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A Systematic Literature Review on Affective Factors of Parents and Children in Mathematics Home-Based Tasks

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The aim of this article is to describe the affective factors involved in the interaction between parents and children during the performance of mathematics home-based tasks reported in the available literature. A documentary type of research was conducted, with a qualitative approach and a descriptive level of depth. The information search was carried out in databases such as Google Scholar, Scopus, ERIC, and Taylor & Francis Group considering the period 2014-2023. From the total results obtained (228), the 15 most relevant articles that met the previously defined inclusion and exclusion criteria were selected and analyzed. The results of the analysis reveal that parental involvement in mathematics home-based tasks triggers affective responses, attitudes, emotions, expectations, perceptions and opinions of parents and children. It is concluded that the impact of such affective factors is critical at in-home interactions, students' development, and their mathematical performance. It would be advisable for teachers to include parents as co-responsible for the emotional development of their children in math homework, through affective coaching. Also, develop workshops with the participation of parents to make them aware of their crucial role in improving attitudes towards mathematics, and the emotions that children experience when solving mathematical tasks at home.

Keywords: affective factors, children, literature review, mathematics homework, parental involvement

INTRODUCTION

Parental involvement in their children's education is a key factor in their academic success (Sujarwo & Herwin, 2023). Today, it remains essential for parents to engage in homework activities at home, as this strategy benefits students' learning and personality development (Hussain et al., 2022). As a pedagogical strategy, teachers use homework to introduce new topics or reinforce what has been learned in class (Ergen & Durmşus,

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2021), as well as to assess and accredit student progress (Deringöl, 2019). Homework also allows parents to contribute to their children's personality development by promoting skills such as time management and planning, as well as values like responsibility, effort, and commitment (Güven & Akçay, 2019). In this scenario, students require affection, interest, understanding, motivation, and guidance from their parents (Guerra et al., 2024).

Various studies consistently indicate a direct relationship between parental involvement in homework and children's academic performance. Sujarwo and Herwin (2023), for example, identified a positive correlation between parental involvement in homework and academic achievement through a meta-analysis of twenty-nine publications from the past five years. Similarly, Hussain et al. (2022) found that various participation factors, such as parental assistance with homework, positively impact the education of their adolescent children. Specifically, regarding maternal help with homework and its effects on performance, Tunkkari et al. (2022) noted that higher levels of involvement were associated with increased task avoidance, suggesting that maternal help influences motivation more than performance. In this regard, high psychological control and maternal monitoring were linked to poorer adolescent performance, both directly and through task avoidance.

Other studies have focused on investigating different forms of parental involvement in their children's homework and their influence on psychological resources that promote academic success. For example, beneficial parental involvement has been reported to foster students' aspirations, academic adaptation, and autonomy in homework (Grolnick & Pomerantz, 2022). In this regard, Grijalva et al. (2020) confirmed that parental autonomy support is positively related to academic self-efficacy, self-regulated learning, and academic performance. In contrast, autonomy support is negatively associated with control.

Along these line, Guerra et al. (2024) studied parental involvement styles in the academic achievement motivation of their children in a population in Peru. These authors found that negligent parenting is the most detrimental and predominant style. This parenting style is characterized by the absence of various aspects, such as empathy, communication, and affection toward children. Regarding the quantity (frequency of assistance) and quality (positive affection) of parental support in elementary school children's homework, Davolyte et al. (2023) found that only positive affection significantly predicted persistence in tasks. Parents' response to lower persistence in children's tasks was reflected in increased assistance frequency, whereas higher persistence in tasks generated more joy and satisfaction among parents.

Advances in research on homework have led to a growing interest in exploring emotions, attitudes, beliefs, and other factors that influence the behavior of parents and children. In this sense, it has been reported that parental self-efficacy can enhance their involvement in mathematics homework (Wu et al., 2022). Regarding intrinsic parental motivation, Moè and Katz (2018) found that parents who are autonomously (genuinely and without external pressure) motivated to help their children with homework also experience positive emotions. These positive emotions are directly transmitted to their

children, generating similar emotions and improving their performance. Additionally, this parental motivation influences children's self-efficacy, that is, their perception of their ability to complete schoolwork. Likewise, parental autonomy support in homework is positively related to learning-oriented goals and positive emotions in elementary school children in Mexico (Valdés-Cuervo et al., 2022).

The aforementioned studies indicate two aspects of interest for this research stand out. On one hand, the specific study of parents' and children's emotions during homework has received little attention compared to parenting styles, control or autonomy support, and academic performance. On the other hand, all these studies have examined relationships between various factors such as autonomy, motivation, self-efficacy, persistence, among others, and homework in general, without focusing specifically on mathematics homework.

