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Classroom Seating Arrangement and Learners' Engagement in Governor Generoso South District

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Abstract. The study examined the relationship between classroom seating arrangement and Grade 3 learners' engagement in Gov. Generoso South District, Davao Oriental Schools Division. It employed a non-experimental descriptive-correlational research design, using an adapted survey instrument to collect responses from randomly selected teachers. Mean scores with descriptive interpretations, Pearson r, and Simple Linear Regression Analysis were utilized for data analysis. The findings indicated that classroom seating arrangements, particularly in terms of accessibility and visual and auditory comfort, were often manifested. Social interactions and behavioral disruptions were sometimes observed, while teacher-student proximity was moderately extensive and infrequently noted. Learners' engagement, including interest level, in-class behavior, attention span, and participation rate, were often observed, with participation rate occasionally noted and moderately extensive. A significant correlation was found between classroom seating arrangement and learners' engagement. All aspects of classroom seating arrangement—accessibility, behavioral disruptions, social interactions, teacher-student proximity, and visual and auditory comfort—significantly influenced learners' engagement. Future research could explore the long-term effects of specific seating arrangements on students' academic performance and social development.

KEY WORDS

1. classroom seating arrangement 2. learners' engagement 3. attention span

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1. Introduction

Classroom seating arrangements are essential for creating an effective learning environment. They emphasize visibility, comfort, accessibility, and variety to cater to diverse student needs and enhance engagement. The trends shift towards flexible and collaborative arrangements to foster active learning and address varied student demographics. However, challenges such as accommodating diverse learning styles, integrating technology, and managing overpopulated classrooms persist, requiring innovative solutions to maintain educational quality and inclusivity. Classroom seating arrangement principles are foundational guidelines underpinning the organization of a productive and engaging learning environment. These principles are designed to optimize the educational experience for learners. Visibility is a fundamental principle, ensuring that every student has an unobstructed view of the teacher and instructional materials, which is crucial for effective communication and understanding. Comfort is an-

other vital consideration, with ergonomically designed furniture supporting physical well-being and minimizing potential distractions (Longmuir, 2023). Accessibility is key to accommodate all learners, including those with disabilities, emphasizing inclusivity. The principle of variety introduces flexibility, allowing educators to adapt seating arrangements to different learning activities and styles, maintaining learners' interest and engagement. Grouping learners encourages collaboration and fosters a sense of community. Classroom management principles guide the arrangement to minimize disruptions and assist the teacher in maintaining a focused learning environment. Adaptability is crucial to cater to diverse teaching methods, while personal space and technology integration address learners' individual needs and the use of digital resources (Lee et al., 2023). Lastly, creating a psychologically comfortable atmosphere promotes a cheerful classroom ambiance, contributing to a conducive learning environment. These principles collectively play a crucial role in shaping the dynamics and effectiveness of classroom seating arrangements. In the international education setting, classroom seating arrangements and learners' engagement have become increasingly significant trends and issues in recent years. As educators recognize the importance of creating dynamic and interactive learning environments, traditional fixed-row seating layouts are giving way to more flexible configurations. Collaborative arrangements, such as circular seating or group tables, are on the rise, promoting peer interaction and active learning. The focus has shifted from passive listening to active participation, as technology and diverse teaching methods become integral components of education. However, challenges also emerge, such as addressing the diverse learning styles and needs of international learners and ensuring that these novel seating arrangements are conducive to learning across cultures (Li et al., 2022). Moreover, as digital technology plays a larger role in the classroom, finding ways to maintain learners' engagement while minimizing potential distractions is a growing concern. Overall, the trends and issues surrounding classroom seating arrangements and learners' engagement in the international education context reflect a dynamic shift towards more student-centered, interactive, and adaptable learning environments that respond to the changing needs and expectations of a global student population (Jaime-Diaz, 2020). In the context of the Philippine K to 12 curriculum, classroom seating arrangements and learners' engagement are witnessing significant trends and issues. Recent educational reforms have emphasized learner-centered pedagogies, which has led to the adoption of more flexible and collaborative seating arrangements. The move away from traditional fixed-row seating toward group tables and circular arrangements is designed to encourage peer interaction, active learning, and discussions that align with the curriculum's goals (Liu, et.al., 2023). However, challenges persist, such as accommodating the diverse learning styles and needs of learners within a class, as the Philippines is known for its diverse student population. Moreover, integrating technology into the classroom setting and ensuring it enhances, rather than detracts from, learner engagement is a pressing concern. These trends and issues reflect a shift toward more dynamic and interactive learning environments but also underscore the importance of addressing the unique challenges faced within the Philippines' K to 12 education system. Governor Generoso South District, like many educational institutions, faces significant challenges due to overpopulated classrooms. One of the primary issues is the strain on resources, particularly in terms of physical space, as accommodating a large number of learners in a limited area can lead to overcrowded classrooms. This overcrowding can hinder learners' ability to focus, engage in discussions, and participate effec-

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tively in class activities. Additionally, teacher-student ratios may become unfavorable, making it more challenging for educators to provide individualized attention and support, impacting the quality of education. The overpopulation of classrooms may also lead to resource shortages, including insufficient textbooks and materials and even a lack of suitable seating, creating an uncomfortable learning environment. Addressing these challenges necessitates a comprehensive approach, including the construction of additional classrooms, hiring more qualified teachers, and adopting innovative teaching methods to ensure that every student receives a quality education despite the population constraints.

