The Effect of Teaching Materials, Implementation, Evaluation, and Problems on Student Motivation in Online Learning During The COVID-19 Pandemic

Wahyu Dwi Mulyono[1,*] Gede Agus Yudha Prawira Adistana[1] Heri Suryaman[1]

[1]*Department of Civil Engnineering Universitas Negeri Surabaya, Indonesia*
**Corresponding author. Email: wahyumulyono@unesa.ac.id*

ABSTRACT
Education is one aspect of life that is greatly affected by the COVID-19 pandemic. Learning that was originally done in the classroom directly turned into online learning. Online learning is a problem for all, including students, because most of them do it online in their respective areas. The purpose of this study was to analyze the effect of teaching materials, implementation, evaluation, and constraints on student motivation in online learning during the COVID-19 pandemic. This research is ex post facto research. Respondents are students of the S1 Building Engineering Education study program. Data collection using a questionnaire. Data analysis used multiple regression. The results of this study are as follows. (1) There is a simultaneous influence between teaching materials, implementation, evaluation, and constraints on student learning motivation during online learning during the COVID-19 Pandemic, (2) Partially each variable that has a significant effect on learning motivation is teaching materials and implementation of learning, while evaluation and constraints have no significant effect.

Keywords: *Online learning, Learning motivation, COVID-19*

1. INTRODUCTION

Indonesia is one of the countries affected by COVID-19. This becomes a problem and affects all aspects of life including education. Long-term impact, the closure of most schools by September 2020 is projected to result in a lifetime loss of income equivalent to US$222.4 billion (Rp3,336 trillion) in 68 million students, equivalent to 19.9 percent of 2019 GDP [1]. Lessons learned What was originally done in the classroom suddenly turned into online learning. State University of Surabaya (Unesa) is one of the universities that implements full online learning in all study programs. Online learning is common but in a mix of online and offline. Full online which causes problems. Online learning is an obstacle for students because most of them do online learning in their respective areas which have different internet network conditions.

Unesa has determined that the Prevention of the Spread of COVID-19 will be implemented starting March 14, 2020, based on the Chancellor's Circular. The circular stipulates that all lectures, both theory, structural assignments, and independent assignments, are carried out online. Practical activities are carried out in the form of giving other relevant assignments by learning outcomes. Exams are carried out online and final project guidance is also carried out online.

Problems arise from online learning at Unesa. The online learning that has been carried out has received criticism from students through an open letter from the Student Representative Council of the Unesa Faculty of Engineering. The criticism is related to the implementation of online learning with a large number of assignments, taking into account the health of students. The lecture activities carried out were constrained by the learning tools used, and the technological means to support learning activities to be accessed by students.

Students feel bored and less interested in online learning during the Covid-19 pandemic [2]. Students find it difficult to learn online because they are not used to it. The teaching materials used are not interesting.

Learning will not go well if there are problems with it. These problems can occur from several things, both from educators, teaching materials, and media, as well as from students themselves. Problems from educators can be from the method or learning method used. Problems with teaching materials and media occur because of the incompatibility between the material and the media used. Problems from students come from self-motivation in learning and a lack of interest in the subject matter.

1.1 Motivation

One of the internal factors that affect student learning outcomes is motivation. Motivation is an impulse contained in a person to try to make changes in behavior that is better in meeting his needs [3]. Motivation can determine whether or not it is good in achieving goals so that the greater the motivation, the more successful it will be. Someone who has great motivation will work hard, be persistent, and never give up to improve his work. On the other hand, those who have weak motivation, seem indifferent, give up easily, do not concentrate, as a result, their work results will decrease.

Motivation is a process that starts from the self that feels lacking or there are physiological or psychological needs that support behavior or drive to achieve goals intensively [4]. Motivation can be divided into two, the first motivation is achievement motivation, high achievers in achievement seek challenges and risks. They are attracted to challenging tasks. They are people who are always trying to improve themselves and their achievements. The second motivation, self-efficacy motivation, refers to people's belief in their ability to solve problems. This type of self-efficacy can produce both intrinsic and extrinsic rewards [5].

