

Classroom Interaction Process of teachers and students at Pre-University level

Sindhu Vasanth. B^{1*}, Prof. C. G. Venkatesha Murthy²

ABSTRACT

The purpose of the study is to assess the interaction process of 44 Pre-University teachers from Government and Private Colleges (Arts and Science streams) in Bengaluru. Flanders' Interaction Analysis Categories System by Ned Flanders (1970) was used to understand the interaction process of Pre- University lecturers. The results revealed that the classroom interaction was teacher-centric compared to learner-centric. The teachers' role was more of an information giver than a facilitator. The students' participation in the learning process was found passive. The implications of the study are discussed.

Keywords: *Classroom Interaction, Teacher-Centric, Learner-Centric, Facilitator*

Classroom is a place where two or more people gather with the intention of learning and its facilitation processes. The communication that takes place between teacher and learners is called interaction. The term classroom interaction refers to the interaction between the teacher and the learner or learners, and interaction amongst the learners, in the classroom (Tsui, 2003). Brown (2000) defines, "Interaction is the collaborative exchange of thoughts, feelings, or ideas between two or more people, resulting in a reciprocal effect on each other" (p. 165). Classroom interaction is remarkably diverse and complex in nature. Classroom interaction involves understanding the learning styles of learners, teaching styles, questioning styles, verbal communication, nonverbal communication, and silence, pedagogical practices, and personal practices (Sundari, 2017). Researchers in the field of psychology and education have made various attempts in understanding classroom interaction process that contribute to learning processes such as academic engagement, motivation, teaching process, etc.

Classroom interaction is incessant and the progression of it depends on the teacher and students. Researchers are curious in understanding the role of interaction in education. Few of the models which explain the classroom interaction are as follows. Sinclair & Coulthard's (1975) model explains classroom conversation into 5 ranks, namely: lesson, transaction, exchange, move and act, which are ranked hierarchically. Further, exchanges in the classroom consist of initiation moves (called the opening move), response moves (the answering move),

¹Research Scholar, University of Mysore

²Dean, Research, Professor of Education, Regional Institute of Education, NCERT, Manasagangotri

*Corresponding Author

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and follow-up moves. Flanders (1970) an analysis of teacher and students talk and silence consisting of the category system of interaction analysis. Mehan (1979) divides the classroom discourse into three phases, opening phase, instructional phase and closing phase. These models explain how classroom interaction process can be assessed.

Classroom communication is always considered one way communication because the burden of imparting knowledge is teacher's responsibility. The role of a teacher is important in classroom interaction because the teacher's personality, support, and teachers' involvement of student in learning process is essential (Abdullah et.al. 2012). Behaviorists view classroom interaction as a process of modelling and reinforcement. Many researchers have pointed out that the quantity and quality of the talk mainly depends on the teacher (Hall and Walsh, 2002; Moon, 2000; Richards, 2003). In teacher-learner interactions, teacher talk is considered a main source of input (Ellis, 2012; Hadvi, 2018; Nisa ,2017). Hurst et.al (2013) pointed out that lack of student engagement in the common lecture centered model. Paradoxically, many research supports that the interaction in the classroom is dominated by teacher talking because the students do not respond to the questions asked by the teachers which minimizes the scope for further discussion or thinking (Raja 2012; Villalobos, 2018).

