



Factors Influencing Mastery of Multiplication Tables to Pupils in Selected Dodoma Primary Schools, Tanzania

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Abstract: Mathematics is a fundamental skill that plays a crucial role in various aspects of everyday life, education and professional pursuits. Despite the great applications of mathematics, students' performance has been declining steadily across almost all academic levels, particularly among youth. In Tanzania, efforts have been made to improve mathematics performance, however few studies have been done to find out the contribution of mastery of multiplication table as fundamental part of mathematics subject. Therefore, this study will look at the factors influencing mastery of multiplication tables to pupils in Dodoma primary schools in Tanzania. The study employed mixed method approach. Qualitative methods were used to collect data using in-depth-interview while quantitative data was collected through questionnaire. The study employed both random sampling and purposive sampling techniques to unearth the factors influencing mastery of multiplication tables to pupils in selected Dodoma primary schools. Qualitative data was analysed thematically and quantitative data analysed using descriptive statistics. Findings indicate that the factors influencing mastery of multiplication table in primary schools are parental involvement, peer interaction and cooperation, the use of games and songs during the teaching and learning process and the use of interactive online games. The study concludes that mastery of multiplication tables is crucial for improving pupils' performance in mathematics. Further study should include a comprehensive study in other regions of the country to have conclusive findings about factors influencing mastery of multiplication tables to pupils in primary schools.

Keywords: Multiplication tables, Pupils, Primary schools, Cognitive development, Mastery

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1. Introduction

Mathematics is a fundamental skill that plays a crucial role in various aspects of everyday life, education and professional pursuits. Mathematics remains as a professional tool in all disciplines, not only in science, technology, engineering and mathematics itself (STEM) but also social fields (Olfos & Isoda, 2021). Hence learning mathematics is inevitable because it provides a foundation for understanding the contents of other school subjects such as science, social studies, music and arts.

The multiplication table serves as a fundamental building block, laying the groundwork for more advanced mathematical concepts. A strong command of other multiplication facilitates the understanding of other arithmetic operations, such as division and fractions. These operations often involve the application of multiplication principles, and a solid grasp of the multiplication table simplifies these calculations. It allows pupils to approach more complex mathematical problems with confidence and accuracy (Mzomwe et al., 2019)

Despite the great applications of multiplication tables in the study of mathematics, interest in the subject, particularly among youth, has been declining steadily across almost all academic levels (Joseph, 2013; NECTA Report, 2022). This waning interest is concerning because mathematics is fundamental to numerous fields and is crucial for various science and technology disciplines. The lack of interest in mathematics can be attributed to several factors, including perceived difficulty, lack of engaging teaching methods, and insufficient real-world applications being communicated to students (Joseph, 2013; NECTA Report, 2022).

Performance in mathematics has been consistently poor, which further exacerbates the problem of declining interest (URT, 2011). Students who enrol in mathematics and related fields often struggle, resulting in low achievement levels. This is particularly problematic because mathematics is a critical requirement for pursuing many science-related courses and careers. The massive failure rates in mathematics limit the number of students eligible to join higher education programs in science and technology, thus affecting the country's capacity to produce scientists and professionals in these fields. Mazana et al. (2020) highlighted that higher failure rates are evident in primary and secondary schools, with girls underperforming compared to boys. Cultural factors and domestic responsibilities disproportionately affect girls, especially in rural areas, leading to less time available for studying and homework (Mazana et al., 2020).

The declining interest and poor performance in mathematics have led to low enrolment rates in mathematics and related fields. This trend is particularly troubling given the subject's importance in science and technology education. Without a strong foundation in mathematics, students are less likely to pursue further studies or careers in Science, Technology, Engineering, and Mathematics (STEM) fields. This situation poses a significant threat to the progress towards Tanzania's industrialization policy, which relies heavily on a skilled workforce in science and technology. The NECTA Report (2022) emphasizes that addressing the enrolment issue is crucial for the country's future development and its ability to achieve its industrialization goals.

Primary school students in Tanzania, particularly in Dodoma City, show inconsistent performance in mathematics. This is reflected in recent data from the National Bureau of Statistics (NBS), which indicates that average mathematics scores improved from 55% in 2019 to 62% in 2023. However, these scores are still below the national average which is 70%, signalling a need for targeted research into effective teaching strategies for mathematics, particularly multiplication tables (National

Bureau of Statistics, 2023). Different studies have proved that there is still mass failure in mathematics not only in lower levels but also in higher levels (Joseph, 2013; Ngussa & Mbuti, 2017; Mzomwe et al, 2019; Areelu, 2023).

