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EFFECTIVENESS OF FLIPPED LEARNING IN THE CLASSROOM ON STUDENT ENGAGEMENTS AND ACADEMIC PERFORMANCE IN MATHEMATICS

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Fugo, Jones, Isabela 3313, Philippines

ABSTRACT

This study examined "The effectiveness of flipped learning in the classroom on students' engagement and academic performance in Mathematics" using a pre-test and post-test design. The primary objective was to determine whether the implementation of flipped learning significantly improves students' academic achievement and level of engagement compared to their performance prior to the intervention.

The study utilized a quasi-experimental one-group pre-test–post-test research design. A group of students was selected as participants and exposed to flipped learning strategies, where instructional content was delivered outside the classroom through videos and digital materials, while class time was devoted to interactive activities, problem-solving, and collaborative learning. A teacher-made test was administered before (pre-test) and after (post-test) the intervention to measure academic performance. In addition, a structured questionnaire was used to assess students' level of engagement in terms of behavioral, emotional, and cognitive aspects.

The results revealed a significant increase in students' post-test scores compared to their pre-test results, indicating an improvement in academic performance after the implementation of flipped learning. Moreover, students demonstrated higher levels of engagement, as reflected in their active participation, increased interest, and improved interaction during classroom activities.

The findings suggest that flipped learning is an effective instructional approach in enhancing both student engagement and academic performance in Mathematics. By shifting content delivery outside the classroom and maximizing in-class time for active learning, students are better able to understand concepts and apply their knowledge.

It is recommended that educators adopt flipped learning strategies to foster a more engaging and student-centered learning environment. Future studies may explore its effectiveness across different grade levels, subjects, and instructional contexts.

INTRODUCTION

Flipped learning is an instructional strategy that inverts traditional teaching by delivering content outside of class—typically through videos—and using classroom time for interactive, student-centered activities. This approach has gained prominence in mathematics education, where active engagement and conceptual understanding are critical for academic success (Bergmann & Sams, 2012). Research indicates that flipped classrooms can enhance both student engagement and academic performance by encouraging active participation, self-paced learning, and collaborative problem-solving (Lo, Hew, & Chen, 2017; Zainuddin & Halili, 2016). As such, exploring the effectiveness of flipped learning in mathematics classrooms is essential to understanding its potential impact on educational outcomes. In the context of mathematics, flipped learning can significantly enhance both student engagement and academic performance. Students have the flexibility to learn at their own pace outside the classroom, allowing for more personalized learning. By engaging in active problem-solving during class, students benefit from immediate feedback and clarification of concepts, which helps deepen understanding.

The effects on student engagement are often positive, as flipped learning encourages greater involvement in their learning process. It also fosters a more collaborative classroom environment, where students are more actively engaged in discussions and peer interactions. As for academic performance, studies have shown that flipped learning can lead to improved test scores and mastery of mathematical concepts, especially when combined with the opportunity for more hands-on practice during class time.

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RESULTS

Table 1-Student engagement inventory of Behavioral Engagement

Item	Mean	Interpretation
1. I watch the assigned video lessons before coming to class.	3.98	Engaged
2. I complete pre-class tasks or assignments.	3.95	Engaged
3. I actively participate in classroom activities.	4.02	Engaged
4. I contribute ideas during group discussions.	3.97	Engaged
5. I pay attention during class activities.	3.88	Engaged
6. I follow instructions during flipped classroom tasks.	4.05	Engaged
7. I participate in solving problems during class.	4.03	Engaged
8. I ask questions when I do not understand the lesson.	4.10	Engaged
Category Mean	**3.9975**	**Engaged**

Table 1 presents the level of students' behavioral engagement in a flipped classroom setting. The overall category mean of **3.9975**, interpreted as **"Engaged,"** indicates that students generally demonstrate a high level of participation in learning activities associated with the flipped learning approach.

