

## **PEDAGOGIC REGISTER: AN ANALYSIS OF ONLINE CLASSROOM INTERACTION DURING COVID-19 PANDEMIC**

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### **Abstract**

The current pandemic has changed all aspects of life, including education. Some of the changes are the time and place of teaching due to the pandemic forcing the teaching and learning process to shift to online platforms (Zhao, 2021). As a result of these changes, the interaction between teachers and students in a classroom was also affected. By employing descriptive qualitative design, this research focused on analyzing classroom interaction in an online classroom during COVID-19 pandemic. The data was collected through observation. To analyze the data, David Rose's pedagogic register analysis (2014, 2018) was employed. The findings showed that online classroom interaction revealed the relation between teacher efficacy and students' positive attitudes. Then, it also showed that 21st-century skills impacted teacher's adaption of teaching materials. Last, online classroom interaction also showed the consistency of teacher roles both in offline and online classes.

**Keywords:** *Classroom Interaction, Pedagogic Register Analysis, Pedagogic Relations.*

### **Background**

The COVID-19 pandemic has changed all aspects of life in this world, including education. For example, since this epidemic broke out in Indonesia, all schools were closed so that students and teachers were forced to conduct distance learning (Angdhiri, 2020). This condition forced the teacher and students to adapt to distance learning suddenly and mostly without adequate preparation.

Distance or online learning is one of the consequences of globalization that opens up information and technological developments. Globalization requires flexibility with people who are easily adaptable in ongoing lifelong learning (Sethy, 2008). The development of this technology certainly impacts many sectors of life, including education.

Nowadays, many educational institutions provide online learning whose schedules can be adjusted to the needs of their

students. However, this educational institution has received adequate training and supporting facilities to organize online classes. This condition is certainly different from the implementation of distance learning that occurs due to a pandemic because schools are forced to close so that teachers and students do not have the proper preparation to deal with distance learning.

The transformation of the educational system from traditional to modern has changed the aspect of academic development in the classroom. Research has revealed that some factors, such as achievement, academic engagement, student motivation, and self-perception are affected by the classroom environment. Helfrich (2014) found that the classroom environment plays a pivotal role in academic development. Not only academic development but also the transformation of reciprocal action in the classroom.

Traditional education, which can be represented by face-to-face classroom, has developed to modern education, represented by virtual classroom. By attending a virtual classroom, teachers have to be ready and adapt to the new pattern of communication that happens in the classroom. They also need to prepare the chaotic situation which can lead to the failure to communicate adequately. Ware (2005) investigated the factor contributed to the miscommunication in an online classroom. She found that miscommunication may appear as a result of different beliefs about appropriate communication online, also the limitation of logistical factors which lead students to have the low motivation of studying.

Based on the research that has been conducted, most of them were focused on some internal factors at distance learning, such as students' motivation and satisfaction. Some external factors, such as classroom discourse, are also interesting to be analyzed.

Classroom discourse refers to all types of discourse that occur in the classroom including the linguistic and non-linguistics elements of discourse (Tsui, 2008). Tsui adds that classroom discourse contains the language used by the teacher and the learners, both of teacher-learner and learner-learner interactions. According to Nunan (1993), classroom discourse is indicated by unequal power relationships, unique turn-taking mechanisms, and interaction. Scaffolding students during the learning process is one of the communicative functions of classroom discourse. Therefore, the research about classroom discourse is closely related to students learning, such as the interaction patterns that happened in the class to increase learning optimization. The focus of research on classroom discourse can be classified into teacher talk, classroom interaction, and classroom discourse structure. In this research, the writer focuses on classroom interaction.

The topic of classroom discourse was firstly initiated by Sinclair and Coulthard (1975). They created an advanced model of discourse covering five-level in hierarchical order, which is an act, move, exchange, transaction, and interaction unit where the higher unit contains the lower ones. By adopting this model, they found that discourse was built on exchange units and it is arranged from three lower-level elements called initiation-response and Follow up (I R F). This framework was widely used in analyzing classroom discourse. Saswati (2018) conducted an IRF system as a framework to find out the learning opportunity for students to engage in classroom interaction and its effectiveness in facilitating learner-initiated communication. The use of the IRF framework in analyzing classroom interaction is not only applied in a traditional classroom but also in online classrooms. Havwini (2019) employed IRF frameworks in her research, but she focused on the initiation acts from both teachers and students in the online classroom. The result showed that teachers had more initiation acts, such as giving questions. It indicated that the teacher was still dominating in the interaction in the online classroom.

