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Analysis of Online Learning on Students' Understanding and Learning Motivation with Lecturer Competence as Moderating Variable (Studies during the Covid-19 Pandemic)

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Abstract: The purpose of this study was to analyze the impact of online learning on students' understanding and learning motivation with lecturer competence as a moderating variable. This research method used a survey method. The population in this study were all STIESIA Surabaya students and the sample in this study were STIESIA Surabaya students who were taking online lessons during the Covid-19 pandemic. The sample is 100 students and the sample was taken using non-probability sampling. Data collection techniques were carried out through online questionnaires given to STIESIA Surabaya students. The data analysis technique used SEM with a moderating relationship using AMOS 21 software. The results of this study indicated that (1) online learning has a positive and significant effect on student understanding; (2) online learning does not affect students' learning motivation; (3) Online learning has a positive and significant effect on students' understanding with lecturer competence as a moderating variable; 4) Online learning has no positive and significant effect on student learning motivation with lecturer competence as a moderating variable (lecturer competency is not a moderating variable or is not a moderating variable between online learning and student learning motivation). Based on the results of the research stated, it is hoped that it can help the learning process give implications for increasing student understanding during online lectures by maximizing the competence of lecturers.

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Introduction

In mid-March 2019, offline lecture activities were changed to online learning due to the Covid-19 pandemic. With the new learning system, of course, lecturers and students are still getting used to each other because it has not been implemented before. In the current unstable condition, student learning is expected to continue to be carried out by maximizing online facilities. Although indeed not all learning can be transferred to an online learning environment (Pilkington, 2018), for example in learning mathematics, teachers experience difficulties, especially in carrying out their roles as demonstrators, motivators, and evaluators (Husna, et al., 2021).

With the new learning system, lecturers and students are still getting used to each other because it has not been implemented before. However, of course, there are benefits in learning this online system, namely being able to better understand the information technology used during the online learning process, for example, zoom and so on. This is also a new insight so that students who are the next generation in the future will better understand

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how important it is to master information technology in the current millennial era because technology will continue to develop in the future. The use of technology has enabled the emergence of distance learning and is driving greater innovation in creating teaching methods inside and outside the classroom (Almeida & Simoes, 2019).

In addition to new knowledge and mastery in terms of technology, other benefits of online learning are improving students' reading skills (Khusniyah & Hakim, 2019);
1) increasing the level of learning interaction between students and teachers or instructors, 2) Allowing learning interactions from anywhere and anytime, 3) Reaching out to students in broad scope, 4) Facilitating the refinement and storage of learning materials (Bates and Wulf, in Mustofa et al (2019); providing access to learning for everyone, thereby removing physical barriers as a factor for learning in the classroom (Ahmed, 2018); allowing students to have the flexibility of study time so they can study anytime and anywhere (Dhull & Sakshi, 2017); easily accessible (Zboun and Farrah, 2021).

Some of the negative effects of the Covid-19 pandemic in terms of learning are feelings of boredom, confusion, fear, anxiety, and stress so family support, friend support, and facility support are needed to carry out positive activities (Susanto, 2021); it is easier to understand the subject matter delivered by the teacher before the pandemic (Firmanti dan Yuberta, 2021); poor network connectivity and limited class participation (Allan et al., 2021); weak internet connectivity, poor interaction, lack of motivation, less participation, and lack of understanding (Zboun and Farrah, 2021); unable to monitor the development of Distance Learning (PJJ) easily, both material learning, lecturers' ability to deliver material to PJJ and from a technology perspective (Napitupulu, 2020). If viewed from a sociological perspective, online learning policies are the right step to take during the COVID-19 period because it is safer and healthier. Like there is an acceleration so that people can advance faster with internet technology now (Siahaan, 2020). Students feel more burdened by taking online lectures because they have more assignments, often feel dizzy because they are in front of a laptop for longer time. On the dimension of infrastructure, many students say they do not have sufficient quotas and their residential areas often have difficulty signaling (Wulandari, et al., 2020).

Lack of online learning (limited IT mastery) can be minimized by preparing good learning materials in PowerPoint slides accompanied by learning videos gradually increasing their IT competence and proactively contacting students who are less active in online learning (Efriana, 2021). In this case, it is necessary to have the role and competence of lecturers, because the competence of lecturers affects student learning motivation (Taufiqulloh, et all., 2018), which later will have a positive and significant effect on learning achievement (Ismartaya, et all., 2021). E-learning is one of the elements that influence student learning motivation (Harandi, 2015). Motivation or a lack of motivation also occurs due to poor external support facilities (Gustiani, 2020).

