P-ISSN: 2709-6254	Journal of Development and Social Sciences	March-April 2026, Vol. 7, No. 2
O-ISSN:2709-6262	https://doi.org/10.47205/jdss.2026(7-II)07	[65-76]

Journal of Development and Social Sciences
www.jdss.org.pk

RESEARCH PAPER

Literacy and Numeracy Skills among Students at Primary School Level: A Qualitative Study

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ABSTRACT

Present study aimed to investigate literacy and numeracy skills among students at primary school level. A phenomenological research design was more suitable for the present study to gain structure experiences of the primary school teachers. Sample of present study was comprised of 10 primary school male and female teachers of Lahore city purposively. An interview protocol was developed to conduct the interviews. Validity of the instrument was ensured by three experts in the relevant field. Responses regarding primary school students' literacy and numeracy skills were taken by primary school teachers. Data were analysed by emerging the themes from the responses. Findings of the study revealed that fun and interactive lessons, such as games, group work, and use of technology, often increase students' enthusiasm and enjoyment in learning literacy and numeracy skills. Moreover, literacy and numeracy skills varies from student to student some students actively take part in this practice they are keen to solve the questions and problems assign to them and happily solve the questions. Findings further concluded that the LND program emphasizes the development of fundamental literacy skills, such as reading comprehension, vocabulary, phonics, and writing. Study findings concluded that level of primary school students' literacy and numeracy skills varied. Many students show a high level of understanding when the activities are interactive and engaging. Fun and interactive lessons, such as games, group work, and use of technology, often increase students' enthusiasm and enjoyment in learning literacy and numeracy skills. As students experience success in literacy and numeracy, their confidence grows. Study recommends to develop literacy and numeracy skills among primary school students that may increase confidence which lead them towards higher motivation and a more positive attitude towards learning.

KEYWORDS Literacy and Numeracy Skills, LND, Learning Resources, Interactive Lessons, Primary School Teachers

Introduction

Literacy and numeracy play a vital role in shaping the educational landscape and fostering individual growth. This literature review provides a comprehensive understanding of the importance of literacy and numeracy, strategies for improvement, challenges, and success stories. By synthesizing the findings, educationist instructors can design evidence-based interventions to promote literacy and numeracy skills among learners, leading to a brighter and more equitable future. Literacy and numeracy at primary level are essential components of a child's educational journey. Teachers' perceptions and the challenges they encounter significantly impact the effectiveness of these drives. By understanding these factors, education Policymakers and school administrators can create targeted interventions and support systems to enhance teachers' instructional methods, thereby improving students' literacy and numeracy outcomes. The literature on literacy and numeracy education is then reviewed, with an emphasis on how these areas have been supported by the development and use of mobile devices and related interventions. The literature highlights numeracy as an essential life skill necessary for handling everyday

quantitative challenges (Goos et al., 2019; Steen, 2001).
The 2008 National Numeracy Review Report noted that numeracy is sometimes viewed as a subset of school mathematics, encompassing the basic mathematics needed for daily life or the foundational elements of school mathematics. At other times, it is considered more than mathematics, involving an understanding of the interaction between mathematics and its social contexts.

Literature Review

Numeracy

For different people, numeracy might signify different things. Numeracy has many meanings, according to Frejd and Geiger (2017), but no single, accepted definition exists. According to certain policy documents (Department of Education and Skills, 2011; United Nations Educational, Scientific, and Cultural Organisation, 2006), numeracy is the fundamental mathematical skills within the larger context of literacy. Numeracy is sometimes viewed as a skill that is predominantly learnt in school, according to Gal and Tout (2014). Many people still define numeracy as a skill learned in elementary or early education, which restricts what it means to some people. Goos et al. (2019), however, contend that this idea of numeracy as "basic skills" is out of date. They suggest a more inclusive definition of numeracy that takes into account the wide range of abilities and information required to interact with the outside world as knowledgeable 21st-century citizens.

