Impact of Learning Motivation, Cognitive and Self-Efficacy in Improving Learning Quality E-Learning in Industrial Era 4.0

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Impact of Learning Motivation, Cognitive and Self-Efficacy in Improving Learning Quality E-Learning in Industrial Era 4.0

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Abstract. The development of the industrial era 4.0 now, has changed the paradigm of activity on all fronts of human life. This study was intended to analyze the impact of learning motivation, cognitive and self-efficacy in improving the quality of online learning in the Industrial Age 4.0. The population of this study was the University of Indonesia Putra YPTK Padang who was following learning model *E-Learning* with a total sample of 320 people. Where data collection is done through an online questionnaire. The results of data analysis with Smart PLS indicate that learning motivation, cognitive and efficacy are factors that can influence the quality of learning. Besides that, it was also obtained the fact that self-efficacy was able to mediate the effect of learning motivation on improving the quality of online learning, but for other cases the variables of self-efficacy had not been able to maximize the cognitive influence on the quality of E-Learning learning.

1. INTRODUCTION

Rapid development of technology systems is *booming* in the industrial age 4.0, has an impact on all levels of human life activities. This era was marked by an increase in digitalization of manufacturing, (Lee & Kao (2013). Many new trends emerged that might not have been thought of by people and became new innovations, becoming a very large business area. The emergence of systems *ride-sharing* like *Go-jek, Uber* and *Grab* also *room-sharing* such as *Airbnb*. The innovation has even disrupted all lines of work activities, including the world of education.

The emergence of the industrial era 4.0 has become a challenge and opportunity that can encourage innovation and creation of all educational institutions. from the application of distance learning (*online*) and respond to changes, challenges, and opportunities while taking into account *humanities*. One approach that can be applied in implementing learning in Higher Education (PT) is distance learning (PJJ) through learning *online* (*E-Learning*). The concept of *e-learning* is an era of transformation of conventional educational activities into digital forms both in *contents* and *systems*.

Therefore, mastery and understanding of all stages in empowering the trap of information technology-based learning (IT) must be owned by all individuals involved both lecturers and students, so that the quality of learning can be achieved. In other words the quality of learning remains the main target in learning *E-Learning*. Some people think that the quality of the learning process may be more difficult to achieve, because the face-to-face learning process is eliminated and will make it difficult for lecturers and students to interact optimally in the transfer of knowledge. Other problems that also become obstacles that must also be a concern in learning *E-Learning* are infrastructure and facilities,

human resources including the availability of internet networks that support the implementation of learning *E-Learning*.

To be able to maximize the quality of learning *E-Learning*, many factors are needed that influence it. This study tries to make learning motivation, cognitive and self-efficacy factors as factors that play a role in determining the quality of E-Learning. This study will also analyze the indirect effect of learning and cognitive motivation on the quality of E-Learning learning through self-efficacy as a mediating variable.

2. LITERATUR REVIEW

In general, the purpose of learning is the ability (competency) or skills that students are expected to have after following a certain learning process (Sanjaya, 2008). Furthermore, Sanjaya (2008) explained that the learning objectives relate to the ABCD element, namely *Audience* (who must have the ability), *Behavior* (the behavior that is expected to be possessed), *Condition* (in conditions and situations in which the subject can demonstrate ability as learning outcomes that have been obtained), and *Degree* (expected quality or quantity of behavior achieved as a minimum).

This goal also becomes the main goal that must be achieved in learning *E-Learning*. *E-learning* is distance learning that uses computer technology or usually called the internet. Henderson in Horton (2003), explained that *e-learning* is-based learning *web* that can be accessed from the internet. Among the advantages in learning *E-Learning*, according to Soekartawi (2002), include the availability of facilities *e-moderating* where teachers and students can communicate easily through internet facilities on a regular basis or whenever communication activities are carried out without being limited by distance, place and time. Second, teachers and students can use instructional materials or structured and scheduled learning instructions through the internet, so that both can assess each other to what extent the teaching material is learned. Third, can study or *review* teaching materials at any time and anywhere if needed, considering teaching materials are stored on the computer. Through this utilization it is expected that the quality of E-Learning learning will increasingly be able to improve student learning outcomes.

