

Implementation of E-Learning and Teacher's Affective Professional Commitment To Improve Learning Achievement of High School Students In South Papua

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Abstract—The purpose of this study was to analyze the implementation effect of e-learning and teacher's affective professional commitment to improve the learning achievement of high school students in South Papua. Primary data were obtained through a questionnaire distributed to 60 teachers working in high schools in remote and suburban areas in South Papua. Three hypotheses were tested with structural equation model (SEM) analysis and proved significant. The findings of this study conclude that the highest percentage for variables that influence student achievement was the teacher's affective professional commitment. The effect of e-learning implementation variables on student learning achievement was lower than the teacher's affective professional commitment. This is caused by several factors which are the geographical condition of South Papua with a high level of difficulty, limited communication media, the attitudes and responses of teachers and students towards the use of e-learning, economic conditions of the family, the scope of communication media use and e-management learning complexity. Although the effect of e-learning on student achievement was lower when compared to the teacher's affective professional commitment, it still showed a positive effect.

Keywords: e-learning, affective professional commitment, learning achievement.

I. INTRODUCTION

The education growth in Indonesia is enlarging and significantly increasing along with the rapid progress of technology. One proof is the development of various learning methods applied by teachers who use a variety of modern technology media (Hartanto, 2016). The existing modern technology, especially information and communication technology, has begun to shift even to replace conventional learning methods. Information technology that is currently being used as a learning medium is e-learning. According to Priyanto (2008), e-learning is the use of electronic media as a delivery

method in learning. Electronic media used in the learning process can be system broadcasts (Radio and Television), teleconferences, digital technology and the internet (Davidson, et al, 2006).

The implementation of e-learning in Indonesia is already 20 years old, but Indonesia's e-learning readiness ranks still at a less significant position when compared to other countries (Priyanto, 2008). This fact is inversely proportional to the availability of supporting factors such as hardware, software, learning content and even teachers as implementers of e-learning that have participated in various types of training held at schools ranging from elementary to high school/vocational high school (Priyanto, 2008). Support from the government and private institutions in the form of funding is also very sufficient. Priyanto's research (2008) confirms that the development of e-learning in Indonesian schools is still at a partial level; not yet comprehensive. In addition, there has not been a standard assessment regarding the implementation of e-learning in each school so far.

There are many factors that support the implementation of e-learning in order to reap satisfactory results. One factor that determines the success of e-learning implementation is teacher. Although e-learning tools are available, so are students, if the teacher does not have sufficient ability to prepare the material and to present it according to the demands of e-learning, it will not reap satisfactory results. A professional teacher is required to utilize information technology in the learning process in order to obtain optimal results (Priyanto, 2008).

From the results of Supardi's research (2014), it can be concluded that teachers with high professional commitment will be able to apply e-learning well to help students, as a form of creativity in teaching to improve student learning achievement. Teacher's professional commitment is the key to

school success specifically in increasing student learning achievement.

Teacher's affective professional commitment influences teacher's attitude in the form of responsibility, responsiveness and innovation in a good quality learning process (Abidin, 2016). The use of e-learning media is a form of innovation and teacher's responsibility towards students. In addition, the use of modern facilities in learning is also a professionalism explicitness as a teacher. Teachers with high affective professional commitment will always try to develop their profession by using various supporting facilities effectively, be proud of the educational institution where they teach, increase the willingness to work harder and support the future of the school and student learning achievement (Mart, 2013).

Since 2017, an internet connection has been installed with Very Small Aperture Terminals (VSAT) in 25 points of remote areas (3T areas) in Papua and West Papua provinces and additional ICT assistance is provided consisting of laptops, projectors, servers, and a number of learning content (Kusnandar, 2018). Of the 25 schools in 25 points, only 16 schools use existing equipment but not optimally. This is the realization of the Center for Information Technology and Communication Education (Pustekkom) as an institution under the Ministry of Education and Culture responsible for realizing the 3T regional program through the Universal Service Obligation (USO) program (Memorandum of Understanding between the Ministry of Education and Culture and the Ministry of Communication and Information number 583/M.KOMINFO/HK.03.02/8/2015, number 06/VIII/NK/2015 concerning Utilization of Information and Communication Technology to Improve the Quality of Education and Culture).

Department Head of Education, Library and Regional Archives, Papua Province, Christian Sohila said that with "Learning from Covid 19" motto which became the theme of HARDIKNAS 2020, there were many things that could be learned. The most encouraged thing to do is to learn from home online (e-learning). Students are required to be able to learn online (online), so are teachers. They are also required to be able to teach students online (Ceposonline.com, May 8, 2020).