According to some authors, mathematics homework at home tends to pose greater challenges, stress, and pressure for parents compared to assignments in other school subjects or household activities (Williams & Williams, 2021; Wu et al., 2022). In this context, parents of students experience more negative than positive emotions. Both affective experiences evoke emotions such as irritation or happiness, often originating from their own memories of mathematics. In other words, mathematics homework tests the ability of both students and their parents to apply their knowledge, which is not always easy. Such tasks require skill development and decision-making. In this context, parents rely on their beliefs and adopt attitudes that are crucial for their children's approach to or distancing from mathematics (Williams & Williams, 2021).

Despite the interest in studying emotions, attitudes, and beliefs of parents and children and their effects on mathematics homework at home in various countries, few studies have addressed this issue in Mexico (Grijalva et al., 2020; Solis-Jimenez et al., 2024; Valdés-Cuervo et al., 2022). Collectively, these aspects of the affective domain in Mathematics Education (emotions, attitudes, and beliefs) are known as affective descriptors or affective factors (D´Amore, 2006; Gómez-Chacón, 2000; McLeod, 1991).

Therefore, this study aims to:

- Describe the affective factors involved in parent-child interaction during mathematics homework at home as reported in the available literature.

Thus, this study contributes to providing a general overview of the research conducted on the subject during the period from 2014 to 2023. Accordingly, the research question guiding this study was:

- What affective factors are involved in parent-child interaction during mathematics homework at home, as reported in the literature published between 2014 and 2023?

Following this brief introduction, the article includes three additional sections. The next section, corresponding to the method, describes the type of research, approach, depth level, search and selection procedure of information sources, as well as the analysis

technique used. Subsequently, the obtained results and discussion are presented. Finally, the main conclusions derived from the study are exposed, addressing the initially formulated research question.

METHOD

This study was conducted using a qualitative approach (Cohen et al., 2007) with a descriptive level of analysis. It employed a documentary research design, incorporating strategies for searching, retrieving, analyzing, and interpreting works published by other researchers on the subject (Arias, 2012). These strategies are detailed below.

Search strategy

This strategy involved locating documents through the Google Scholar search engine and the Scopus, ERIC, and Taylor & Francis Group databases. The following keywords were used: *family math tasks*, *parental math homework involvement*, *parental help*, *homework*, *math*, *parental involvement*, *math homework*, *emotions*, and *math learning*. Boolean operators (e.g., *intitle*, AND, "...", OR) were applied to perform an advanced search. Two inclusion criteria were specified: (1) the documents had to be research articles published between 2014 and 2023, and (2) they had to address parental involvement in math homework. Books, book chapters, undergraduate theses (bachelor's, master's, and doctoral), and studies on parental involvement in schoolwork in general were excluded to ensure alignment with the objective of the literature review.

These sources were excluded to focus on peer-reviewed articles that specifically address parental involvement in math homework, ensuring alignment with the study's objectives. Moreover, research articles generally meet higher academic standards in their evaluation and are published in advance compared to the documents excluded in this paper.

The limited search period (January 2014–December 2023) was considered appropriate for understanding research on the topic prior to and following the onset of the COVID-19 pandemic. After reviewing the titles and abstracts of the documents, 15 of the most relevant articles were selected from the total of 228 results obtained in the search. These articles met the inclusion criteria and aligned with the research objective. Table 1 presents the results of the advanced search conducted in the consulted databases and the number of articles selected from each source.

Table 1
Keywords used in the databases, results and selection

Search Engine/Database	Search equation	Results	Selection
Google Scholar	"family math tasks" OR "parental math homework involvement"	7	1
	intitle: "parental help" AND "homework" AND "math"	8	1
Scopus	"parental involvement" AND "math homework" AND "emotions"	86	10
ERIC	intitle: "math homework" AND "emotions"	125	2
Taylor & Francis Group	"parental involvement" AND "math learning" AND "homework" AND "emotions"	3	1
Totals		228	15

Source: Authors' preparation

Table 2 shows the documents selected by search engine and database.

Table 2
Documents selected by search engine and databases

Search engine/Database	Selected documents
Google Scholar	Erdogan et al. (2021), Bodovski et al. (2022).
Scopus	Bellon et al. (2022), Darragh & Franke (2022), DiStefano et al. (2020), DiStefano et al. (2023), Guzmán et al. (2023), Kikas et al. (2022), Retanal et al. (2021), Silinskas & Kikas (2019a), Silinskas & Kikas (2019b), Wu et al. (2022).
ERIC	Silinskas et al. (2015), Deringöl (2019).
Taylor & Francis Group	Elliott et al. (2020)

Source: Authors' preparation

Recovery strategy

The retrieval strategy involved recording the documentary sources in a bibliographic matrix, which consolidated all relevant data for each research article (author(s), year, title, journal, DOI/URL, language, and country). This was followed by a detailed reading of each article.