According to Hapsari (2017), evaluating the quality of online learning (*online learning* or *E-Learning*) needs to be done in at least two stages, namely: (1) when content is planned and organized or implemented in the *learning management system* (LMS), and (2) immediately after learning finished. Between the two times a formative evaluation can be inserted to provide an evaluation of the implementation *E-Learning* of ongoing-. One instrument for evaluating the quality of learning objects is LORI (*Learning Object Review Instrument*) developed by Nesbit, Belfer, & Leacock (2004). LORI is designed as an instrument to assess the quality of multimedia learning objects. Although in its evaluation it also connects with learning objectives, LORI is generally used as an evaluation tool for learning objects, not an evaluation tool for the whole program in which this learning object is utilized.

While SPADA Indonesia (Indonesian Online Learning System), is a portal owned by Kemenristekdikti to manage online learning organized by various universities in Indonesia. The Ministry of Research, Technology and Higher Education is not an operator that can conduct learning, so all it can do is provide facilities or facilities to place courses while the organizers are universities that place courses in the SPADA Indonesia portal. The instrument for assessing the quality of SPADA Indonesia's learning objects consists of 6 indicators with a score scale of 1-4 and identification instruments complete with components of SPADA Indonesia's online subjects, (Hapsari, 2017).

Furthermore, learning motivation is a factor that determines and influences the quality of learning. Directly learning motivation is a picture of the strength and sincerity displayed by a person or student in maximizing the teaching and learning process. MC. Donald in Sardiman (2014) states that motivation is a change in energy in a person that is characterized by the emergence of "*feeling*" and preceded by a response to the purpose. According to Dunkin (1974) states the factors that influence the quality of learning, one of which is motivation, which is an aspect that affects the realization of the quality of learning.

The present challenge of learning *E-Learning* is also expected to be able to be a strong learning motivation for students to multiply the superiority of better learning methods with limits that are relatively non-existent in terms of content, time and place. But the fact that students' learning

motivation opens portals is *e-learning* relatively not optimal, so information provided outside of online time is rarely known by students, students are less active in forum discussions, object to online assignments given by lecturers, found some answers are *copied paste* the friend's answer, the answer is simple, post only to meet attendance requirements, and so on.

Other factors that can also affect the quality of online learning or E-Learning are cognitive. Cognitive is the ability of students to be able to maximize their potential in enriching knowledge related to new ways of learning with the use of information technology. Through cognitive possessions, students will be provoked and motivated to know new things and become learning experiences that enable them to develop their own potential and indirectly will be able to strengthen the quality of learning that they will obtain. Indirectly it can also change the pattern and behavior of students in learning from conventional forms to digital. As stated Arikunto (2009), learning outcomes are essentially behavioral changes that cover the fields of cognitive, affective and psychomotor. Thus it can be said that cognitive factors are an important part that determines the success of learning *E-Learning*.

Another factor that is also considered to have a relationship with the quality of *learning* nowadays is self-efficacy. Self-efficacy, can be said as a form of confidence and self-confidence of all individuals involved in learning sure that learning *online is* believed to be implemented and useful and can help maximize the quality of learning. This is stated by Friedman and Schustack (2008), the concept of self-efficacy is an important element of the process of self-regulation (independence) because it can influence the choice of targets and expected levels of achievement. With the confidence and confidence they have, students will be able to improve their knowledge and learning achievement which ultimately can improve the quality of learning to be better.

Next is the conceptual framework in this study which describes the relationship between exogenous variables and endogenous variables. This chart indirectly draws on the research hypothesis, where there will be a direct influence and indirect influence through intervening variables. The following is the research conceptual framework:
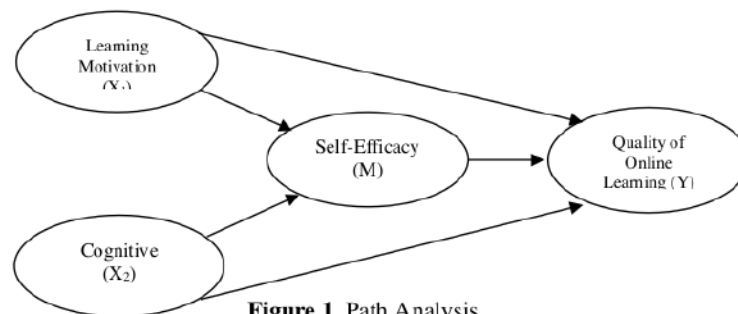

