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Teachers' Learning Management and Its Effect on Grade 8 Filipino Students' Performance in Mathematics in a Post Covid-19 Pandemic Context

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Abstract

This study explored the connection between the learning management strategies utilized by teachers and their impact on the academic performance of Grade 8 Filipino students in Mathematics. The research focused on public high schools within the North district of the Department of Education in Cebu City Division during the 2022-2023 school year. Utilizing a descriptive-correlational design, the study involved 158 students from the research sites. Data were analyzed using T-test and Pearson r. The findings revealed that both schools exhibited a moderate level of observed learning management, with a moderate impact on students. The average grades of the respondents were satisfactory. However, the effectiveness of learning management strategies did not predict academic performance. Furthermore, statistical analysis indicated a significant difference between the evaluations made by the two groups regarding the effects of learning management on students. The results suggest that while learning management strategies are important, they are not definitive predictors of Grade 8 students' academic performance in the post-COVID-19 context. Consequently, this study recommends a further investigation on confounding variables that may impede the successful implementation of comprehensive learning management plans to enhance academic outcomes.

Keywords*:* Learning Management, Mathematics Education, post Covid-19 pandemic, Performance in mathematics.

Introduction

The adoption of online learning has faced numerous challenges, particularly in mathematics education programs. With minimal time to gather resources and upgrade skills, schools had to make swift decisions to adapt to this unprecedented situation. Early studies conducted both internationally and domestically in 2020 indicated that schools were under significant stress as they navigated these changes, concerned about meeting the academic and social needs of children. Lecturers were exploring, creating, and innovating various methods and strategies to deliver an effective online learning process.

Now that the Philippines has moved into a post-COVID-19 status, the continuing adoption of online learning has been established. Students have specific expectations in this new context. During the pandemic, teachers faced considerable challenges in meeting the Department of Education (DepEd) program expectations, especially for students who struggle with mathematics. As teachers and

DepEd personnel juggle new tasks, challenges, and expectations, the role of parents, guardians, and community members has expanded to support learners. The Department of Education continues to promote literacy and numeracy while fostering stronger partnerships among schools, households, and communities. Students, teachers, and parents are adapting to the "new reality," with many schools implementing their distance learning contingency plans and establishing online connections between students and teachers.

Governments at various levels are collaborating to address these concerns. Teachers and parents have had to quickly adjust their instructional methods to ensure that students remain engaged with their learning amidst these unforeseen circumstances. The COVID-19 pandemic has significantly impacted students, particularly in their analytical and quantitative abilities. It has been observed that after years of distance learning, some students struggle with basic mathematical problems and equations, despite regular attendance and completed assignments, highlighting a disconnect between participation and performance.

Despite numerous studies on the immediate impact of the COVID-19 pandemic on education, there is limited research on the long-term effects of prolonged online learning, particularly in mathematics education. This study seeks to fill this gap by investigating the specific challenges faced by Grade 8 students in the Philippines and assessing their mathematical performance in a post-pandemic period, providing insights into how learning management strategies can be improved in the new normal.

Therefore, this study identifies the challenges that arise from implementing online learning in mathematics education and to assess the impact of such health crisis on the mathematical performance of Grade 8 Filipino students in a post Covid-19 pandemic.

Literature Review

1. Learning Management and Teacher Strategies

Learning is a behavioral change based on specific goals. This change is ideally positive and enduring. Learning manifests through knowledge and information (cognitive), skills (psychomotor), and values and attitudes (affective) (Musfiroh et al., 2022; Naziah et al., 2020). It can be self-directed, where individuals take charge of their learning, or organization-initiated through programs aimed at upgrading competencies. It involves planning, implementation, direction, and evaluation—collectively known as learning management (Morris, 2019).

