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Assessment of the impact of the implemented learning spaces on science achievement: Building Resilience at General Tomas Mascardo National High School

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Abstract

General Tomas Mascardo National High School is currently facing a significant challenge of classroom shortages, posing a threat to the fundamental principle of "education for all." This study aims to evaluate the impact of makeshift classrooms on the academic performance of science subject to students during the school year 2023–2024, adopting a mixed-methods approach. The analysis reveals variations in mean percentage scores across sections and shifts, emphasizing the need to investigate specific factors influencing performance outcomes. Despite small attendance fluctuations, the overall trend suggests a high level of students' presence, indicating a generally conducive learning environment. However, the study identifies significant disparities in academic performance, particularly in the Quarterly Assessment (Q.A) variable among makeshift classes. The negative impact on academic performance is evident, highlighted by a statistically significant deviation in Q.A scores, emphasizing a specific area of concern. Irregular attendance patterns during September and October further contribute to the negative effect on academic performance, emphasizing the need for targeted interventions to address attendance issues systematically. Themes emerging from student responses encompass environmental factors, comfort, focus, motivation, adaptation, preference for regular classrooms, teacher impact, external factors, and physical environment. Morning shift students highlight noise and discomfort as significant barriers, while afternoon shift students express mixed feelings, acknowledging spaciousness but preferring regular classrooms for comfort. Both shifts discuss motivation, with morning shift students suggesting adaptive measures and crediting supportive teachers. In contrast, afternoon shift students express various emotions, including decreased motivation due to negative thoughts and noise pollution affecting focus. External factors, distractions, and concerns related to the physical environment are prevalent in both shifts, underlining the complexity of challenges students face in makeshift classrooms. Recommendations include a comprehensive investigation into academic disparities, addressing the quality of answers, targeted interventions for attendance improvement, and a holistic approach to creating a conducive learning environment.

Keywords: Learning Spaces; Makeshift Classes; Science Achievement; Attendance Monitoring; Adaptation and Coping

1. Introduction

"Make-shift classes" refer to temporary or improvised learning spaces created when regular classrooms or formal educational environments are unavailable or inadequate. These makeshift solutions are often implemented in response to various challenges, such as natural disasters, emergencies, or lack of proper infrastructure. While they may not provide the ideal learning conditions, make-shift classes ensure that education continues, particularly in challenging circumstances.

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Moreover, regions facing persistent challenges related to inadequate infrastructure, especially in economically disadvantaged areas, may resort to make-shift classes as a pragmatic response to meet the urgent educational needs of the population. In these situations, where the formal educational environment may be lacking, repurposing existing spaces or creating temporary structures become a viable solution to ensure students have access to learning opportunities.

While it's acknowledged that make-shift classes may not replicate the amenities and facilities of traditional classrooms, their paramount importance lies in preventing disruptions to the education process. Despite the less-than-ideal learning conditions, these improvised spaces play a pivotal role in ensuring the continuity of education, particularly in challenging and adverse circumstances. Education continuity during crises is essential for maintaining a sense of normalcy for students and mitigating the potential long-term impact on their academic progress.

General Tomas Mascardo National High School is facing the challenge of classroom shortages, prompting the exploration of innovative solutions through the implementation of make-shift classes, thereby ensuring "education for all" that underscores the importance of providing inclusive and equitable quality education for every individual, regardless of their background, socio-economic status, or geographical location (UNESCO, 2000). These temporary or improvised learning spaces may involve repurposing existing areas within the school premises to accommodate the increasing student population. Classroom shortages can hinder the quality of education and disrupt regular attendance. Specific make-shift spaces that positively impact student learning and attendance can be identified, allowing for strategic resource allocation to enhance these spaces and replicate successful models across various subjects or grade levels. By introducing make-shift classes, the school aims to mitigate these challenges, ensuring continued access to education for all students. Hence, the study aims to investigate the impact of make-shift classes.

1.1. Rationale

General Tomas Mascardo National High School is grappling with a significant challenge – classroom shortages. This issue threatens the fundamental principle of "education for all," emphasizing the necessity of providing inclusive and equitable quality education for every individual, as highlighted by UNESCO in 2000. The classroom shortage can harm the quality of teaching and disrupt regular attendance, hindering the school's ability to fulfill its mission.

In response to this challenge, the school is considering innovative solutions, particularly the implementation of make-shift classes. These temporary or improvised learning spaces could involve repurposing existing areas within the school premises to accommodate the increasing student population. The underlying philosophy is rooted in the belief that every student should have access to a high-quality education regardless of their background, socio-economic status, or geographical location.

Introducing make-shift classes is a strategic initiative aimed at mitigating the challenges posed by classroom shortages. The intention is not merely to address the immediate need for additional learning spaces but to ensure continued access to education for all students. By doing so, the school aligns itself with the global commitment to inclusive and equitable education, as advocated by UNESCO.

To make informed decisions about the implementation of make-shift classes, it is crucial to assess the readiness of teachers to adapt to this new teaching environment and to understand how students embrace the program. Teachers play a pivotal role in the success of any educational initiative, and their willingness to embrace make-shift classes is integral to the program's effectiveness. Moreover, understanding how students respond to this change will provide insights into the program's impact on attendance and learning outcomes.

