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Factor Influencing Online Learning for Higher Education in Pandemic Covid-19 and Impact to Word of Mouth

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Abstract

With the Covid-19 pandemic in early March 2020 to 2021, it has changed the learning patterns of students in high school and students at universities or in higher education. This study was conducted to examine the factors that influence online learning from students at higher education universities, besides that in this study also to test whether the self-efficacy factor affects students at the university. This study uses a quantitative method, by taking primary data 112 primary data from universities, and distributed using google form. After the data is collected, using the confirmatory Composite Analysis method and also using PLS-SEM, to test whether there is a high correlation between factors or not. After knowing the components that affect online learning, the results show that Self Efficacy meets the criteria for confirmatory composite analysis testing, so that Self Efficacy becomes a reliable and valid dimension in Online Learning, and ranks first with an R^2 of 0.821 which has an effect on Online Learning. In this study, online learning also has a major effect on WOM, which is 0.816 and can also be seen from R^2 of WOM, which is 0.665 which is included in Moderate Predictive Accuracy, so it can be concluded that Online Learning has a strong influence on WOM of students who are studying during a pandemic, so that very influential on the marketing of the college.

Keywords
factors in online learning; self-efficacy; confirmatory composite analysis; word of mouth

I. Introduction

The Covid-19 pandemic has occurred and starting from March 2020 and until 2021 it has not ended. The outbreak of this virus has an impact of a nation and Globally (Ningrum et al, 2020). The presence of Covid-19 as a pandemic certainly has an economic, social and psychological impact on society (Saleh and Mujahiddin, 2020). Covid 19 pandemic caused all efforts not to be as maximal as expected (Sihombing and Nasib, 2020). The Covid-19 pandemic in Indonesia has resulted in a shift in the way of learning, from on-class and face-to-face suddenly to online using zoom media or Google Meet or Microsoft Teams. The shift in how to deliver or deliver material via online will also affect student learning patterns, the amount of material that can be conveyed in online learning. There are several differences between online and offline learning, the first of which is the duration of face-to-face learning in lectures, usually a min of 2 credits multiplied by 50 minutes to 100 minutes, and if 3 credits it will be 150 minutes. In face-to-face online, someone will have a short duration to pay attention, which is about 40 minutes to a max of 2 hours, so the effectiveness of internalizing the material to students will be a problem. Besides that, the material presented must be adapted to online learning, because in offline learning, the

material is very dense. In this study, it will be tested whether the personal factors of a student and the factors of educators and educational institution factors as well as the self-efficacy factors of students can be distinguished into constructs that will be factors to encourage success in online learning. In this study, it will also be tested whether online learning has an effect on word of mouth, which will definitely affect marketing at the University.

Research Objectives are testing the constructs of Personal, Teaching, Institutional and Self-Efficacy can be distinguished from one another with a significant significance which is a confirmatory composite analysis. And the second is to test whether online learning has an effect on WOM. The theoretical benefit of this research is to test whether self-efficacy can be a dimension of online learning. Testing whether online learning affects WOM which is useful for university marketing planning

II. Review of Literature

According to (Sunandita, 2021), personal constructs are divided into availability of devices, skills, internet facility, knowledge, learning potential, save time store information, losing interest, boring and frustration. While the teaching constructs can be divided into trained, motivation, e-tools and techniques, teaching methods, e-resources, presentation, collaboration projects and assignments, communication, feedback, active participation. Meanwhile, indicators for institutions are own online platform, infrastructure, online exam and time management. This can be seen in table 1. Indicators for each construct.

