

# THE EFFECT OF LEARNING INTERACTION ON ENGLISH LEARNING PERFORMANCE IN ONLINE PEDAGOGY

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## Abstract

In the last few decades, innovations have been integrated into education and transformed the context of teaching and studying through rapidly accessible resources, the internet, online learning environments and sharing tools. Because of the prevalent Coronavirus disease in 2019, many people could not attend schools, universities or other structured schooling. Since then, all face-to-face tasks have been interrupted and undertaken at home to prevent social interaction. This condition has an impact on the change to online pedagogy in the Indonesian education system. Studies have shown influential factors in online pedagogy. However, there seems to be insufficient research that exposes other variables in online pedagogy, such as learning interaction and English learning performance. This research discusses the gap and reflects a seminal study that exposes the relationship between learning interaction and English learning performance in online pedagogy in the context of Indonesia. We designed this research quantitatively to test the research model empirically. A web-based survey was used to collect relevant data. The participants were 34 English students at one of the private universities in Indonesia. The findings revealed that students' learning interaction was positively and significantly related to English learning performance in online pedagogy. The research findings implied that interaction among students and their classmates or teacher was a factor determining the success of English language teaching in online pedagogy. The teacher should be aware of how students interact because it would impact their English learning performance.

**Keywords:** learning interaction, English learning performance, online pedagogy

## Introduction

In the last few decades, innovations have been integrated into education and transformed the context of teaching and studying through rapidly accessible resources, the internet, online learning environments and sharing tools (Selwyn et al., 2017; Starkey, 2020). Because of the prevalent Coronavirus disease in 2019, many people could not attend schools, universities or other structured schooling. Since then, all face-to-face tasks have been interrupted and undertaken at home to prevent social interaction. This condition, of course, has an impact on the change to online pedagogy in the Indonesian education system. Studies have shown some influential factors in online pedagogy, such as high school students' experience of online learning during Covid-19: the influence of technology and pedagogy

(Yates et al., 2020), pre-service teaching practice for students of online and distance learning (Abdullah & Mirza, 2020). Even so, there seemed to be insufficient research that exposed other variables in online pedagogy, such as learning interaction and English learning performance. This research discussed the gap and reflected a seminal study that exposed the relationship between learning interaction and English learning performance in online pedagogy in the context of Indonesia.

Online pedagogy was accepted as a model for learners and higher education institutions (Allen & Seaman 2010, 2013; Hung, 2016). This was primarily attributed to the increase in the capacity to deliver education and the ability to remove discrepancies between students, teachers, and learning facilities (Bozkurt, 2019a, 2019b). Online

pedagogy has become a more common way of teaching with the introduction of access to the internet (Bates, 2019; Cigdam & Yildirim, 2014). It is supported by technology advancement presented with a large variety of interactive learning options (Bernard et al., 2009; Donnelly, 2010). Other researchers (e.g. Arbaugh & Benbunan-Fich, 2007; Bernard et al., 2004) reveal interactions as a significant component of online pedagogy throughout the last decade, usually in Moore's (1989) interaction system (e.g., Kanuka, 2011). This means that learning happens when a student communicates with other students or the world, irrespective of the field, education design or technology used in the learning method (Tirri & Kuusisto, 2013). In the sense of interaction in conventional (e.g. Mehan, 1998; Johnson, 1981) as well as online pedagogy environments (e.g., Bernard et al. 2009; Muirhead & Juwah, 2005; Woo & Reeves, 2007), several researchers regard interaction as the most critical aspect of any learning system (e.g. Woo & Reeves, 2007) and as a long time studied.

Online learning performance can be tested in several ways. Via collaborative learning inside social networks, students can access, recognise, and be included in the group. Public associations, i.e. access to community and social services, become criteria for service quality. Orakwue and Teng (2014) examine the effect of various student learning contexts on learning performance, measured by grades and satisfaction in online and mixed learning environments. The analysis shows that excitement of learning has been used to evaluate learning success (Abdous & Yen, 2010).

## **Literature Review**

### **Online Pedagogy**

People reside in different geographical regions, and of course, the ease of access

they get is not the same. People living in the urban area are easier to get access to education. It is contradictory with people living in the suburban area in which access to education is difficult. They are able to gain the same information and get broader participation and study online with sophisticated technology. It helps them comprehend and discover further the topics they are seeking to compress, inviting their development and growing their participation in their community (Littlejohn & Hood, 2018). Though education can be done online, face-to-face learning cannot be replicated through online learning. However, according to Selwyn (2014), online pedagogy cannot mimic the learning just as face-to-face learning. It gives a distinct and robust understanding of many possible advantages of space, time, and various means of interaction such as voice, written, and mobile phone communication but do not provide the same social and cultural knowledge as face-to-face communication.