Mathematics VS Numeracy

Many times, the connection between numeracy and mathematics is not well understood. A prevalent misconception in society is that mathematics and numeracy are interchangeable terms that refer to the same topic (Steen, 2001). Furthermore, the difference between mathematics and numeracy is described as "difficult to capture in words" by Goos et al. (2019, p. 18). It is true that acquiring numeracy involves mathematics, yet numeracy cannot be claimed to be exclusively dependent on mathematics. According to the Department of Employment, Education, Training and Youth Affairs [DEETYA], 1997, numeracy is the ability to use and apply mathematical knowledge to meet daily demands rather than being limited to mathematical content.

Mathematics is the study of abstract patterns and structures, whereas numeracy focuses on the contexts in which a person will use mathematical knowledge in everyday life. The Quantitative Literacy Design Team (2001) highlights this distinction, stating that mathematical progression involves “climbing the ladder of abstraction,” while the goal of numeracy is to work within various contexts (Goos et al., 2019). Mathematics challenges us to think beyond context and engage with advanced and abstract concepts, whereas numeracy remains context-bound, enabling individuals to apply their mathematical knowledge in real-life situations (AAMT, 2012).

The Irish literacy and numeracy strategy, which places a strong emphasis on "promoting mathematics," does not seem to recognise the differences between mathematics and numeracy that have been extensively studied and documented in scholarly and professional literature (DES, 2011, p. 17). Goos and O'Sullivan (2018) noted that there are several allusions to mathematics rather than numeracy in Ireland's literacy and numeracy policy, which makes it difficult to distinguish between the two. Throughout the document, there are numerous references to mathematics, despite the policy's stated goal of raising numeracy standards. While mathematics and numeracy are interlinked, many researchers recommend that mathematics should be taught as a subject within the school curriculum, whereas learning in all areas should lead to the development of numeracy (Steen, 2001).

The challenge of numeracy development is not unique to Ireland but is an international issue that many governments are striving to address (Conway & Murphy, 2013). The focus on numeracy, largely driven by international assessment results such as PISA and TIMSS, has led to significant restructuring of curricula worldwide (Liljedahl, 2015). The release of TIMSS and PISA results over the last few decades saw educators and government bodies around the world endeavour to improve the numeracy capabilities of society. Sellar and Lingard (2013) describe the power of the OECD in the construction of global education and recognise this power as hidden peer pressure within the world of education. Angus (2012) referred to the "impersonal" changes in education over the past three decades, arguing that education is now characterised by test scores and accountability. Furthermore, Angus (2012) claims that these pressures have forced schools into the competitive corporate market and the sense of holistic school setting and caring for the students' needs are not the priority any more.

Making sure kids have access to age-appropriate gadgets and dependable internet connectivity is a crucial first step. As such, talking about the kinds and accessibility of these gadgets is a crucial first step. Children have access to an endless array of activities with a wide range of possible consequences once they are online. The social, educational, economic, and other benefits of these activities vary, so it's important to carefully consider the kinds of activities and how they could help kids. Furthermore, debating the use of mobile devices in the classroom requires an awareness of children's online rights. Each of these domains' study literature is examined in greater detail.

Numeracy/Literacy Connection

According to Alberta Education's "K-3 Numeracy/Literacy Report" from 2006, effective learning depends on early intervention and a strong emphasis on numeracy and literacy in the early grades. Every child need numeracy and literacy skills because they allow them to grow as individuals, lead satisfying lives, and engage in society (Government of South Australia, Department for Education and Child Development, 2013). According to Fogelberg et al. (2008), incorporating literacy activities based on theory and research can improve early learners' ability to relate to, comprehend, and acquire mathematical numeracy because mathematics is a language unto itself.

The word "braiding" highlights how students blend language, mathematics, and thinking to interact with and understand new information, further illuminating the relationship between literacy and numeracy (Hyde, 2006). A mathematically literate environment is promoted through the use of literacy abilities to read, write, speak, and portray mathematical reasoning and problem-solving. Numeracy learning can also be improved by pedagogical methods to literacy, such as the workshop model, guided reading, small group work, daily reading and writing practice, autonomous practice, and conferences (Siena, 2009).

