

Teacher Competence and Student Academic Achievement

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ABSTRACT

This study aims at investigating the relationship between teacher competence and student academic achievement mediated by both intrinsic and extrinsic motivations. The respondents of this study are 115 high-school students in Gorontalo city, to whom questionnaires were distributed to acquire data, which was analyzed using path analysis in SmartPLS. The results of the analysis indicate that teacher's competence does not influence the extrinsic motivation of students to study. However, teacher competence directly influences student's academic achievement because it raises the intrinsic motivation of students to study. In addition, intrinsic motivation mediates the effect of teacher's skill on student academic achievement, while extrinsic motivation does not mediate any relationship.

Keywords— teacher competence, intrinsic motivation, extrinsic motivation, student academic achievement

1. INTRODUCTION

Competence in human resources can be described as the ability of a person to perform his role quickly or qualified enough to perform certain roles. Various groups define competence in many ways, but some scientists consider competence as a combination of cognitive skills, practical knowledge, and theoretical behavior and values to improve achievement [1]. [2] defined achievement as the outcome level or "the degree of accomplishment". In other words, achievement is the level of organizational goal. The definitions imply that the level of outcome achievement can be measured and identified through achievement obtained; this also applies to teacher competence. Competence and achievement are two words commonly used in the fields of human resource management, education, skill development, trainings, and others. However, since the two words have many conceptual similarities according to the place they are used, competence and achievement are frequently used interchangeably despite their differences.

Rationalistic approach which uses the functional analysis used by Taylorism as well as the ideas of [3] and the American personality psychology tradition considers that competence is an attribute-based phenomenon either identified by different job requirements (knowledge and skills) or as the underpinnings of individual (traits and motives) [4], [5]. Hence, teacher competence is often understood as a permanent characteristic of the teacher [6], thus a list of competencies driven by policies sets the standards for good teaching [7], [8].

Teacher competence is defined based on the Regulation of the Minister of National Education of Indonesia Number 16 of 2007 regarding Teacher's Academic Qualifications and Competencies. It is clarified that teachers are said to be

competent if they have already fulfilled the four main competencies: (1) pedagogical competence, (2) personal competence, (3) social competence, and (4) professional c competence; all of which are integrated into teacher's achievement [9].

Law No. 14 of 2005 relating to teachers and lecturers states that an occupation is a work or operation performed by someone as an income source requiring knowledge and skills that meet certain quality standards or criteria and require professional education. Professional education is intended to improve teacher competence in order to achieve educational goals. Therefore, teacher competence and effectiveness are the most important thing in Indonesia, as marked by the current education reforms promoted by the government. All elements agree that teachers determines school education success. Modern teacher productivity research

concentrate primarily on individual teacher success in the classroom. This narrow conception leads to limited teacher effectiveness, and it no longer meets the need for school environment changes, especially when parents and the community claim for high-quality education at school [10].

Reference[11] mentioned that, during the mid-twentieth century, achievement and competence based teacher education

was emphasized. The idea behind it was to develop solid observed teacher behaviors with the highest correlation with the learning outcomes of students. This conduct is interpreted as solid competence which is very important for being a good or qualified teacher [7].

There have been many previous studies investigating the improvement of teachers and students' competence, e.g. [12] in his book entitled *The Competence Motivation and Facilities Effect toward Achievement and Improving the Quality of Education at Australia College* and [13] focusing on strengthening achievement through improvements in

cultural motivational facilities and work competencies towards the improvements of human resource quality. The research of [14] concerning teacher competence in teaching entrepreneurship has revealed that teacher competence in teaching entrepreneurship seems to incorporate the willingness of becoming entrepreneurs by reflecting and updating pedagogical thinking that leads to increased readiness to start guiding and maintaining learning process related to entrepreneurship.

Reference [15] described achievement as a function of interaction between capacity, motivation, opportunity or achievement = f (A x M x O). If there is an inadequacy, achievement will be affected negatively. In addition to motivation, ability and capability to explain and evaluate the achievement of an employee also need to be considered. High work motivation creates high achievement, and vice versa. In short, therefore it is stated that motivation and ability have a positive relationship. Based on the definitions, achievement is the extent of the work achievement of an employee in the context of achieving organizational goals.

