

Analyzing Student's Visual Metaphors of Mathematics Teachers in a Rural Philippine School

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ABSTRACT

This qualitative-descriptive study explored the visual metaphors Grade 10 students in a rural Philippine school used to represent their mathematics teacher. Grounded in Conceptual Metaphor Theory, Social Constructivist Theory, and Symbolic Interactionism, the study sought to identify the symbolic images students associated with their teacher and examine how these reflected their classroom experiences. Data were collected from 20 students through a drawing-and-explanation activity. Eight drawings containing rich metaphorical content were purposively selected for in-depth thematic analysis. Findings revealed three major themes: (1) the teacher as a source of guidance and access, represented by metaphors such as a compass and a lock-and-key; (2) the teacher as a dual-faced figure who is strict yet benevolent, represented by a teaching machine, clock, and wolf; and (3) perceptions of difficulty, intimidation, and instability, represented by battery and alcohol metaphors. The findings suggest that students actively interpret teacher behavior and often reframe strictness as an expression of care and concern. This study contributes to understanding student-teacher relationships in rural mathematics classrooms and highlights the cultural meanings students attach to teacher authority.

RESUME

Este estudio cualitativo-descriptivo exploró las metáforas visuales que los estudiantes de décimo grado de una escuela rural filipina utilizaron para representar a su profesor de matemáticas. Basado en la Teoría de la Metáfora Conceptual, la Teoría Sociocconstructivista y el Interaccionismo Simbólico, el estudio buscó identificar las imágenes simbólicas que los estudiantes asociaban con su maestro y examinar cómo estas reflejaban sus experiencias en el aula. Los datos se recolectaron de 20 estudiantes mediante una actividad de dibujo y explicación. Se seleccionaron intencionalmente ocho dibujos con un rico contenido metafórico para un análisis temático en profundidad. Los resultados revelaron tres temas principales: (1) el profesor como fuente de guía y acceso, representado por metáforas como una brújula y un candado con llave; (2) el profesor como una figura de doble cara, estricta pero benevolente, representada por una máquina de enseñar, un reloj y un lobo; y (3) percepciones de dificultad, intimidación e inestabilidad, representadas por las metáforas de la batería y el alcohol. Los hallazgos sugieren que los estudiantes interpretan activamente el comportamiento del profesor y, a menudo, replantean la severidad como una expresión de cuidado y preocupación. Este estudio contribuye a comprender las relaciones entre alumnos y profesores en las aulas de matemáticas rurales y destaca los significados culturales que los estudiantes otorgan a la autoridad docente.

RESUMO

Este estudo qualitativo-descriptivo explorou as metáforas visuais utilizadas por alunos do 10º ano de uma escola rural nas Filipinas para representar seu professor de matemática. Fundamentado na Teoria da Metáfora Conceitual, na Teoria Sociocconstructivista e no Interacionismo Simbólico, o estudo buscou identificar as imagens simbólicas que os alunos associavam ao seu professor e examinar como elas refletiam suas experiências em sala de aula. Os dados foram coletados junto a 20 alunos por meio de uma atividade que envolvia a criação de desenhos e suas respectivas explicações. Oito desenhos, que apresentavam um rico conteúdo metafórico, foram selecionados intencionalmente para uma análise temática aprofundada. Os resultados revelaram três temas principais: (1) o professor como fonte de orientação e acesso, representado por metáforas como uma bússola e um conjunto de fechadura e chave; (2) o professor como uma figura de dupla face — rigorosa, porém benevolente —, representada por uma máquina de ensinar, um relógio e um lobo; e (3) percepções de dificuldade, intimidação e instabilidade, representadas por metáforas relacionadas a uma bateria e ao álcool. As descobertas sugerem que os alunos interpretam ativamente o comportamento do professor e, frequentemente, ressignificam o rigor como uma expressão de cuidado e preocupação. Este estudo contribui para a compreensão das relações entre alunos e professores em salas de aula de matemática em contextos rurais, destacando os significados culturais que os alunos atribuem à autoridade docente.

