

Students' participation and achievement in English on different seating arrangements

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Abstract - Seating arrangements play a crucial role in education, but traditional approaches may not meet students' needs. This research is a comparative experimental approach using the concurrent embedded mixed-method research approach to investigate whether different seating arrangements (separate tables and horseshoe) shows a significant difference on students' participation potentials and achievement in English. This study explores students' participation and achievement potential in different seating arrangements (separate tables and horseshoe) on 8th-grade students' participation and achievement in English. Data from 50 students were collected through observations, questionnaire surveys, and tests, analyzed using qualitative and quantitative methods. The findings revealed significant differences in participation potentials across certain indicators, with separate tables enhancing motoric and mental activities and horseshoe arrangements benefiting visual and writing activities. However, both arrangements showed no significant difference in listening, oral, and emotional activities. In terms of achievement, the study revealed significant differences in students' achievement on different seating arrangements students with separate tables achieved higher academic performance compared to the horseshoe arrangement. These results indicate that seating arrangements influence students' participation and achievement, suggesting alternative seating options for implementation in classrooms, with consideration of specific factors.

Keywords: seating arrangements, students' achievement, students' participation

I. INTRODUCTION

Education is a process of teaching, training, and learning, particularly within academic institutions, with the goal of improving knowledge and skill development (Hornby, 2015). The education system in a formal institution has several subjects taught by teachers to students. The education process carried out by teachers to students is known as the 'learning process'. According to Akhiruddin (2019), the learning process refers to a series of actions between teachers and students that take place within a learning environment. This process involves mutual interactions and is aimed at achieving specific educational objectives. There are two main activities in a learning process, namely teaching and learning activities. These activities are the process of interaction between two elements, which are students as the learning subjects, and teachers as the teaching subjects. Teaching activities are knowledge transfer activities carried out by teachers to students in order to change the students' perceptions and behaviour, while learning activities are activities carried out by students that influence their emotions, intellect, and spiritualities resulting in changes in behaviour (Faturrohman & Sutistiyori, 2012). Based on this information it can be said that education is a learning process containing teaching and learning activities of various kinds of subjects that take place in educational environments to develop students' full potential.

English is a widely used foreign language for global communication. In the field of education, it is an essential subject taught at every educational level in Indonesia, from elementary school to university, as part of the curriculum (Madarina et al, 2021). Proficiency in English not only enables students to communicate effectively with diverse individuals but also opens up opportunities for future endeavours where it is frequently used in various settings such as workshops, conferences, and business-related events (Fahrurrozi, 2019). However, despite English being taught from elementary school to the university level in Indonesia, the proficiency levels of English learners remain low (Arafiq, 2019). The language itself is not frequently used outside of the classroom and is mostly regarded as an academic topic in educational system (Thohir, 2017). This situation can be attributed to several factors, including student motivation issues, limited time, resources, and materials, as well as overcrowded English classes (Abrar, 2022). Furthermore, some EFL students perceive English as a dull and uninteresting subject due to it not being their first language (Azmi, 2019).

In the learning process, including English, students' involvement and the outcomes achieved are crucial indicators of a successful learning process (Finn, 1989). The level of involvement and outcomes attained by students are commonly referred to as participation and achievement, respectively. Participation, as defined by Sukidin (2008), pertains to the degree of students' involvement in classroom activities and their active contributions to the implementation of these activities. On the other hand, achievement, according to Faturrohman & Sutistiyori (2012), represents the learning outcomes that manifest as observable changes in learners' behaviour through their interactions with the learning environment. Hence, students' participation and achievement can be considered as interrelated aspects of the learning process.

Various factors influence students' participation and achievement, and one significant factor is classroom management. Classroom management encompasses the techniques and approaches employed by teachers to establish an environment conducive to effective learning. It involves planning, organizing, and structuring

learning activities to optimize the learning process (Afriza, 2014). One aspect of classroom management is the arrangement of students' seating, which focuses on how teachers position seats and desks as essential learning facilities. There exist several types of seating arrangements, including orderly rows, circle, horseshoe, separate tables, and solo-work setups, as described by Harmer (2007). Regardless of the seating arrangement chosen, flexibility is essential to ensure effectiveness and efficiency in learning activities (Scrivener, 2012). Therefore, teachers, who have the authority in determining seating arrangements, must carefully select the most suitable arrangement to facilitate learning and align with the instructional content and objectives of the course.