Analysis and interpretation strategy

The qualitative content analysis technique (Mayring, 2014) was applied to review the selected documents from a deductive approach using units called categories of analysis. Initially, we analyzed some definitions of attitudes, emotions, beliefs (expectations, perceptions, and opinions), and affective responses. These definitions formed the deductive categories of analysis, which were chosen based on their established importance in previous studies on the affective domain in mathematics education (Gómez-Chacón, 2000; McLeod, 1991). These categories are presented in Table 3.

Table 3
Deductive categories of analysis

Categories	Description
Attitudes	They have three components: affective (feelings), cognitive (thoughts) and intentional (actions) (Allport, 1935; Gómez-Chacón, 2000).
Emotions	They are intense, short-lived affective responses, triggered by a positive or negative evaluation of specific stimuli (McLeod, 1991).
Beliefs	They are knowledge determined by experience. Beliefs include task expectations, perceptions, and opinions: Mathematics task expectancy refers to the belief of students (Xu et al., 2020) and their parents about their ability to successfully complete tasks. Perception is the interpretation of sensations arising from a situation to give it meaning based on beliefs (Pickens, 2005). Opinions are convictions resistant to change that play an important role in shaping beliefs (Gilead et al., 2019).
Affective responses	They are affective reactions of parents in interactions with their children in mathematical tasks (Wu et al., 2022).

Source: Authors' preparation

To ensure objectivity and minimize biases in the analysis, the authors adopted a sequential strategy for reviewing the articles. That is, authors 2 and 3 conducted an independent analysis, separate from the first author's review, and reached a final agreement, thus ensuring greater consistency in the study. The review identified the external characteristics of these documents and examples for each deductive category, considering the following codes: A (attitudes), E (emotions), e (expectations), p (perceptions), o (opinions), and AR (affective responses). An analytical matrix was used for this review. After this step, it was verified that the deductive categories of analysis aligned with the research question of this study and were sufficient to interpret the results.

FINDINGS AND DISCUSSION

Below are the results of the analysis carried out on the external characteristics of the 15 most relevant selected articles. Table 4 presents the 15 selected studies, their respective journals, the year of publication, the country of origin, and the type of study.

Table 4
Description of analyzed articles

Author(s)	Journal	Year	Country	Type of study
Silinskas, G., Dietrich, J., Pakarinen, E., Kiuru, N., Aunola, K., Lerkkanen, M. K., Hirvonen, R., Muotka, J. & Nurmi, J. E.	International Journal of Behavioral Development	2015	Finland	Correlational
Deringöl, Y.	Acta Educationis Generalis	2019	Turkey	Correlational
Silinskas, G., & Kikas, E.	Contemporary Educational Psychology	2019	Estonia	Longitudinal
Silinskas, G., & Kikas, E.	Scandinavian Journal of Educational Research	2019	Estonia	Longitudinal
DiStefano, M., O'Brien, B., Storozuk, A., Ramirez, G., & Maloney, E. A.	International Journal of Educational Research	2020	Canada	Correlational
Elliott L., Bachman, H. J., & Henry, D. A.	Parenting	2020	USA	Mixed methods
Retanal, F., Johnston, N. B., Di Lonardo Burr, S. M., Storozuk, A., DiStefano, M., & Maloney, E. A.	Educations Sciences	2021	USA	Correlational
Erdogan, F., Kirmizigul, H. G., & Gokhan, A.	International Online Journal of Educational Sciences	2021	Turkey	Case study
Darragh, L., & Franke, N.	International Journal of Science and Mathematics Education	2022	New Zealand	Mixed methods
Bellon, E., Van Bergen, E., & Dowker, A. D	Educations Sciences	2022	Belgium	Correlational
Kikas, E., Mädamürk, K., & Silinskas, G.	Frontiers in Education	2022	Estonia	Longitudinal
Wu, J., Barger, M. M., Oh, D. (Diana), & Pomerantz, E. M.	Child Development	2022	USA	Longitudinal
Bodovski, K., Munoz, I. G. & Apostolescu R.	Journal of Research in Childhood Education	2022	USA	Longitudinal
DiStefano, M., Retanal, F., Bureau, J.-F., Hunt, T. E., Lafay, A., Osana, H. P., Skwarchuk, S.-L., Trepiak, P., Xu, C., LeFevre, J.-A., & Maloney, E. A.	Education Sciences	2023	Canada	Mixed methods
Guzmán, B., Rodríguez, C., & Ferreira, R. A.	Contemporary Educational Psychology	2023	Chile	Correlational

Source: Authors' preparation

The information in Table 4 shows that the largest number of relevant articles analyzed (9 out of 15) were published in the last three years, following the onset of the COVID-19 pandemic, within the period considered for the search. This result reflects the growing interest among researchers in parental involvement and its relationship with students' development and academic performance after the period of uncertainty caused by the pandemic (Guerra et al., 2024). Furthermore, it is shown that, according to the country where the studies were conducted, the affective factors involved in mathematics homework with parental participation have not been developed in Mexico during the search period considered in this study.

