

THE ROLE OF GENDER IN THE RELATIONSHIP BETWEEN PRE-SERVICE ENGLISH TEACHERS' LEARNING INTERACTION AND ENGLISH ACADEMIC ACHIEVEMENT DURING DISTANCE LEARNING

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Abstract

A classroom is one of the core aspects of education in which students communicate with their teachers, peers, and learning resources. As the COVID-19 pandemic triggers, several countries worldwide have temporarily shut down their schools and switched from traditional education to a distance learning environment, on the one side, to reduce this pandemic in human societies and, on the other, to ensure that learning is continuous. Inevitably this situation affects the transition in the Indonesian education system towards distance learning. Several research finds specific significant distance learning considerations. However, preliminary research tends to reveal the importance of learning interaction, specifically for pre-service English teachers. Thus, this research explores the discrepancy which highlights the status of gender in the relationship between pre-service English teachers' learning interaction and English academic achievement during distance learning in Indonesia. We carried out a qualitative analysis to test the research model statistically. A survey was used to accomplish the current research. The critical focus of the research was on a group of pre-service English teachers consisting of 34 people. Data were received online from a Google form. The instrument was an online survey of 8 statements, all closed statements. The findings suggested a direct influence on English academic achievement through pre-service English teachers' learning interactions, although the impact could be moderate. The findings also revealed that males were more affecting than females in affecting the relationship between learning interaction and English academic achievement during distance learning.

Keywords: pre-service English teachers' learning interaction, English academic achievement, gender, distance learning

Introduction

A classroom is one of the core aspects of education in which students communicate with their teachers, peers, and learning resources. As the COVID-19 pandemic triggers, several countries across the world have temporarily shut down their schools and switched from traditional education to a distance learning environment, on the one side, to reduce this pandemic in human societies and, on the other, to ensure that learning is continuous (UNESCO, 2020). Inevitably this situation affects the transition in the Indonesian education system towards distance learning. Several research finds specific significant distance learning considerations. However, preliminary research tends to reveal the

importance of learning interaction, specifically for pre-service English teachers. Thus, this research explores the discrepancy which highlights the status of gender in the relationship between pre-service English teachers' learning interaction and English academic achievement during distance learning in Indonesia.

Online interaction is a mechanism that focuses on the student. Interaction in the sense of education can be defined as an incident between a student and the world of the student Wagner (, 1994). In addition, in online learning contexts, Wanstreet (2006) proposes three concepts for interaction: instructional sharing, computer-aided interaction, and social/psychological

interaction. The students have four degrees of interaction in distance learning settings, namely the interaction of the students with the teacher, the content, their classmates, and the online learning platform (Bouhnik and Marcus, 2006; Moore, 1989).

Interaction is an integral aspect of the method of distance learning. It contributes to the encouragement of students, scientific collaboration, critical thinking and academic results (Suwono & Dewi, 2019). Online interaction should be accepted by students (Blaine, 2019). Increasing levels of interaction improve students' satisfaction with online classes (Turley and Graham, 2019). Thus, in distance learning environments, interaction levels must be implemented, controlled and measured.

Literature Review

Distance Learning

The novel coronavirus outbreak that causes the disease known as COVID-19 has led to dramatic and significant shifts in people's lives. The case of pneumonia was discovered on December 8, 2019, in Wuhan City, Hubei Province, China. Since that time, it brings to light the pressing problem. It has entered remote areas all around the world. As a consequence of this worldwide epidemic, a drastic shift has arisen in how we interact with one another. Many universities have moved to accommodate the widespread phenomenon of distance learning in classrooms (Schneider & Council, 2020). The importance of the term 'distance learning' also needs consideration, which is not the same as online learning. Distance learning is focused in its framework on information and human capacity. As some scholars point out, distance learning technology can be used only as an instrument but not as an instructional aid (Kruszewska et al., 2020). The central promise of distance learning includes growing teaching efficiency, minimizing time and costs in contrast with conventional teaching. It has been an

enormously successful weapon in the educational sector (Rahim et al. 2020).