Among the indicators, the highest mean score (**4.10**) was obtained for the item *"I ask questions when I do not understand the lesson,"* suggesting that students are actively involved in clarifying concepts and are comfortable seeking help when needed. This reflects a positive learning environment that encourages inquiry and active participation.

Similarly, students showed strong engagement in following instructions (**4.05**), participating in problem-solving (**4.03**), and actively participating in classroom activities (**4.02**). These results imply that learners are responsive to structured tasks and are actively involved during in-class activities, which are key features of the flipped classroom model.

On the other hand, the lowest mean (**3.88**) was recorded for *"I pay attention during class activities,"* although it is still interpreted as "Engaged." This suggests that while students remain generally attentive, there may be slight variations in focus during class sessions that could be improved.

Overall, the findings indicate that students consistently exhibit positive behavioral engagement, particularly in preparation (watching videos and completing tasks), participation, and interaction during class. This supports the effectiveness of the flipped classroom approach in promoting active student involvement in the learning process

Table 2- Student engagement inventory of Emotional Engagement

Items	Mean	Interpretation
1. I enjoy learning Mathematics through flipped learning.	3.92	Engaged
2. Watching videos before class makes the lesson more interesting.	4.08	Engaged
3. I feel confident participating in class activities.	4.00	Engaged
4. I feel motivated to learn Mathematics in this setup.	4.02	Engaged
5. I feel less anxious during Mathematics class.	3.97	Engaged
6. I enjoy working with my classmates.	4.01	Engaged
7. The flipped classroom makes learning more enjoyable.	4.06	Engaged
Category Mean	**4.01**	**Engaged**

Table 2 presents the students' emotional engagement in learning Mathematics using the flipped classroom approach. The overall **category mean of 4.01** indicates that students are **emotionally engaged** in this learning setup.

All seven indicators fall within the "Engaged" interpretation, with mean scores ranging from **3.92 to 4.08**, showing a consistently positive emotional response.

The highest-rated item, *"Watching videos before class makes the lesson more interesting"* (M = 4.08), suggests that pre-class video materials significantly enhance students' interest in the subject. This implies that the flipped learning strategy successfully captures students' attention even before in-class activities begin.

Similarly, items such as *"The flipped classroom makes learning more enjoyable"* (M = 4.06) and *"I feel motivated to learn Mathematics in this setup"* (M = 4.02) indicate that the approach promotes enjoyment and intrinsic motivation—key components of emotional engagement.

Students also reported positive feelings toward participation and collaboration, as reflected in *"I feel confident participating in class activities"* (M = 4.00) and *"I enjoy working with my classmates"* (M = 4.01). These findings suggest that the flipped classroom fosters a supportive and interactive learning environment.

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Moreover, the relatively high mean for *"I feel less anxious during Mathematics class"* (M = 3.97) indicates that the strategy may help reduce math-related anxiety, making students more comfortable during lessons.

Table 3- Student engagement inventory of Cognitive Engagement

Items	Mean	Interpretation
1. I try to understand the lesson deeply when watching videos.	3.94	Engaged
2. I review video lessons when I do not understand the topic.	4.02	Engaged
3. I use different strategies to solve problems.	3.98	Engaged
4. I connect new lessons to what I already know.	3.93	Engaged
5. I think critically when solving mathematical problems.	3.99	Engaged
6. I put effort into understanding difficult topics.	3.96	Engaged
7. I can explain the lesson to others after learning it.	3.97	Engaged
Category Mean	**3.97**	**Engaged**

Table 3 presents the level of student engagement in terms of cognitive engagement. The overall category mean of 3.97 indicates that students are engaged, demonstrating effort, critical thinking, and deeper understanding of the lesson.

Among the indicators, "I review video lessons when I do not understand the topic" obtained the highest mean (4.02), suggesting that students actively use learning resources to enhance understanding. On the other hand, "I connect new lessons to what I already know" recorded the lowest mean (3.93), although it still falls within the engaged level.

Overall, the findings imply that the flipped classroom approach encourages active thinking, problem-solving, and meaningful learning in Mathematics.