Figure 1 shows the classification of the articles analyzed according to each of the categories previously defined in Table 3, and each one is described below.

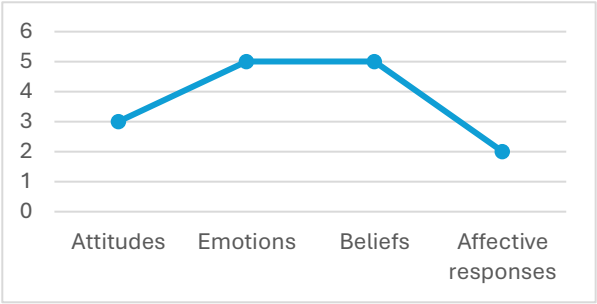

Figure 1
Articles by affective factor addressed
Source: Authors' preparation

Below is the qualitative content analysis of the articles, based on the deductive categories described in Table 1.

Deductive Category of Analysis: *Attitudes*

The studies analyzed in this category agree that most parents provide help to their children with math tasks. However, the attitude with which they approach this task has various effects on the students. These effects largely depend on how the children perceive or internalize their parents' help. In this regard, the study by Bodovski et al. (2022) examined the relationship between parental help with tasks and the academic performance of primary school children in math (and reading). The authors concluded that parental help was not significantly associated with the academic performance of their children. That is, the help provided by parents showed a negative association with math performance.

In contrast, the results of Silinskas and Kikas (2019a) and Kikas et al. (2022) agree in pointing out that parental help is perceived by children in two distinct ways: support or control, and the effects of this help impact math learning and motivation. Parental support fosters persistence in tasks, while perceived control shows no clear connections to motivation or achievement outcomes for children (Silinskas & Kikas, 2019a). Furthermore, they concluded that there are factors affecting students' perceptions of their parents' help with math tasks. Primary school children with weak math skills perceive parental help as controlling, whereas children with strong math skills perceive parental help as supportive of their autonomy. From a gender perspective, boys, compared to girls, are less persistent in tasks and tend to interpret their parents' help as controlling (Silinskas & Kikas, 2019a).

The studies by Kikas et al. (2022) suggest a combination of aspects of parental help, meaning exercising a certain level of control and a certain level of support for autonomy in their children's activities. They emphasized the importance of ensuring that control does not exceed support, as if adolescents perceive only parental control over tasks, there is a risk of decreasing their motivation and, overall, their math performance. Parents should be warned that their efforts to help with math homework may be

perceived either as support for autonomy or as control, and that this interpretation affects academic outcomes (Silinskas & Kikas, 2019a). These findings confirm that psychological control and intrusive monitoring by parents in school tasks are related to poorer performance (Tunkkari et al., 2022). Meanwhile, the adolescent stage contributes to intensifying or altering the quality of this learning experience (Hussain et al., 2022) based on the emotional needs during this critical stage of development (Guerra et al., 2024).

Deductive Category of Analysis: *Emotions*

The analysis indicates that the mathematical anxiety of both parents and children has been studied in relation to students' math performance, the time and frequency spent on math homework, and its connection to other negative emotions. To explain the relationship between parental mathematical anxiety and their children's math performance, Retanal et al. (2021) found a positive relationship between both variables. However, they highlighted that this relationship is affected by the parents' involvement style in math homework. When parent-child interactions are of high quality, that is, characterized by positive emotions, both the children's and parents' performance increases, and the children's anxiety decreases (DiStefano et al., 2023). In this sense, the results of DiStefano et al. (2020) suggest that parents with high levels of mathematical anxiety are at greater risk of transferring this anxiety to their children, causing the children to rate their experience with math homework as emotionally negative, and their math performance to decrease.

In contrast, it has been reported that parental mathematical anxiety is not related to math performance (Bellon et al., 2022; Guzmán et al., 2023). Bellon et al. (2022) identified that parental mathematical anxiety was not a predictor of their children's math performance in kindergarten. Similarly, Guzmán et al. (2023) found a negative association between children's mathematical anxiety and math performance, regardless of the frequency with which parents with low or moderate mathematical anxiety participated in their children's homework at home. It was noted that frequent interaction between mathematically anxious parents and their children did not show any association with the child's mathematical anxiety or their math performance.