Teacher preparation and management of learning, both for seasoned educators and new teachers, is essential. Teachers need to understand interactive assessment techniques, innovative pedagogy, and differentiation to enhance the teaching-learning process (Pelayo-Dacanay et al., 2023). Effective teacher preparation results in classrooms where students learn from best practices, and teachers reflect on their teaching (Dakay et al., 2023; Metante et al., 2022). Continuous professional development is crucial as teaching is a lifelong endeavor. Schools must invest significantly in staff professional development to ensure ongoing improvement in teaching and learning.

Effective learning management is crucial for Grade 8 Filipino students' performance in mathematics post-health crisis. Teachers must leverage their understanding of cognitive, psychomotor, and affective learning domains to design and implement strategies that meet diverse student needs. Continuous professional development and innovative pedagogy can transform teaching practices, fostering an environment where students thrive. By adopting best practices in learning management, educators can create classrooms that support self-directed and organized learning, ultimately enhancing students' mathematical proficiency.

2. Impact of COVID-19 on Teaching and Learning

The shift to online teaching and learning post-COVID-19 challenged the digital preparedness of teachers and students globally (Mekonen & Nneoma, 2021; Bao, 2020; Crawford et al., 2020). This transition, termed emergency remote teaching involved significant improvisation and ad hoc strategies, contrasting with well-planned online learning scenarios (Fabriz et al., 2021; Hodges et al., 2020). As we move into the post-pandemic classroom, educational institutions can integrate effective remote teaching practices into planned online or blended learning environments, refining or discarding ineffective ones (Curtin, 2021).

Nearly all face-to-face instruction was replaced with online formats (Zawacki-Richter, 2020; Cicha et al., 2021). This shift highlighted the need to adapt pedagogy to the online medium, as simply transferring traditional methods was insufficient for quality learning (Henriksen et al., 2020). Both teachers and students needed new technological skills and new ways of interacting, leading to evolving roles.

The COVID-19 pandemic has significantly impacted teaching and learning, revealing the importance of digital preparedness and adaptability among educators. For Grade 8 Filipino students, transitioning back to face-to-face or blended learning environments requires integrating effective remote teaching practices learned during the pandemic. By refining and incorporating these strategies, teachers can ensure a smooth transition and continued academic progress, addressing any learning gaps that emerged during emergency remote teaching.

3. Challenges in Online Learning Environments in a post-health crisis

During the pandemic, the social aspect of university learning posed significant challenges, leading to reports of anonymity and lack of social presence. Pre-pandemic studies indicated that such gaps accounted for lower satisfaction with online learning (Daigle & Stuvland, 2020). This social presence gap suggests that teachers should work to bridge this gap to equalize outcomes across modalities. The unfamiliar distance learning environment was challenging for many students, who were uncomfortable using webcams in synchronous settings due to the constant self-view and unclear audience (Bedenlier et al., 2020). Students also reported diffuse peer relationships and reduced social support in online settings compared to traditional ones, along with increased workloads (Aristovnik et al., 2020). These findings emphasize the need to carefully consider students' learning experiences to engage them effectively in online learning.

The challenges faced in online learning environments during the pandemic, such as social presence gaps and increased workloads, have important implications for post-crisis education. Grade 8 Filipino students need a supportive and engaging learning environment that bridges these gaps. Teachers must focus on enhancing social interaction, providing clear instructions, and maintaining a balanced workload. Addressing these challenges will help improve student satisfaction and performance in mathematics, ensuring a more effective learning experience.

4. Online Learning Formats, Management and Their Implications

Online learning can be asynchronous or synchronous. Asynchronous learning, being temporally and geographically independent, allows for self-paced, individualized learning but poses challenges as described by media richness and media naturalness approaches (Blau et al., 2017). Media richness refers to a medium's ability to provide immediate feedback, convey verbal and non-verbal cues, personalize communication, and simulate natural language. Face-to-face communication is considered the most natural form (Blau et al., 2017). Consequently, synchronous online learning environments, though less natural and rich, offer real-time communication and immediate feedback, fostering a sense of personalization. However, synchronous communication is less effective for discussing complex ideas or deep reflection (Hrastinski, 2010).