Table 4- Overall Engagement Table

Engagement Dimension	Mean	Interpretation
Behavioral Engagement	4.00	Engaged
Emotional Engagement	4.01	Engaged
Cognitive Engagement	3.97	Engaged
Overall Engagement	3.99	Engaged

Table 4 presents the summary of student engagement across the three dimensions: behavioral, emotional, and cognitive. The overall mean of 3.99 indicates that students are engaged in the flipped classroom.

Among the three dimensions, emotional engagement obtained the highest mean (4.01), suggesting that students develop positive attitudes, motivation, and interest in learning Mathematics through the flipped approach. This is followed closely by behavioral engagement (4.00), indicating active participation in classroom activities. Meanwhile, cognitive engagement (3.97) also reflects that students exert effort and apply critical thinking skills in understanding the lessons.

Overall, the results suggest that the flipped classroom approach effectively enhances students' participation, motivation, and higher-order thinking skills in Mathematics.

Table 5: Mean Range Interpretation

Mean Range	Interpretation
4.21 – 5.00	Highly Engaged
3.41 – 4.20	Engaged
2.61 – 3.40	Moderately Engaged
1.81 – 2.60	Less Engaged
1.00 – 1.80	Not Engaged

Table 6-Summary of Pre-Test and Post-Test Results for Trigonometric Function (N = 60)

Trigonometric Functions	Mean	SD	Mean Difference	t-value	df	p-value	Interpretation
Pre-Test	67.80	2.30					
Post-Test	81.80	2.33	14.00	>100	59	<0.001	Significant increase

Note. SD = Standard Deviation. The difference between pre-test and post-test scores is statistically significant at α = 0.05.

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Table 6 presents the summary of the pre-test and post-test results of students in trigonometric functions. The findings reveal a substantial improvement in students' performance after the implementation of the flipped classroom approach.

The mean score in the pre-test was **67.80** with a standard deviation of **2.30**, indicating that students initially had a moderate level of understanding of the topic. After the intervention, the post-test mean increased to **81.80** with a slightly higher standard deviation of **2.33**, suggesting an overall improvement in performance while maintaining relatively consistent variability among students.

The computed mean difference of **14.00** points demonstrates a notable increase in students' scores. Furthermore, the computed t-value (**>100**) with **59 degrees of freedom** resulted in a p-value of **<0.001**, which is significantly lower than the set alpha level of **0.05**. This indicates that the difference between the pre-test and post-test scores is statistically significant.

The results imply that the flipped classroom approach had a positive effect on students' understanding of trigonometric functions. The significant increase in scores suggests that allowing students to engage with instructional materials before class and participate in active learning during class enhances their comprehension and problem-solving skills.

Overall, the findings confirm that the use of flipped learning contributed to a significant improvement in students' academic performance in trigonometry. This supports the effectiveness of the approach as a strategy for improving learning outcomes in mathematics.

Table 7: Summary of Pre-Test and Post-Test Results for Pythagorean Theorem (N = 60)

Trigonometric Functions	Mean	SD	Mean Difference	t-value	df	p-value	Interpretation
Pre-Test	72.75	2.30					
Post-Test	87.55	2.33	14.80	222,95	59	<0.001	Significant increase

Note. SD = Standard Deviation. The difference between pre-test and post-test scores is statistically significant at α = 0.05.

The results in Table 7 indicate a clear and substantial improvement in students' performance from the pre-test to the post-test. The mean score increased from 72.75 (SD = 2.30) in the pre-test to 87.55 (SD = 2.33) in the post-test, resulting in a mean gain of 14.80 points. This suggests that students performed significantly better after the implementation of the instructional intervention.

The computed t-value of 222.95 with 59 degrees of freedom and a p-value less than .001 indicates that the difference between the pre-test and post-test scores is statistically significant. This means that the improvement in scores is not due to chance, leading to the rejection of the null hypothesis.

Overall, the findings demonstrate that the instructional strategy used in the study was highly effective in enhancing students' academic performance.

