



## Analysis of Classroom Interaction in International Class of Chemistry Department at Universitas Negeri Padang

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### Abstract

*The interaction that takes place during classroom activities is crucial in science classes, especially Chemistry because it encourages students' involvement and engagement in the learning process, which promotes students' knowledge during the learning process. Since International Class uses English as the medium of instruction, students are expected to interact in English. However, the non-English department, such as the chemistry department is assumed that there is a tendency for students to avoid interaction in classroom activities because they are afraid of making mistakes, especially when they speak in English. The purpose of the research is to find out how the interactions take place in the learning process and what is the students' attitude toward classroom interaction. This research involved 27 students of the International Class in Chemistry Department UNP. The design of the research was using descriptive qualitative. Video recordings in the form of transcripts, questionnaires, and interviews were used for the data collection. The data were analyzed qualitatively. The result revealed that the dominating category of each pattern, such as Lecturer-Students indicated the questioning category, Students-Lecturer indicated the response category, and Student-Student indicated the response category. In questioning and explaining the material, the lecturer dominantly used English in the learning process. On the other hand, the students responded to the lecturer's questions by using Bahasa Indonesia. Moreover, the students showed a positive attitude toward classroom interaction, so the interaction between the lecturer and the students can be implemented in the learning process.*

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## INTRODUCTION

The term "classroom interaction" describes some behaviors that a lecturer and the students conduct during the learning process. In science class, interaction is a significant source of information input for students studying in a classroom

environment (Chin, 2006). It shows that by enabling students to express their thoughts, feelings, and ideas, the interaction will encourage the students in the classroom (Brown, 2000). This cannot be separated from the role of the lecturer in the classroom. The lecturer, as the provider of guidance and learning in the classroom, is required to have the desire to lead interaction and the ability to educate and interact with the students (Brookfield, 2015). In a brief example, the lecturer stimulates the student's thoughts and ideas by questioning in the middle of explaining the material.

Unfortunately, there are still a lot of concerns with classroom interaction that the lecturer must be aware of. Based on the researcher's brief observation, there is a tendency for the lecturer dominates the classroom activity. For example, the lecturer talks too much explaining the material without giving the students chance to participate. The previous study showed that teacher is 75% overly active in class rather than students which only less than 20% (Winarti, 2017). The other problem is the tendency of students that are afraid to interact in the classroom activity. The Chemistry Department is one of the departments at *Universitas Negeri Padang* that operates the International Class Program for the students. In International Class Program, the class uses English as media of instruction during the teaching and learning process. Since Chemistry Major is a non-English Major, it is assumed that some of the students are afraid to interact in class using English. The students are afraid of making mistakes in expressing their opinions (Dharmawati, 2020).

According to the identification of the problem above, the role of interaction in classroom activity is essential. If the interaction can be carried out properly, the students will show a positive attitude in the learning which help students to understand more in the learning, especially in chemistry subject which needs the involvement of interaction in the learning activity in order to gain students' understanding of the subject (Brown, 2000). In order to generate a positive attitude among students, Lecturer should respect students' feelings, praise, and accept students' ideas in order to show interaction with them instead of lecturing, so students may be encouraged to begin conversations rather than just replying to the lecturer (Asbah & Rajiman, 2015).

Considering the phenomena above, the researcher wants to study how the interaction takes place between lecturer-students, student-lecturer, and student-student and how students' attitudes toward classroom interaction. This research will adopt Flanders Interaction Analysis Categories System (FIACS). The Flanders Interaction Analysis Category System is an observing instrument, conducted by Flanders (1970), to identify lecturer-students, students-lecturer, and student-students interaction in the classroom and help the researcher to find out the type of students' attitudes on classroom interaction.

## **RESEARCH METHOD**

### ***1. Research Design***

This study was conducted to analyze classroom interaction and to find out the attitude of the students towards classroom interaction that occur in the international class students of Chemistry Department at Universitas Negeri Padang. The researcher used the descriptive qualitative method.

## **2. Population and Sample**

The population of this research was the international class students of the Chemistry Department at Universitas Negeri Padang academic year 2021, consisting of 27 students. In this research, the researcher took all of the population as the sample because the subject is less than 100 people (Arikunto, 2013). Thus, there were 27 students in the sample of this research.

## **3. Instrumentation**

### **a. Observation**

Observation is used in order to observe the interactions between Lecturer-Students, Students-Lecturer, and Student-Student that occur by adapting the categories of the Flanders Interaction Analysis Category System instrument. The researcher recorded the teaching and learning process in the Chemistry Department 21A class and observed in four meetings.