Eight factors influence work motivation, namely employee evaluation, establishment, growth, income, human relationships, working conditions, type of work performed, workplace, and work-life balance. The "employee evaluation" factor consists of five sub-factors, namely evaluation by supervisors, evaluation by colleagues, evaluation by subordinates, evaluation by customers, and evaluation by the public. The "establishment" factor consists of three sub-factors, namely clarity of own role, setting targets, and contribution to the company. The "growth" factor consists of three sub-factors, namely the ability to develop, the promotion system, and the education system. The "income" factor consists of three sub-factors, namely salary, bonus, and overtime pay. The "human relationships" factor consists of three sub-factors, namely relationships with superiors, relationships with colleagues, and relationships with subordinates. The "working conditions" factor consists of two sub-factors, namely the volume of work and working hours. Factors "type of work performed" consists of four sub-factors, namely an interest in work, difficulty working, rewards obtained from work, authority over others. The "workplace" factor consists of four sub-factors, namely the ease of work, the vitality of the workplace, a sense of unity, and cooperation between departments. The "work-life balance" factor consists of five sub-factors, namely the leave system for child care, leave to care for parents and family care leave system, a system for short-term work, a system for paid vacation [6].

1.2 Teaching and Learning

Learning is a permanent change that occurs in students in behavior as a result of repeated experience. Learning is the result of the interaction process that occurs between educators and students in learning [7].

Learning is a mental process that occurs in students to increase abilities in the realm of knowledge, attitudes, and skills. Learning occurs with social experiences or interactions so that positive and permanent changes emerge. Learning occurs continuously through everyday experiences [8], [9].

Learning is a change that occurs in a person which is seen by the mastery of a new pattern of welcome, in the form of understanding, skills, and attitudes as a result of the experience process. Learning is characterized by a change in behavior. These behavioral changes are relatively permanent. Changes in behavior do not have to be immediately observable during the learning process, but something gradual. Changes in behavior are the result of training that can provide reinforcement [10].

Learning provides a permanent experience for students. Learning must provide active opportunities, not only memorizing, but also being directly involved in these activities [11]. Students must be able to be active in finding and understanding lessons so that the experience becomes more memorable and difficult to forget.

Learning occurs when students process new information that is meaningful to them within their frame of reference. Learning consists of two important activities, namely learning and teaching. Learning refers to activities carried out by students, while teaching refers to activities carried out by educators. These two activities must have a reciprocal relationship between educators and students to create an active and conducive atmosphere [7], [9].

Learning is a process of interaction that occurs between students and educators, as well as learning resources in the learning environment. Learning shows the efforts of students to learn teaching materials with the help of educators. Educators function as facilitators whose job is to direct learning activities. Students must be active in learning. Knowledge will be easily remembered and stored in students, as long as they are active [8], [10].

Active learning shows a positive interaction between educators and students. Active learning must make students actively seek knowledge. Active learning requires students to assemble and gradually understand a science [12], [13]. Active learning consists of four components. The first must involve interactive and participatory teaching strategies. Second, active learning empowers students to analyze information and create knowledge. Third, encourage students to contextualize their knowledge in their analytical explanations. Fourth, it must support opportunities for learners to engage in collaborative action by applying analyzes aimed at improving relationships with the environment [14].

Based on the results of the description above, learning is a change that occurs in students in the realm of knowledge, attitudes, and skills. The change must be positive and permanent. Learning occurs continuously throughout life. Learning is a process of interaction between students and educators with teaching materials and media to process positive information. The information provided is an understanding, attitude, and skill that is permanent and can be continuously developed. Active learning is learning that involves students being

active and directly involved in acquiring knowledge and skills.

1.3 Online Learning

Learning can be done face-to-face or offline and remotely using the internet or online media. Direct face-to-face learning provides convenience because educators can directly interact with students. Feedback in learning will be achieved directly in every meeting. Evaluation can also be done directly either by writing tests, presentations, or practicing independently and in groups. Online or online learning provides an advantage if educators and students cannot meet face-to-face. Learning materials can be accessed through online media such as e-learning. Evaluation can be done online by providing a timeframe and questions according to the material provided.