Table 1. Indicator for Each Construct

Symbol	Construct
P1	Availability of Devices
P2	Skills
P3	Internet Facility
P4	Knowledge
P5	Learning Potentiality
P6	Save Time
P7	Store Information
P8	Losing Interest
P9	Boring
P10	Frustrating
T1	Trained
T2	Motivation
T3	e-tools and techniques
T4	Teaching method
T5	e-resources
T6	Presentation
T7	Collaborative Projects and Assignments
T8	Communication
T9	Feedback
T10	Active Participation
I1	Own online Platform
I2	Infrastructure
I3	Online Exam
I4	Time Management

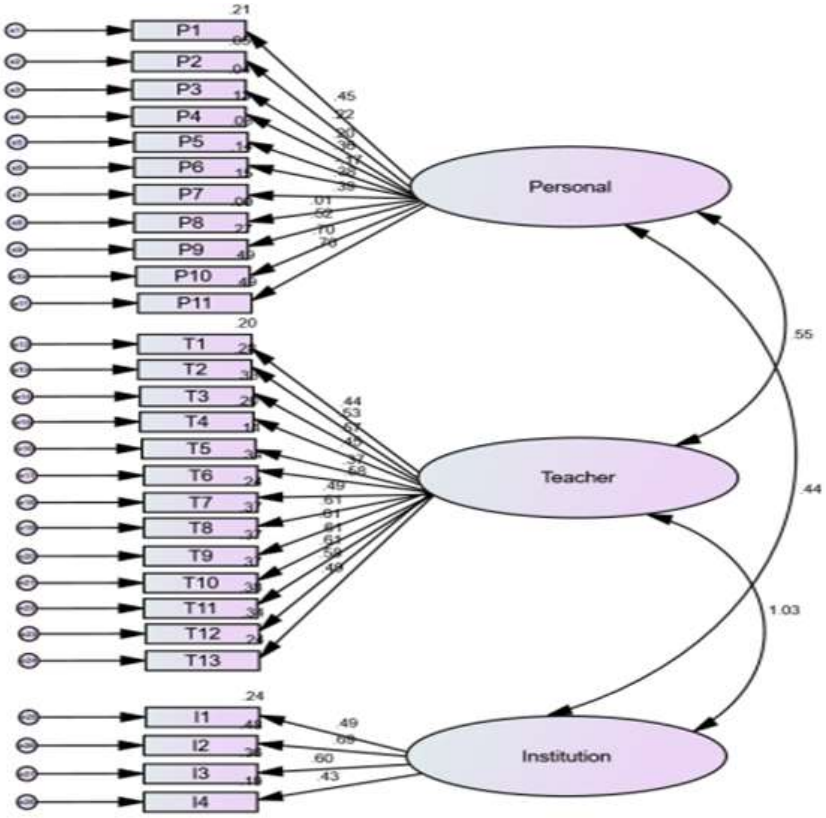
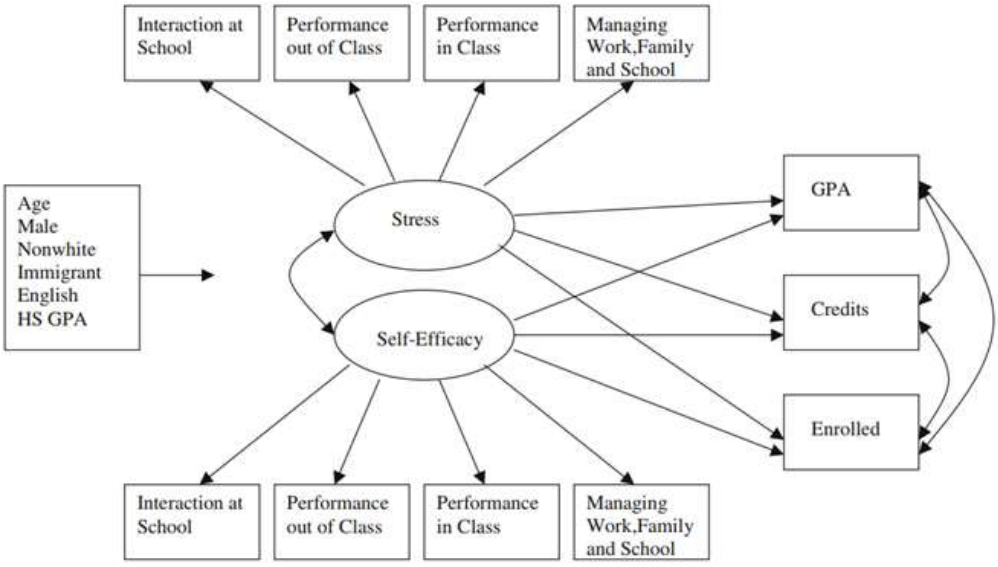