Device Ownership and Internet Access

OFCOM (2021a) offers valuable information into children's daily technology usage. Early device ownership is seen in 2020, when 48% of children aged 3 to 4 (up from 19% in 2018) and 59% of children aged 12 to 15 (also owned tablets). Children are also becoming more and more accustomed to using smartphones; 91% of 12- to 15-year-olds and 4% of 3- to 4-year-olds own one. In England, Scotland, and Wales, 100% of families with children gained internet connectivity for the first time in 2018, according to data from the Office for National Statistics. While there isn't an exact number for Northern Ireland, it is thought to be comparable. The 97% of children aged 5 to 15 spend an average of 20.5 hours per week online, which is a significant amount of time for them (OFCOM, 2021b). The digital world presents fantastic opportunities that are easily accessible day or night for the majority of children in the developed world. Social media is "intertwined with daily life," according to

Weinstein (2018: 3598), illustrating how the online and offline worlds have blended; kids no longer "log on" for specific purposes but instead travel between the "real" and digital worlds with ease.

Tablets may help kids develop their emergent literacy skills, including their understanding of the alphabet, print concepts, and emergent writing, according to the available data. Since the "teacher factor" has a major impact on students' learning, having a high-quality instructor is essential to fostering effective learning (Wichadee, 2010). Research has repeatedly demonstrated that student achievement is significantly influenced by the caliber of the teachers (Haskins & Loeb, 2007). Strong content understanding and pedagogical abilities are prerequisites for teachers to be effective (Shulman, 1986).

Pedagogical content knowledge (PCK) is sometimes included under the term "subject matter" in the teacher knowledge literature. PCK stands for subject matter knowledge for teaching, which Shulman (1986) defines as the unique body of knowledge required for instruction. In order to gain a thorough grasp of how certain topics, problems, or issues are arranged, portrayed, and tailored to the various interests and skill levels of students for educational objectives, PCK examines how teachers integrate content and pedagogy (Shulman, 1986).

According to Shulman (1986) if PCK is to effectively convey subject matter knowledge to students, it must take into account both the students' needs and the content itself, including knowledge of the students' misconceptions and preconceptions as well as teaching strategies for dispelling them. It also includes the particular environments in which instruction occurs. This means that in order to teach effectively, teachers must combine their subject-matter expertise with their understanding of learners and instructional practices that are appropriate for that learners and situations.

In terms of numeracy, as the capacity to handle, convey, and understand numerical data in a variety of settings. In addition to helping students develop an integrated network of understanding, techniques, tactics, and application skills, effective numeracy teachers support their students' acquisition of information about numbers, number relations, and number operations (Askew, 2005). Numerous traits of successful numeracy teachers have been found by research (e.g., Askew, Brown, Rhodes, Johnson, & Wiliam, 1997; Groves, Mousley & Forgasz, 2006; Jones, Tanner & Treadaway, 2000; Clarke & Clarke, 2002; Saunders, 2004). Among these qualities are:

- An emphasis on intellectual comprehension of key mathematical concepts.
- The application of diverse teaching strategies that link distinct mathematical topics and mathematical experiences.
- Promoting thoughtful discourse by asking insightful questions and asking students to justify their comprehension and mathematical reasoning.
- Exhibiting awareness, assurance, and proficiency in mathematical subject matter.