Online learning needs to be well planned to achieve learning objectives. The choice of media also affects the effectiveness of the learning. A combination of various media is needed so that online learning can run well. Online learning must also be by the material to be delivered [15].

Online learning has a broad reach and high flexibility. Punctuality can be maintained in assigning assignments or evaluating learning with the on-time system. Online learning requires students to be more independent and active in learning. Students will also be encouraged to improve their problem-solving skills independently [16].

Online learning can also be done with social media such as Facebook, WhatsApp, Telegram, and so on. Social media can be managed into learning media. Every student must have social media by today's technological advances. Good management and use of social media as learning media can be done as an alternative in online learning [17].

Media is the main tool in online learning. Learning media is anything that can be used to send messages from educators to students. Online learning media must be accessible via the internet with a computer or smartphone [18]. Good media must be able to make learning more fun and reach all students [19].

Media selection is very important because it will affect success in learning. Learning objectives will be achieved with the help of effective media [20]. Students can learn actively and independently with learning media, but there is still control from the educator. Students must be controlled and reminded of the task at hand. Educators must be ready if there are questions and discussions from students. Learning media must follow technological developments, so they must be developed continuously and periodically [21].

Students respond well to interesting online learning media. The atmosphere of online learning must be made alive, for example with interactive quizzes. The themes and pictures used must be appropriate to the material and interesting so that it will make students not bored and more motivated [22], [23].

There are advantages and disadvantages of online learning. One of the advantages of online learning is that materials and learning can be accessed anytime and anywhere provided there is a good internet connection. Online learning media are very varied and interesting depending on the creativity of educators in managing learning. The weakness of online learning is that it depends on the availability of an internet connection, if there is no internet connection, you will not be able to access learning. The assessment also cannot be directly supervised properly and can be created by students who are not good.

The tasks of lecturers in learning include having to involve students to be active in the learning process directly. Lecturers who act as facilitators in learning activities must be able to provide motivation, encouragement, guidance, and reinforcement of material for students.

Online learning is an interaction between educators and students that is carried out online. Various kinds of media can be used in online learning such as e-learning, google classroom, google meet, zoom, and social media such as Facebook, WhatsApp, telegram, and so on. The main factors in the success of the learning are educators and students. Educators must be able to manage and create good online media according to the material to be delivered. Students must be active and disciplined in carrying out learning and have high honesty.

Based on the description above, online learning is strongly influenced by several factors, one of the main factors is the motivation of students. This study focuses on the influence of teaching materials, implementation, evaluation, and constraints on student motivation in online learning during the COVID-19 pandemic.

2. METHOD

This research is ex post facto. The respondents of this study were students in the Undergraduate Program of Building Construction Education (S1-PTB). Data collection using a questionnaire. Data analysis used multiple regression.

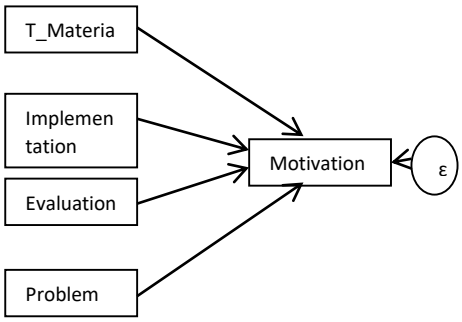

Figure 1 Model the relationship between variables

The variable consists of the dependent variable (*Y*) is Student Learning Motivation, and there are four independent variables, namely Teaching Materials (*X1*), Learning Implementation (*X2*), Learning Evaluation (*X3*), and Problems faced (*X4*). The following in Figure 1 is a model of the relationship between variables used in this study.

3. RESULTS AND DISCUSSION

Based on the results of data analysis and documentation, it can be produced as follows.

Descriptive analysis of the data using the STATA program and the input data of ten independent variables and one dependent variable can be seen in the STATA output in Table 1. The results of the descriptive analysis show the average value, standard deviation, minimum value, and maximum value.