Classroom interaction was often analyzed using some frameworks, such as FLINT (Foreign Language Interaction) system as developed by Moskowitz in 1971, IRF (Initiation-Response-Feedback) system as found by Sinclair and Coulthard in 1975, and FIAC (Flanders Interaction Analysis Category). Therefore, other alternative analytical tools or models for analyzing classroom interaction are needed to produce up-to-date findings.

Interestingly, the writer found a framework called "Pedagogic Register Analysis" by David Rose (2018). The framework is relatively new and needs further exploration because of the limitation of related articles.

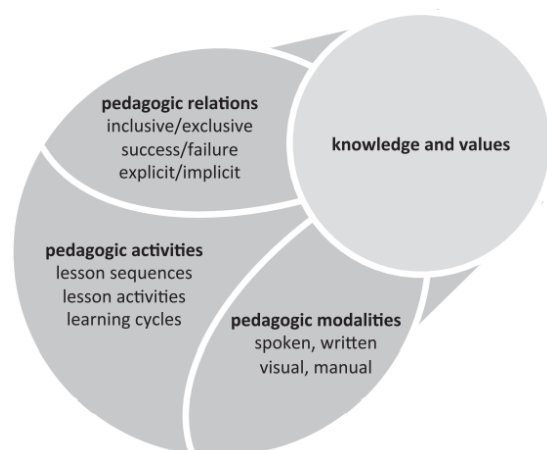
The framework, pedagogic register, firstly inspires from systemic functional research

into the structuring of classroom discourse, including Christie (2002), Christie and Martin (1997), Martin (2006a), Rose (2004, 2007), Martin & Rose 2017a, 2017b) and Zappavigna & Martin (2018). In the pedagogic register, there are three general variables including the tenor of social relations, modes of meaning-making, and fields of social activity (Martin 1992, Martin and Rose 2007a, 2008).

Pedagogic registers are a group of cultures' overall potential for field, tenor, and mode. Their fields compose pedagogic activities that are negotiated in pedagogic relations between teachers and learners, and presented through pedagogic modalities of speaking, writing, signing, drawing, viewing, gesturing, and other somatic activity. The pedagogic register has a cultural function to exchange knowledge and values between teachers and learners.

Pedagogic registers are divided into three variables, which are pedagogic activities, modalities, and relations. However, in this research, the writer focused on analyzing one variable, which was pedagogic relations. Figure 1 shows pedagogic activities, relations, and modalities as register variables.