However, in practice, many public schools in Indonesia mainly adopt a single seating arrangement as their permanent setup, which is the orderly rows arrangement or also commonly known as the traditional seating arrangement. This arrangement positions students in pairs facing the teacher, with their backs turned toward other students. Such rigidity in seating arrangements is a prevalent feature observed in Indonesian public schools, including junior high school. However, this rigid approach contradicts the current curriculum in Indonesia, the 2013 curriculum, stated by Department of National Education (2022) which aims to introduce substantial changes in the learning process, providing students with a well-rounded and relevant education for the challenges of the 21st century. To align with the curriculum's focus on progressive changes in education, it is crucial to conduct a study that offers alternative seating arrangement options diverging from the traditional arrangement.

Weinstein (1979) highlighted that despite the existence of various seating arrangements that can be implemented in the classroom, schools and teachers often limited to only three types of seating arrangements: the traditional, separate tables, and horseshoe seating arrangements, primarily due to space limitations in the classroom. Thus, the objective of this study is to examine and compare students' participation and achievement potentials in less frequently utilized seating arrangements, specifically the separate tables and horseshoe arrangements, with the aim of presenting alternative seating options that can be implemented in the classroom.

The present study aims to answer two research questions i) Is there any significant difference in students' participation in English when placed in different seating arrangements? ii) Is there any significant difference in students' achievement in English when placed in different seating arrangements?

Students' participation is defined as a degree to which the students are involved in classroom activities and contribute their energy and thoughts to the implementation of these activities (Sukidin, 2008). Meanwhile, students' achievement defined as the results of learning activities can be communicated through different forms such as symbols, numbers, letters, and sentences that are used to measure and reflect the level of achievement attained by students within a particular period of time (Faturrohman & Sutistiyori. 2012).

Students' participation and achievements are two correlated things in the learning process. There are several evidences that support the link between classroom participation and academic success (Kerr, 1986; Finn 1989; Finn, 1992), which stated that the higher the level of students' participation, the better the achievement will be obtained for students.

Seating arrangements are one of the classroom management efforts carried out by teachers which will affect the teaching and learning process because seating arrangements that suit the needs of students will help them feel comfortable during the learning process (Afriza, 2014). There are various variations of seating arrangements that

can be applied by teachers in the classroom today. Harmer (2007) provided several variants of seating arrangements that can be applied in the classroom, which are: orderly rows; circle; horseshoe; separate tables; and solo work seating arrangements.

However, while there are various seating arrangements can be applied in the classroom, Weinstein (1979) suggests that teachers often face space limitations, leading them to primarily utilize three seating arrangements: orderly rows, separate tables, and horseshoe. Therefore, several research studies have been conducted to investigate and explore these seating arrangements. Hilal (2019) revealed that orderly rows arrangements cause students to pay more attention and concentrate on lectures, and the horseshoe arrangement causes them to participate more. German *et al* (2020) revealed that the highest students' achievement is found in the horseshoe seating arrangement, and the lowest is in the separate tables seating arrangement. Rogers (2020) stated that the horseshoe arrangement is chosen as the best for participating and learning in class in a fourth-grade classroom. Parena (2022) stated that students tend to be more anxious while seating on the horseshoe seating arrangement, while separate tables seating arrangement help students to express their opinion more confidently.

The previous studies have predominantly focused on examining student participation and achievement, but often with a limited scope. Many studies have primarily emphasized students' ability to participate in class discussions and voice their opinions. While these investigations have provided valuable insights into student engagement, they have overlooked the broader spectrum of learning activities and their impact on achievement. By extending the scope of the presents research to encompass all learning activities, this study aims to fill this gap in the literature and provide a more comprehensive understanding of how different types of seating arrangement can affect students' participation and achievement potentials.