Table 1. Results of description analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
Motivation	63	20.06349	3.954879	10	29
T_Materials	63	12.8254	2.721122	6	17
Implementation	63	16.5873	3.003412	9	23
Evaluation	63	19.53968	3.732272	10	28
Problem	63	23.44444	3.325259	17	29

Based on Table 1, it is found that the highest average value is the problem variable or the constraints faced, which is 23.44. Then the motivation variable with an average of 20.06. The lowest average is on the variable teaching materials with 12.83.

The results of the multiple linear regression model with ML estimation and multiple regression coefficient outputs can be seen in Table 2 and Figure 2. regression model estimation

Table 2. Regression Model Estimation

Motivation	Coef.	Std. Err.	t	P>|t|
T_Materials	.4932182	.1972991	2.50	0.015
Implementation	.5628485	.1905233	2.95	0.005
Evaluation	.0121873	.1371192	0.09	0.929
Problem	-.1956879	.1012732	-1.93	0.058
_cons	8.751293	3.643535	2.40	0.020

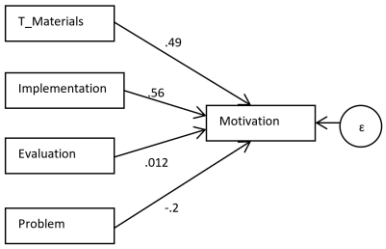

Figure 2. The results of the regression model analysis

of the four independent variables analyzed, there are three variables with positive coefficient values, namely teaching materials (*X1*), learning implementation (*X2*), and learning evaluation (*X3*). While the problem variable (*X4*) has a negative coefficient. Based on these results, the regression equation can be arranged as follows.

$$y = b_0 + b_1.x_1 + b_2.x_2 + b_3.x_3 + b_4.x_4 + \varepsilon \quad (1)$$

$$y = 8{,}75 + 0{,}49x_1 + 0{,}56x_2 + 0{,}012x_3 - 0{,}19x_4 + \varepsilon \quad (2)$$

The evaluation of the model can be seen in Table 3, namely from the significant level of the model.

Table 3. Regression model evaluation

Source	SS	df	MS	***Number of obs***	= 63
Model	644.324	4	161.081	***F(4, 58)***	= 28.71
Residual	325.421	58	5.6107	***Prob > F***	.00
Total	969.746	62	15.641	***R-squared***	= 0.664
				Adj R-squared	= 0.641
				Root MSE	= 2.369

The level of significance indicates the ability of the model to be generalized or not. The level of significance can also determine whether the hypothesis is accepted or rejected. The hypotheses in this study were arranged in the form of sentences and statistics. The hypothesis in the form of a sentence is as follows.

Ho=Variables *X1, X2, X3,* and *X4* simultaneously do not affect *Y*

Ha = Variables *X1, X2, X3,* and X4 simultaneously affect *Y*

The hypothesis in statistical form is as follows.

Ho = *X1 = X2 = X3 = X4 = 0*

Ha = *X1 = X2 = X3 =X4 ≠ 0*

Based on Table 3, it is obtained that Prob > F = 0.000 <0.05 then Reject Ho, accept Ha, meaning that the model has a significant effect, namely with a value below the error level of 5% or 0.05, which is 0.0000. It means that variables *X1, X2, X3, X4,* simultaneously affect y or it can be concluded that teaching materials, learning implementation, learning evaluation, and problems faced simultaneously affect student motivation in online learning during the COVID-19 pandemic.

Based on the results of the regression analysis, it was found that the variable with the largest coefficient value was the implementation of learning with a value of 0.56. To be able to increase student motivation in online learning during the COVID-19 pandemic, the implementation of learning must be improved. The implementation of this learning consists of easy access to materials, ease of understanding learning materials, independence in learning, classroom management, and the learning methods used.

Teaching materials variable with a positive coefficient value of 0.49. Student motivation in online learning during the COVID-19 pandemic will also increase by improving the quality of teaching materials. These teaching materials consist of the quality and appearance of teaching materials, ease of use in independent study, relevant and clear sources, and ease of understanding the material.