**Figure 1**  
*Dimensions of Curriculum Genre*

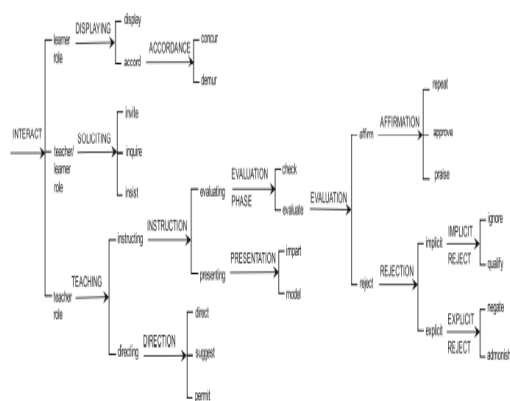


Pedagogic relations refer to the social relations set between teachers and

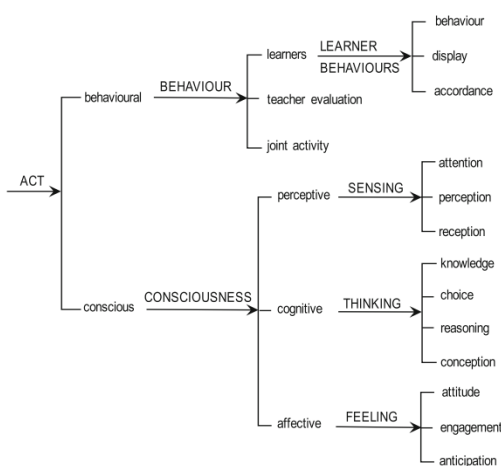
learners. These relations include hierarchies of authority between teachers and learners, inclusion and exclusion in classroom learning, success, and failure in evaluations, hierarchies that may be more or less explicit. Pedagogic relations are not only transferred orally between teachers and learners, but also involved relations between producers of texts and learners, the texts that learners produce for evaluation, and teachers' spoken and written evaluations of learners' texts, together with relations between learners. The variables in the pedagogic register are created in language through exchange between speakers. The discourse semantic system of NEGOTIATION (Martin 1992, Martin and Rose 2007a, 2007b) serves some alternatives for exchanges. The alternatives include two general dimensions: the roles of speakers and the type of exchange. The exchanges consist of knowledge and action, while speakers consist of primary or secondary roles. The aim of an active exchange is a performance of an action. The primary actor (A1) has a role to perform the action, and the secondary actor (A2) may request or be proposed the action. The aim of knowledge exchange is the provision of knowledge. The primary knower (K1) has a role to deliver knowledge, and the secondary knower (K2) may request or accept the knowledge.

The sequences of interactions involve a group of conscious acts, which are attention, knowledge, and perception. The conscious acts are changes by interactions, which consist of inviting (attention), approving (perception), modeling (knowledge), and displaying (knowledge). The diagrams of acts and interacts systems are listed below.

**Figure 2**  
*Interact System*



**Figure 3**  
Act Systems



As mentioned earlier, research about pedagogic registers needs further exploration because of the limitation of related articles. Damayanti (2019) conducted a dissertation that employed a combination of thematic and pedagogic register frameworks to analyze the complexities of teachers’ professional dialogue during the workshop sessions and online discussions and the multimodal nature of classroom interactions. In addition, Jones, Matruglion, & Rose (2021) analyzed classroom discourse practices while teaching poetry. Based on the two studies, this research implemented the analysis of pedagogical register in classroom discourse. In this research, the pedagogical register analysis was used to investigate the changes in classroom interaction that occurred in the online

classroom, especially in the elementary level classroom. Therefore, the participants chosen were students and teachers from grades four. To analyze the changes in detail, this research focused on pedagogic relations of pedagogic register analysis.

**Research Methods (If Any)**

This research aimed at identifying the interaction patterns occurs in online classroom based on Pedagogical Register Analysis. To meet this aim, a descriptive qualitative method was employed and a qualitative case study approach was conducted. The data was collected through observation in the online classroom. Two meetings of online classes through Zoom application were recorded to avoid loss of information. The duration of each meeting was 40 minutes. The time and dialogues between students and teachers were marked and the dialogues were analyzed using the pedagogic register framework.

To analyze the data, the recorded videos were transcribed and categorized manually. After transcribed, the changes in classroom interaction that occurred significantly from offline to the online environment were analyzed and classified into several segments or phases to be analyzed using Pedagogical Register Analysis. The selected phases were considered to show significant changes that occurred in the online classroom environment. Here is an example of the significant changes in classroom interaction.

**Table 1**  
*The Example of The Significant Changes of Classroom Interaction.*

Teacher:	Next. I will ask, maybe, Arsyia.
Student 1:	<i>Di chat, Sya. Lihat di chat.</i>
Teacher:	Arsyia, look at the chatbox and please do this activity

Student 2: \*miming the gesture\*

Based on the table above, the writer decided to put that segment into the changes of classroom interaction. It can be seen from the word selection given by the teacher in giving instruction. In traditional classes, the teacher might give a paper or whisper the word to the students, then the students mimed the gesture. However, that activity could not be done in the online classroom. Therefore, the activity moved into the “chat box” because the teacher typed the word in the “chatbox.”