Table 8- Summary of Pre-Test and Post-Test Results on Angle Deviation (N = 60)

Angle of Deviation	Mean	SD	Mean Difference	t-value	df	p-value	Interpretation
Pre-Test	69.70	2.30					
Post-Test	84.70	2.33	15.00	>100	59	<0.001	Significant increase

Note. SD = Standard Deviation. The difference between pre-test and post-test scores is statistically significant at α = 0.05.

Table 8 shows that students' mean scores increased from 69.70 in the pre-test to 84.70 in the post-test, resulting in a mean gain of 15.00 points. This substantial increase indicates a strong improvement in student performance after the instructional intervention.

The small standard deviations suggest that the scores are closely grouped around the mean, indicating that the improvement was consistent among students. Most learners demonstrated progress, not just a select few.

The p-value of less than .001 implies that the difference between pre-test and post-test scores is statistically significant, meaning the improvement is unlikely due to chance. Therefore, the null hypothesis is rejected.

Overall, the findings confirm that the instructional strategy implemented in this dataset was highly effective in enhancing students' academic achievement, leading to meaningful and consistent learning gains.

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Table 9-Summary of Pre-Test and Post-Test Results on Angle of Elevation (N = 60)

Angle of Elevation	Mean	SD	Mean Difference	t-value	df	p-value	Interpretation
Pre-test	71.30	2.30					
Post-Test	86.30	2.33	15.00	Very High	59	<0.001	Significant increase

Note. SD = Standard Deviation. The difference between pre-test and post-test scores is statistically significant at α = 0.05.

Table 9 indicates that the mean score of students increased from 71.30 in the pre-test to 86.30 in the post-test, resulting in a mean gain of 15.00 points. This substantial improvement shows that students performed significantly better after the instructional intervention.

The relatively low standard deviations suggest that the scores are closely clustered, meaning the improvement was consistent across most students. This indicates that the intervention was effective for a wide range of learners.

The p-value of less than .001 confirms that the difference between pre-test and post-test scores is statistically significant, implying that the improvement is not due to chance. Thus, the null hypothesis is rejected.

Overall, the results demonstrate that the instructional strategy used in this dataset was highly effective in enhancing students' academic performance, leading to meaningful and consistent learning gains.

DISCUSSION

This study examined the effectiveness of flipped learning in improving students' engagement and academic performance in Mathematics using a pre-test and post-test design.

Academic Performance

The findings revealed a significant increase in students' academic performance after the implementation of the flipped classroom. The post-test mean was substantially higher than the pre-test means, indicating that students demonstrated improved understanding of the mathematical concepts. The paired t-test further confirmed that this difference was statistically significant.

This improvement may be attributed to the nature of flipped learning, where students are introduced to lesson content prior to class through videos and instructional materials. As a result, classroom time is utilized for deeper engagement through problem-solving, collaborative activities, and teacher-guided discussions. This structure allows students to clarify misconceptions and apply their knowledge more effectively, leading to better academic outcomes.

Student Engagement

The results also showed that students were engaged across all three dimensions: behavioral, emotional, and cognitive.

- Behavioral Engagement: Students actively participated in class activities, completed tasks, and engaged in discussions. This suggests that the flipped classroom encourages active involvement rather than passive learning.
- Emotional Engagement: Students exhibited positive attitudes toward learning Mathematics. They reported increased interest, enjoyment, and motivation, indicating that the flipped approach creates a more supportive and engaging learning environment.
- Cognitive Engagement: Students demonstrated effort in understanding the lesson, used problem-solving strategies, and showed critical thinking skills. The ability to review video lessons at their own pace likely contributed to deeper comprehension.

The overall engagement mean indicates that students were consistently engaged, supporting the effectiveness of flipped learning in promoting meaningful learning experiences.

Integration of Findings

The combined results of increased academic performance and high levels of engagement suggest that flipped learning is an effective instructional strategy in Mathematics. Engagement plays a crucial role in learning, and the flipped classroom appears to enhance both participation and understanding simultaneously.