Figure 1. *Conceptual Framework without Self-Efficacy*

According to (Zajacova, Lynch, & Espenshade, 2005) said in Higher Education self-efficacy is influential in learning, especially in online learning, and the indicators of self-efficacy are as shown in Figure 2 below.



Source: (Zajacova, Lynch, & Espenshade, 2005)

Figure 2. *Indicator of Self Efficacy*

From the explanation above, a conceptual framework can be built as shown in Figure 3 below.

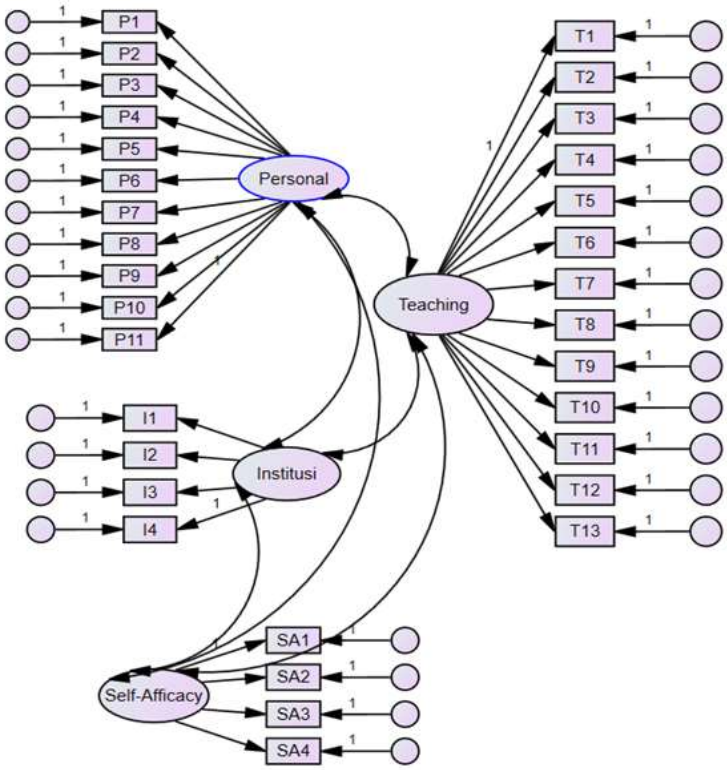


Figure 3. *Testing Confirmatory Composite Analysis (CCA)*

According to Lee and Mendlinger, 2011, perceived online-learning has an effect on WOM by 0.246 or 24.6%. And according to Thakur, 2018 says that the effect of Self Efficacy learning on WOM is 38.6%. Therefore, in this study, it will be tested how much influence online learning and its dimensions have on WOM.