Reading and writing are the two complimentary components of literacy, which is commonly characterised generically as a unitary process that emphasises a fundamental idea in the development of children's abilities within an integrated English language. Several important findings about successful literacy teachers were presented by Medwell et al. (1998). These findings include: Those with a background in English language studies and related fields are frequently effective literacy teachers. Their opinions on literacy teaching were greatly impacted by their involvement in long-term literacy projects and longer-term in-service course experience. The chance and motivation this long-term experience gave teachers to build and explain their own particular views about teaching reading is what makes it so noteworthy. Shorter courses were helpful for professional growth as well, mostly to fulfil personal requirements or keep up with new advancements. For instructors

to be effective, the English coordinator's position was essential. This role encouraged a strong dedication to the teaching field and provided a focal point for a certain kind of in-service training. Just by virtue of their position as English coordinators, these educators possessed expertise with:

1. Being regarded by their peers as authorities.
2. Being recognised as proficient instructors of literacy in their educational institutions.
3. Having access to more comprehensive in-service literacy training.
4. Having the chance to watch other educators teach literacy and offer guidance and support.
5. They frequently instructed their colleagues in-service courses, which necessitated careful consideration of the content they offered.

According to Thompson (2008), good teachers have a combination of positive personality attributes and effective teaching abilities. It is imperative that educators, schools, and the educational system emphasise the importance of reading and numeracy instruction as the cornerstone for success in all areas (Department of instruction and Early Childhood Development, 2007). This approach is especially relevant now that literacy is being prioritised in national and international policy texts. One example of this is the Irish national literacy strategy, "Literacy and Numeracy for Learning and Life, 2011-2020."

The purpose of this research aims is to investigate how educators understand literacy, how they incorporate literacy into their lesson plans, and what challenges they face while putting the national literacy strategy into practice. The study admits that the definition of "literacy" is disputed and multifaceted. The results show that educators typically have a traditional and limited understanding of literacy, emphasising reading and writing to a lower degree. This suggests that policy rhetoric and teachers' real-world experiences are at odds. The survey also shows that teachers use a narrow variety of literacy tactics in the classroom and across the school. This raises questions about how well teachers will be able to execute the curriculum specified in policy papers and completely support the development of teenage literacy. Literacy and numeracy drive helped Pakistan to attain 90% competency rate which will be hold out 100% till 2030 for reading and writing proficiencies. Army officials strictly put forward process of judgment for contrasting and facilitating educational achievements. These army officials are called monitoring evaluation assistants (MEAs) who visit the public schools and schools running under Punjab Education Foundation (PEF). PEF is government of Punjab organization that is running schools under public-private partnership. Army officials conduct the LND test of students of class three on monthly basis in each school through tablets or mobile (M-Learning) (Aleem & Irshad, 2021). M-Learning is the modern technique used by students to learn by E-Techniques. In recent era these techniques are highly useful in education. These gadgets are tiny, smart and easy to carry everywhere easily. In 2013 the 1.2 billion people were using them but in 2017 the ratio 4.4 million which was the marvelous jump of ratio.

The Punjab Education Commission Examination used outdated method for assessment which was expensive, multifarious and irregular. Then it was replaced by advance method of assessment designated as the Literacy and Numeracy Drive (LND) to measure students' proficiency in Math, English, and Urdu in all public schools. The assessment is done by evaluating officers named as Monitoring and Evaluating Assistants (MEA's). they are Monitoring officers who visits school and take LND TEST on his Tablet of class 3. He/she randomly selects 7 to 10 students from class and do their assessment of three major subjects. Students Learning Outcomes (SLOs) are set in every month for this test. The LND test is taken according to already given SLO's. The main purpose of this test is to evaluate students of class 3 that is considered as bridge class between the lower learning class (2) and upper learning level class 4. students of class 3 trained by teacher for this test on regular basis.

Material and Methods

Present study aimed to investigate literacy and numeracy skills among students at primary school level. A phenomenological research design was more suitable for the present study to gain structure experiences of the primary school teachers. Sample of present study was comprised of 10 primary school male and female teachers of Lahore city purposively. An interview protocol was developed to conduct the interviews. Validity of the instrument was ensured by three experts in the relevant field. Responses regarding primary school students' literacy and numeracy skills were taken by primary school teachers. Data were analysed by emerging the themes from the responses.

