Original Research Article

**LIVED EXPERIENCE OF GRADE 8 STUDENTS IN A FLIPPED MATHEMATICS CLASSROOM: A QUALITATIVE INQUIRY**

ABSTRACT

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| --- |
| **Aims:** The purpose of this study was to investigate the lived experiences of Grade 8 learners using the flipped classroom model in mathematics, particularly their engagement, attitudes, and learning behaviors.  **Study design:** This study employed a qualitative research design, utilizing student interviews as the primary data collection method. This model facilitated the exploration of students’ perceptions, emotions, and behaviors in response to the flipped classroom.  **Place and Duration of Study:** The study was conducted at Dawan National High School in Mati City, Davao Oriental, Philippines, during the third quarter of the 2024–2025 school year.  .  **Methodology**: The research used a qualitative design. Data were collected using focus group discussions (FGDs) and in-depth interviews (IDIs) with ten selected students at Dawan National High School during the third quarter of the 2024–2025 school year. A semi-structured questionnaire was validated by subject matter experts and used to provide clarity, relevance, and alignment of questions with the study's objectives. Using Braun and Clarke’s six-step thematic analysis, the following are the key themes: Self-Directed Learning and Independence, Cognitive Growth, Emotional and Psychological Challenges, Time Management and Discipline, Motivation and Confidence, and Mixed Effects. To check accuracy, findings were returned to the students for feedback. Ethical standards, including informed consent and participant confidentiality, were strictly adhered to in this study.  **Results:** Findings revealed that many students in the flipped classroom felt more motivated, confident, and in control of their learning. They appreciated having access to instructional materials in advance, which allowed them to learn at their own pace and come to class better prepared. This pre-class exposure fostered deeper engagement and the development of critical thinking skills. These changes align with earlier findings that indicate flipped classrooms enhance student interaction and foster deeper thinking (McCoy, 2020).  Some students found the flipped setup challenging, especially those who struggled with time management, staying focused, or independent learning. These struggles were more evident in students whose learning styles did not align with the method. Gender did not significantly shape the themes; however, a few female students noted a connection between being organized and performing better in math. The flipped class helped build 21st-century skills like self-regulation, motivation, and clear communication. It made learning more personal and student-centered. However, it still depends on how ready students are and the level of support they receive. The findings emphasize the importance of adopting flexible and inclusive approaches to support all learners in achieving success.  **Conclusion:** The flipped classroom has considerable potential when carefully applied, accompanied by sufficient encouragement, scaffolding, and differentiation, although it may not be universally successful. Teachers must ensure that students have the necessary tools and resources to succeed in a learner-centered environment, thereby maximizing their impact. Future applications should prioritize adaptable, student-responsive strategies that promote both academic achievement and individual development. |

Keywords: Flipped Classroom, Gender Differences, Instructional Approach, Student Engagement, Traditional Classroom

**1. INTRODUCTION**

Mathematics plays a crucial role in developing students' logical reasoning and problem-solving skills, serving as a cornerstone subject in both elementary and secondary education (Ariyanti & Santoso, 2020). However, despite a strong foundation in early grades, many students encounter increasing difficulty in mastering mathematics as they progress to higher levels (Tian, 2023). This challenge is often attributed to the continued reliance on traditional, lecture-based teaching methods, which emphasize passive knowledge transfer and leave little room for the development of critical thinking and independent learning skills (Naik, 2023).

Jean Piaget and Lev Vygotsky both strongly advocate for this change. According to Vygotsky's Social Development Theory, social interaction is the most effective way for learning to occur. His concept of the zone of proximal development suggests that students require support from teachers and peers to advance, as cited in Macale et.al (2021). In a flipped classroom, students get this help during in-class activities where they apply what they have learned and work with others. At the same time, Piaget’s view of student-centered learning emphasizes the active role students play in building knowledge. He believed that students learn best when they explore, ask, and solve problems for themselves (Piaget, 2008)—ideas that align with the typical setup of flipped classrooms.

The flipped classroom has gained attention for its ability to enhance student learning. Ge et al. (2020) conducted a meta-analysis, showing that flipped methods can enhance student engagement and teamwork more effectively than traditional classes. This supports why many educators try the model. Still, the shift comes with problems. Students must adapt to new ways of learning and rely more on tech, which not all can access or manage well. These challenges align with what students reported in this study—some thrived, while others struggled. The method is most effective when students are prepared to manage their time effectively, stay focused, and utilize digital tools efficiently.