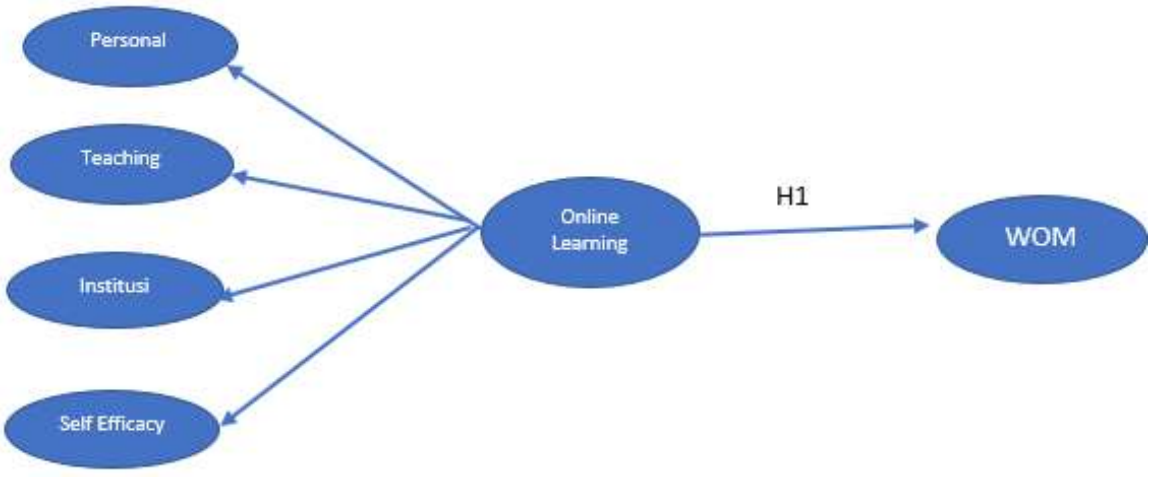


Figure 4. *Research Framework*

In the framework of the research in Figure 4. it is explained that online learning is divided into four dimensions, namely personal, institutional, teaching, and self-efficacy which will affect WOM.

III. Research Method

This research is quantitative in nature which is intended to examine the factors that affect online learning during the COVID-19 PANDEMI, the object of research is individual students, and the sampling method is non-probabilistic with confidence sampling. The population is students in Tangerang, and the target population is semester 1-9 students and in July 2021. Data collection using google forms, data processing using CCA with PLS-SEM tools using the Confirmatory Composite Analysis method

3.1 Confirmatory Composite Analysis

Confirmatory Composite Analysis(CCA) is an alternative approach that has recently been proposed to be applied in confirming measurement models when using partial least squares structural equation modeling (PLS-SEM). According to Hair, Howarda, and Nitzl (2020), confirmatory composite analysis (CCA) is an alternative approach proposed to be applied in confirming the measurement model when using partial least squares structural equation modeling (PLS-SEM). The stages in conducting a confirmatory composite analysis (CCA) are as follows, *Assessing Reflective Measurement Models Using Confirmatory Composite Analysis:*

a. Estimate of Loadings and Significance
b. Reliability Indicators (items)
c. Composite Reliability (construct)
d. Average Variance Extracted (AVE)
e. Discriminant Validity – HTMT
f. Nomological Validity
g. Predictive Validity

3.2 Variable Operationalization

Table 2. Variable Operationalization

Symbol	Indicator	Construct	Variable Operations
P1	Availability of Devices	Personal	(Sunandita, 2021)
P2	Skills	Personal	
P3	Internet Facility	Personal	
P4	Knowledge	Personal	
P5	Learning Potentiality	Personal	
P6	Save Time	Personal	
P7	Store Information	Personal	
P8	Losing Interest	Personal	
P9	Boring	Personal	
P10	Frustrating	Personal	
T1	Trained	Teaching	
T2	Motivation	Teaching	
T3	e-tools and techniques	Teaching	
T4	Teaching method	Teaching	
T5	e-resources	Teaching	
T6	Presentation	Teaching	
T7	Collaborative Projects and Assignments	Teaching	

T8	Communication	Teaching	
T9	Feedback	Teaching	
T10	Active Participation	Teaching	
I1	Own online Platform	Institution	
I2	Infrastructure	Institution	
I3	Online Exam	Institution	
I4	Time Management	Institution	
SA1	Interaction at School	Self-Efficacy	(Zajacova, Lynch, & Espenshade, 2005)
SA2	Performance Out of Class	Self-Efficacy	
SA3	Performance In Class	Self-Efficacy	
SA4	Managing Work,Family&School	Self-Efficacy	

Data processing using PLS-SEM, using Confirmatory Composite Analysis (CCA).