The problem variable faced with a negative coefficient value is 0.19. Student motivation in online learning during the COVID-19 pandemic will increase if this problem is suppressed or minimized. These problems consist of signal constraints during online learning, difficulty in accessing, the number of costs required, and facilities that do not support online learning.

The variable that gets the smallest coefficient value is the learning evaluation with 0.012. Although the value is the smallest, it can affect student motivation in online learning during the COVID-19 pandemic. This learning evaluation consists of ease of doing assignments, assessment techniques that are by the material, learning outcomes obtained, and feedback.

Based on the results of the analysis, it is found that the regression model states that the independent variable has a significant effect on the dependent variable. The model can explain the motivation variable of 66.4% and 33.6% is explained by other variables outside the model.

R-squared = 0.664 = 66,4 %

In addition to overall, the results of the analysis can also determine the effect and significance of each variable which can be seen in Table 4.

Based on the significance of each independent variable on the dependent variable, it shows that teaching materials and learning implementation have a P>|t| value. less than 0.05 or 5%, namely 0.015 and 0.005. The learning evaluation variable and the problems encountered have a value of P>|t| more than 0.05 or 5%, namely 0.929 and 0.058. So from the partial value of each variable that has a significant effect on motivation is the variable of teaching materials and learning implementation.

Teaching materials have a significant influence on student motivation in online learning during the COVID-19 pandemic. Teaching materials are the main ingredient in delivering online learning materials. Interesting, creative, and easy-to-learn teaching materials make students motivated in learning. Online learning, both synchronous and asynchronous, still requires interactive teaching materials, so that students can learn independently.

Table 4. Results of analysis of each variable

Motivation	Coef.	Std. Err	t	P>|t|	95% Conf.	Interval
T_Materials	.49321	.197	2.50	0.015	.0982	.888
Implementation	.56284	.190	2.95	0.005	.1814	.944
Evaluation	.01218	.137	0.09	0.929	-.262	.286
Problem	-.195	.101	-1.93	0.058	-.398	.007
_cons	8.7512	3.64	2.40	0.020	1.45	16.04

The implementation of learning becomes the most dominant variable in increasing student learning motivation. Implementation of learning in the good category, student learning motivation is also in good category [24]. The implementation of learning is all processes that occur in learning, including the models and methods used in learning. Models and learning methods must be by the material to be taught. The implementation of good learning, fun, and making students active in learning is a factor that can increase their learning motivation.

4. CONCLUSIONS

4.1 Conclusion

Based on the analysis of the research results and discussion, it can be concluded that there is a simultaneous influence between teaching materials, implementation, evaluation, and constraints on student learning motivation during online learning during the COVID-19 Pandemic. Partially, each variable that has a significant effect on learning motivation is teaching materials and learning implementation, while evaluation and constraints have no significant effect.

4.2 Suggestion

Based on the conclusion of the research, some suggestions are proposed. The implementation of learning and teaching materials needs to get serious attention in conducting online learning both by educators and educational institutions to increase learning motivation which will ultimately improve learning outcomes. Evaluation and problems encountered in online learning, although partially insignificant, have a significant effect simultaneously. So it also needs attention. For further research on learning motivation, it can be seen from two sides, namely self-motivation and external motivation to get deeper results from motivation.

REFERENCES

[1] N. Yarrow, E. Masood, and R. Afkar, *Estimates of COVID-19 Impacts on Learning and Earning in Indonesia : How to Turn the Tide*. Washington DC: World Bank, 2020.

[2] Kusnan, Suparji, G. A. Y. P. Adistana, M. Imaduddin, W. D. Mulyono, and H. Suryaman, "Analysis of Online Learning Implementation in Undergraduate Students of Building Construction Education in the Pandemic COVID-19," in *International Joint Conference on Science and Engineering*, 2020, vol. 196, no. Ijcse, pp. 47–53.

[3] H. B. Uno, *Teori Motivasi dan Pengukurannya*. Jakarta: Bumi Aksara, 2013.

[4] F. Luthan, *Organizational Behavior An Evidence-Based Approach*. New York, 2011.