Revolution 4.0 demands era development towards disruption era. The rapid changes of time force the government to spur human resources quality to keep up with the changes. Various efforts to stimulate students are carried out to produce a superior and competitive generation. One of the efforts is improving students' academic achievement, which is always associated with internal and external factors. As stated by [16], achievement does not stand alone; it is influenced by the encouragement from within the individuals and the role learning environment, including teacher competence. Therefore, in order to enhance the academic achievement of student, teachers competence in teaching must be improved [17], [18], [19]. Developing teacher competencies to motivate student's learning is aimed at improving student academic achievement [20], [21], [22]. Referring to this opinion, this study assesses a relationship model between teacher competence, student motivation, and student academic achievement. The motivation in this study is divided into two: intrinsic and extrinsic motivation, referring to the 2- factor theory of Herzberg [23].

Herzberg revealed that motivational factors are classified into two: encouragement from within (intrinsic motivation) and encouragement from the outside (extrinsic motivation). Intrinsic motivation is always associated with satisfaction, including success in achieving something in a career, obtaining recognition from the institution, the nature of the performed task, career development, and professional and intellectual growth experienced by someone [24]. The indicators used to measure work motivation are adopted from [24]; they are interest to certain subjects, the desire to develop, contentment with the learning process, and enjoyment during the learning process (intrinsic motivation), competition, evaluation, status, money and other rewards, and avoiding punishment from the teacher (extrinsic motivation) [23], [24].

Generally, intrinsic motivation refers to the participation in an endeavor that is solely for the sake of enjoyment and the satisfaction from carrying out activities [25]. If someone is intrinsically motivated, he will do the behavior on a voluntary basis, ignoring material rewards or external

constraints [26]. Extrinsic motivation is related to various behaviors which are used as a basis to reach goals, not because of their own sake [25]. At first the thought was an extrinsic motivation, called as behavior that is not self-determined, behaviors that can only be triggered external contingencies (such as gifts). However, Deci and Ryan and their colleagues e.g. [27] recently suggested that there are in fact different forms of extrinsic motivation that can occur, arranged along the self-determination spectrum. By lower to higher self-determination levels, there are external regulation, introjection, identification [28].

Professionalism of teachers as a teaching staff and education staff is measured from competencies. Ability that includes knowledge, attitudes, and skills is absolutely necessary in carrying out and accounting the assigned tasks. Indonesian Law No. 14 of 2005 concerning teachers and lecturers, it is explained that in order to be a professional teacher or lecturer, a person must possess at least four competences: pedagogical competence, personal competence, social competence, and professional competence [29]. Whereas, student academic achievement was measured using presence, academic achievement, learning independence, proactive personality, thinking patterns, and adaptability [30], [31], [32].

2. METHOD

This study aims to investigate the relationship between teacher competence and student academic achievement mediated by both intrinsic and extrinsic motivation. The respondents of this research are 115 high-school students in Gorontalo. The data was harvested through questionnaires, which provide information or data required to answer the research problems, and was analyzed using path analysis in smartPLS.

3. RESULT AND DISCUSSION

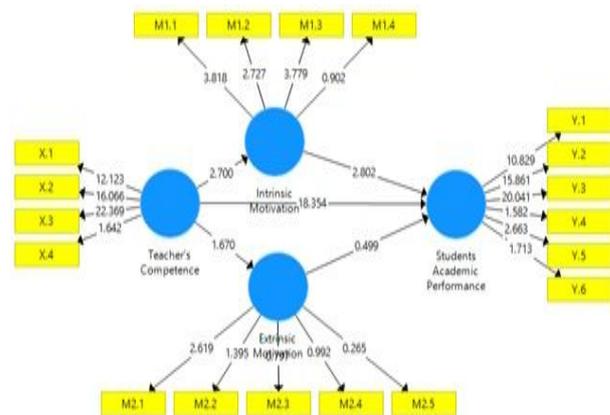


Figure 1. Path Diagram of T-statistics Values (Source: Processed Data)

Path diagram above show that significant influence only occurs between teacher competence and student academic achievement, teacher competence and intrinsic motivation, and intrinsic motivation and student's academic

achievement. Teacher competence does not have any significant influence on extrinsic motivation, neither does intrinsic motivation on student academic achievement. The details can be seen in the following table 1.