There is also a shift in the paradigm from the teacher and his/her teaching style to learner and the attributes of the learner (Dubey 2020). In constructivist classroom, the focus is shifted from teachers to students. Teachers' role is more of a facilitator than an expert who explains the concepts whereas the students are not passive learners/listeners but are constructors in the meaning making process of the concepts taught. Teacher helps the student to construct new meanings and integrate the information. Thus, responsibility of teaching and learning is divided. On the other hand, social constructivism focuses on interactions that take place in the classroom. The discussions can be in between the learners or the teacher and the learner. Vygotsky (1987) explains the significance of interaction with More Knowledgeable other (MKO) to understand the learning phase of an individual to progress to the proximal learning phase. The classroom interaction in a constructivist and social constructivist classroom provides an opportunity for learners to build new skills, learn new information and understand, the process which aids in meaning making process. This reciprocal interaction between the students and teachers is helpful in acquiring new information (Nura &Zubairu, 2015). They analyzed students' perspectives of our highly interactive and reflective classes. Thus, findings revealed that students perceived that social interaction improved their learning, enhanced their knowledge of literacy and teaching and their critical thinking and problem-solving skills. According to Wasley (2006), student's participation in collaborative learning by interacting with the faculty members outside classroom to score better have better experience about educational activities and are satisfied with college. The numerous factors that affect classroom participation are student traits, preparation for class by students, classroom size, grading, and role of faculty (Susak, 2016). Liu (2001) elaborated four types of student behaviours in the classroom as full integration active participation (actively involving and responding to the topic being taught), participation in the circumstances (socio-cultural, cognitive, affective, linguistic, or the environment), marginal interaction (interaction is only when required and are more engaged in writing notes), and silence observation (avoid talking). Students' involvement in the classroom fosters language learning, social interaction skills, clarification of doubts and maximizing interaction. Hence it can be said the role of the learner and the teacher is evolving, teacher-learner share information in the quest of understanding the concepts better.

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Classroom interaction enhances learning and motivates the student to perform better. Classroom interaction from learner's perspective can be summarized in terms of academic success. According to González, A (2015) "Academic outcome is derived from motivation, is referred to as engagement with academic tasks, a multidimensional construct consisting of three basic components: behavioral (e.g., effort), emotional (e.g., enjoyment), and cognitive (e.g., deep learning strategies)". The learning process is pivotal, this can be achieved through teachers' encouraging students in the interaction process to improve academic performance. Many researchers have recommended the need for teachers to learn the essential teaching skills (Samson, 2013). The foremost important teaching skill is interaction and engaging students in classroom to obtain desired learning outcomes. According to Ober et al. (1971) (as cited in Samson, 2013), "Teaching skills are required to be developed by teacher in order to translate planned instructional strategies into effective practice in the classroom".

School education is important in the life of students for all-round development of the personality. Under that, pre-university stage is a crucial junction as a student navigates from school education to higher education/technical education. This is also an area which is not studied as much as elementary or secondary levels are. Classroom interaction is the crux of understanding teaching-learning process leading to academic outcomes. The range of interactions between the learner and the teacher is to be understood in order to understand the classroom dynamics. So, the present study seeks to explore the answers for the following research questions.

Research Questions

- What is the range of classroom interaction processes that exists among pre-university teachers and students?
- What is the role of teachers in the classroom interaction process?
- What is the role of students/learners in the classroom interaction process?

Research objectives

- To understand the classroom interaction process of Pre-University teachers and students.
- To study the teacher's interaction process in the classroom.
- To study the student's interaction process in the classroom.

RESEARCH METHODOLOGY

The study used qualitative method for data collection to assess Verbal Interaction process among Pre-University teachers in Bangalore. The sample consisted of 44 teachers from government and private colleges and they were selected using disproportionate stratified random sampling technique. Verbal Interaction was measured using Flanders Interaction Analysis Categories System by Ned Flanders (1970).

Procedure for Flanders' Interaction Analysis

Flanders' interaction analysis comprising 10 categorizations. The interaction was observed and recorded by the researcher for a duration of 30mins. The observer recorded the category number which represents the situation best at the interval of every 3 seconds. Verbal Interaction is measured by Teacher Talk, Student Talk and Silence. The teacher talk is further categorized as: 1. Accepts feelings. 2. Praises or Encourages. 3. Accepts or Uses Ideas. 4. Asks Questions. 5. Lecturing. 6. Giving Directions. 7. Criticizing or Justifying Authority.

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The student talk consists of 8. Pupil-talk response. 9. Pupils talk Response and last category as number 10. Silence.