Figure 1. Path Analysis

From the conceptual framework above, the hypothesis of this study relates to the direct influence of learning motivation, cognitive and self-efficacy on the quality of E-Learning learning. Likewise the direct influence can be expressed by the research and cognitive motivation research hypothesis on self-efficacy. As well as the indirect effect of learning and cognitive motivation on the quality of E-Learning learning mediated by self-efficacy

3. RESEARCH METHODOLOGY

This study made Putra Indonesia University YPTK Padang as the object of research, this is because these universities are the first educational institutions to implement *E-Learning* or remote recovery (PJJ) in West Sumatra. The population in this study were Even Semester 2018-2019 Students who attended lectures *E-Learning* from several existing faculties. Where the total sample of this study is 320 students. Data collection is done by using questionnaire *online* with the help of *Google Form*.

In this study there are four variables, namely 3 (two) exogenous variables namely Motivation to learn (X_1), Cognitive (X_2) and self-efficacy (X_3), with one endogenous variable, namely Online Learning Quality (Y). The following is a description of the operational definitions of the research variables:

1. Online Learning Quality (Y) The
   Quality of learning is the intensity of systemic and synergic linkages between lecturers, students, learning climate, and learning media in producing optimal learning processes and outcomes according to curricular demands of Universitas Putra Indonesia students YPTK Padang, (Haryati & Rochman 2012).

2. Learning Motivation (X_1)
   Learning motivation is the entire psychic driving force that exists in the individual who can provide an impetus to learn in order to achieve the goals of studying at Putra Indonesia University YPTK Padang Students. Indicators of learning motivation in research follow McClelland (in Siagian, 2004), with these indicators are: a). Have a strong desire to succeed in the learning process, b). Have planning and anticipation in doing, c). actions in the student learning process on campus, d). Have high creativity in achieving success in the learning process, e). Able to monitor progress and weaknesses in acting in the learning process, f). Have courage in acting and are not afraid to take risks in the learning process and g). Have a high sense of responsibility in the learning process.

3. Cognitive (X_2)
   Cognitive is the ability of students of Putra Indonesia University YPTK Padang. The component of cognitive load consists of, (1) intrinsic cognitive load (*Intrinsic Cognitive Load*/ ICL), which is illustrated by the ability to receive and process information (MMI) students; (2) Extrinsic *Cognitive Load*(ECL), which is described by the mental effort (UM) of students; and (3) constructive cognitive load (*German Cognitive Load*/ GCL), which is described by student learning outcomes (HB), (Plass et al. 2010).

4. Self Efficacy (X_3)
   A belief in a person about his ability to do something and this belief to move motivation, cognitive abilities, and actions needed so that someone feels capable of doing all the tasks given which in this case relates to the academic field. Where the indicators used, (Bandura, 1986) include:
   a) *Magnitude*, an indicator of individual confidence in their ability to the level of difficulty of the task and selection of behavior based on obstacles or the level of difficulty of the task or activity.
   b) *Generality*, an indicator of individual beliefs about their ability to carry out tasks in various activities.
   c) *Strength*, level of strength of individual beliefs or expectations

Processing and testing of data using analysis techniques *Partial Least* Square *(PLS). PLS* according to Wold in Ghozali (2008) is analytical method *powerful* because it is not based on many assumptions. This study uses *PLS* as a data analysis technique with *SmartPLS Software* 3. The method *PLS* has its own advantages including: data does not have to be distribution *normally multivariate* (indicators with category, ordinal scale, intervals to ratios can be used on the same model) and sample sizes do not have to be large. Although *PLS is* used to confirm the theory, it can also be used to explain whether or not there is a relationship between latent variables.

4. RESULT AND DISCUSSIONS

Evaluation of the profile of respondents in this study was intended to determine the characteristics of the students of Putra Indonesia University YPTK who attended learning *E-Learning*. The following are the results of the frequency distribution in the table below:

Table 1. Profile of Research Respondents

Description	Amount	Percentage (%)
Gender		
Male	166	51.9
Female	154	48.1
Total	320	100.0
Faculties		
Faculty of Economics and Business	65	20.3
Faculties Computer Science	62	19.4
Faculty of Teacher Training and Education	88	27.5
Faculty of Visual Communication Design	34	10.6
Faculty of Psychology	35	10.9
Faculty of Engineering	36	11.3
Total	320	100.0

Source: Data Processing Results, 2019

The summary results of the frequency distribution test above show that generally students who study E-Learning have a male gender with a percentage of 51.9%. While the rest are students with a female gender of 48.1%. This data informs, there is a tendency for the same number of men and women in this study to take part in learning. Furthermore, when viewed from the Faculty, it was seen that overall students who attended E-Learning learning came from the Teacher Training and Education Faculty 27%, then followed by the Faculty of Economics and Business with the Faculty of Computer Science each at 20.3% and 19.4%. Then the rest of the students come from the faculties of visual communication design, psychology and engineering.

