiding, directing, training, assessing, and evaluating students who may be of school-age in formal education, primary education and secondary education. Article 10 paragraph (1) states that teachers are required to master the four main competencies—pedagogical, professional, social, and personal. Furthermore, Article 20 (a) states that the standard of work performance in carrying out their professional duties obliges teachers to plan learning, implement a quality learning process, and assess and evaluate learning outcomes. The key task of a teacher is embodied in the learning activity which is a form of teacher competence.

A professional teacher is required to master the four previously listed main competencies. Pedagogical competence includes mastering material, managing learning programs, managing the classroom, using the media/source, mastering the students, getting to know the functions and services of guidance and counseling, and organizing school administration (Sardiman, 2007). Professional competence consists of mastery of knowledge, mastery of the curriculum and the school syllabus, and learning special methods of study, ethical insight, and professional development. Personal competence includes personal steadiness and noble character, maturity and wisdom, exemplary behavior and to be recognized as a source of authority. Sagala (2007) stated that personal competence is associated with the appearance of a teacher as an individual who has discipline and looks good, who is responsible and committed, and who can be an example. Social competence includes the ability to communicate with various stakeholders of education, mastering information technology, and the capability to interact with the community and the environment.

Uno and Nurdin (2012), wrote that effective teaching could be identified using seven indicators, namely: (1) good organization of material, (2) effective communication, (3) mastery of and enthusiasm for the subject matter, (4) positive attitude toward learners, (5) provision of fair value, (6) flexibility in approaches to learning, and (7) can produce good learners. These seven indicators are identified by reviewing the process and the achievement of learning outcomes of students. These instruments were further developed by Cheffers, Gilfillan, and Sullivan (2000) through the adjustment to enrich points of vocational teacher professional instruments with vocational tasks in teaching in the workshop, laboratory, and studio, when students carry out an internship or industrial practices in studio work or in the workplace.

Methods

This study used a quantitative descriptive correlation approach, which is a technique designed to determine the influence of the independent variables on the dependent variable. The independent variable was professional teacher (X) measured in terms of pedagogical competence, professional competence, social competence, and personal competence, while the independent variables were student achievement (Y) measured by the ability of their cognitive, affective, and psychomotor skills. The conceptual framework of the study is shown in Figure 1.

The study population was all class XII students from 10 vocational high schools in Padang (2,647 students). Sampling was done using a multistage, random sampling technique. The first step was the selection of four vocational high schools in the cluster, based on the subject areas of expertise: subject area of Engineering Technology, vocational school 1 Padang; subject area of Communication and Information Technology Vocational School 8 Padang, subject area Business and Management, Vocational School 2 Padang; and subject area Arts, Crafts and Tourism, Vocational High School 9 Padang. The second step was selecting a sample of 160 students who were randomly chosen from all four vocational schools.

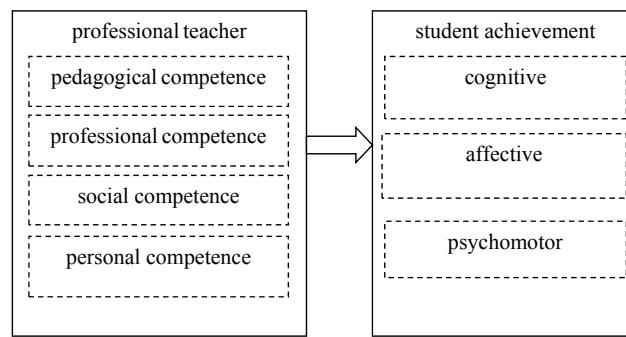


Figure 1 Conceptual framework

The data collection tool was in the form of a questionnaire regarding teacher professionalism based on a Likert-scale model which was adapted from the instrument developed by Cheffers et al. (2000). This instrument was developed in accordance with the duties and responsibilities of teachers, and vocational technology, so it was expected to describe the professionalism, as perceived by students. The instrument was tested before and to determine its quality using up to 30 respondents. Reliability estimation was evaluated using Cronbach's alpha which equaled 0.89. The criteria used a cut off of 0.50 (Gay, Mills, & Airasian, 2009). The data were collected from school documents on student achievement. Data analysis and presentation were undertaken using the SPSS software package.