2. Methodology

Research method refers to the systematic approach or strategy that researchers use to conduct their investigations. It outlines how data was gathered, analyzed, and interpreted in a structured way to answer research questions and achieve research objectives. Essentially, it was the plan or roadmap for a research study. In this context understanding the research method was essential for both researchers and readers as it determines the validity and reliability of the study's findings and contributes to the broader body of knowledge in the field of inquiry. This aimed to elucidate the key components and considerations associated with the chosen research method, setting the stage for a comprehensive exploration of the research methodology employed in the study.

2.1. Research Design—The non-experimental descriptive-correlational and predictive research design was a comprehensive research approach that combined several key elements. It was non-experimental, for it does not involve the manipulation of variables or establishing a cause-and-effect relationship. Instead, it focuses on observing and measuring existing phenomena as they naturally occur. Second, it was descriptive in nature, aiming to provide a detailed and systematic account of a particular subject or topic. This involves collecting data through surveys, observations, or existing records to describe and summarize the characteristics, behaviors, or conditions under investigation. Third, it was correlational, which means it seeks to identify relationships or associations between variables. This involves analyzing data to determine whether changes in one variable were related to changes in another, without implying causation. Lastly, it is predictive, as it often aims to make informed predictions or forecasts based on the identified correlations. By understanding the relationships between variables, researchers could use this knowledge to make reasonable predictions about future outcomes or trends (Monaghan et al., 2021). In the study of the relationship between classroom seating arrangement and learners' engagement, a non-experimental, descriptive-correlational, and predictive research design was employed to examine and understand the connections between these two variables. Non-experimental research does not involve the manipulation of variables but rather observes and describes naturally occurring phenomena. In this context, it allows researchers to investigate how seating arrangements are typically configured in classrooms and how they relate to learners' engagement. The descriptive aspect involves collecting data to describe the current seating arrangements and engagement levels, providing a detailed snapshot of the situation. The correlational element assessed whether there was a statistical relationship between classroom seating and engagement. By gathering data on seating arrangements and learners' engagement scores, researchers could determine if any

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patterns or associations exist. For instance, they may find that certain seating configurations were associated with higher or lower levels of engagement. Lastly, the predictive component allows researchers to make informed predictions about learners' engagement based on the identified correlations. This was valuable for educators and administrators who could use this information to make more informed decisions about classroom layouts and configurations to enhance student engagement. Overall, a non-experimental descriptive-correlational and predictive research design was a powerful tool for shedding light on how classroom seating arrangements impact learners' engagement and guiding potential changes to optimize the learning environment.

2.2. Research Respondents—The study's respondents were the elementary school teachers in Gov Gen South District, Davao Oriental area. She used the Raosoft sample size calculator, and 120 teacher-respondents were taken randomly from each school surrounding the area. After being selected through randomization, respondents were notified both online and in person, taking into account the availability of Wi-Fi connections. Additionally, they received an orientation regarding the study's objectives and its significance in relation to their professional development. The selection of teacher-respondents was based on the assumption that they are actively involved and presently handling Grade 3 and or Elementary Level learners. They were expected to have a strong engagement with the curriculum implementation policy and pedagogical classroom activities, as well as the day-to-day management and execution of various school-based learning programs, projects, and activities designed to enhance early learners' development within the framework of school-based management. The qualifications for participation in this study were rooted in the expectation that they had made significant contributions, extending beyond their primary roles in curriculum delivery, implementation, and governance, by actively participating in various educational activities. These contributions were typically discussed during school faculty meetings, group sessions, and committee meetings, all with the goal of improving the school environment and learners' educational experiences during the new normal learning system in the academic year 2023-2024. Further, they have frequently engaged in various activities and advocacy-policy through school-based initiatives and in support to the school management and curriculum development delivery system. Moreover, assumptions in the respective schedule of classes during data collection were explicitly discussed with the respondents, and even observance of health protocol was strictly implemented based on Executive Order 31 S 2020 to avoid possible and lower the risk of contamination.