For urban schools, the e-learning implementation does not experience many obstacles. The problem is precisely faced by remote schools and teachers who teach in these schools. The Ministry of Communication and Information may prepare ICT facilities in some remote areas of Papua (Kusnandar, 2018), but their use is still limited among teachers with a limited locus which is in the school area. How can e-learning be implemented where students can stay at

home and learn from home; while the teacher explains the material online from school or from where he lives? If the conditions are like this, then distance learning with e-learning cannot yet be applied in the remote areas of Papua.

In the information from *Kejadian Kota Merauke*, complaints from the majority of students currently studying in Merauke city were revealed, regarding the number of assignments given by lecturers. The assignments must be completed and sent to lecturers online by students every day during the Covid-19 pandemic. The difficulty faced by students is only a few of them who have a Wifi network at home. Many students cannot top up their balance to access daily assignments using internet. Some students even do not have an android mobile phone, and some have returned to their villages and most villages in southern Papua cannot be connected to the Telkomsel network. The students request a new policy besides the online method in assignments during the Covid-19 period so that students' achievements in the semester and future are not sacrificed (Merauke, 10 May 2020). In urban areas such as Merauke, there are still obstacles in implementing online learning; especially schools and students in remote areas.

The research results from Kusnandar(2018) address several obstacles of online learning implementation in remote areas of Papua, such as communication media is limited, e-learning has not become a learning culture for some people (teachers or students), the management of e-learning is quite complicated, and some obstacles that make e-learning learning cannot be used as an alternative solution to help students by shortening the distance and also time in the learning process, so that their knowledge increases and it will have an impact on learning achievement. Not to mention, human resource capabilities of teachers in using tools for e-learning implementation with careful preparation is inadequate.

Ones who feel these obstacles for the most, as outlined above, are the students. Their knowledge becomes very limited and their learning achievement certainly does not increase significantly because achievement is very closely related to the material received from teachers and absorbed by students (Cholifah, et al, 2019). The problems that exist encourage the writer to explore further in order to find the right solution. Therefore, the formulation of the problem investigated in this study is whether the obstacles in implementing e-learning in remote areas of southern Papua are predominantly influenced by the teacher's affective professional commitment and subsequently have an impact on student achievement.

Affective professional commitment is highly demanded from a teacher because it influences his performance as a teacher and student learning

achievement. According to Aranya and Ferris in Rosyati et al (2015), professional commitment is the relative strength of identification and involvement of individuals in a profession. From this description, Aranya really emphasizes three essences of professional commitment which are as a belief and acceptance of the goals and values of profession, as a willingness to try seriously for the interests of profession, and as a desire to maintain membership in profession (Nurika, 2009).

Meyer, Allen and Smith (1993) divide professional commitment into three components, namely affective professional commitment, sustainable professional commitment and normative professional commitment. Affective professional commitment is one's involvement in the profession that is being carried out and that has emotional ties. In other words, affective professional commitment refers to alignment, involvement, and emotional attachment to the profession. Teachers who have a strong affective professional commitment will always maintain their profession—trying to develop their profession by using various supporting facilities effectively. Specifically for teachers, affective professional commitment, as explained by Meyer et al (1993), must be made explicitly in three aspects, namely 1) commitment to the profession as a teacher, 2) commitment to the teaching and learning process, 3) commitment to school policy (Pardjono, 2016).

According to Kartika (2011), affective professional commitment is an emotional bond attached to an employee to identify and to involve himself with the organization. Affective professional commitment can also be described as an important determinant of the dedication and loyalty of an employee. Employees who have high affective professional commitment will always show a sense of belonging to the organization, increase their involvement in organizational activities, strive to achieve organizational goals, and have a desire to stay afloat in the organization (Rhoades, Eisenberger, & Armeli, 2001).

Teachers who have high affective professional commitment will show the following characteristics: always maintain their image as a teacher, take pride in carrying out their profession as a teacher, and try to maximize their abilities in teaching students. The consequence is teachers will grow their commitment in carrying out the learning process in schools in accordance with the demands of technological development and progress, in which students become part of it (Abidin, 2016). One of them is the use of electronic media as a learning tool. A professional teacher is required to utilize information technology in the learning process in order to obtain optimal results (Priyanto, 2008).

H1: There is an influence of teacher's affective professional commitment on student learning achievement.