In the data analysis, the writer focused on two variables of Pedagogical Register Analysis, which were pedagogic activities and pedagogic relations. The other variable which was pedagogic modalities did not discuss in this research.

Pedagogical relations concern the social relations set between teachers and learners, between text writer and learners, as well as relations between learners. Pedagogic relations are created around acts of consciousness and verbal or material behaviors. The table below is an example of a data presentation of pedagogical relations.

**Table 2**  
*Example of Data Presentation of Pedagogical Relations*

	Role	Interact	Act
T: I think you are ready with the first words.	game. So, I will give	Display	Attention
T: What did she do? (Menunjuk power point).	acqu	Inquire	Knowledge
T: I will type something to someone here.	instruction	Impart	Knowledge
T: OK, I think Gazi wants to do it first (typing)	to do the	Impart	Conception
T: Everyone look at Gazi. What did he do?	dA1 game.	inquire	Knowledge

**Finding & Discussion**

Pedagogic relations refer to the social relations set between teachers and learners. These relations include hierarchies of authority between teachers and learners, inclusion and exclusion in

classroom learning, success, and failure in evaluations, hierarchies that may be more or less explicit.

To optimize the analysis interaction, the interaction was divided into several exchanges. These exchanges contained snippets of conversations between teacher-students and students that only occurred during online classes

The first exchange was taken from minutes 07:00-07:25. This exchange occurred when the teacher discussed the topic “A Day Out.” The objective of this lesson was to make students recognize the terms of activities carried out when they go out.

**Table 3**  
*The Exchange Taken from Minutes 07:00-07:25*

	Role	Interact	Act
T: Then, the last activity we will do practice.	K1	Impart	Conception
S1: Miss.....		Reject	
....			
T: There will be no assignment, but instead I give you a	dA1	Direct	Conception
link			
T: Question before that, Gazi?	dK1	Check	Knowledge
S2: hmmm. Aduh	K2	Invite	Attention
S3: I have	K2f	Inquire	Conception

question			n
T: Gazi, are you going to ask question?	cl	Ignore	
S1: Hm.. No	rcl	Display	Knowledg e
T: No question	K1	Repeat	
T: If you don't have question, I assume you are ready.		Evaluat e	Knowledg e

In that exchange, the teacher gave a direct conception to the students. The conception in this exchange is intended to give a plan or explain the next activity. By giving direct instruction, the teacher initiated action and it was expected to be followed by the action from students. This activity reflected the teacher's adaptation towards the transition from offline to the online class. It could be seen from the improvement of her teaching materials. Instead of asking the students to do the workbook, she provided a link for students to play an educational game. It means that teacher was successful in adopting an innovation skill, one of the frameworks from Partnership for 21<sup>st</sup> Century Learning (P21), where they had to be creative in preparing teaching materials. In addition, by maximizing the use of technology, students had no limit to explore teaching materials. They also had the flexibility to choose their learning style.

In the exchange above, the teacher put himself as the provider of knowledge or K1 role. This role occurred as a consequence of an asymmetrical relation between teacher and students. As the provider of knowledge, the teacher had the institutional authority to evaluate the competence of the acquirer (students). It could be seen at the level of pedagogic relations. The exchange showed that the

teacher imparted the conception which was the upcoming activity in the classroom. Then, S1 interrupted the teachers' talk but he was rejected. After realizing the student's interruption, the teacher checked the students' knowledge to measure students' understanding of her instruction. She rejected other student's responses and kept asking repeatedly to S1 to get his answer. The teacher showed her authority to ignore other student's responses and push S1 to answer her question.

The second exchange was taken from minutes 05:48-06:30. In this exchange, the teacher often switched her role between instructor and director. At first, the teacher explained the upcoming activity to foreshadow the direction that would be given to the students. In the beginning, the teacher had a role as an instructor.

