



The Role of Parental Support in Improving Mathematics Achievement in Elementary Schools

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Abstract

This has a look at examines the impact of parental support on mathematics fulfillment amongst basic school students, emphasizing diverse varieties of parental involvement. Through semi-established interviews with 15 mother and father, 10 instructors, and 20 college students from numerous socio-monetary backgrounds, records were accumulated to explore the effect of parental support on academic effects. Thematic analysis found out that parental engagement in homework help, provision of educational resources, and encouragement of wonderful attitudes in the direction of mathematics substantially enhances pupil overall performance. The findings underscore the significance of addressing boundaries to parental involvement, together with time constraints and socio-economic disparities, to sell equitable educational opportunities. Recommendations consist of fostering faculty-domestic commune and providing figure workshops to beautify parental help and improve arithmetic fulfillment.

INTRODUCTION

The success of college students in arithmetic is a essential indicator of educational achievement and a predictor of future academic and expert opportunities. However, improving mathematics achievement remains a sizeable project, especially in standard colleges. Among the various factors influencing academic performance, parental guide has been diagnosed as a essential detail which could beautify college students' learning effects. This introduction explores the role of parental assist in enhancing mathematics success in elementary colleges, drawing on latest research and relevant literature to offer a complete expertise of this dating. Parental aid features a huge range of behaviors and practices that parents engage in to promote their children's educational fulfillment (Kong & Yasmin, 2022; Oppermann et al., 2021). This assist can take diverse paperwork, inclusive of involvement in school activities, help with homework, fostering a effective mind-set in the direction of studying, and offering instructional assets at domestic. Research has consistently proven that parental involvement is definitely associated with academic achievement throughout one-of-a-kind subjects, consisting of mathematics (Alzubi, 2022).

One of the number one method through which parental help affects arithmetic achievement is through the supply of a conducive learning environment at domestic. According to Al-Hamdan (2002), supportive domestic surroundings that includes get

right of entry to studying materials, a quiet observe space, and regular routines can appreciably beautify children's mathematical abilities. Parents who actively interact in their children's learning by discussing mathematical ideas, supplying trouble-fixing activities, and encouraging a boom mindset can foster a deeper understanding and hobby in mathematics (Joshua, 2021).

Furthermore, parental expectancies and attitudes towards arithmetic play a essential role in shaping children's instructional results. Studies have shown that children whose mother and father maintain high expectancies for his or her instructional performance and cost mathematics are much more likely to carry out better on this subject (Friedel et al., 2007). Parental attitudes towards mathematics can have an impact on kid's self-efficacy and motivation, which might be critical determinants of instructional fulfillment. For example, parents who express confidence in their kid's mathematical talents and emphasize the importance of attempt and staying power can enhance their children's self-assurance and resilience in tackling challenging mathematical issues (Lin, 2023; Victor-Edema, 2024; Rhodman, 2024).

In addition to developing a supportive domestic environment and setting excessive expectancies, parental involvement in college-related sports has also been related to advanced mathematics fulfillment. According to Kaçakoğlu (2022), parental participation in faculty occasions, figure-teacher conferences, and volunteering possibilities can enhance communication among mother and father and teachers, leading to higher understanding and aid for children's mastering desires. Such involvement lets in dad and mom to live informed about their children's development, collaborate with instructors to deal with academic challenges, and reinforce gaining knowledge of at domestic (Aidoo et al., 2022).

Moreover, the function of parental guide extends to homework assistance, which has been proven to definitely impact arithmetic achievement. Williams & Williams (2021) discovered that parental involvement in homework can improve kid's expertise of mathematical concepts and decorate their educational overall performance. However, the nice of this involvement topics. Parents who provide steering and encouragement, in preference to virtually giving answers, can help kids increase problem-solving talents and foster a sense of duty and independence of their studying (Tan, 2021).