Distance learning is described as learning interactions with multiple devices such as mobile phones or laptops with Internet connectivity in synchronous or asynchronous settings. Students can learn and communicate with teachers and other students anywhere (Singh & Thurman, 2019). The synchronous atmosphere is designed in such a way for students to receive live classes and immediate feedback. In contrast, asynchronous learning environments are not well coordinated. Classes are not accessible in a live demonstration in such a learning environment. They are available in numerous programs and platforms. Under such an environment, direct communication and prompt responses are not possible (Littlefield, 2018). Synchronous learning may bring various social networking opportunities (McBrien et al., 2009). In the middle of this deadly virus dissemination, specific online platforms are required to facilitate the students' needs in education (Basilaia et al., 2020), like Zoom and Google Classroom that are widely used.

A few studies are conducted in language learning to investigate diverse topics during distance learning. The subjects include assessing the utility of the skills of English (Grigoryan, 2020), investigating the characteristics of English language teachers (Murphy et al., 2010), or taking into account the essence of the courses of English (Wang & Chen, 2013). Students' learning is another issue of recent attention, which is already used for the initiative for this purpose. The success of the students' learning depends on several aspects, and a recent report has suggested considerations such as interaction in learning and achievement of English learning during distance learning.

Learning Interaction

Interaction in the learning process has been described as one of the most critical aspects

(Lin, Zheng, & Zhang, 2017). Compared to students engaging in distance learning, they appear to have fewer chances to communicate with their teachers and classmates in a personal learning setting. Therefore, a distance learning atmosphere that encourages students to interact further with the environment, such as teachers, classmates, and learning content, will contribute to more substantial, motivational, cognitive, and affective effects (Croxtton, 2014). Moreover, teaching and learning online without interaction is not appropriate (Borup et al., 2013).

Interaction can be done in online classes utilizing synchronous resources (videoconferencing, audio streaming, and online chats) and asynchronous resources (e-mail, discussion boards). Savenye (2005) notices that numerous collaborative methods and techniques in online interaction tools may be used to promote interactive discussions, computer-based models, role-playing, case studies, community ventures, Internet-based analysis, tests, problem-solving situations, classwork peer evaluations, multimedia field trips, guest lecture work, papers, pro-class work (Akarasriworn & Ku, 2013).

Akarasriworn and Ku (2013) establish a classification system for distance learning that comprises four significant forms of interaction: learner–material interaction, student–teacher interaction, student–interface interaction, and student–student interaction. The popular form of interaction is student-to-teachers online interaction. Through distance learning, this interaction will occur synchronously, in real-time (video stream, audio stream, chat) with the teacher to student encounters, asynchronously, with interactions happening on various separate occasions and through multiple techniques (discussion board, e-mail, and forum). This interaction takes several types, including advice, encouragement, appraisal and support (Canter et al., 2007).

Several methods are accessible in a more efficient way for learning interaction. People should move beyond code, seeing the difference in the actions and motives of the students and the explanations for them (Rantanen & Soini, 2018; Suorsa, 2019; Suorsa et al., 2013). Students may express their experiences and knowledge with peers by participating in an appropriate interaction in their classrooms. This can also promote communication, notably in online classes with their teachers. The current research adopts Wei and Chen's (2012) learning interaction for pre-service English teachers. As Wei and Chen (2012) state that learning interaction is assessed in which the degree students discuss subjects of study with others can be analyzed, learning tools and opinions can be shared with others, learning goals and activities are communicated with others, and responding to others' questions can be addressed. Learning interaction with its indicators is seen in Table 1.

Table 1. Learning Interaction and its Indicators

Learning Interaction (LI)	Indicators	Source
LI1	Discussing subjects of study with others	Wei and Chen (2012)
LI2	Sharing learning tools and opinions with others	
LI3	Interacting with other people on learning goals and tasks	
LI4	Responding to others' questions	

English Academic Achievement

One of the aims of distance learning is to build upon students' academic achievement. Students can connect with their teachers to impact their academic achievement (Offir et al., 2008). Jin (2010) observes that successful learning of a randomly chosen assignment is through the learning interaction to recall what has been taught and adapt it to new problems. Many of the students have agreed that when they

hear and convey their viewpoints, they are likely to build relationships with the people in the class, and when they have expertise that pass, they often develop their perspectives on the class. This idea allows the school systems to think ahead as they give classes to their students. It also takes the burden of the teachers who have to remain creative about how they teach (Hellas et al., 2018). They have also acquired a great deal of knowledge in setting up good students' habits in online educational procedures, particularly in the case of lessons and practice tests.