II. METHOD

This study adopted a comparative experimental research design and a concurrent embedded mixed method research approach. The population of the study consisted of all second grade students of junior high school which was a total of 302 students, divided into 9 classes, in the academic year 2022-2023. The sample of the study of this study consisted of 2-second grade classes (VIII-A, and VIII-G), which was a total of 50 students selected through purposive random sampling. This grade level was chosen as a research sample due to second grade provides a crucial stage in students' academic journey, offering a well-rounded and balanced learning experience as well as freedom from high school preparations.

The study employed four different instruments: i) structured observation notes sheet; ii) close ended questionnaire; iii) open-ended questionnaire; iv) achievement test.

2.1 Structured observation notes sheet

Structured observation notes sheet was used to obtain students' participation potentials qualitative data based on the passive observations done during the research. This instrument consists of notes or records of students' participation from each group sample according to the real circumstances observed in the research setting during the study with a specific format or framework related to the variables observed. The format of this instrument followed Sardiman (2014) of students' participation in learning activities.

2.2 Close ended questionnaire

Close ended questionnaire was used to obtain students' participation potentials quantitative data. There are 20 items relating to students' possibilities to participate in various learning activities provided in this questionnaire. A four-point Likert scale was used to rate the items of the questionnaire. This instrument was given to each group sample once they finished the learning process of one English competency. This questionnaire was inspired by Sardiman (2014) of students' participation in learning activities.

2.3 Open ended questionnaire

Open ended questionnaire was used to obtain students' achievement qualitative data. There are 5 items relating to students' impressions on the issues of their achievement in their respective seating arrangement. This instrument was also given to each group sample once they finished the learning process of one English competency, just like the close ended questionnaire.

2.4 Achievement Test

Achievement Test was used to obtain students' achievement quantitative data. There are 15 items in this study that assessed the students' English competency, which they acquired while seated in their designated seating arrangements. This instrument was also given to each group samples once they finished the learning process of one English competency, just like the close ended, and open-ended questionnaires. This achievement test was inspired by Oxenden et al (2008).

This research was conducted for a duration of 2 weeks, with a total of 4 English lessons focusing on the English competency of creating greeting cards. The initial stage before data collection and analysis involved ensuring the validity of the research instruments. The validity assessment in this study consisted of two stages: content validity and construct validity. Content validity was assessed by compiling an outline for the research instruments to ensure accurate measurement of the targeted research variables. On the other hand, construct validity was determined by obtaining the opinions of experts (Sugiyono, 2013), including an English education lecturer from Mataram University and an English teacher from junior high school SMPN13 Mtm, who reviewed and validated the construct of the research instruments.

Once the research instruments were validated, the next step was data collection. The observation sheet was the first instrument used in this research and was implemented during 3 meetings before the use of questionnaires and test instruments to the students. The questionnaires and tests were given during the 4th and final meeting to complete the data collection process. After gathering all the data, the researcher conducted a reliability test. In this study, the reliability test utilized the internal consistency method, specifically Cronbach's alpha formula, which involved dividing the instrument into parts or components containing a certain number of items (Azwar, 2001).

Once the collected data were proven reliable, the next step was data analysis. Given the approach used in this study is a mixed method approach, there are both quantitative and qualitative data in this study, therefore, two distinct types of data analysis were conducted. The quantitative data analysis involved descriptive quantitative analysis, which entailed organizing the data into frequency distribution tables, and visualizing it using histogram graphs, then followed by conducting an independent sample t-test to determine any significant differences in students' participation and achievement. The qualitative data analysis utilized an interactive model proposed by Sugiyono (2013), which involved data reduction, data display, and data verification.

As this research used a concurrent embedded mixed-method research approach, both quantitative and qualitative data were collected and analyzed at the same time using primary and secondary methods. In this study, the quantitative data served as the primary database, while the qualitative data as additional data to support the quantitative data to address the research questions. Following the analysis of both data sets, the next step involved combining the data analysis results to determine if the data supported or contradicted each other. Based on this integration, the research provides a final answer to the research questions.