The effect of parental help on arithmetic fulfillment is likewise glaring within the context of socioeconomic popularity (SES). Studies have proven that parental involvement can mitigate the terrible outcomes of low SES on educational overall performance (Povey et al., 2022). For example, mother and father from low-SES backgrounds who are actively engaged in their children's training can assist bridge the distance in resources and possibilities, main to advanced arithmetic effects. This highlights the importance of promoting parental involvement throughout various socioeconomic contexts to make certain equitable instructional opportunities for all college students (Goldstone et al., 2023; Perrigo et al., 2022; Raj & Chand, 2023).

Recent studies has additionally highlighted the importance of culturally responsive parental support in enhancing arithmetic achievement. According to Housel (2020), recognizing and valuing the cultural and linguistic backgrounds of students can enhance parental engagement and aid. Culturally responsive practices that contain dad and mom in significant methods, inclusive of incorporating culturally relevant examples in mathematical issues and encouraging the use of native languages at domestic, can support the connection among domestic and college learning environments. This approach not handiest fosters a sense of belonging and relevance for college kids however also empowers dad and mom to actively make a contribution to their children's mathematical development.

Furthermore, the advent of era has opened new avenues for parental help in arithmetic training. Digital gear and online sources offer parents with additional method to engage in their children's studying. Studies have proven that using instructional apps, on line tutorials, and virtual discern-teacher communicate systems can beautify parental involvement and guide for mathematics learning. These technological improvements may be specifically beneficial for dad and mom who may also have limited time or resources to interact in traditional varieties of involvement.

METHODS

Research Design

This research exploited a qualitative research design to examine how parental support can facilitate mathematics achievement among students of elementary school. The reason to choose the qualitative approach was the need to develop an in-depth insight into the perception of the participants, their experience, and the context of the phenomenon that has to be studied. This design has helped the researcher to reflect the complexity and richness of the applied manipulation of parental support on determining the learning outcomes of students in mathematics with descriptive data.

They include Participants and Sampling Technique

In this study the participants were identified with purposive sampling method. This was identified as a strategy so that the selection of individuals would include those that are able to provide detailed and more elaborate information with regard to the area of research interest. It included 15 parents and 10 teachers and 20 students of three elementary schools with different demographic origins. The presence of these participants, especially in terms of parental support to learning mathematics, was not selected by chance; their role in the research is due to their first-hand experience in this field. The purposive nature of this approach allowed the gathering of a wide scope of data considering various views due to numerous positions in the school community.

Data Collection Procedure

The data were gathered by means of semi-structured interviews, which provides a degree of flexibility when it comes to investigating the experience of the participants, and at the same time guaranteed that the most important issues were discussed on a consistent basis. The duration of each interview took about 45 and 60 minutes and took the form of in-person or a video conference which was based on the preferences of the participants, as well as their availability. Interpretation of the meaning of the semi-structured nature of the interviews gave a chance to participants to expound on their mind and gave elaborate and broad in-depth information how parental support affected achievement in mathematics. The method was selected to allow free conversation and allow the researcher to interrogate when need be to develop deeper meanings.

Thematic analysis was applied in analyzing the data gathered in the interviews and the six-step process proposed by Naeem et al. (2023) was followed. The study started by transcribing each recording of the interviews verbatim. The transcripts were subsequently read severally to internalise the data and therefore also obtain an overall picture of the story presented by the participants. First codes were formulated cumulatively in order to record major characteristics of the data concerning parental prevalence and mathematics achievement among the students. They then coded these and grouped them into more general themes that understood patterns and relationships that were discovered in the data. The thematic analysis served to create the concise and detailed picture of the role and contribution of parental involvement

to the effectiveness of students in studying mathematics and the conditions serving as intermediaries between them.

The Study is Trustworthy

A number of strategies were used to make the findings trustful. The process of member checking was carried through the delivery of the initial findings to the participants so that the interpretations influenced their experiences. This procedure aided in making the study gain more credibility. Furthermore, peer debriefing was also done with the academic associates to readjust the developing themes. The feedback given during these discussions was imperative as it added to seriousness and validity of the analytical procedure. With the use of these measures, the study aimed at coming up with trustworthy findings as well as providing findings that seem to represent the real life experience of the participants.