2.3. Research Instrument—The instrument employed in this research study was meticulously crafted through a comprehensive review of existing literature and related studies. The researcher dedicated substantial effort to gathering and analyzing relevant literature, extracting key concepts that not only guided the instrument's development but also fortified its alignment with the designated strands. This thorough procedure contributed to the creation of a well-structured set of questionnaire items, thereby bolstering the overall validity of the instrument and mitigating potential challenges to its reliability. The authors argued that items were adapted from the reviewed literature. The survey questionnaire had two parts, each consisting of indicators of classroom seating arrangement in terms of accessibility, behavioral disruptions, social interactions, teacher-student proximity, and visual and auditory comfort. Likewise, the second part of the survey measured the learners' engagement in terms of participation rate, attention span, interest level, and in-class behavior. Further, the survey statements were sub-

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jected to a test-retest or validity and reliability testing using Cronbach Alpha at a .05 level of confidence and generated an alpha Cronbach of 0.886, which means that 88.6 percent level of confidence in the validity and reliability of the survey statement constructs (Sürücü Maslakçi, 2020). The questionnaire used a 5-point Likert scale to determine the extent of classroom seating arrangement. Scale, descriptive rating, and interpretation were provided:

Scale	Descriptive Rating	Interpretation
4.20 – 5.00	Very Extensive	The classroom seating arrangement is always manifested
3.40 – 4.19	Extensive	The classroom seating arrangement is oftentimes manifested
2.60 – 3.39	Moderately Extensive	The classroom seating arrangement is sometimes manifested
1.80 – 2.59	Less Extensive	The classroom seating arrangement is rarely manifested
1.00 – 1.79	Not Extensive	The classroom seating arrangement is not manifested

Meanwhile, to determine the extent of learners' engagement, a 5-point Likert scale was used in this study, as presented below;

Scale	Descriptive Rating	Interpretation
4.20 – 5.00	Very Extensive	The learners' engagement is always manifested
3.40 – 4.19	Extensive	The learners' engagement is oftentimes manifested
2.60 – 3.39	Moderately Extensive	The learners' engagement is sometimes manifested
1.80 – 2.59	Less Extensive	The learners' engagement is rarely manifested
1.00 – 1.79	Not Extensive	The learners' engagement is not manifested

2.4. Data Gathering Procedure—The statements provide a clear overview of the sequential steps that define the data collection process. It was imperative that the researcher carefully consider and strictly follow these steps, adhering to the policies of Rizal Memorial Colleges. Permission to conduct the study. The researcher initiated the process of conceptualizing the content and objectives of the thesis proposal. Subsequently, she prepared various documents, including request letters, in preparation for the study. The research study strictly adhered to established ethical data collection procedures, as Creswell (2004) outlined. As the research proposal was approved by the panel of members and the college dean in the last week of February to the first week of March 2024, the researcher composed and submitted a formal letter seeking permission to collect data and conduct the study within Gov Gen South

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District to the office of the Schools Division Superintendent of Davao Oriental, following the proper channels. Distribution and retrieval of the questionnaire. In May 2024, the researcher prepared and created a Google sheet form for the online survey collection process, which was sent to the randomly selected respondents via email addresses and to respondents who do not have access to the internet. Likewise, a prepared hard copy of the survey sheets was given to each of them. Once done, link was sent, and right away responses were generated, thus, ready for sorting, analyzing, and interpreting. This activity was done right after the approval of the Schools Division Superintendent to proceed in data gathering which commenced on the third week of May 2024. Collation and statistical treatment of data. Results of the preliminary analysis were given to the thesis adviser during the second week of June 2024. For coaching and in terms of statistical treatment the thesis adviser sought the assistance of the graduate school statistician for providing technical discussions in running the data and its interpretations and implications of the study, sometime on the first week of June 2024, and further deepening the analysis to make more meaning with the interpretations of results on the second week of June 2024.

2.5. Data Analysis—Mean scores and standard deviation were used to address statement problems posed in number one (1) extent of classroom seating engagement, and statement problem number two (2) on the learner's engagement. Pearson Product Moment Correlation Coefficient or Pearson-r was used to determine its strength / direction significant relationship between classroom seating engagement and learner's engagement. Simple Linear Regression analysis was used to address statement problem number 4 on the indicators of classroom seating engagement that significantly influence learner engagement (Montgomery et al., 2021). All data processing and analysis were performed using Jeffrey's Statistics Amazing Program (JASP) version 0.12.20. When results were yielded, discussions and interpretations followed.

3. Results and Discussion

This chapter presents the responses from the data gathered in tabular and textual form. It includes discussions of the results based on and integration with reviews of the related studies. This were the basis for the decisions to be made given the hypothesis posed.

Summary of the Extent of Classroom Seating Arrangements

Table 1 summarizes the extent of classroom seating arrangement. The result is focused on the highest and lowest mean ratings of indicators, which are as follows: accessibility (3.54) and visual and auditory comfort (3.46) are often manifested; social interactions (3.16) and behavioral disruptions (2.86) are sometimes manifested, and teacher-student proximity (2.56) is rarely manifested. The overall mean rating of 3.11 denotes that the extent of classroom seating arrangement is sometimes manifested; thus, it is moderately extensive.