Through a comprehensive study, the school aims to investigate the impact of make-shift classes on teachers and students. The research will identify specific make-shift spaces that positively influence student learning and attendance. This knowledge will enable strategic resource allocation to enhance these spaces and replicate successful models across various subjects or grade levels, ensuring a holistic and sustainable approach to addressing classroom shortages.

Thus, implementing make-shift classes at General Tomas Mascardo National High School is a proactive response to the challenge of classroom shortages. By conducting a thorough investigation into the readiness of teachers and the way students embrace the program, the school aims to ensure that this innovative solution not only addresses the immediate need for additional learning spaces but also contributes to the overall improvement of education quality and accessibility for all students.

1.2. Research Objectives

The primary objectives of this research are as follows:

1. To gain insights from the experiences of students in makeshift classes
2. To determine the influences of makeshift classes on the student's performance.
3. To evaluate students' academic performance in science during the implementation of makeshift classes.
4. To recommend enhancement mechanisms in the improvement of the implementation of learning spaces.

1.3. Goals of the study

This study endeavors to comprehensively evaluate the implementation of make-shift classes in science education at General Tomas Mascardo National High School during the school year 2023 – 2024. The primary goal is to assess the impact of make-shift classes on the academic achievement of science among students, exploring whether introducing these improvised learning spaces positively or negatively influences students' performance in Science subject. Concurrently, the study aims to examine the readiness and adaptability of Science teachers to the implementation of make-shift classes, critically evaluating their effectiveness in delivering the science curriculum within these alternative learning environment.

Furthermore, the study seeks to explore the realm of student engagement and attendance in make-shift classes. By scrutinizing students' engagement level and focusing on participation in science-related activities and discussions, the research aims to shed light on the broader impact of make-shift classes on student attendance in science classes and overall school attendance.

Hence, the research aims to facilitate the replication of successful models across various grade levels, assessing the scalability of these models. Recommendations will be provided for adapting and replicating successful make-shift class models in science education across different subjects and grade levels.

2. Literature Review

The recent transformative shift in higher education settings, driven by widespread technology adoption, emphasizes the creation of innovative learning environments known as "Next Generation Learning Spaces." These spaces, encompassing physical and virtual dimensions, aim to integrate digital technologies into the formal learning experience. This evolution underscores a heightened focus on designing adaptable learning spaces, incorporating blended learning, and providing personalized experiences for students. While globally implemented in universities, few formal studies explore how educators and learners utilize these spaces.

Another study investigates how living on campus during a pandemic influences students' ability to take charge of their learning. This research addresses factors like motivation, distractions, and social behaviors within intentional and structural university environments. Emphasizing the significance of community and advocating for a holistic approach when redesigning external academic spaces, the study stresses the need for diverse designs offering privacy, public visibility, or a sense of togetherness. Safety, ample space, serene atmospheres, and readily available resources are deemed crucial for students success.

Similarly, Active Learning Classrooms (ALCs) are crafted environments that maximize the positive outcomes of active learning techniques. With increased interest in ALCs, this paper reviews published research on their impact, covering learning outcomes, student engagement, instructor behaviors, and design elements. The examination extends to the emerging cultural effects on educational institutions, recognizing existing research limitations and proposing avenues for future exploration.

Furthermore, animal models demonstrate that exposure to enriched environments positively affects behavior, cognition, and genomics. However, the neurophysiological effects of environmental enrichment on humans remain underexplored. A systematic review examines the impact of built indoor environments on human cognitive processes, identifying measurable effects on memory and attention. The study advocates for future research to establish standardized protocols and deepen understanding of how environmental factors can enhance human cognition.

The book "Learning Spaces" by Diana G. Oblinger explores the significant impact of physical or digital space on the learning experience. It delves into the interplay between learner expectations and the design of learning spaces,

emphasizing the need to consider factors beyond traditional classrooms. The shift in focus towards the learner prompts a rethinking of learning spaces' use, design, and location, recognizing that learning occurs throughout the campus. Incorporating human factors, such as comfortable seating, versatile furniture, and a positive environment, is crucial in designing adequate learning spaces. The evolution of digital technology also plays a significant role, offering increased capabilities and mobility. The concept of personal devices contributing to active learning, formative assessment, and social engagement is highlighted. The study emphasizes the transformation of the entire campus into a learning space aligned with learning principles and human-centered design.

Furthermore, DepEd Order No. 024, series of 2021, introduces temporary learning spaces as an innovative response during crises, providing designated areas or structures to ensure uninterrupted education during infrastructure damage caused by disasters. The study also references reports by Randolph et al. and Maley, focusing on challenges and solutions related to learning spaces. It highlights the importance of adapting learning spaces to diverse needs, including considerations for comfort, sensory stimulation, technology support, and decenteredness, fostering co-learning throughout the campus.