### **b. Questionnaire**

The questionnaire is used to collect the data for finding the students' attitudes toward classroom interaction. The questionnaire consists of 29 statements about students' attitudes related to FIACS. The form of the questionnaire provides the Likert Scale rating. This scale asked the students to reply to statements that offer multiple options for responses, such as strongly agree (sangat setuju), agree (setuju), less agree (kurang setuju), and disagree (tidak setuju). The questionnaire was given to the students after the observation.

### **c. Interview**

The interview was used to get additional information on students' learning attitudes in classroom interaction. The interview was given orally to the students by asking the students' opinions on how they show their attitude to the classroom setting.

## **4. Technique of Data Collection**

### **a. Video Recording**

The researcher came to the class to record the whole teaching-learning process. The record of the teaching-learning process is transcribed and categorized into several categories of FIACS, such as Accepts feeling, Praises or Encouragement, Accepts or uses ideas, Questioning, Explaining, Giving Direction, Criticizing or justifying authority, Response, and Initiation.

### **b. Questionnaire**

The questionnaire was distributed to the students using the Google Form platform. Students were expected to choose one possible answer for each statement given, such as strongly agree (sangat setuju), agree (setuju), less agree (kurang setuju), and disagree (tidak setuju).

c. *Interview*

Several questions are given to the students to get more information on students' attitudes in classroom interaction. The researcher asked 8 students to answer 13 questions orally about their opinion of the students' attitudes in classroom interaction.

5. *Technique of Data Analysis*

a. *Observation*

After recording the whole teaching-learning process, the researcher transcribed the video recording into written form. The transcript was observed by categorizing the interaction that occur during the classroom activity to identify the dominant category of the classroom interaction (see appendix 2). The observation was done by reading the data and watching the video recording repeatedly. In the end, the researcher draws a conclusion based on the observation.

b. *Descriptive Statistics*

After collecting the questionnaire, the data were tabulated and displayed in descriptive statistics of frequencies and percentages. Moreover, the researcher made a conclusion based on the data average percentage analyzed. The percentages were used to determine the type of students' attitude, whether positive or negative. If the data dominantly show the students who choose strongly agree and agree, it means that the students have a positive attitude toward classroom interaction. Otherwise, if the data dominantly show the students choose less to agree and disagree, it means that the students have a negative attitude towards classroom interaction. The results of the data questionnaire are also supported by the interview with the students.

**RESULT AND DISCUSSION**

1. *Result*

a. *Classroom Interaction Pattern*

After the data were transcribed and observed, the researcher found the dominant categories of interaction used by each pattern in the classroom activity. The observation finding shows in the table below.

Table 1. Classroom Interaction Findings

Interaction Category	Pattern					
	L-S		S-L		S-S	
	f	%	f	%	f	%
Accepts Feeling	61	(7%)	16	(4%)	0	(0%)
Praises or encouragement	10	(1%)	1	(1%)	2	(13%)
Accepts or Uses Ideas of Students	150	(16%)	1	(1%)	0	(0%)
Questioning	393	(41%)	17	(4%)	0	(0%)
Explaining	213	(23%)	0	(0%)	0	(0%)
Giving Directions	42	(4%)	0	(0%)	0	(0%)

Criticizing or Justifying Authority	9	(1%)	1	(1%)	0	(0%)
Response	57	(6%)	372	(84%)	12	(80%)
Initiation	1	(1%)	18	(5%)	1	(7%)
$\Sigma$	936	100%	426	100%	15	100%

The data above shows the results of the interactions that occur in classroom activity for each Flanders Interaction Analysis Category System category. For Lecturer-Students (L-S) interaction, the dominant category that shows is Questioning category which occurs 393 times (41%) in the learning process. For the Students- Lecturer (S-L) interaction, the dominant category that shows is Response category which occurs 372 times (84%) in the learning process. Lastly, the dominant category that shows in Student-Student (S-S) interaction is Response category which occurs 12 times (80%) in the learning process.