Table 1. Path Analysis and Hypothesis Testing

	Original Sample (O)	T Table	T Stat. (O/STDEV)	P Values
Extrinsic Motivation -> Student Academic Achievement	0.009	1.981	0.475	0.635
Intrinsic Motivation -> Student Academic Achievement	0.213		2.883	0.004
Teacher Competence -> Extrinsic Motivation	0.147		1.677	0.094
Teacher Competence -> Intrinsic Motivation	0.259		2.873	0.004
Teacher Competence -> Student Academic Achievement	0.918		18.775	0.000

(Source: Processed Data)

The table above shows that teacher competence directly affects students' academic achievement, with the t statistics of 18,775 at the significance level of 0,000. It explains that the effect of teacher competence on student academic achievement is significant. Teacher competence affects students' intrinsic motivation, with the t statistics of 2,873 at the significance level of 0.004. Intrinsic motivation affects student academic achievement at the significance level of 0.004 and t statistics of 2.883.

The contribution of teacher competence in influencing student academic achievement is 0.918 (91.8%). This indicates that, partially, student's academic achievement relies heavily on teacher competence. Therefore, student academic achievement will improve if teacher competence is prioritized. The higher the teacher competence, the higher the student academic achievement.

Looking deeper, the coefficients of each indicator show that student academic achievement is dominated by learning independence with the coefficient value of 20,041. This means that currently students prefer to study on their own to improve their achievement. This phenomenon is supported by the emergence of technological revolutions in this era. Search engines like Google gives easier access for students to access knowledge.

In the variable of teacher competence, social aspect has the highest coefficient value (22,369), and for intrinsic motivation, interest in certain subject has the coefficient of 3,818. It can be concluded that competent teachers must have social competence especially when adapting to students. The correlation between the two will create a sense of interest from within the students as the intrinsic motivation, which serves as the mediator for improving student's academic achievement.

Table 2. Path Analysis and Hypothesis Testing

	Specific Indirect Effects
Teacher's Competence -> Extrinsic Motivation -> Students Academic Achievement	0.001
Teacher's Competence -> Intrinsic Motivation -> Students Academic Achievement	0.055

The data in table 2 confirms the contribution of each mediating variable. Intrinsic motivation mediates the effect of teacher competence on student academic achievement at 0.055 (5.5%). Intrinsic motivation acts as a partial mediator. In other words, teacher competence influences student's academic achievement with the support of intrinsic motivation.

It is identified that student academic achievement is greatly influenced by teacher competence. Figure 1 clearly shows that teacher competence can stimulate students' learning motivation intrinsically instead of extrinsically. This means that teacher competence can attract students' interest in certain subjects, motivate the desire to develop, make the student happy with the process of learning, and make the student enjoy the process of learning, which finally improves student's academic achievement automatically. Based on this model, it can be explained that the relationship between teacher competence, intrinsic motivation, and student academic achievement is synergized. The presence of competent teachers in the class will significantly affect

student's academic achievement because they can raise learning motivation from within the students. Student's learning behavior will be directed without having to take up competitions in the classroom. Teachers can persuade students with rewards or ask them just to fulfill their obligations to avoid punishments.

4. DISCUSSION

Expertise in digitally processing literacy has become the characteristic of 21st-century students. Today's generation has the capacity to cope with the technological revolution more quickly than the teachers. Therefore, in order to improve the student academic achievement, especially in the era of disruption, teachers are required to be technologically literate as the indicator of teacher competence in the 21st century. Digitalization of education system, if not followed by teacher competence, will result in students who are unable to compete with machines.

In the era of technological advancements like now, teacher competence becomes a necessity. Teachers are required to keep up with technological developments so that their skill can be applied in learning media to support classroom teaching and learning. Reference [33] revealed that the combination of three main aspects (technology, pedagogy, and knowledge) into a new model is a form of learning innovation. This indicates that, to answer the challenges, competent teachers are assessed not only in the aspect of their pedagogical aspects but also the aspect of their ability to combine technology and learning content.

Creating superior and competitive human resources, as stipulated in the 2019-2024 RPJMN, can be achieved by, one of which, improving student's academic achievement. Educational institutions certainly play an active role in realizing these goals. In order to avoid a decline in student's academic achievement, improvement in teacher competence must also consider technological changes.

So far, the government's efforts to improve the quality of human resources are still focused on handling environmental aspects. See what the government has done, constructing of facilities and infrastructure but ignoring human resources. The construction of facilities and infrastructure is certainly a good step taken by the government, but revolution 4.0 demands more than just infrastructure development. It requires that humans are able to change their lives and work patterns fundamentally, and of course it will disrupt all forms of human activity in various fields [34].