The researcher reviews related studies, including Talbert and Mor-Avi's study on Active Learning Classrooms (ALCs) and Anıktar and Aytuğ's emphasis on diverse designs accommodating various learning preferences. The study recognizes the need for a comprehensive understanding of implementing Innovative Learning Spaces, referencing studies by Napoles et al., Kariippanon et al., and Leijon et al. It aims to assess and rate learning outcomes, focusing on learning competencies, resources, assessment, and support for teachers and students.

The study aligns with Marie Leijon's comprehensive analysis of peer-reviewed articles on the physical learning space from 2009 to 2019, emphasizing the need for a systematic review of existing knowledge and identifying gaps in understanding the interplay between student learning and learning spaces. Similarly, it echoes Ossiannilsson's focus on the current status of innovative learning spaces and next-generation learning environments, emphasizing the importance of aligning traditional spaces with learners' expectations and rights.

Napoles et al.'s framework, constructed on existing educational frameworks, contributes a unique perspective by integrating concepts from social forms, learning theory, and digital technology studies. It acknowledges the potential of digital technologies in enhancing learning opportunities, aligning with the present study's focus on the implementation status regarding learning competencies, resources, assessment, and support. Overall, the researcher aims to provide valuable insights into the current state of knowledge, incorporating existing frameworks and studies to enhance understanding and guide future research in learning spaces.

The research gap in this context lies in the limited exploration of the practical utilization and effectiveness of Next Generation Learning Spaces in primary education. Despite the global implementation of these innovative learning environments, few formal studies have systematically investigated how educators and learners navigate and use these spaces daily. Current literature predominantly focuses on the conceptualization and design of these spaces, leaving a void in understanding the real-world dynamics, challenges, and benefits experienced by educators and learners. A comprehensive investigation into the lived experiences within these environments is essential to inform improvements and refinements, ensuring the envisioned benefits of adaptable learning spaces.

2.1. Research Questions

This study attempts to evaluate the implementation of makeshift science academic achievement at General Tomas Mascardo National High School, Imus City, for the school year 2023 – 2024. Specifically, this study will pursue to answer the following questions:

- What is the performance of students in science during the implementation of makeshift classes in terms of:
    a. Written works;
    b. Performance tasks;
    c. Quarterly assessment; and
    d. Class attendance
- Are the students' performance significantly different between morning and afternoon shifts?
- How do makeshift classes influence the performance of the students?
- What insights are gained from students' experiences subject to the implementation of make-shift classes?
- Based on the study's findings, what enhancement mechanism can be proposed to improve the implementation of learning spaces?

2.2. Scope and Limitation

This study is focused on assessing the implementation of makeshift science achievement at General Tomas Mascardo National High School, Imus City, for the school year 2023 – 2024. The participants to be included in the study will be grade 7 to 10 students in the makeshift classes for the school year 2023-2024. Thus, the results may best apply to specific schools and not necessarily to all schools in the Philippines.

Remarkably, the study sample will comprise grade 7 to 10 students in the schools' division of Imus City, General Tomas Mascardo National High School. The readers, therefore, need to be cautious in generalizing the results to other settings.

2.3. Significance of the Study

This study holds significance as it aims to provide valuable insights into the effectiveness of implementing make-shift classes in science education at General Tomas Mascardo National High School for the school year 2023 – 2024. The research addresses the critical issue of classroom shortages, offering a practical and innovative solution by examining the impact of make-shift classes on science academic achievement. The study aims to illuminate whether these alternative learning environments positively influence students' understanding, performance, and engagement in science subjects by focusing on science education quality. The investigation into teacher adaptability and effectiveness in delivering the science curriculum within make-shift spaces addresses the human dimension of this educational innovation, informing professional development and instructional strategies. The study also examines student engagement and attendance in make-shift classes, providing nuanced insights essential for designing interventions that enhance positive educational experiences. The identification of successful models, strategic resource allocation guidance, and exploration of scalability for replication across grade levels contribute practical tools for educators and administrators. Moreover, the research informs educational policies and decision-making by providing data-driven insights for decision-makers at various levels, offering evidence-based solutions to address classroom shortages and enhance science education. The study's focus on the long-term sustainability of make-shift classes ensures recommendations extend beyond immediate concerns, aligning to create enduring positive impacts on science achievement and overall educational quality.

3. Methodology

3.1. Research Design

This study adopts a mixed-methods approach to comprehensively evaluate the impact of implementing makeshift classes on the academic performance of science students at General Tomas Mascardo National High School, Imus City, Cavite Philippines during the school year 2023–2024. The mixed-methods design integrates quantitative data analysis to assess performance and qualitative data analysis to explore experiences, challenges, and motivations.

The primary participant groups include students from grades 7 to 10 attending makeshift classes, identified through purposive sampling.

Quantitative data on the academic performance of learner participants has gathered from various sources, including written works, performance tasks, quarterly assessments, and class attendance.

In-depth interviews with a subset of teacher volunteers is conducted using qualitative data to delve into their experiences and insights. Additionally, focus group discussions with learner participants will be arranged to gain insights into their experiences, perceived benefits, and suggestions for improvement. This evaluation is situated in the context of the implementation of makeshift classes to enhance science achievement at General Tomas Mascardo National High School, Imus City, for the specified school year.