Results and Discussion

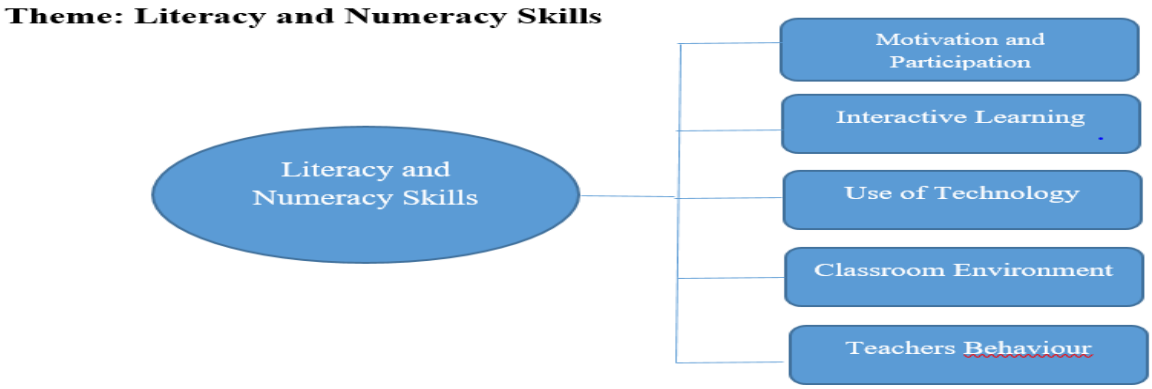

Figure1: Literacy and Numeracy Skills

As researcher was interested to ask about students' level of literacy and numeracy skills at primary school level. Majority of the participants answered that the level of primary school students' literacy and numeracy skills varied. Many students show a high level of understanding when the activities are interactive and engaging. Fun and interactive lessons, such as games, group work, and use of technology, often increase students' enthusiasm and enjoyment in learning literacy and numeracy skills. However, repetition and challenging activities lose the interest among students in learning. Participants (T1, T2, T4, T5) were answered that students who are eager to participate actively in different classroom activities assigned by the teacher through problem solving and answering questions may have high level of literacy and numeracy skills, on the other hands students who felt classroom activities less challenging may showed negligence. They might have low understanding level due to poor educational background or non-serious behavior of teachers in classroom which may create less interest towards learning.