Synchronous learning enhances students' commitment and motivation but also carries risks of disengaged participation, similar to face-to-face settings (Smith & Smith, 2014). Videoconferencing, while useful, can reduce interaction fluency and attention compared to traditional teaching (Rapanta et al., 2020). Technical infrastructure quality is also crucial for effective participation in live remote settings (Xie et al., 2018).

Understanding the strengths and limitations of asynchronous and synchronous online learning is essential for teachers managing Grade 8 mathematics education post-crisis. While asynchronous learning offers flexibility, synchronous sessions can enhance engagement and provide real-time feedback. Educators must strike a balance between these formats to cater to different learning styles and needs. Ensuring robust technical infrastructure and effective use of videoconferencing can help maintain high interaction levels and support student motivation and commitment.

5. Mathematics Education and Learning Management

To engage in advanced learning, compete in a technology-driven workforce, and be well-informed citizens, students today need to deepen their mathematical knowledge, skills, and values. They must comprehend fundamental concepts such as numbers, measurement, geometry, probability, data analysis, patterns, functions, and algebra. Additionally, they need to be adept at computation, problem-solving, representation of ideas, and connecting mathematics to other life areas.

In the K to 12 mathematics framework, reflective learning and constructivism are emphasized for critical thinking and problem-solving (SEAMEO-INNOTECH, 2012). These approaches encourage the use of reflective thinking, promoting deeper learning and helping students make sense of their experiences through metacognition (Clark et al., 2023). Reflective writing supports mathematical reasoning and problem-solving, aiding in effective communication.

Students often struggle with teachers' instructions, particularly in motivation, introduction, and adapting methods to learners' capabilities (Ariffin et al., 2022). Consequently, only a few students enjoy mathematics, despite the significant opportunities for mathematically inclined individuals and the disadvantages faced by those lacking mathematical knowledge in a competitive, modern world. To address this, teachers need to employ creative and appropriate teaching strategies.

Teachers must create optimal learning opportunities for students to succeed in mathematics. Concerns have been raised about whether learning mathematics outside the classroom undermines inquiry-based teaching methods. Explicit explanations followed by practice are well-suited to video technology, while inquiry-based methods focus on student-centered discussions (Russo & Hopkins, 2017). These discussions allow students to learn from each other and teachers to connect emerging mathematical ideas. However, negative attitudes toward struggle in mathematics learning in home environments can hinder these methods (Clarke et al., 2014). Teachers may be reluctant to allow fruitful struggle in remote learning environments due to the lack of synchronous, teacher-facilitated settings and parents' negative attitudes (Russo et al., 2021).

In the post-health crisis period, it is crucial for Grade 8 Filipino students to deepen their mathematical knowledge and skills through innovative and reflective learning strategies. Teachers should employ constructivist approaches and encourage reflective thinking to promote critical thinking and problem-solving abilities. Creative teaching methods that adapt to students' capabilities and foster positive attitudes towards mathematics can significantly enhance student performance. By creating optimal learning opportunities and addressing the challenges of remote learning, educators can help students succeed in a competitive, modern world.

Methodology

A descriptive-correlation research design was employed in this study which utilized a survey technique. It is descriptive and correlational design because it sought to determine the relationship of the learning management of the teachers and academic performance of the Grade 8 Filipino students in mathematics during the post Covid-19 pandemic. It has likewise aimed to examine whether or not there is a difference between the evaluations made by the respondent-groups on the extent of effects of learning management employed by the teachers on students.

Basically, descriptive-correlational research design is a type of research that aims to describe the characteristics of a population or phenomenon and investigate the relationship between variables. This design does not involve manipulation of variables, but rather focuses on observing and measuring the variables of interest, and analyzing their relationship using statistical methods. The descriptive aspect involves describing the variables and their distribution, while the correlational aspect involves examining the strength and direction of the relationship between variables. This design is often used in exploratory research, and can provide valuable insights into the nature of a phenomenon – like in the recent study.

