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The Image of the Mathematics Teachers in High School Students

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Abstract

This study aims to explore the perceptions of high school students at risk of academic failure regarding their mathematics teachers, using drawings and related questions to gather detailed information. The perception of these students can provide valuable insights into the potential role of teachers in students' academic failure. Analyzing the meanings behind the drawings is crucial for addressing challenges associated with negative images that students may have of their mathematics teachers. The close relationship between the drawings and the personal experiences of students highlights the significant influence of this task on individual perceptions of mathematics teaching.

Keywords

High school students, image of mathematics teacher, academic performance

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La Imagen del Profesor de Matemáticas en Estudiantes de Bachillerato

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Resumen

El propósito de este estudio es explorar las percepciones de estudiantes de Bachillerato en Riesgo de Fracaso Académico sobre sus profesores de matemáticas, utilizando dibujos y preguntas relacionadas para obtener información detallada. La percepción de estos estudiantes puede ofrecer perspectivas valiosas sobre el posible papel del docente en el fracaso académico. Analizar los significados detrás de los dibujos es crucial para abordar los desafíos relacionados con las imágenes negativas que los estudiantes puedan tener de sus profesores de matemáticas. La estrecha relación entre los dibujos y las experiencias personales de los estudiantes destaca la influencia significativa de esta tarea en las percepciones individuales sobre la enseñanza de las matemáticas.

Palabras clave

Estudiantes de bachillerato, imagen del profesor de matemáticas, rendimiento académico

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It is widely known that mathematics is considered by most people as a particularly difficult subject with a high level of complexity compared to other disciplines that individuals encounter throughout their education. This high level of complexity, whether real or imagined, tends to increase frustration among many students. This frustration generally leads to feelings of guilt among these students as well, and as a way to alleviate those negative feelings, it is common for them to blame teachers and develop resentment toward them (Eleftherios et al., 2007).

As students progress in their academic careers, the tendency to blame teachers or to maintain a negative perception of them persists in their minds. They often feel that teachers have not lived up to the challenges that mathematics presents in the school environment (Gómez et al., 2006). Similarly, teachers also form their own ideas about students, categorizing them as good or bad. It is crucial for teachers to understand that this categorization should not be static or determine the potential of the students. Each student is unique in their learning pace and style, and the teacher's role is to provide support and resources to help the student develop in the best possible way. But to what extent can a teacher be blamed for some students' poor performance? This question is fundamental to avoid erroneous judgments and to promote a healthier relationship between students and teachers.

Research, such as that by Picker and Berry (2000), has shown that negative images of mathematicians are quite common. This issue is particularly significant because images and perceptions play a crucial role in the educational field. The school environment and classmates' opinions are the main influences in shaping these perceptions. However, we must not overlook the influence of other adults and community figures surrounding students outside of school. The responsibility for changing these perceptions falls not only on teachers but on society as a whole. It is essential to foster a culture of respect and appreciation for mathematics and to eliminate the negative stereotypes that can hinder the learning of this subject.

This article describes a study conducted with students categorized as low academic performers. The main objective of this study is to analyze the representations these students have of their mathematics teachers through their drawings. This approach provides insight into how students, especially those with academic difficulties, perceive their teachers. The study aims to understand how students visualize their teachers and whether these representations can offer valuable information about the teacher-student relationship, as well as potential factors influencing academic performance in mathematics.

Theoretical Foundations

In recent decades, it has been observed that students with negative attitudes toward mathematics show little interest in pursuing careers related to this discipline. This trend is reflected in a persistent avoidance of the subject, leading students to choose professional paths that require minimal or no involvement with mathematics. These attitudes are influenced by their sociocultural realities (gender, teachers, parents, peers, society, and previous achievements), leaving a significant number of students at risk of academic failure due to these factors. There is a preconceived misunderstanding of mathematics that virtually ensures students' academic failure in the discipline, and teachers are often not alert to detect this distorted image to address

it in a way that prevents such failure. Mathematics is perhaps the field of human activity most susceptible to differences in perception, dividing those who understand it from those who find it challenging. Furinghetti (1993) highlights the duality of perception toward mathematics, noting that this discipline can generate both love and aversion, with some mental images of it being universally present. Meanwhile, Rock and Shaw (2000) advocate for understanding children's perceptions of mathematicians, arguing that this can enrich their thinking about future roles in the discipline. Henrion (1997) introduces the concept of image and emphasizes its importance in revealing underlying beliefs, assumptions, and expectations, while also actively influencing those engaged in mathematics.