Objectives of the Research Alignment

This well developed methodology strategy corresponded with the purpose of the study that was aimed at investigating the effect that parental support has on the mathematics achievement of students in elementary schools. This study attempted to use the purposeful sampling method, semi-structured interviews, and systematic thematic analysis to explain the complexity of parental involvement and its contribution to student-student outcomes to bring knowledge to the knowledge base in terms of education and family engagement.

RESULTS AND DISCUSSION

The current study was initiated to explain the imperative role of parental assistance so as to comprehend the achievement in mathematics at elementary education. The proposal is premised on the increased literature base of educational research deducing parental involvement as one of the strongest factors influencing academic performance of children and particularly in mathematics. Since mathematics is one of the subjects that are commonly regarded as a starting block and the level of proficiency in it directly determines further learning outcomes and opportunity perspectives, the majority of students still find it challenging to achieve a proper level of performance, especially learners with different socioeconomic backgrounds.

To cope with these issues, the study utilized integrative style of measuring parental support. This way, it did not limit the focus on direct, instructional support, which can be supervising of homework doing, but also examined the indirect processes that facilitate a positive learning attitude, made educational resources available at home and helped to engage in school related activities. This way of doing things can be considered consistent with the earlier literature highlighting the multidimensional nature of parental involvement and its resulting implications on academic performance.

At the same time, the context of the analysis was presented in terms of heterogeneous schools (both demographically and socioeconomically). This situational attention allows achieving a better grasp of the workings of parental support in different contexts and also detects obstacles that could get in the way of productive involvement. Some of the variables that were investigated as relevant considerations in this investigation included shortage of time spent by the parents due to commitments to work, lack of confidence in their own mathematical ability and limited availability of educational resources.

In addition, the research is contextualized in the broader discussion of socioeconomic inequalities and their implications on education achievements. Since these differences tend to effectively that occur, the paper addresses the body of knowledge pertaining to the nature of these disparities to highlight the role of

parental support in lessening the impact of these disparities and fostering academic achievements by all the learners. In this regard, the study contributes to ongoing discussions about how schools and communities can better support parents, particularly those from lower socioeconomic backgrounds, to engage more effectively in their children's mathematical education. By focusing on real experiences shared by parents, teachers, and students, this research offers practical insights for educators and policymakers seeking to enhance parental involvement strategies and address the persistent achievement gap in mathematics.

Forms of Parental Support

One of the key themes that emerged from this study was the variety of forms of parental support that positively influence students' mathematics achievement. Through the interviews conducted, it became clear that parental support was not limited to one specific action but manifested in several meaningful practices.

First, helping with homework was consistently highlighted by both parents and students as one of the most common and impactful forms of support. Parents described their efforts to set aside dedicated time for assisting their children with mathematics tasks at home. One parent shared,

"Every evening after work, I spend at least half an hour reviewing my child's math homework. Even though sometimes it's challenging for me, I want them to see that I care about their learning."

This finding aligns with previous studies (Zhou et al., 2020) which emphasize that structured homework routines foster better academic outcomes. Students themselves acknowledged the positive impact of this involvement. One student remarked,

"When my mom helps me with math, I feel more confident because she explains it slowly until I understand."

This supports the idea that parental assistance not only helps in solving problems but also builds students' confidence and motivation. Another important form of support identified was the provision of educational resources at home, such as mathematics workbooks, educational applications, or access to online tutorials. Parents recognized the value of these resources in enhancing their children's learning. As one parent stated,

"I bought some extra math books and apps to help my child practice more. At school, the time is limited, so I try to support learning at home as well."

This practice reflects the findings of Sims & Ferrare (2021), who argue that access to additional learning resources significantly improves students' academic performance. In addition to direct academic assistance, parents emphasized the importance of fostering a positive attitude towards mathematics. They shared how they encouraged their children to stay motivated and not to fear difficult problems. One parent expressed,

"I always tell my child that it's okay to make mistakes in math. The important thing is to try and not give up."