In a global context, apart from Tanzania, a study by Mohd and Azlina (2016) on the challenges facing pupils in learning mathematics in Malaysia, came up with the finding that include negative perception towards mathematics such as perceiving mathematics as being too difficult and very confusing to learn and therefore they quickly lose their interests and motivation to learn mathematics. Additionally, the same study also revealed that low mastery of mathematics skills like computation skills has been a challenge in learning mathematics among pupils in Malaysia. Also, the study by Limb and Fullarton (2001) done in the USA and Australia on Trends in International Mathematics and Science Study (TIMSS) found that pupils lack of support in acquiring learning material was also the challenge in learning mathematics. It was found by the study that the pupils in families with abundant learning resources such as books at home tend to have higher achievement levels in mathematics.

Tanzania primary schools' system and education policy of 2014 postulates that all pupils should achieve mastery of multiplication tables, providing them with a solid foundation for mathematical problem-solving and future academic pursuits. However, National Bureau of Statistics (NBS) indicates that despite the importance of multiplication tables in building a strong foundation in mathematics, many pupils in primary schools in Tanzania struggle to master them (NBS, 2023). Research has shown that pupils who fail to master multiplication tables often experience difficulties in subsequent mathematics concepts, leading to poor academic performance and a lifelong struggle with arithmetic (Joseph, 2013; Ngussa & Mbuti, 2017; Areelu, 2023). Conversely, the factors that influence pupils' mastery of multiplication tables in Dodoma primary schools are not well understood.

This study, therefore, was carried out to assess the mastering of multiplication tables for basic computation among selected primary schools in Dodoma city, Tanzania. In an attempt to explore the problem, the study aimed to attain one objective which is to explore factors influencing mastery of multiplication tables to pupils in primary schools in Dodoma.

2. Literature Review

2.1 Mastering of Multiplication Tables

Mastering multiplication tables is a fundamental skill that has been emphasized in primary school education for

centuries. The multiplication table, also known as the times table, is a basic arithmetic operation that is essential for various mathematical concepts and real-life applications. Research has consistently shown that mastering multiplication tables is crucial for pupils in primary schools (Vale & Davies, 2007).

Mastery of multiplication table has proved to be a key in learning mathematics in primary and secondary schools since it triggers not only the cognitive domain but also all the domains at ago (Vale & Davies, 2007). Pupils who have mastered the multiplication table possess a solid foundation for performing mathematical operations efficiently and accurately (Mzomwe et al., 2019).

The importance of mastering multiplication table for better performance in mathematics has been indicated by different studies. The study by Dotan and Sharon (2022) in Japan suggests that multiplication table be taught in different levels around the world. However, the study found that in Japan, multiplication table is taught in grade two only. The study concluded that learning the basic arithmetic facts particularly multiplication table is very important because its mastery helps pupils to acquire more advanced mathematical skills. It was also found out that, mastering the multiplication table is one of the foundations of arithmetic fluency and an important aspect of the elementary school curriculum in Japan.

According to Wong (2017), mastering multiplication tables is a critical component of mathematical proficiency, as it enables pupils to develop fluency and automaticity in arithmetic operations. The author argues that pupils who master multiplication tables are better prepared to solve mathematical problems, reason mathematically, and apply mathematical concepts to real-world situations. Katobe, Niboye and Carolyne (2014) found that pupils who had a strong grasp of multiplication tables performed better in mathematics than those who did not. The authors suggest that mastering multiplication tables helps pupils to develop a deeper understanding of mathematical concepts, such as place value, fractions, and algebra.

Research has also shown that mastering multiplication tables has cognitive benefits for pupils. For example, a study by Carmen (2021), found that the memorization of multiplication tables activates the same brain regions as those involved in language processing, suggesting that multiplication tables can be stored in long-term memory and retrieved automatically. Further, the literature suggests that mastering multiplication tables is essential for pupils in primary schools. It enables them to develop fluency and automaticity in arithmetic operations, reason mathematically, and apply mathematical concepts to real-world situations. Additionally, mastering multiplication

tables has cognitive benefits, such as improved working memory and attentional abilities, and has a positive impact on mathematical achievement.