Based on the experimental results given by Wei and Chen (2012), the indicators to check the learning performance are defined as shown in Table 2. In responding to the assignments that the teacher is passing out, it is evident that they are having a hard time achieving them. This is a clear illustration of classroom management since the teacher is assigning the students a job in the curriculum. This is also good since it demonstrates that a tiny amount of research impacts the consistency of the results of the students that follow and how compliant they are with the subject. The second is that teachers can evaluate students' understanding and results, to decide whether the students' academic achievement is on track. As the students begin to focus on the program they discover, they have not yet achieved their learning objectives, and they have not yet learned the subject. Third, the students explain how the skills they learn benefits them useful in the future. There is always an obvious truth that the object of studying is to acquire knowledge. Considering the teacher's instruction, the students agree that their advice helps enhance their capacity to comprehend and achieve well. In this case, the most crucial factor is how well the students achieve their assignments. Achievement is usually reflected in the way students (or students' grades) are graded. This is simply to build if there is success on standardized testing, and it is best if there is active interaction. In order to examine

English academic achievement, we adapt Wei & Chen' (2012) measures of learning performance as mentioned above.

Table 2. English Academic Achievement and its Indicators

English Academic Achievement (EAA)	Indicators	Source
EAA1	Gazing at the tasks that were sent out by the teacher during distance learning	Wei and Chen (2012)
EAA2	Accomplishing the learning objectives during distance learning	
EAA3	Gaining valuable knowledge during distance learning	
EAA4	Getting a good English grade during distance learning	

The Role of Gender

Gender is a societal phenomenon and is brought on when a culture creates separate positions and duties for the two sexes (Mangvwat, 2006). This is a cultural connotation with some factual context that is generally recognized as a phenomenon of human behaviour. It is focused on cultural characteristics like biological and social influences (Akpochofo, 2009). Gender is a psychological perception of becoming a man or a woman. It has to do with self-concept and personality. Unlike sexuality, gender often deals with identification and relationships among people as well. Singh (2010) argues that gender is a social concept that signifies males and females' distinct duties and obligations. It distinguishes the positions that both males and females assume in society. According to Betiku (2002), gender applies to all the traits the culture has defined and attributed to each sex. Onyeukwu (2000) states that gender stereotypes might be collectively formed as gender dichotomy.

Student success on achievement tests performed by Onekutu (2002) has shown

that males and females at early ages perform similarly in all topics, including the English language. As they rise to high classes, females take a greater interest in language arts, and men prefer social sciences. This, therefore, contributes to the condition of inequality since there are more males than females in subjects like science and technology. Disputes are swirling about students' academic success in using males and females to learn in educational institutions. Some people claim that males outperform females in academic cases, but some others assume the opposite. Currently, the average scores of males and females do not vary substantially on the general intelligence exam (Vernon, 2002). He records that females have a higher linguistic ability than their male peers and are better at memorizing details than males. Gender is a good indicator of most human behaviours and academic success that vary between males and females (Block, 2006). There are considerable gaps in academic achievement in Arts & Science between males and females at school levels. The study of the impact of gender and ethnicity on academic success is not that clear and nuanced. Many studies have been undertaken to explain the disparities in the academic success between female and male learners in qualitative courses. Children from families of low socioeconomic status seem to be less flexible in learning to adjust their actions to different circumstances (Maccoby, 2003). They are linked to immobility because of the recurrent trait of set-tos.

According to Douglas (2004), females are better at the English language. He emphasizes that this is the only logical reason for females' average primary and early secondary grades. In favour of this claim, Powell (2006) says that females perform better at all stages than males in accomplishments, including in fields that males seem to succeed in. A variety of studies analyze that the role of gender in the academic success of students is a contentious subject. Studies show that

gender plays an active role in academic success, whereas other research finds otherwise. This has contributed to the investigation of the role of gender in the relationship between learning interaction and English academic achievement.

Methodology

Research Design

We carried out a qualitative analysis to test the research model statistically. A web-based method was used to accomplish the current research. Before transmitting our survey results, we worked with the latest literature by Wei and Chen (2012) to create a questionnaire. The survey distribution was made using Google Forms, which was an interface to use to create surveys, and was sent via Whatsapp to the target respondents.

Participants

The critical focus of the research was on a group of pre-service English teachers from one of the private universities of Indonesia, i.e. University of Nahdlatul Ulama Sunan Giri. There were 34 people, 17 of who were females and 17 of whom were males. Ages ranged from eighteen to twenty-four. The first, third and fifth semesters were determined by a particular study year. In light of the new Covid-19 disease, teaching online was the only way to undergo for them.