In the 1950s, anthropologist Margaret Mead and psychologist Rhoda Métraux conducted a pioneering study that marked the beginning of research into students' perceptions and representations of scientists, including mathematicians. This study involved thousands of high school students in the United States. The main finding was that the image students had of scientists was "overwhelmingly negative" (Mead & Métraux, 1957).

The Draw a Scientist Test (DAST), which originated from the study by Mead and Métraux, was introduced by Chambers (1983). This test involves asking students to draw a scientist. Chambers identified seven attributes in the drawings, noting that their number increased with the child's age. Later, Finson et al. (1995) developed the DAST-C rubric, expanding the original list with nine additional indicators that considered the race and gender of the scientists, as well as other previously excluded elements. Years later, Picker and Berry (2000) allowed students to draw a mathematician on a sheet of paper as part of their research to analyze and describe the perceptions reflected in these students' drawings of mathematicians, leading to the creation of the "Draw a Mathematician Test (DAMT)." Over time, it was found that using drawings as a way to measure young students' perceptions was valid and a less costly alternative to classroom observations.

The fact that the interpretation of students' drawings can address such a crucial topic as their perceptions provides mathematics teachers with an opportunity to counter negative judgments, better understand their students, and, most importantly, reduce students' resentment toward studying mathematics.

This research aims to update the previously mentioned studies in the context of Mexican students. Although there is a substantial amount of foreign material on the subject, little attention has been paid to our country. This could serve as a valuable framework for improving the interpretation of results and preventing potential errors identified in previous research. Rock and Shaw (2000) conducted an exploratory study on children's perceptions of mathematicians. Through a survey that included three questions and a request for drawings of mathematicians in their work environment, they sought to understand the students' conceptions. Most drawings depicted smiling figures, with a notable majority representing female figures compared to male ones.

Similarly, Stiles et al. (2008) investigated adolescents' attitudes toward mathematics using their drawings as a means of expression. This approach allowed them to identify four significant differences between high-performing and low-performing mathematics students, thus providing evidence of the reliability of using drawings as an assessment tool.

Sánchez et al. (2012) conducted research focused on the images that Mexican secondary school students have of mathematicians, identifying the activities associated with them. This study

aimed to understand students' perceptions and the types of activities they associate with mathematicians, noting that the participants were high-performing mathematics students.
In another context, Lane et al. (2014) focused on affective, cognitive, and conative issues in mathematics education in Ireland. Using the term "image of mathematics" to encompass these three aspects, they conducted a study to investigate secondary school students' perceptions of mathematics in Ireland. This research has been recognized as an area of interest within the mathematics education community.

Yazlik and Erdoğan (2016), for their part, identified how secondary school students view mathematicians through images, using a data collection tool consisting of four parts. The first part included questions to determine the students' demographic characteristics. The second part featured a drawing section designed to define students' images of mathematicians and open-ended questions to describe the drawing. The third part contained options presented to define the sources of the students' image of mathematicians, and the fourth part included open-ended questions to identify famous mathematicians and the reasons behind their recognition.

Lane (2017) examined a particular aspect of parental influence, aiming to determine if there is a relationship between parents' occupations and students' images of mathematics. Parents with positive attitudes and beliefs about mathematics can pass on this positivity to their children, thereby creating a cycle of positivity and engagement with the study of mathematics.