IV. Results and Discussion

4.1 Results

Self Affection Construct Test

Hair, et al. (2020) said that the stages in conducting a Confirmatory Composite Analysis (CCA) are as follows, *assessing reflective measurement models using confirmatory composite analysis:*

a. Estimate of Loadings and Significant

In the first stage, Hair et al. (2020) says that the number of outer loading must be more than 0.708 and the number of T-Statistics must be > 1.645, if statistical analysis is carried out with a one tail approach.

Table 3. Outer Loading

	Outer Loading	T Statistics	Outer Loading Squared
I1	**0.926**	56.875	**0.857**
I2	**0.920**	59.712	**0.847**
I4	**0.783**	16.592	**0.613**
P1	**0.776**	18.902	**0.602**
P2	**0.767**	14.812	**0.588**
P5	**0.762**	19.041	**0.581**
P6	**0.745**	15.083	**0.556**
P7	**0.806**	18.031	**0.649**
SE1	**0.903**	47.117	**0.815**
SE2	**0.737**	11.219	**0.544**
SE3	**0.897**	42.328	**0.804**
SE4	**0.824**	22.126	**0.679**
T1	**0.773**	21.085	**0.598**
T2	**0.819**	22.829	**0.671**
T3	**0.765**	11.530	**0.585**
T4	**0.854**	29.645	**0.729**
T5	**0.760**	16.787	**0.578**

T6	**0.822**	22.827	**0.676**
T8	**0.813**	21.832	**0.662**
WOM1	**0.863**	33.906	**0.744**
WOM2	**0.853**	25.485	**0.727**
WOM4	**0.823**	20.253	**0.678**
WOM5	**0.850**	26.010	**0.723**
WOM6	**0.862**	20.942	**0.743**
WOM7	**0.841**	19.862	**0.708**

Source: PLS-SEM Research Data Processing Results (2021)

Based on the results of testing the emotional value and energizing value indicators, it shows 7 Emotional Value items and 4 new Energizing Value items have significant values, with T Statistics > 1,645. The value of the outer loading indicator is already above 0.708, thus it can be said that both the emotional value indicator and the energizing value are reliable to measure the construct. The requirements for stage 1 of the confirmatory composite analysis that test the significance of the indicator have been met, so that it can proceed to the next stage of testing, namely indicator reliability.

b. Reliability Indicators (Items)

Outer loading possessed by each item after being squared must be > 0.50 so that it can be said to be reliable (Hair et al., 2020). After the outer loading of each Personal, Institutional, Teaching and Self-Afficiency indicator is squared so that all indicators > 0.5 as shown in table 4.1 and the existing data can be said to be reliable. Thus, there are two requirements that are met.

c. Composite Reliability (Reliability Construct)

In this section or requirements, the existing requirements for composite reliability must be > 0.7 to be said to be reliable.

Table 4. Construct of Reliability

	Composite Reliability	**Average Variance Extracted (AVE)**
Institution_	**0.910**	**0.773**
Personal__	**0.880**	**0.595**
Self Efficacy	**0.907**	**0.710**
Teaching	**0.926**	**0.643**

Source: PLS-SEM Research Data Processing Results (2021)

The composite reliability value of self efficacy is 0.907 and Institution (0.910), Personal (0.880), and Teaching (0.926) so that it is > 0.7 so it can be said to be reliable. Thus, the conditions in stage three are fulfilled. Next, enter into stage four to fulfill all the existing requirements.

d. Average Variance Extracted (AVE)

AVE must be at a number > 0.5 in order to be said to be reliable (Hair et al., 2020). The value of Average Variance Extracted (AVE) from table 4.2 of self efficacy is 0.710 and Institution (0.773), Personal (0.595), Teaching (0.643) is > 0.5. This can be said to be

reliable so that the conditions in stage four are met. Next, the test is continued to stage five to test the results of the data meeting the appropriate requirements or not.

e. Discriminant Validity HT/MT

Discriminant validity obtained from the HT/MT value which must be at < 0.90 in order to be declared valid (Hair et al., 2020).

