

Influential factors of students' competence

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ABSTRACT: Students' competence can be measured by observing their performance in terms of task finalisation based on their expertise. The level of student competence can be influenced by many factors. These factors can come from teachers as instructors, students as learners and the environment as a supporter. In Indonesia, students' competence and their achievement are a critical issue as an alarming number of students, especially vocational school graduates, pass their study through remedial processes. The authors of this article discuss the factors that impact on students' competence and describe a research framework, based on a literature review, which might contribute to improving the students' competence. Ultimately, they decide to focus on only three specific factors: teachers' teaching performance, students' learning satisfaction, and achievement and motivation.

INTRODUCTION

Competence is defined as capability to apply or use a set of related knowledge, skill and attitude to complete a task according to its standards in a defined work area [1-3]. In addition, competence can be scored and is measurable [4]. The teachers or instructors can assess students' competence through processes of observation and evaluation.

The students' competence achievement problem becomes an essential issue to be discussed. In Indonesia, this problem happens many times to school graduates, especially vocational school graduates. At the end of 2015, an observation and interview were undertaken with a computer and network engineering study programme at several vocational schools in Malang to find out their graduates' condition. The results showed that most of them passed their study through remedial processes. This means that, in fact, they do not meet the initial competency requirement and were passed only following remedial processes. That is, they are less-competent, but still passed to the next grade.

According to the results, those less-competent graduates in the field are suspected of being one of the problem causes. Therefore, it becomes a problem for vocational school graduates, especially, those who take the computer and network engineering programme.

DISCUSSION

Several factors influence the standard of a student to be categorised as able to master the required competence level. Those factors come from the students themselves, the teachers and the supporting environment [5]. Students' factors can be in the form of self-regulated learning [6], communication skills [7], student achievement motivation [8] and student learning satisfaction [9].

Teachers' factors come from teaching performance [10], proper guidance [11], teaching experience [12] and each teacher's competence [13]. Environmental factors, which support the learning process are in the form of adequate facilities and infrastructure [14], parental involvement [8] and a positive classroom environment [15]. The authors of this article endeavour to discuss factors that contribute to the acquisition of students' competence and produce a research framework based on a literature review.

Students' Factors

Students' factors are influential factors, which arise from the students themselves. Students' self-regulated learning is how students select, arrange or create their own learning environment so that it can be advantageous, and also how they

plan and control themselves in the learning process [16]. Students' successfulness in organising their own learning activities contributes to their academic achievement [17].

Communication becomes an important element for self-development [18]. While communicating with other students or teachers, students will have the opportunity to discuss and share their ideas [19]. If the communication is running well, the transfer of information between students and students or students and teachers will be achieved.

The third factor is students' achievement motivation. Motivation is the most important factor to achieve something [20]. Achievement motivation has an essential role in students' academic performance [21]. Students' academic knowledge and skills can be achieved by improving their motivation to achieve it [22].

The last factor is students' learning satisfaction. Students who are satisfied with their learning experiences at school have better academic achievement than students who are not [9] and they will have a positive disposition. A positive disposition improves students' intrinsic motivation, so their performance will also increase [23].

Teachers' Factors

Teachers as learning agents becomes another factor that influences students' competence achievement. Teachers' teaching performance is one of essential factors that needs to be considered. Teachers must have measurable teaching performance quality, because it plays an important role in the learning process. The quality of their teaching performance becomes the most influential factor in the students' achievement [24]. Moreover, it also can provide reinforcement to students, so that their motivation is improving and they have better learning achievement [25].

Adequate and proper guidance from the teacher will become another factor that affects students' competence achievement [26]. Students often face many problems in developing a positive learning attitude and good study habits [27]. Students at secondary schools face these problems many times. Proper guidance from the teacher is the right solution to the problems, and it has a significant effect on students' academic achievement [27].

Teachers' teaching experience also has an impact on students' achievement [28][29]. Experienced teachers have a higher, but not too significant impact on students' achievement, compared with less-experienced teachers or teachers in the early years of their teaching career [28].

The fourth factor is teachers' competence. Teachers' competence can be seen as:

- attitude;
- skills and knowledge;
- degree or level of capabilities based on other people's judgment;
- characteristics possessed by a teacher [30].