2.5 Study limitation

One limitation of this study is that it focuses solely on the effect of seating arrangements on students' participation and achievement potentials. Therefore, it is important to acknowledge that there may be other factors influencing students' participation and achievement that were not detected or considered in the context of different seating arrangements. Factors such as individual student characteristics, teaching methods, classroom environment, and social dynamics could potentially contribute to variations in student outcomes but were not specifically investigated in this study. Future research could explore the interplay of these additional factors to provide a more comprehensive understanding of the factors influencing students' participation and achievement in educational settings

III. RESULTS AND DISCUSSION

3.1 Students' Participation

To address the research question regarding students' participation in different seating arrangements (separate tables and horseshoe), this section presents the findings from both the quantitative and qualitative data of students' participation in each arrangement.

3.2 Quantitative Data

The students' participation data from a close-ended questionnaire is classified into four (4) categories based on the responses, each with a different score: strongly disagree (score of 1), disagree (score of 2), agree (score of 3), and strongly agree (score of 4). The following is the closed-ended questionnaire mean scores frequency distribution table.

Table 1 Closed-ended questionnaire mean scores frequency distribution table

No	Classification	Mean Scores	Frequency	
			Group 1 (Separate tables)	Group 2 (Horseshoe)
1	Strongly Agree	4	1	1
2	Agree	3	16	15
3	Disagree	2	3	4
4	Strongly Disagree	1	0	0

The following is a histogram graph that is employed to visualize or show the classification of every questionnaire item according to its mean score.

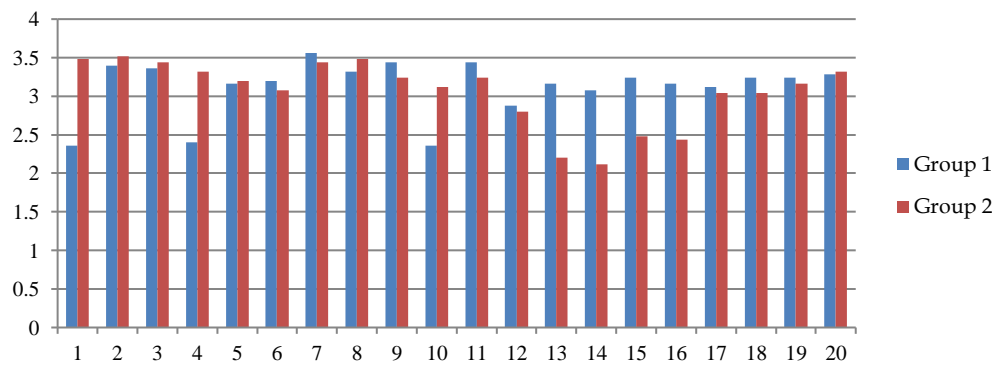


Figure 1 Closed-ended questionnaire mean scores histogram graph

After organizing the data into a frequency distribution table and creating a histogram graph, the next stage of analysis involves hypothesis testing regarding whether there is any significant difference on students' participation in different seating arrangements or not. In this study, hypothesis testing was conducted using an independent sample t-test. The table below presents the results of the t-test for independent samples.

Table 2 Close-ended questionnaire statements item that shows significant difference

Num.	Indicators	Statements	Mean Score		Significance
			G1	G2	
1	Visual	Able to see the board	2.36	3.48	<0.001
4	Activities	Able to pay attention on the whole learning process	2.4	3.32	<0.001
10	Writing Activities	Able to write down lesson material	2.36	3.12	<0.001
Num.	Indicators	Statements	Mean Score		Significance
			G1	G1	
13	Motoric Activities	Able to move freely	3.16	2.2	<0.001
14	Motoric Activities	Able to do various activities	3.08	2.12	<0.001
15	Mental	Able to understand the lesson	3.24	2.48	<0.001
16	Activities	Able to memorize the lesson	3.16	2.44	<0.001

Table 3 Close-ended questionnaire statements item that shows no significant difference