Hatisaru and Murphy (2019) investigated the representations of mathematics created by first-year secondary school students, including attitudes, perceived needs in mathematics, and views on mathematicians and their work. Most drawings depicted smiling figures, but about one-thirteenth of them showed negative images of mathematicians or teachers, expressing attitudes of aversion.

In another study, Hatisaru (2020) employed the Draw a Science Teacher Test (DASTT) to explore the educational ecology in mathematics classrooms. Students were asked to draw their teacher with the prompt, "Think about mathematics teachers and the kinds of things you do in mathematics classrooms. Draw your teacher teaching and you learning." The results of this study have significant implications for policy formulation, practice, and education research.

In a study conducted by García et al. (2023), the representations of mathematics generated by secondary school students in Mexico were explored. The analysis focused on four main aspects: descriptions, beliefs, evaluations, and emotions associated with mathematics. The results revealed that students experience contrasting emotions, such as anxiety and satisfaction, concerning the subject of mathematics. These findings suggest a variety of perceptions and emotional experiences among students within the specific context of secondary education in Mexico.

Methodology

To investigate the perceptions of low-performing students toward their mathematics teachers and the subject itself, a brief questionnaire based on the Draw a Mathematician Test (DAMT) developed by Picker and Berry (2000) was employed. The DAMT has proven to be an effective tool for assessing students' perceptions of mathematics and their teachers. The study methodology involved having students first create a drawing that represented their perception

of a teacher teaching mathematics. Additionally, students were asked to respond to a series of questions included in the research instrument (see Appendix).

This study was conducted at the Centro de Bachillerato Tecnológico Industrial y de Servicios Núm. 142 in the city of Orizaba, Veracruz. It involved the participation of 150 high school students aged between 15 and 17 years.

The choice of this specific group of participants allowed the research to focus on a sector of students who often face additional challenges in learning mathematics. Each student was given 35 minutes to complete the assessment instrument, although some submitted their work before the time limit. The collected drawings were then scanned and analyzed to achieve the study's objectives.

The first instruction aimed to capture students' spontaneous reactions to the request to represent in detail how they saw their teachers teaching mathematics. Subsequently, several questions were posed to gain a more precise understanding and effectively categorize the images that students had created. These questions focused on investigating whether the drawings were related to experiences encountered during the students' school years. The purpose of conducting these activities without providing many explanations was to ensure that students expressed their thoughts and feelings genuinely and spontaneously through their drawings, preventing them from having time to reconsider the process.

Analysis of Results

To carry out an appropriate classification of the drawings to be analyzed, a selection was made of those that most closely resembled the traditional stereotype of a mathematics teacher. This selection was crucial for conducting a thorough analysis of the various aspects present in the drawings and for compiling a comprehensive list of elements highlighted in previous research. For the evaluation of the drawings, indicators focusing on specific traits of the representations of teachers, both alone and with students, were used.

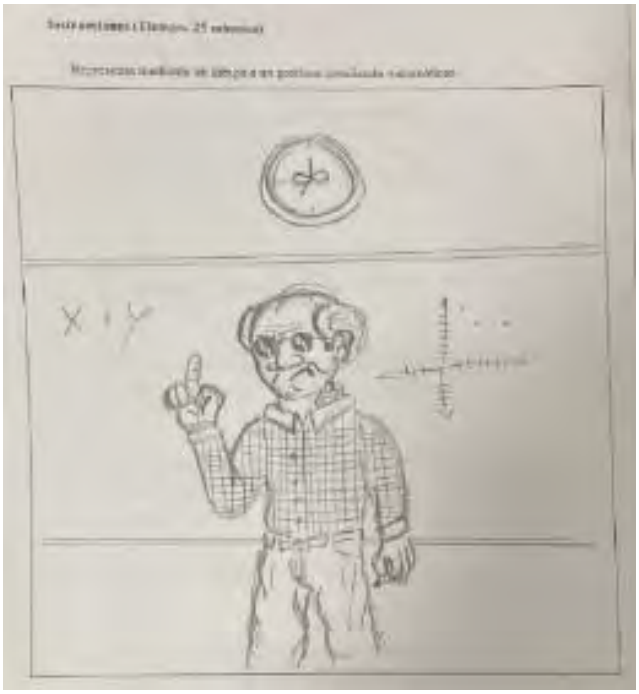
Haney et al. (2004) and Sánchez-Aguilar et al. (2016) used specific indicators in analyzing representations of mathematicians produced by students, considering aspects such as clothing, gender, hairstyle, mood, use of glasses, presence of mathematical symbols, and instruments. These elements were essential for interpreting the drawings and understanding students' perceptions. Hatisaru (2019) employed various reference elements for interpreting the drawings, including gender, physical environment, activity of the figure, content area, professional tools, and physical characteristics. Additionally, indicators previously used in studies by Chambers (1983), Haney et al. (2004), and Koppitz (1968) were applied to analyze certain attributes of the drawings. The analysis of the drawings focused on identifying the most significant element of the drawing that helps to recognize a mental representation or vision of the teacher teaching mathematics.