Despite the importance of mastery multiplication tables for basic computations and foundation for greater performance in mathematics, there is little evidence on the studies made to explore factors influencing mastery of multiplication tables among the primary school pupils. The gap in localized research on this subject means that current educational practices may not adequately address the unique challenges faced by Tanzanian primary schools.

2.2 Theoretical Framework

The theory of Child Cognitive Development developed by Jean Piaget (1896-1980) guided the study. The theory argues that children think differently because the process of coming to know is determined by age (Wadsworth, 1996). This theory posits that learning involves internal mental processes such as understanding, memory, and problem-solving, which are essential for processing and storing information (Piaget, 1952; Bruner, 1966). The theory emphasizes that psychobiological factors and environment play an important role for children to acquire knowledge (Ogletree, 1997). Piaget stresses that as children mature mentally, they pass sequentially through four major stages of cognitive development: sensor motor, pre-operational, concrete, and formal operational stage (Wood, Smith & Grossniklaus, 2001).

The theory was used because researchers adopted Piaget's belief that a child's capacity to understand certain concepts is based on one's developmental stages whereby each stage represents a qualitative change in thinking (Woolfolk, 2004). For this study, this means that mastering multiplication tables involves more than just memorizing facts; it requires developing a deep understanding of numerical relationships and the ability to apply these concepts to solve problems. The theory underscores the importance of cognitive development stages and how they impact pupils' ability to process and retain mathematical information (Miller, 2003).

3. Methodology

The study used a mixed method approach to collect useful information. The qualitative approach was chosen mainly because it was concerned with subjective assessment of the opinion. The design has been used with a focus on describing what all participants have in common as they experience a situation. The description of experience aims to understand what they experience and how they

experience it, which allows the researcher to interpret different meaning (Morison, 2009).

The study was conducted in Dodoma City, Tanzania, chosen for its diverse educational environment and varying levels of resource availability across primary schools. This location is particularly relevant due to the recent performance data provided by the National Bureau of Statistics (NBS), which indicates fluctuations in mathematics performance among primary schools over the past five years. For instance, the NBS reports a gradual improvement in mathematics scores from an average of 55% in 2019 to 62% in 2023. However, these scores are still below the national average set by the Ministry of Education. This gap underscores the importance of conducting this research to explore factors influencing mathematics performance and identify effective strategies for improvement. By selecting Dodoma City, the research aims to gather insights that reflect both successful strategies and areas needing enhancement, providing valuable findings applicable to similar and contrasting educational settings across Tanzania.

This study involved six (6) primary schools found in Dodoma city council. From these schools, the following respondents were selected; 180 pupils and 11 Mathematics teachers. Thus, the total number of respondents was 191. Simple random sampling and purposive sampling were used. Simple random sampling was used to select pupils from the six (6) selected primary schools found in Dodoma city council where 30 pupils from each of the six (6) schools were sampled to provide data. Purposive sampling

was used to obtain 11 Mathematics teachers from the selected primary schools. Semi structured interview was used for the mathematics teachers to get detailed information on the study topic. Interview were used for the teachers because they are expected to provide detailed information about their strategies, attitudes and perception regarding multiplication table mastery and its impact on mathematic skills. On the other hand, questionnaires were used to collect structured information from pupils consisting of both closed and open-ended questions. The collected responses were analyzed to identify factors influencing mastery of multiplication tables to pupils in primary schools. Quantitative data collected through questionnaires were subjected to statistical analysis using a computer based program of statistical package for social scientists (SPSS), whereby the information not quantifiable such as attitudes and perceptions were subjected to thematic analysis.

4. Results and Discussion

The findings of the study are presented and discussed as follows:

4.1 Teachers perceptions

The findings derived from interviews conducted with mathematics teachers on factors that influence pupils' mastery of multiplication tables in primary schools are summarized in Figure 4.1.