Num.	Indicators	Statements	Mean Score		Significance
			G1	G2	
2	Visual	Able to see the teacher clearly	3.40	3.52	0.202
3	Activities	Able to read the lesson material	3.36	3.44	0.313
5	Oral	Able to express opinion	3.16	3.2	0.375
6	Activities	Able to ask questions	3.2	3.08	0.150
7		Able to do discussion	3.56	3.44	0.203
8	Listening Activities	Able to listen to the teachers' explanation	3.32	3.48	0.129
9		Able to listen to other students' opinion	3.44	3.24	0.118
11	Writing	Able to do assignments	3.44	3.24	0.071
12	Activities	Able to do test	2.88	2.8	0.317
17	Mental activities	Able to finish assignment	3.12	3.04	0.284
18		Feel happy to seat in the arrangement	3.24	3.04	0.124

19	Emotional	Interested to learn in the arrangement	3.24	3.16	0.158
20	Activities	Feel bored when learning in the arrangement	3.28	3.32	0.382

The analysis of the questionnaire data revealed interesting findings. Out of the 20 items in the close-ended questionnaire, 7 items showed significant differences between the two groups being compared, while 13 items did not show a significant difference. Specifically, significant differences were observed in various indicators such as visual, writing, motoric, and mental activities. These indicators reflected students' potentials to be able to see the board, pay attention to the learning process, write down notes, move freely, engage in different activities, and understand and memorize lessons better. The calculated significant values (P0) for these statements were less than ($<$) 0.001, indicating the presence of significant differences in students' participation potentials in these areas. However, when it comes to oral, listening, and emotional activities, the data showed no significant differences between the two groups. The calculated significant values for these statements were greater than ($>$) 0.05, suggesting no significant differences in these indicators' statements. In conclusion, the quantitative data analysis demonstrates that there are significant differences in students' participation potentials in English when placed in different seating arrangements, specifically in the areas of visual, writing, motoric, and mental activities, among second-grade students at SMPN13 Mtm.

3.3 Qualitative Data

In students' participation qualitative data that was collected through observations. it was found that both seating arrangements (separate tables and horseshoe arrangements) presented several limitations on students' participation potentials in several indicators. The following is the limitation on students' participation potentials in both seating arrangements.

a. Separate table seating arrangements

- (1) Visual activities indicator: Students who sat back facing the board experienced challenges in reading from the teacher's board presentations.
- (2) writing activities indicators: writing activities indicators: Students who sat back facing the board experienced challenges in writing down notes from the teacher's board presentations.

b. Horseshoe seating arrangement

- (1) Motoric activities indicator: students seated in the middle of the second row had restricted movement due to the blocked space on their right and left sides. Based on the observation, the limitations seem to be caused by classroom condition and facilities such as classroom size, tables, and chairs that do not support the changing of seating arrangements. Nonetheless, despite these shortcomings, both seating arrangements still demonstrated high levels of students' participation potentials in other indicators such as oral and listening activities indicators.

3.4 Students' achievement

To address the research question regarding students' achievement in different seating arrangements (separate tables and horseshoe), this section presents the findings from both the quantitative and qualitative data of students' achievement in each arrangement.

3.5 Quantitative data

The students' achievement data from the test results are classified into five (5) categories based on the scores obtained: very good (score of >85), good (score of 80-85),

fair (score of 75-80), poor (score of 65-75), and very poor (score of <65). The following is the frequency distribution table of students' achievement test.

Table 4 Frequency distribution table of students' achievement test				
Num.	Score	Group 1 (Separate tables)	Group 2 (Horseshoe)	Classification
1	>85	20	9	Very good
2	80-85	5	4	Good
3	75-80	-	6	Fair
4	65-75	-	6	Poor
5	<65	-	-	Very Poor

The following is a histogram graph that is employed to visualize or shows the physical appearance of the data obtained from students' achievement test frequency distribution table above.