[5] A. J. Elliot, *Handbook of Competence and Motivation*. New York: The Guilford Press, 2017.

[6] T. Yumiko, "Factorsforming Work Motivation in Japan," *Sci. Procedia Manuf.*, vol. 3, pp. 717 – 722, 2015.

[7] R. E. Slavin, *Educational Psychology : Theory and Practice*. New York: Pearson, 2018.

[8] M. Fathurrohman, *Belajar dan Pembelajaran Modern Konsep Dasar, Inovasi, dan Teori Pembelajaran*. Yogyakarta: Garudhawaca, 2017.

[9] M. S. Schiering, D. Bogner, and J. Buli-holmberg, *Teaching and Learning A Model for Academic and Social Cognition*. Lanham: Rowman & Littlefield Education, 2011.

[10] M. Suardi, *Belajar & Pembelajaran*. Yogyakarta: Deepublish, 2018.

[11] J. M. Alan Crawford, Wendy Saul, Samuel R. Mathews, *Teaching and Learning Strategies For The Thinking Classroom*. New York: The International Debate Education Association, 2005.

[12] Ġ. Crengu, "Interactive and Creative Learning of The Adults," *Procedia - Soc. Behav. Sci.*, vol. 142, pp. 493–498, 2014, DOI: 10.1016/j.sbspro.2014.07.654.

[13] F. Ceresia, "Interactive Learning Environments (ILEs) as Effective Tools for Teaching Social Sciences," vol. 217, pp. 512–521, 2016, DOI: 10.1016/j.sbspro.2016.02.031.

[14] D. E. Wright, *Active Learning: Social Justice Education and Participatory Action Research*. New York: Routledge, 2015.

[15] S. K. V. Sahasrabudhe, "Computers & Education Appropriate Media Choice For E-Learning Effectiveness : Role of Learning Domain and Learning Style," *Comput. Educ.*, vol. 76, pp. 237–249, 2014.

[16] L. L. F. Qing, "Web-Based Collaborative Learning," *Procedia Environ. Sci.*, vol. 11, pp. 189–192, 2011.

[17] A. M. Z. W. M. Al-Rahmi, "A Model of Using Social Media For Collaborative Learning to Enhance Learners," *J. King Saud Univ. - Comput. Inf. Sci.*, vol. 29, pp. 526–535, 2017.

[18] D. L. Linebarger, "Educational Media: Potentials for Learning," *Int. Encycl. Soc. Behav. Sci. Second Ed.*, vol. 6, pp. 246–254, 2015, DOI: 10.1016/B978-0-08-097086-8.92031-2.

[19] N. Hidayati and A. I. Wuryandari, "Media Design for Learning Indonesian in Junior High School Level," *Procedia - Soc. Behav. Sci.*, vol. 67, no. November 2011, pp. 490–499, 2013, doi: 10.1016/j.sbspro.2012.11.354.

[20] O. Michael and S. A. Jones, *Educational Media and Technology Yearbook*, vol. 38. New York: Springer, 2014.

[21] T. Sangsawang, "Instructional Design Framework for Educational Media," *Procedia - Soc. Behav. Sci.*, vol. 176, pp. 65–80, 2015, doi: 10.1016/j.sbspro.2015.01.445.

[22] P. Tugiyo, A, Hairul, "Penerapan Media E-Learning Berbasis Schoology Untuk Meningkatkan Aktivitas dan Hasil Belajar Materi Usaha dan Energi Di Kelas XI SMA N 10 Kota Jambi," *Sainmatika*, vol. 8, no. 1, 2014.

[23] W. D. Mulyono, "Pengembangan E-Learning Sebagai Media Pembelajaran Pada Mata Pelajaran Ilmu Bangunan di kelas X TGB SMK Negeri 7 Surabaya," 2019.

[24] H. Dani, P. N. Prasetyono, M. Suryanto Hs, D. A. Nusantara, A. Ristriana Pattisinai, and F. Nadiar, "Effectiveness of Online Learning of Construction Equipment Courses During the COVID-19 Pandemic," vol. 196, no. Ijcse, pp. 54–59, 2020.