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Table 1. The Summary of the Extent of Classroom Seating Arrangements

No	Classroom Seating Arrangements	Mean	Descriptive Equivalent
1	Accessibility	3.54	Extensive
2	Behavioral Disruptions	2.86	Moderately Extensive
3	Social Interactions	3.16	Moderately Extensive
4	Teacher-Student Proximity	2.56	Less Extensive
5	Visual And Auditory Comfort	3.46	Extensive
	Overall Mean	**3.11**	**Moderately Extensive**

This finding was supported by Hardiansyah and Abuyamin (2022), who determined if a specific classroom seating arrangement can contribute to learners being on or off-task while completing independent work within the general education setting of an inclusive second-grade class. This study compared three classroom seating arrangements in a second-grade classroom. These seating arrangements were cluster seating, horseshoe seating, and row seating. Specific targeted off-task behaviors were to be observed: inappropriate talking, learners out of their seats without permission, learners not following directions, and learners not starting independent work promptly. This results revealed the number of learners who displayed off-task behaviors and the specific number of times these behaviors happened during each seating arrangement. It was determined that row seating had the fewest off-task behaviors for this particular second-grade class was row seating. It was also determined that inappropriate talking was the most frequently occurring off-task behavior, and not following directions was the least off-task behavior observed. For this particular classroom, row seating was the best classroom arrangement. Implications of differing seating arrangements will be discussed. Inclusive education has brought new challenges for teachers, including searching for a suitable classroom place for children with externalizing problems. Garrote et al. (2020) examined whether a careful rearrangement of the classroom seats could promote social acceptance and more prosocial behaviors for children with externalizing problems and limit the potential negative consequences for classmates sitting next to them. Results showed that over time, children with externalizing behavior were better liked by their seatmates and showed fewer externalizing problems, according to the teacher. This was particularly the case when learners sat next to a well-liked and prosocial buddy or were initially disliked. Classmates who sat beside children with externalizing problems did not become more aggressive or less prosocial over time.

The Summary of the Extent of Learners' Engagement

Table 2 summarizes the extent of learners' engagement. The result is focused on the highest and lowest mean ratings of indicators, which are as follows: interest level (3.52), in-class behavior (3.50), and attention span (3.42) are often manifested, while participation rate (3.02) is sometimes manifested. The overall mean rating of 3.36 denotes that the extent of implementation of the disciplinary challenges index is sometimes manifested; thus, it is moderately extensive.

These results suggest that engaged learners exhibit a genuine interest in the subject matter, ask questions, make connections, and actively seek to understand and master the mate-

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Table 2. Summary of the Extent of Learners' Engagement

No	Learners' Engagement	Mean	Descriptive Equivalent
1	Participation Rate	3.02	Moderately Extensive
2	Attention Span	3.42	Extensive
3	Interest Level	3.52	Extensive
4	In-Class Behavior	3.50	Extensive
	Overall Mean	**3.36**	**Moderately Extensive**

rial. They are motivated and self-directed and display a sense of curiosity and enthusiasm for learning. Learners' engagement extends beyond mere compliance with classroom activities; it reflects a deep commitment to knowledge acquisition and a desire to make the most of the educational experience. Engaged learners are more likely to retain information, perform better academically, and develop critical thinking and problem-solving skills, making learner engagement a central goal in effective education. The concept of learner engagement has traditionally been examined in the field of education and it has been found to be associated with positive educational outcomes. While several studies in second language acquisition have looked at learner engagement with corrective feedback, there is a dearth of research investigating its relevance to successful language learners and effective language learning. At each stage of the learning process, three major types of engagement were observed: behavioral, affective, and cognitive. Individual and contextual factors that influenced learner engagement with language learning were also identified. The findings of this study suggest that the integration of the three types of learner engagement with L2 learning goals, tasks, and context is conducive to effective language learning. The study concludes with pedagogical implications for L2 teachers and learners (Zhang, 2022). This finding is supported by Liu et al., (2023) aims to examine how incorporating gamification elements into an offline training program influences learner engagement and learning outcomes in a non-academic, organizational setting. Training content, which was the same in both groups, included disease-related information, diagnostic expertise and product operational assistance. Participants in the treatment group had higher levels of learner engagement in comparison to those in the control group. Additionally, participants in the GL group had outperformed their counterparts in the control group on the knowledge and skills assessment. This is one of the first studies demonstrating how incorporating gamification elements into corporate training can improve medical sales representatives' learner engagement and learning outcomes.

Significant Relationship Between Classroom Seating Arrangement and Learners' Engagement

It can be depicted that Pearson's Correlation generated a significant correlation between classroom seating arrangement (r=0.859; p¡.000) and learners' engagement. Table 3 flaunts the yielded results of the significant relationship between classroom seating arrangement and learners' engagement. It provides information that the posed null hypothesis stating that there is no significant correlation between classroom seating arrangement and learners' engagement must be rejected, for it provides empirical evidence of significant results.