To determine the level of student assessment of each research variable, it was conducted by assessing the respondent's achievement level (TCR). Then it is assessed by the classification determined by Arikunto (2002). The following is the assessment of the respondent's answer level (TCR) for each:

Table 2. Level of Respondent Response (TCR)

No	Item Statement	Average Score	TCR	Criteria
1	ng Quality E-Learning	3.03	75.78	Good enough
2	ng Motivation	3.97	79.40	Good enough
3	Cognitive	4.14	82.80	Good
4	Self-Efficacy	4.04	80.84	Good

Source: Data Processing Results, 2019

Based on the assessment of the respondent's achievement level (TCR) in the table above, it appears that the quality of the existing E-Learning learning is in fairly good criteria. This achievement is an impact of learning motivation that is already quite good, then the level of cognitive and self-efficacy that exists in students who are also good. In that sense, the overall assessment of all research variables has been said to be sufficient and has a good quality of learning.

Hypothesis evaluation with SmartPLS 3 is done through 2 (two) stages. The first stage is the Outer model test and the second stage is inner models test. Test the outer model related to the assessment test, measuring the level of validity and reliability of all statement items that form the research variable. While the inner model test is related to the assessment of the research hypothesis. From the results of the outer model test for the variable quality of E-Learning learning and self-efficacy formed by 6 statement items all have good validity levels. While learning motivation variables formed 12

items of questions found 4 items invalid statement and for self-efficacy variables formed 20 questions 8 items statement invalid.

While for testing the inner model that relates to the assessment of hypotheses can be explained through 2 parts, namely: *Path analysis* and table *result for inner weights*. Where both *ofoutputs thesewill* explain the relationship between exogenous variables to exogenous variables (learning motivation, cognitive and self-efficacy) both directly and indirectly to the variable quality of learning e-learning. The following *is theoutput* SmartPLS:
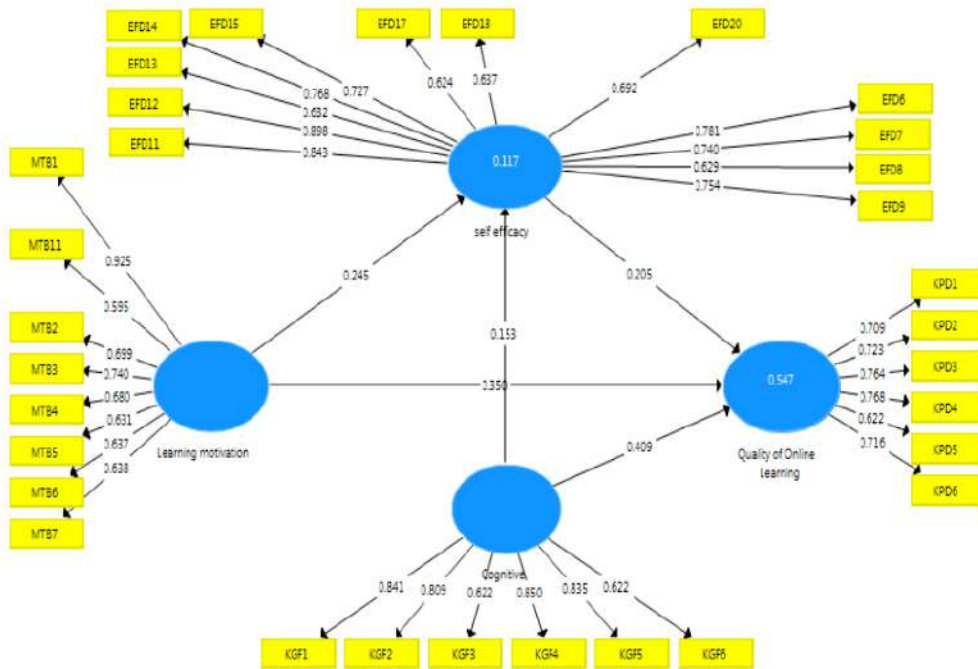

