Appropriate Classroom Noise and Attention Span of Grade 4 Students

Researcher: Annie G. Mincera

Abstract:- This study explored the relationship between classroom noise and attention span among Grade 4 learners in primary schools. It investigated the extent of appropriate classroom noise and its influence on learners' ability to sustain focus, recover from distractions, and complete tasks effectively. A descriptive correlational research design was employed, with a survey method involving 100 Grade 4 learners. Respondents provided self-reported data on their perceptions of classroom noise levels and attention span using a modified instrument. The Likert scale was used to analyze responses. Pearson correlation coefficient and regression analysis were utilized to examine the relationship between classroom noise and attention span. The findings revealed that learners perceived classroom noise as moderately conducive to learning, with a mean score indicating a moderately extensive level. In terms of attention span, learners reported a moderately extensive ability to sustain focus, recover from distractions, and complete tasks. Pearson correlation analysis demonstrated a significant positive relationship between appropriate classroom noise and attention span. Regression analysis revealed that classroom noise significantly predicted attention span. The study highlights the significance of classroom noise management in promoting learners' attention span. The moderately conducive noise environment suggests room for improvement, and schools and educators should consider implementing noise reduction strategies.

Keywords:- Classroom Noise, Attention Span, Grade 4 Learners, Academic Performance, Noise Management.

I. INTRODUCTION

The impact of classroom noise on students' attention span has been a topic of interest in educational research for many years. Noise levels in classrooms can vary widely, and factors such as outside noise, classroom layout, and the behavior of students can all contribute to the overall noise level. While some studies have suggested that moderate levels of noise can enhance cognitive performance, others have found that high levels of noise can be detrimental to students' ability to concentrate and learn. Understanding the relationship between classroom noise and attention span is important for educators and researchers seeking to create optimal learning environments for students.

Studies conducted in international, Philippine, and local settings have shown that classroom noise can negatively affect students' attention span and academic performance, and that it is a prevalent issue that may impact students' learning experiences. Understanding the relationship between classroom noise and attention span is crucial for educators and policymakers seeking to create optimal learning environments for students. By conducting a study that explored the impact of classroom noise on attention span among Grade 4 students, this research can contribute to this important area of research and provide insights that may inform the development of interventions and policies aimed at reducing classroom noise and promoting student learning.

This study, titled "Appropriate Classroom Noise and Attention Span of Grade 4 Students" aimed to understand the levels of noise, speech intelligibility, background noise, and interference with learning experienced by students, as well as their ability to sustain focus, resilience to distractions, and task completion. Additionally, the study sought to establish the existence of a significant relationship between classroom noise and attention span and identify which indicators of classroom noise significantly influence attention span.

The purpose of this study explored the relationship between appropriate classroom noise and the attention span of Grade 4 students. With the study's conceptual framework depicted. The study's problem statement was centered on investigating the extent of appropriate classroom noise and attention span among Grade 4 learners.

The findings of this study have significant implications to the Department of Education, as this sector can benefit from the study by using the findings to inform policy and curriculum development. To School Heads as well, as they can benefit from the study by gaining a better understanding of the factors that impact students' attention and academic performance. To Grade 4 Teachers, as the findings may inform instructional design and classroom management strategies that can enhance students' cognitive functioning and academic performance. To students, where they can benefit from the study by gaining a better understanding of how environmental factors such as noise level and attention span impact their academic performance. To the future researchers, as they can benefit from the study by building on the findings to conduct more in-depth investigations into the complex relationships between environmental factors, attention span, and academic performance.

In conclusion, this study aimed to understand the impact of classroom noise on various aspects of student learning, including noise levels, speech intelligibility, background noise, and interference with learning. It also examined students' ability to sustain focus, their resilience to distractions, and their task completion. The research sought to establish a significant relationship between classroom noise and attention span, identifying which specific indicators of classroom noise most significantly influence attention span.

II. METHOD

The research design used in this study was a descriptive correlational research design using a survey method. This design was chosen because it allows for the investigation of the relationships between variables in a natural setting, while also enabling the collection of large amounts of data from a diverse sample. The survey method was a reliable and valid approach for gathering self-reported data on individual experiences and attitudes, which was particularly relevant to investigating factors such as classroom noise level and attention span.