Table 5. Heterotrait/Monotrait Value

	Institution_	Personal__	Self Efficacy	Teaching	WOM_
Institution_					
Personal__	0.886				
Self Efficacy	**0.785**	0.889			
Teaching	**0.595**	**0.710**	**0.603**		
WOM_	**0.760**	**0.817**	**0.838**	**0.703**	

Source: PLS-SEM Research Data Processing Results (2021)

Based on the results of data processing using SmartPLS with construct validity in terms of discriminant validity with the HT/MT approach, all constructs can be declared to have met the criteria < 0.9. Thus, it can be said that all constructs are valid so that the fifth testing stage was successful and allowed to proceed to the next stage.

f. Nomological Validity

Nomological validity is an additional process that correlates one construct being tested with other constructs so that the results are in line with the theory being discussed (Hair et al., 2020).

Thus, it can be seen that the results of this study are appropriate and in line with the theory that was built previously because it has fulfilled nomological validity.

Table 6. Correlation between Self Efficacy and other variables

	I1	I2	I4	P1	P2	P5	P6	P7	SE1	SE2	SE3	SE4	T1	T2	T3	T4	T5	T6	T8
I1	1.000	0.852	0.725	0.533	0.527	0.523	0.512	0.554	0.571	0.467	0.568	0.522	0.374	0.396	0.370	0.413	0.368	0.398	0.394
I2	0.852	1.000	0.721	0.530	0.523	0.520	0.509	0.550	0.568	0.464	0.564	0.519	0.372	0.394	0.368	0.411	0.366	0.396	0.391
I4	0.725	0.721	1.000	0.451	0.445	0.443	0.433	0.468	0.483	0.395	0.480	0.441	0.317	0.335	0.313	0.350	0.311	0.337	0.333
P1	0.533	0.530	0.451	1.000	0.595	0.591	0.578	0.625	0.530	0.433	0.526	0.484	0.375	0.397	0.371	0.414	0.368	0.398	0.394
P2	0.527	0.523	0.445	0.595	1.000	0.584	0.572	0.618	0.524	0.428	0.520	0.478	0.370	0.392	0.366	0.409	0.364	0.394	0.389
P5	0.523	0.520	0.443	0.591	0.584	1.000	0.568	0.614	0.520	0.425	0.517	0.475	0.368	0.390	0.364	0.406	0.362	0.391	0.387
P6	0.512	0.509	0.433	0.578	0.572	0.568	1.000	0.601	0.509	0.416	0.506	0.465	0.360	0.381	0.356	0.398	0.354	0.383	0.379
P7	0.554	0.550	0.468	0.625	0.618	0.614	0.601	1.000	0.550	0.450	0.547	0.503	0.389	0.412	0.385	0.430	0.383	0.414	0.409
SE1	0.571	0.568	0.483	0.530	0.524	0.520	0.509	0.550	1.000	0.665	0.809	0.744	0.382	0.404	0.378	0.422	0.376	0.406	0.402
SE2	0.467	0.464	0.395	0.433	0.428	0.425	0.416	0.450	0.665	1.000	0.661	0.608	0.312	0.330	0.309	0.344	0.307	0.332	0.328
SE3	0.568	0.564	0.480	0.526	0.520	0.517	0.506	0.547	0.809	0.661	1.000	0.739	0.380	0.402	0.375	0.419	0.373	0.403	0.399
SE4	0.522	0.519	0.441	0.484	0.478	0.475	0.465	0.503	0.744	0.608	0.739	1.000	0.349	0.369	0.345	0.385	0.343	0.371	0.367
T1	0.374	0.372	0.317	0.375	0.370	0.368	0.360	0.389	0.382	0.312	0.380	0.349	1.000	0.633	0.591	0.660	0.588	0.636	0.629
T2	0.396	0.394	0.335	0.397	0.392	0.390	0.381	0.412	0.404	0.330	0.402	0.369	0.633	1.000	0.626	0.699	0.623	0.673	0.666
T3	0.370	0.368	0.313	0.371	0.366	0.364	0.356	0.385	0.378	0.309	0.375	0.345	0.591	0.626	1.000	0.653	0.582	0.629	0.622
T4	0.413	0.411	0.350	0.414	0.409	0.406	0.398	0.430	0.422	0.344	0.419	0.385	0.660	0.699	0.653	1.000	0.649	0.702	0.694
T5	0.368	0.366	0.311	0.368	0.364	0.362	0.354	0.383	0.376	0.307	0.373	0.343	0.588	0.623	0.582	0.649	1.000	0.625	0.619
T6	0.398	0.396	0.337	0.398	0.394	0.391	0.383	0.414	0.406	0.332	0.403	0.371	0.636	0.673	0.629	0.702	0.625	1.000	0.669
T8	0.394	0.391	0.333	0.394	0.389	0.387	0.379	0.409	0.402	0.328	0.399	0.367	0.629	0.666	0.622	0.694	0.619	0.669	1.000