Feedback can be beneficial for students to focus on performance that enhances their learning (Gopal et al., 2021). The application of google classroom can increase student motivation and learning outcomes (Daniati et al., 2020). Motivation provides impetus for purposeful action in the desired direction both physically and mentally, so activity becomes a very important part of motivation (Lee & Martin, 2017). The COVID-19 pandemic period did not hinder student motivation in conducting online learning activities (Fitriyani et al, 2020). This research is important to do because during the current Covid-19 pandemic, students are required to still be able to study optimally even though online learning still has many shortcomings. Educators (lecturers) must know and understand the effectiveness of these online learning outcomes.

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Online learning / online communication (communication in the network) is a way of communication (sending and receiving messages) that is carried out through the internet network. The characteristics of online learning, according to Tung (in Mustofa et al. 2019), are: 1) Teaching materials are presented in the form of text, graphics and various multimedia elements; 2) Communication is carried out simultaneously and not simultaneously, such as video conferencing, chat rooms, or discussion forums; 3) Used for learning at virtual time and place; 4) Can be used a variety of CD-ROM-based learning elements, to improve learning communication; 5) Teaching materials are relatively easy to update; 6) Increase interaction between students and facilitators; 7) Allows forms of formal and informal learning communication; 8) Can use a wide variety of learning resources on the internet. Daryanto (2016: 106) states that the ability to understand based on the level of sensitivity and the degree of absorption of material is divided into three levels: Translating (translation), Interpreting (interpretation), and Extrapolating (extrapolation).

Students who have learning motivation certainly tend to be easier to understand the material presented by the lecturer and focus more on the lecturer's explanation and the high willingness to find reference sources related to the material being taught. The expected interactions in learning can vary, so lecturers are required to be creative. Learning motivation is one of the factors that determines effectiveness in learning (Denni, 2020). Student perceptions of online learning in practical courses are positive Maulana & Hamidi (2020). There is an influence of learning methods on students' understanding abilities (Sari, 2017). With the adjustment of educators in curriculum and learning innovation, students are more motivated in participating in learning (Sudrajat, et al. 2020).

The competence of teachers and lecturers according to Law No. 14 of 2005 concerning Teachers and Lecturers article 1 paragraph 10 is "a set of knowledge, skills, and behaviors that must be possessed, internalized, and controlled by teachers or lecturers in carrying out professional duties". Meanwhile, according to Mulyasa (2012), "Teacher/lecturer competence is a combination of personal, scientific, technological, social, and spiritual abilities which *kaffah* form the standard competence of the teacher profession, which includes mastery of material, understanding of students, educational learning, development of personal and professional". "The competencies that must be possessed by lecturers include four aspects, namely pedagogic competence, personality competence, professional competence, and social competence". During the Covid-19 pandemic, lecturers must always be ready to provide the best learning for students. The impact of implementing distance learning does not reduce the performance of lecturers (Adiawaty, 2020). With the adjustment of educators in curriculum and learning innovation, students are more motivated in participating in learning (Sudrajat, et al., 2020).

This research is important to do because, during the current Covid-19 pandemic, students are required to still be able to learn optimally even though they are online, and educators (lecturers) must know and understand the effectiveness of the online learning outcomes. With the existence of a new phenomenon, namely online learning due to the Covid-19 pandemic, and the results of previous studies on the positive and negative impacts of online learning, this study aims to analyze the impact of online learning on STIESIA Surabaya students during the Covid-19 pandemic on student understanding and motivation. Student learning with lecturer competence is used as a moderating variable. With the findings in this study, it is hoped that online learning can be maximized regarding the results obtained from the variables studied.

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Research Method

This research is a quantitative research with the survey method. The population in this study were STIESIA Surabaya students who had participated in online learning and who were currently participating in online learning. Because the population was not known for certain, this study took a sample of 100 STIESIA Surabaya students who were taking online lessons during the Covid-19 pandemic. In measuring the data on the indicator variables, this research used interval data measurements which were expressed in scoring according to the Likert scale with a rating score of 1 to 5. The data collection technique was through filling out online questionnaires distributed through the class WhatsApp group to STIESIA Surabaya students who were currently taking online learning at the time Covid-19 pandemic. In this study, interviews were also conducted with students through WhatsApp group chats and video calls to be able to dig up more detailed information related to online learning. The data analysis technique used SEM with a moderating relationship using AMOS 21 software.