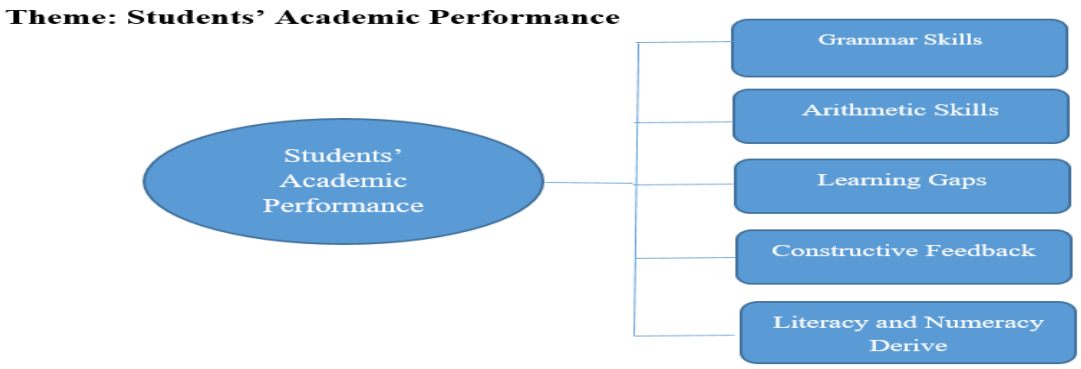

Figure 2: Students' Academic Performance

The Literacy and Numeracy Drive (LND) program significantly improves students' academic performance through a variety of targeted strategies and interventions. The researcher asked that how students' academic performance improves by practicing LND. Therefore, majority of the participants were of the view that the program emphasizes the development of fundamental literacy skills, such as reading comprehension, vocabulary, phonics, and writing. By building these essential skills, students are better equipped to understand and engage with a wide range of academic content. The LND program strengthens students' basic arithmetic abilities, including addition, subtraction, multiplication, and division. A strong foundation in numeracy enables students to tackle more complex mathematical problems and concepts as they progress in their education. Whereas, T4 answered that the LND program uses differentiated instruction techniques to cater to the individual learning needs of each student. This personalized approach ensures that all students, regardless of their skill level, receive the support they need to succeed. Specific interventions are designed for students who require additional help, ensuring that no student is left behind. These targeted efforts contribute to overall academic improvement . Regular formative assessments allow teachers to monitor students' progress closely, identify areas of weakness, and provide targeted interventions. This ensures that learning gaps are addressed promptly, leading to continuous improvement in academic performance . T3 answered that providing timely and constructive feedback helps students understand their mistakes, learn from them, and improve their skills. This ongoing feedback loop is crucial for academic growth. As students experience success in literacy and numeracy, their confidence grows. Increased confidence can lead to higher motivation and a more positive attitude towards learning. P4 answered that basically LND Program consists of very basic concepts of English, Urdu and Math if student actively take part in this activity and pay his full attention to learn and achieve the goal I think this is the best thing for student to enhance their academic performance. So LND in his all aspects is very fruitful for students. It is highly benefited programe for improving the students' academic performance. Participant (T10) answered "Yes" LND is too helpful to enhance students' learning regarding identification of sentence structures, images showing verbs and other grammatical practices, solving mathematical questions and Urdu language reading problems. It builds confidence in them when they see that the instructor chooses the students of his own choice for monthly test. They feel proud in giving the test hence they practice more deliberately.

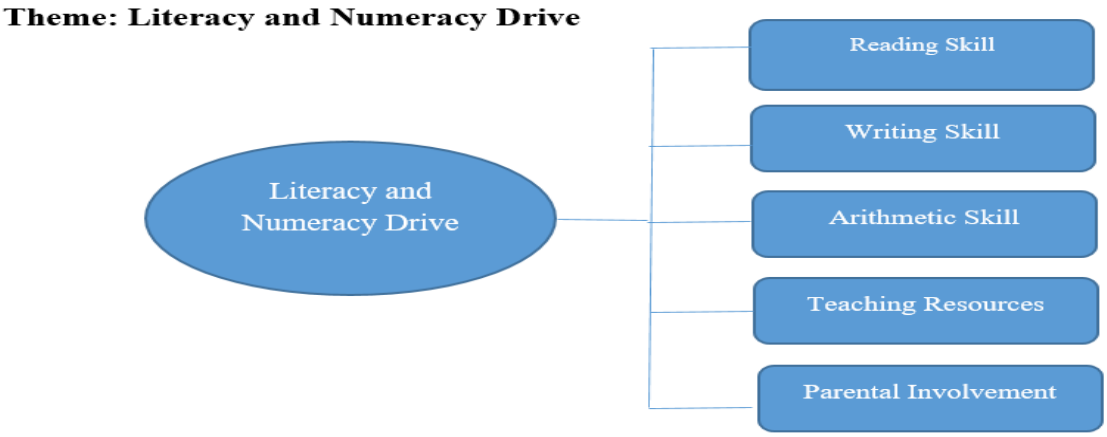

Figure 3: Literacy and Numeracy Drive

Majority of the participants replied that Literacy and Numeracy Drive (LND) program started by government helps enhance students' basic literacy and numeracy skills through various targeted interventions and strategies. Literacy and Numeracy Drive (LND) program includes basic reading, writing, and arithmetic skills that are critical for students' academic development. Participants (T2, T3, T4, T5, T6 and T7) said that different classroom engagement activities like games, puzzles, group work may attractive for

students. By incorporating educational technologies to conduct these activities would be more attractive and take more interest in learning. Digital tools play vital role in enhancing students' learning experiences in a conducive learning environment. A teacher can monitor students' progress through regular formative assessment which also helps to identify their learning gaps and understanding level of the student. In order to improve students' literacy and numeracy development professional development and teachers training programs also included to execute LND program. It also equips teachers with effective teaching-learning strategies and digital tools to support students' learning. Catering diverse learning needs of the students, teachers are facilitating with learning resource, instructional material, lesson plans etc. A regular communication between teachers and parents are also helpful where parents are informed on regular basis about their child's progress.