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Table 3. Significant Relationship between Classroom Seating Arrangement and Learners' Engagement

Variables	Classroom Seating Arrangement	r-value	p-value	Interpretation	Decision
Learners' Engagement		0.859	¡0.000	Significant	Reject H0

**Significant @ p¡0.05.*

The classroom seating arrangement plays a crucial role in shaping the dynamics of student engagement and overall learning outcomes. A well-thought-out seating plan can significantly impact the level of interaction, participation, and focus among learners. One key aspect is the facilitation of communication and collaboration. When learners are seated in a way that promotes easy interaction, such as in small groups or facing each other, it fosters a sense of community and encourages collaborative learning (Furner et al., 2021). On the other hand, Andujar et al., (2020) explores that a teacher may strategically position learners based on their learning styles and preferences. For instance, visual learners may benefit from sitting closer to instructional materials, while kinesthetic learners might thrive in areas that allow movement and hands-on activities. Moreover, the seating arrangement can influence classroom management, as strategically placing more distracted learners in areas with fewer distractions may enhance their concentration. Flexibility in seating arrangements, such Thoyibi, et.al., (2021) aimed as rearranging desks for different activities, adds an element of novelty and adaptability to the learning environment, keeping learners engaged. In essence, the relationship between classroom seating arrangement and learners' engagement is multifaceted, impacting social interactions, individual learning preferences, and overall classroom dynamics.

Domains of Classroom Seating Arrangement Significantly Influence Learners' Engagement

Table 4 depicts the simple regression coefficient analysis on the domains of the classroom seating arrangement's significant influence on learners' engagement. Domains of classroom seating arrangement in terms of accessibility (0.000), behavioral disruptions (0.001), social interactions (0.000), teacher-student proximity (0.000) and visual and auditory comfort (0.001) suggest significant influence over learners' engagement. Meanwhile, the R2 value of 0.878 suggests that the learners' engagement, is explained by 87.8 percent of classroom seating arrangement. This provides empirical evidence that variability of learners' engagement can be accounted and be explained by the domains of classroom seating arrangement. In addition, the F-value shows all the sums of squares, given regression being the model and Residual being the error. The F-value (264.857) and F-statistic are significant p¡.001, which tells that the model is significantly a better predictor of the learners' engagement.

The domains of classroom seating arrangement exert a profound influence on learners' engagement, encompassing physical, social, and psychological aspects. In the physical domain, the arrangement of desks and seating can impact the visibility and accessibility of instructional materials, creating an environment that either facilitates or hinders learning. Travers and Carter (2022) said that adequate spacing and clear sightlines contribute to a comfortable and conducive learning space. Socially, the seating arrangement determines the nature

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Table 4. Regression Coefficient Analysis on Domains of Classroom Seating Arrangement Significantly Influence Learners' Engagement

Model	B	Beta	Standard Error	p-value	Decisions
H	(Intercept)	4.145	0.079	60.416	0.001
H	(Intercept)	0.313	0.175	1.066	0.270
	Accessibility	0.227	0.107	0.102	1.010
	Behavioral Disruptions	0.211	0.108	0.136	1.299
	Social Interactions	0.222	0.097	0.210	2.098
	Teacher-Student Proximity	0.242	0.097	0.210	2.098
	Visual and Auditory Comfort	0.257	0.107	0.102	1.010

R^2 = 0.878

F-value = 264.857

p-value = ¡0.001

**Significant @ p¡0.05*

and frequency of student interactions. Strategically grouping learners, such as in clusters or pairs, can enhance collaborative learning experiences and foster communication and teamwork. Conversely, Alesech and Nayar (2021) a well-thought-out arrangement can also offer individual learners the space they need for focused, independent work. In the psychological domain, the seating plan can influence the emotional and cognitive engagement of learners. For instance, seating a student in close proximity to the teacher may provide a sense of support and encouragement, while also minimizing potential distractions. Additionally, Gao et al., (2022) shared that allowing learners some control over their seating choices can contribute to a sense of autonomy and personal investment in the learning process. In essence, the domains of classroom seating arrangement significantly intertwine with learners' engagement, impacting their physical comfort, social interactions, and psychological well-being in the educational setting.

4. Conclusions and Recommendations

In this chapter, the outcomes, conclusions, and recommendations are delineated in accordance with the analyzed and discussed data, along with the implications drawn from the findings. The findings emanate from the articulated statement of the problem, while the conclusions are derived from the resultant findings. The recommendations, in turn, are formulated based on the implications gleaned from the discussions.