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Introduction

Teachers are central figures in the learning process, particularly in subjects like mathematics, which is often perceived as complex and intimidating. How students perceive their mathematics teacher can spark motivation or deepen fear and disengagement. Students often describe teachers in symbolic or metaphorical ways, such as a "guide," "mentor," or "barrier," to capture their learning experiences. As Tannehill and MacPhail (2014) explain, metaphors are more than just figures of speech; they reflect "underlying beliefs, attitudes, and emotions that shape student learning". This study contextualizes these perceptions within rural Philippine schools. Unlike their urban counterparts, these schools often face structural challenges like limited facilities and technology (At-tamimy et al., 2025), intensifying the teacher's role as one of the most influential resources available.

The justification for this study arises from a significant gap in existing literature. While studies show that positive teacher perceptions correlate with better motivation (Gilbert et al., 2014; Kunter et al., 2008), much of this research focuses on teachers' metaphorical self-perceptions (Kim, 2007; Martin Hard et al., 2021) or preservice teachers' beliefs. Few studies have captured the voices of secondary students, particularly in rural Philippine settings. Positive perceptions build stronger mathematics identities (Canonigo, 2024; Ma & Singer-Gabella, 2011), while negative perceptions can magnify learning difficulties and disengagement (Gini, 2024; Walters et al., 2022). Therefore, understanding the metaphors used by Grade 10 students—a critical transition stage—is essential for providing insight into their emotional and cognitive relationship with mathematics.

Three theoretical perspectives anchor this study. Conceptual Metaphor Theory (CMT) provides a framework for understanding how abstract concepts, like a teacher's role, are mapped onto concrete experiences (Lakoff & Johnson, 1980, as cited in). Social Constructivist Theory emphasizes that these perceptions are shaped by social interactions and the specific cultural context of the rural school (Vygotsky, 1978, as cited in). Finally, Symbolic Interactionism suggests that metaphors act as shared symbols through which students interpret and assign meaning to their classroom experiences (Blumer, 1969, cited in).

These three theoretical perspectives complement one another in explaining how students construct meanings about their teachers. Conceptual Metaphor Theory explains how students translate abstract perceptions into concrete symbolic images. Social Constructivist Theory highlights the role of social interaction and classroom experiences in shaping these perceptions. Symbolic Interactionism further explains how shared meanings emerge through repeated interactions between students and teachers. Together, these frameworks provide a

comprehensive lens for understanding how students create, interpret, and communicate metaphorical representations of their mathematics teacher.

In the Philippine context, rural schools are not only characterized by limited material resources but also by distinctive sociocultural relationships between teachers and students. Teachers are often viewed as authority figures, mentors, and even surrogate parents who play important roles beyond academic instruction. In many rural communities, where social networks are closely interconnected, teacher influence extends into students' personal and moral development. These contextual realities shape how students interpret teacher behaviors, including discipline, strictness, and care. Understanding students' metaphorical representations of mathematics teachers within this cultural setting provides deeper insight into how educational relationships are socially constructed and experienced in rural Philippine schools.

The primary objective of this study is to analyze the visual metaphors that Grade 10 students in a rural Philippine school use to describe their mathematics teacher. Specifically, it aims to identify the metaphors students use, analyze the positive and negative images that emerge from these symbols, and understand how they reflect their lived experiences and attitudes toward learning mathematics. The findings aim to provide insights that can help improve the teaching and learning of mathematics in similar rural contexts.

Research Method

Research Design

This study employed a qualitative-descriptive research design for exploring subjective perceptions expressed through symbolic forms such as drawings. Rather than focusing on numerical data, this design allows a deeper exploration of how students emotionally and cognitively construct meaning about their mathematics teacher. The approach is grounded in the belief that drawings and metaphors serve as expressive tools that reveal underlying attitudes and beliefs that are not always articulated verbally. Through this method, the study aimed to capture students' authentic voices and interpret their perceptions in a contextualized manner.