3.2. Statistical Treatment

The data and information gathered through the data mining is supplemented with unstructured one-on-one interviews through focus group discussion (FGD) for the students in General Thomas Mascardo National High School. FGD with the group of students tests ideas consolidated from the survey questionnaires. The data gathered in the survey is collated, tallied, and appropriately summarized by the researchers and treated with the following statistical tools:

The weighted mean identifies the students' performance assessment under makeshift classes.

Independent T-test- it will be used to determine if there is a significant difference in students' performance between morning and afternoon shift using the formula:

$$t = \frac{x_1 - x_2}{SE}$$

The two-sample t-test is a statistical method used to compare the means of two independent groups to determine if there is a significant difference between them. In the context of makeshift classes with two groups (morning and afternoon), a two-sample t-test can be applied to assess whether there is a significant difference in some measure of interest between the two class sessions.

Thematic analysis identifies and reports patterns (themes) within a dataset, such as students' responses to makeshift classes. When interpreting students' thoughts on makeshift classes, thematic analysis can provide valuable insights into their experiences, perceptions, and challenges.

4. Results

This section is composed of a discussion of the results of the performance of students on the implementation of makeshift classes and their lived experiences.

Survey Question No.1: What is the performance of students in science during the implementation of makeshift classes in terms of Written works, Performance tasks, Quarterly assessment, and Class attendance

Table 1 Performance of the Students under Makeshift Classes in Science

SHIFT	SECTION	MEAN PERCENTAGE SCORES		
		W.W	P.T	Q.A
1ST SHIFT	7-CAMIA	60.12	82.52	36.48
	9-SODIUM	61.21	77.96	41.45
2ND SHIFT	8-SAMPALOC	63.40	83.61	52.14
	10-ESCODA	63.85	74.65	67.64
	10-DAGOHOY	68.90	73.20	42.77
	10-ABAD SANTOS	59.73	95.35	45.27

4.1. Data Interpretation

Table 4.1 presents mean percentage scores for three performance indicators (W.W, P.T, and Q.A) across two shifts (1st and 2nd) for different sections. The mean percentage scores represent the average performance in each section for each indicator during the specified shifts. It shows variations in the mean percentage scores across different sections and shifts. In the 1st shift, 9-SODIUM has relatively higher scores in W.W and P.T compared to 7-CAMIA, while 7-CAMIA has a higher score in Q.A. In the 2nd shift, 10-ESCODA exhibits higher scores across all three sections than other locations like 8-SAMPALOC, 10-DAGOHOY, and 10-ABAD SANTOS. These variations may indicate differences in performance across performance indicators and shifts, potentially pointing toward the need for further investigation into the factors influencing these differences. These findings suggest significant disparities in performance across performance indicators and shifts. Specifically, the observed differences may indicate underlying factors influencing these variations, emphasizing the need for a more in-depth investigation into the determinants impacting performance differences across sections and shifts. The negative aspect of this observation lies in the potential challenges and inconsistencies in academic performance that warrant further exploration and targeted interventions to address these issues systematically.

Table 2 Attendance Record of the Students under Makeshift Classes during the 1st Quarter

SHIFT	SECTION	Average Attendance					
		August		September		October	
		Presents	Absences	Presents	Absences	Presents	Absences
1ST SHIFT	7-CAMIA	2.96	0.04	19.19	1.85	19.08	3.54
	9-SODIUM	3.00	0.00	20.08	0.92	21.88	0.13
2ND SHIFT	8-SAMPALOC	3.00	0.00	20.54	0.48	21.78	0.22
	10-ESCODA	3.00	0.00	20.88	0.13	21.71	0.29
	10-DAGOHOY	3.00	0.00	21.00	0.28	21.45	0.55
	10-ABAD SANTOS	3.00	0.00	19.80	1.20	21.27	0.73

Table 4. 2 shows the average attendance records for different sections across two shifts (1st and 2nd) over three months (August, September, and October). Attendance is measured in terms of the average number of students present and absent for each section during the specified months. The table indicates that for both shifts, there is consistency in the average number of students current across the three months. In general, the attendance remains stable, with minor fluctuations observed. For instance, in the 1st shift, 7-CAMIA and 9-SODIUM sections exhibit relatively stable attendance patterns across the three months. In the 2nd shift, 8-SAMPALOC and 10-ESCODA also demonstrated consistent attendance over the observed period.

Moreover, the average number of absences is generally low for most sections and shifts, indicating a high student presence. Remarkably, the absence rates remain minimal across the months, suggesting that students in these sections consistently attend classes.