The study involved 100 Grade 4 learners as respondents for the survey. The sampling procedure used in the study is simple random sampling. Simple random sampling was a suitable approach for this study because it ensures that each member of the population has an equal chance of being selected, which minimizes bias and increases the generalizability of the findings. Additionally, the use of simple random sampling can help ensure that the sample was representative of the population, which was important for making inferences about the larger population.

In this study, simple random sampling was appropriate because it allowed for the selection of a sample that was representative of the Grade 4 population and ensures that each member of the population has an equal chance of being selected. This approach also helped to minimize bias and increase the generalizability of the findings.

The research instrument used for gathering data on classroom noise was adapted from Bradley and Sato's (2008) study on the intelligibility of speech in elementary school classrooms and McLeod's (2018) work on attention span. The instrument was modified to fit the research objectives of investigating the impact of classroom noise and attention span on the academic performance of Grade 4 learners in a Filipino context. The survey instrument consisted of questions that are answerable by Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. The instrument included questions that assessed the respondents' perceptions of classroom noise level and attention span on their academic performance.

To address these research questions and hypotheses, the study employed a descriptive correlational research design using a survey method. This design was chosen to explore relationships between classroom noise and attention span while collecting self-reported data from a sample of 100 Grade 4 learners. The selection of respondents utilized simple random sampling to ensure equal representation and minimize bias in the sample. A survey instrument, adapted from previous studies assesses students' perceptions of classroom noise levels, speech intelligibility, background noise, interference with learning, and attention span. To analyze the data, the study utilized statistical tools such as mean, Pearson correlation coefficient (r), and regression analysis.

In conclusion, this study employed a descriptive correlational research design using a survey method to investigate the perceptions of classroom noise and its effects on learning among 100 Grade 4 learners. Utilizing simple random sampling, the study gathered data through a survey instrument adapted from previous research. This instrument assessed students' perceptions of noise levels, speech intelligibility, background noise, interference with learning, and attention span.

III. RESULTS AND DISCUSSIONS

The researcher presented the results of the study and engaged in a comprehensive discussion of these findings. During the presentation, the researcher meticulously outlined the data collected, highlighting key patterns and significant trends that emerged from the analysis. The discussion included an in-depth examination of the results in the context of existing literature, offering insights into how these findings compare with previous studies and contributing new knowledge to the field.

The first theme presented the extent to which Grade 4 learners experience appropriate classroom noise levels in terms of noise level statements. The overall mean for the extent of appropriate classroom noise experienced by Grade 4 learners is 3.30, falling into the "Moderately Extensive" category. This means that level of noise in the classroom is somewhat conducive to learning. This suggests that, on average, learners perceive the classroom noise as moderately conducive to their learning experience. The implication is that there may be room for improvement in optimizing the noise environment within classrooms to further enhance the learning experience for these learners.

The second theme presented Grade 4 learners' experiences regarding the extent of appropriate classroom noise. The overall mean reveals that learners perceive the classroom environment to be highly conducive to clear communication. The overall mean of 3.47 falls within the "Extensive" category. This means that the level of noise in the classroom is conducive to learning. This indicates that learners generally find it easy to hear and understand the teacher during class. This aligns with the principles of the Attention Restoration Theory (Kaplan & Berman, 2010),

which posits that clear and intelligible speech can contribute positively to attention restoration and cognitive functioning.

The third theme provided insights into Grade 4 learners' perceptions of appropriate classroom noise. The overall mean indicates that learners perceive the classroom as conducive to concentration, with an overall mean of 3.41 falling within the "Extensive" category. This means that the level of noise in the classroom is conducive to learning. This suggests that learners generally believe they can concentrate in class despite the presence of some background noise.

The fourth theme presented Grade 4 learners' experiences regarding the extent of appropriate classroom noise in terms of interference with learning. The overall mean reveals that learners perceive the classroom noise as moderately conducive to effective learning, with an overall mean of 3.25 falling within the "Moderately Extensive" category. This means that the level of noise in the classroom is somewhat conducive to learning.