This approach was divided into five main aspects:

General Attributes of the Mathematics Teacher

The primary purpose of this evaluation is to analyze the general characteristics that significantly influence the initial impression students form about their teachers. This aspect aims to gather information about the teaching environment and how it is perceived by students. For example, in Figure 1, a student describes: "A teacher giving a lesson with the help of a blackboard and a clock that does not move, making time seem eternal." This highlights the importance of considering the learning environment, as exemplified by a student describing a teacher with a clock that seems to freeze time, emphasizing the perception of an endless classroom experience.

Figure 1
Teacher's Environment



The evaluation explores the dynamics of the teacher in the classroom, assessing their integration into the group, relational skills, promotion of teamwork, and the perception of their proximity or distance. Together, this aims to provide a comprehensive view of the teacher's presence and behavior in the educational context, highlighting their impact on students' learning.

Specific Attributes of the Mathematics Teacher

These attributes complement the impressions captured by students in their drawings, highlighting details that remain in students' memories about their mathematics teachers. These representations emphasize the importance of the teacher's interaction and active participation in the learning process, underscoring their role as a facilitator and guide in solving mathematical

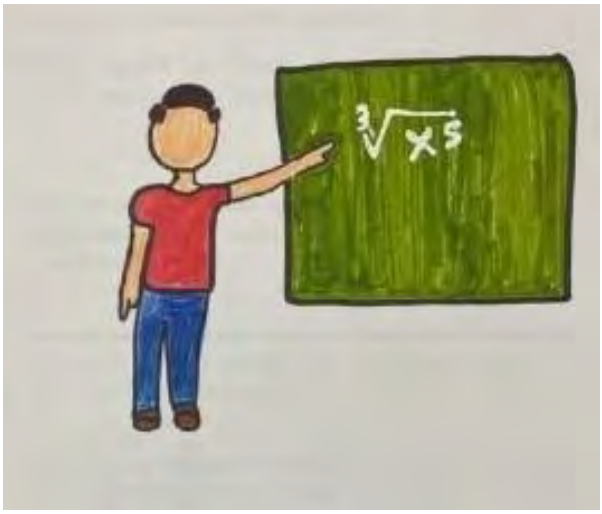
challenges. Examples of attributes include clothing, which reflects the individual's physical appearance, and hairstyle, which indicates tendencies toward perfectionism and attention to detail. The presence of a beard or mustache is associated with maturity and authority. The complexion reflects the teacher's health and level of personal care, suggesting its impact on students. The inclusion of objects on the face and head in the drawings not only adds a visual component but also indicates the perceived level of intellectuality and wisdom in the teacher. These visual attributes thus become crucial elements in deciphering students' deeper perceptions of their mathematics teachers (Johnson, 2012; Miller & Piven, 2014). In Figure 2, a student depicts their teacher asking classmates to solve a mathematical problem.