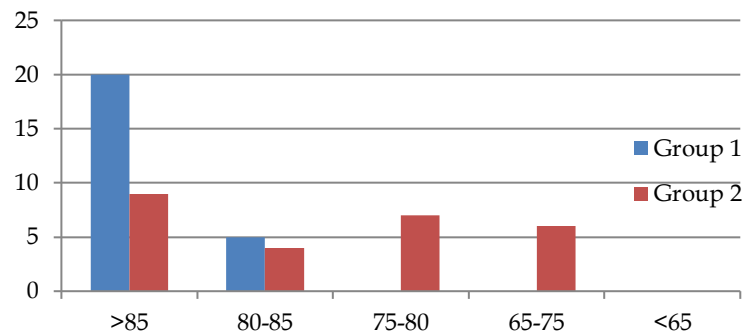


Figure 2 Histogram graph of student's achievement test results

After organizing the data into a frequency distribution table and creating a histogram graph, the next stage of analysis involves hypothesis testing regarding whether there is any significant difference on students' achievement in different seating arrangements or not. In this study, hypothesis testing was conducted using an independent sample t-test. The table below presents the results of the t-test for independent samples.

Table 5 Student's achievement data independent samples t-test result											
		Independent Samples Test									
		Levene's Test for Equality of Variances				t-test for Equality of Means					
		F	Sig.	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Students' achievement	Equal variances assumed	7.863	.007	3.614	48	<.001	<.001	8.560	2.368	3.798	13.322
	Equal variances not assumed			3.614	39.860	<.001	<.001	8.560	2.368	3.773	13.347

During the analysis of the test results, it was found that the calculated significant value (P_0) for students' achievement was less than ($<$) 0.001, which is below the significance level of 0.05. According to the test criteria, this indicates a significant difference in students' achievement between the two seating arrangements. Specifically, students' achievement in the separate tables seating arrangement was higher compared to students' achievement in the horseshoe seating arrangement. Based on the quantitative data analysis, it can be concluded that there is a significant difference in students' achievement in English when they are placed in different seating arrangements among the second-grade students of the school observed.

3.6 Qualitative data

Students' achievement qualitative data that was collected through open ended questionnaire, the following table shows the conclusions that can be drawn from the majority of students' opinions regarding their achievement in their respective seating arrangements.

Table 5 conclusions of open-ended questionnaire results

No	Questions	Agree (✓) / disagree (X)	
		Separate Tables (G1)	Horseshoe (G2)
1	Help mastering the lesson	✓	X
2	Help finishing assignment	✓	✓
3	Help while doing test	✓	✓
4	Help improving learning achievement	✓	X
5	Choosing the arrangement as a permanent arrangement	✓	X

It was discovered that Group 1 students assigned to separate tables reported that this arrangement aided their comprehension, assignment completion, test performance, and academic success. They expressed a preference for this seating arrangement as a permanent option. In contrast, group 2 students assigned to a horseshoe arrangement felt that it helped with assignments and tests but did not enhance their understanding or contribute to academic improvement. Most students in this group did not prefer the horseshoe arrangement as a permanent option.

3.7 Students' participation

The combined analysis of quantitative and qualitative data revealed that there were differences on student's participation potentials on several areas on students' participation. The closed-ended questionnaires indicated that students in the separate tables' arrangement had lower participation potential levels in visual and writing activities, while students in the horseshoe arrangement had lower participation potential levels in motoric and mental activities.

The independent sample t-test showed statistically significant differences in the visual, writing, motoric, and mental activities indicators areas with P_0 less than ($<$) 0.05. However, no significant differences were found in oral, listening, and emotional activities indicators with P_0 of the indicators being more than ($>$) 0.05. Observation highlighted limitations in both seating arrangements, such as inadequate classroom facilities and size constraints.

These limitations were identified as significant obstacles to effective seating arrangements. In line with previous research by Parena (2022), students in the separate tables arrangement faced challenges such as having to turn their backs towards the teacher to receive instructions. Students in the horseshoe arrangement experienced limitations in facilitating motoric activities due to classroom size constraints.