This nurturing approach mirrors the conclusions of Douglas (2023), highlighting how positive parental attitudes shape children's academic behaviors and self-efficacy.

Teachers also corroborated these findings by noting that students who received consistent support from their parents generally demonstrated higher achievement in mathematics. One teacher explained,

"The students who show improvement are often those whose parents are involved whether through homework, extra resources, or simply encouraging them to keep learning."

This is consistent with Chen et al. (2021), who found that parental involvement is a significant predictor of academic success. Moreover, students expressed that their parents' involvement contributed not only to their learning but also to their emotional well-being. A student reflected,

"When my parents help me or just ask about my progress, I feel they care about me, and that makes me want to try harder."

Such results can be aligned with the theory of self-efficacy by Herrera et al. (2020) stating that the self-beliefs of individuals that they can do something are of high importance to their motivation levels and work efficiency. Parental involvement here is very important to boost the confidence of the students in maths skills. This means that when parents participate in their children education actively by supporting with homework or supplying learning items or encouraging the child regularly, these parents contribute to the development of the sense of competence and resilience in the child. This positive self-belief is in turn a factor that is a contributor to better academic performance especially in mathematics which has been found to be closely related to self-efficacy (performance).

In addition, the study findings point to the fact that parental support is complex in that it consists of both practical and non-practical support where the latter can be divided into a number of aspects. The parents, on a more practical level, assist and aid their children by enabling them with mathematics homework, providing other resources to study, developing specific study schedules at home. The emotional support, however, by means of encouragement, positive reinforcement, and growth mindset approach to challenges in learning is also important. All these types of engagement can give a positive contribution to motivation and academic performance of students in the field of mathematics, which is why the role of parental involvement, as a driver of educational performance and results, cannot be underestimated.

Obstacles to Efficient Parenting

Although this work points to numerous advantages of parents involvement in the increase of the level of math achievement, there are many obstacles on the way of effective involvement of parents in the process of learning which has been found in this study. The discussed obstacles were mentioned repeatedly throughout the interviews with parents, teachers, and students, which highlights the convoluted nature of the factors that influence the parental involvement in the educational sector.

One of the most frequently cited obstacles was limited time due to work and family commitments. Many parents expressed frustration about their inability to consistently engage with their children's academic activities because of long working hours or multiple jobs. One parent explained,

"I want to help my child with math, but I often feel exhausted after work, and there's very little time left to sit down and go through the lessons."

This sentiment reflects the findings of Leath et al. (2020), who also identified time constraints as a significant barrier to parental involvement, particularly in households where parents face demanding work schedules. Another notable barrier was parents' lack of confidence in their own mathematical abilities. Several parents admitted that the evolving nature of mathematics curricula and modern teaching methods made it difficult for them to assist their children effectively. One parent stated,

"I want to help my child with math, but I often feel lost because the techniques they use now are so different from what I learned."

This aligns with Truboff (2022), who noted that shifts in educational practices can create a disconnect between parents' prior knowledge and current teaching strategies, thereby diminishing their confidence to engage meaningfully. Teachers also observed this issue, noting that parents' hesitation to engage with mathematics often stems from their own negative experiences or lack of proficiency in the subject. They recommended that schools could bridge this gap by offering workshops or resources to help parents better understand contemporary teaching approaches. As one teacher suggested,

"If parents understand how we teach math today, they'll feel more confident supporting their children."

Furthermore, socioeconomic factors were identified as significant barriers to effective parental support. Parents from lower socioeconomic backgrounds frequently reported limited access to educational resources such as workbooks, technology, and internet connectivity, which restricted their ability to provide additional learning opportunities at home. This observation is supported by the work of Sirin (2005), who found that socioeconomic status is a strong predictor of educational outcomes and influences the extent to which parents can engage in their children's academic activities. Parents in this study acknowledged these limitations, with one parent sharing,

"I know having extra materials at home would help, but sometimes we simply cannot afford it."