Online pedagogy may be used in certain instances in medical education for any disorder or cause that renders a person unable to come to class in face-to-face circumstances. Despite this, participants have found out that there are different types of online pedagogy. Specific online pedagogy environments are isolated from the community. Some forms maintain a tight tie to the social world and operate as more conventional learning centers. At the same time, an educational organization has to partner with other schools to develop a specific program of online pedagogy. Ultimately, this type of online pedagogy incorporates various features such as physical separation, learning results, communication and engagement to build a more successful learning experience (Sampson, 2003). In online pedagogy, like in many other curriculums, students and teachers have opportunities to extend their expertise yet found themselves constrained by the technical components. Rather than taking a class at remote campuses, this e-

learning model helps pull students around the globe together. It has the impact of offering parents a more significant role in teaching their children (Khan et al., 2019). In comparison, online pedagogy reduces the drawbacks of traditional face-to-face instruction. Most notably is the willingness of experts in other fields to collaborate effectively.

Through the scholars' research, the standard of the language education sector has started to be challenged by others (Chapelle, 2019; Kai, 2019). There have been a few experiments carried out to explore various areas of online language learning. Any of the topics is an analysis of the usefulness of English language skills (Grigoryan, 2020), a review of the characteristics of English language educators (Murphy et al., 2010), or a consideration of the nature of English language courses (Wang & Chen, 2013). Students' learning is another topic that has recently attracted attention, and for this purpose, it has already been included in the agenda. It is known that the students' learning success depends on many factors, and a recent study has proposed the considerations such as learning interaction and English learning performance.

### Learning Interaction

Learning interaction is related to a diverse learning process between students that adapt their thoughts and behavior through communicating (Ferguson, 2010). We notice that it improves the importance of studying in online classes (Beaudoin, 2002). In research, learning interaction facilitates learning performance as students translate new knowledge into new potential assumptions centered upon their existing experience (Wei & Hung, 2011). Students who have an immense amount of interaction with others in the school appear to be more interested in learning than those with low interactions with others in the class.

There are several approaches to learning interaction more productively. We may break more than code when we see the gap

in the students' behavior, intentions, and reasons (Rantanen & Soini, 2018; Suorsa, 2019; Suorsa et al., 2013). By participating in adequate interaction in class, students will share their perspectives and expertise with their peers. This may also entrench relationships with their teachers, particularly online classes. According to Wei and Chen (2012), good interaction can be assessed by the extent to which students debate topics relating to learning with others, exchange learning resources and thoughts with others, communicate about learning objectives and assignments with others, and answer others' queries. Table 1 shows learning interaction with its indicators.

**Table 1. Learning Interaction and its Indicators**

<b>Learning Interaction (LI)</b>	<b>Indicators</b>	<b>Source</b>
LI1	Debating topics relating to learning with others	Wei and Chen (2012)
LI2	Exchanging learning resources and thoughts with others	
LI3	Communicating about learning objectives and assignments with others	
LI4	Answering other's queries	

### English Learning Performance

Improving students learning performance is a goal in online learning. It can be affected by students' relationships with their teachers (Offir et al., 2008). Jin (2010) write that learning interaction is one of the keys to high success in learning a randomly selected task. A quarter of students decide that as they hear from their online class, they are apt to express their views, transfer their expertise and develop connections with the people in the class. The opportunity to determine when students are learning can offer a potential for equipping prescriptive guidelines, initiating

structuring methods and emphasizing effective teaching practices (Hellas et al., 2018). They have also gained much knowledge in setting up successful student's habits in online educational systems, especially in the case of tutorials and quizzes. Thus, we propose the following hypothesis:

*H1*: Learning-interaction is positively related to English learning performance in online pedagogy.

Based on the results provided by Wei and Chen (2012), the indicators to check the students' learning performance can be described as shown in Table 2. From gazing at the teacher's tasks, it is evident that they are having a rough time completing them. The teacher is handing out their students a task (given homework) that affects their students' skill in the topic, with some who have higher percentages of completed work, making it more likely the students study the subject well. Second, a teacher may review the students' learning performance through whether the students accomplish the learning objectives or not. When the curriculum material seems appropriate for the students' desires, they realized that their academic ability progresses further. The last, most notably, how the students gain valuable knowledge show whether they receive valuable knowledge. It is an undeniable reality that the purposes of learning are to gain intelligence. Having considered the teacher's guidance, students conclude that their advice significantly affects their comprehension and performance. In this situation, the most significant thing is how good the students perform. Typically the performance of a student will be expressed on their ranking. As with schooling, progress on scale topics will be the greatest if there is an improvement.