Despite these limitations, both seating arrangements demonstrated relatively high levels of student participation potentials in other observed indicators such as oral and listening activities, with no significant differences between them. This alignment between the closed-ended questionnaire results and observations strengthens the overall findings. Therefore, it can be concluded that there are significant difference on students' participation potentials on certain areas when placed in different seating arrangements.

The results unequivocally demonstrate that the limitations experienced in both seating arrangements primarily stem from substantial deficiencies in classroom facilities and conditions. These deficiencies act as significant obstacles that hinder the optimal utilization of seating arrangements, thereby reducing their effectiveness. By improving the quality of facilities and classroom conditions, these limitations can be mitigated, allowing for better utilization of seating arrangements.

3.8 Students' achievement

The combined analysis of qualitative and quantitative data revealed there was a significant difference on students' achievement when placed in different seating arrangements. The test results indicated that students in the separate tables arrangement had higher achievement compared to students in the horseshoe arrangement. This finding contradicts the results of a previous study by German et al. (2020), which reported that the horseshoe seating arrangement resulted in higher achievement.

The difference in results could be attributed to various factors. In this study, all students had been classmates for approximately a year, which allowed them to become familiar with each other and the seating arrangement. Additionally, the research subjects were given time to adjust to the seating arrangement before the test was conducted. In contrast, the study by German et al. (2020) involved students from different schools who were not as familiar with their classmates or the seating arrangement. These factors may have influenced the outcomes.

The open-ended questionnaire findings further supported the test results. Students in the separate tables arrangement expressed that it assisted them in mastering lessons, completing assignments, and improving their learning achievement. On the other hand, students in the horseshoe arrangement felt that it only made assignments and tests easier but did not contribute to mastering lessons or improving learning achievement. Consequently, the majority of students in both groups preferred the separate tables arrangement as a permanent seating option.

Based on the test and open-ended questionnaire findings, it can be concluded that the separate tables seating arrangement is associated with higher student achievement compared to the horseshoe seating arrangement. Therefore, teachers can consider implementing the separate tables arrangement to enhance students' academic performance.

Overall, the selection of an appropriate seating arrangement, whether separate tables or horseshoe, should be based on the specific aspects of students' participation and desired outcomes. It is also crucial to consider other factors that can influence seating arrangement effectiveness, including students' conditions and the overall classroom environment, including facilities. By taking these factors into account, teachers can maximize the benefits of seating arrangements and effectively enhance student participation and achievement.

Based on the discussion above, it can be concluded that the selection of the appropriate seating arrangement between separate tables and horseshoe arrangements depends on the specific aspects of students' participation that are intended to be prioritized during the learning process. In terms of achievement, the separate tables

arrangement can be considered as a seating option to enhance students' academic performance. Additionally, this research highlights the importance of considering other factors that can influence the effectiveness of seating arrangements, including students' conditions and the overall classroom environment, including facilities. By taking these factors into account, the utilization of seating arrangements (separate tables and horseshoe) can be maximized and effectively implemented as additional seating arrangement options in the classroom, ultimately improving students' participation and achievement.

IV. CONCLUSION

The study revealed that there are significant differences in students' participation potentials in specific areas when seated in different arrangements (separate tables and horseshoe), these areas are visual, writing, motoric, and mental activities indicators areas. Based on the findings and discussion it was found that student when students were seated at separate tables, their participation possibilities were higher in motoric and mental activities indicators, and when seated in a horseshoe arrangement, their participation shows higher possibilities in visual and writing activities indicators. However, despite these differences, both arrangements show no significant difference on students' participation potentials in the listening oral, and emotional activities indicators. This suggests there are significant differences in students' participation potentials across several indicators while remaining relatively the same in others when placed in different seating arrangements thus it can be used by teachers in order to improve students' participation areas that are intended to be prioritized during the learning process.

This study also revealed that there is a significant difference in students' achievement when seated in different arrangements (separate tables and horseshoe). Based on the findings and discussion it was found that students seated in separate tables arrangement exhibited higher academic achievement compared to those in a horseshoe seating arrangement. Therefore, it can be concluded that there is a significant difference in students' achievement when placed in different seating arrangements, thus it can be used by teachers in order to improve students' achievement.

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