Analyzing classroom interactions focusing on IRF patterns and turn-taking

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ABSTRACT

This study aims to analyze patterns of interaction and turn-taking in the context of classroom learning using a classroom discourse analysis approach. This research focuses on understanding the communication dynamics between teachers and students and identifying dominant patterns during the learning process. The method used is qualitative, with data collection through observation using video recorder instruments in class XI SMK Muhammadiyah Mertoyudan. The research participants were a teacher and class XI students of SMK Muhammadiyah Mertoyudan, totalling 24 students, consisting of 1 teacher and 23 students. The data results show the sequences developed from the questions between teacher and student interactions. The results of this study support the view that the discursive role of the Feedback sequence in IRF (Initiation-Response-Feedback Sequence) is to develop dialogue between teachers and students. The findings of this study on the IRF pattern are that the teacher dominates the communication in the classroom 63,4% and students 36,6%. The findings indicate that the non-delivery of learning is the main problem of students' lack of understanding of the material, lack of students' ability to think critically, and responsiveness to students. These findings can be used to develop more inclusive and effective teaching strategies that pay attention to a more balanced distribution of talk time and interaction between teachers and students. This research contributes to the literature on Classroom Discourse Analysis by filling the knowledge gap on the classroom's interaction pattern and its implications for teaching practices with feedback in IRF. The results of this study can provide valuable insights for educational practitioners and help improve students' critical communication strategies in the classroom.

Keywords: Communication Patterns; Interaction; IRF; Turn-Taking

INTRODUCTION

Conversation skills can be defined as sending a message that includes a shared understanding between the contexts in which the conversation occurs (Bambara et al., 2018; Croucher & Cronn-Mills, 2014). Additionally, practical communication skills are crucial for teachers to impart knowledge to students (Jhoni et al., 2023; Munohsamy & Muniandy, 2023; Tottie, 2014). Effective communication requires mental and physical fortitude to face another person and effectively deliver one's message (Morgan, 2023; Padmanabhanunni & Pretorius, 2023; Ryff, 2013). A teacher's communication ability is crucial to delivering instruction, classroom management, and interactions with pupils (Dzulkifli et al., 2020; Doqaruni, 2017). The teacher must instruct students using a variety of thought processes and develop excellent communication skills that can inspire students to learn to customize instruction based on each student's talents and abilities (Stronge, 2018). According to Khan et al. (2017), A teacher having good communication skills plays a significant role in students'

academic success. Therefore, a teacher must master good pedagogy when teaching students, especially in teaching communication (Zhu, 2023).

According to Gordon Pask's conversation theory proposed by Scott (2001), The vertical relationship between teacher and student represents a cause-and-effect relationship with feedback in communication where the teacher can model the topic by providing a non-verbal demonstration (Scott, 2001). In classroom learning, teacher-student interactions and turn-taking are essential factors that influence learning effectiveness (Fenyi & Nyarkoh, 2022; Wiemann & Knapp, 2017). According to Walsh (2006), in the book Investigating Classroom Discourse, communication patterns can provide a deep understanding of classroom interaction dynamics and valuable input to improve the quality of teaching (Walsh, 2014).

Classroom Discourse Analysis is an approach that allows us to examine how communication interactions occur in the classroom (Alsoraihi, 2019); it involves observing the patterns of interaction between teachers and students, the distribution of speaking turns, and how student participation is reflected in everyday classroom communication. In education, understanding these communication patterns is crucial as it can help improve the quality of teaching and learning. The IRE is comprised of three distinct phases: Initiation, Response, and Evaluation (Sa'adah & Yulianti, 2018). The IRE sequence differs from question sequences in everyday life in that language is created as correct or incorrect according to the teacher's standards rather than functionally (Possemato, 2017). As a result, language is not made up of non-school-related communication events in which children attempt to stay involved in exchanges. IRE questions are classified as known-answer, test, display, and open-ended questions, which are considered authentic and information-seeking (Altaş, 2016). In discourse analysis, studying turn-taking patterns helps to understand the experiences of the people involved, who holds the answers, who asks the questions, and who silences their voices (Ryan & Forrest, 2021). Turn-taking in the classroom makes students have criticism, thinking, and responsibility (Ingram & Elliott, 2014).