Theme: Functional Skills

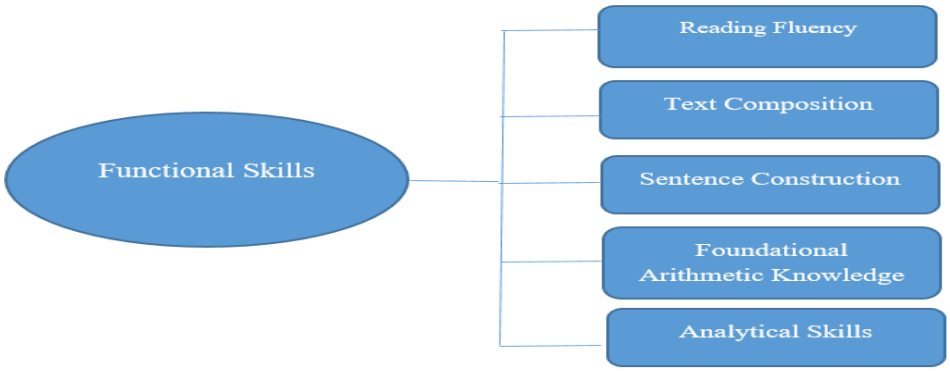

Figure 4: Functional Skill

The LND program focuses on improving students' ability to read fluently and comprehend texts. This has been achieved through targeted interventions and the use of structured reading programs, which have resulted in improved reading proficiency among students. In this regard participants (T1, T2, T3, T4 and T7) answered that by emphasizing writing exercises and activities, the LND program helps students develop better writing skills. This includes enhancing their ability to construct sentences, use correct grammar, and express ideas clearly and coherently. T8 answered that "*the program strengthens students' understanding of basic arithmetic operations such as addition, subtraction, multiplication, and division*". This foundational knowledge is crucial for their overall numeracy development. One of the participants replied that the LND program incorporates problem-solving exercises that encourage students to apply their mathematical knowledge in real-world scenarios, thereby improving their analytical and critical thinking skills. Students learn to approach problems methodically, analyze information, and make reasoned decisions based on their understanding. Regular assessments and feedback mechanisms provide positive reinforcement, which boosts students' confidence and encourages them to strive for continuous improvement. Group activities and peer-to-peer learning opportunities within the LND program help students develop better social and communication skills. They learn to work together, share ideas, and communicate effectively with their classmates and teachers. T10 answered that "*their English language reading, sentence making, sentence structure, parts of speech and grammatical learning is improved by LND"*.