The need for instructional reform is further compounded by structural and environmental disruptions that limit classroom learning time. Factors such as congested mathematics schedules, unplanned school suspensions due to extreme weather events and natural disasters (Executive Orders No. 09, 21 [s.2024]; No. 105 [s.2023]), and condensed curricula per DepEd Order No. 31 (s.2012), have significantly reduced opportunities for in-depth mathematics instruction. These time constraints hinder students’ ability to engage with complex concepts and reinforce learning through practice (Chi, 2023). As a result, more people are questioning the traditional approach. It often fails to support deep learning or meet the needs of today’s classrooms.

Due to these challenges, having a clear action plan is essential to maintain math instruction continuity during disruptions (Nuevo & Valdez, 2024). Their study demonstrates that a proactive approach enables both students and teachers to manage learning setbacks effectively. One option is to incorporate alternative methods, such as the flipped classroom. This model inverts the traditional setup by having students learn content at home, often through videos, and then focus on problem-solving and group work in class (Naik, 2023; LMS, 2023). It is one of several strategies being explored to improve the consistency and quality of math education.

Nuevo and Valdez (2024) stated that a solid action plan can help maintain the strength of math education during challenging times. They believe it prepares teachers and students to better handle setbacks. One way to achieve this is through innovative teaching styles, such as the flipped classroom. This method is gaining more attention for its impact on the flow of learning. Instead of lecturing in class, teachers give lessons online. Then, class time is used for hands-on work and group tasks (Naik, 2023; LMS, 2023). This puts students at the center and allows teachers to guide rather than lecture the whole time.

Research shows this model works. Centeno (2021) found it helpful in different subjects and grade levels. Macale et al. (2021) showed that it helps students build strong math skills. Still, most studies focus on numbers. Few investigate how students feel or what they think about this change in their learning approach.

This study fills that gap. It examines how Grade 8 students perceive and experience the flipped classroom in math. Through focus group discussions and in-depth interviews, it delves into their thoughts, feelings, and learning habits. The goal is to gain a deeper understanding of what works, what does not, and how flipped learning affects students in real-life situations. This can help build better, more flexible ways to teach math in the future.

**2. MATERIAL AND METHODS**

**Research Design**

This study used a qualitative method to understand how Grade 8 students experienced the flipped classroom in mathematics. It focused on their views, feelings, and attitudes. Data were collected from focus group discussions and in-depth interviews. These helped demonstrate how students remained engaged, what motivated them to learn, and how the flipped setup altered class interaction. Thematic analysis followed Braun and Clarke’s (2006) six-step process. This helped sort key themes tied to students’ growth in math and as learners (Hands, 2022).

**Sampling**

The study took place at Dawan National High School during the 2024–2025 school year. Ten students from the flipped class were chosen through purposive sampling. This number was sufficient, as no new ideas emerged later, indicating that the data had reached saturation. Their answers were clear and consistent, providing the study with firm support. The method helped pick students who could share helpful and honest views (Campbell et al., 2020). They participated in in-depth interviews and focused group discussions, sharing personal accounts of what went well and poorly as well as how the flipped classroom influenced their education.

**Procedure for the Implementation of the Flipped Classroom**

**Securing Authorization and Ethical Clearance**

Prior to the implementation, the researcher received consent from the principal of Dawan National High School, the superintendent of Mati City's Schools Division, and the Dean of the Graduate School. Consent documents outlining the goals, advantages, and possible risks of the study were signed by the parents.   
Students received a clear and unambiguous letter outlining the purpose of the study, their rights, and the fact that participation was entirely voluntary. As mandated by the Data Privacy Act (RA 10173), their responses remained confidential. The data was utilized exclusively for mathematical tasks and was solely accessible to the researcher.   
The Belmont Report was followed in the study. Regardless of their background, all students received the same treatment and were selected in the same manner.