The studies included in this category also revealed characteristics of parents with mathematical anxiety. For example, they experience negative emotions such as frustration, conflict, stress, and feelings of coldness towards their children (DiStefano et al., 2020). Regarding their involvement in math tasks, more anxious parents tend to provide more controlling types of help, which are, therefore, counterproductive to their children's performance (Retanal et al., 2021). In circumstances of lower demand (such as evaluations of preschoolers), the involvement of anxious parents did not seem to determine math performance (Bellon et al., 2022). In fact, parental mathematical anxiety makes them more empathetic to their children's mathematical anxiety compared to those who have experienced low levels of mathematical anxiety (Guzmán et al., 2023). In this context, interactions between parents and their children become more positive when it comes to math. The understanding of parents with mathematical anxiety prevents or reduces their children's anxiety.

Thus, these studies identified that mathematical anxiety is a cause of repeated exposure to experiences that cause emotional discomfort and other negative emotions when doing math tasks at home (DiStefano et al., 2020; DiStefano et al., 2023; Retanal et al., 2021). However, mathematical anxiety can also generate greater empathy and benefits for students, without harming their math performance (Bellon et al., 2022; Guzmán et al., 2023). This difference may be linked to how parents manage their emotions, specifically their ability to self-regulate negative emotions.

Deductive Category of Analysis: *Beliefs (Expectations of Tasks, Perceptions, and Opinions)*

The results showed that expectations, perceptions, and opinions are closely related to beliefs. Therefore, they formed deductive subcategories of analysis.

Deductive Subcategory of Analysis: *Expectations*

In the work of Deringöl (2019), the objective was to examine parents' expectations regarding factors related to their children's mathematical learning, such as homework habits at home. Based on the findings of this author, the constant involvement parents have with their children in primary school is directly related to their high expectations. When students are aware of the support and involvement they receive from their parents, their confidence in mathematical learning increases. It was also reported that fathers are more demanding than mothers and show more interest in accompanying their children in the math learning process. According to these results, high goals set for their children underline the parents' expectations. In line with these ideas, it is possible to confirm that math homework is the most immediate resource parents must closely monitor their children's performance (Williams & Williams, 2021). If parents are committed to supporting their children in mathematical learning, homework at home could be a good indicator of the level of effort, confidence, and satisfaction of both parents and children in achieving their shared goals and expectations.

Deductive Subcategory of Analysis: *Perceptions*

In the study of parents' self-perceptions about their help with math homework at home, greater emphasis was placed on suggestions to expand the frequency of math-related activities at home, including others that explore more in-depth the attitudes and experiences of the parents. This is because the interactions between parents, children, and math tasks are particularly complex (Elliot et al., 2020).

Another relevant result is the perspective (perceptions) of the children regarding their parents' involvement in math homework at home. In this regard, Kikas (2019b) sought to examine the relationships between children's perceptions of parental involvement in math homework (control and support) and their performance and motivation in math. Among their main findings, they pointed out that children's perceptions of their parents' support are crucial for their motivation. When children perceive their parents as controlling their schoolwork too much, their motivation can decrease. They noted that certain characteristics of boys and girls lead to the perception of parental involvement as controlling. For example, girls who experience insecurity in math and boys who are not persistent tend to view their parents as more controlling, even over time. According

to these same authors, the perception and interpretation of parental help with homework is crucial, since it is not the parents' intentions nor the frequency of involvement itself, but rather the children's perceptions of that involvement, that matter for motivation. In other words, it is about persistence in the task and mathematical self-concept.

Deductive Subcategory of Analysis: *Opinions*

The study by Erdogan et al. (2021), which aimed to specifically investigate parents' opinions about high school math homework, reported more positive opinions than negative ones. The positive opinions focused on recognizing the importance of math homework to promote and improve students' math performance. Naturally, the negative opinions contradicted the positive ones. Among the negative opinions expressed by parents, many mentioned feeling incompetent in math, which prevents them from supporting their children with tasks related to this subject. In other words, parents' mathematical knowledge affects their involvement in the tasks. The analysis of these parents' opinions revealed that they could not help their children due to stress and the belief that students should take responsibility for their own tasks and foster their autonomy (Erdogan et al., 2021).

Meanwhile, the study by Darragh and Franke (2022) sought to understand the experience of parents regarding math learning at home during the COVID-19 lockdown through the study of their perceptions and opinions. Their results were diverse. For example, some parents perceived the experience as negative and felt more stressed, while others reported heightened learning difficulties. Parents of older children were less positive about the experience due to greater demands on the parents' abilities. In contrast, other parents perceived the experiences as positive and stated that they were actively helping their children, driven by their willingness and ability. Finally, there was a strong consensus among parents who recognized the crucial role of the school and the teacher for successful math learning at home, rather than relying solely on themselves.