**Table 2. English Learning Performance and its Indicators**

English Learning Performance (ELP)	Indicators	Source
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ELP1	Gazing at the tasks that were sent out by the teacher in online pedagogy	
ELP2	Accomplishing the learning objectives in online pedagogy learning	Wei and Chen (2012)
ELP3	Gaining valuable knowledge in online pedagogy	
ELP4	Getting a good English grade in online pedagogy	

## Methodology

### Research Design

We evaluated the model quantitatively to assess the feasibility of the model. To obtain the necessary data, a web-based survey was used. We built a questionnaire focused on the existing literature by Wei and Chen (2012) before conducting the survey. The survey was created by Google Forms, an online accessible survey building software, and delivered to the group members through the Whatsapp community.

### Participants

In the research, the participants were mainly English students at one of the private universities in Indonesia, i.e. University of Nahdlatul Ulama Sunan Giri. The participants were 34 individuals, 17 (50 percent) females and 17 (50 percent) males. The participants were adolescents between the ages of 18 – 24. Determined by their period of study in a semester, they were the 1st semester, 3rd semester, and 5th semester. Owing to the Covid-19 epidemic, all of them would have to pursue their education online.

### Data Collection Techniques and Instrument

Data were obtained through a survey by using a Google form online. The instrument comprised eight statements, all of which were closed statements. Statement LI1 to LI4 was concerned with learning

interaction, and statement ELP1 to ELP4 was concerned with learning performance. The members of the focus group were instructed to choose the most suitable statements. The instrument was arranged in a 5-point Likert Scale, varying from strongly disagree to strongly agree. The data was coded into numbers, such as strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), and strongly agree (5).

### Data Analysis and Findings

As suggested by Hair et al. (2016), the study adopted a two-stage approach to verification: (1) assessment of the measurement model and (2) estimation of the structural model. The first one was used to test the validity and reliability and the latter was used to analyze the data.

### Assessment of the Measurement Model

The convergent validity of constructs and their components was calculated using this calculation model's Average Variance Extracted (AVE) values. This was expected to be greater than 0.50 (Hair et al., 2011).

**Table 4. Outer Loading**

	<b>Learning Interaction</b>	<b>English Learning Performance</b>	<b>Validity &gt; 0.70</b>
LI2	0.863		Valid
LI3	0.823		Valid
LI4	0.813		Valid
LP2		0.898	Valid
LP3		0.873	Valid
LP4		0.826	Valid

**Table 5. Fornell-Larcker Criterion**

	<b>Learning Interaction</b>	<b>English Learning Performance</b>
<b>Learning Interaction</b>	<b>0.833</b>	
<b>English Learning Performance</b>	0.810	<b>0.866</b>

The results revealed that AVE values for learning interaction and English learning performance were more than 0.50,

indicating it exceeded the threshold of passing values. In Table 3, the values were revealed.

Then, the outer loading was tested to make sure that the indicators were all valid. According to Hair et al. (2017), outer loading threshold values should be greater than 0.70. Table 4, it showed that all of the indicators were greater than 0.70. In addition, discriminant validity was assessed. It contained Fornell-Larcker Criterion and Cross Loadings. Fornell Larcker Criterion was tested by verifying that the correlation values of the same constructs should be the highest of the other constructs. Because the other construct value was found to be higher than the same construct, there should be some indicators that needed to be deleted. In this way, we deleted the indicators of LI1 and ELP1, and the results became appropriate. The Fornell Larcker Criterion is shown in Table 5. Cross Loadings were calculated by deciding that the indicators measuring the constructs should be the highest of all. The cross-loadings are presented in Table 6.

To further evaluate the scale's reliability, Cronbach's Alpha and Composite Reliability (CR) were measured. Hair et al. (2011) suggested the usage of Cronbach's Alpha and Composite Reliability for assessing internal accuracy and reliability. In order to make the Cronbach's Alpha and Composite Reliability more precise, the value should be more than 0.70. In Table 7, all of the constructs were well beyond the level for reliability, indicating high internal

**Table 3. Average Variance Extracted (AVE)**

	<b>Average Variance Extracted (AVE)</b>	<b>Validity &gt; 0.50</b>
Learning Interaction	0.695	Valid
English Learning Performance	0.750	Valid

consistency.