4.1. Findings—The following were the findings of the study given the results in the presentation, analysis, and discussions. The extent of classroom seating arrangement in terms of accessibility (3.54) and visual and auditory comfort (3.46) were oftentimes manifested; social interactions (3.16) and behavioral disruptions (2.86) are sometimes manifested, and while, teacher-student proximity (2.56) is rarely manifested, thus, moderately extensive. The extent of learners' engagement in terms of interest level (3.52), in-class behavior (3.50) and atten-

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tion span (3.42) were oftentimes manifested; while, participation rate (3.02) was sometimes manifested, thus, moderately extensive. Pearson's Correlation generated a significant correlation between classroom seating arrangement (r=0.859; p¡.000) and learners' engagement. Domains of classroom seating arrangement in terms of accessibility (0.000), behavioral disruptions (0.001), social interactions (0.000), teacher-student proximity (0.000) and visual and auditory comfort (0.001) suggest significant influence over learners' engagement.

4.2. Conclusions—Given the findings of the study presented, the following were conclusions: The extent of classroom seating arrangement in terms of accessibility and visual and auditory comfort were oftentimes manifested; social interactions and behavioral disruptions were sometimes manifested, and while teacher-student proximity was moderately extensive, thus rarely manifested. The extent of learners' engagement in terms of interest level, in-class behavior, and attention span (often manifested) was moderately extensive, and the participation rate was. Pearson's Correlation generated a significant correlation between classroom seating arrangement and learners' engagement. Domains of classroom seating arrangement in terms of accessibility, behavioral disruptions, social interactions, teacher-student proximity and visual and auditory comfort suggest significant influence over learners' engagement.

4.3. Recommendations—With the presented conclusions of the study, the following were recommendations, to wit; Public School District Supervisor. May consider providing professional development opportunities for teachers on effective classroom seating arrangements. This can include workshops and training sessions focused on the impact of seating arrangements on student engagement. Additionally, the supervisor may encourage schools to periodically assess and adjust seating plans based on educational research and individual classroom needs. School Principal. May play a pivotal role in creating a supportive environment for effective seating arrangements. They should encourage a collaborative approach among teachers, allowing them the flexibility to experiment with different seating configurations based on their teaching style and the needs of their learners. Principals can also allocate resources to ensure classrooms have the necessary furniture and space to implement varied seating plans. Teacher: Teachers may be proactive in understanding the diverse learning needs of their learners and adjusting seating arrangements accordingly. Regular reflection on the impact of different seating plans and their correlation with student engagement can guide teachers in making informed decisions. Moreover, teachers should involve learners in the process, seeking their input on seating preferences and experimenting with variations to identify what works best for each class. Future Researcher. This suggests exploring the long-term effects of specific seating arrangements on student academic performance and social development. This may involve conducting longitudinal studies and investigating how cultural and contextual factors influence the relationship between seating arrangements and engagement. Additionally, researchers can delve into the potential integration of technology in seating plans and its impact on modern learning environments.

5. References

Aguillon, S. M., Siegmund, G. F., Petipas, R. H., Drake, A. G., Cotner, S., & Ballen, C. J. (2020). Gender differences in student participation in an active-learning classroom. *CBE—Life Sciences Education*, *19*(2), ar12.

ISSN 3028-1261
10.5281/zenodo.11626798/NIJSE.2024

Alesech, J., & Nayar, S. (2021). Teacher strategies for promoting acceptance and belonging in the classroom: A new zealand study. *International Journal of Inclusive Education*, *25*(10), 1140–1156. https://doi.org/10.1080/13603116.2019.1600054

Amerstorfer, C. M., & Freiin von Münster-Kistner, C. (2021). Student perceptions of academic engagement and student-teacher relationships in problem-based learning. *Frontiers in Psychology*, *12*, 713057.

Andujar, A., Salaberri-Ramiro, M. S., & Martínez, M. S. C. (2020). Integrating flipped foreign language learning through mobile devices: Technology acceptance and flipped learning experience. *Sustainability*, *12*(3), 1110.

Angelovska, T., Mercer, S., & Talbot, K. R. (2021). Personality traits as predictors of language learner engagement. *Language Learning in Higher Education*, *11*(2), 285–310. https://doi.org/10.1515/cercles-2021-2026

Aubrey, S., King, J., & Almukhaild, H. (2022). Language learner engagement during speaking tasks: A longitudinal study. *RELC Journal: A Journal of Language Teaching and Research*, *53*(3), 519–533. https://doi.org/10.1177/0033688220945418

Bak, M. S., Dueñas, A. D., Avendaño, S. M., Graham, A. C., & Stanley, T. (2021). Tact instruction for children with autism spectrum disorder: A review. *Autism Developmental Language Impairments*, *6*, 2396941521999010.