Hypotheses

For our study, we reviewed the previous studies and proposed the following hypotheses.

H1: Learning-interaction was positively related to English academic achievement during distance learning.

H2: Female students were more dominant in affecting the relationship between learning interaction and English academic achievement during distance learning.

Data Collection Techniques and Instrument

Data were received online from a Google form. The instrument was an online survey of 8 statements, all closed statements. Statement LI1 to LI4 dealt with the interaction of learning, and statement EAA1 to EAA4 dealt with the academic achievement of English. The Focus Group members were instructed to select the most appropriate statements. The questions were put on a 5-point Likert scale, which varied from strongly disagree to strongly agree. The figures had been coded in numbers such as substantial disagreement (1), disagreement (2) or neutral (3), agreement (4) and strong agreement (5).

Data Analysis and Findings

The design is a two-stage method in which the researchers review the measurement model and then estimate the structural

Table 3. Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)	Validity > 0.50
Learning Interaction	0.695	Valid
English Academic Achievement	0.750	Valid

Table 4. Outer Loading

	Learning Interaction	English Academic Achievement	Validity > 0.70
LI2	0.863		Valid
LI3	0.823		Valid
LI4	0.813		Valid
EAA2		0.898	Valid
EAA3		0.873	Valid
EAA4		0.826	Valid

Table 5. Fornell-Larcker Criterion

	Learning Interaction	English Academic Achievement
Learning Interaction	0.833	
English Academic Achievement	0.810	0.866

model. We adapted the model proposed by Hair et al. (2016) to build up the current research.

Assessment of the Measurement Model

In order to quantify the convergent validity of constructs and their elements, the Average Variance Extracted (AVE) values were used, which measured the average variance of all convergent and discriminant objects. The calculated value was supposed to be greater than 0.50 (Hair et al., 2011). It showed that the AVEs for learning interaction and English academic achievement were more than 0.5, which surpassed the threshold of passing values. Using the results in Table 3, the values were displayed.

Then external loadings were checked to ensure the data all functioned properly. Hair et al. (2017) found outer loading threshold values higher than 0.70. In Table 4, both of the indicators were greater than 0.70. Predictive validity was tested. It included Fornell Larcker Criterion and cross-loadings. Fornell Larcker Criterion was verified by checking that the values of the same constructs should be the highest. However, the same construct was higher than the difference construct, specific indicators required to be discarded. We removed indicators of LI1 and EAA1, and the findings were acceptable. Fornell Larcker Criterion was seen in Table 5. Cross-loading is determined by using the maximum values on all the indicators. Cross-loadings are described in Table 6.

To measure the scales' reliability more efficiently, Cronbach's Alpha was used, and the Composite Reliability (CR) was measured. Hair et al. (2011) stated that Cronbach's Alpha and Composite Reliability were the best measures for quantifying the reliability of the constructs. Due to the aim of this research, a Cronbach's Alpha and Composite Reliability value needed to be higher than 0.7. In Table 7, we stated that the high internal consistency of all constructs above the trustworthiness threshold was all met.

Table 6. Cross Loading

	Learning Interaction	English Academic Achievement
LI2	0.863	0.721
LI3	0.823	0.613
LI4	0.813	0.683
LP2	0.708	0.898
LP3	0.637	0.873
LP4	0.747	0.826

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

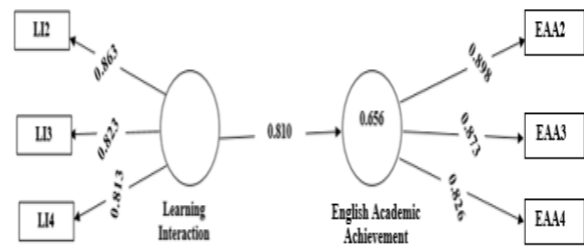
	Cronbach's Alpha	Composite Reliability	Reliability > 0.70
Learning Interaction	0.780	0.872	Reliable
English Academic Achievement	0.833	0.900	Reliable

Estimating the Structural Model

After making the assessments on the measures, we asserted that the measures seemed reliable and valid. Figure 1 highlights the structures used, as well as the main features of the PLS analysis. In all, the essential details behind each model were retrieved from the bootstrapping analyses. In order to prove that the analysis was entirely correct, we performed 5000 subsamples.