Based on previous research by Altaş (2016), this research found that familiar classroom sequences such as IRE can limit learning for students accustomed to IRE sequences. The study by Alhamdwee & Khalif (2022) centre on the sequence of turns and classroom discourse, with a particular emphasis on the IRF (Initiation-Response-Feedback) model and its significance in language learning. It analyzed data transcripts from an English language learning classroom to understand the frequency of information exchange between teachers and students and the turn sequence during lectures. The study by Sa'adah & Yulianti (2018) emphasizes the importance of turn-taking in science instruction to enhance students' development of scientific literacy, highlighting the need for a deeper and critical examination of teaching content and methods. Additionally, the study examined the effectiveness of IRF interactions in the classroom, focusing on the impact of changes in the turn-taking IRF process. The study by Zaswita (2022) revealed that classroom interactions typically followed an IRF pattern rather than IRE, supported by conversational data. The document also noted that classroom turn-taking sequences involved both IRF and IRE, with a significant focus on the teacher as the initiator. The ability to engage in turn-taking, ask and answer questions, and provide feedback is a fundamental aspect of recent discourse analysis research (Okata, 2016). These skills serve as key elements in creating a more intellectually stimulating environment in the L2 classroom. The novelty of this study is that in previous studies, the purpose of this study is to analyze patterns of interaction and turn-taking in classroom learning using a classroom discourse analysis approach. This research focuses on understanding the communication between teachers and students and identifying dominant patterns during the learning process.

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understanding the communication between teachers and students and identifying dominant patterns during the learning process. Based on research conducted with the participants, the researcher aims to respond to the research question: How can turn-taking patterns significantly affect students' abilities and influence the learning process in the classroom?

METHODS

The research design used a qualitative approach (McLeod, 2019). This approach allows the researcher to understand classroom interaction and communication patterns in-depth. The scope of the study is an English class. The participants in this study were teachers and students of class XI of SMK Muhammadiyah Mertoyudan. The selection of these participants considers variations in learning experiences and levels of participation in classroom interactions (Shadiev & Li, 2023). Data was collected through direct observation techniques and the research instrument video recordings of classroom interactions. This observation records real-time interaction patterns between teachers and students. The collected data was analyzed using the Classroom Discourse Analysis approach with an IRF pattern (Khaliyah & Rachman, 2019). This approach will help identify and analyze the interaction patterns between teachers and students and the communication strategies used in the learning context. The focus of the analysis will include turn-taking, the distribution of speaking time between participants, the dominant type of conversation, and the communication style used. The following are the data analysis steps of this research: Transcribe the video-recorded classroom interaction data into text documents, then assign speaker codes to distinguish between teacher and student utterances, such as using "T" to represent the teacher and "S" followed by a number such as S1, S2, and S3 to represent each student.

Research Calculate frequency of total number utterances by teacher (and a $Frequency = \frac{Total\ number\ of\ instances}{Number\ of\ cases}$

Then, convert the frequency value into a percentage, In the table by multiplying the frequency value by 100 with the formula $Percentage = Frequency\ x\ 100\%$

RESULTS AND DISCUSSION

The data results show the order in which the questions that arise between teachers and students relate to the turn-taking patterns used in the classroom discourse analysis.

Transcript 1

T: Good morning, Class.	I
Ss: Good morning.	R
T: How is your life?	I
Ss: Super happy and outstanding (class choral)	R
T: Ok. *Alhamdulillah ya*. All of you are super happy and amazing.	E

The teacher greeted and checked on the students and indicated that the students were super happy and unique.

Transcript 2	I
T: Are you ready to study for today? …. Are you ready to study?	R
Ss: Ready.	F
T: OK..great job…	

The teacher Checked students' readiness for study, and students responded positively.

Transcript 3   I
T: Adib… please, lead your friends to pray before we study.   R
S1: Ok, … friends. Let us pray before we study. Pray begins… Thank you.   F
T: Thank you, Adib, for leading prayer before we study…

The teacher assigns a student to lead the class in a prayer.

Transcript 4   I
T: And now, I want to check the attendance before ya … Any absence for today?
S2: *Nihil* is absent, Miss.   R
T: *Nihil* is absent, ya… *Jadi semua masuk ya… Alhamdulillah*… Ok, Class.   F

The teacher checks students' attendance before starting class. A student (S2) reports that everyone is present. The teacher gives feedback with a gratitude expression.