Results

Professional Teachers

Teachers' professional scores in the research data had an empirical range of 96 (lowest score 155, highest score 251) with an average of 195.96, a standard deviation of 22.30, a median of 188.00, a mode of 205, from 8 class intervals with a class length of 12. The frequency distribution can be seen in Table 1.

Based on the calculations using Table 1, it appears that the majority of vocational school teachers (43, 74%) were reported to be above average with good professionalism. However, 9.38 percent of teachers had low professionalism.

Student Achievement

The student achievement scores had a range of 26.70, with the lowest score being 70.70 and the highest score

was 97.40 and an average of 83.53, a standard deviation of 5.62, a median of 82.91, a mode of 80.00, with 8 classes and a class length of 3.5, with the frequency distribution as shown in Table 2.

Based on the calculations using Table 2, it can be concluded that the most students (45.62%) had achievement ranked as above average, with only a small proportion (2.5%) that scored low.

A simple linear regression between professional teacher variables (X) and student achievement variables (Y) obtained constant values of $b = 0.092$ and $a = 66.041$. It was clear that the relationship between two variables of teacher professionalism with student achievement could be represented by the equation $Y = 66.041 + 0.092X$ (Figure 2). This equation was further tested for linearity and significance using an F test, with the results shown in Table 3.

Correlation analysis on pairs of data for both variables produced a product moment correlation coefficient with $R = 0.366$, $R^2 = 0.134$, and the significance test of the correlation coefficients is presented in Table 4.

Discussion

The results of the analysis showed that most of the vocational teachers in Padang were reported to have good professionalism; however, 9.38 percent of teachers were considered to have low professionalism. Furthermore, a large number of vocational students in Padang had obtained good learning achievement. Nevertheless, there was still a small portion of students (15.63%) whose learning achievement should be increased. The analysis also showed that there was a significant relationship between

Table 1
Frequency distribution of teachers' professional score

| No. | Class interval | Absolute frequency | Relative frequency (%) |
|-----|----------------|--------------------|------------------------|
| 1. | 239–251 | 5 | 3.12 |
| 2. | 227–238 | 12 | 7.50 |
| 3. | 215–226 | 21 | 13.12 |
| 4. | 203–214 | 32 | 20.00 |
| 5. | 191–202 | 26 | 16.25 |
| 6. | 179–190 | 30 | 18.75 |
| 7. | 167–178 | 19 | 11.88 |
| 8. | 155–166 | 15 | 9.38 |
| | Total | 160 | 100.00 |

Table 2
Frequency distribution of learning achievement score

| No. | Class interval | Absolute frequency | Relative frequency (%) |
|-----|----------------|--------------------|------------------------|
| 1. | 94.20–97.70 | 5 | 3.13 |
| 2. | 91.70–94.19 | 7 | 4.37 |
| 3. | 88.20–91.69 | 27 | 16.87 |
| 4. | 84.70–88.19 | 34 | 21.25 |
| 5. | 81.20–84.69 | 32 | 20.00 |
| 6. | 77.70–81.19 | 30 | 18.75 |
| 7. | 74.20–77.69 | 21 | 13.13 |
| 8. | 70.70–74.19 | 4 | 2.50 |
| | Total | 160 | 100.00 |