Figure 2. Path Analysis

Source: Data Processing Results, 2019

Next is the output of the Inner model, where we will assess the hypothesis of direct influence and indirect influence through intervening variables. The following is a summary of the *result for inner weights* in the table below:

Table 3. Result For Inner Weights

Description	Original Sample	Statistics	P Values	Description of Hypothesis
Learning Motivation-> Quality of Online Learning	0.350	5,519	0,000	Accepted
Cognitive -> Quality of Online Learning	0.409	6,935	0,000	Accepted
Learning motivation ->Self-efficacy	0.245	3,586	0,000	Accepted
Cognitive -> Self efficacy	0.153	1,874	0.062	Denied
self efficacy -> Quality of Online Learning	0.205	3.365	0.001	Received
Learning motivation -> self efficacy -> Quality of Online Learning	0.050	2,432	0.015	Accepted
Cognitive-> Self efficacy -> Quality of Online Learning	0.031	1.517	0.130	Rejected

1. Effect of learning motivation on the quality of learning *E-Learning*

   The results of the summary *results for inner weights* in the table above, find a regression coefficient of 0.350 with a 5.519 t value and value P value or probability of 0,000. where a small probability value of alpha 0.05. Thus it can be concluded that learning motivation has a positive and significant effect on the quality of E-Learning learning at students of Putra Indonesia University YPTK Padang. So that this hypothesis is declared accepted or proven. This can be interpreted that motivation to learn is an important factor that determines and helps students to get good quality in E-Learning learning. Because learning motivation can provide strength to someone to carry out learning activities. This finding is supported by a theoretical study described by Sardiman (2012), which states that one of the functions of learning motivation is to determine the direction of action, namely towards the objectives to be achieved, namely relating to the quality of learning itself. Furthermore, Dunkin (1974) also stated that the factors that influence the quality of learning, one of which is motivation, which is the aspect that affects the realization of the quality of learning. Research conducted by Rodriguez and Montañez (2008), states that there is a relationship between learning motivation that has online learning experience and the quality of online learning. This result is also reinforced by the study of Artino (2008) who also found that learning motivation had a significant influence on the quality of learning e-learning.

2. Cognitive influence on quality of instructional *E-Learning*

   Findings *result for inner weights* of the analysis of the data, get the value of 0.409 with a regression coefficient t value 6935 and the P value or probability value of 0000. Where a small probability value of alpha 0.05 or 0.000 <0.05. This finding concludes that cognitive plays an important role and determines the quality of learning e-learning for students at Putra Indonesia University YPTK Padang. So that this hypothesis is also declared accepted or proven. The results of the achievement level assessment also suggest that the cognitive level students have is good, while the quality of online learning they have is also quite good. This shows that cognitive as a basis for students' ability to maximize their knowledge will be related to the quality of learning e-learning. Arikunto (2009), explains that learning outcomes are essentially behavioral changes that cover the fields of cognitive, affective and psychomotor. Thus it can be said that cognitive factors are an important part that determines the success of learning *E-Learning*. Research findings Baturay's. (2011), concluded that perceptions of students' cognitive learning had a very strong relationship with learner-to-content (online) interaction.

3. Effects of learning motivation on self-efficacy

   The results of data processing with SmartPLS 3 also showed that learning motivation in students of Putra Indonesia YPTK Padang also contributes positively and significantly to improving self-efficacy. Where the regression coefficient value is 0.245 with the value of t count 3.586 and the value of P value or probability of 0.000. These results conclude that learning motivation is also a factor that plays a role in influencing or determining student confidence or self-efficacy in participating in e-learning. The evaluation of respondents 'achievement level (TCR) on these two variables also revealed that the achievement of students' learning motivation was in fairly good criteria while student self-efficacy also seemed to be good. This means that learning motivation and self-efficacy possessed by students is the power of self in students who can help in maximizing the E-Learning learning process. These results are also in line with the statement of Friedman and Schustack (2008), the concept of self-efficacy is an important element of the process of self-regulation (independence) because it can influence the choice of targets and expected levels of achievement. The findings of this hypothesis are in line with the study of Hassan khani *at* (2015), which concluded that learning motivation has a significant relationship with self-efficacy.