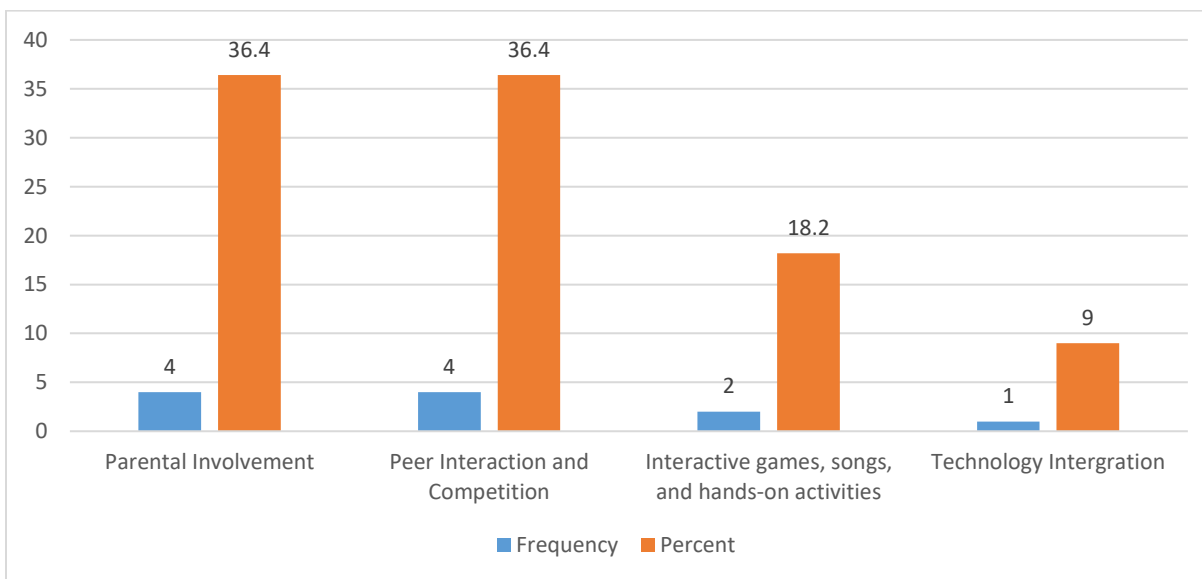


Figure 4.1 Interview results obtained from mathematics teachers (Source: Field data, 2024)

Figure 4.1 shows the response results obtained from mathematics teachers through interviews whereby the analysis revealed that parental involvement was having highest percent (36.4%) as the factors influencing mastery of multiplication tables together with peer interaction and competition (36.4%), interactive games, songs, and hands-on activities (18.2%) and technology integration (9%) respectively.

4.1.1 Parental involvement

Four (4) out of 11 (Figure 4.1) mathematics teachers noted parental involvement as the factors influencing mastery of multiplication tables to pupils in primary schools. They attributed that pupils' success to practicing multiplication tables with their parents. Parental support and involvement in homework or extra practice can positively influence a child's mastery of multiplication tables.

Further, mathematics teachers pointed out that parental involvement plays a crucial role in a child's motivation to learn. When parents show interest in their child's mathematical progress and provide positive reinforcement, children are more likely to put in effort and persist when faced with challenges. Celebrating small achievements can boost a child's confidence in tackling multiplication tables. During the interview one Mathematics teacher asserted that:

“...unajua kiukweli wazazi ni kiungo muhimu sana cha kusaidia watoto kuelewa mambo wakati wa ujifunzaji. Mzazi anayemsaidia mtoto wake hesabu za jedwali la kuzidisha huwa kwa namna moja ama nyingine anamsaidia sana mtoto kwanza kujiamini, lakini pia kupenda kujifunza...” (Usahili na mwalimu A, 12/06/2024). (Swahili Version)

Translation

...you really know that parents are a very important link to help children understand things during learning. A parent who helps his or her child with multiplication table calculations in one way or another greatly helps the child to first gain self-confidence, but also love to learn...

The quoted voice of the teacher indicates that parental involvement can positively influence a child's mastery of multiplication tables by providing additional practice,

support, and encouragement at home. It fosters a positive learning environment, facilitates collaboration between home and school, and helps parents address their child's individual needs and learning style. However, it is important for parents to be mindful of their own math anxiety and ensure that their expectations and involvement support rather than hinder their child's mathematical development. This finding is in line with Dumont, Hanna, Trautwein, Ulrich, Nagy, Gabriel, Nagengast and Benjamin (2014) who asserted that parental involvement is an important factor in a child's education and can greatly impact their mastery of concepts like multiplication tables. Parents can support their children's learning by creating a conducive environment for studying and providing additional practice opportunities. Dumont et al. noted more that positive and autonomy-supportive parental involvement predicted improved motivation and achievement in elementary and middle school children. The implications of these findings are twofold. First, there is a clear need for educational strategies that encourage and facilitate active parental involvement in students' learning processes. Schools should consider implementing programs that guide parents on how to effectively support their children's mathematics education, addressing both practice strategies and the importance of fostering a positive attitude towards learning.