In particular, the parents of students base their actions and interventions on their beliefs about who, what, and how their children should learn math. In other words, beliefs determine the attitude with which parents approach mathematics home-based tasks. This, in turn, influences students' perceptions, their motivation, or avoidance. In this sense, Bodovski et al. (2022) question the common belief that parental involvement in mathematics home-based tasks improves academic performance. However, more studies on parents' beliefs and their influence on the help and frequency they provide could contribute to improving their attitudes and self-perceptions.

Deductive Category of Analysis: *Affective Responses*

This category includes two studies that considered positive affect in their research (Silinskas et al., 2015; Wu et al., 2022). As part of the work by Silinskas et al. (2015), the study examined how mothers instructed and responded emotionally to their children during math homework at home, and to what extent the children's characteristics influenced these responses. The study concluded that low academic skills and behavioral problems in children affect the instructional support provided by their mothers. In the face of these characteristics, mothers increase their support, but their

emotional responses become negative, which limits the benefits of that support (Silinskas et al., 2015).

Low math skills tend to cause more concerns and negative feelings during academic interactions between mother and child. Additionally, children's behavioral problems trigger an increase in negative emotions from mothers. These same authors argue that it is essential for parents to be aware of and sensitive to the characteristics of children that influence their support (Silinskas et al., 2015). This awareness could help anticipate strategies that minimize the negative effects of these characteristics, allowing parents to provide a better emotional response during interactions with their children.

To assess parental involvement in math activities and homework at home, Wu et al. (2022) considered positive affect and support for autonomy as two important qualitative aspects. This same study covered several objectives, through which it identified the following: parents more frequently experience less positive affect during homework tasks compared to fun or flexible math activities. In turn, the negative affect of parents predicts children's motivation and math performance over time. In short, positive emotions from parents and support for autonomy are key aspects that influence how children approach math and their performance in this area, as also reported in other studies (Moè & Katz, 2018; Valdés-Cuervo et al., 2022).

CONCLUSIONS

The reviewed studies indicate that parental involvement in the completion of mathematics tasks at home is a common practice that elicits affective responses, attitudes, emotions, expectations, perceptions, and opinions from both parents and children. The impact of these affective factors is critical in shaping interactions at home, influencing students' development, and affecting their mathematical performance.

A limitation of this study is that the literature review only covered studies published between 2014 and 2023 from four databases, excluding other databases and research that may have been published in the current year. Another limitation is the small number of articles included in the review, which, being non-representative, does not allow for generalizing the findings. Therefore, it is recommended that future research expand the temporal scope and search databases to identify more relevant and up-to-date studies that can enrich the conclusions on this topic.

Future research could analyze the differentiated participation of mothers and fathers in their children's math tasks across different cultural contexts. Additionally, it would be valuable to identify trends regarding the role they play and the demands children have on their mothers in this context. It is also important to note that the study of both positive and negative emotions and beliefs of parents regarding math homework at home has not been sufficiently explored. This knowledge would help broaden the understanding of the role of emotions through the study of a more comprehensive set and mixed research methods.

Practical implications

After reviewing the literature, a lack of practical suggestions directed at educational authorities, parents, and teachers who are not specialized in the field of research was identified. Therefore, the authors of this study point out the following:

- Teachers can involve parents as co-responsible for the emotional development of their children in math homework through affective coaching. To achieve this, it is recommended that teachers, with a calling for helping students and their parents receive specialized training. Many teachers need to develop their own emotional and social competencies before taking on the role of coach. Therefore, it is the responsibility of authorities and educational policies to invest in and strengthen the emotional training of teachers, as they are the primary agents of change in society and can influence the emotional education of students and their parents.
- Another suggestion is to develop intervention workshops led by math teachers, where parents and teachers participate, with the goal of raising parents' awareness of their crucial role in improving attitudes towards math and the emotions experienced when solving math tasks, as well as other emotional aspects that could influence their children's math performance or learning. It would be advisable for these spaces to provide parents with tools for supporting their children, offering tips for managing their emotional resources when helping with math homework, as well as fostering positive interactions and affectionate relationships within the family environment.
- The use of short videos with practical tips on how to approach math homework could be a useful tool for guiding parents on what strategies to use and how to motivate their children. Finally, online questionnaires about affective domain factors (emotions, attitudes, beliefs, etc.) could provide some guidelines to encourage reflection among parents on the type of support they provide to their children, to improve their children's math performance when doing math homework at home.