According to Dahiya (2012), e-learning is information and communication technology that can enable students to learn anytime and anywhere. This is in line with the opinion of Koran (2002) that e-learning is as a form of distance education carried out through internet media. Munir (2009: 169) defines e-learning as an effort to make a transformation of the learning process in schools into a digital form bridged by internet technology. In essence, e-learning is the use of internet technology to send a series of solutions that can improve students' knowledge and skills. According to Psycharis (2005), the implementation of e-learning for students in each school, must pay attention to three main categories which determine the success of its application, namely resources, education and the environment.

According to Hartanto (2016), there are three requirements that must be met in implementing e-learning learning activities, namely (1) learning activities carried out by network utilization, in this case limited to the use of the internet; (2) availability of learning service support that can be utilized by students, for example External Harddisk, Flaskdisk, CD-ROM, or printed material; and (3) availability of tutor service support that can help participants to learn if they experience difficulties. In addition to the three requirements above, Hartanto (2016) adds a number of supporting factors that also determine e-learning implementation, namely (a) institutions that organize and manage e-learning activities; (b) positive attitudes of students and education personnel towards computer and internet technology; (c) learning system design that can be learned and known by each student; (d) an evaluation system for the progress or development of participants' learning; and (e) feedback mechanism developed by the organizing agency.

E-learning that is well implemented can provide many benefits to students. According to Rohmah (2016), there are four benefits of e-learning, namely (1) it shortens learning time and it is more economical; (2) it facilitates interaction between students and the material; (3) students can share information with each other and can access learning materials at any time so that they will better master learning materials; and (4) the process of developing knowledge does not only occur in the classroom and students are more actively involved in the teaching and learning process.

The research from Ibrahim and Suardiman (2014) shows that e-learning has a positive effect on student achievement, especially in the field of mathematics studies. The results of Ibrahim and Suardiman's research are in line with the research of

Tomo and Widada (2017) that the use of e-learning websites as learning media has a significant effect on student achievement. The two research results can be used as a reference for teachers in improving their ability to use e-learning to help students improving their achievement.

H2: There is an influence of e-learning on student achievement

In carrying out their duties teaching students, at least for the subjects, teachers always expect maximum learning outcomes (satisfying student achievement). There are many factors that affect students to reach learning achievement. One of the main and very influential factors is the teacher's presence of (Mulyasa, 2005). Teachers with adequate competence will help students in reaching maximum learning achievement (Akiri, 2013). Similar results are obtained by Wamala and Seruwagi (2013), that high teacher competence influences students' high academic achievement in reading and arithmetic. Astuty's research (2015) also shows the same thing that the lecturers' competence (instructors) has a significant impact on student academic achievement.

There are many experts who explain the nature of learning achievement. According to Bossaert, Doumen, Buyse and Verschueren (2011), learning achievement is the students' success in meeting short-term or long-term goals in education. Lassiter (1995) understands learning achievement as student performance in certain disciplines. More explicitly, Good (2009) argues that learning achievement is the acquisition of knowledge or skills developed by subject matter, and is usually indicated by test scores or numerical scores given by teachers. According to Djamaroh (2002), learning achievement is the result of learning activities expressed in the form of numbers, letters and sentences that can reflect the results achieved by each student.

Kpolovie et al (2014) more specifically define learning achievement as a measurable index that describes the cognitive, affective and psychomotor domains of students in an educational environment. This is in line with Bloom's opinion which divides student learning achievement into three domains, namely cognitive, affective and psychomotor domains (Sujana 2010). Learning achievement is usually measured by tests or ongoing assessments conducted by teachers using teacher-made tests or standardized tests (Kpolovie, 2014). Learning achievement is mastery of subjects determined by the grades or numbers given by the teacher (Ibrahim and Suardiman, 2014).

From the experts' opinion above, it can be concluded that learning achievement is the learning result achieved by students after going through the process of teaching and learning activities. Learning

achievement can be demonstrated through the scores given by a teacher from the number of subjects studied by students. The learning outcomes achieved can be seen as a behavior change passed through experience and insight to be able to interact with the environment involving cognitive, affective and psychomotor domains stated in the final results. Nevertheless, cognitive domain gets more emphasis by the teacher in giving an assessment of students' learning achievement. H3: There is an influence of the teacher's affective professional commitment and e-learning implementation on student learning achievement.