**Table 4**  
*The Exchange Taken from Minutes 05:48-06:30*

	Rol e	Interac t	Act
Teacher: Well, actually for the first activity we are going to do a miming game.	K1	Impart	Conceptio n
T: So, the miming game means that you need to act something.	dK 1	Direct	Knowledg e
T: So, I will write something on someone's chat box.		Direct	Knowledg e
T: And those who get the		Direct	Knowledg e

words need to act out.			
T: For example, I type “play badminton” to Arsyah, then Arsyah need to do like play badminton ( <i>mencontohkan dengan gestur tangan</i> ), and others need to guess what Arsyah do.	Model	Knowledge	
T: Ok?	K1	Check	Knowledge
S1: Oooow	K2	Display	Knowledge
S2: Aaah		Display	Knowledge
S3: Oh, Ok.		Display	Knowledge

Then, the teacher changed her role as a director by successively explaining the ways how would be played. To finish the explanation, she turned back as an instructor by demonstrating the game. The teacher did not forget to ensure students’ understanding by checking their knowledge. The students reacted teacher’s question by giving various answers. One student displayed his understanding by clearly saying “OK”, while other students did not respond clearly.

By looking at the exchanges, the teacher tried to implement one of the 21<sup>st</sup>-century skills. She implemented the skills in the area of learning and innovation. She adjusted the online learning environment by innovating the way to whisper the word in a mime game. She changed the way to whisper by typing in the students’ private chatbox. In addition, to ensure that the adjustment was successful, the teacher

tended to be more communicative by explaining successively to avoid misunderstanding.

The third exchange came from minutes 09:34-10:38. In this exchange, the teacher started the game by choosing one student to gesture a word.

**Table 5**

*The Exchange Taken from Minutes 09:34-10:38*

	Role	Inte
T: I think you are ready with the first words.	A1	Invi
T: What did she do? (pointing to the powerpoint).		Inq
T: I will type something to someone here.		
T: OK, I think Gazi wants to do it first (typing)	A1	Imp
T: Everyone look at Gazi.	dA1	Imp
T: What did he do?	dK1	Inq
S1: *Gazi is practicing*	A2	dis
S2: I know! Bowling. It’s bowling	K2	dis
T: Yes Khalifa?		Che
S2: It’s bowling		Dis
T: What did he do?	dK1	Rep
S2: He did bowling	K2	Dis
T: Yes, well done.	K1	Prat
T: He went bowling	K1f	Rep

At first, the teacher tried to attract students’ attention by saying “you” which refers to students, but the students might think that “you” refers to one of them. After getting the attention, the teacher started to initiate the classroom exchange by asking a question that required students to display their knowledge of comprehension (Brock, 1986). Unfortunately, she did not get any response from her students, so she specifically chose one student to gesture the word. The student followed the teacher’s instruction and his friend started to give responses to him. The teacher reacted to the responses by repeating display questions to them. Display

question was used to confirm student's answers (Brock, 1986).

The student's response reflects the previous studies which said that learning a second language impacted student's positive attitudes. It could be seen when S2 waited for the teacher's response to his answer patiently. Moreover, S2 immediately realized that his response to answer without raising his hand was not allowed by the teacher. He realized when the teacher called his name, then he repeated the answer he had given before. S1's positive attitude also reflected some skills of the 21st century, such as being communicative, adaptable, and socially aware.

In this exchange, the teacher carried out her role as an evaluator or K1 role. As stated by Rose, by carrying the K1 role, the teacher has the authority to evaluate student's knowledge. It could be seen when the teacher's evaluation was delayed until getting a response from the student. Thus, the teachers' questions were referred to as delayed K1, or dK1 moves.

The last exchange appeared in minutes 11:08-11:48. In this exchange, the students started to familiar with the rules of the game. Therefore, they continued the activity by choosing other students.