4. Cognitive Influence on Self-Efficacy

   Based on table 2 above, it can be concluded that cognitive also has a positive and significant effect on the self-efficacy of students at Putra Indonesia University YPTK Padang. With a regression coefficient of 0.153 with the value of t count 1.874 and the value of P value or

probability of 0.062. Where the probability value is greater alpha 0.05 or 0062> 0.05. This can be interpreted as not having a significant contribution from the ability of students in cognitive to increase their self-efficacy at the level of error rejecting data at 0.05. These results also reveal that the implementation of e-learning that has been running has not been able to increase student confidence or confidence. This happens because the adjustment of conventional learning models to digital or online models also indirectly affects students' self-confidence. This also relates to the ability and knowledge of students in different computer and internet operations for each student. The results of the assessment of the respondent's achievement level (TCR) on cognitive and student self-efficacy are in good or adequate criteria, however, in the assessment of the hypothesis it is not proven that the existing cognitive can influence student self-efficacy to the fullest. In the future lecturers must be able to foster student self-efficacy in maximizing online learning. The results of this hypothesis are relevant to research conducted by Barbosa at al. (2007), which concluded that individuals with intuitive cognitive styles were also found to have perceptions of lower self-efficacy regarding the formation of relationships with investors, economic management of new ventures, and their capacity to tolerate ambiguity.

5. Effect of self-efficacy on the quality of E-Learning learning

Furthermore, for the effect of self-efficacy on the quality of E-Learning learning, a summary of the *results for inner weights* concludes that there is a positive and significant effect of self-efficacy on the quality of E-Learning learning. Where the regression coefficient value is 0.206 with the value of t count 3.365 and the value of P value or probability is 0.001, where the probability value is small from 0.05 or 0.001 <0.05. Thus it can be concluded that self-eication is also an important factor that also plays a role in improving the quality of learning e-learning for students at Putra Indonesia University YPTK Padang. So that this hypothesis is declared accepted or proven. On the other hand the findings of the respondent's level of achievement (TCR) on students' self-efficacy with the quality of E-Learning learning also looked good and could support the implementation of E-Learning learning. This result is also in line with the theoretical foundation stated by Friedman and Schustack (2008), the concept of self-efficacy is an important element of the process of self-regulation because it can influence the choice of targets and expected levels of achievement. With the confidence and confidence they have, students will be able to improve their knowledge and learning achievement which ultimately can improve the quality of learning to be better. The results of this study are also relevant to the findings of Artino (2008), which states that self-efficacy has a significant influence on the quality of learning e-learning.

6. The effect of learning motivation influences the quality of learning E-Learning through self-efficacy.

This hypothesis aims to assess the extent to which the contribution of self-efficacy variables in mediating learning motivation influences the quality of E-Learning learning. The *results for inner weights* show that the variables of self-efficacy are able to strengthen the influence of learning motivation on the quality of learning e-learning for students at Putra Indonesia University YPTK Padang. Where the regression coefficient is 0.050 with the value of t count 2.432 and the value of P value or probability of 0.015, where the probability value is small from 0.05 or 0.015 <0.05. Therefore, it can be concluded that high learning motivation possessed by students will be able to increase students' confidence (confidence) in improving the quality of E-Learning learning. In other words, the total effect of learning motivation will be higher if students have self-certification in improving the quality of learning e-learning. Can also be added if we want to improve the quality of E-Learning learning, so it is not only learning motivation that we must improve but we must also try to improve self-efficacy in ourselves.

7. Cognitive Influence has an effect on the quality of E-Learning learning through self-efficacy.

Furthermore, the last hypothesis of this study is also intended to assess the extent to which the contribution of self-efficacy variables is able to mediate cognitively in improving the quality of

learning e-learning. The results of calculating the *result for inner weights* with SmartPLS 3, concluded that the variables of self-efficacy were not able to significantly strengthen cognitive influence in improving the quality of learning e-learning for students at Putra Indonesia University YPTK Padang on errors rejecting data at 0.05. Where the regression coefficient is 0.031 with t count 1.518 and the P value or probability is 0.130, where the probability value is higher than 0.05 or 0.130> 0.05. This finding states that in the empowerment of knowledge possessed by students, it turns out that the contribution given to increase self-confidence (self-efficacy) seems to have not been able to significantly improve the quality of learning e-learning. This is as explained in the previous point relating to the diversity of competencies of students who do not all have computer science majors, so that their level of confidence will be different from students who have computer-based or IT-based disciplines.