Results and Discussion

Model Estimation without Interaction Variables (without Moderation) for Online Learning Variables, Lecturer Competence, and Student Understanding

The first stage is to estimate the model without interaction to get the loading factor value and the error variance of each of the following exogenous latent variables:

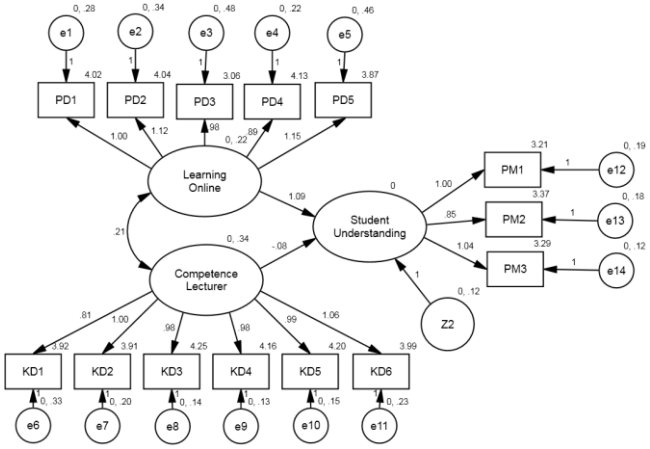

Figure 1. Model Without Moderating Variables (Model 1a)

Then calculate the results of the loading factor for latent variables (interaction between online learning and lecturer competence) and the error variance value as follows:

$\lambda interaction = (\lambda pd1 + \lambda pd2 + \lambda pd3 + \lambda pd4 + \lambda pd5)(\lambda kd1 + \lambda kd2 + \lambda kd3 + \lambda kd4 + \lambda kd5 + \lambda kd6)$

$\theta q = (\lambda pd1 + \lambda pd2 + \lambda pd3 + \lambda pd4 + \lambda pd5)^2 VAR(\text{online learning}) (\theta kd1 + \theta kd2 + \theta kd3 + \theta kd4 + \theta kd5 + \theta kd6) + (\lambda kd1 + \lambda kd2 + \lambda kd3 + \lambda kd4 + \lambda kd5 + \lambda kd6)^2 VAR(\text{lecturer competency}) (\theta pd1 + \theta pd2 + \theta pd3 + \theta pd4 + \theta pd5) + (\theta pd1 + \theta pd2 + \theta pd3 + \theta pd4 + \theta pd5) (\theta kd1 + \theta kd2 + \theta kd3 + \theta kd4 + \theta kd5 + \theta kd6)$

$\lambda interaction = (0.668 + 0.674 + 0.555 + 0.671 + 0.624) (0.636 + 0.790 + 0.836 + 0.843 + 0.830 + 0.790) = 15.082$

$\theta q = (0.668 + 0.674 + 0.555 + 0.671 + 0.624)^2 (0.223)(0.330 + 0.204 + 0.141 + 0.131 + 0.149 + 0.229) + (0.636 + 0.790 + 0.836 + 0.843 + 0.830 + 0.790)^2 (0.338) (0.276 + 0.337 + 0.482 + 0.216 + 0.460) + (0.276 + 0.337 + 0.482 + 0.216 + 0.460) (0.330 + 0.204 + 0.141 + 0.131 + 0.149 + 0.229)$

$= (10.188864)(0.223)(1.184) + (22.325625)(0.338)(1.771) + (2.096864)$

$= (2.690) + (13.364) + (2.096)$

$= 18.15$

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Model Estimation Using Interaction Variables for Online Learning Variables, Lecturer Competencies and Student Understanding

The second stage in SEM analysis uses moderation, which is to include interaction variables. The following are the results of the model analysis with online learning variables, lecturer competence, and student understanding:

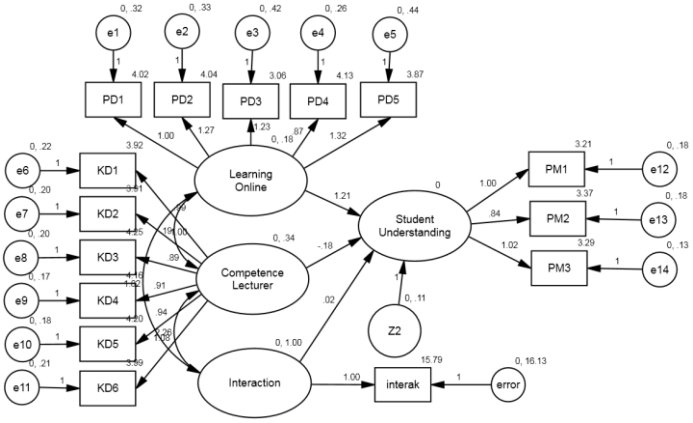

Figure 2. Model Using Moderation (Model 1b)

Model Estimation without Interaction Variables (without Moderation) for Online Learning Variables, Lecturer Competencies, and Student Learning Motivation