Cole, K., Schroeder, K., Bataineh, M., & Al-Bataineh, A. (2021). Flexible seating impact on classroom environment. *Turkish Online Journal of Educational Technology - TOJET*, *20*(2), 62–74. https://eric.ed.gov/?q=accessibility+in+Classroom+Seating+Arrangement&pg=2&id=EJ1304613

Dao, P., & Sato, M. (2021). Exploring fluctuations in the relationship between learners' positive emotional engagement and their interactional behaviors. *Language Teaching Research*, *25*(6), 972–994. https://doi.org/10.1177/13621688211044238

Díez, J. (2023). Lack of interest? self and peer assessment as a means to improve learners' engagement. *Innovations in Education and Teaching International*, *60*(2), 218–226. https://doi.org/10.1080/14703297.2021.2013288

Dong, Z., Liu, H., & Zheng, X. (2021). The influence of teacher-student proximity, teacher feedback, and near-seated peer groups on classroom engagement: An agent-based modeling approach. *PLoS ONE*, *16*(1), e0244935.

Furner, J., Powers, J., & Brown, S. (2021). Studying mayan culture in the elementary classroom: Integrating mathematics, visual arts and technology through an authentic multi-leveled curriculum. *International Journal of Whole Schooling*, *17*(1), 1–29.

Gao, N., Rahaman, M. S., Shao, W., Ji, K., & Salim, F. D. (2022). Individual and group-wise classroom seating experience: Effects on student engagement in different courses. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, *6*(3), 1–23.

Garrote, A., Felder, F., Krähenmann, H., Schnepel, S., Sermier Dessemontet, R., & Moser Opitz, E. (2020). Social acceptance in inclusive classrooms: The role of teacher attitudes toward inclusion and classroom management. *Frontiers in Education*, *5*, 582873.

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th). McGraw-Hill Irwin.

ISSN 3028-1261
10.5281/zenodo.11626798/NIJSE.2024

Güven, S., & Uçar, M. (2022). Flexible classrooms and their teachers in primary education. *International Online Journal of Primary Education*, *11*(2), 379–400. https://eric.ed.gov/?q=accessibility+in+Classroom+Seating+Arrangement&id=EJ1373871

Hardiansyah, F., & Abuyamin Rasia, M. M. (2022). Enhancing learners' learning motivation through changing seats in primary school. *Elementary School Forum (Mimbar Sekolah Dasar)*, *9*(1), 253–268. https://ejournal.upi.edu/index.php/mimbar/index

Hodges, L. C. (2020). Student engagement in active learning classes. In *Active learning in college science: The case for evidence-based practice* (pp. 27–41).

Hsu, S. (2021). Active participation: Reflection on lectures in chinese heritage culture classroom. *Schools: Studies in Education*, *18*(1), 86–106. https://doi.org/10.1086/713613

Jaime-Diaz, J., & Méndez-Negrete, J. (2020). Racialized social class pedagogical praxis: Critical compassion, "cariño," "respeto" and "confianza. *Association of Mexican American Educators Journal*, *14*(1), 49–70. https://doi.org/10.24974/amae.14.1.334

Koehler, A. A., & Meech, S. (2022). Ungrading learner participation in a student-centered learning experience. *TechTrends: Linking Research and Practice to Improve Learning*, *66*(1), 78–89. https://doi.org/10.1007/s11528-021-00682-w

Kopel, R. (2021). Preschool whole group circle time: Does more comfortable seating give rise to preschooler engagement?

Lee, J., Park, T., & Davis, R. O. (2022). What affects learner engagement in flipped learning and what predicts its outcomes. *British Journal of Educational Technology*, *53*(2), 211–228. https://doi.org/10.1111/bjet.12717

Li, S., Du, J., & Sun, J. (2022). Unfolding the learning behaviour patterns of mooc learners with different levels of achievement. *International Journal of Educational Technology in Higher Education*, *19*, 22. https://doi.org/10.1186/s41239-022-00328-8

Liu, S., Ma, G., Tewogbola, P., Gu, X., Gao, P., Dong, B., He, D., Lai, W., & Wu, Y. (2023). Game principle: Enhancing learner engagement with gamification to improve learning outcomes. *Journal of Workplace Learning*, *35*(5), 450–462. https://doi.org/10.1108/JWL-11-2022-0160

Longmuir, F. (2023). Leading with learners: Relational focus of leading practices in alternative setting. *Journal of Educational Administration and History*, *55*(1), 54–71. https://doi.org/10.1080/00220620.2022.2114434

Mehler, P. R. (2022). Perceptions of the efficacy of classroom management techniques. *Journal of the American Academy of Special Education Professionals*, 147–160. https://eric.ed.gov/?q=accessibility+in+Classroom+Seating+Arrangement&id=EJ1330183

Metzger, K. J., & Langley, D. (2020). The room itself is not enough: Student engagement in active learning classroom. *College Teaching*, *68*(3), 150–160. https://doi.org/10.1080/87567555.2020.1768357

Monaghan, T. F., Rahman, S. N., Agudelo, C. W., Wein, A. J., Lazar, J. M., Everaert, K., & Dmochowski, R. R. (2021). Foundational statistical principles in medical research: Sensitivity, specificity, positive predictive value, and negative predictive value. *Medicina*, *57*(5), 503.

Montgomery, D. C., Peck, E. A., & Vining, G. G. (2021). *Introduction to linear regression analysis*. John Wiley Sons.