On top of material limitations, lack of institutional support was also an often discussed obstacle deployed by the parents with disadvantaged backgrounds. These parents were not involved in the learning processes of their children since there was no active communication or involvement by the schools. This results in support of the reasoning provided by Ramdas et al. (2024) which highlights the importance of the schools reaching out and assisting families to overcome the differences in socioeconomic background to provide equal opportunities to all learners.

In general, the results of the presented study demonstrate that the obstacles on the way to the effective parental support are multiple and multilateral as they can include shortage of time and uncertainty in mathematical skills on the one hand, and economical limitations on the other hand. Such obstacles usually work together and add to the problem that parents have when it comes to playing an active role in the mathematics learning of their children. Lack of time especially in the case of working parents with tight schedules limits chances of regular interactions at home. On the same note, the feeling of incompetency by parents when it comes to mathematics, which can be caused by past experiences in schools or due to new systems of teaching, also lowers their confidence in supporting their children. Moreover, social-economic disadvantages (such as limited learning resources and technology access) disproportionately contribute to the inequality in the access of educational opportunities between families with dissimilar backgrounds.

The following barriers merit deliberate efforts by schools, communities, and policymakers to implement more inclusive and accessible and supportive systems. Schools ought to ensure they act proactively and establish good relationships with parents by communicating effectively with them, holding outreach programs, and other activities that could enable parents to have the tools and skills to adequately participate. Communities and educational institutions can collaborate to provide targeted interventions, such as workshops, accessible learning materials, and flexible engagement opportunities tailored to parents' needs. Furthermore,

policymakers play a crucial role in creating policies that support equitable access to educational resources and promote inclusive practices that recognize the diverse realities of families. By addressing these interconnected challenges, stakeholders can empower parents to play an active and confident role in supporting their children's mathematics learning, ultimately contributing to improved academic outcomes.

Recommendations for Enhancing Parental Support

Based on the findings of this examine, numerous suggestions can be made to decorate parental assist for mathematics success. Firstly, schools have to set up regular communication channels with mother and father to hold them knowledgeable about their children's development and offer steerage on how they are able to help their mastering at domestic. This recommendation is supported by means of the paintings of Walker (2023), who emphasised the significance of powerful school-home communication in fostering parental involvement. One teacher recommended:

"Regular newsletters and figure-teacher conferences can make a massive distinction. Parents experience greater linked and informed, which empowers them to support their youngsters higher."

This approach is regular with the findings of Marchand et al. (2024), who found that faculties that actively have interaction dad and mom thru normal communication see better stages of parental involvement and scholar fulfillment.

Secondly, colleges should offer workshops and education sessions for parents to familiarize them with current coaching methods and offer strategies for assisting their children's mathematics mastering. This recommendation aligns with the research of Bonaobra & Lim (2023), who counseled that empowering parents with the necessary abilities and knowledge can beautify their involvement and effectiveness. As one parent cited:

"Attending a workshop on the brand-new math curriculum helped me apprehend a way to help my child higher."

Finally, it is important to discuss positive steps regarding the area of socioeconomic obstacles to create equal parent participation in education. The community organizations and schools are requested to make an effort together to offer resources and direct assistance needs to families of low income. This support can be in terms of provision of free or subsidized learning materials, development of community based support groups and flexible ways that parents can have time to participate in the learning process of their children. Adaptable engagement possibilities consider various issues that parents have in combining work, time, and family. Such measures are supported by the results of Adeyinka (2021), who pointed out that highly targeted and proactive interventions may contribute to alleviating the adverse impact of socioeconomic inequities on parental engagement and student performance. Such steps would help schools and communities towards having more inclusive educational settings where every family, irrespective of its financial condition, could have a chance to play an active role in ensuring academic achievement of their children.