Workers in this century are very vulnerable to the threat of layoffs upon failures in competitions, especially in the current technology-based world of work. Therefore, students as human resources must be prepared to face the challenges of the times. Improvements in curriculum and learning methods to support student academic achievement must be supported by competent teachers. Teachers in the era of 4.0 must be able to adapt to the technological revolution [35] so that they can adapt to the learning behavior of today's students.

5. CONCLUSION

It is concluded in reference to the results of the study that teacher competence does not have any effect on student extrinsic motivation in learning. Even so, teacher competence directly affects student academic achievement because it encourages student intrinsic motivation to learn. The findings also indicate that intrinsic motivation mediates the effect of teacher competence on students' academic achievement, whereas extrinsic motivation does not act as a mediator.

For the purpose of boosting student's academic achievement, especially by looking at the learning behavior in the disruption era, teacher competence must also be improved. The competencies in this matter do not solely based on pedagogical competencies but they are also considered from technological aspects. Adjustment between technological developments with media and learning content needs to be sought. Therefore, the old pattern is not enough to enhance

student academic achievement of those belonging to the 21st century generation.

REFERENCES

- [1] Arifin, Muhammad. 2015. The Influence of Competence, Motivation, and Organisational Culture to High School Teacher Job Satisfaction and Achievement. *International Education Studies*; Vol. 8, No. 1; 2015
- [2] Rue dan Byars, 1995. *Manajemen Pelayanan*. Pustaka Pelajar. Jogjakarta
- [3] McClelland, D. C. (1973), "Testing for competence rather than for "intelligence." *American Psychologist*, Vol. 28, pp. 1-14.
- [4] Lans, T., Hulsink, W., Baert, H. & Mulder, M. (2008), "Entrepreneurship Education and Training in a Small Business Context: Insights from the Competence-based Approach", ERIM Report Series Research in Management. ERS-2008-028-ORG, available at: <http://ssrn.com/abstract=1144291> (accessed 27 January 2012).
- [5] Sandberg, J., (2000), "Understanding human competence at work: An Interpretative approach", *Academy of Management Journal*, Vol. 43 No.1, pp.9-25
- [6] Passos, A.F.J. (2009), *A comparative analysis of teacher competence and its effect on pupil achievement in upper primary schools in ozambique and other SACMEQ countries*. Academic Dissertation. The Department of Education Management and Policy Studies. University of Pretoria
- [7] Korthagen, F.A. J. (2004), "In search of the essence of a good teacher: towards a more holistic approach in teacher education", *Teaching and Teacher Education*, Vol. 20 No.1, pp. 77-97.
- [8] Sandholtz, J.H. & Shea, L.M. (2012), "Predicting Achievement: A Comparison of University Supervisors' Predictions and Teacher Candidates' Scores on a Teaching Achievement Assessment", *Journal of Teacher Education*, Vol. 63 No.1, pp.39-50
- [9] Maklassa. (2012). *Pengaruh Kompetensi, Motivasi, Sarana dan Prasarana Terhadap Kinerja Guru dan Kualitas Pendidikan di Provinsi Sulawesi Selatan*. Disertasi PPs-UMI. Unpublisher, Makassar, Indonesia.