**Implementation Steps**

1. ***Define Learning Objectives***: Setting learning objectives that align with the Most Essential Learning Competencies
2. ***Create and Curate Pre-Class Materials****:* Prepared and distributed the video, 15-20 minutes, and other supplementary materials to the students
3. ***Design In-Class Activities****:* In-class activities promote active learning, engaging in group discussions, problem-solving exercises, and formative assessments to promote student engagement and learning.
4. ***Orient Students****:* An orientation that introduced students to the flipped model and its impact on their learning.
5. ***Monitor Progress****:* The researcher keeps track of the student's progress
6. ***Evaluate and Refine****:* Feedback was used to improve learning strategies and materials.

**Administration and Validation of Instruments**

Experts reviewed the test and interview tools to ensure they aligned with the study's goals. Based on their input, the tools were revised for clarity. This added strength to the study’s design.

**Data Collection**

After the flipped classroom sessions ended, qualitative data were gathered. Ten purposively selected students joined focus group discussions and individual interviews. A semi-structured guide, already validated, was used. Sessions were audio-recorded, transcribed verbatim, and stored securely to ensure the reliability and confidentiality of the data.

**Data Analysis**

Braun and Clarke’s (2006) six-phase thematic analysis was employed:

1. **Familiarization**: Transcripts were read repeatedly.
2. **Initial Coding**: Key ideas were identified and coded.
3. **Theme Development**: Codes were grouped into themes.
4. **Reviewing Themes**: Themes were refined and validated.
5. **Defining Themes**: Themes were clearly articulated.
6. **Reporting**: Results were written using direct quotations.

Participants reviewed the findings to verify the accuracy of the interpretations. This helped in enhancing the trustworthiness of the study.

**Presentation of Qualitative Findings**

The findings were presented in a narrative format, with participant quotes illustrating each theme. This helped explore students' views and experiences in depth. Tables and matrices added clarity, making it easier to compare the themes.

3. results and discussion

This section shows the findings and discussion based on student responses during the flipped classroom. It focuses on themes that reflect their experiences, views, and learning behavior in math. Thematic analysis showed how students reacted to flipped learning. It revealed patterns in how they engaged, the struggles they faced, and what they felt during the process.

Lived Experiences of the Students in Flipped Classroom

Figure 1 presents the experiences of Grade 8 students who learned math using the flipped classroom.  
Results show that students became more engaged, although some initially resisted and struggled to manage their time.

Six main themes emerged from their responses: (1) Self-Directed Learning and Independence, (2) Cognitive Growth, (3) Emotional and Psychological Challenges, (4) Time Management and Discipline, (5) Motivation and Confidence, and (6) Mixed Effectiveness.

**LIVED EXPERIENCES UNDER FLIPPED CLASSROOM**

**Self-Directed and Independence**

**Time Management and Discipline**

**Mixed Effectiveness**

**Motivation & Confidence**

**Emotional and Psychological Challenges**

**Cognitive Growth**

Confidence boost

Active Learning

Low Confidence

Taking Ownership

Lack of Discussion

Task Prioritization

Discipline

Public Speaking Anxiety

Concept Clarification

Pre-class preparation

Independent Struggle

Preparation reduces fear

Active Participation

Varying Comprehension

Mathematics readiness

Lack of independent study

Nervousness

Reinforced Learning

Peer Reliance

Instructional Confusion

Better Retention

Independent study

Topic Difficulty

Motivation to engage

Confidence in discussion

*Figure 1. Thematic Map*

*Table 1. Codes and Themes under Flipped Classroom*

|  |  |  |
| --- | --- | --- |
| Theme | Codes | Frequency (n=10) |
| Self-Directed Learning & Independence | Taking ownership of learning, Pre-class preparation, Active participation, Independent study, Confidence in discussion | 6 students |
| Cognitive Growth | Active learning, Concept clarification, Reinforced learning, Better retention | 5 students |
| Emotional & Psychological Challenges | Low confidence, Public speaking anxiety, Nervousness, Instructional confusion | 7 students |
| Time Management & Discipline | Task prioritization, Discipline, Lack of independent study, Peer reliance | 4 students |
| Motivation & Confidence | Confidence boost, Preparation reduces fear, Motivation to engage, Math readiness | 5 students |
| Mixed Effectiveness | Lack of discussion, Independent struggle, Topic difficulty, Varying comprehension | 6 students |

Figure 1 and Table show that six major themes emerged from the thematic analysis—self-directed learning, cognitive growth, emotional challenges, time management, motivation and confidence, and conflicting views of efficacy—that capture students' experiences in the flipped classroom. Despite their differences, these concepts are closely related.