In this estimation, it is the same as in the first stage on the estimation of online learning variables, lecturer competencies, and students' understanding, which is to estimate the model without interaction to get the loading factor and error variance values for each exogenous latent variable as follows:

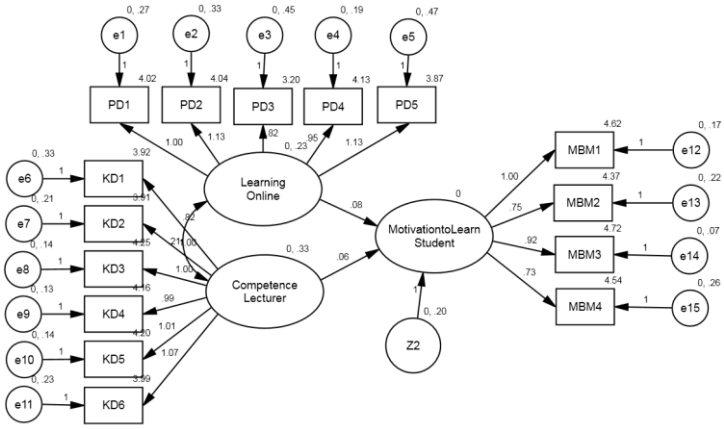

Figure 3. Model without Moderation (Model 2a)

The next test is to calculate the loading factor results of latent variables (interaction between online learning and lecturer competence) and the error variance value as follows:

$\lambda interaction = (\lambda pd1 + \lambda pd2 + \lambda pd3 + \lambda pd4 + \lambda pd5)(\lambda kd1 + \lambda kd2 + \lambda kd3 + \lambda kd4 + \lambda kd5 + \lambda kd6)$

$\theta q = (\lambda pd1 + \lambda pd2 + \lambda pd3 + \lambda pd4 + \lambda pd5)^2$ VAR(online learning) $(\theta kd1 + \theta kd2 + \theta kd3 + \theta kd4 + \theta kd5 + \theta kd6) + (\lambda kd1 + \lambda kd2 + \lambda kd3 + \lambda kd4 + \lambda kd5 + \lambda kd6)^2$ VAR(lecturer competence) $(\theta pd1 + \theta pd2 + \theta pd3 + \theta pd4 + \theta pd5) + (\theta pd1 + \theta pd2 + \theta pd3 + \theta pd4 + \theta pd5)(\theta kd1 + \theta kd2 + \theta kd3 + \theta kd4 + \theta kd5 + \theta kd6)$

$\lambda interaction = (0.640 + 0.702 + 0.574 + 0.658 + 0.655)(0.759 + 0.829 + 0.760 + 0.787 + 0.783 + 0.809) = 15.263$

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$\theta q = (0.640 + 0.702 + 0.574 + 0.658 + 0.655)^2 (0.227)(0.333 + 0.210 + 0.139 + 0.130 + 0.145 + 0.231) + (0.759 + 0.829 + 0.760 + 0.787 + 0.783 + 0.809)^2 (0.331) (0.273 + 0.326 + 0.448 + 0.186 + 0.466) +(0.273 + 0.326 + 0.448 + 0.186 + 0.466) (0.333 + 0.210 + 0.139 + 0.130 + 0.145 + 0.231)$
$= (10.426441)(0.227)(1.188) + (22.344529)(0.331)(1.669) + (1.982772)$
$= (2.811762521) + (12.34398926) + (1.982772)$
$= 17.14$

Model Estimation Using Interaction Variables (With Moderation) for Online Learning Variables, Lecturer Competence and Student Learning Motivation

The second stage in the SEM analysis uses the next moderation, which is to include interaction variables. The following are the results of the analysis of the model with online learning variables, lecturer competencies, and student learning motivation:

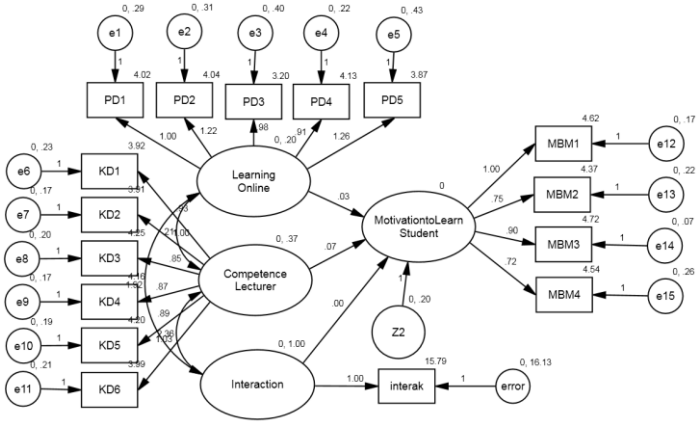

Figure 4. Model Using Moderating Variables (Model 2b)

Based on the results of testing the proposed hypothesis 1, it shows that online learning has a positive and significant effect on student understanding. This shows that learning methods play an important role in student understanding (from face-to-face learning to online learning). The results of hypothesis 1 in this study support the research conducted by Sari (2017), namely that there is an influence of learning methods on students' understanding abilities. Of course, what is meant in this research is the online learning method during the Covid-19 pandemic.