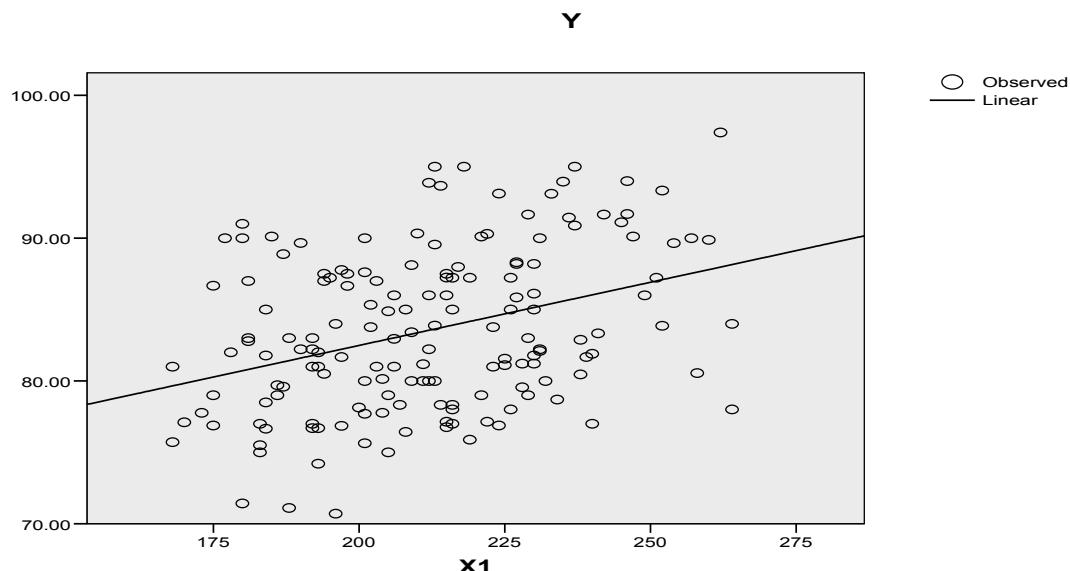


Figure 2 Model effects of professional teacher (X) to student achievement (Y)

Table 3
ANOVA for linearity test significance and simple linear regression

| Source of variation | Df | SS | MSS | F test | t-table $\alpha = .05$ | t-table $\alpha = .01$ |
|---------------------|-----|--------------|---------|---------------------|------------------------|------------------------|
| Total (T) | 160 | 1,121,633 | — | — | — | — |
| Regression (a) | 1 | 1,116,600.65 | — | — | 3.92 | 6.81 |
| Regression (b/a) | 1 | 666.506 | 666.506 | 24.123** | — | — |
| Rest | 158 | 4365.55 | 27.63 | — | — | — |
| Unsuitable error | 69 | 1971.708 | 28.575 | 1.062 ^{ns} | 1.45 | 1.68 |
| | 89 | 2393.84 | 26.897 | | | |

df = degrees of freedom, SS = sum of squares, MSS = Mean Sum of squares

Regression** highly significant (F value = 24.123 > F = 6.81), ns = non-significant, significant linear regression (F value = 1.062 < F table = 1.68)

Table 4
Testing the significance of correlation coefficients

| Correlation between | Coefficient of correlation (R) | Coefficient of determination (R^2) | t-test | t-table $\alpha = .05$ | t-table $\alpha = .01$ |
|---------------------|--------------------------------|--|--------------------|------------------------|------------------------|
| X and Y | 0.366 | 0.134 | 4.911 ^a | 1.65 | 2.33 |

^a Highly significant correlation coefficient (t-test = 4.911 > t table = 2.33)

professional teachers and student achievement at the vocational school in Padang as shown by the significant correlation coefficients (t-test = 4,911 > t table = 2.33).

Thus teacher professionalism is one of the important variables that should be considered to improve the student achievement. This result was in line with the result of the study by Soeharto (2013) which stated that there was a significant relationship between professional teachers learning the theory of vocational achievement (32.8%). Soeprijanto (2010) stated that the task of vocational teacher should not only be focused on teaching activities, but also another tasks in laboratory/workshop practice, and Sudjana (2002) stated that 76.6 percent of learners were affected by the teacher.

Vocational teachers are required to have capability not only to teach theory in class, but also to be able to educate,

teach, train, and guide learners in the workplace, whether it is in the workshop or laboratory, or in guiding learners to be able to work in the world of business and industry in a prospective career. This finding was also in line with the opinion of Mulyasa (2004) who stated that teachers who had high performance would be eager and strive to improve their competence, both in relation to the planning, implementing, and assessing in order to obtain optimal results. Usman (2002) stated that the process of learning and student learning outcomes were largely determined by the role and the professionalism of the teachers. Therefore, the professionalism of teachers is a factor that influences student achievement, because teachers and students always interact when the learning process takes place. In addition, professional teachers particularly in productive sectors should be able to improve students' psychomotor domains, including in the fields of arts, vocational education, and special education.