The decoding involves construction of a matrix. Then the ratios are calculated using formulas given by Flanders. The ratios are Teacher Talk Ratio (TT), Pupil's Talk Ratio (PT), Silence or Confusion Ratio (SC), Direct Teacher Talk Ratio (DTT) also called "Teacher Talk Initiation", Direct Pupil Talk Ratio (DPT) also called "Pupil Talk Initiation", Indirect Teacher Talk Ratio (ITT) also called "Teacher Talk Response", Indirect Student Talk Ratio (IPT) also called "Pupil Talk Response", Indirect and Direct Ratio (ID) and Teacher's Question Ratio (TQ).

Data Analysis

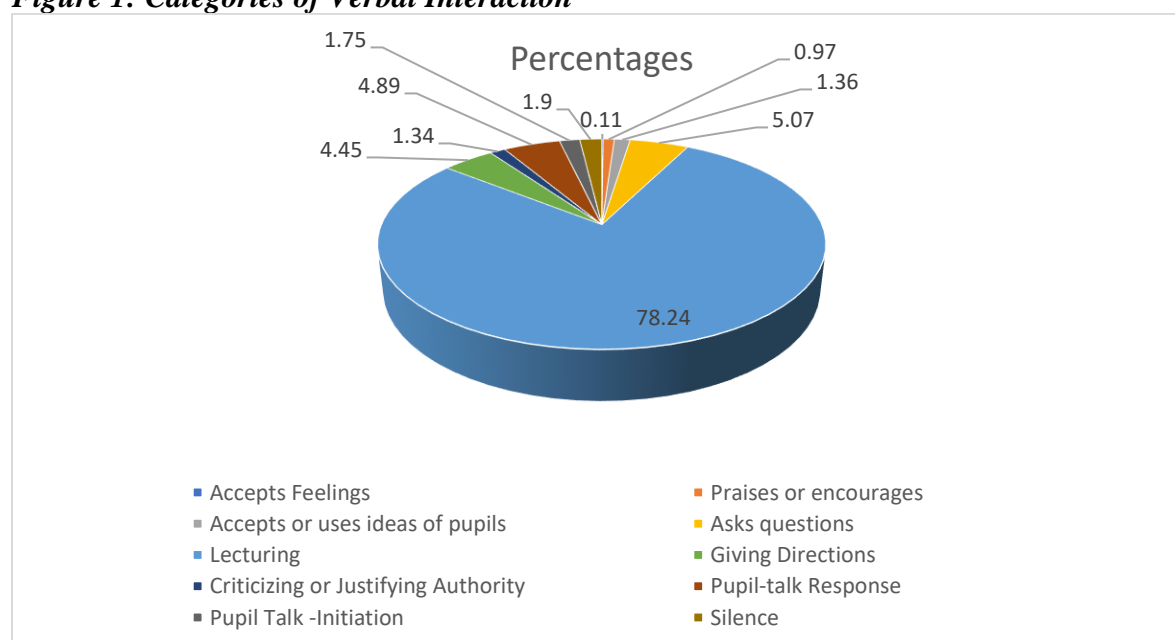
The collected data were analyzed. The results are discussed based on research questions and objective wise as follows.

Objective 1: To understand the classroom interaction process of Pre-University teachers and students.

Table 1 Showing the frequencies of verbal interaction in each category.

| Sl.no | Categories | Mean | Frequency | Percentage |
|-------|-------------------------------------|--------|-----------|------------|
| 1. | Accepts Feelings | .69 | 30 | 0.11 |
| 2. | Praises or encourages | 5.84 | 257 | 0.97 |
| 3. | Accepts or uses ideas of pupils | 8.20 | 361 | 1.36 |
| 4. | Asks questions | 30.47 | 1341 | 5.07 |
| 5. | Lecturing | 409.45 | 20656 | 78.24 |
| 6. | Giving Directions | 26.70 | 1175 | 4.45 |
| 7. | Criticizing or Justifying Authority | 8.04 | 354 | 1.34 |
| 8. | Pupil-talk Response | 29.38 | 1293 | 4.89 |
| 9. | Pupil Talk -Initiation | 9.90 | 436 | 1.75 |
| 10. | Silence | 11.45 | 504 | 1.9 |