ISSN 3028-1261
10.5281/zenodo.11626798/NIJSE.2024

Nehyba, J., Juhanák, L., & Cigán, J. (2023). Effects of seating arrangement on learners' interaction in group reflective practice. *Journal of Experimental Education*, *91*(2), 249–277. https://doi.org/10.1080/00220973.2021.1954865

Odum, M., Meaney, K. S., & Knudson, D. V. (2021). Active learning classroom design and student engagement: An exploratory study. *Journal of Learning Spaces*, *10*(1), 27–42. https://eric.ed.gov/?q=accessibility+in+Classroom+Seating+Arrangement&id=EJ1293141

Pallant, J. (2020). *Spss survival manual: A step by step guide to data analysis using ibm spss* (7th). Routledge. https://doi.org/10.4324/9781003117452

Renninger, K. A., & Hidi, S. E. (2022). Interest development, self-related information processing, and practice. *Theory Into Practice*, *61*(1), 23–34. https://doi.org/10.1080/00405841.2021.1932159

Rogers, K. (2020). The effects of classroom seating layouts on participation and assessment performance in a fourth grade classroom. *Journal of Learning Spaces*, *9*(1), 31–41. https://eric.ed.gov/?q=accessibility+in+Classroom+Seating+Arrangement&pg=2&id=EJ1253903

Schussler, E. E., Reynolds, B., England, B. J., & Brigati, J. R. (2021). Student active learning anxieties differ by preferred seating location in introductory biology classes. *Journal of College Science Teaching*, *51*(2), 67–77. https://eric.ed.gov/?q=accessibility+in+Classroom+Seating+Arrangement&pg=2&id=EJ1327138

Steggerda, J. C., Gregus, S. J., Craig, J. T., McMillan, H., & Cavell, T. A. (2023). Network-related teaching and changes in classroom seating. *Psychology in the Schools*, *60*(1), 214–233. https://doi.org/10.1002/pits.22771

Sürücü, L., & Maslakçi, A. (2020). Validity and reliability in quantitative research. *Business Management Studies: An International Journal*, *8*(3), 2694–2726.

Swofford, P. E. (2021). *The use of flexible seating in the elementary classroom* [Doctoral dissertation, Lindenwood University].

Thoyibi, M., Hikmat, M. H., & Prasetyarini, A. (2021). Teachers' perspective on student's right to participation in classroom management. *Asian Journal of University Education*, *17*(1), 63–73. https://eric.ed.gov/?q=social+interaction+in+Classroom+Seating+Arrangement&pg=3&id=EJ1291019

Travers, H. E. (2022). Student engagement in active learning classes: What factors matter? *Active Learning in Higher Education*, *23*(1), 55–67. https://doi.org/10.1177/1469787421991191

Uzoigwe, R. N., Bennie, A., & Gabb, R. (2020). Teachers' engagement in classroom management practices: A south african case study. *South African Journal of Education*, *40*(4), 1–10.

Vural, S., & Yildirim, E. (2021). The effects of the classroom management styles of turkish language and literature teachers on the levels of student engagement. *Universal Journal of Educational Research*, *9*(11A), 6982–6992. https://doi.org/10.13189/ujer.2021.091132

Weideman, J., & Pohl, D. (2021). Classroom management and student participation in the foundation phase: A case study. *African Journal of Research in Mathematics, Science and Technology Education*, *25*(2), 185–198. https://doi.org/10.1080/18117295.2021.1914930

Yi, I. (2022). The effect of different types of seating on student engagement and learning outcomes. *Asia-Pacific Education Researcher*, *31*(3), 225–237. https://doi.org/10.1007/s40299-021-00599-x

ISSN 3028-1261
10.5281/zenodo.11626798/NIJSE.2024

Yılmaz, C., & Orhan, E. (2020). Investigation of the relationship between teachers' leadership behaviors and students' participation in classroom management: A study on mathematics teaching. *International Journal of Evaluation and Research in Education*, *9*(4), 788–797.

Yuan, Y., Zhang, X., Liu, Y., & Deng, Y. (2020). The relationship between teacher support and student engagement in online learning: A meta-analysis. *Educational Psychology Review*, *32*(3), 771–789. https://doi.org/10.1007/s10648-019-09513-7

Zheng, W., Yu, X., Jia, M., & Bao, H. (2020). The impact of a social-emotional learning programme on preschool children's classroom engagement: A chinese study. *Educational Psychology*, *40*(6), 791–807. https://doi.org/10.1080/01443410.2019.1646241

Zhu, M., Li, Y., Cheng, C., Wang, L., Jin, P., & Chen, S. (2020). Classroom seating arrangements and students' experiences: A systematic literature review. *Educational Psychology Review*, *32*(1), 161–192. https://doi.org/10.1007/s10648-019-09514-6

ISSN 3028-1261
10.5281/zenodo.11626798/NIJSE.2024