There were two public national high schools which have been taken in as research environments. They were deliberately chosen based on the school's status, availability of learning resources and the curriculum offering from which these aspects are crucial in the current scientific investigation. Also, the purposive choice of taking in 158 Grade 8 Filipino students from the night classes of these two (2) environments as respondents is driven by the actual observations and/or experiences on the challenges and struggles shown by these respondents during the post Covid-19 pandemic where issues related to modular learning and some instances of online classes have placed them at a disadvantage position. The crafting of indicators of this instrument were referred from the empirical studies of Ong et al. (2022) and Rafigue et al. (2021), respectively. There were three (3) parts outlined for the survey questionnaire, namely: Extent of Effects of Learning Management of the Teachers have on the Student-respondents and Level of Performance of Grade 8 students in Mathematics during the pandemic.

The study followed a three-phase protocol to obtain data, ensuring approval and consent from relevant authorities and respondents. In the Preliminary Phase, a request letter was sent to the Office of the Schools Division Superintendent (OSDS) of the Department of Education Cebu City Division and the School Heads of the identified public high schools to gain permission to conduct the research. Informed consent was also distributed to all Grade 8 Filipino student participants. During the Data Gathering Phase, upon receiving the necessary approvals, an on-site orientation was held to explain the survey mechanics and reassure students about data privacy. Respondents were also reminded of the research benefits and assured of no associated risks before completing the survey. In the Post-Data Gathering Phase, collected questionnaires were collated and tabulated for analysis. Inferential statistical tools were used to process both parametric and nonparametric data. The scientific results were then analyzed, interpreted, and presented for review in this manuscript. Moreover, Pearson r and t-test were bought utilized to statistically infer the raw data for both sub-variables on the extent of effect of learning management employed by the teachers and the academic performance level of the respondents. Furthermore, scoring guides and procedures were used to established distinctive interpretations of the computed values.

Results & Discussions

The learning management of teachers has been widely studied and debated, as it is believed to have a significant impact on students' academic performance and overall well-being. Teachers who possess effective learning management skills can create a positive learning environment that fosters student engagement, motivation, and success. Hence, the tables show the actual state

of influence that the learning management of teachers have on the students from NHS-1 and NHS-2 during the Covid-19 pandemic and even beyond this period.

Table 1. Extent of effects of learning management on student (n=158)

Indicators	Mean	SD	VI
Q1: In online or remote classes facilitated by our teachers, it prompted me to engage well and learn the lessons more.	2.69	0.52	Moderately Effective
Q2: The manner how our teachers monitor our attendance online motivates me to be punctual.	2.71	0.60	Moderately Effective
Q3: How the activities are crafted by our teachers during our asynchronous session challenges me to complete them.	3.12	0.76	Moderately Effective
Q4: Evaluations through the teachers' learning management approach have motivated me to do better during tests.	2.89	1.14	Moderately Effective
Q5: My enthusiasm for learning increases when our teachers deliver the lessons during synchronous classes.	2.92	0.88	Moderately Effective
Q6: Interactions with my classmates and teachers through online platform are fun and informative.	3.03	0.95	Moderately Effective
Q7: The ways how our teachers expose us to digital technologies has allowed me to adapt usage of such easily.	2.91	0.91	Moderately Effective
Q8: My problem-solving skills have improved by the methods how are teachers manage the online classes.	3.03	0.85	Moderately Effective
Q9: During online recitations conducted by our teachers, my communication skills and critical thinking were enhanced.	2.76	1.04	Moderately Effective
Q10: The learning management of our teachers has kept me to keep going with my educative journey during pandemic.	3.26	0.97	Very Effective
Average	**2.93**	**0.86**	**Moderately Effective**

Legend: 3.25 – 4.00 Very Effective; 2.50 – 3.24 Moderately Effective; 1.75 – 2.49 Fairly Effective; 1.00 – 1.74 Not Effective NHS means Night High School

Table 1 shows the results of a survey conducted among students from NHS-1 and NHS-2 on the extent of the effects of learning management on their academic performance. The mean scores for each indicator ranged from 2.69 to 3.26, with an overall average of 2.93, categorized as "moderately effective." The standard deviations (SD) ranged from 0.52 to 1.14, indicating some variability in the responses.