The overlaps reveal how both internal and external factors shape students' thoughts and feelings about the method. Looking at how these themes interact helps explain the full impact of flipped learning on students' outcomes.

*Self-Directed Learning and Time Management overlap.* Students were required to study independently and set their schedules. They built habits to stay focused and ready for class. This shift gave them more freedom but also more pressure.

*Cognitive growth is linked to Motivation and Confidence.* When students understood the lessons better, they felt more sure of themselves. Being prepared before class helped them speak up and engage more.

*Emotional Challenges overlap with both Self-Directed Learning and Time Management*. Some students felt anxious when learning alone or managing their time. Others got distracted or overwhelmed by the workload.

*Mixed Perceptions cuts across all the themes*. Some students liked the method and did well. Others found it hard, especially if they lacked study habits, confidence, or support. This indicates that the flipped model is effective for some, but not all.

These overlaps show that flipped learning is not just about content delivery—it affects how students think, feel, and manage themselves.

***Theme 1: Self-Directed Learning and Independence***

One prominent theme that emerged from the qualitative data was the enhancement of students' self-directed learning and autonomy through the use of the flipped classroom model. Participants consistently described how this pedagogical approach shifted the responsibility of learning onto them, fostering a sense of ownership and preparation prior to classroom discussions.

For example, participant SFL\_08 shared:

*“Kami mismo ang mag study sa topic para discuss namo tubing sa among classmates.”*

("We study the topic ourselves so we can discuss it in front of our classmates.")

Similarly, participant SF\_05 reflected:

*“Ang flipped classroom nga pamaagi nakausab sa akong paagi sa pagkat-on kumpara sa tradisyonal nga pagtudlo, kay una, ako na mismo ang nagtuon sa leksyon sa akong kaugalingon. Dayon, among hisgutan kini sa atubangan sa klase, ug kung mangutana na ang maestra, kabalo na ko sa tubag kay nakakat-on na ko daan.”*

("The flipped classroom changed my way of learning compared to traditional teaching. First, I study the lesson on my own. Then, we discuss it in class, and when the teacher asks, I already know the answer because I taught it beforehand.")

These statements suggest that students took more responsibility for their learning and became more engaged in class as a result of improved preparation. This finding supports Chikeme et al. (2024), who found that flipped classrooms improve math readiness and self-regulated learning, resulting in better performance and increased independence. Choi, Jakob, and Anderson (2021) note that the flipped model enhances engagement before class, enabling students to participate actively during lessons.

Hsieh and Maritz (2023) found that the flipped approach improves both internal and external motivation, which builds students’ math resilience and independence. These findings align with the experiences of participants in this study, demonstrating that flipped classrooms foster engaged, proactive, and independent learners, key traits essential for success in math and beyond.

This theme aligns with Piaget’s student-centered theory, which posits that meaningful learning occurs when students construct knowledge through their experiences. Flipped classrooms let students work independently before class, encouraging this learning process (Piaget, 2008). Vygotsky’s Social Development Theory, especially the Zone of Proximal Development, also fits, as students benefit from peer interaction and guided support during class.

***THEME 2: Cognitive Growth***

Another key theme that emerged from the qualitative data is the enhancement of cognitive growth and a deeper conceptual understanding of mathematics through the use of the flipped classroom approach. Participants reported that encountering the content twice—once independently and once during a teacher-facilitated discussion—led to a clearer understanding of mathematical concepts.

Participant SFL\_08 emphasized:

*“Oo, Ma’am, kay makat-on ko sa leksyon duha ka beses—magtuon ko daan, unya ipasabot sa maestra aron klaro ang mga butang nga wala namo nasabtan.”*

("Yes, ma'am, because I learn the lesson twice—I study in advance, and then the teacher discusses it to clarify anything we did not understand.")

Similarly, SFL\_03 highlighted the role of the approach in promoting critical thinking:

*“Oo, Ma’am, kay nagpahugot sa atong pagkat-on, pero kinahanglan gyud nato magbasa aron masabtan ang topic. Maayo ni, Ma’am, kay magtudlo kini sa atong hunahuna nga dili lang ta magsalig sa maestra—kinahanglan maghunahuna ta kritikal, Ma’am.”*

("Yes, ma'am, because it sharpens our learning, but we need to read to understand the topic. It is good, ma'am, because it trains our minds not to rely too much on the teacher—we have to think critically, ma’am.”)