5. CONCLUSION

Overall the results of this study found that the factors raised in this study (learning motivation, cognitive and self-efficacy) were able to explain and determine the quality of learning e-learning. This can be seen from the direct influence of learning motivation, cognitive and self-efficacy on the quality of E-Learning learning. On the other hand it also shows the ability of the learning motivation and cognitive variables in explaining their effects on self-efficacy. While thanks to indirect influences, the findings of this study found empirical deeds that self-efficacy as a mediating variable was only able to strengthen the influence of learning motivation in improving the quality of E-Learning learning. As for the influence of cognition on the quality of learning E-Learning cognitive variables seem unable to maximize their contribution in improving the quality of E-Learning learning. This as explained above relates to the existence of differences in disciplines between students who were sampled in this study.

References

1. Arikunto, S. (2009). Dasar-dasar Evaluasi Pendidikan (edisi revisi). *Jakarta: Bumi Aksara*.
2. Artino, AR (2008). Motivational beliefs and perceptions of instructional quality: Predicting satisfaction with online training.*Journal of computer assisted learning,24*(3), 260-270.
3. Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of social and clinical psychology, 4*(3), 359-373.
4. Barbosa, SD, Gerhardt, MW, & Kickul, JR (2007). The role of cognitive style and risk preference on entrepreneurial self-efficacy and entrepreneurial intentions.*Journal of Leadership & Organizational Studies,13*(4), 86-104.
5. Baturay, MH (2011). Relationships among sense of classroom community, perceived cognitive learning and satisfaction of students at an e-learning course.*Interactive Learning Environments,19*(5), 563-575.
6. Dunkin, MJ, & Biddle, BJ (1974). *The study of teaching*: Holt, Rinehart & Winston.
7. Friedman, HS, & Schustack, MW (2008). Kepribadian teori klasik dan riset modern. *Jakarta: Erlangga*.
8. Ghozali, I. (2008). *Structural equation modeling: Metode alternatif dengan partial least square (pls)*: Badan Penerbit Universitas Diponegoro.
9. Hapsari, W., Wibawanto, H., & Sudana, IM (2017). Pengembangan Mobile Learning Teknik Digital Bagi Mahasiswa Pendidikan Teknik Elektro. *Journal of Vocational and Career Education, 2*(1).
10. Haryati, T., & Rochman, N. (2012). Peningkatkan Kualitas Pembelajaran Pendidikan Kewarganegaraan Melalui Praktik Belajar Kewarganegaraan (Project Citizen). *CIVIS, 2*(2/Juli).
11. Hassankhani, H., Aghdam, AM, Rahmani, A., & Mohammadpoorfard, Z. (2015). The relationship between learning motivation and self efficacy among nursing students.*Research and Development in Medical Education,4*(1), 97.
12. Horton, W., & Horton, K. (2003). *E-learning Tools and Technologies: A consumer's guide for trainers, teachers, educators, and instructional designers*: John Wiley & Sons.

13. Lee, JK, & Lee, WK (2008). The relationship of e-Learner's self-regulatory efficacy and perception of e-Learning environmental quality.*Computers in Human Behavior*,*24*(1), 32-47.

14. Lee, J., Lapira, E., Bagheri, B., & Kao, H.-a. (2013). Recent advances and trends in predictive manufacturing systems in big data environment. *Manufacturing Letters, 1*(1), 38-41.

15. Nesbit, J., Belfer, K., & Leacock, T. (2004). LORI 1.5: Learning object review instrument. *Retrieved July, 26*, 2006.

16. Plass, J. dkk.(2010). Cognitive Load Theory: Cambridge: Cambridge University Press.

17. Rodriguez, MC, Ooms, A., & Montañez, M. (2008). Students' perceptions of online-learning quality given comfort, motivation, satisfaction, and experience.*Journal of interactive online learning*,*7*(2), 105-125.

18. Sanjaya, W. (2008). *Kurikulum Dan Pembelajaran (Teori & Praktek KTSP)*: Kencana.

19. Sardiman, A. (2012). Interaksi dan Proses Belajar Mengajar: Jakarta: PT Raja Grafindo Persada.

20. Siagian, SP (2004). Manajemen stratejik. *Bumi Aksara, Jakarta*.

21. Soekartawi, AH, & Librero, F. (2002). Greater learning opportunities through distance education: experiences in Indonesia and the Philippines. *Journal of Southeast Asian Education, 3*(2), 283-320.

22. Sweller, J. (2010). Cognitive load theory: Recent theoretical advances.

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