Second, parents' math anxiety is one of the possible issues associated with parental involvement. Educators and legislators should be aware of this and make sure that parental involvement is beneficial rather than harmful. Schools can foster a more productive collaboration between the home and school by offering parents resources and support, which will ultimately improve the mathematics performance of their pupils.

Therefore, resolving these issues and encouraging a cooperative strategy between teachers and parents can improve students' comprehension of multiplication tables and support their general academic achievement in mathematics

4.1.2 Peer interaction and competition

Peer interaction and competition is another factor mentioned by respondents which influence mastery of multiplication tables to pupils in primary schools. About 4 (36.4%) of respondents pointed out that peer interaction and competition as another important factor. During interview, Mathematics teachers mentioned multiplication table competitions with classmates, suggesting that peer interaction and friendly competition can serve as motivators for learning and improvement. These findings concur with results of other studies (Francis, 2024; Masenje et al., 2024; Dotan & Sharon, 2022).

The findings revealed that positive peer interaction and competition can boost student's confidence and self-esteem. This finding corresponds with a study by Heng and Sudarskan (2013) as they noted that when students help or outperform their peers, it validates their understanding and encourages them to continue striving for improvement. This sense of accomplishment can carry over to other areas of academic performance as well. However, one interviewed mathematics teacher asserted that peer interaction and competition can lead to negative comparisons, especially if some students master multiplication tables faster than others. This also, concurs with the study conducted by Hurst and Hurrell (2014). Students who feel they are falling behind may experience low self-esteem or become discouraged. It is important for teachers to emphasize individual progress and provide differentiated instruction to cater to varied learning paces. The teacher noted that;

“Competition in peer groups is good in the ability to quickly grasp the multiplication table. Along with that beauty, it sometimes brings the stagnation of knowledge to students who are not quick to grasp things. When they have little ability to quickly memorize the multiplication table, they consider themselves to be failures. Here, teachers need to be very careful in helping students of this group” (interview with mathematics teacher B, 12/06/2024)

This quoted voice asserts that peer interaction and competition can positively influence students' mastery of multiplication tables by fostering motivation, collaboration, and social engagement. This is supported by De Visscher and Noël (2013) who argued that peer interaction can provide a collaborative and engaging environment for students to practice and reinforce their multiplication skills. However, De Visscher and Noël cautioned that it is important for educators to monitor peer dynamics and provide guidance to ensure that competition remains healthy and supportive, mitigating any potential negative impacts on students' self-esteem or learning progress.

4.1.3 Interactive games, songs and hands-on activities

Other factors identified were interactive games, songs and hands-on activities (18.2%). During interview Mathematics teachers illustrated that singing multiplication tables can make learning enjoyable and interesting. Pupils are more likely to pay attention and actively participate when learning is presented in a musical format. Songs inherently involve repetition, which is essential for memorization. Pupils can sing the songs to

themselves even when they are not in the classroom, reinforcing their knowledge of multiplication tables. This finding is in line with the study conducted by Katzoff et al., (2020) who pointed out that Interactive games make learning multiplication tables fun and engaging. Pupils are more likely to be motivated to participate and actively engage with the content. Also, the finding is corresponding with other findings, for example, (De Visscher & Noël, 2013; Hurst & Hurrell, 2014; Francis, 2024).

Furthermore, the interviewee pointed out that hands-on activities provide a tangible way to understand abstract mathematical concepts. Manipulatives, such as counters or objects for grouping, help pupils grasp the concept of multiplication more concretely. These hands-on activities make abstract ideas more accessible by allowing students to physically manipulate objects and see the results of their operations in real-time. This approach not only enhances understanding but also reinforces the practical application of multiplication concepts, making learning more engaging and effective. The evidence gathered from interviews, questionnaires, and classroom observations highlights several critical factors influencing pupils' mastery of multiplication tables. Effective teaching methods, including regular practice, use of visual aids, and manipulatives, play a significant role in helping students understand and retain multiplication concepts. The involvement of parents further supports this learning by providing additional practice and creating a conducive home environment for studying. The findings align with existing research, such as Awandu (2023) which emphasizes the importance of parental involvement and its positive impact on educational outcomes. Furthermore, the interviewee pointed out that the utilization of practical exercises serves to reinforce the theoretical comprehension of multiplication. In order to improve students' fluency with multiplication tables, teachers should use a comprehensive strategy that combines several teaching techniques, such as practical exercises and visual aids. Along with fostering great partnerships, schools should provide resources and information to facilitate effective parental involvement. By focusing on these areas, teachers may establish a more encouraging and productive learning environment, which will ultimately enhance students' basic knowledge and mathematical ability.