REFERENCES

Allport, G. W. (1935). Attitudes. In C. Murchison (Ed.), *Handbook of social psychology*, (pp. 798–844). Clark University Press.

Arias, F. G. (2012). *El proyecto de investigación. Introducción a la metodología científica.* Editorial Episteme.

Bellon, E., van Bergen, E., & Dowker, A. D. (2022). Is parental mathematics anxiety associated with young Children's arithmetical performance? *Education Sciences*, *12*(11), 812. https://doi.org/10.3390/educsci12110812

Bodovski, K., Muñoz, I. G., & Apostolescu, R. (2022). Parental Help with Homework in Elementary School: Much Ado About Nothing? *Journal of Research in Childhood Education*, *36*(4), 631-647. https://doi.org/10.1080/02568543.2022.2

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education.* Routledge.

D´Amore, B. (2006). *Didáctica de la matemática*. Cooperativa Editorial Magisterio.

Darragh, L., & Franke, N. (2022). Lessons from lockdown: Parent perspectives on home-learning mathematics during COVID-19 lockdown. *International Journal of Science and Mathematics Education*, *20*(7), 1521-1542. https://doi.org/10.1007/s10763-021-10222-w

Davolyte, J., Kiuru, N., Raiziene, S., & Silinskas, G. (2023). Academic support from teachers and parents during grade 2: Links to teacher perceived children's task persistence. *Learning and Individual Differences*, *108*, 102376. https://doi.org/10.1016/j.lindif.2023.102376

Deringöl, Y. (2019). Parents' expectation of mathematics education and their engagement in education and homework habits of children. *Acta Educationis Generalis*, *9*(3), 16-40. https://doi.org/10.2478/atd-2019-0012

DiStefano, M., O'Brien, B., Storozuk, A., Ramirez, G., & Maloney, E. A. (2020). Exploring math anxious parents' emotional experience surrounding math homework-help. *International Journal of Educational Research*, *99*, 101526. https://doi.org/10.1016/j.ijer.2019.101526

DiStefano, M., Retanal, F., Bureau, J. F., Hunt, T. E., Lafay, A., Osana, H. P., Skwarchuk, S. L., Trepiak, P., Xu, C., LeFevre, J. A., & Maloney, E. A. (2023). Relations between math achievement, math anxiety, and the quality of parent–child interactions while solving math problems. *Education Sciences*, *13*(3), 307. https://doi.org/10.3390/educsci13030307

Elliott, L., Bachman, H. J., & Henry, D. A. (2020). Why and how parents promote math learning with their young children: A mixed-methods investigation. *Parenting*, *20*(2), 108-140. https://doi.org/10.1080/15295192.2019.1694830

Erdogan, F., Kirmizigul, H. G., & Gokhan, A. (2021). Investigation of Parents' Views about Middle School Math Homework. *International Online Journal of Educational Sciences*, *13*(1), 1-17. https://doi.org/10.15345/iojes.2021.01.008

Ergen, Y., & Durmşus, M. E. (2021). The experiences of classroom teachers on the homework process in teaching mathematics: An interpretative phenomenological analysis. *Journal of Pedagogical Research, 5*(1), 293-314. http://dx.doi.org/10.33902/JPR.2021167935

Gilead, M., Sela, M., & Maril, A. (2019). That's my truth: Evidence for involuntary opinion confirmation. *Social Psychological and Personality Science*, *10*(3), 393-401. https://doi.org/10.1177/1948550618762

Gómez-Chacón, I. M. (2000). *Matemática emocional. Los afectos en el aprendizaje matemático.* Narcea.

Grijalva, C. S., Valdés, A. A., Parra, L. G., & Vázquez, F. I. G. (2020). Parental involvement in Mexican elementary students' homework: Its relation with academic self-efficacy, self-regulated learning, and academic achievement. *Psicología Educativa. Revista de los Psicólogos de la Educación*, *26*(2), 129-136. https://doi.org/10.5093/psed2020a5

Grolnick, W. S., & Pomerantz, E. M. (2022). Should parents be involved in their children's schooling?. *Theory Into Practice, 61*(3), 325-335. https://doi.org/10.1080/00405841.2022.2096382

Guerra, R. P. S., Mallima, N. E. C., Guerra, J. C. S., & Guerra, M. A. S. (2024). Impact of family educational styles on students' academic achievement motivation. *International Journal of Instruction*, *17*(4), 681-692. https://e-iji.net/ats/index.php/pub/article/view/676

Güven, U., & Akçay, A. O. (2019). Trends of Homework in Mathematics: Comparative Research Based on TIMSS Study. *International Journal of Instruction, 12*(1), 1367-1382. https://www.e-iji.net/volumes/353-january-2019,-volume-12,-number-1