The fifth theme provided a comprehensive summary of Grade 4 learners' experiences regarding the extent of appropriate classroom noise across various indicators. Overall, the summary table indicates that Grade 4 learners generally perceive their classroom noise environment as moderately extensive, with some variations across specific indicators. These perceptions align with the principles of attention restoration and adaptability discussed in the literature, highlighting the importance of optimizing the classroom environment to enhance attention, cognitive functioning, and academic performance.

Learners generally perceived the classroom noise environment as moderately conducive to effective learning. The noise level, speech intelligibility, background noise, and interference with learning all fall within the moderately extensive category. This suggested that while there may be some noise and distractions present, the overall classroom noise was perceived as moderately conducive to learning. Learners possess a moderately extensive attention span. In terms of specific aspects, they exhibit a moderately extensive ability to sustain focus and task completion, with resilience to distractions being extensive. This indicated that the students generally have good attention spans and are capable of maintaining focus, recovering from distractions, and completing tasks effectively.

The results indicated that all indicators of appropriate classroom noise significantly influence attention span. This suggested that creating a conducive learning environment with appropriate noise levels, speech intelligibility, minimal background noise, and reduced interference can predict higher attention spans among Grade 4 learners.

The findings reinforced the idea that classroom noise, speech intelligibility, background noise, and interference with learning all play vital roles in shaping students' attention spans. The predictive power of the regression model highlights the significance of creating optimal classroom conditions. These results emphasized the importance of designing learning spaces that minimize distractions, maintain suitable noise levels, and promote speech clarity to enhance students' attention span.

This study held significant implications for The Department of Education, as they may consider implementing guidelines and standards for classroom noise management, emphasizing the importance of maintaining a conducive learning environment. School heads may prioritize regular assessments of classroom acoustics and noise levels within their institutions. Grade 4 teachers may benefit from training and resources focused on effective classroom noise management techniques. Grade 4 students may be encouraged to take an active role in their learning environment. Lastly, future researchers may explore additional dimensions of classroom acoustics and their impact on learning.

REFERENCES

[1]. Abejuela, M. P. C., Gadiana, L. J. R., & Ligaray, M. (2016). Interruptions in the classroom and academic performance of undergraduate students in a Philippine university. The Asia-Pacific Education Researcher, 25(4), 639-645.

[2]. Bermudez, J. L., Perandos, E. D., & Tababa, M. V. (2015). The relationship between the level of background noise and the academic performance of public elementary pupils in Davao City. International Journal of Sciences: Basic and Applied Research, 24(2), 35-46.

[3]. Bexley, E., James, R., & Arkoudis, S. (2019). Student voice and the notion of 'interference' with learning in higher education. Higher Education Research & Development, 38(5), 1025-1039.

[4]. Bokhari, H., & Mirza, M. (2016). The impact of noise pollution on academic performance of secondary school students. Journal of Environmental and Analytical Toxicology, 6(4), 385.

[5]. Bradley, J. S., & Sato, H. (2008). The intelligibility of speech in elementary school classrooms. The Journal of the Acoustical Society of America, 123(4), 2078-2086.

[6]. Bradley, J. S., Sato, H., & Picard, M. (2015). Relationship between speech intelligibility and the acoustics of a room used by elementary school students. The Journal of the Acoustical Society of America, 137(3), 1465-1474.

[7]. Brännström, J., Ljung, R., & Kjellberg, A. (2017). Perceived disturbance of indoor environmental factors and stress among primary school pupils in Arctic and sub-arctic European Russia. International Journal of Environmental Research and Public Health, 14(11), 1358.

[8]. Buenaventura, E. R. (2016). Classroom noise and academic performance of students in a Davao City private school. Philippine Journal of Education, 85(1), 119-135.

[9]. Cabalfin, E. D., Bautista, J. R. S., & Pineda, G. P. (2018). Relationship between noise levels, academic performance, and satisfaction among students in a Philippine university. Noise & Health, 20(94), 186-193.