4.1.4 Technology interaction

About 9% of respondents pointed out the use technology interaction to facilitate mathematical table learning. During the interview with one mathematics teacher from English medium school explained that educational technology, including interactive software and mobile apps, can make learning multiplication tables engaging and enjoyable. These tools often incorporate gamification elements,

visually appealing graphics, and interactive features that capture pupils' attention and motivate them to practice. The teacher stated that;

“...for example, in our school, students use tablets in learning. Those Tablets have mathematics apps with multiplication tables. Mathematics apps can provide step-by-step explanations and interactive examples for learning multiplication concepts. Pupils can proceed at their own pace, revisiting concepts as needed. This self-directed learning enhances understanding and allows pupils to take ownership of their educational journey...” (interview with mathematics teacher C, 10/06/2024)

However, the respondent (mathematics teacher from English medium school) insisted that public schools often face challenges with inadequate infrastructure, including unreliable electricity supply and limited access to the internet. Schools may lack the necessary hardware, such as computers, stable internet connections, and proper maintenance and technical support. This finding concurs with UNESCO (2017) as noted that Reliable and affordable internet connectivity is crucial for effective technology integration in schools. However, public schools often face challenges due to limited broadband infrastructure, resulting in slow or inconsistent internet access.

The findings of this study reveal a multifaceted landscape of factors influencing the mastery of multiplication tables

among primary school pupils. Effective teaching methods, hands-on activities, and parental involvement significantly contribute to students' understanding and retention of multiplication concepts. However, infrastructure challenges in public schools such as unreliable electricity and limited internet access pose barriers to implementing these strategies effectively. The evidence aligns with existing research by Liu et al, (2017) emphasizing the critical role of infrastructure in supporting educational technology integration. Addressing these challenges is essential for creating a more equitable educational environment where all students have access to the resources and support needed to master foundational mathematical skills. Therefore, to improve pupils' mastery of multiplication tables and overall mathematical performance, there is a need for targeted interventions that address both pedagogical practices and infrastructure limitations. Schools, particularly public ones, require enhanced support to upgrade their infrastructure and ensure reliable access to necessary resources. By addressing these issues and continuing to implement effective teaching strategies, educational outcomes can be significantly improved across diverse schooling contexts

4.2 Student Perceptions

The researcher administered questionnaires to standard seven pupils on the factors that Influencing Mastery of Multiplication Tables to Pupils in Primary Schools. Most of the factors are in line with those mentioned by Mathematics teachers. Figure 4.2 shows the multiple response results obtained from standard seven pupils through questionnaires.

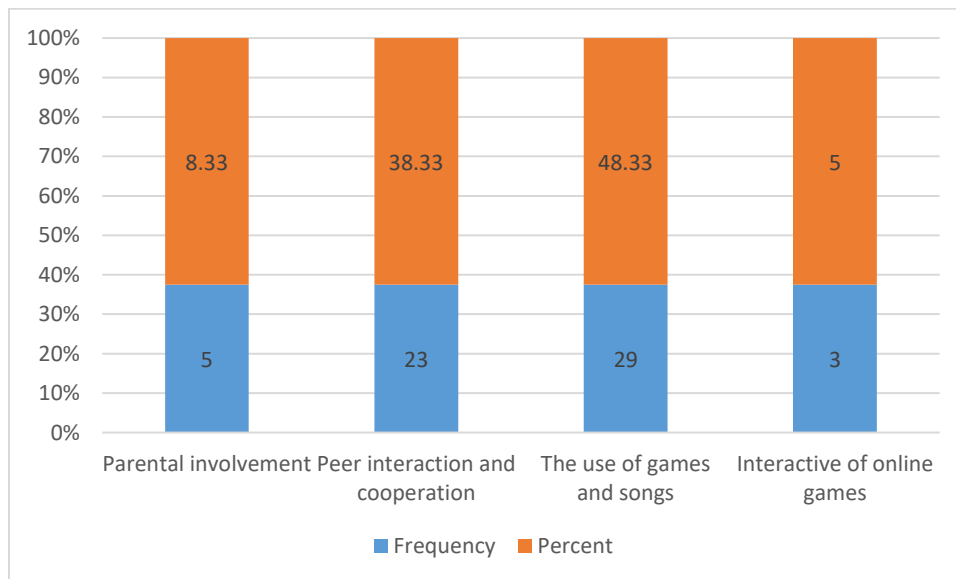


Figure 4.2 Standard seven pupils' perceptions (Source: Field data, 2024)