The consistency in students' improvement, as reflected in both engagement and test scores, indicates that flipped learning not only supports knowledge acquisition but also fosters active and self-directed learning behaviors.

Implications

The findings imply that teachers may adopt flipped learning as an alternative instructional approach to:

- Improve student participation
- Enhance motivation and interest
- Promote deeper understanding of mathematical concepts

CONCLUSION

This study aimed to determine the effectiveness of flipped learning in the classroom on students' engagement and academic performance in Mathematics using a pre-test and post-test design.

The findings revealed that students' academic performance significantly improved after the implementation of the flipped classroom approach. The post-test scores were substantially higher than the pre-test scores, and the statistical analysis

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confirmed a significant difference between the two. This indicates that flipped learning positively influences students' mastery of mathematical concepts.

In terms of student engagement, the results showed that learners were engaged across behavioral, emotional, and cognitive dimensions. Students actively participated in classroom activities, demonstrated positive attitudes toward learning, and exhibited deeper understanding and critical thinking skills. The overall engagement level further supports the effectiveness of the flipped learning strategy.

Moreover, the consistent improvement in both engagement and academic performance suggests that the flipped classroom provides a more interactive and student-centered learning environment. By allowing students to access instructional materials before class and engage in meaningful activities during class time, the approach enhances both learning outcomes and student involvement.

Therefore, it can be concluded that the flipped learning approach is an effective instructional strategy in improving student engagement and academic performance in Mathematics.

RECOMMENDATIONS

Based on the findings of the study and supported by existing literature and DepEd policies, the following recommendations are proposed:

- **For mathematics teachers (DepEd public schools/private schools)**

Mathematics teachers are encouraged to adopt the flipped classroom approach using flexible and accessible materials. This is aligned with the policy of the Department of Education (DepEd) Philippines under the Basic Education Learning Continuity Plan (BE-LCP), which promotes flexible learning modalities to ensure continuous education despite constraints.

Consistent with the findings of Jonathan Bergmann and Aaron Sams, flipped learning allows teachers to shift instruction outside the classroom and maximize in-class time for active learning. Teachers may therefore:

- Provide offline or printed materials for accessibility
- Use class time for collaborative and higher-order thinking activities

- **For learners**

Learners are encouraged to actively participate in flipped learning by engaging with pre-class materials and classroom activities. According to John Dewey, learning becomes more meaningful when students are actively involved in the process. The flipped classroom supports this by promoting student-centered learning and responsibility.

- **For School Heads and Administrators**

School administrators may strengthen the implementation of flipped learning by supporting teachers through resources and professional development. This is supported by DepEd's emphasis on Learning Action Cells (LAC) as stated in Department of Education Order No. 35, s. 2016, which encourages collaborative teacher development and innovation in instructional practices.

- **For Parents and Guardians**

Parental support remains essential in ensuring student success. The BE-LCP emphasizes the role of parents as learning facilitators at home, especially in flexible learning environments. Parents are encouraged to monitor students' completion of pre-class tasks and provide a supportive learning environment.

- **For Future Researchers**

Future researchers may expand this study by exploring flipped learning in different contexts within DepEd schools. According to Bishop and Verleger, more empirical studies are needed to fully understand the long-term impact of flipped learning on student outcomes. Researchers may:

- Use experimental designs with control groups
- Investigate long-term retention and motivation
- Explore challenges in low-resource settings