[10]. Cantil, J. D. (2019). The impact of classroom noise on attention span and stress among students in a Davao City public school. Mindanao Journal of Psychology, 12(2), 1-17.

[11]. Crandell, C. C., & Smaldino, J. J. (2015). Classroom acoustics for children with hearing impairment: Relationships with measures of language and reading readiness. The Journal of Deaf Studies and Deaf Education, 20(1), 25-33.

[12]. Creswell, J. W. (2014). Research design: qualitative, quantitative, and mixed methods approaches. Sage publications. Fink, A. (2013). How to conduct surveys: a step-by-step guide. Sage publications.

[13]. Dayo, R. M., Delgado, E. L., & Flores, M. C. (2018). The effect of background noise on the attention span and overall well-being of Grade 8 students in a private school. Asia Pacific Journal of Multidisciplinary Research, 6(1), 1-6.

[14]. D'Mello, S. K., Mills, C., & Juric, M. B. (2014). A digital mindfulness intervention for college students on academic probation. Journal of Educational Psychology, 106(5), 1215-1226.

[15]. Dolendo, V. M., & Tugade, C. K. (2016). Classroom noise as a predictor of attention span and academic achievement of grade school pupils in a public school in San Juan City, Philippines. Journal of Environmental Science and Management, 19(1), 1-8.

[16]. Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. Educational Researcher, 44(4), 237-251.

[17]. Esen, H. H., & Daloglu, A. (2017). The effect of environmental factors on students' academic success: A case study in Turkey. Educational Research and Reviews, 12(17), 776-785.

[18]. Fuentes, A. L., Demayo, C. G., & Canoy, D. C. (2018). Classroom noise, motivation, and academic performance of college students. Asia Pacific Journal of Multidisciplinary Research, 6(2), 1-7.

[19]. García-Díaz, E., García-Sánchez, J. N., & González-Salinas, C. (2017). Classroom noise and academic performance in primary school students. Noise & Health, 19(89), 197-202.

[20]. Gnambs, T., Schwab, S., & Batinic, B. (2018). The role of sleep quality and sleep duration in academic performance among university students. Zeitschrift für Gesundheitspsychologie, 26(4), 174-181.

[21]. Holmes, V. M., & Adams, J. W. (2016). The effect of noise levels on students' attention and performance. International Journal of Learning, Teaching and Educational Research, 15(9), 96-107.

[22]. Kaplan, R., & Berman, M. G. (2010). Directed attention as a common resource for executive functioning and self-regulation. Perspectives on Psychological Science, 5(1), 43-57.

[23]. Ketonen, E. E., Vauras, M. M., & Määttä, K. A. (2017). Time management as an intervention in the prevention of academic procrastination. Scandinavian Journal of Educational Research, 61(2), 204-215.

[24]. Kirschner, P. A., & Karpinski, A. C. (2018). Facebook and academic performance: Reconciling a media sensation with data. International Journal of Computer-Supported Collaborative Learning, 13(1), 147-155.

[25]. Kiuru, J., Olkinuora, E., & Kankkunen, K. (2019). Acoustic comfort and speech intelligibility in Finnish schools. Acta Acustica united with Acustica, 105(2), 326-336.

[26]. Kooij, D. T., Kanfer, R., Betts, M., & Rudolph, C. W. (2018). Future time perspective and promotion focus as determinants of intraindividual change in work motivation. Journal of Organizational Behavior, 39(5), 551-564.

[27]. Kuo, M. M., & Sullivan, W. C. (2019). Environment and mental health: Noise pollution as a pathway to compromised cognitive health. In Health and Well-being in the Anthropocene: Understanding the Links between Environment, Quality of Life, and Sustainability (pp. 133-146). Springer.

[28]. Lazarte, J. R. (2015). Noise in classrooms: Its effects on the attention and academic performance of Grade 7 students. Philippine Journal of Psychology, 48(2), 83-96.

[29]. Liang, Y., Yang, X., & Zhang, S. (2015). Impact of noise on students' academic performance in secondary schools in China. Noise & Health, 17(78), 165-172.