The average mean score of 2.93 suggests that the students considered the learning management system to be moderately effective in facilitating their learning. The students' feedback on the indicators was largely positive, with the highest mean score of 3.26 indicating that the system was very effective in keeping them on track with their educative journey during the pandemic. The lowest mean score of 2.69 indicates that the system was only moderately effective in prompting students to engage well and learn more during online or remote classes facilitated by their teachers.

Additionally, the mean scores for Q1, Q2, and Q5 were all moderately effective, indicating that the online or remote classes facilitated by their teachers motivated them to engage more and learn better. The manner in which their teachers monitored their attendance online motivated them to be punctual, and their enthusiasm for learning increased during synchronous classes. These findings suggest that the learning management system was effective in keeping the students engaged and motivated.

Furthermore, the mean scores for Q3, Q4, Q7, Q8, and Q9 were all moderately effective, indicating that the learning management system was effective in challenging students to complete activities, motivating them to do better during tests, exposing them to digital technologies, improving their problem-solving skills, and enhancing their communication skills and critical thinking. These findings suggest that the learning management system was effective in promoting the students' cognitive development.

Finally, the overall mean score of 2.93 indicates that the learning management system was moderately effective in facilitating the students' learning. The students' feedback on the indicators was largely positive, with the system being very effective in keeping them on track with their educative journey during the pandemic. The system was also effective in keeping the students engaged and motivated, challenging them to complete activities, exposing them to digital technologies, and promoting their cognitive development. These findings suggest that the learning management system implemented by the teachers in Tejero NHS and Apas NHS was effective in promoting the students' academic performance.

A teacher's learning management style (e.g., instruction, evaluations, etc.) can have a significant impact on student engagement, motivation, and achievement in the online classroom. Previous studies reveal that launching quizzes is positively linked to students' motivation (Raes et al., 2020). Ultimately, the extent of the effects of a teacher's learning management style on students during the pandemic will depend on a range of factors, including but not limited to the quality of the instructional materials, technology available, and the individual needs and learning styles of their students.

Table 2. Level of Performance of Grade 8 Filipino Students in Mathematics (n=158)

Grade Bracket	Average Grades NHS-1 Students		Average Grades NHS-2 Students		Combined Average Grades for 2 Schools	
	Freq.	%	Freq.	%	Freq.	%
90 – 100	1	0.91	5	10.42	6	3.80
85 – 89	28	25.45	6	12.50	34	21.52
80 – 84	54	49.09	14	29.17	68	43.04
75 – 79	27	24.55	23	47.92	50	31.64
Below 75	–	–	–	–	–	–
Subtotal	110	100.00	48	100.00	158	100.00

Legend: Outstanding (90 – 100); Very Satisfactory (85 – 89); Satisfactory (80 – 84); Fairly Satisfactory (75 – 79); Didn't meet the expectation (75 below);

The table shows that the majority of the students performed at a satisfactory level or higher, with 43.04% scoring in the satisfactory range (80-84), 31.65% in the fairly satisfactory range (75-79), and 21.52% in the very satisfactory range (85-89). The number of students who scored in the outstanding range (90-100) was relatively small, with only 3.8% of the combined average grades falling within this range. No students scored below 75.

Comparing the two schools, Table 2 reveals that NHS-1 had a higher proportion of students who scored in the satisfactory range (49.09%) compared to Apas NHS (29.17%). On the other hand, NHS-2 had a higher proportion of students who scored in the very satisfactory range

(25.45%) compared to Tejero NHS (12.50%). The combined average grades for both schools show that the distribution of grades is similar to that of NHS-2, with a higher proportion of students scoring in the fairly satisfactory range (31.65%) than in the other categories.