Figure 2
The Teacher's Clothing

Emotional Indicators in the Mathematics Teacher's Drawing

The purpose related to emotional indicators in the drawing of the mathematics teacher is to identify omissions in the representations to understand if they are linked to specific experiences in the students' school life. This is exemplified in Figure 3, titled "I drew my teacher explaining a topic I don't understand."

Figure 3
Omissions in the Face



According to Koppitz (1968), Emotional Indicators are clinical signs that reflect the underlying attitudes and characteristics of students when drawing human figures. This approach aims to deepen the understanding of the emotions associated with teaching mathematics and how these emotions are manifested in students' representations.

In general, the size of a character in a drawing can play a significant role in the symbolic representation of their importance or hierarchy. A larger character typically indicates greater relevance or priority, while a smaller size might suggest emotional distance or the perception of the figure as a potential rival. The head, being the most expressive area, reveals information about the student's perceived emotions and their ability to replicate them. A large, expressive head indicates an expansive character, while a small head might suggest shyness, isolation, and a desire to go unnoticed. The length of the arms is also revealing: long arms suggest a need for communication and sociability, whereas short arms may indicate a fear of communication, social difficulties, and insecurity.

Tools, Symbols, and Furniture Represented

The main objective of this section is to enrich the understanding of the student and their environment, recognizing that the drawing is heavily influenced by the student's personality, worldview, and mood, as well as their fears, concerns, and desires. For instance, the metaphor of a house might be used, where a student could express their anxiety about their parents' separation by drawing a house that appears to be collapsing.

Additionally, analyzing elements such as tools or furniture in the drawings—such as blackboards, books, computers, and concrete materials used in teaching mathematics—provides further insights into the student's perspective on the subject. These elements can reveal concepts about mathematics, gauge the degree of interest or aversion toward the subject, and highlight specific topics that have made a significant impression. Regarding symbolism, it was observed that this is closely linked to mathematical content elements such as Arithmetic, Algebra, Geometry, and Calculus. An example of this is shown in Figure 4, where a student mentions:

"A Calculus teacher explaining how to calculate the limit of a function." This finding underscores the presence of representations of mathematical content and their impact on the student's perception of the subject, offering valuable clues about their preferences and experiences in different areas of mathematics.

Figure 4
Mathematical Symbolism

Questions of the Instrument

These points served as guidelines for analysis and allowed for a deeper understanding of students' representations in relation to their view of mathematics teachers. One of the first observations that emerged during the analysis process was that the images seemed to fit into two distinct categories: one depicting a specific image of the mathematics teacher, often with particular attributes or characteristics, and another where no image of the teacher was present. To gain a broader and more comprehensive perspective, we began with a question that invited students to reflect on how they imagined a teacher teaching mathematics. This approach provided varied perceptions of the image students had in mind when thinking about their mathematics teachers.

During the selection and analysis phase of the 150 drawings created, a clear trend was observed. 115 of them were considered representations of teachers that adhered to the traditional stereotype of a mathematics teacher, although twenty-one of these depicted unrealistic images of mathematics teachers. Only fourteen drawings were excluded because they did not relate to the initial request for representation.

In previous studies, where students were asked to draw a mathematician, it was observed that, in line with our findings, students tended to depict their own mathematics teacher (Picker & Berry, 2000; Sánchez-Aguilar et al., 2016). The results regarding the gender of mathematics teachers (male) reflect similarities with the existing literature. Additionally, students predominantly perceive mathematics teachers as individuals aged between 20 and 50 years,

aligning with the average age of teachers at our institution. This parallels the study conducted by Rensaa (2006), which also considered mathematicians as middle-aged individuals. Regarding the criteria used to evaluate the drawings, a detailed analysis of the distribution of responses is presented in Tables 1 and 2, focusing on the attributes of mathematics teachers. The sum of descriptions preferred by more than 50% of the students reveals a common image of the mathematics teacher as a young man without glasses, without a beard, wearing outdated clothing, with a slim appearance, a rather unanimated or emotionless demeanor, and always surrounded by students.