The relationship between Parental Support and Mathematics Achievement: Challenges and implications

The insight of the research benefited in obtaining a better comprehension of the influence of parental support on mathematics achievement in elementary students in socio-economic diverse settings. Based on the findings, the study confirms what has been stated in former literature; parental involvement is an important determinant of academic motivation and performance in mathematics by children (Chen et al., 2021; Zhou et al., 2020). The results show that the involvement of

parental involvement occurs not only as the direct academic support including the help with homework, but also such behavior as the establishment of the positive attitudes and supplies and continuous encouragement that are in line with the principles of self-efficacy theory (Herrera et al., 2020). These findings establish support that parental confidence and collaboration in the learning process of children contains a variable that will strengthen the confidence a child has in his/her ability, which will lead to a positive academic performance.

Nevertheless, this research also demonstrates that the obstacles to positive parental assistance are not an instance but a multiple and persistent issue, indicating larger structural inequality in the society. The difficulties related to the parental family setting reflect both the requirements on parental time and work and socioeconomic difficulties that have been found earlier (Leath et al., 2020; Sirin, 2005). These considerations make deeper the difficult interaction between parental capacity, education systems, and social structure; and their effect on student education experience. The problem that so many parents could not comprehend modern ways to teach mathematics also demonstrates that there is a gap between the current teaching approaches and what parents know, & Truboff (2022) noted it as well. Such barriers reduce the efficacy of parental involvement with or without the intentions or motivations of the parents unless they are properly supported.

Noteworthy, the outcomes of the research stipulate the necessity of schools to embrace more active and inclusive approaches to help parents. It is no coincidence: scholars like Bonaobra & Lim (2023) ask the institutions to make efforts to establish a strong home-school partnership through communication, training, and resource support. Schools can be very instrumental in not only teaching students but also in teaching the parents on how to be involved in the education of their children in an active way. Schools can aid in alleviating the identified barriers by way of assisting in husbanding curriculum content information, conducting workshops to provide parental confidence in light of school engagement, and providing open and fluid means through which the parental body may flexibly engage the school.

Moreover, the issue of socioeconomic disparity appears as a prerequisite of fair participation of parents. This conclusion confirms the findings made by Adeyinka (2021) who stated that it is necessary to use specific interventions to reduce the resource/opportunity gap between families with different financial situations. School initiatives and policies should focus on inclusiveness, whereby providing every parent, irrespective of social-economic situation with the means and knowledge to aid their children in learning. These actions will not only bring about parental inclusiveness but in addition will help to minimize achievement gaps associated with socioeconomic factors. On the whole, the study contributes to existing knowledge by highlighting the complex nature of the phenomenon of parental support and only a few institutional and social factors that play the role in determining the effectiveness of parental support. The benefits that parental involvement brings are not an unknown fact but this study makes it clear that there are still issues that affect some families when it comes to participation in the education of their children. It also strengthens the notion that enhancement of parental involvement will involve systemic factors, inter-collaboration and system-wide commitments of schools, communities, and policymakers.

CONCLUSION

This examines highlights the large role of having such parental support to enhance math achievement among compulsory high school children. The findings filter that a number of forms of parental involvement, which include giving help at housework, supplying teachable resources, and developing an exceptional attitude to math, particularly contribute to accelerated pupil performance. These outcomes are similar

to, and an extension of, prior research findings, in pointing out the complex character of parental guide, and its critical influence on the academic outcomes. Besides these benefits, the have a look at also pinpoints that there are widespread obstacles to the robust parental engagement such as time limitations, inability to trust in own mathematical skills, and socio-economic issues. It is important to overcome those barriers so that each student could have a chance to benefit of parental support.

On the basis of insight gained, the observe suggests that institutions need to implement normal methods of communication, classes to acquaint parents with latest coaching tricks, and literature to support families with low socio-economic statuses. These methods have the ability to embellish the participation of parents and, by extension, student satisfaction in mathematics by creating a cooperative climate involving dad and mom with teachers and colleges. Future studies ought to be maintained to find out new factors that may affect parental support in addition to examining potent interventions to counteract constraints. At the end of the day, the establishment of cordial and inclusive learning environments is critical in the sale of course success and fair access to learning opportunities to all college learners.

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