It is important to note that Table 2 does not provide information on the factors that may have contributed to the differences in performance between the two schools. Nevertheless, the data suggest that there are some differences in the level of performance between the two schools. Future research could investigate the reasons for these differences and explore ways to address any disparities in academic achievement between schools.

Overall, Table 2 suggests that the majority of Grade 8 students in Mathematics at both NHS-1 and NHS-2 performed at a satisfactory level or higher during the pandemic and, gladly towards the post-health crisis as deduced by their dedicated engagement on their self-learning modules. Teachers, although pressed due to time constraints and resources, are still able to craft the learning modules for the students to personally deal with while at home (Cortes et al., 2022). The combined average grades for both schools provide a useful overview of the overall level of performance of Grade 8 students in Mathematics after the health crisis.

This condition, where students are performing well in such a discipline during the health crisis, could be explained by their proactive standpoint on how the scholastic instruction was delivered and how learning was managed by the teachers via an online platform (Aksan, 2021). In fact, this positive perspective on understanding the lessons, where the academic instruction was managed by their teachers during the new normal, has influenced the acquisition of better outcomes in their performance. This circumstance mirrors what the respondents were accomplishing in their scholastic engagement in mathematics lessons facilitated by their respective teachers during the health crisis. How the learning was managed to carefully respond to the unique and individual needs of these students posed a significant influence on their performance and achievement in such a discipline.

Table 3. Test of Significance on the relationship between the Extent of Effects of Learning Management and Level of Performance of the Grade 8 Filipino

School	NHS-2 Grades	NHS-1 Grades	p-value	Results
Nigh High School 2 (NHS-2)	0.0709	--	0.260	No Relationship
Nigh High School 1 (NHS-1)	--	0.0827	0.683	No Relationship

Note: *p<0.05, ELM: Effect of Learning Management

A correlation analysis was conducted to examine the relationship between the extent of effects of learning management (ELM) and the level of performance of Grade 8 students during the COVID-19 pandemic as observed by teachers from two schools, NHS-1 (n=110) and NHS-2 (n=48). The results of the analysis indicated that there was no significant relationship between ELM and the level of performance of Grade 8 students in both NHS-1 (r=0.0827, p=.683) and NHS-2 (r=0.0709, p=0.260). These findings suggest that ELM may not be a significant predictor of academic performance among Grade 8 students during the COVID-19 pandemic. However, it should be noted that this study only examined two schools, and further research is needed to determine if these results can be generalized to other schools.

A study found that effective learning management strategies by teachers, including the use of online resources and tools, positively affected the academic performance of high school students in mathematics during the COVID-19 pandemic. The study also revealed that regular communication between teachers and students, along with providing timely feedback, played a crucial role in improving students' performance. Furthermore, the support given by parents to their children in remote learning during the health crisis positively

influenced the acquisition of fundamental mathematical skills, particularly in arithmetic (Gunzenhauser et al., 2021).

Another study reported similar findings, indicating that high school students' academic achievement in mathematics was significantly influenced by the learning management strategies adopted by their teachers during the pandemic. The study suggested that teachers' use of various online teaching methods, such as live video lectures and interactive quizzes, had a positive impact on students' learning outcomes (Alqahtani & Rajkhan, 2020; Su, C. Y., & Guo, Y. (2021).). Similar scenarios were observed at the research locale, where informal sharing among teachers confirmed the employment of diverse approaches in delivering intended lessons during the pandemic via online mode.

The scientific findings and results underscore the complexity of the relationship between learning management strategies and student performance, highlighting important implications for the learning management of Grade 8 Filipino students in mathematics in a post-health crisis period. Despite the lack of significant correlation between ELM and academic performance in the specific cases of NHS-1 and NHS-2, the broader evidence from other studies suggests that effective learning management, including the use of online resources, regular communication, and diverse teaching methods, can positively influence student outcomes. These mixed results imply that while a one-size-fits-all approach may not be effective, tailored strategies that consider individual school contexts and student needs are crucial. Therefore, educators should focus on integrating innovative online tools, fostering strong teacher-student communication, and involving parents in the learning process to enhance the overall educational experience and performance of Grade 8 students in mathematics. This nuanced approach can help bridge any gaps identified during the pandemic and ensure a robust and adaptive learning environment in the future.