II. RESEARCH METHODS

This study uses primary data obtained through a questionnaire distributed to high school teachers. Samples were taken from 60 of the 150 teachers working in the remote areas of southern Papua (which are part of Merauke, Boven Digoel and Mapidistricts). The method used in this study was an explanatory method which aims to explain the effect of one variable with another variable (Sugiyono 2010). Variable measurement used a Likert scale of 1 to 4, with scores of Disagree (Score 1) to Highly Agree (score 4).

Affective professional commitment consists of 3 indicators referring to the theory of Meyer Allen and Smith (1993) which are the alignment with the profession, involvement in the profession, and emotional attachment with the profession simplified Pardjono (2016) into three aspects, namely commitment to the profession, commitment to the learning process teaching, and commitment to the school policies. E-learning implementation with 3 indicators refers to the Psycharis' theory (2005) which are resources, education and the environment. There are 3 indicators of student achievement in reference to Bloom's theory in Sujana (2010), namely cognitive, affective and psychomotor domains. Hypothesis testing used structural equation modeling (SEM) analysis as a tool to test the influence of variables.

III. RESULTS AND DISCUSSION

3.1 Demographic characteristics of respondents

Empirical data revealed a number of things related to the demographic characteristics of respondents which included gender, age, last education, ethnicity, and place of assignment. The majority of the sample was male (66.6%), with the highest distribution in the remote subdistrict areas of 58.3%. The rest was in sub-districts that border the cities of Merauke, Tanah Merah and Kapi. This is because men have stronger physical endurance to work in remote areas, with a certain level of difficulty. Their age is

productive and mature. This can be seen from the majority of the respondents who are at the average age of 31-40 years old (50%). Educational background is very adequate, with almost all respondents graduated from undergraduate levels (86.6%). The distribution of teachers' origin is mostly from NTT (33.3%), from Maluku (25%), Papua and Java (16.6%) and other ethnicities (08.3%).

3.2 Structural Equation Model (SEM) Testing

A full testing of SEM model (figure 1) yielded Chi-squared ($\chi^2 = 32.803 < 39.69$) and significant value ($p = 0.108 < 0.05$). Chi-square ratio with degrees of freedom was $1.367 < 2$ (Marsh and Hovecar 1985). Good-of-fit of the root mean square error of approximation (RMSEA) model was $0.076 < 0.08$. Goodness-of-fit index (GFI) = 0.907, adjustment goodness-of-fit index (AGFI) = 0.826, comparative match index (CFI) = 0.958, and Tucker-Lewis index (TLI) = 0.937. These values are suitable for the measurement model (Kline, 2005). The match index of the measurement model and structural model shows that the theoretical model has an adequate level of empirical support. Assumptions in other SEM are if the data is declared normal, it is free from the classical assumptions of heteroscedasticity and multicollinearity, and the assumption that the data meets standardization is reliable and valid. Therefore, the results of processed data have already meet these criteria.

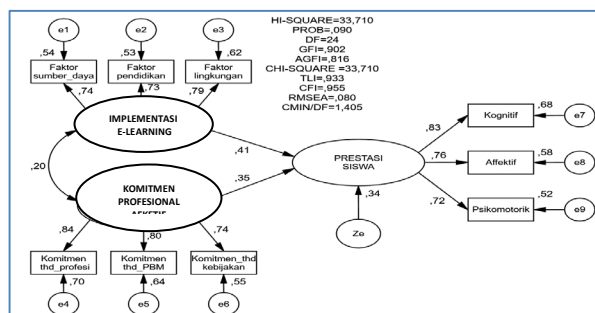


Figure 1. Structural Model Testing

The structural model testing above shows that the most dominant factor of the e-learning implementation variable in influencing student achievement is the environmental factor. The most dominant factor of the teacher's affective commitment variable in influencing student achievement is commitment to the profession, and the most dominant factor of learning achievement which is influenced by the e-learning implementation variable and the teacher's affective professional commitment is the cognitive aspect.

Hypothesis testing with AMOS 22.0 found a critical value (CR) which was the t value in the Ordinary Least Square regression and p value was the level of significance probability (Gozhali, 2014). Based on Figure 1 and table 1, it can be seen that the effect of teacher affective commitment on student achievement was proven to be significant ($\beta_1 = 0.406$), critical value (CR) = $2.489 > 1.96$ with a significance probability of 0.013. It means that by default the significance was smaller than the 0.05 standard. The effect of e-learning implementation on student achievement was also proven to be significant ($\beta_2 = 0.347$), critical value (CR) = $3.111 > 1.96$ with a significance probability of 0.022. It means that by default the significance was smaller than the 0.05 standard. So, in general the constructs of the research model were acceptable.