Knowledge can be put into the spotlight as it is widely discussed in many studies. Teachers' knowledge can improve student achievement [31][32].

Environmental Factors

Environmental factors are also influential. Facilities and infrastructure at school have a positive influence on the effectiveness of the teachers' teaching and students' learning [33]. Effective teaching and learning activities lead to the improvement of students' learning achievement [34].

Parental involvement becomes another factor that supports students' learning achievement [35]. The role of parents in education is positively correlated to the motivation of children or students [36]. As a result, their academic achievement will increase as there is positive support from their parents.

Classroom environments that support learning activities also have an impact on students' learning achievement [37]. A positive learning environment will support students' learning activities [38]. A learning activity which runs, as well as it has been expected will improve students' learning achievement.

Based on the study by Trigwell et al [39] and Liberante [40] about the factors that affect students' competence achievement, several factors have been chosen to be examined further. This article will focus on factors that come from teachers and students. Besides, they are the main actors in the learning process, they also have a direct relationship in schools, which can improve learning [39][40].

Teachers as educators have a role to educate students so that they can achieve their competence. Moreover, teachers as facilitators should be able to facilitate their student to obtain and learn their own information [41]. It becomes very important for teachers to have a good quality of teaching performance. Therefore, these roles, which are categorised as very important factors from the teacher make them crucial to be studied.

From a different perspective, students as learners have an obligation to learn in order to achieve competence in education. How students study in the learning process affects their learning outcomes. Students can learn well depending on their own condition [42][43]. Students' emotions may affect their motivation and volitional processes [44]. Furthermore, it is related to their academic achievement. According to the research mentioned above, the factors from students' themselves become also important.

Following on from the previous explanation, there are three factors that influence students' competence, and these will be examined further. These factors are teachers' teaching performance, students' learning satisfaction and achievement motivation. Three other factors were not chosen because of several limitations of the study: time, cost and the object of research.

Teachers' role in teaching needs to be considered, because it can make a difference in students achievement [45][46]. Teachers with good teaching performance usually make the learning process become effective. Effective learning will affect students' academic achievement greatly. Besides, teachers' teaching performance can be examined in comparison with other factors, because the subject of this study is students. Students can evaluate the teaching quality of their teachers by direct observation in class.

The other factors are students' learning satisfaction and achievement motivation. Learning satisfaction as a form of emotions or feelings towards learning experiences is worthy of study. It illustrates how the expectation conditions match the learning outcome received or experienced by the students during the learning process at school. When the students are satisfied with what they learn, the feeling of excitement grows and their interest in learning will be increased. As a result, their academic achievement will also be increased [47-49].

Students' achievement motivation is also worth studying, because it has an important role in improving student achievement [50-52]. Motivation plays a role in boosting the students to do better in their task. Increasing students' motivation will improve their performance [53]. Previous research has shown that students' academic achievement can be improved by considering their self-motivation that increases their performance.

RESEARCH FRAMEWORK

This literature review leads to a quantitative research framework that aims to examine the contribution of independent variables (teachers' teaching performance (X_1) and students' learning satisfaction (X_2)) on the intervening variables (students' achievement motivation (Y)) and the dependent variable (students' competence achievement (Z)) through a causal-effect relationship.

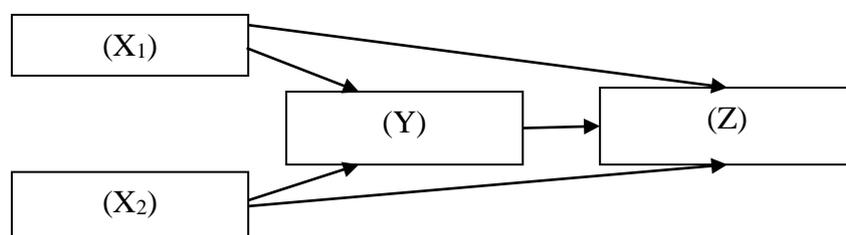


Figure 1: Relationship between variables.