Transcript 5   I
Eeee… I would like to ask you… Do you remember about the material in the previous meeting? *Apakah kalian ingat tentang materi yang sudah kita pelajari di pertemuan sebelumnya?*   R
Ss: Yes, Miss.   E
T: Yes? Ok, …   I
What we have learned yesterday? *Apa yang sudah kita pelajari kemarin?*   R
Ss: … (^) capability …   F
T: …about capability… Good job… OK…for Diah, please… give an example about   I+
the use of expressing of capability … penggunaan dari capability seperti apa?   R
S3: I can sing Korean songs.   E
T: I can sing Korean songs… OK. Good… Novel?   R
S4: I can play online games.
T: I can play online games… OK, good job, ya … Give applause for Diah and Novel!
(Ss clap hands to give applause)   E
T: OK… *Alhamdulillah, ya* … All of you still remember the material… Don't forget   F
ya …

The text above reflects a typical interaction pattern (IRF) in teacher-student interaction in the classroom: interaction by confirming students' understanding of previously learned material. It shows that the teacher wants to ensure that students have a strong foundation before continuing new learning. Students show a consistent understanding of repeating concepts that have been learned. This aims to validate students' understanding of the previous material by showing appreciation and motivating active participation in learning.

Transcript 7   I
T: And now, I have something for you. OK. Wait a minute … OK… Can all of you please watch this video seriousness… *Jadi tonton video ini dengan sungguh-sungguh… dengan seius …* Are you ready?   R
Ss: Ready…   F
T: Good job…
(Video is played)

The interaction described involves using video presentations as a teaching tool to introduce new material, expecting students' full attention, assessing their understanding through discussion or questions, and providing positive feedback to reinforce active participation and readiness to learn. This approach aims to improve students'

understanding and retention of the subject matter by utilising multimedia resources and encouraging interactive engagement in the classroom.

Transcript 8

T: OK… Do you know who is he? *Ada yang tahu siapa sih dia itu? … Ada yang tahu?* No? … (&) … OK… He is Jack Ma. Jack Ma is a motivator *ya*…   I

Ss: (^) *motivasi*.   R

T: *Seorang motivator*… OK … And now *…ya*   F

This interaction involves active questioning, information sharing, and conceptual understanding. The teacher uses the video presentation of Jack Ma as a springboard to discuss his role as a businessman and motivator, encouraging student participation and fostering comprehension of the topic through dialogue and engagement. The interaction also promotes critical thinking and reflection among students regarding the qualities and influence of inspirational figures like Jack Ma.

Transcript 9   I

… I would like to ask you ya … Based on the video … ya … What is the moral value? *Ada yang tahu pesan moral yang dibawakan Jack Ma itu apa?* … What is the moral value? … Is there anyone who knows? Please raise your hand! Please raise your hand! Is there anyone who knows? … (#####) … *Dari yang ditayangkan itu kita mengambil pesan moral apa?*   R

Ss: … (&) … Don't give up…   F

T: Don't give up… OK… and then … *ada lagi? Jangan menyerah* …. Don't give up. *setelah itu?* What else?   I

Ss: … (0) …   R

T: OK? Raise your hand, please! … (#####) … ya? Who knows?   Sasti, what do you have? Haa? … (#####) … OK, the moral value from the video is the 1st … Don't give up…Jangan menyerah… And then the second …. (###) you should study hard to make your dream come true… or to make your dream come true. And then, the last is … You have to distinguish the opportunity… *Jadi kamu harus memanfaatkan kesempatan yang ada* … OK … Based on the video before, can you guess what we have to learn for today? *Apa yang akan kita pelajari hari ini?*   F What are we going to learn today? About? …   I

S5: … (&) … *Kewajiban dan larangan*…

T: *Kewajiban dan larangan… Kewajiban apa itu?* … Is there anyone who knows? … Anything? … OK, yaa …Today, we will learn about obligation, prohibition, and suggestions. So, first… is obligation… obligation *itu adalah sebuah kewajiban..*   R

Ss: … (1) … *kewajiban*   I+

T: And then prohibition is …   R

Ss: *Larangan*   I

T: *…larangan*… and then suggestion is …?   R

Ss: *saran*   F

T: … *saran* … OK… These are the learning objectives for the material of obligation,   E prohibition, and suggestion.

This interaction illustrates an active classroom environment where students are encouraged to think critically, share perspectives, and engage in meaningful discussions about moral values and related content. The teacher's facilitation supports student learning by providing feedback, prompting deeper thinking, and guiding the exploration of critical ethical themes.