Sources of Data

Twenty Grade 10 students participated in the drawing activity. However, only eight drawings were selected for detailed thematic analysis using purposive sampling. The selection criteria included: (1) clarity of the visual metaphor, (2) completeness of the accompanying written explanation, and (3) richness of metaphorical content relevant to the research objectives. Drawings that lacked sufficient explanatory detail or contained ambiguous symbolism that could not be reliably interpreted were excluded from the final analysis. This approach ensured that the selected artifacts provided meaningful and information-rich cases for in-depth qualitative interpretation.

Instrumentation and Data Collection

The primary tool used in this study was a Drawing Activity Sheet, where students were asked to draw their mathematics teacher as a symbol, object, animal, or any figure that represents how they see them. Below the drawing, students were asked to write a short explanation of what their drawing means. Before the activity, the researcher asked permission from the school head, class adviser, and parents, and informed the students that the activity was not a test and that their drawings would be kept confidential. The drawing session was conducted in a relaxed classroom, and students were given 20 to 30 minutes to complete their work. After collecting the outputs, the drawings were photographed and labeled with codes instead of names to keep the students' identities private. When a drawing was unclear, the researcher politely asked the student to clarify the meaning to ensure correct interpretation.

Data Analysis Procedures

The qualitative data from the interviews will be analyzed using thematic analysis. The process began by sorting the drawings into general categories such as positive, negative, or neutral perceptions. Each drawing was then coded according to recurring metaphor themes such as "teacher as a guide," "teacher as light," "teacher as wall," or "teacher as barrier," based on symbolic elements present in the illustration and confirmed by student explanations. The analysis followed the lens of Conceptual Metaphor Theory, allowing the researcher to interpret how students mapped their real classroom experiences into symbolic representations. Themes were then summarized and interpreted to explain how these metaphors reflected students' emotional responses, motivation levels, and classroom experiences in mathematics. Student identities were anonymized throughout the analysis and reporting process to maintain ethical integrity.

To enhance trustworthiness, the coding process was conducted in multiple stages. Initial codes were generated from recurring symbols and explanations provided by the students. These codes were subsequently reviewed and refined through repeated examination of the drawings and accompanying narratives. To ensure interpretive consistency, an experienced qualitative researcher independently reviewed the coding categories and thematic classifications. Any differences in interpretation were discussed until consensus was reached. The use of participant explanations alongside the drawings also served as a form of data triangulation, helping to confirm the intended meanings of the visual metaphors.

Results and Discussions

Results

A thematic analysis of the eight metaphors and their explanations revealed three dominant themes regarding the students' perceptions of their mathematics teacher.

Theme 1: The Teacher as a Source of Guidance and Access

This theme captures the positive perceptions of the teacher's role, aligning with the "teacher as guide" or "bridge" concept. These metaphors frame the teacher as an essential tool for navigation and understanding.

Student 1 (Compass) explicitly used the language of navigation: "provide guidance," "navigate us to the right way," and "leads us through complex problems." The teacher is perceived as a reliable instrument that provides clarity and direction, helping students avoid "confusion."

Student 2 (Lock and Key) framed the teacher as the solution to a problem. Mathematics is the "lock" (complex, inaccessible), and the teacher is the "key" who "make[s] us understand" and unlocks the "key for our future." In both metaphors, the teacher is a positive, enabling force who makes complex mathematics accessible.

Table 1.