Students of a computer and network engineering programme at vocational schools in Malang will be chosen as the research population. The subjects are selected from representation of each vocational school in Malang by using a sampling technique known as proportional random sampling. The total number of subjects will be selected based on the numeric random sampling table.

The data collection of the study will be carried out using questionnaires and documentation. The data collected will be teachers' teaching performance, students' learning satisfaction, and students' achievement motivation, and students' competence achievement document. Questionnaires will be given to the students, while the student learning outcomes documents will be obtained from teachers.

The contributions of independent variables will be tested through the analysis of direct and indirect influence among several other variables. The amount of the contribution shown by causal-effect relationships between variables X_1 and X_2 to Y , and X_1 , X_2 , and Y to Z , will be tested using path analysis techniques.

CONCLUSIONS

This article reports on a research framework based on the studies of theory about the factors that affect students' competence. The research framework contains three factors that affect student competence; namely, teachers' teaching performance, students' learning satisfaction and students' achievement motivation. Teachers' teaching performance is defined as the ability of a teacher to teach that can be viewed during the learning process.

Student learning satisfaction is measured as an attitude and psychological conditions of students in responding to the learning process experience. Students' achievement motivation is the psychological driving force from the students themselves, which directs the learning activities into the right direction. So, students can achieve better results.

Based on the theoretical studies, teachers' teaching performance, students' learning satisfaction and students' achievement motivation have a considerable influence on and relation to students' competence achievement. In addition, teachers' teaching performance and students' learning satisfaction also have an influence on, and relation to students' achievement motivation.