Table 1

General Attributes of the Mathematics Teacher

		Man	Woman	
Teacher's Environment	Alone in the Classroom	21	29	43.48%
	With Students in the Classroom	33	32	56.52%
Teacher's Mood	Positively	17	31	41.74%
	Negatively	23	19	36.52%
	Without Expressions	14	11	21.74%
Teacher's Age	Young Person	22	35	49.57%
	Middle-Aged Person	28	25	46.09%
	Older Adult Person	4	1	4.35%
Teacher's Gender	Man	44	40	73.04%
	Woman	6	14	17.39%
	Undefined	4	7	9.57%
Technological Teacher	Applies	3	6	7.83%
	Does Not Apply	51	55	92.17%
Student's Mood	Positively	3	5	6.96%
	Negatively	17	14	26.96%
	Without Expressions	34	42	66.09%

Table 2

Specific Attributes of the Mathematics Teacher

		Man	Woman	
Facial Hair	Beard or Mustache	4	2	5.22%
	Without Facial Hair	50	59	94.78%
Complexion	Obese Person	11	7	15.65%
	Thin Person	43	54	84.35%
Hair	Person with Hair	38	50	76.52%
	Bald or Disheveled Person	16	11	23.48%
With Objects on the Face	With Glasses	18	17	30.43%
	None	36	44	69.57%
With Objects on the Head	With Hat	2	2	3.48%
	None	52	59	96.52%

		Man	Woman	
Clothing	Outdated	30	41	61.74%
	Modern	24	20	38.26%

Descriptions selected by less than 15% of the respondents include characteristics such as being a woman, an older adult, wearing glasses, dressing modernly, being overweight, showing a positive temperament, and being alone in the classroom. In Table 3, a detailed analysis of the relationship between students' perceptions of their teachers and the tools, as well as the symbolism most frequently used in the mathematics classroom environment, is presented. This provides valuable insight into how students' perceptions of their teachers influence the choice and use of pedagogical tools and symbolism in the teaching-learning process.

Table 3

Tools, Symbols, and Represented Furniture

		Man	Woman	
Blackboard	Exists	50	58	93.91%
	Does Not Exist	4	3	6.09%
Books or Notebooks	Exists	8	6	12.17%
	Does Not Exist	46	55	87.83%
Computers or Calculators	Exists	3	5	6.96%
	Does Not Exist	51	56	93.04%
Teacher's Desk or Table	Exists	11	14	21.74%
	Does Not Exist	43	47	78.26%
Student's Desk or Table	Exists	18	18	31.30%
	Does Not Exist	36	43	68.70%
Surrounded by Mathematical Objects or Symbols	Arithmetic	17	13	26.09%
	Algebra	8	14	19.13%
	Geometry	3	6	7.83%
	Calculus	21	22	37.39%
	Without Symbols	5	6	9.57%

Regarding the furniture used, there is a notable similarity with what is mentioned in the existing literature. It is noteworthy that the use of the blackboard (93.9%) remains a fundamental part of the teacher's work, while the absence of technologies is evident in their practice. It is interesting to note that among the mathematical elements depicted, the most frequent representation was related to Calculus. This could be due to the influence of most students being enrolled in this subject at the time or the academic impact of this subject due to its complexity. On the other hand, in the descriptions provided by less than 10% of the students, features such as the use of technologies and books in the teacher's work were included. Furthermore, it is relevant to highlight in the table that the subjects considered of lesser importance by the students were Algebra and Geometry. Table 4 addresses the results related to the questions posed in the instrument, which are linked to the drawings, with the aim of gaining a better understanding of student education and the content of their representations.