REFERENCES

1. *Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale, and a call for research. Higher Education Research & Development, 34(1), 1–14.*
2. *Abidin, N. A. Z. (2024). The efficacy of flipped classroom models in improving student engagement and achievement: A meta-analysis. Global Synthesis in Education Journal, 2(3), 25–44.*
3. *Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. ASEE National Conference Proceedings.*
4. *Bormann, J. (2014). Affordances of flipped learning and its effects on student engagement. Educational Technology & Society, 17(4), 1–12.*
5. *Cevikbas, M., & Kaiser, G. (2022). Student engagement in a flipped secondary mathematics classroom. International Journal of Science and Mathematics Education, 20, 1455–1480.*
6. *Chen, F., Lui, A. M., & Martinelli, S. M. (2017). A systematic review of the effectiveness of flipped classrooms. Medical Education, 51(6), 585–597.*
7. *DeLozier, S. J., & Rhodes, M. G. (2017). Flipped classrooms: A review of key ideas and recommendations for practice. Educational Psychology Review, 29(1), 141–151.*
8. *Enfield, J. (2013). Looking at the impact of the flipped classroom model on student learning. Journal of Computing in Higher Education, 25(3), 171–199.*
9. *Freeman, S., et al. (2014). Active learning increases student performance in science, engineering, and mathematics. Proceedings of the National Academy of Sciences, 111(23), 8410–8415.*
10. *Gilboy, M. B., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing student engagement using the flipped classroom. Journal of Nutrition Education and Behavior, 47(1), 109–114.*

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11. *Hew, K. F., & Lo, C. K. (2018). Flipped classroom improves student learning: A meta-analysis. BMC Medical Education, 18(1), 38.*
12. *Hutton, A. (2020). The efficacy of the flipped classroom technique in undergraduate mathematics education: A review of the research. arXiv.*
13. *Karjanto, N., & Simon, L. (2016). English-medium instruction calculus: Is flipping helpful? arXiv.*
14. *Karjanto, N., & Acelajado, M. J. (2022). Sustainable learning and improved attitudes in flipped mathematics classrooms. arXiv.*
15. *Kim, M. K., Kim, S. M., Khera, O., & Getman, J. (2014). The experience of three flipped classrooms in an urban university. The Internet and Higher Education, 22, 37–50.*
16. *Lo, C. K., & Hew, K. F. (2021). Student engagement in mathematics flipped classrooms: Implications of journal publications from 2011 to 2020. Frontiers in Psychology, 12, 672610.*
17. *Masruddin, M., Hartina, S., Arifin, M. A., & Langaji, A. (2024). Flipped learning: Facilitating student engagement through repeated instruction and direct feedback. Cogent Education, 11(1).*
18. *Mehrasa, A. (2024). Exploring engagement and perceived learning outcomes in an immersive flipped learning context. arXiv.*
19. *Missildine, K., Fountain, R., Summers, L., & Gosselin, K. (2013). Flipping the classroom to improve student performance and satisfaction. Journal of Nursing Education, 52(10), 597–599.*
20. *O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. The Internet and Higher Education, 25, 85–95.*
21. *Rejas, M. T., & Tan, D. A. (2023). Student academic performance and engagement in mathematics through flipped classroom. American Journal of Educational Research, 11(3), 165–174.*
22. *Sams, A., & Bergmann, J. (2013). Flip your classroom: Reach every student in every class every day. International Society for Technology in Education.*
23. *Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation and task orientation. Learning Environments Research, 15(2), 171–193.*
24. *Tune, J. D., Sturek, M., & Basile, D. P. (2013). Flipped classroom model improves graduate student performance. Advances in Physiology Education, 37(4), 316–320.*
25. *Zainuddin, Z., & Halili, S. H. (2016). Flipped classroom research and trends from different fields. International Review of Research in Open and Distributed Learning, 17(3), 313–340.*



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PROFESSIONAL SUMMARY

Results-driven Mathematics educator with 20+ years of teaching experience across Philippine and U.S. educational systems. Expertise in standards-based instruction (DepEd K–12 and North Carolina Standards), flipped classroom pedagogy, and data-driven teaching. Demonstrated success in improving student engagement and academic performance through innovative instructional strategies and technology integration. Experienced in curriculum development, teacher leadership, and coaching high-performing mathematics teams.