The finding revealed that the use of games and songs was having highest percent (48.33%) as the factors that Influencing Mastery of Multiplication Tables to Pupils in Primary Schools, followed by peer interaction and cooperation (38.33%), parental involvement (8.33%) and interactive of online games (5%) respectively. The findings from this study indicate that the use of games and songs is the most influential factor in mastering multiplication tables among primary school pupils, accounting for 48.33% of responses. This preference highlights the effectiveness of integrating engaging and interactive methods into the learning process. Games and songs make learning more enjoyable and can enhance retention by incorporating repetition and active participation. This aligns with research by Clements and Sarama (2020), who found that interactive and playful learning strategies significantly improve students' arithmetic skills. Games and songs provide a dynamic way to reinforce multiplication facts, making abstract concepts more concrete and memorable.

Following closely are peer interaction and cooperation, which received 38.33% of responses. This finding underscores the value of collaborative learning environments where students can work together to solve problems and reinforce each other's understanding. Vygotsky's theory of social constructivism supports this, suggesting that peer interactions facilitate cognitive development and learning through social engagement (Vygotsky, 1978). Collaborative activities allow pupils to discuss and practice multiplication in a supportive setting, enhancing their comprehension and problem-solving skills.

Parental involvement was cited by 8.33% of respondents as a factor influencing mastery. While less prominent than games and peer interactions, parental support still plays a critical role in reinforcing learning at home. Wilder (2023) highlighted that parental involvement contributes positively to students' academic achievement, which is consistent with our findings that parental support is beneficial, though less emphasized compared to interactive methods and peer learning. Interactive online games were noted by 5% of respondents as influential. While this percentage is relatively small, it reflects the growing interest in incorporating digital tools into education. Research by Haleem et al, (2022) supports the use of educational technology, showing that digital games can enhance learning experiences and provide personalized feedback. However, the limited impact observed in this study might be due to factors such as accessibility, resource availability, or integration into the curriculum.

4.2.1 Integration with Previous Sections (5.1)

Integrating these findings with the previous sections reveals a comprehensive picture of factors influencing pupils' mastery of multiplication tables. Hands-on activities and effective teaching methods, including games and songs, align with the previously discussed strategies that enhance understanding and retention of multiplication concepts (Holland, 2022). The importance of parental involvement, although less emphasized in this study, remains a crucial element, complementing the interactive and collaborative learning approaches. Limited access to technology and reliable internet can hinder the integration of digital tools, emphasizing the need for improved infrastructure to support diverse learning methods (Rafiq, 2024).

The study's findings underscore the significant impact of engaging and interactive teaching methods, such as games and songs, on pupils' mastery of multiplication tables. Peer interaction and cooperation also play a crucial role in reinforcing learning, while parental involvement and digital tools contribute to varying extents Ma et al, (2016). Addressing infrastructure challenges in public schools is essential for ensuring that all students can benefit from these effective learning strategies. By combining interactive methods with supportive parental involvement and improved resources, educational practices can be enhanced to foster better mathematical proficiency among primary school pupils.

5. Conclusion and recommendations

5.1 Conclusion

The study investigates the factors influencing mastery of multiplication tables to pupils in selected Dodoma primary schools. Key factors highlighted were parental involvement, peer interaction and cooperation, the use of games and songs during the teaching and learning process and interactive online games. Mastery of multiplication tables is strongly correlated with better mathematics performance. The study emphasizes the need for interactive learning to enhance mastery of multiplication tables to pupils.

5.2 Recommendations

These insights offer actionable recommendations for educators and policymakers to boost mathematical proficiency in primary schools such as encouraging parents to actively participate in their children's education by providing support and resources for practicing

multiplication tables at home. Furthermore, is to integrate technology, such as educational apps and interactive tools, into the teaching of multiplication tables to make learning more engaging and effective.

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