For the pathway, it is meaningful at the lowest predictors that we had at $p < 0.000$. Hair et al. (2017) consider the threshold of the proposed path coefficients to be less than 0.05. In Table 11, there was a positive correlation between learning interaction and English academic achievement at (β 0.810). Based on our analyses, research showed that long-term learning interaction was a strong predictor for English academic achievement, thereby confirming and endorsing hypothesis H1.

Figure 1. Structural Model with Results of the PLS Analysis



A coefficient determinant (R^2) is used to quantify the exogenous factors that influenced the endogenous factors. The R^2 value of the application's model varies from 0 to 1. Hair et al. (2011) and Henseler et al. (2009) then classify R^2 as substantial by 0.75 (75%), moderate by 0.50 (50%) and weak by 0.25 (25%). Table 8 showed a value of R^2 of the endogenous construct that included details on the results of English academic achievement at 0.656. The findings suggested a direct influence on English academic achievement through pre-service English teachers' learning interactions, although the impact could be moderate.

In order to determine the predictive relevance of the model, the model was tested in Q^2 . In the absence of 7, we conducted the blindfolding method. Table 8 showed that the mean values were more significant than zero. Hair et al. (2017) establish that Q^2 values greater than 0 are strong predictive. To assess the model's fit, NFI was determined. The analysis revealed 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
English Academic Achievement	65.6%	Moderate	0.465	Good Predictive

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

The Role of Gender

In order to better explain the male-to-female gender gap in this research, we conducted a Multi-Group Analysis (MGA) on our data using SmartPLS tools. For males, the path coefficient was at β 0.846. While for females, the path coefficient was at β 0.779. Viewed from the significance level of males and females' learning interaction on English academic achievement, male and female groups did not show any differences at p -value 0.000. Both groups indicated significant effects. The R^2 for males was 0.716 and for females 0.607, which meant that males were more affecting than females. Thus the results indicated that hypothesis H2 was rejected. It was evident that females did not dominate the relationship between learning interaction and English academic achievement. The comparison between the role of males and females in the learning interaction-English academic achievement correlation was shown in Table 9.

Table 9. Path Coefficient, Significance Level, Determinant of Coefficient (R^2)

Path Coefficient	Remark	P value	Remark	R^2	Remark
Males β 0.846	Positively related	0.000	Significant	0.716	Moderate
Females β 0.779	Positively related	0.000	Significant	0.607	Moderate

Discussion and Implications

This research explored how male and female students varied in learning interaction and English academic achievement. The results confirmed the first hypothesis. A significant relationship was found between the sum of learning interaction and English academic achievement. Our results revealed that students who displayed perseverance used identical resources in class, achieved their learning targets, and made direct assignments could perform better. The findings were in line with other studies (e.g. Offir et al., 2008 & Jin, 2010). An analysis of the data found in Offir et al. (2008) showed that teacher-student interactions were found to have a significant effect on the number of knowledge students obtain. In studying their relationship among

students, Jin (2010) found that interaction significantly enhanced their overall learning.

The findings also revealed that males had the most significant influence on learning interaction and English academic achievement. When this was investigated, findings contrasted with previous studies. There were some cases when gender had unique distinctions. In different classrooms, females were more talkative among students, as Douglas's (2004) and Powell (2006) stated. Female students took advantage of this and performed higher than males. However, for distance learning, there were no vast differences between males and females. Fewer males (11%) than females could do better. The results implied the consideration of males and females in distance learning. Teachers should keep an eye on how students communicate because it could affect their English academic achievement.

Conclusion and Suggestions

The current research looked at the possibility that gender might play a role in the relationship between student learning interaction and English academic achievement. It was proven that in hypothesis H1, there was a positive association between learning interaction and English academic achievement. As it turned out, the findings proved the hypothesis H1 to be correct at (β 0.810). The specific capability to know how to communicate with new people was helpful for the acquisition of social competence at the earliest stages of education. After the results were broken down into males and females, males were more dominant than females in affecting the relationship between learning interaction and English academic achievement. Thus, it was concluded that hypothesis H2 was rejected. All of the recommendations given are linked to other concepts that may theoretically impact English learning success. The biggest concern was that only 65.6% of the subjects' English learning

ability was impacted by learning English structures, so further exploration of such constructs was proposed to thoroughly investigate their relationship to other parts of the model. The role of ages, level of education, and students' prior experiences are further points to be considered.

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