Table 4
Support Questions

		Men	Women	
Did any event in your school life influence what you drew?	Exists	36	41	66.96%
	Does Not Exist	18	20	33.04%
Do you consider yourselves good at mathematics?	Yes	13	10	20.00%
	No	41	51	80.00%
Will you pursue a career related to mathematics?	Yes	23	18	45.22%
	No	19	33	35.65%
	Unknown	12	10	19.13%
What is the best experience in learning mathematics?	Awards or Praise	1	5	5.22%
	None	5	8	11.30%
	Pass the Subject	48	48	83.48%
What is the worst experience in learning mathematics?	Insults or Mistreatment	5	7	10.43%
	None	9	10	16.52%
	Fail the Subject	40	44	73.04%

The study addressed the common belief that students' negative perception of mathematics teachers is due to their experiences in the subject. However, the results were surprising, as despite their low performance in mathematics, the 45.22% of students showed interest in careers related to this discipline. Nevertheless, a high percentage (80%) did not consider themselves competent in the subject, raising questions about the perception of competence in mathematics and its impact on future professional decisions.

The research suggests a complex connection between students, their perceptions of mathematics, and the influence of their educational experiences on academic and career decision-making, highlighting the need for more comprehensive investigations.

Therefore, there is a possibility that students have attempted to improve their actual perception of mathematics and their teachers to present a more favorable impression. This aspect was explored through a question in the instrument about their best and worst experiences in learning mathematics at school, yielding intriguing responses. Among those who expressed a negative perception of their teachers but claimed to enjoy mathematics, positive experiences such as solving practical problems, understanding, and academic performance were highlighted. On the other hand, negative responses included situations such as failing the subject, lack of understanding, and, in some cases, lack of attention from teachers. In more severe cases, instances of mistreatment by teachers were mentioned. It is important to note that, in some student representations, the mathematics teacher was drawn as a monster or an animated figure. Although this does not seem to be directly associated with any specific behavior, it could reflect inappropriate or maladjusted feelings related to classroom interaction or the teacher.

The unrealistic portrayal of the mathematics teacher reflects mixed or negative feelings from students. A closer analysis of teachers represented in a more distorted manner in the drawings

reveals that those depicted as monsters seem to be related to a certain animosity from the student toward the teacher. This is illustrated in Figure 5, where a student comments: "I drew my teacher talking about the topic and I didn't understand," and in Figure 6: "My math teacher watching us suffer." In other cases, teachers were represented with characteristics typical of cartoon characters, which is often influenced by nicknames or terms used by students to refer to their teachers. These representations reveal complex emotional perceptions and provide deep insights into the student-teacher relationship in the context of mathematics.

Figure 5

The Mathematics Teacher Depicted as a Monster

Figure 6

Depiction of the Mathematics Teacher as a Monster

It is important to note that drawings depicting teachers as animals require closer analysis. For example, representations of jungle animals, such as lions or pumas, might convey a perception of authority from the students. The choice to represent teachers as dogs or insects could suggest that students associate certain characteristics of these animals with their teachers. Further exploration of these representations is crucial for understanding the underlying perceptions of students and addressing potential issues in the teacher-student relationship (Smith & Lee, 2015).

Conclusion

Student representations provide a valuable opportunity to understand their perspectives and challenge assumptions and stereotypes about what happens in classrooms, particularly in relation to their teachers. These representations hold significant validity, as they seem to drive reflection and change, not only within research but also in education. The information obtained through the drawings can be utilized in various ways to improve the teaching practice of mathematics teachers. Student drawings can reveal their conceptions and perceptions of mathematical concepts. Teachers can adapt their teaching approaches by analyzing these drawings and identifying common patterns in difficulties. Ultimately, the information derived from the drawings can be a powerful tool for continuous improvement in the teaching practice, offering meaningful insights that go beyond conventional responses. This information can guide teachers toward more effective and student-centered approaches.