Theme: Challenges faced by Primary School Teachers

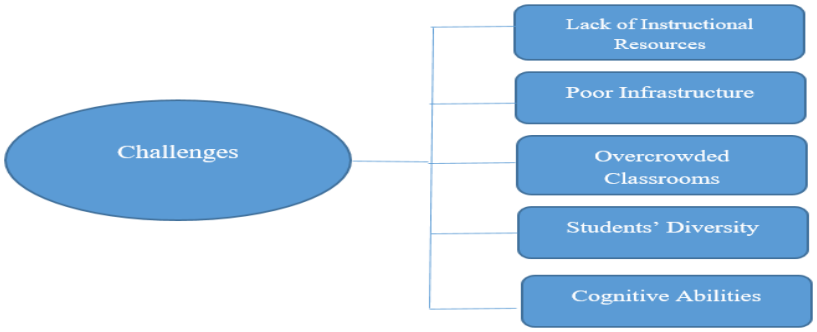

Figure 5: Challenges faced by Primary School Teachers

The researcher asked about the challenges faced by teachers in developing literacy and numeracy skills among students at primary level. Majority of the participants discussed various challenges. Participants are facing lack of material available in schools. Many schools lack adequate literacy and numeracy resources, such as books, manipulatives, and digital tools necessary for effective instruction. Overcrowded classrooms and poor infrastructure can hinder the delivery of personalized literacy and numeracy instruction. They also observed that the mental capabilities of students are different some students easily understand the things but some students take too much time to understand the same thing. Teachers often do not receive sufficient training in the latest literacy and numeracy teaching methods, which can limit their effectiveness. Ongoing professional development opportunities are limited, leaving teachers without updated strategies and skills to address diverse student needs. Major portion of primary teachers are above the age of 50 years so they are not user friendly to smart devices. It makes them reluctant to impart this practice to their students. They rely on hand written practices which resultantly suppresses the students leaning with digital tools.

Results and Discussion

Present study aimed to investigate Literacy and Numeracy Skills among Students at Primary School Level**.** Study findings concluded that level of primary school students' literacy and numeracy skills varied. Many students show a high level of understanding when the activities are interactive and engaging. Fun and interactive lessons, such as games, group work, and use of technology, often increase students' enthusiasm and enjoyment in learning literacy and numeracy skills. As students experience success in literacy and numeracy, their confidence grows. Increased confidence can lead to higher motivation and a more positive attitude towards learning. According to Thompson (2008), good teachers have a combination of positive personality attributes and effective teaching abilities. It is imperative that educators, schools, and the educational system emphasise the importance of reading and numeracy instruction as the cornerstone for success in all areas (Department of instruction and Early Childhood Development, 2007). This approach is especially relevant now that literacy is being prioritised in national and international policy texts. One example of this is the Irish national literacy strategy, "Literacy and Numeracy for Learning and Life, 2011-2020." The purpose of this research aims is to investigate how educators understand literacy, how they incorporate literacy into their lesson plans, and what challenges they face while putting the national literacy strategy into practice. The study admits that the definition of "literacy" is disputed and multifaceted. The results show that educators typically have a traditional and limited understanding of literacy, emphasising reading and writing to a lower degree. This suggests that policy rhetoric and teachers' real-world experiences are at odds.

Literacy and Numeracy Drive program consists of very basic concepts of English, Urdu and Math if student actively take part in this activity and pay his full attention to learn and achieve the goal, this is the best thing for student to enhance their academic performance. So LND in his all aspects is very fruitful for students. It is highly benefited program for improving the students' academic performance. Literacy and numeracy drive helped Pakistan to attain 90% competency rate which will be hold out 100% till 2030 for reading and writing proficiencies. Army officials strictly put forward process of judgment for contrasting and facilitating educational achievements. These army officials are called monitoring evaluation assistants (MEAs) who visit the public schools and schools running under Punjab Education Foundation (PEF). PEF is government of Punjab organization that is running schools under public-private partnership. Army officials conduct the LND test of students of class three on monthly basis in each school through tablets or mobile (M-Learning) (Aleem & Irshad, 2021). M-Learning is the modern technique used by students to learn by E-Techniques. In recent era these techniques are highly useful in education. These gadgets are tiny, smart and easy to carry everywhere easily. In 2013 the 1.2 billion people were using them but in 2017 the ratio 4.4 million which was the marvelous jump of ratio.

Conclusion

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Recommendations

Following are the recommendations of the study.

- Literacy and numeracy skills are essential at primary school level. It is recommended that teachers may provide training, conduct workshops, arrange conferences, give awareness through print and social media to develop literacy and numeracy skills among primary school students.
- Relevant learning resources like teaching material, manuals, books and necessary digital tools might be helpful to develop literacy and numeracy skills among primary level students.
- Present study might be conducted using mixed-methods approach to explore more significant data regarding literacy and numeracy skills among students.

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