These reflections suggest that students improved their comprehension and cognitive skills through repeated exposure and opportunities to address gaps in their understanding. They also developed critical thinking and independent reflection habits, which are vital for success in mathematics.

According to cognitive load theory (Sweller et al., 2011), working memory is maximized when instructional content is dispersed across several exchanges, which is consistent with this layered approach to learning. Pre-class content exposure serves as an advance organizer, lowering the intrinsic cognitive burden during problem-solving in class. It also supports Piaget's phases of cognitive development, particularly in encouraging formal operational thinking, which requires students to employ abstract problem-solving and logical reasoning skills essential for middle school math.  
  
Also, Vygotsky's emphasis on dialogic learning—in which concept internalization is reinforced through verbal engagement and social negotiation—theoretically supports this theme. The "scaffolding" Vygotsky refers to is provided by the teacher-led conversations that follow individual study, enabling students to move from supported to independent performance (Berk & Winsler, 1995).

Naik (2023) and Egara and Mosimege (2023) found that flipped classrooms improve mathematics achievement and support self-regulated learning. Centeno et al. (2021) observed that repeated exposure to content and collaborative tasks strengthens students’ confidence and understanding.

Ay and Dağhan (2023) noted that flipped classrooms enhance cognitive presence through structured, student-centered activities. Hwang et al. (2023) reported that flipped learning maintains student engagement in mathematics. Pang (2022) and Nugraheni et al. (2022) showed that this approach promotes critical thinking and motivation. Shi et al. (2020) and Zheng and Zhang (2020) argued that flipped instruction fosters higher-order thinking, making learning more personalized and transformative.

These findings suggest that the flipped classroom improves mathematics outcomes while developing cognitive and metacognitive skills essential for lifelong learning.

***THEME 3: Emotional and Psychological Challenges***

The flipped classroom encourages autonomy and active participation, but qualitative data reveal significant emotional and psychological challenges for students. These include anxiety, difficulty focusing, and pressure from self-directed learning.

Participant SFL\_06 stated:  
“Ang akong kahadlok sa pag-estorya sa atubangan sa mga tawo. Naa man gud koy stage fright, Ma’am, ug maulaw ko mag-isturya sa atubangan sa klase.”  
("My challenge is fear of speaking in front of others. I have stage fright and feel shy talking in front of the class.")  
Similarly, SFL\_10 shared:  
“Nag-atubang ko ug mga kalisdanan sa pagsabot sa leksyon ug kinahanglan pa nako magbutang og mas dako nga paningkamot sa pagtuon, Ma’am, kay kinahanglan nako magtuon pirmi. Apan usahay, maglisod ko mag-focus kay mag gahin ko og oras sa pagdula sa akong cellphone.”  
("I struggle to understand the lessons and must put in more effort to study. Sometimes, I lose focus because I spend time playing on my phone.")

These accounts indicate that increased learner responsibility can strain emotional regulation. Korkmaz and Mirici (2023) report that flipped classrooms may raise anxiety due to self-regulation demands and reduced immediate teacher support. Sweller et al. (2011) caution that high cognitive load without adequate scaffolding lowers learning efficiency in self-directed settings.

Recent research stresses the need for emotional support. Kim (2024) found that support strategies reduce anxiety in flipped classrooms. Wei and Huang (2024) show that structured assistance improves focus and engagement. Anjomsha et al. (2022), Zhou (2023), and Avakyan and Taylor (2024) argue that ignoring emotional needs harms self-esteem and resilience. Sánchez et al. (2020) emphasize that addressing psychological factors is vital for effective flipped learning.

Thus, while flipped learning fosters independence, it requires emotional scaffolding to manage anxiety and distraction. Strategies such as mindfulness, regular check-ins, and peer mentoring can help mitigate these challenges and enhance the student experience.

***THEME 4: Time Management and Discipline***

The flipped classroom requires more student responsibility, particularly in terms of time management and self-discipline. Student responses show that many learners developed strategies to reduce distractions and organize their study routines.