Figure 1: Categories of Verbal Interaction



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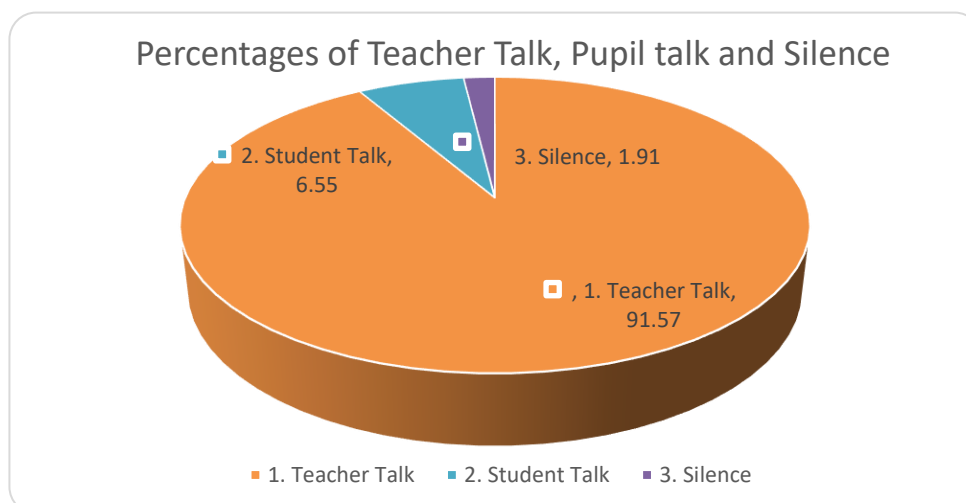
Table I showing the analysis of all 44 lecturers under each category of verbal communication for a duration of 30 minutes. The largest percentage of verbal interaction is lecturing with 78.33% followed by different categories ask questions 5.01%, pupil talk response of 4.81%, Criticizing or Justifying Authority 4.48%, Silence of 2.01%, Pupil talk- Initiation 1.63%, Accepts or uses ideas of pupil 1.34 %, Praises or Encourages 0.95% and Accepts feelings 0.11%. This shows that the classroom interaction process at preuniversity level is more teacher centric. Teacher shouldered responsibility of delivering lectures, the teacher's approach was directive. The communication in the classrooms were one way giving less space for the students to understand information or clarification of the topic. The teachers still follow the method of explanation and directing the content to be taught in the class. The teachers are burdened with syllabi and limited/ restricted hours of time to complete the given topic. The focus of preuniversity teachers is strengthening students to answer and score well in the examinations. The classes are content focused/ syllabus focused and they do not give much prominence in developing the other social skills required in the students. Preuniversity results are the determining factor for entering any professional courses, the focus is basically only on the prescribed syllabus. As a result, this curtails the teacher's freedom to explore the topic and use various skills to make the session interactive. This method in turn restricts the participation of students gives them less to express their ideas about the given topic.

Yanfen and Yuqin (2010), reported that teacher talk is important to create to teach students. Teacher talk is important because the topic is to be delivered. Nasir et. al. (2019) stressed that the teachers spend most of the time in lecturing which does not give scope for students to learn, ask or understand the information is required. Opportunities must be made by the teachers for student to participate. This can be achieved by asking questions, encouraging or praising. Students not participating in class could be due to various factors like being shy, not knowing the answers/ concept, fear of being criticized, laughed at, not given an opportunity, low motivation, disinterest in the subject, language proficiency, etc. These reasons are supported by many researchers and recorded (Goodson, 2011; Zhou et.al, 2020)

Table 2 Showing the ratios of teacher talk, student talk and silence in classroom

| Interaction Categories | Ratio |
|------------------------|-------|
| 1. Teacher Talk | 91.57 |
| 2. Student Talk | 6.55 |
| 3. Silence | 1.91 |

Figure 2: Dimensions of Teacher Talk



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Table 2 shows the ratios or percentages of “Teacher Talk (TT)”, “Pupil’s Talk (PT)” and “Silence or Confusion (SC)”. The TT Ratio indicates how much the teacher talks in the classroom. The tallies of first seven categories are added and divided by the total tallies of the matrices (N) and hence the percentage can be calculated. The PT Ratio indicates verbal activities of pupils in response to the teacher. The tallies of 8th and 9th categories are added and divided by “N” to calculate the percentage. The SC Ratio indicates how much time pauses, short periods of silence, and periods of confusion are observed. The tallies of 10th category are divided by “N” to calculate the percentage.