**Table 6**  
*The Exchange Taken from Minutes 11:08-11:48*

	Role	Interaction above
T: Next. I will ask, maybe, Arsyah.	K1	direct questions, K1 responses, and K1 evaluation. This move was expected by the participant.
S1: Di chat, Sya. Lihat di chat.	A1	Imparticular knowledge and asymmetric pedagogic relation to make students display their knowledge in response to teacher's dK1 demands and to be evaluated. As a result, the teacher may judge the students' performances based on the display knowledge. Also, the evaluation facilitated the students to measure their achievement.
T: Arsyah, look at the chat box and please do this activity	A1	Imparticular knowledge and asymmetric pedagogic relation to make students display their knowledge in response to teacher's dK1 demands and to be evaluated. As a result, the teacher may judge the students' performances based on the display knowledge. Also, the evaluation facilitated the students to measure their achievement.
S2: *miming the gesture*	A2	display their knowledge
T: What did he do?	dK1	teacher's dK1 demands and to be evaluated. As a result, the teacher may judge the students' performances based on the display knowledge. Also, the evaluation facilitated the students to measure their achievement.
S3: Photography, photography. photography!	K2	display Knowledge
T: Raise your hand and answer	A1	Admonish behavior
Ss: *raising hands*	A2	Display Behavior
T: Pringgo?		permit

S3: Photography		display
T: yes, he did. He took a picture	K1	Appro

On this exchange, the difference in online class interactions was visible. It could be seen when S1 and the teacher asked S2 to look at the chatbox on the Zoom application. By asking the student to look at the chatbox, the teacher adapted to the activity of giving a flashcard or whispering to inform the word in a face-to-face classroom. This activity reflected the teacher's efficacy in accomplishing the intended outcome of student involvement and learning, even among students who may have difficulties in learning. In line with some previous research, teacher's efficacy could affect student's positive behavior. It can be seen when some students followed the teacher's instruction to raise their hands before answering the question. This activity was also related to the research from Lin&Zhen (2015) which stated that the transition of teaching-learning activities required more professional development to integrate the content with technology and the design of online instruction. It means the teacher needs to adapt to be more effective in giving instruction. In addition to the benefit of online learning, this activity improved students' skills to explore ICT.

Concerning action exchange, the exchange above contained the series of direct questions, K1 responses, and K1 evaluation. This move was expected by the participant. Imparticular knowledge and asymmetric pedagogic relation to make students display their knowledge in response to teacher's dK1 demands and to be evaluated. As a result, the teacher may judge the students' performances based on the display knowledge. Also, the evaluation facilitated the students to measure their achievement.



The exchanges above are the example of the transition from an offline class to the online class. In the online classroom, communication depends on the internet connection. The faster the internet connection, the clearer teachers' explanation. In this case, the teacher did not respond to the students' calls because of the gap in internet connection speed. The teacher started giving instruction at minute 06:55, then the student interrupted at the same time. The teacher realized the student's interruption, but she decided to finish his instruction until minute 07.05. After finishing the instruction, she clarified the student's response at minute 07.06.

The snippet of dialogue above also shows the different approaches in delivering knowledge to students during the lesson. In a virtual classroom, one of the obstacles was accessing printed materials. To solve the obstacle, the teacher needed to improve their teaching material. In this case, the teacher prepared a link to a game instead of using a workbook. The preparation made by the teacher and responses from students showed that they were successfully adapting some skills of 21st Century Skills. Other than that, the students could express positive attitudes because the teacher efficacy was high. It means high teacher efficacy impacted students' achievement.

### Conclusion

The COVID-19 pandemic has changed all aspects of life in this world, including

education. This condition forced the teacher and students to adapt to distance learning suddenly and mostly without adequate preparation. The implementation of online classes brought many changes in various aspects of learning, such as classroom interaction. Therefore, this research focused on identifying the interaction patterns occurred in online classroom based on Pedagogic register of Pedagogic Register Analysis. The analysis focused on the changes that occurred in the classroom.

By conducting pedagogic relations, the exchanges were focused to analyze the social relations set between teachers and learners. These relations include hierarchies of authority between teachers and learners, inclusion and exclusion in classroom learning, success, and failure in evaluations, hierarchies that may be more or less explicit. The findings showed that online classroom interaction revealed the relation between teacher efficacy and students' positive attitudes. Then, it also showed that 21<sup>st</sup>-century skills impacted teacher's adaption of teaching materials. Last, online classroom interaction also showed the consistency of teacher roles both in offline and online classes. These findings indicated that classroom interaction was interesting to analyze. In future research, the analysis can be broader using other variables of pedagogic register analysis, which are pedagogic activities and modalities.

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