Table 4. Test of Significance on the difference between the evaluations made by the respondent-groups on the Extent of Effects of Learning Management of Teachers

School	Mean	SD	t-value	p-value	Decision
Nigh High School 1 (NHS-1)	2.50	.518	-10.1*	<.001	Reject Null
Nigh High School 2 (NHS-2)	3.33	.350			

Note: *p<0.05

The independent t-test was conducted to determine if there is a significant difference in the extent of effects of learning management by teachers between NHS-1 and NHS-2. The mean scores of NHS-1 (M=2.49, SD=0.670) and NHS-2 (M=3.33, SD=0.260) were compared using the t-test. The results showed a significant difference in the mean scores of the two schools (t=8.263, p<0.05). Thus, the null hypothesis was rejected, indicating that the extent of effects of learning management by teachers significantly differed between the two schools. Based on the data, NHS-2 had a higher mean score than NHS-1, suggesting that the extent of effects of learning management by the teachers in NHS-2 had a more significant impact on student learning compared to NHS-1.

More specifically, the mean scores of NHS-1 and NHS-2 on the Extent of Effects of Learning Management by Teachers show that NHS-2 had higher mean scores than NHS-1 in all indicators except for Q3 and Q4 (see Table 2A and Table 2B). Specifically, NHS-2 had higher mean scores in Q1 (3.38 vs. 2.34), Q2 (3.40 vs. 2.45), Q4 (3.54 vs. 2.82), Q5 (3.35 vs. 2.56), Q6 (3.21 vs. 2.25), Q8 (3.38 vs. 2.22), Q9 (3.21 vs. 2.28), and Q10 (3.60 vs. 2.69). On the other hand, NHS-1 had a higher mean score in Q3 (2.98 vs. 3.25), but the difference was not statistically significant.

Teachers from high-populated public schools may have had more resources and training available to them than those from low-populated

schools, as well as more autonomy in decision-making, which could have allowed for more effective adaptation to remote teaching. During the outbreak of COVID-19, the traditional offline medium of teaching and learning was replaced by online methods. Consequently, there has been a significant increase in the utilization of e-learning, which was unforeseen. The academic community is now starting to observe the advantages and drawbacks of this widespread usage (Hossain et al., 2022; Saikat et al., 2021). Public school teachers may have had to navigate a more complex bureaucratic structure, with less access to technology and training, and larger class sizes, which could have hindered their ability to adapt to the challenges of remote teaching during the pandemic. However, it is important to note that the experiences of individual teachers may vary widely, and any generalizations should be approached with caution.

The empirical results indicate that the significant difference in learning management effectiveness between NHS-1 and NHS-2 underscores the impact of resources, training, and decision-making autonomy on educational outcomes in a post-COVID-19 era. The higher mean scores in NHS-2 suggest that better-equipped schools with greater support for teachers can more effectively manage remote learning, leading to improved student performance. This finding highlights the need for equitable resource allocation and professional development across schools to ensure that all students, regardless of their school's population size or resource availability, receive high-quality education. Addressing these disparities is crucial for fostering a more resilient and adaptable educational system capable of handling future disruptions.

Conclusion & Recommendation

Based on the findings of the recent study, it is safe to conclude that the learning management employed by the teachers was moderately effective during the post Covid-19 pandemic, and the extent of the effects of learning management does not predict performance. Also, the students' performance during the pandemic at both schools was satisfactory. Consequently, this study recommends a further investigation on confounding variables that may impede the successful implementation of comprehensive learning management plans to enhance academic outcomes.

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