REFERENCES

1. Ashworth, P. and Saxton, J., On competence. *J. of Further and Higher Educ.*, 14, 2, 3-25 (1990).
2. Gonczi, A., Hager, P. and Oliver, L., Establishing Competency-Based Standards in the Professions. Research Paper, National Office of Overseas Skills Recognition No. 1, Canberra. 4-11 (1990).
3. Deist, F.D. and Winterton, J., What is competence? *Human Resource Develop. Inter.*, 8, 1, 27-46 (2005).
4. Mansfield, B., The national training reform agenda and enterprise bargaining. *The Australian TAFE Teacher*, 27, 2, 10-25 (1993).
5. Ayvazian, A., Cultural Competence Curriculum Phase III 2009-2010 (2009), 31 May 2016, www.doe.virginia.gov/special_ed/tech_asst_prof_dev/self_assessment/disproportionality/arlington_adapted_cultural_competence_notebook.pdf
6. Kosnin, A.M., Self-regulated learning and academic achievement in Malaysian undergraduates. *Inter. Educ. J.*, 8, 1, 221-228 (2007).
7. Abbasi, M.H., Siddiqi, A. and ul Ain Azim, R., Role of effective communications for enhancing leadership and entrepreneurial skills in university students. *Inter. J. of Business and Social Science*, 2, 10, 242-250 (2011).
8. Ramadhan, A.N. and Soenarto, Pengaruh Persepsi Siswa terhadap Faktor-Faktor yang Mempengaruhi Prestasi Belajar Teori Kejuruan Siswa SMK. *J. Pendidikan Vokasi*, 5, 3, 297-312 (2015) (in Indonesian).
9. Martirosyan, N.M., Saxon, D.P. and Wanjohi, R., Student satisfaction and academic performance in Armenian higher education. *American Inter. J. of Contemporary Research*, 4, 2, 1-5 (2014).
10. Ganyaupfu, E.M., Factors influencing academic achievement in quantitative courses among business students of private higher education institutions. *J. of Educ. and Practice*, 4, 15, 57-65 (2013).
11. Mushtaq, I. and Khan, S.N., Factors affecting students' academic performance. *Global J. of Manage. and Business Research*, 12, 9, 17-22 (2012).
12. Adeyemi, T.O., Teachers' teaching experience and students' learning outcomes in secondary schools in Ondo State, Nigeria. *Educational Research and Review*, 3, 6, 204-212 (2008).
13. Muzenda, A., Lecturers' competences and students' academic performance. *Inter. J. of Humanities and Social Science Invention*, 3, 1, 6-13 (2013).
14. Prasetyadi, Z., Astutik, S. and Supeno, Analisis Ketercapaian Kompetensi (Standar Kompetensi dan Kompetensi Dasar) Mata Pelajaran Fisika pada Hasil Ujian Nasional Tingkat SMA Di Kota Pasuruan, Kabupaten Pasuruan, dan Kabupaten Probolinggo. *J. Pembelajaran Fisika*, 1, 2, 172-177 (2012) (in Indonesian).
15. Lo, C.C., Student learning and student satisfaction in an interactive classroom. *The J. of General Educ.*, 59, 4, 238-263 (2010).
16. Zimmerman, B.J., Self-regulated learning and academic achievement: an overview. *Educational Psychologist*, 25, 1, 3-17 (1990).
17. Caprara, G.V., Fida, R., Vecchione, M., Bove, G.D., Vecchio, G.M., Barbaranelli, C. and Bandura, A., Longitudinal analysis of the role of perceived self-efficacy for self-regulated learning in academic continuance and achievement. *J. of Educational Psychology*, 100, 3, 525-534 (2008).
18. Morreale, S.P., Osborn, M.M. and Pearson, J.C., Why communication is important: a rationale for the centrality of the study of communication. *J. of the Assoc. for Comm. Admin.*, 29, 1, 1-25 (2000).
19. Akinoğlu, O. and Tandoğan, R.Ö., The effects of problem-based active learning in science education on students' academic achievement, attitude and concept learning. *Eurasia J. of Mathematics, Science & Technol. Educ.*, 3, 1, 71-81 (2007).
20. Singh, K., Study of achievement motivation in relation to academic achievement of students. *Inter. J. of Educational Planning & Admin.*, 1, 2, 161-171 (2011).
21. Awan, R.U.N., Noreen, G. and Naz, A., A study of relationship between achievement motivation, self concept and achievement in English and mathematics at secondary level. *Inter. Educ. Studies*, 4, 3, 72-79 (2011).
22. Wentzel, K.R. and Wigfield, A., Academic and social motivational influences on students' academic performance. *Educational Psychology Review*, 10, 2, 155-175 (1998).
23. Isen, A.M. and Reeve, J., The influence of positive affect on intrinsic and extrinsic motivation: facilitating enjoyment of play, responsible work behavior, and self-control. *Motivation and Emotion*, 29, 4, 297-325 (2005).
24. Rowe, K., The Importance of Teacher Quality as a Key Determinant of Students' Experiences and Outcomes of Schooling (2003), 31 May 2016, research.acer.edu.au/research_conference_2003/3
25. Williams, K.C., and Williams, C.C., Five Key Ingredients for Improving Motivation (2011), 1 June 2016, aabri.com/manuscripts/11834.pdf
26. Klem, A.M. and Connel, J.P., Relationships matter: linking teacher support to student engagement and achievement. *J. of School Health*, 74, 7, 262-273 (2004).