- [10] Cheng, Yin Cheong (1996), "Total teacher effectiveness: new conception and improvement", *International Journal of Educational Management*, Vol. 10 Iss 6 pp. 7 – 17
- [11] Sharma, Payal Jagwinder Singh Pandher, (2018) "Quality of teachers in technical higher education institutions in India", *Higher Education, Skills and Work-Based Learning*, Vol. 8 Issue: 4, pp.511-526,
- [12] Miako, S. (2008). The Strength of Achievement through Improvement Work Facility, Motivation, Culture and Work Ability toward Increasing the Quality of Human Resource in Toyota Inc. Japan. *Journal of HRM*.
- [13] William, S. (2005). The Competence, Motivation and Facilities Affect toward Achievement and Increasing The Quality of Education in Australia College. *Journal Human Resource Management*.
- [14] Peltonen Katariina , (2015), "How can teachers' entrepreneurial competences be developed? A collaborative learning perspective", *Education + Training* , Vol. 57 Iss 5 pp.
- [15] Robbins, T. L., & DeNisi, A. S. (1998). Mood vs. interpersonal affect: Identifying process and rating distortions in achievement appraisal. *J Bus Psychol*, 12(3), 313-325
- [16] Rivai, 2004. *Manajemen Sumber Daya Manusia Untuk Perusahaan*, Cetakan Pertama, Jakarta, PT. Raja Grafindo Persada
- [17] Meyers, Shelly. Lester, David. 2013. "The Effects of Situated Learning Through a Community Partnership in a Teacher Preparation Program". *SAGE Open*. Vol 3. Issue 3.
- [18] Handayani, R. Dina. 2017. "Analysis of Intrinsic and Extrinsic Motivation of Physics-Teacher Student Candidates". *Jurnal Kependidikan Penelitian Inovasi Pembelajaran*. Vol 1. No 2
- [19] Koleva, Neli. Warner-Stoyanova, Maya. 2018. "A New Way for New Talents in Teaching or The Impact of Targeted Recruitment, Rigorous Selection, Innovative Training, and Ongoing Professional Support on Beginner Teacher's Achievement". *BCES Conference Books*. Vol 16
- [20] Duhon, J, Gary. Mesmer, M, Eric. Gregerson, Lezlee. Witt, C, Joseph. 2009. "Effects of Public Feedback During RTI Team Meetings on Teacher Implementation Integrity and Student Academic Achievement". *Journal of Psychology*. Vol 47. 19-37.
- [21] Cimer, Sabiha, Odabasi. Cakir, Ilknur. 2010. "Teacher's Knowledge and Practices of Achievement Assessment". *Procedia Social and Behavioral Sciences*. Vol 2.
- [22] Kingdon, Geeta. Teal, Francis. 2010. "Teacher Unions, Teacher Pay and Student Achievement in India: A Pupil Fixed Effects Approach". *Journal of Development Economics*. Vol 91. 278-288
- [23] Tantawi, Rezkiawan, Armanu Armanu, and Sudjatno Sudjatno. "The Role of Job Motivation and Job Satisfaction in Mediating the Effect of Teacher's Certification on The Teacher's Achievement in Gorontalo Elementary." *Jurnal Aplikasi Manajemen* 14.4 (2016): 629-640.
- [24] Kinman, Gail and Kinman, Russell. 2001. "The Role of Motivation to Learn in Management Education", *Journal of Workplace Learning*, Vol. 3, No. 4
- [25] Deci, E.L. (1975). *Intrinsic motivation*. New York: Plenum Press.
- [26] Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- [27] Ryan, R.M., Connell, J.P., & Grolnick, W.S. (1990). When achievement is not intrinsically motivated: A theory of self-regulation in school. In A.K. Boggiano & T.S. Pittman (Eds.), *Achievement and motivation: A social-development perspective*. New York: Cambridge University Press
- [28] Pelletier, Luc G. 1995. Toward a New Measure of Intrinsic Motivation, Extrinsic Motivation, and Amotivation in Sports: The Sport Motivation Scale (SMS) *JOURNAL OF SPORT & EXERCISE PSYCHOLOGY*, 1995, 17,35-53O 1995 Human Kinetics Publishers, Inc
- [29] Mulyasa, 2007. *Standar Kompetensi dan Sertifikasi Guru*. Bandung: PT. Remaja Rosdakarya
- [30] Bateman, T.S. Crant, J, M. 2000. "The Big Five Personality Dimensions and Job Achievement Meta-Analysis". *Journal Psychology Personnel*. 44. 1-26
- [31] Parkinson, J. Taggar, S. 2006. "Intelligence, Personality and Achievement on Case Studies". *Journal of Business and Psychology*. Vol 20 (3).

- [32] Nilawati, Levi. Bimo, Dwinanto. 2010. "Pengaruh Motivasi Dalam Kinerja Belajar". *Jurnal Manajemen Bisnis*. Vol 3. No 3. 287-303.
- [33] Mishra, P. Koehler, M.J. 2. 2009. "What is Technological Pedagogical Content Knowledge". *Journal Science Educational Technollgy*. 9(1) 60-70.
- [34] Schwab, Klaus. 2016. "The Fourth Industrial Revolution". Switzerland: Penguin.
- [35] Nurkholis, M, Anwar. Badawi. 2019. "Profesionalisme Guru Di Era Revolusi Industri 4.0". *Prosiding Seminar Nasional Pendidikan Program Pascasarjana Universitas PGRI Palembang*