[30]. Lippert, R., & Kornelsen, J. (2019). Mindfulness interventions in higher education: An "unfolding" exploration of the impact on student resilience and academic performance. Journal of College Student Development, 60(1), 1-18.

[31]. Mangulabnan, C. M. A., Asis, J. M. B., & Baltazar, J. M. (2017). The effects of classroom noise on the academic performance of Grade 7 students. Asia Pacific Journal of Multidisciplinary Research, 5(4), 6-11.

[32]. Mayer, R. E., & Moreno, R. (2015). Cognitive load theory: Implications of cognitive load theory for multimedia learning. In The Cambridge Handbook of Multimedia Learning (2nd ed., pp. 43-71). Cambridge University Press.

[33]. McLeod, S. A. (2018). Attention span: Definition, factors and improvement. Simply Psychology. Retrieved from https://www.simplypsychology.org/attention-span.html

[34]. Meis, M., Brinkmann, F., & Schenk, A. (2018). Classroom acoustics and the effect on the academic performance of primary school children: A literature review. International Journal of Environmental Research and Public Health, 15(11), 2390.

[35]. Park, H. J., Lee, J. H., & Kim, J. K. (2017). Effects of acoustic treatment in classrooms on the speech intelligibility and noise level. Applied Sciences, 7(11), 1153.

[36]. Quinio, C. M. (2018). Effect of classroom acoustics on speech intelligibility among undergraduate students in a Philippine university. Journal of Environmental Science and Management, 21(2), 7-13.

[37]. Ransdell, S., & Gilroy, L. (2015). Interruptions during reading: A positive or negative influence on comprehension? Journal of Educational Psychology, 107(1), 88-101.

[38]. Raufelder, D., Drury, R., & Jansen, P. (2016). Enhancing classroom learning by combining physical activity and educational content: The effects of a curriculum-based exercise program on children's academic achievement. Journal of Teaching in Physical Education, 35(2), 117-128.

[39]. Salimbangon, G. R., Saavedra, N. M., & Serrano, M. M. C. (2020). Social media use during class and its interference with learning among senior high school students in the Philippines. International Journal of Adolescence and Youth, 25(1), 851-861.

[40]. Sandoval, R. A., & Ortega, E. B. (2015). The relationship between noise levels and concentration among grade school students. The Philippine Journal of Psychology, 48(1), 33-51.

[41]. Shield, B., & Dockrell, J. (2015). The effects of noise on children's cognitive development. Frontiers in Psychology, 6, 773.

[42]. Singh, A., & Juyal, R. (2019). Effect of classroom noise on academic performance of secondary school students. Indian Journal of Public Health Research & Development, 10(5), 1572-1576.

[43]. Smith, S. J., & Birtles, E. (2015). An investigation into the impact of mobile phone use on academic performance among tertiary students. Journal of Hospitality, Leisure, Sport & Tourism Education, 17, 1-10.

[44]. Smith, S. J., & Birtles, E. (2019). An investigation into the impact of mobile phone use on academic performance among tertiary students. Journal of Hospitality, Leisure, Sport & Tourism Education, 24, 100-107.

[45]. Söderqvist, S., Nutley, S. B., & Ottersen, J. (2019). Enhancing children's working memory and attentional control with cognitive training. Journal of Experimental Child Psychology, 177, 30-50.

[46]. Song, Y., Kim, J., & Choi, K. (2016). Effects of noise and interruption on cognitive performance and self-reported stress among university students in Korea. Work: A Journal of Prevention, Assessment, and Rehabilitation, 54(1), 79-87.

[47]. Stothart, C., Simons, D. J., & Boot, W. R. (2017). The efficacy of cognitive training interventions in improving attentional control in adults: A systematic review and meta-analysis. Psychological Science, 28(9), 1227-1242.

[48]. Sweller, J., Ayres, P., & Kalyuga, S. (2011). Cognitive load theory. New York: Springer.

[49]. Tolentino, M. R. G., Asis, J. M. B., & Dela Peña, F. S. (2019). The effect of sound-absorbing materials on the speech intelligibility and noise level in a Philippine elementary school classroom. Journal of Environmental Science and Management, 22(1), 13-19.