Summary of Student Metaphors and Emergent Themes

Student	Metaphor	Core Meaning	Theme
Student 1	Compass	Provides direction and guidance	Teacher as a Source of Guidance and Access
Student 2	Lock and Key	Unlocks understanding and opportunities	Teacher as a Source of Guidance and Access
Student 3	Alcohol	Strict, intense, difficult to process but meaningful	Strict but Benevolent / Difficulty and Intimidation
Student 4	Teaching Machine / Second Parent	Disciplined, hardworking, caring authority figure	Strict but Benevolent
Student 5	Wolf	Difficult communicator but reliable and capable	Strict but Benevolent / Difficulty and Intimidation
Student 6	Battery	Effectiveness depends on mood and energy level	Difficulty, Intimidation, and Instability
Student 7	Alcohol	Confusing communication and difficulty keeping up	Difficulty, Intimidation, and Instability
Student 8	Clock	Strict about time and discipline but caring	Strict but Benevolent

Theme 2: The Teacher as a Dual-Faced Figure: Strict but Benevolent

This was the most prominent theme in six of the eight responses. Students perceive their teacher as possessing a complex, dual nature: a complicated or intimidating exterior that coexists with a positive intent and effective teaching.

Student 4 (Teaching Machine / Second Parent) provides the clearest example. The teacher is a "machine" in "serious times" but also a "second parent" whose job is to "discipline, educate, and motivate." This captures the students' understanding that the teacher's strictness is part of their "job" as an educator and authority figure.

Student 8 (Clock) reinforces this. The teacher is "strict about time," "doesn't waste a

single minute," and "gets very angry." However, this negative behavior is rationalized positively: "we know it's for our own good" and "he wants the best for us."

Student 5 (Wolf) presents a teacher who is "not good at communicating" (a negative trait) but is "reliable" and ultimately "finds a way to make students understand" (a positive outcome).

Student 3 (Alcohol) describes a teacher who is "strict, serious, and [has a] strong personality" but who also "possess[es] depth and quality in their teaching." **2.1:**

Theme 3: Perceptions of Difficulty, Intimidation, and Instability

This theme, which overlaps with Theme 2, isolates the negative perceptions and "barrier" aspects of the student experience. These metaphors highlight the challenge and fear associated with the teacher.

Student 6 (Battery) presents the teacher's effectiveness as conditional. When "fully charged," he is energetic and patient. However, when "low-batt," he is "irritated and angry easily." This instability creates an unpredictable and potentially intimidating classroom environment.

Student 3 and Student 7 (Alcohol) use this metaphor to describe a disorienting experience. Student 3 states the lessons "can hit hard" and "leave your head spinning." Student 7 is more direct, stating, "when he speaks, it's like he's drunk," implying a lack of clarity that students must struggle to "keep up with."

Student 5 (Wolf) directly names the teacher's weakness: "he's not good at communicating."

Discussion

The findings directly answer the research questions. Students' metaphors are diverse (Compass, Key, Alcohol, Machine, Wolf, Battery, Clock), revealing both positive and negative images. The positive images are of a "guide" (Compass) and "enabler" (Key), while the negative images are of an "intimidating" (Alcohol) and "unpredictable" (Battery) figure.

The findings of this study are consistent with previous research suggesting that students often conceptualize teachers through metaphors that reflect both instructional and relational dimensions of teaching. Similar studies have identified teachers as guides, facilitators, mentors, and authority figures whose behaviors significantly influence student engagement and motivation (Amerstorfer & Freiin von Münster-Kistner, 2021; Canonigo, 2024). The metaphors of the Compass and Lock and Key align with literature emphasizing the teacher's role in scaffolding learning and supporting students' development of mathematical confidence and identity.

The analysis shows how these metaphors reflect complex student experiences. Through Conceptual Metaphor Theory (CMT), we see students mapping their concrete experiences (e.g., the complex, dual nature of Alcohol) onto the abstract concept of their teacher. The

students do not hold simple, one-sided views.

The prevalence of dual-natured metaphors (Theme 2) is the key finding. Students in this rural school appear to have constructed a shared understanding of their teacher as a "strict but benevolent" figure. This strongly supports Symbolic Interactionism. The students actively interpret the teacher's "grumpy" (Student 8) or "strict" (Student 3) behavior. They assign a shared, positive meaning to it ("for our own good," "quality... teaching"), thus constructing a reality where the teacher's complex nature is a necessary component of their effective role as a "second parent" (Student 4). This suggests a strong acceptance of traditional, disciplinarian teacher roles, which they ultimately perceive as being for their own benefit.