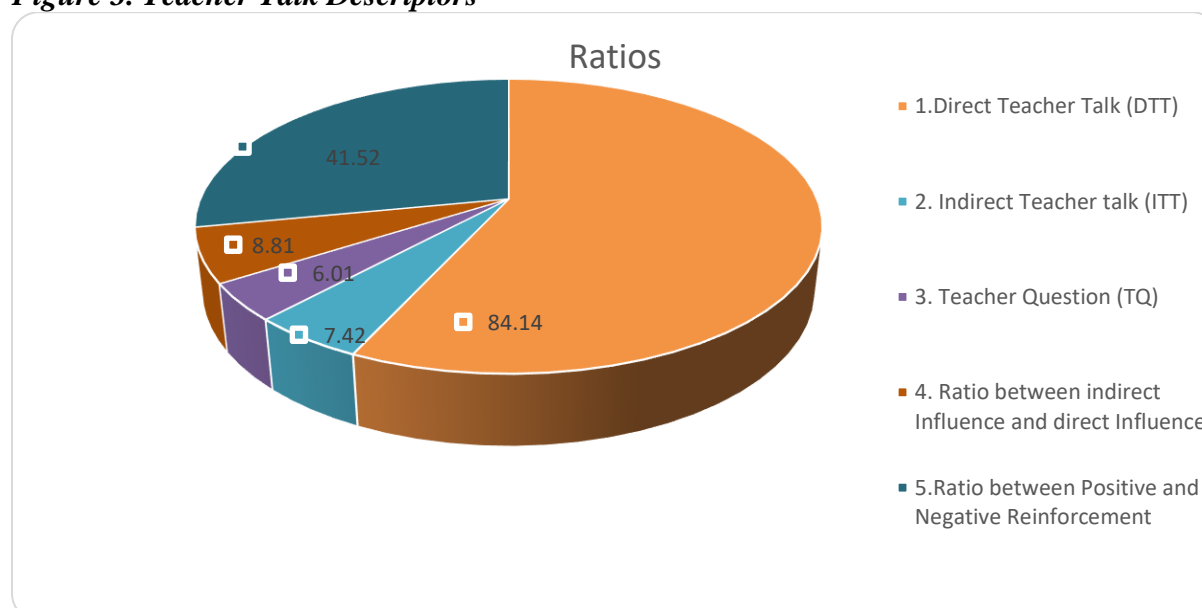
This shows the average time spent by the teacher, the pupils, and time spent in pauses, silence, and confusion. The teacher talk ratio is 91.57, Student talk is 6.55 and Silence is 1.91. This shows that the large percentage of verbal interaction is from teacher when compared to students. The study conducted by Ayunda et.al (2021) conducted on teacher and students of 10th standard also supported the above findings that the percentage of teacher talk is more in classroom. The teachers’ direct talk was more when compared to teachers’ indirect talk. Another study conducted on preservice teachers, the teacher talk was dominant in which the questioning category was found to have occurred most frequently in classroom interaction (Molida et al, 2020). Nzeyimana, J. C & Ndiokubwayo. K (2019) concluded that teachers in the classroom are more content focused rather than being a facilitator. The teachers in classroom lacked initiatives to engage students in learning activities.