This means that teachers involved in learning activities having a good level of professionalism will be able to improve the attitude and motivation of learners and this will ultimately improve the quality of learning, and vice versa. The assessment of vocational teachers professionalism and efforts for on going improvement must be continuous and through various efforts. Professionals who

are still not good should be the primary concern for repair, especially through improving teacher motivation to provide optimal service to students, providing space for students to learn to criticize, in order to master the competency better. As revealed by Biggs and Moore (1993), generally, students only had the opportunity for surface learning. They should "dive" resulting in high intensity learning. Similarly, improving teacher professionalism should be done through active learning classroom action research, trying to make improvements in learning with a variety of learning models to innovate in order to have effective and efficient learning. This activity is still not implemented by vocational teachers.

Through increasing the quality of learning in the classroom, laboratory, and workshop, teachers will be able to improve the competency of students. This is understandable because the teachers who have good competency in the classroom will be able to explain the lesson well, to motivate learners well, be capable of using the media well, and of guiding and directing learners in learning, so that students will have a spirit of learning, have fun with learning activities, and find it easy to understand understand and the material presented by the teacher.

Critical issues related to the competency of the teacher are to provide services, guidance, and assistance to learners in improving the learning process through interaction and communication. The ability to communicate and interact is a prerequisite in the learning process because effective communication can encourage a learner's understanding of the learning content. Therefore, every teacher should be equipped with effective communication skills, namely the ability to explain, using examples that are accurate and appropriate with the right choice of words. Field experience shows that the lack of mastery in teacher communication is one factor contributing to the lack of an effective learning process in schools. The ability to communicate is also required to interact with peers and the public school environment.

Professional teachers in the learning process will have expertise in educating, teaching, and training. The teachers need to develop themselves in order to adapt to their environment. Professional activities to improve the learning process can be done through peer validation, which can provide inputs that are more accurate than a real learning process. In the learning process, strengthening or reinforcement is an important component in providing stronger motivation to learners. Through the learning process, educators can show a variety of behavior with different shades. Each behavior can be categorized as acceptable or unacceptable. Acceptable behavior needs to be established so that the behavior will become a habit that will become a role model for students, while the unacceptable behavior should be muted, attenuated, and removed, so that it will not appear again. Efforts to stabilize acceptable behavior are called reinforcement.

In the process of learning, vocational teachers must have extensive knowledge, understanding, and a positive response to the importance of leadership in learning. Teachers who are clever, thoughtful, authoritative, sincere, and have a positive attitude toward work will be able to guide and direct students to wards a positive attitude to

ward learning and a positive attitude is required for their independence and future life.

Conclusion

Based on the results and discussion, it can be concluded: (1) overall, professional vocational teachers in Padang, judged using pedagogical competence, professional competence, social competence, or personal competence have good qualifications; (2) student achievement in terms of cognitive, affective, and psychomotor skills at vocational schools in Padang is in the good category, and (3) professional teachers have an influence on vocational school student achievement in Padang. This shows that if the professionalism of the teachers is improved, then there is a possibility that student achievement will be better. The results showed that 13.4 percent of student achievement was influenced by the professionalism of teachers.

Recommendations

Based on the discussions and conclusions, the following recommendations are suggested: (1) students should further increase concentration and motivation during the learning process, because the material presented by the teacher needs to be digested and understood, and in particular students should always develop motivation to learn, because education is the provision and development of skills that are very important for the present and in the future, (2) schools should provide better learning facilities and create a comfortable learning environment in order to support the learning process and learning achievement because the presence of representative facilities will increase student motivation that can increase student achievement, (3) teachers are expected to always pay attention to student achievement, so that teachers as educators can ensure that the important need for motivation to learn should be encouraged in learners. As educators, teachers must also seek to understand how to motivate positively and correctly and to direct the motivation so that it is well received by the students and thus improve learning achievement, (4) parents should raise awareness, provide guidance, and monitor the direction and motivation of their children in learning, because education is a shared responsibility between parents, government, and society, and (5) The Institute for Education Quality Assurance (LPMP) joint vocational school principals should create a mapping program of vocational teacher professionalism, increase the academic qualifications for teachers, and provide education and training programs or a scientific forum as ways to improve the professionalism of teachers.

Conflict of interest

None.

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