Participant SFL\_07 explained:

*“Gimanage nako ang akong time sa pag gahin oras sa balay pinaagi sa paghimo og study schedule, Ma’am. Ang flipped classroom nga pamaagi kay nanginahanglan ug daghang oras aron masiguro nga masabtan nako og maayo ang mga leksyon.”*

("I managed my time when studying at home by creating a study schedule, ma'am. The flipped classroom approach requires much time to ensure that I fully understand the lessons.")

SFL\_10 echoed similar sentiments, sharing:

*“Gimanage nako ang akong oras pinaagi sa pagkunhod sa paggamit sa akong cellphone ug mga 2 ka oras aron makatuon ko og mas taas nga panahon sa dili pa klase.”*

"I managed my time by cutting down on phone use by about two hours to study longer before class."

These responses highlight students’ efforts to develop disciplined habits, such as scheduling and reducing distractions, to meet the demands of flipped learning. Many set boundaries on digital use and plan their learning time carefully at home.

These findings align with Smith (2021), who links structured personal responsibility to success in mathematics, especially in self-paced settings. Pérez-Sanagustín et al. (2021) support the use of scaffolding self-regulation strategies, such as goal setting, time monitoring, and help-seeking, to enhance engagement and autonomy.

Sargent and Casey (2020) emphasize that students with effective time management can derive greater benefits from active in-class learning. Brandon (2020) notes that the success of methods like flipped learning depends on students effectively managing their out-of-class study time.

Overall, flipped classrooms put more responsibility on students, but those who develop discipline and time management skills are more likely to succeed. These results underscore the need for guidance on self-regulation techniques in conjunction with the flipped learning approach.

***THEME 5: Motivation and Confidence***

The flipped classroom model significantly enhances student motivation and confidence by promoting active, self-directed learning. Shifting instruction outside the classroom cultivates learner autonomy and deeper engagement (Zheng et al., 2020; Cevikbas & Kaiser, 2022; Nugraheni et al., 2022), which in turn fosters a stronger sense of self-efficacy (Abdullah et al., 2020).

SFL\_09 reflected on the confidence gained through independent learning:

*“Taas kaayo akong confident kay na-equipped ko sa pagkat-on sa akong kaugalingon nga kritikal ug praktikal.”*

("I am highly confident because I have been equipped to learn on my own, both critically and practically.")

Similarly, SFL\_01 stated:

*“Naa ko’y taas nga kumpiyansa sa pag-aplikar sa akong natun-an pinaagi sa flipped classroom method kay ang uban nga topics gikan sa learning materials sayon ra nako masabtan. Proud ko kay nakasabut ko sa topic nga wala ang discussion sa maestra.”*

("I feel highly confident in applying what I have learned through the flipped classroom method because some topics from the learning materials are easy for me to understand. I am proud that I can grasp the topic even without the teacher's discussion.")

These responses are consistent with the findings of Doğan, Batdı, and Yaşar (2023), who emphasized that students' learning styles and preferences influence the success of flipped learning environments. Learners who rely heavily on direct instruction or who are less inclined toward reading-based study may find the model challenging. Garcia-Ponce and Mora-Pablo (2020) found that subject complexity has a significant impact on student engagement. This supports SFL\_01’s comment that complex topics affect understanding.

Some students gained from the flexibility and self-paced nature of the flipped classroom. Others struggled with limited real-time teacher support and the pressure to manage their own learning. These mixed reactions align with Cho, Melloch, and Levesque-Bristol (2021), who stress that flipped classrooms succeed only with proper structure and support. El Sadik and Al Abdulmonem (2021) also found that flipped learning benefits complex subjects when enough scaffolding is provided.

In sum, the flipped classroom can boost motivation, engagement, and math performance for some students, but its impact varies. These results highlight the need for adaptable instruction that considers learner differences, topic difficulty, and ongoing support to maximize effectiveness.

***THEME 6: Mixed Perception of Effectiveness***

The flipped classroom model received mixed feedback from students, showing both benefits and challenges. While it aims to promote active learning and independence, not all students found it equally helpful. This highlights the need for a flexible and thoughtful approach to its use.

Participant SFL\_01 shared difficulty understanding lessons, especially with complex topics:

*“Nalisdan ko sa pagsabot sa mga leksyon tungod kay sa akong opinyon, dili sayon ang mga topic. Nagdepende ra man pud sa topic, Ma’am.”*

("I find it harder to understand the lessons because some topics are not easy. It depends on the topic, ma’am.")