It is essential to consider that previous experiences with teachers and education in earlier stages do not always determine the student's current attitude toward teachers. Although difficulties or negative experiences with mathematics teachers in the past may have occurred, this does not necessarily result in a negative attitude toward teachers in general at the current stage. Students often base their perceptions on the interaction and impact of the current teacher, regardless of past experiences. Even if the current teacher is not highly competent, their influence can be decisive in shaping the student's perception of the subject and teaching at that moment, as evidenced in Figure 7, where a student commented: "The teacher explaining, even though no one understands, because they don't know how to explain." In Figure 8, another student depicted the teacher (mentioning their name) who constantly belittled their students and made mistakes in grading exams. In this case, the student expressed how this made them feel inferior and affected their self-esteem, despite having the same performance as their peers.

Figure 7

Personal Illustration of the Mathematics Teacher According to the Student's Perception

Figure 8
My Mathematics Teacher

Additionally, when analyzing the physical characteristics of mathematics teachers, it was found that approximately 85% of students represented them as thin individuals, without facial hair, without objects on their face or head, and with somewhat outdated clothing. It is crucial to highlight that students' perceptions of the mood of mathematics teachers are varied, though mostly positive. Furthermore, the surrounding environment is largely depicted as one where they are accompanied by classmates.

Regarding the furniture used, there is a similarity with what is mentioned in the existing literature. Notably, the use of the classroom blackboard remains a fundamental part of the teacher's work, while the absence of technologies is evident in their practice. Although most students portrayed and expressed positive attitudes toward their mathematics teacher, around 10% of students created drawings with negative connotations, occasionally expressing unfavorable feelings toward their teacher. The attitudes of these students formed a minority, but

their perceptions are a cause for concern. This concern is heightened when considering how these students' negative opinions may have been influenced by their teacher.

The drawings created by students are directly linked to their personal experiences, as they were asked to reflect on their experiences with mathematics and their teachers. The assigned task had a significant influence on the final content of the drawings. A clear relationship cannot be established between the negative attributes depicted in the images of the teachers and the students' low performance. The majority of students displayed positive and benevolent representations of their teachers. This could be interpreted as an acceptance of responsibility on the part of the student for their low performance, without necessarily linking it to the subject teachers. Although the drawings may indicate signs of low performance, especially when noting the limited presence of mathematical elements, it is crucial to recognize that this representation offers a limited view of the influence of the sociocultural reality on students' perceptions of their teachers.

To gain a more comprehensive understanding, it is suggested to complement the research with questions that delve into the cultural context and personal experiences of students. These could address aspects such as family traditions, cultural values, parental expectations, and previous experiences within the education system. A deeper analysis of these factors will allow for solid conclusions about how a student's sociocultural reality influences their perception of teachers and their overall educational experience.

In conclusion, no significant relationship has been found between students' perceptions of their teachers and their academic performance. It is suggested that an additional study could examine students' grades in relation to teachers' attributes for a deeper understanding. These findings indicate that, within the analyzed education center, there is no clear connection between academic failure and the negative perceptions of teachers.

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Annex 1

Assessment Instrument

Sheet 1. The Mathematics Teacher

The purpose of this instrument is to understand, through a drawing, what you consider to be a "**Mathematics Teacher**," with the aim of determining if a lack of interest in the subject is related to any event with a teacher in your school life. Additionally, this can help teachers reflect and consider changing their teaching practices in the classroom.

Student Information

Control number: _____

Sheet 2. Reflection

Take a few minutes to think about how your experience with learning mathematics has been throughout your life. Try to remember the experiences you've had in your math classes, both the good and the bad, and consider the influence your math teachers have had on your learning. Finally, think about the obstacles and motivations you've encountered each time you've taken math in school.

Sheet 3. Instructions (Time: 25 minutes)

Represent a teacher teaching mathematics through a drawing.

Sheet 4. Instructions (Time: 10 minutes)

Answer the following questions:

1. Explain in your own words: what did you draw?
2. Did any event in your school life influence what you drew? (Yes/No)
3. What has been your best experience in school learning mathematics?
4. What has been your worst experience in school learning mathematics?
5. Do you consider yourself good at math? (Yes/No)
6. What would you like to study after finishing high school?