The test results on hypothesis 2 state that online learning has no positive and significant effect on students' learning motivation. At the beginning of the implementation of online learning, it was possible that online learning affected student learning motivation because there were sudden adjustments that had to be made so that students were not motivated to learn online. Students feel more relaxed in lectures because it can be done remotely without direct supervision from the lecturer. However, the longer online lectures have been implemented (almost two years when this research was conducted) have made students accustomed to this online learning method. The students who were previously still reluctant to study online, are finally getting used to it and are starting to be able to adjust it like the lectures that were conducted before going online. This means that diligent students will continue to study diligently even though lectures are conducted online, and vice versa. This can be seen from the assignments collected by students and their activeness during online lectures. Diligent students continue to work seriously even though lectures are conducted online, while students who are accustomed to only copying other students' answers in class / not doing the assignments given during offline lectures are also not much different

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when lectures are conducted online. Students prefer to study offline (Anhusadar, 2020; Tratnik, et al., 2019) and online learning is more meaningful (Hadi, 2020). Amid the Covid-19 pandemic that has hit the world, this is not an excuse for students not to have high learning motivation, although in practice there are deficiencies found, there is no other choice but to optimize online learning because, in an emergency like this, technology is the only thing. which is a bridge in transferring knowledge from lecturers to students (Fitriyani, et al., 2020).

The test results for hypothesis 3 in this study state that online learning has a positive and significant effect on student understanding with lecturer competence as a moderating variable. Moderating variables are variables that can strengthen or weaken the relationship between the independent and dependent variables (Ghozali, 2011). That is, the more competent a lecturer is in explaining lecture material online, the more students will understand the material presented. Vice versa, if a lecturer is less competent in delivering lectures online, the student's understanding of the material is also increasingly limited.

The test results for hypothesis 4 in this study stated that online learning had no positive and significant effect on student learning motivation with lecturer competence as a moderating variable. That is, the competence of lecturers does not moderate between online lectures and student motivation. Not meeting face to face directly makes students unmotivated in learning even though the lecturer in charge of the course is competent. This may also be due to the limited way of delivering material online so the competence of lecturers in delivering lecture material cannot be accepted optimally. The competence of lecturers also does not moderate online learning on student learning motivation because students need motivation that can make them happy and enthusiastic in accepting learning, not only the competence of lecturers in delivering material. In this case, the participation of students' parents in the form of supervision is very helpful for students in online learning. Parents become motivators and encourage students to continue learning online (Hadi, 2020).

Conclusion

The conclusions of this study are: (1) online learning has a positive and significant effect on student understanding; (2) online learning does not affect students learning motivation; (3) Online learning has a positive and significant effect on students' understanding of lecturer competence as a moderating variable; 4) Online learning has no positive and significant effect on student learning motivation with lecturer competence as a moderating variable (lecturer competency is not a moderating variable or is not a moderating variable between online learning and student learning motivation). The results of the study are hoped to help the learning process so that it has implications for increasing student understanding during online lectures by maximizing the competence of lecturers.

Recommendation

Based on the conclusions of this study, suggestions that can be submitted to STIESIA Surabaya lecturers are that they should continue to improve their competencies, including (1) Innovating in online learning so that students do not get bored; (2) One method does not have to be applied in 1 semester, if the student's mid-semester exam (UTS) results are bad, the lecturer should change the previous learning method so that the results are more optimal; (3) Always updating knowledge; (3) The material must be given at least one week before the lecture starts so that students can study it first, and during the lecture schedule they can discuss it maximally. Then for students, the suggestions given are (1) Students should study the material given by the lecturer seriously, make their own summaries, and look for terms that have not been understood and can be asked during lectures; (2) Do not look for answers

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to assignments from the internet because not everything on the internet is true; (3) If you have difficulty understanding the material, don't be shy to ask questions; (4) Always be critical in learning, and reading does not just read but also needs to be understood and internalized. Further research should include other variables related to the absence of influence between online learning models on student learning motivation.

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