Transcript 10

OK… Labibah, please read the learning objectives here … *tujuan pembelajaran kita*… Ayok, please read!	I R
S6: Students are able to iiidentifi… (doubtful) with…	E
T: identity…	R
S6: …identify and …. (###)	E
T: …distinguish …	R
S6: …distinguish … (###)..	E
T: …various oral …	I
(S6 continues reading) (#####)	
T: (continues Latifah's reading the 1st learning objective) … Next… Laura… please read the learning objective here …	R E
S7: Students are able to identify and … (###) …	R
T: … analyze …	E
S7: analyze text function … struct…	R
T: Text structure and linguistics…	
S7: text structure of … (student reads the sentence)	
T: And the 3rd is … (reading the 3rd and 4th) objectives). So we have … *kita kan mempelajari apa… Tujuan dari pembelajaran kali ini, kalian bisa mengidentifikasi, membedakan, membuat, dan juga mempresentasikan dari penggunaan ekspresi* … of expression of obligation, prohibition, and then suggestion. Iya… Next, Ihave something here for you… *Ini Miss Diana punya video lagi ini… Please watch this video with seriously ya, coba kalian nanti tonton video ini dengan serius.*	E

The classroom scenario highlights active student engagement, personalised support for individual learning needs, and a structured approach to achieving lesson objectives through reading activities and multimedia instruction. The teacher's interventions aim to facilitate comprehension, reinforce language skills, and promote a supportive learning environment.

Transcript 11

(T plays the video)	I
T: OK ya… Is there anyone who wants to make a question from the video? *Ada yang mau membuat pertanyaan dari video yang tadi?* Please, raise your hand!... You can use W/H type to make …. Anyone knows? Does anyone want? Nothing? Did you get any? OK…. If there is no question, I have some questions for you…. Wait a minute…. *Ya… Kalau gak ada pertanyaan, Miss Diana mo kasih pertanyaan,,,*, The first question is 'How many speakers are there in the conversation? *Ada berapa sih pembicara tadi yang ada dalam video tersebut?*	R
S8: Two speakers, Miss.	E
T: Raise your hand, please…	R
S8 : (raising hand) Two speakers, Miss	E
T: OK… there are two speakers.	I
Is it true or false? …	R
Ss: True	F
T: *Betul, ada 2 ya tadi*… The woman and the man… Good… And then the second question…	I
Where does the dialogue take place? Raise your hand! OK, Hazel…?!	
S9: … (^) …In office …	R
T: In office… Is it right?	I
Ss: *Betul*	R
T: OK… Good… And then… What must to do if a woman … (##) … ehhh…	
what … what … must do to a woman in the video? *Apa yang harus dilakukan si*	F

perempuan tadi dalam video tersebut? Raise your hand, please! OK? Helena?   I
S10: … (^) to finish assignment …
T: To finish the assignment… A woman has to finish her assignment. Good ….   R
And then…The last question…. …   F

The classroom interaction described illustrates a dynamic exchange between the teacher and students, with the teacher actively engaging students through questioning, feedback, and affirmations. Students demonstrate participation by answering questions and receiving constructive feedback, fostering a collaborative and supportive learning environment focused on understanding the content presented in the video. The teacher's approach encourages critical thinking and comprehension while promoting respectful student communication and participation.

Transcript 12   I
T:What suggestion did a man give to her friend? *Apa sih saran yang diberikan si laki –laki tersebut kepada temannya?* Raise your hand, please. … Yes, Sofie   R
S11: To take rest…   F
T: To take rest…   I
Is it right? Betul apa salah?   R
Ss: Betul…   F
T: suruh apa tadi …. Suruh berrrrr…….   R
Ss: istirahat   … (1) …

This interaction demonstrates effective classroom questioning and validation of student responses by the teacher. The teacher's approach fosters student engagement, encourages participation, and ensures comprehension of the video content through targeted questioning and affirming feedback. Students actively contribute to the discussion, leading to a collaborative learning environment where understanding is reinforced and assessed. The teacher's use of affirming questions helps reinforce correct responses and encourages critical thinking among students.

The data transcripts above are transcriptions of direct observation recordings, which are then analysed using the IRF pattern to determine classroom communication frequency. Morgan (2019) defined that the analysis of turn-taking poses two critical questions: firstly, who asks the questions, and secondly, what kind of sequence develops from the questions within the events between teacher and student? Examining turn-taking patterns in the classroom reveals how different patterns enhance interaction.