Source: Results of PLS-SEM research data processing (2021)

The results of data processing using PLS-SEM using the correlation between emotional value and energizing value variables are all positive and significant, so it can be said that this 6th stage is valid.

g. Predictive Validity

Size of Q-squareaccording to Hair et al. (2019), which is more than 0 to 0.25 has a small level of relevance predictive ability or*small predictive relevance*. Meanwhile, the value ofQ-squared theis between 0.25 to 0.5 has a medium level of relevance predictive ability, or*medium predictive relevance*. Finally, if the value of the size Q-*squared* is more than 0.5, it can be said that this measure has a high level of relevance predictive ability or*large predictive relevance*.

Table 7. Q^2

	Q^2
Institution_	0.523
Personal__	0.388
Self Efficacy	0.513
Teaching	0.503

Source: Results of PLS-SEM research data processing (2021)

Based on the results of the study, it can be stated that the self-efficacy variable can be separated from Institution, Personal and Teaching has the ability to predict so that it can be said that the seventh condition is successfully fulfilled. Thus, the seven stages in the Confirmatory Composite Analysis (CCA) have been fulfilled so that it can be said that the construct of self-efficacy can be a new construct which is a new dimension for online learning.

4.2 Discussion

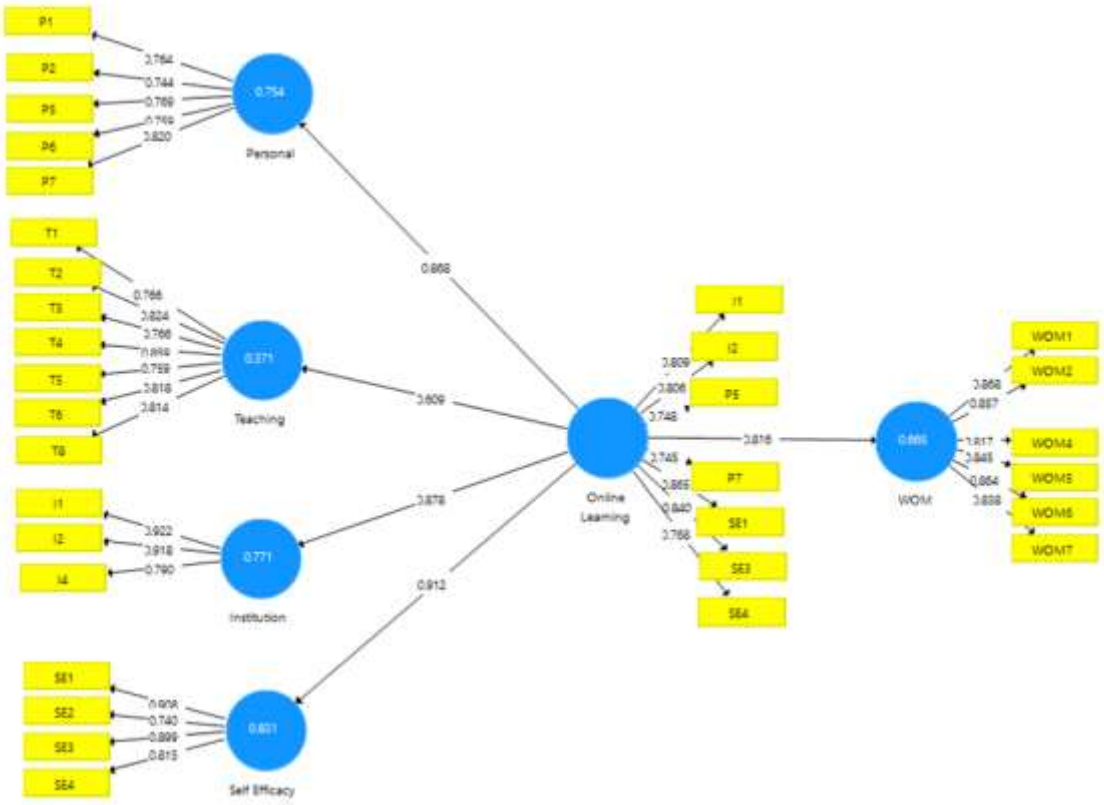


Figure 5. *Research Model*

From the results of the study, it can be seen that Self Efficacy is proven to be one of the dimensions of online learning by using the CCA (Confirmatiry Composite Analysis) method. Based on Figure 5, the results show that Self Efficacy is ranked first with an R2 of 0.821 which has an effect on online learning, followed by Institutions with an R2 of 0.771, and then Personal with an R2 of 0.754, and the last is Teaching with an R2 of 0.371. From the results of this study it can be concluded that in conducting Online Learning, the Self Efficacy factor becomes a very strong factor influencing the success of Online Learning itself, and this research supports the research conducted by (Lee & Mendlinger, 2011).