*b. Students' Attitude*

The result of the data is as follows:

Table 2. Result of Students' Attitude Questionnaire

No.C	No.I	Categories of Students Attitude	Strongly Agree		Agree		Less Agree		Disagree		N
			f	(%)	f	(%)	f	(%)	f	(%)	
<b>1</b>		<b>Accepts Feeling</b>									
a	1	Saya senang dengan dosen yang mengajar dengan ramah.	26	96%	1	4%	0	0%	0	0%	27
b	2	Saya menunjukkan sikap siap belajar saya ketika dosen sudah mengucapkan salam pembuka.	20	74%	7	26%	0	0%	0	0%	27
<b>2</b>		<b>Praises or Encouragement</b>									
a	3	Ketika dosen memberikan pujian, saya lebih bersemangat dalam menjawab pertanyaan berikutnya.	22	81%	4	15%	0	0%	1	4%	27
b	4	Saya merasa percaya diri ketika dosen meminta saya menjelaskan jawaban saya.	11	41%	15	55%	1	4%	0	0%	27
c	5	Saya termotivasi untuk belajar ketika dosen menyelipkan lawakan/candaan di dalam proses belajar.	18	67%	9	33%	0	0%	0	0%	27
<b>3</b>		<b>Accepts or Uses Idea</b>									
a	6	Saya antusias ketika dosen mengklarifikasi pendapat saya.	16	59%	11	41%	0	0%	0	0%	27
b	7	Ketika dosen merangkum kembali pendapat saya, saya merasa termotivasi untuk belajar.	17	62%	10	38%	0	0%	0	0%	27
<b>4</b>		<b>Lecturer Questioning</b>									
a	8	Ketika dosen menanyakan pendapat saya, saya termotivasi	13	48%	12	44%	2	8%	0	0%	27

		untuk menganalisis materi yang diajarkan lebih mendalam.									
b	9	Saya merasa pertanyaan dosen membantu saya untuk mengingat rumus, konsep, materi ajar yang diajarkan sebelumnya.	17	62%	6	22%	4	16%	0	0%	27
<b>5</b>		<b>Explaining</b>									
a	10	Saya senang belajar kimia karena dosen mengorientasikan materi dengan jelas dan terstruktur.	14	52%	12	44%	1	4%	0	0%	27
b	11	Saya dapat memahami penjelasan dosen dalam mengajar kimia karena bahasanya jelas.	15	56%	12	44%	0	0%	0	0%	27
<b>6</b>		<b>Giving Direction</b>									
a	12	Saya merasa dosen memberi perintah atau instruksi dengan jelas.	14	52%	13	48%	0	0%	0	0%	27
b	13	Saya merasa lebih baik ketika dosen memerintahkan mahasiswa untuk belajar sendiri daripada diskusi kelompok.	6	22%	11	41%	9	33%	1	4%	27
<b>7</b>		<b>Criticizing or Justifying Authority</b>									
a	14	Saya merasa bisa menerima bila dosen menasehati atau menegur saya.	17	63%	9	33%	1	4%	0	0%	27
b	15	Saya merasa dosen memberi nasehat dan teguran dengan baik dan ramah.	16	59%	11	41%	0	0%	0	0%	27
<b>8</b>		<b>Lecturer's Response</b>									
a	16	Saya merasa dosen memberikan jawaban atas pertanyaan saya dengan baik dan ramah.	17	63%	10	37%	0	0%	0	0%	27
b	17	Jawaban dosen membantu saya memahami materi kimia dengan jelas dan baik	19	70%	8	30%	0	0%	0	0%	27
<b>9</b>		<b>Students' Response</b>									
a	18	Saya berusaha untuk selalu menjawab semua pertanyaan yang diberikan oleh dosen dengan benar	12	44%	13	48%	2	8%	0	0%	27
b	19	Ketika dosen tidak menerima jawaban atau pendapat saya, saya merasa semakin penasaran untuk mengetahui jawabannya.	10	37%	15	56%	2	7%	0	0%	27
<b>10</b>		<b>Students' Initiation</b>									
a	20	Saya berinisiatif mengajukan diri untuk mengemukakan pendapat dikelas	7	26%	16	59%	3	11%	1	4%	27
b	21	Saya akan bertanya kepada dosen ketika saya tidak memahami materi yang sedang dijelaskan.	12	44%	12	44%	3	12%	0	0%	27
<b>11</b>		<b>Students Questioning</b>									