4.3. Survey Question No.2: Is the students' performance significantly different between morning and afternoon shifts?

Table 3 Significant Difference in the Performance of Students under Makeshift Classes

VARIABLES	t-value	p-values	Decision	Verbal Interpretation
Performance				
W.W (Percentage Score)	-1.672	0.097	Accept Ho	Not Significant
P.T (Percentage Score)	-0.733	0.464	Accept Ho	Not Significant
Q.A (SCORE)	-7.298	0.000	Reject Ho	Significant
Attendance				
AUGUST (3)	-1.000	0.320	Accept Ho	Not Significant
SEPTEMBER (21)	-3.115	0.002	Reject Ho	Significant
OCTOBER (22)	-3.409	0.001	Reject Ho	Significant

Table 4.3 illustrates variables related to Performance (evaluated through W.W., P.T., and Q.A. percentage scores) and Attendance (examined for August, September, and October). Regarding Performance, the W.W. and P.T. percentage scores do not exhibit statistically significant differences, as indicated by their respective t-values of -1.672 ($p = 0.097$) and -0.733 ($p = 0.464$). However, the Q.A score presents a substantial deviation, with a t-value of -7.298 and a p-value of 0.000, leading to the rejection of the null hypothesis and signifying a significant difference.

In terms of Attendance between makeshift classes, the data indicate that August does not demonstrate statistical significance ($t = -1.000$, $p = 0.320$), whereas September ($t = -3.115$, $p = 0.002$) and October ($t = -3.409$, $p = 0.001$) both exhibit significant differences. In effect, these outcomes suggest that, among the Performance variables, only the Q.A

score shows significance. Concerning Attendance, the months of September and October present statistically significant differences.

Thus, table 4.3 reveals a potential adverse effect on academic performance, specifically in the Quarterly assessment (Q.A) variable, among makeshift classes. The statistically significant deviation in the Q.A scores, with a t-value of -7.298 and a p-value of 0.000, indicates a substantial difference in the scores across sections. This finding suggests that certain sections may face challenges or disparities in the quality of answers provided by students, potentially indicating an area of concern for academic achievement. While the written works (W.W) and performance tasks (P.T) scores do not exhibit significant differences, the considerable variation in Q.A scores points towards a specific academic performance aspect requiring attention. Additionally, the observed significant differences in attendance during September and October may negatively affect academic performance. Irregular attendance patterns during these months could potentially impact the quality of answers provided by students, indicating a complex interplay between attendance and academic achievement in makeshift classes.

4.4. Survey Question No. 3: How do makeshift classes influence the performance of the students?

The feedback gathered from students regarding their experiences in makeshift various perspectives on how the learning environment influences their performance. A blend of positive aspects and challenges emerges from their responses, providing valuable insights into the critical role of physical space in learning. On the positive side, some students highlighted the adaptability and communication skills fostered by makeshift classrooms. These environments often required them to project their voices during presentations and group work, potentially enhancing their communication ability. Additionally, comfort and access to fresh air in these less conventional settings were appreciated, contrasting with regular classrooms' more confined and sometimes overheated conditions. This suggests that makeshift classrooms can offer a more relaxed atmosphere conducive to certain forms of engagement and comfort.

However, the challenges associated with makeshift classrooms are prominently noted and centered around noise and distractions. Students consistently report that the elevated noise levels from surrounding activities and within the school significantly impaired their ability to concentrate and effectively absorb the material being taught. This issue is compounded by physical discomforts, such as inadequate ventilation or cooling facilities, further detracting from the learning experience. The overarching sentiment is a clear preference for regular classrooms' structured, focused environments, perceived as more conducive to learning due to their quiet and fewer distractions.

The mixed feelings towards makeshift classrooms reflect a recognition of their potential benefits and a predominant concern over their negative impact on learning quality. While the informal setup and the physical comfort of such spaces offer certain advantages, the academic effectiveness of makeshift classrooms is questioned, with a strong inclination towards the traditional, more structured learning environments for their ability to support focused study and understanding.

The overarching interpretation of this feedback underscores the importance of a conducive learning environment as a fundamental component of effective education. While makeshift classrooms may serve as a viable temporary solution under certain circumstances, they often fall short of providing the necessary conditions for focused academic engagement and learning. The primary issue of noise and distractions is a significant educational barrier within these settings. Therefore, despite the potential temporary benefits of makeshift classrooms, there is a strong preference for the traditional classroom setup, emphasizing the need for quiet, focused environments that support optimal learning outcomes. This insight highlights the necessity for educational institutions to prioritize creating and maintaining learning environments conducive to student success, mainly when makeshift classrooms are used out of necessity.

4.5. Survey Question No. 4: What insights were gained from students' experiences subject to the implementation of make-shift classes?

The themes emerging from the morning and afternoon shift students' answers revolve around the challenges and impacts of makeshift or open-area classrooms on their learning experiences. The key themes include:

- **Environmental Factors:** Morning shift students consistently mention the makeshift class noise as a significant barrier to engagement and concentration. Afternoon shift students also emphasize the difficulty of focusing due to noise and some express concerns about the impact of weather conditions on their ability to learn.
- **Comfort and Space:** Morning shift students express discomfort and desire more comfortable chairs. Some students find it hard to concentrate due to these discomforts. Afternoon shift students highlight the spaciousness of the makeshift class as an advantage for specific activities like performance tasks. Still, others prefer the structure and comfort of regular classrooms.