The prominence of the "strict but benevolent" theme offers an interesting contrast to findings from some Western contexts where strict teacher behaviors are frequently associated with negative student outcomes. In this study, students often interpreted strictness as an expression of concern, responsibility, and commitment to learning. This interpretation may reflect cultural expectations within Philippine educational settings, particularly in rural communities where teachers are commonly viewed as parental figures and moral guides. Such findings suggest that students' interpretations of teacher behavior are shaped not only by individual experiences but also by broader cultural norms and community values.

Furthermore, the negative perceptions in Theme 3 align with Social Constructivist Theory. The students' shared experience of a teacher who is "hard to keep up with" (Student 7), "irritated" (Student 6), and "hard to communicate with" (Student 5) collectively shapes their learning environment. It constructs a reality where mathematics is not only complex in itself, but the instruction is also a challenge to be "gotten used to" (Student 7).

Study Limitations

Several limitations should be considered when interpreting the findings of this study. First, the study was conducted in a single rural school and involved only twenty participants, with eight drawings selected for in-depth analysis. Consequently, the findings are context-specific and may not be generalized to all Philippine schools. Second, the interpretation of visual metaphors is inherently subjective despite efforts to enhance trustworthiness through participant explanations and independent review. Third, the study relied solely on student-generated artifacts and written explanations; no interviews were conducted to further explore students' meanings. Future studies may incorporate interviews, focus group discussions, and multiple school contexts to provide a more comprehensive understanding of students' perceptions of mathematics teachers.

Conclusions

This qualitative-descriptive study analyzed the visual metaphors that Grade 10 students in a rural Philippine school use to perceive their mathematics teacher. The findings

revealed three dominant themes: (1) The Teacher as a Source of Guidance and Access (e.g., "Compass," "Lock and Key"); (2) The Teacher as a Dual-Faced Figure: Strict but Benevolent (e.g., "Teaching Machine/Second Parent," "Clock," "Wolf"); and (3) Perceptions of Difficulty, Intimidation, and Instability (e.g., "Battery," "Alcohol").

The study's key conclusion is the dominance of the "strict but benevolent" theme. This shows that students are not passive recipients of instruction; they actively interpret their teacher's actions. Through a process of Symbolic Interactionism, they have constructed a shared meaning where their teacher's "grumpy" and "strict" behavior is reframed as a necessary component of their role as a "second parent." This suggests a student culture, possibly unique to this rural setting, that accepts and even values a disciplinarian teaching style as a sign of positive intent. However, this is balanced by metaphors of instability ("Battery") and confusion ("Alcohol"), suggesting this teaching style creates a challenging learning environment.

The findings suggest that professional development initiatives for mathematics teachers may benefit from emphasizing social-emotional learning (SEL), effective classroom communication, and teacher self-awareness. While students generally perceived strictness positively when accompanied by genuine concern and instructional competence, negative perceptions emerged when communication became unclear or when emotional inconsistency was evident. Programs that help teachers balance academic rigor with supportive communication may contribute to more positive classroom relationships and improved student engagement. In rural settings, where teachers often assume broader social and developmental roles, strengthening interpersonal communication skills may be particularly valuable.

Artificial intelligence use declaration

Generative artificial intelligence tools were used solely for linguistic editing, reference standardization, and improvement of textual clarity. The tools were not employed to generate ideas, hypotheses, interpretations, analyses, results, or scientific conclusions. The authors confirm that the manuscript contains no fabricated, manipulated, or fully AI-generated content, and that all information has been manually verified. The authors assume full ethical and scientific responsibility for the final content.

Conflict of interest statement: The authors declare that they have no financial, commercial, personal, or academic relationships that could be perceived as influencing the results or interpretation of this manuscript.

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Data availability

The data underlying the research are reported in the article

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