Research Objective 2: To study the teacher’s interaction process in the classroom

Table 3 Ratio of Teacher talk interaction descriptors

| Teacher Talk Descriptors | Ratio |
|--|-------|
| 1.Direct Teacher Talk (DTT) | 84.14 |
| 2. Indirect Teacher talk (ITT) | 7.42 |
| 3. Teacher Question (TQ) | 6.01 |
| 4. Ratio between indirect Influence and direct Influence | 8.81 |
| 5.Ratio between Positive and Negative Reinforcement | 41.52 |

Figure 3. Teacher Talk Descriptors



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This research objective aims to understand the teacher's interaction process in the classroom. The above table shows the teacher talk descriptors. The DTT indicates the teachers' actions restricting pupils' participation. The tallies of the 5th, 6th, and 7th are added and divided by "N" to calculate the percentage. ITT Ratio indicates how much the teachers' respond to students' ideas during the lesson. The tallies of the first four categories are added and divided by "N" to calculate the percentage. The TQ Ratio measures the teacher's tendency to use questions rather than a lecture in the more content-oriented parts of the lesson. It is calculated by multiplying the category 4 frequency by 100 and dividing by the sum of categories 4 and 5. Direct Teacher talk ratio is calculated to be 84.14 which shows the extent to which the teachers restrict student's participation. Indirect teacher talk is 7.42 showing how much teacher responds to the students' ideas during teaching. The scores clearly indicate that Teacher Talk initiation is more compared to Teacher Talk response.

However, The Teacher Question Ratio (TQ) is 6.01 which indicates the teachers' tendency to use questions rather than a lecture in the more content-oriented parts of the lesson. This indicated the teacher asked questions related to the topics in the class, but the teacher was found answering the questions as well. The teacher did not elicit a response or motivate the students to answer the questions asked. The teachers were not found to use scaffolding to facilitate the learning process. The exploratory forms of questioning were less which limited the prospects of understanding the concepts. The exponents of learning process are largely based on the kind of questions asked and the prompts used by the teacher to encourage the students to answer (Anderson, 2002). Villalobos, C & Arellano, R. (2018) opined that classroom interaction is dominated by the teacher and the questions asked by the teacher do not lead to higher order thinking. However, there are many studies that suggest teacher questioning is important for classroom interaction which would enhance student knowledge and promote creative thinking (Brown and Wragg, 2001; Cotton, 2003; Morgan, 1991; Richard, 1996). In another study on secondary school, it was found that the teachers often began by asking question related to the topic and the students responded in a word or phrase. The interaction was only subject related (Tiwari, 2021).

Further analysis shows that the way teacher manages the class. The score for ratio between indirect influence and direct influence is 8.81 which indicate the teacher has more indirect statements than direct teacher statement in his/her approach to motivation, encouragement, and control. The ratio between positive and negative reinforcement is 41.52 which shows that the teacher uses negative reinforcements in class when compared to positive reinforcement. The teacher's feedback on the responses was few or critical when answered incorrect. This curtailed the responses of the students. The teacher's role should be more motivating, encouraging and reducing apprehensions in the students. The encouragement or praises by the teacher influences the students to respond and interact in the classroom. This acts as the important basis of interaction. Encouragement from the teachers reduces the shyness and builds confidence to ask to questions/ clarify their doubts even if they are simple. Researchers suggested that the teacher should use more of 'praises and encourages' to build students' confidence in speaking, 'asks questions' to promote their communicative skill and to encourage students (Girija, 2020; Nisa 2014.). Praises or encouragement can be of different types namely: global praise is the untargeted praise which may be directed towards the class in general, contingent praise is to reinforce a specific behaviour e.g students attempt to answer, Specific praise is based on the answer to the question (evaluative praise), credible praise is for low achievers to become responsible and learn (Brophy, 1981; Ferguson 2013) The teachers' attitudes in classroom interaction, "persistent coaching and encouragement help the learners in classroom interaction"(Wang and Tseng, 2020, Webster-Stratton, 2012).

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Ferguson (2013) emphasized that encouraging for an attempt is important than giving a correct answer.

Research Objective 3: To explore the student's interaction process in the classroom.