27. Hussain, C.A., Effect of guidance services on study attitudes, study habits and academic achievement of secondary school students. *Bulletin of Educ. & Research*, 28, 1, 35-45 (2006).
28. Rivkin, S.G., Hanushek, E.A. and Kain, J.F., Teachers, schools, and academic achievement. *Econometrica*, 73, 2, 417-458 (2005).
29. Boyd, D., Grossman, P., Lankford, H., Loeb, S. and Wyckoff, J., How changes in entry requirements alter the teacher workforce and affect student achievement. *J. of Educ. Finance and Policy*, 1, 2, 176-216 (2006).
30. Oliver, B., Defining competence: the case of teaching. *J. of Teaching in Physical Educ.*, 9, 4, 184:188 (1990).
31. Hill, H.C., Rowan, B. and Ball, D.L., Effects of teachers' mathematical knowledge for teaching on student achievement. *American Educational Research J.*, 42, 2, 371-406 (2005).
32. Baumert, J., Kunter, M., Blum, W., Brunner, M., Voss, T., Jordan, A., Klusmann, U., Krauss, S., Neubrand, M. and Tsai, Y.M., Teachers' mathematical knowledge, cognitive activation in the classroom, and student progress. *American Educational Research J.*, 47, 1, 133-180 (2010).
33. Earthman, G.I., School Facility Conditions and Student Academic Achievement. UCLA's Institute for Democracy (2002), 1 June 2016, escholarship.org/uc/item/5sw56439
34. Uline, C. and Tschannen-Moran, M., The walls speak: the interplay of quality facilities, school climate, and student achievement. *J. of Educational Admin.*, 46, 1, 55-73 (2008).
35. Deslandes, R., Royer, E., Turcotte, D. and Bertrand, R., School achievement at the secondary level: influence of parenting style and parent involvement in schooling. *McGill J. of Educ.*, 32, 3, 191-207 (1997).
36. Gonzales-DeHass, A.R., Willems, P.P. and Holbein, M.F.D., Examining the relationship between parental involvement and student motivation. *Educational Psychology Review*, 17, 2, 99-122 (2005).
37. Doppelt, Y. and Schunm C.D., Identifying students' perceptions of the important classroom features affecting learning aspects of a design-based learning environment. *Learning Environments Research*, 11, 3, 195-209 (2008).
38. Lizzio, A., Wilson, K. and Simons, R., University students' perceptions of the learning environment and academic outcomes: implications for theory and practice. *Studies in Higher Educ.*, 27, 1, 27-52 (2002).
39. Trigwell, K., Prosser, M. and Waterhouse, F., Relations between teachers' approaches to teaching and students' approaches to learning. *Higher Educ.*, 37, 1, 57-70 (1997).
40. Liberante, L., The importance of teacher-student relationships, as explored through the lens of the NSW quality teaching model. *J. of Student Engage.: Educ. Matters*, 2, 1, 2-9 (2012).
41. Harden, R.M. and Crosby, J., The good teacher is more than a lecturer - the twelve roles of the teacher. *Medical Teacher*, 22, 4, 334-347 (2000).
42. Abidin, M.J.Z., Rezaee, A.A., Abdullah, H.N. and Singh, K.K.B., Learning styles and overall academic achievement in a specific educational system. *Inter. J. of Humanities and Social Science*, 1, 10, 143-152 (2011).
43. Gokalp, M., The effect of students' learning styles to their academic success. *Creative Educ.*, 4, 10, 627-632 (2013).
44. Pekrun, R., Goetz, T. and Titz, W., Academic emotions in students' self-regulated learning and achievement: a program of qualitative and quantitative research. *Educational Psychologist*, 37, 2, 91-105 (2002).
45. Wright, S.P., Horn, S.P. and Sander, W.L., Teacher and classroom context effects on student achievement: implications for teacher evaluation. *J. of Personnel Eval. in Educ.*, 11, 1, 57-67 (1997).
46. Metzler, J. and Woessmann, L., The impact of teacher subject knowledge on student achievement: evidence from within-teacher within-student variation. *IZA Discussion Paper*, 4999, 1-24 (2010).
47. Roebken, H., The influence of goal orientation on student satisfaction, academic engagement and achievement. *Electronic J. of Research in Educational Psychology*, 5, 3, 679-704 (2007).
48. Lim, J., Kim, M., Chen, S.S. and Ryder, C.E., An empirical investigation of student achievement and satisfaction in different learning environments. *J. of Instructional Psychology*, 35, 2, 113-119 (2008).
49. Lee, Y.J., A study of the influence of instructional innovation on learning satisfaction and study achievement. *The J. of Human Resource and Adult Learning*, 4, 2, 43-54 (2008).
50. Tuan, H.L., Chin, C.C. and Shieh, S.H., The development of a questionnaire to measure students' motivation towards science learning. *Inter. J. of Science Educ.*, 27, 6, 639-654 (2005).
51. Tella, A., The impact of motivation on student's academic achievement and learning outcomes in mathematics among secondary school students in Nigeria. *Eurasia J. of Mathematics, Science & Technol. Educ.*, 3, 2, 149-156 (2007).
52. Bernaus, M. and Gardner, R.C., Teacher motivation strategies, student perceptions, student motivation, and english achievement. *The Modern Language J.*, 92, 3, 387-401 (2008).
53. Steinmayr, R. and Spinath, B., The importance of motivation as a predictor of school achievement. *Learning and Individual Differences*, 19, 1, 80-90 (2009).