**Table 6. Cross Loading**

	Learning Interaction	English Learning Performance
LI2	<b>0.863</b>	0.721
LI3	<b>0.823</b>	0.613
LI4	<b>0.813</b>	0.683
LP2	0.708	<b>0.898</b>
LP3	0.637	<b>0.873</b>
LP4	0.747	<b>0.826</b>

**Table 7. Cronbach's Alpha and Composite Reliability (CR)**

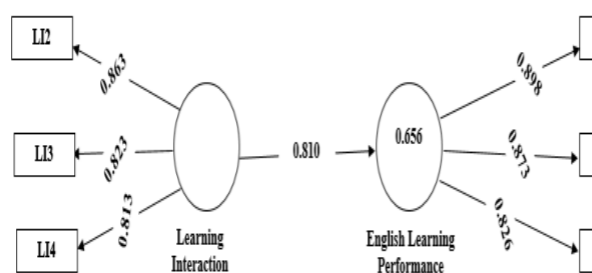
	Cronbach's Alpha	Composite Reliability	Reliability > 0.70
Learning Interaction	0.780	0.872	Reliable
English Learning Performance	0.833	0.900	Reliable

### Estimating the Structural Model

After assessing the validity and reliability of the measures, we wanted to test the model. Figure 1 outlines the constructs and the valuable results from the PLS analysis. The essential specifics of each model was extracted from the bootstrapping analyses. We ran 5000 subsamples to show that the analysis was accurate.

Concerning path coefficients, the pathway was significant at  $P < 0.000$ . Hair et al. (2017) stated the threshold for path coefficients  $< 0.05$ . In Table 11, we could see that learning interaction was positively linked to English learning performance ( $\beta$  0.810), offering clear analytical evidence for supporting the hypotheses H1.

**Figure 1. Structural Model with Results of the PLS analysis.**



In order to quantify the degree to which endogenous mechanisms were influenced, a determinant of coefficient ( $R^2$ ) was used. Using Hair et al. (2011) and Henseler et al. (2009), the  $R^2$  value for the application varied from 0 to 1. It was then graded into 0.75 (75 percent) as substantial, 0.50 (50 percent) as moderate, and 0.25 (25 percent) as weak. As seen in Table 8, the  $R^2$  value of endogenous structure comprising English learning performance information was 0.656. The results showed a direct impact of learning interaction on English learning performance but moderate the effect.

The model's predictive relevance was estimated in  $Q^2$ . With the exclusion of 7, we operated the blindfolding mechanism. Table 8 revealed that the  $Q^2$  values were higher than 0. Hair et al. (2017) determined that the  $Q^2$  values higher than 0 were considered strong predictive. Finally, NFI was calculated to test the model fit. The findings suggested that NFI was 0.730. It meant that the design used in this analysis was indicated to be 73% fit.

**Table 8. Coefficient of Determination ( $R^2$ ) and Predictive Relevance ( $Q^2$ )**

	Coefficient of Determination ( $R^2$ )	Remark	Predictive Relevance ( $Q^2$ )	Remark
Learning Performance	65.6%	Moderate	0.465	Good Predictive

Note.  $R^2$  (75% as substantial, 50% as moderate, 25% as weak),  $Q^2$  ( $> 0$  good predictive)

### Discussion and Implications

The research investigated the effect of learning interaction on English learning performance. Scientific data supported the first theory of this analysis. A significant relationship was identified between the amount of learning interaction and English learning performance. Based on our findings, students who consistently tackled learning difficulties shared learning

materials and discussed the learning goals and assignments with teachers and classmates to increase their English learning performance. The findings often correlated with previous reports (e.g. Offir et al., 2008 & Jin, 2010). Data from Offir et al. (2008) revealed that learning performance was a prominent characteristic of online learning and could be influenced by learning interaction between students and teachers. Jin (2010) noticed that the interaction among students created better learning performance.

The research findings implied that interaction among students and their classmates or teacher was a factor determining the success of English language teaching in online pedagogy. It involved at least two individuals or groups (between a student to a student or between students to a teacher). Students might ask some questions or explanations to a teacher about the material they did not understand. The teacher could provide feedback to students so that interaction between them could be created. The teacher should be aware of how students interact because it would impact their English learning performance. When few students seemed silent in online pedagogy, the teacher had to initiate to make them more excited in delivering their minds.

### Conclusion and Suggestions

This research investigated the effect of students' learning interaction and English learning performance. In hypothesis H1, there was a positive relationship between learning interaction and English learning performance. With the empirical evidence, the results showed the hypothesis H1 was supported at ( $\beta$  0.810). Learning interaction also significantly affected learning performance at  $p$  0.000.

The suggestions related to other constructs which potentially affected English learning performance are offered. Because English learning performance in this research is affected only 65.6% by learning interaction,

further researchers are suggested to seek the remaining potential constructs to analyze the research in more detail comprehensively. The role of gender in the relationship between learning interaction and English learning performance may be another essential consideration for the subsequent research.

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