Table 4 Showing the ratio of students interaction process

| Student Interaction Descriptors | Ratio |
|---------------------------------|-------|
| Indirect Pupil Talk (IPT) | 1.65 |
| Direct Pupil Talk (DPT) | 4.90 |

The above table shows the level of participation by students in the classroom interaction. Indirect Pupil Talk (IPT) also known as Pupil talk response shows how much students respond during the lesson. The score of students on this descriptor is 1.65 which implies that the students rarely respond to the questions asked by the teacher. Direct Pupil Talk (DPT) also called Pupil Talk initiation, the score for this descriptor is 4.90 indicating the students' participation and involvement in the classroom is less. Even though the students' classroom participation seemed less, some students were found asking questions and clarifying their doubts when compared to responding to the questions asked by the teacher. There is reluctance from the students to participate in the classroom interaction process. The students do not have prior information/ knowledge or have read about the topic that is to be discussed in the class. The students depend on the teacher to explain the concepts first in detail and based on that the students would learn the concepts. The students are mere receivers of information. The teacher's role in motivating the students to participate was found less. The teachers are trained to teach but not facilitate the learning process. The teacher's lack understanding the learning process of the students. The only way of assessing the students learning in the classroom is by the marks obtained in the examinations conducted. The teachers understanding the learning style of the learners and motivating the learners to participate in the meaning making process of the concepts is missing. The classroom size, the faculty, student preparations for class, confidence and the personality traits, student's interest, norms of the class, of the students are the contributing factors for less involvement in the class (Fassinger, 1995).

The above findings are consistent with research literature. According to Girija (2020), the pupil talk in classroom interaction is very less and the student teachers were trained to improve their teaching behavior including to use more praises, clarify what the students say, ask questions, give direction, etc at the classroom. On the contrary, to the above findings, that students who perceived high-quality classroom interactions were more engaged in school, and teachers' emotional support showed the strongest association with engagement (Havik, 2020). Jia (2013) listed the strategies effecting classroom interaction are as follows: improving questioning strategies, attending to learner's linguistic levels, implementing cooperative learning, building positive teacher-learner rapport and reducing classroom anxiety. So, in this context the role of learners is important.

CONCLUSIONS

The following conclusions are drawn based on the research questions raised.

- Classroom interaction was predominantly teacher- centric. The main source of information was teachers. The teachers spent most of the time lecturing, giving directions & asking questions. The students were passive recipients, rarely engaged in interactions. The students rarely answered to the question asked by the teachers.
- The role of teacher as a facilitator was very less. Classroom interaction basically focused explaining the concepts. Teachers did not engage the students and motivate

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them to participate in classroom interactions. The teachers were sometimes found criticizing and giving directions.

- The students' classroom interaction was very minimal. Apparently, the learning by students was basically dependent upon whatever teachers did in the class. Students' exploration of the information independently was found to be very less.

Implications

The present study has following implications for different stakeholders:

- The teachers must be trained in communication skills. Communication skills training for teachers should focus on the various way of interacting with the students. The teachers need to build a good rapport with the students (like knowing students by their names). The next level could be assessing the needs of the learner. Teaching method should involve activities like quizzes, discussions and debates which help in understanding the concepts better. Informal interactions with students can help the students to overcome their fears and shyness.
- The curriculum transaction needs to focus on the practical orientation of the subject, where the learners are more actively engaged that would elicit the thought process. Teachers should introduce varied classroom activities or projects catering to the needs of students with diversity. Teachers have to go beyond the explicit curriculum to making teaching- learning relevant and effective.
- The U-shaped seating arrangement in the classroom can be introduced. This would break the hierarchy and would help in discussion between the students and teachers. This would help teacher facilitate and encourage discussion even though this would throw challenge to the management to provide the appropriate infrastructure.
- The flipped learning strategy could be introduced where the student watches the lectures online at home and in their classroom, they can engage in discussions, exploring the topics in detail with the facilitation of the teacher. This may enhance the quality of the teaching-learning process.
- Hitherto, the medium of instruction has remained one of the determinants of classroom participation by the students. Ideally, language should not be a barrier for expressing or actively involving in classroom discussions. The teachers can motivate the student to express in the language they are comfortable and familiar with.

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English Education Department, Faculty of Languages and Arts, Universitas Negeri Yogyakarta

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