Table 1. IRF communication pattern frequencies

Pattern	Frequency
Initiation	24
Response	30
Feedback/Evaluation	28
Total	82

The analysis of classroom interactions showed 82 examples of turn-taking between teachers and students, which were categorized into three main speech patterns: Initiation, Response, and Feedback/Evaluation. Christie (2005) explains that turn-taking addresses utterances through questions and answers. The teacher's active role in initiating discussions and guiding classroom interactions was evident, which laid the foundation for student engagement and participation. Teachers' interactional management of student participation is essential to managing emerging student initiatives (İşler et al., 2019). The students responded vigorously with 30 instances of active participation, demonstrating their responsiveness to the teacher's

requests and questions. In addition, the teacher provided valuable feedback and evaluated student responses 28 times, showing a supportive approach to guiding the learning experience (Carless & Boud, 2018). This structured breakdown emphasizes the collaborative nature of classroom communication, highlighting the critical role of teacher-student engagement, feedback, and dialogue in promoting effective learning outcomes and fostering a dynamic educational environment that encourages active participation and knowledge acquisition (Lumando et al., 2023).

Table 2. Results of the study

Speakers	Frequency	Percentage
Teacher	52	63,4%
Students	30	36,6%
Total	82	100%

The provided data presents a detailed breakdown of the frequency and percentage of speech between the teacher and students during the observed classroom interaction. Out of a total of 82 instances of speech, the teacher contributed 52 instances, representing approximately 63.4% of the total communication. This highlights the predominant role of the teacher in initiating and guiding classroom discussions, setting the direction for learning activities, and providing instructional guidance. On the other hand, students contributed 30 instances of speech, accounting for about 36.6% of the total communication. This signifies active student engagement and participation in responding to the teacher's prompts, questions, and discussions. According to Biggs et al. (2019), the distribution of speech between the teacher and students reflects a balanced interaction where the teacher's leadership and guidance are complemented by student responsiveness and participation, fostering a collaborative learning environment conducive to effective knowledge transfer and acquisition.

The classroom interaction described portrays a positive and engaging atmosphere where students actively participate and respond enthusiastically to the teacher's prompts and questions (Afrilyasanti et al., 2023). The teacher's structured approach to lesson delivery includes checking students' well-being and readiness for study and reviewing previous lessons. Using video as a multimedia tool enhances learning experiences, promotes critical thinking, and facilitates discussions around specific learning objectives (Carmichael et al., 2018). By encouraging students to reflect on their learning and engage with the video content, the teacher fosters a dynamic and interactive learning environment that supports students' comprehension and application of new concepts.

Furthermore, the teacher's emphasis on clear communication in English and minimal use of Bahasa Indonesia creates an immersive language learning setting. This approach encourages students to express themselves in English, promoting language fluency and confidence. The teacher's use of close-ended questioning as an assessment strategy ensures students' understanding of the material and prompts critical thinking skills by requiring concise and specific responses. Combining interactive learning techniques, multimedia resources, and language immersion contributes to an effective and engaging classroom environment focused on student participation, comprehension, and language development (Mahdi, 2022).

CONCLUSION

In summary, the analysis of classroom interactions showed a precise distribution of communication roles, with teachers predominantly initiating and guiding discussions in 63.4% of cases. In comparison, students actively participated in 36.6% of interactions. This breakdown underscores the critical role of effective teacher-student communication in

fostering an engaging and productive learning environment. This study emphasizes leveraging insights from speech patterns to optimize instructional strategies and promote student engagement and learning outcomes. However, limitations such as the study's focus on a specific context and the potential for subjective interpretations highlight opportunities for future research to explore broader contexts and incorporate qualitative methods to deepen understanding.

The findings of this study have practical implications for educators who want to improve classroom communication and student interactions. By applying the insights from this analysis, teachers can adapt instructional approaches to promote active learning, encourage student participation, and optimize knowledge transfer (McConnell et al., 2017). Recommendations include adopting diverse questioning techniques, encouraging student-led discussions, and fostering a classroom atmosphere that is supportive and conducive to open dialogue. Future studies could further investigate the impact of specific communication strategies on student motivation, comprehension, and academic achievement, which could inform evidence-based teaching practices and advance pedagogical approaches to maximize student engagement and learning success.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

AUTHOR CONTRIBUTIONS

Hidayatullah, E.: Conceptualization (lead), methodology (lead), writing – original draft (lead), review (lead), editing (lead), securing funding, conceptualization (lead), methodology (lead), writing – original draft (lead), review (lead).

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