The analysis shows that the effect of e-learning was still lower than the role of the teacher's affective professional commitment ($0.406 > 0.347$) as shown in table 1 below. This illustrates that the implementation of e-learning in South Papua is still not strong enough to boost student achievement.

Table 1. Structural model path coefficients

Causality relationship	Standardized	Unstandardized	C.R.	P	Keterangan
Teacher affective professional commitment → Student achievement	0,430	0,406	2,489	0,013	signifikan
E-learning implementation → Student achievement	0,350	0,347	2,287	0,022	signifikan

The results of e-learning effect on student achievement are lower when compared to the influence of the teacher's affective professional commitment, which is equal to 0.347. This is caused by several obstacles which are the geographical conditions of South Papua with a high level of difficulty, the limitations of communication media, and the scope of communication media use. This finding supports the results of Kusnandar's research (2018) regarding several obstacles in implementing online learning in the remote areas of Papua. The obstacles that Kusnandar (2018) found include the limitations of communication media, e-learning has not become a learning culture for teachers and students, and the complexity of managing e-learning. The Ministry of Communication and Information has provided ICT facilities at several points in the remote areas of Papua, but their use is still limited among teachers with a short radius that is in the school area. This condition affects the students' knowledge and their learning achievement. Students' knowledge is very limited because it only comes from teachers' teaching process and their learning achievements do

not obtain significant development (Cholifah, et al, 2019).

Although the effect of e-learning on student achievement is lower when compared to the teacher's affective professional commitment, it shows significant results. This supports the research results of Rohmah (2016), Ibrahim and Suardiman (2014), Tomo and Widada (2017). The research of Ibrahim and Suardiman (2014), for example, confirms that e-learning has a positive effect on student achievement, especially in the field of mathematics studies.

The influence of the teacher's affective professional commitment to student achievement was quite high and it was 0.406. This finding supports Abidin's research (2016) that teachers who have high affective professional abilities will always try to maximize their abilities in teaching students in order to get satisfying achievements. Abidin's findings (2016) are in line with the results of Priyanto's (2008) research that a professional teacher is required to utilize information technology in the learning process in order to obtain optimal results. Teachers who have high affective professional commitment will show their excellence in helping students to improve their learning achievement through their commitment to their profession as a teacher, their commitment to the teaching and learning process and commitment to carry out various school policies to help students (Pardjono, 2016).

Both the implementation of e-learning and affective professional commitment has a significant influence on the learning achievement of high school students in remote areas of South Papua which includes cognitive, affective and psychomotor domains. This is in line with the theory of Kpolovie, et al (2014) and Bloom's theory in Sujana (2010). Supardi's findings (2014) also say the same thing that teachers with high professional commitment would be able to implement e-learning well to help students, as a form of creativity in teaching to improve student learning achievement. Likewise, with the findings of Abidin (2016) and Mart (2013) that teachers with high affective professional commitment will always try to develop their profession by using various supporting facilities effectively and innovatively with good quality learning processes in order to improve student learning achievement.

IV. CONCLUSION

The findings of this study conclude that the three hypotheses were proved significant. The highest percentage for variables that directly influence student achievement is the teacher's affective professional commitment. These findings indicate that affective professional commitment plays an important role in

improving student learning achievement. The teacher's affective professional commitment influences the teacher's attitude in the form of responsibility, responsiveness and innovation in a quality learning process. The effect of e-learning implementation variables on student learning achievement is lower than the teacher's affective professional commitment. This is caused by several obstacles, namely the geographical condition of South Papua with a high level of difficulty, the limitations of communication media, the attitudes and responses of teachers and students towards the use of e-learning, the economic conditions of the family, the scope of the communication media use and the complexity of e-management learning. These findings also serve as input for the authorities to increase internet connection facilities and to expand their network coverage in some remote areas of South Papua, where there are senior high schools. In addition, training should be given to teachers gradually and continuously on the implementation of e-learning, as well as awareness of students and parents about the importance of e-learning tools in helping them to increase students' knowledge and learning achievement. The limitation of this study is it only focused on high school students in South Papua. This opens up the possibility for further research with a broader locus that include students in elementary level of educational institutions throughout the remote areas of Papua. In addition, the independent variable is limited to the implementation of e-learning and the teacher's affective professional commitment. Further research can also take other factors related to the implementation of e-learning which specifically affect student achievement.

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