- **Focus and Concentration:** Morning shift students consistently report difficulty focusing and concentrating on lessons due to the noisy environment. Afternoon shift students echo similar sentiments, with some specifying challenges in understanding teachers when seated at the back or distracted by noise.
- **Motivation and Interest**: Morning shift students have varying perspectives on the impact of makeshift classes on their motivation and interest. Some feel unaffected, while others note a need for adjustments in seating or self-learning strategies. Afternoon shift students express a range of emotions, including the loss of motivation due to negative thoughts, noise pollution affecting focus, and a decline in interest in studying science.
- **Adaptation and Coping:** Morning shift students suggest adaptive measures, such as students adjusting their positions or engaging in self-learning, like watching YouTube videos. Afternoon shifts, students discuss adaptation and becoming accustomed to the situation, even if it initially affects motivation and interest.
- **Preference for Regular Classrooms:** Several afternoon shift students prefer regular classrooms, citing comfort, suitability, and ease of communication with friends.
- **Teacher Impact:** Some morning shift students attribute their ability to stay focused to teachers who actively help them understand the lessons, particularly in science. There is no direct mention of teacher impact in the afternoon shift responses.
- **External Factors and Distractions:** Morning shift students point out external factors such as noise, lack of privacy, and the presence of mosquitoes affecting their focus. Afternoon shift students mention distractions like noise, passing vehicles, and challenges during reporting that contribute to difficulties in concentration.
- **Physical Environment and Health Concerns:** The morning shift students mentions issues with the physical environment, including the lack of privacy, noise, and the presence of mosquitoes, posing health risks. During the afternoon shift, students also discussed challenges related to the physical environment, including heat, brightness, and mosquito-related concerns.

4.6. Survey Question No. 5: Based on the study's findings, what enhancement mechanism can be proposed to improve the implementation of learning spaces?

Based on the findings of the study, an enhancement mechanism to propose is the establishment of a comprehensive feedback and evaluation system. This mechanism involves the following steps:

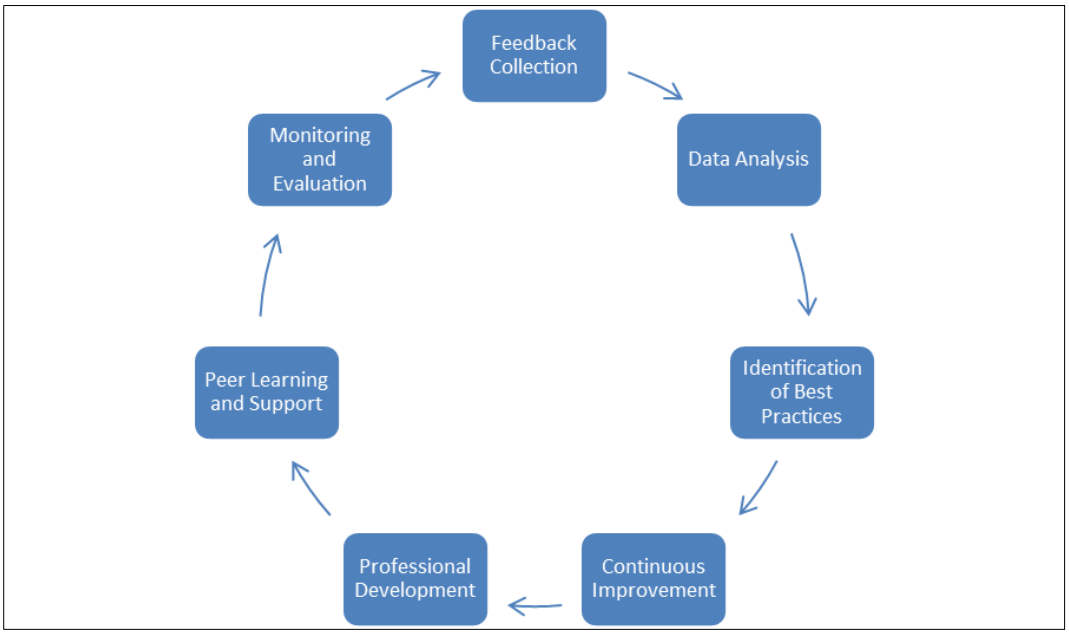

Figure 1 Proposed Comprehensive Feedback and Evaluation System

- **Feedback Collection***:* Regularly gather feedback from students, teachers, and other stakeholders regarding the effectiveness of implemented strategies and interventions. This feedback is collected through surveys, focus group discussions, or one-on-one interviews.
- **Data Analysis:** Analyze the collected feedback along with academic performance and attendance data to identify trends, patterns, and areas needing improvement. This analysis should be both qualitative and quantitative to provide a holistic understanding of the situation.