Similarly, SFL\_02 said their struggle was linked to their learning style:

*“Lisod ma’am oy! Kay dili man ko reader ma’am. Dili man ko hilig magbasa-basa ma’am maong lisod.”*

("It was hard for me because I am not a reader. I do not like reading, so I find it challenging. That is why I ask classmates for help, ma’am.")

These comments align with Doğan, Batdi, and Yaşar (2023), who noted that flipped classrooms are more effective for students whose learning preferences align with independent reading and study. Those who rely more on teacher support may find the model less effective. Garcia-Ponce and Mora-Pablo (2020) also found that the difficulty of math topics affects student engagement and learning, supporting sfl\_01’s view.

While some students benefited from the flexibility and active learning aspects of the flipped model, others faced obstacles such as reduced real-time teacher support and the additional effort required for self-regulation. This matches findings from Cho, Melloch, and Levesque-Bristol (2021), who reported that students’ views on flipped learning vary depending on how well it is set up and supported. El Sadik and Al Abdulmonem (2021) noted that flipped classrooms can enhance learning in complex subjects, but additional scaffolding is necessary for students who struggle.

In summary, flipped classrooms promote independence and can enhance math learning, but their effectiveness depends on individual learning styles, content difficulty, and the availability of support. These results emphasize the importance of adaptive teaching designs that cater to diverse learner needs to maximize the benefits of flipped learning.

1. Conclusion

The findings show how grade 8 students experienced flipped learning in math. Many became more self-directed, thought more critically, and felt more motivated. They liked learning at their own pace and having control over how they studied. This often helped them understand math better and feel more confident.

Still, not all students found it easy. Some had trouble managing their time, didn’t enjoy reading, or missed help from their teacher. These struggles were more common for students whose learning styles didn’t match the demands of the flipped setup. This shows the need for support systems and flexible teaching plans.

Student feedback was also mixed. Their experiences changed depending on how hard the topic was, how they studied, and how much support they got from classmates or teachers. This means the flipped classroom works well for many, but not for everyone.

In short, flipped learning can improve student independence, focus, and involvement. But to help all students, it needs strong planning, steady support, and room for different ways of learning.

**Ethical considerations**

A request letter was sent to the school division superintendent for approval to conduct the study. Once approved, a copy of the letter was given to the school head. All participants received informed consent forms that explained the study’s purpose, provided contact details, and asked for their voluntary participation.

The consent form also assured participants that their personal information would remain confidential and would not be shared without their approval. After collecting the signed forms, the researcher secured them to protect the participants’ privacy. In line with RA 10173 or the Data Privacy Act, all collected data will be kept strictly confidential and used only for this study. Only the researcher will have access to the responses.

The study followed the Belmont Report’s ethical guidelines. Participants were chosen based on the study’s needs, and all were treated fairly. The researcher ensured that everyone, regardless of background, had equal access to the possible benefits of the research.

**Potential Conflicts of Interest of Students**

The flipped classroom encourages active learning, but students face key challenges that affect their experience and performance. These include unequal access, varied learning styles, and the need for support.

*1. Access to resources* – The model depends on technology and internet access. Some students lack devices or stable connections at home. Others study in noisy or crowded spaces, making it hard to focus on lessons.

2. *Preparedness for class* – Students must study content before class, which builds independence. However, this can be hard for those who struggle with the material or prefer direct instruction. Without timely help, they may feel lost or fall behind. Some also find the format mismatched with their learning style, which can lead to frustration and low confidence.

3***.*** *Pressure and accountability* – The flipped classroom often centers on in-class collaboration and active tasks. This setup can create stress for students who come unprepared or feel nervous about speaking up. Some also question whether traditional grading fairly reflects their work in this model, which may lead to anxiety about how their efforts are judged.

*4. Support from teachers and administration* – Clear guidance and steady support from teachers are key to success. However, when teachers lack training or face heavy workloads, students often feel left to their own devices. Administrative support also matters. Without sufficient resources or openness to change, schools may struggle to effectively implement the flipped model, which limits its benefits for learners.

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Details of the AI usage are given below:

1. Grammarly (v1.2.163.1671)– for the grammar of each sentence

2. Quillbot (v23.24.0) paraphrasing tool - to rephrase and structure the idea well

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