a	22	Saya termotivasi untuk bertanya di dalam kelas agar saya dapat mengatasi masalah dalam mata kuliah yang saya hadapi.	11	41%	13	48%	3	11%	0	0%	27
b	23	Saya bertanya pada dosen jika ada masalah dalam mengerjakan tugas.	11	41%	14	52%	2	7%	0	0%	27
c	24	Saya bertanya pada teman jika masalah dalam memahami penjelasan dosen.	11	41%	15	56%	0	0%	1	3%	27
d	25	Saya sering merasa puas dengan jawaban/keterangan yang diberikan dosen terhadap masalah yang saya tanyakan.	13	48%	12	44%	2	8%	0	0%	27
<b>12</b>		<b>Peer Response</b>									
a	26	Saya merasa jawaban/respon dari teman terhadap masalah yang saya tanyakan mudah dipahami dan jelas.	8	30%	17	63%	2	7%	0	0%	27
b	27	Jawaban teman dapat membantu saya menyelesaikan tugas/soal di mata kuliah berbasis kimia.	11	41%	14	52%	2	7%	0	0%	27
<b>13</b>		<b>General Comments</b>									
a	28	Saya ingin mengerjakan yang terbaik dalam mata kuliah yang menyangkut pembelajaran kimia.	22	81%	5	19%	0	0%	0	0%	27
b	29	Saya senang belajar kimia.	18	67%	9	33%	0	0%	0	0%	27
$\Sigma$			<b>424</b>	<b>54%</b>	<b>316</b>	<b>40%</b>	<b>39</b>	<b>5%</b>	<b>4</b>	<b>1%</b>	
			<b>740 (94%)</b>				<b>43 (6%)</b>				

Based on the data above, most of the students choose the strongly agree and agree scale (94%). On the other hand, there are a few students who choose the less agree and disagree scale (6%). The result shows a significant in the number of students who choose the strongly agree and agree scale. The researcher concluded that the students have a positive attitude toward classroom interaction.

This result is also supported by the responses of the students in the interview. The students stated that the learning process is fun and active. This is proven, as follows:

Researcher : “What do you think about the lecturers who teach in your classroom?” (*Bagaimana menurut anda dosen yang mengajar dikelas anda?*)

Student : “I think the lecturer who teaches in the classroom is great because so far the material is delivered fun.” (*menurut sintia dosen mengajar dikelas sangat baik dan sangat bagus menurut sintia karena sejauh ini materi yang di paparkan oleh dosen sangat mengasikan*)

The students also appreciate the lecturer for leading the interaction by asking the students’ understanding while explaining the material. This is proven, as follows:

- Researcher : “What do you think about the lecturers who teach in your classroom?” (*Bagaimana menurut anda dosen yang mengajar dikelas anda?*)
- Student : “I think the lecturer is good, and the lecturer explains the material with enthusiasm. The main thing is the explanation, always ask if the students understand the material. Then, if the students are understand, she will continue.” (*Menurut reren dosen tu baik terus dosennya ngejelasin gitu materinya dengan semangat terus pokoknya ngejelasinlah kak terus bertanyakan apakah mahasiswa udah paham sering nanya kaya gitu kalau udah paham baru lanjut*)

Based on the result above, it can be concluded that the students show enthusiasm in the learning process. The students appreciate the lecturer when leading the interaction and the students also respond to the lecturer’s interaction. Moreover, the lecturer also engages the students to participate in the learning process by asking for the students’ understanding while explaining the material. As the lecturer leads the interaction, the students are involved in the activities in the classroom. Hence, the students have a positive attitude toward classroom interaction.

## 2. Discussion

The research is conducted to analyze how the classroom interaction takes place between Lecturer-Students, Students-Lecturer, and Student-Student in classroom activity and the students’ attitude toward classroom interaction. The result showed that each pattern has its dominant category, such as Lecturer-Students shows *questioning* category, Students-Lecturer shows *response* category, and Student-Student shows *response* category. The results sustained with the research done by Laelatunuro, Adiantika, & Charisma (2021) showed that the common category used by the lecturer is asking questions and explaining, whereas students use response. Moreover, in this research, the researcher finds out how the interaction among the students.

The researcher discovered that the students have a positive attitude toward classroom interaction. Students feel the interaction in the classroom is active and fun due to the lecturer as the key role of the interaction itself. Although the lecturer uses English as the media instructional, the students attempted to follow the learning process well. This is similar to the discovery by Yuwono (2016), who stated that the students' attitude in classroom interaction showed positivity, as seen by their positive thoughts, feelings, and behaviors in classroom activity. The previous research also revealed that one strategy to improve the students' attitudes about interaction is to apply the implications of classroom interaction itself, for example in the discussion. Hence, leading the students into the discussion could help the students to develop their understanding of the material.



## CONCLUSION

The research was the descriptive qualitative method. The research was conducted in the International Class of Chemistry Department at Universitas Negeri Padang to find out how the interaction takes place in the classroom and the students' attitude performs in the classroom interaction. Each pattern shows the dominant category of interaction. Lecturer-Students shows the questioning category, Students-Lecturer shows the response category, and Student-Student shows the response category. The teaching-learning process occurs in English and Bahasa Indonesia, with English as the medium of instruction. Moreover, the attitude of classroom interaction revealed that the students have positive attitudes. The students mostly agree with the implementation of classroom interaction in the learning process. It can be proved by the data findings and discussion.

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