Table 8. *Bootstrapping*

	Original ...	Sample ...	Standard ...	T Statistic...	P Values
Online Learning_ -> Institution_	0.878	0.879	0.026	34.356	**0.000**
Online Learning_ -> Personal__	0.868	0.869	0.030	28.580	**0.000**
Online Learning_ -> Self Efficacy	0.912	0.912	0.014	63.540	**0.000**
Online Learning_ -> Teaching	0.609	0.617	0.087	6.968	**0.000**
Online Learning_ -> WOM_	0.816	0.815	0.040	20.478	**0.000**

Source: Results of PLS-SEM research data processing (2021)

From table 4.5, Hypothesis H1 is supported because it has a T Statistic value of 20,478 > 1,645 with an alpha of 0.5 and significant because p value < 0.05, so Hypothesis H1 is accepted which states that online learning has a positive and significant effect on WOM. So that the implementation of online learning at universities needs to be done well because it greatly affects the WOM of students outside the university which will later affect the intake or registration of new students, or affect the marketing of the university itself.

V. Conclusion

Self Efficacy is proven to be one of the dimensions of online learning by using the CCA (Confirmatiry Composite Analysis) method. The results show that Self Efficacy is ranked first with an R2 of 0.821 which has an effect on online learning, followed by Institutions with an R2 of 0.771, and then Personal with an R2 of 0.754, and the last is Teaching with an R2 of 0.371. Hypothesis H1 is supported because it has a T Statistic value of 20,478 > 1,645 with an alpha of 0.5 and significant because p value < 0.05, so Hypothesis H1 is accepted which states that online learning has a positive and significant effect on WOM. Based on the results of the analysis and discussion that have been carried out, it can be concluded that in conducting Online Learning, the Self Efficacy factor becomes a very strong factor influencing the success of Online Learning itself.

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