- **Identification of Best Practices:** Identify successful interventions and best practices that have positively impacted academic performance, attendance, and overall learning environment. Recognize and disseminate these best practices to encourage adoption in other sections or shifts.
- **Continuous Improvement:** Use the findings from feedback analysis to refine existing strategies and develop new interventions. Emphasize a continuous improvement mindset, where adjustments are made based on ongoing evaluation and feedback.
- **Professional Development:** Provide professional development opportunities for school heads, head teachers, master teachers, and teachers based on the identified areas for improvement. Training sessions, workshops, or seminars can help enhance their skills and knowledge in areas such as instructional methodologies, assessment techniques, classroom management, and quality assurance practices.
- **Peer Learning and Support:** Facilitate peer learning and support networks among teachers to encourage collaboration and knowledge sharing. Establish platforms where teachers can exchange ideas, share experiences, and support each other in addressing challenges.
- **Monitoring and Evaluation:** Implement a robust monitoring and evaluation framework to ensure that recommended interventions are being effectively implemented and evaluated. Hold stakeholders accountable for their roles in improving academic performance, attendance, and overall learning outcomes.

5. Discussion

The presented research findings provide valuable insights into different sections' performance and attendance patterns across two shifts over three months.

5.1. Reflection on Performance (Table 1)

The variations in mean percentage scores across different sections and shifts, particularly in the 1st and 2nd shifts, raise questions about the factors influencing these differences. The reflection indicates that 9-SODIUM performs better in W.W and P.T in the 1st shift than 7-CAMIA, while 7-CAMIA excels in Q.A. In the 2nd shift, 10-ESCODA outperforms other sections across all three indicators. The implication is that targeted interventions may be necessary to address specific performance disparities observed across different sections and shifts.

5.2. Reflection on Attendance (Table 2)

The stability in attendance patterns across the three months for both shifts is a positive observation. The generally low number of absences indicates a high student presence in most sections, emphasizing the consistency in attendance. The reflection also notes small fluctuations in attendance for specific sections, but the overall trend remains stable. The implication is that while attendance seems generally satisfactory, a closer examination of the factors contributing to fluctuations in specific sections may be warranted. It may be essential to explore whether external factors, such as extracurricular activities or socio-economic conditions, contribute to attendance variations.

5.3. Reflection on Table 3

The combined analysis of performance and attendance variables reveals exciting insights. The lack of statistically significant differences in W.W. and P.T. scores suggests relative consistency in these performance indicators across sections. However, the considerable difference in Q.A scores indicates a need to focus on factors influencing quality performance. Additionally, the statistically significant differences in attendance for September and October emphasize the importance of considering attendance monitoring for the remaining months of the school year.

6. Conclusions

The following are the conclusions based on the findings of the study.

- The variations in mean percentage scores across sections and shifts highlight potential differences in academic performance. These differences underscore the importance of investigating and addressing specific factors influencing performance outcomes in different sections and shifts.
- The consistent and stable attendance patterns across both shifts and minimal absence rates for most sections are positive indicators. Despite minor fluctuations, the overall trend suggests a high level of student presence. The stability in attendance implies a conducive learning environment, although further exploration of factors contributing to fluctuations in specific sections may be beneficial.

- The combined analysis of Performance (W.W, P.T, and Q.A) and Attendance for August, September, and October reveals significant insights. While W.W and P.T scores show no statistically significant differences among sections and shifts, the substantial deviation in Q.A scores signifies a notable performance difference. Regarding attendance, September and October exhibit significant differences, suggesting variations in student presence during these months. August does not show statistical significance in attendance, indicating relative stability.
- The study reveals significant disparities in academic performance across various performance indicators and shifts, focusing on the Quarterly assessment (Q.A) variable among makeshift classes. The observed differences suggest potential underlying factors influencing these variations, emphasizing the need for a comprehensive investigation into the determinants impacting performance differences across sections and shifts.
- The negative impact on academic performance, especially in the Q.A variable, is evident, as indicated by a statistically significant deviation with a t-value of -7.298 and a p-value of 0.000. This finding highlights a specific area of concern for academic achievement in makeshift classes, where challenges or disparities in the quality of answers provided by students may contribute to the observed differences.
- The study identifies significant variations in attendance during September and October, suggesting a potential link between irregular attendance patterns and the negative effect on academic performance. The complex interplay between attendance and academic achievement emphasizes the need for targeted interventions to address attendance issues systematically.
- The identified themes encompass a broad spectrum, including environmental factors, comfort and space, focus and concentration, motivation and interest, adaptation and coping, preference for regular classrooms, teacher impact, external factors and distractions, physical environment, and health concerns.
- The morning shift students consistently highlight noise as a significant barrier to engagement and concentration, along with discomfort and difficulty focusing. On the other hand, afternoon shift students express mixed feelings, acknowledging the spaciousness of makeshift classes for certain activities but also emphasizing a preference for the structure and comfort of regular classrooms.
- Motivation and interest in learning are discussed by both shifts, with variations in perspectives. Morning shift students suggest adaptive measures and attribute their ability to stay focused to supportive teachers, particularly in science. Afternoon shift students, however, express a range of emotions, including a decline in motivation due to negative thoughts and noise pollution affecting focus.
- External factors and distractions, such as noise, passing vehicles, and challenges during reporting, are highlighted by both shifts as contributing to difficulties in concentration. Additionally, concerns about the physical environment, including the lack of privacy, heat, brightness, and mosquito-related issues, are prevalent in morning and afternoon shift responses.