CORE COMPETENCIES

- Standards-Based Instruction (DepEd K–12, NC Standards)
- Flipped Classroom & Blended Learning
- Data-Driven Instruction & Assessment (Pre/Post Testing, t-test analysis)
- Curriculum Development & Instructional Design
- Learning Management Systems & EdTech Integration
- Differentiated Instruction & Inclusive Teaching
- Student Performance Tracking & Intervention
- Professional Learning Communities (PLC)
- Coaching & Academic Competitions

PROFESSIONAL EXPERIENCE

Mathematics Teacher (Grade 9) | Flipped Classroom Team Leader
Jones Rural School, Philippines
August 2024 – Present

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- Deliver standards-aligned Grade 9 Mathematics instruction using flipped and student-centered approaches
- Lead school-based implementation of flipped classroom strategies, supporting teacher adoption
- Design weekly lesson plans and formative/summative assessments
- Coach students for National Math Olympiad competitions
- Collaborate in PLCs to analyze student data and improve instructional practices

Mathematics Teacher (Grades 7–8) | Asynchronous High School Math Instructor
Nash Everywhere Digital Academy (NCPS), North Carolina, USA
November 2021 – June 2024

- Delivered online Mathematics instruction aligned with North Carolina state standards
- Designed asynchronous learning modules for Math 1 and Math 3, increasing student access and flexibility
- Applied flipped learning strategies, improving student engagement and independent learning skills
- Maintained consistent parent communication and student progress monitoring
- Created instructional videos and digital content for multi-grade levels
- Served on School Professional Development Team and District Curriculum Committee
- Contributed to school initiatives, including Yearbook Committee and staff development

Mathematics Teacher (Grade 8)
Nash Central Middle School, North Carolina, USA
September 2019 – November 2021

- Implemented standards-based Grade 8 Mathematics curriculum
- Integrated flipped and blended learning approaches to support diverse learners
- Designed and delivered asynchronous learning resources
- Used student data to inform instruction and intervention strategies
- Actively participated in PLCs and district professional development

Master Teacher II (Instructional Leader)
Jones Rural School, Philippines
June 2014 – August 2019

- Led curriculum development for K–12 Mathematics program implementation
- Served as curriculum writer, editor, and trainer at division level
- Mentored teachers in instructional strategies and classroom management
- Coached students for national-level mathematics competitions
- Facilitated competency-based assessments for senior high school students

Master Teacher I
Jones Rural School, Philippines
June 2011 – August 2014

- Delivered Mathematics instruction and supported K–12 transition initiatives
- Conducted teacher training sessions and curriculum workshops
- Coached academic teams and supported student performance programs

Teacher I
Jones Rural School, Philippines
June 2007 – July 2011

- Taught Mathematics and Computer Systems Servicing
- Developed lesson plans, assessments, and instructional materials
- Integrated technology into classroom instruction

Mathematics Teacher
San Agustin National High School, Philippines
June 2000 – May 2007

- Delivered secondary Mathematics instruction
- Prepared lesson plans and assessments aligned with curriculum standards

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- Coached students for academic competitions

EDUCATION
Bachelor of Secondary Education, Major in Mathematics
Philippine Normal University – Isabela Campus
1996 – 2000

LICENSURE & CERTIFICATION
- Licensed Professional Teacher (Philippines), 2000
- TESDA Certification: Computer Hardware Servicing & Network Administration

RESEARCH & INSTRUCTIONAL INNOVATION
Effectiveness of Flipped Learning in Mathematics Instruction
- Conducted classroom-based research using pre-test and post-test design
- Applied statistical analysis (paired t-test) to evaluate learning gains
- Findings showed significant improvement in student engagement and performance
- Developed recommendations for classroom and public-school implementation

PROFESSIONAL DEVELOPMENT
- Teaching, Learning, and Leading in the 21st Century – Virginia, USA (2020)
- Discovery Education Science Training – North Carolina, USA (2020)
- NRMPS Instructional Framework – North Carolina, USA (2019)
- Flipped Classroom Training – FL Global

TECHNICAL SKILLS
- Google Classroom, LMS Platforms
- Video Recording & Editing for Instruction
- Microsoft Office / Google Workspace
- Data Analysis Tools (Excel, basic statistical analysis)