Guzmán, B., Rodríguez, C., & Ferreira, R. A. (2023). Effect of parents' mathematics anxiety and home numeracy activities on young children's math performance-anxiety relationship. *Contemporary Educational Psychology*, 72, 102140. https://doi.org/10.1016/j.cedpsych.2022.102140

Hussain, Z., Yaseen, G., & Mukhtar, M. (2022). Prevalence of parents' involvement in educational activities and students' performance: An analysis of a cross-sectional survey in Multan, Pakistan. *Khaldunia: Journal of Social Sciences*, *2*(1), 1–16. https://doi.org/10.36755/khaldunia.v2i1.33

Kikas, E., Mädamürk, K., & Silinskas, G. (2022). Parental homework-help profiles throughout grades 6–9: Relations to motivation and mathematics skills. In *Frontiers in Education 7*, 914992. https://doi.org/10.3389/feduc.2022.914992

Mayring, P. (2014). *Qualitative content analysis: theoretical foundation, basic procedures and software solution.* Klagenfurt.

McLeod, S. H. (1991). The affective domain and the writing process: Working definitions. *Journal of advanced composition, 11*(1), 95-105. http://www.jstor.org/stable/20865764

Moè, A., & Katz, I. (2018). Brief research report: Parents' homework emotions favor students' homework emotions through self-efficacy. *The Journal of Experimental Education*, *86*(4), 597-609. https://doi.org/10.1080/00220973.2017.1409180

Pickens, J. (2005). Attitudes and perceptions. *Organizational behavior in health care, 4*(7), 43-76.

Retanal, F., Johnston, N. B., Di Lonardo Burr, S. M., Storozuk, A., DiStefano, M., & Maloney, E. A. (2021). Controlling-supportive homework help partially explains the relation between parents' math anxiety and children's math achievement. *Education Sciences, 11*(10), 620. https://doi.org/10.3390/educsci11100620

Silinskas, G., Dietrich, J., Pakarinen, E., Kiuru, N., Aunola, K., Lerkkanen, M. K., Hirvonen, R., Muotka, J. & Nurmi, J. E. (2015). Children evoke similar affective and instructional responses from their teachers and mothers. *International Journal of Behavioral Development*, *39*(5), 432-444. https://doi.org/10.1177/0165025415593648

Silinskas, G., & Kikas, E. (2019a). Math homework: Parental help and children's academic outcomes. *Contemporary Educational Psychology*, *59*, 101784. https://doi.org/10.1016/j.cedpsych.2019.101784

Silinskas, G., & Kikas, E. (2019b). Parental involvement in math homework: Links to children's performance and motivation. *Scandinavian Journal of Educational Research*, *63*(1), 17-37. https://doi.org/10.1080/00313831.2017.1324901

Solis-Jimenez, M., Juárez-López, J. A., & Díaz-Espinoza, I. A. (2024). Emotions of elementary school students supported by their parents in math tasks: an exploratory study. *Canadian Journal of Educational and Social Studies, 4*(2), 22-36. https://doi.org/10.53103/cjess.v4i2.224

Sujarwo, S., & Herwin, H. (2023). Parental involvement and student achievement: A meta-analysis of publications in the Scopus database. *International Journal of Instruction, 16*(2), 107–124. https://doi.org/10.29333/iji.2023.1627a

Tunkkari, M., Aunola, K., Hirvonen, R., Silinskas, G., & Kiuru, N. (2022). A person-oriented approach to maternal homework involvement during the transition to lower secondary school. *Learning and Individual Differences*, 97, 102164. https://doi.org/10.1016/j.lindif.2022.102164

Valdés-Cuervo, A. A., Grijalva-Quiñonez, C. S., & Parra-Pérez, L. G. (2022). Apoyo parental a la autonomía y terminación de las tareas: Efectos mediadores de la autoeficacia académica, el propósito y las emociones de los niños al realizar las tareas. *Anales de Psicología / Annals of Psychology*, *38*(2), 259–268. https://doi.org/10.6018/analesps.424221

Williams, K., & Williams, H. (2021). Mathematics problem-solving homework as a conduit for parental involvement in learning. Evaluation of a pilot study. *Educational Review*, *73*(2), 209–228. https://doi.org/10.1080/00131911.2019.1566210

Wu, J., Barger, M. M., Oh, D., & Pomerantz, E. M. (2022). Parents' daily involvement in children's math homework and activities during early elementary school. *Child Development*, *93*(5), 1347-1364. https://doi.org/10.1111/cdev.13774

Xu, J., Wang, C., & Du, J. (2020). Investigating factors that influence math homework expectancy: A multilevel approach. *Sustainability*, *12*(16), 6586. https://doi.org/10.3390/su12166586