Recommendations

- Addressing Quarterly Assessment Disparities

Given the identified differences in mean percentage scores across sections and shifts, it is recommended to conduct a detailed analysis to pinpoint the specific factors influencing academic performance. The significant deviation in Quarterly Assessment (Q.A.) scores across sections is crucial to investigate the factors contributing to these differences. Schools should conduct a thorough analysis to identify the potential challenges students face in this aspect of academic performance. Interventions such as targeted tutoring, additional resources, or tailored teaching methodologies may help the students to address the performance gaps in Q.A. Furthermore, conduct an in-depth investigation into the determinants influencing performance differences across sections and shifts, mainly focusing on the Quarterly assessment (Q.A) variable. Develop interventions to address challenges or disparities in students' answers, particularly in the Quarterly assessment (Q.A) variable. Provide additional support, resources, or training to students in makeshift classes to enhance their academic performance.

- *Attendance Monitoring and Intervention*

While overall attendance patterns are stable, the observed fluctuations in specific sections warrant further investigation. Schools should implement strategies to understand the reasons behind the fluctuating attendance rates during September and October to provide a support system to ensure consistent student presence. Conducting qualitative and quantitative analyses to understand the factors contributing to attendance variations can provide valuable insights. Extracurricular activities, transportation issues, or socioeconomic conditions may influence attendance. Identifying these factors will enable the development of targeted strategies to ensure consistent student presence across all sections and shifts Implement targeted interventions to address irregular attendance patterns.

Explore methods to enhance student attendance systematically, considering the potential link between attendance and academic performance.

- *Providing Teacher Support and Engagement*

The significant deviation in Q.A. scores indicates a need for focused attention on quality assurance practices. A thorough review of the Q.A. processes, instructional methodologies, and assessment techniques is recommended. This may include professional development opportunities focused on adapting new teaching techniques to unconventional learning environments and providing additional support for student engagement and understanding. Encouraging collaboration among teachers from different sections and shifts can foster a culture of knowledge sharing and best practices. Establishing forums for teachers to exchange successful teaching strategies, assessment techniques, and classroom management approaches can contribute to a more cohesive and effective learning environment. This collaborative approach may help address variations in academic performance and contribute to overall improvement.

- *Student Adaptation and Coping Strategies*

The findings underscore the importance of monitoring ongoing performance and attendance metrics. Implementing a systematic monitoring system allows for the timely identification of emerging trends or issues. Encouraging and supporting students in developing effective coping mechanisms, such as self-directed learning strategies or adjusting their positions for better focus and providing students with opportunities for feedback and input on classroom arrangements and learning environments, can empower them to take ownership of their learning experiences and contribute to positive adaptations. Regular reviews can guide the school in making data-driven decisions and facilitate prompt interventions where necessary. Establishing a feedback loop for continuous improvement will contribute to the overall effectiveness of the educational system.

- *Enhancing Learning Environment in Makeshift Classes*

Develop initiatives to create a conducive learning environment considering the diverse challenges students highlight in morning and afternoon shifts. Implement measures to reduce noise in makeshift classes to enhance student engagement and concentration. Address discomfort issues, especially for morning shift students, by providing more comfortable seating arrangements or making necessary adjustments. Provide motivational support to students, especially those expressing a decline in motivation or interest in learning. Explore and implement adaptive measures suggested by morning shift students to enhance focus and motivation.

Compliance with Ethical Standards

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Disclosure of Conflict of Interest

Jovelyn Silvania Reyes, the author of this manuscript, declares that she has no financial interests, affiliations, or personal relationships that might bias the study's objectivity or compromise its integrity. In the event of any future conflicts of interest, we commit to promptly disclosing them.

Statement of informed Consent

- Learner participants involved in the study were provided with comprehensive information regarding the research objectives, procedures, and potential implications.
- Participants were made aware that their participation was entirely voluntary, and they had the right to withdraw at any stage without any adverse consequences.
- The confidentiality of participant information was ensured, and any data collected during the study were treated with utmost privacy, adhering to ethical standards.
- Participants were allowed to ask questions and seek clarification, and all concerns raised were addressed satisfactorily.
- Written and verbal consent were obtained from all participants before their inclusion in the study.
- The authors affirmed that ethical guidelines and standards were followed throughout the research process, and informed consent was obtained, ensured proper documentation, and abided by research regulations involving human subjects.

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Authors Short Biography

Jovelyn Silvania Reyes, a Junior High School teacher at General Tomas Mascardo National High School, has devoted her career to shaping young minds and contributing to education. Born in 1987, Reyes discovered her passion for teaching early in life, fueling her commitment to educational excellence.

Currently pursuing her Master's Degree in Biology at De La Salle University-Dasmariñas Cavite, Jovelyn is on a journey to deepen her understanding of educational theories and pedagogical practices. Her academic pursuits reflect a tireless dedication to continuous learning, enriching her classroom with the latest insights in education.

With a heart for service and mind dedicated to academic growth, Jovelyn Silvania Reyes stands as a beacon of inspiration in the realm of public education, shaping the future through her dual roles as an impactful teacher and a passionate researcher.