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Prevalence of Students with Learning Difficulties in Basic Arithmetic Operations in the Subject of Mathematics at the Elementary Level in Saudi Arabia

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Abstract

This study investigates the prevalence of learning difficulty in simple arithmetic operations among elementary-level Saudi Arabian students. Through a quantitative descriptive study, 320 responses were collected through simple random sampling from randomly selected teachers from state and private schools. A validated and reliable self-constructed questionnaire provided information regarding students' difficulty in executing simple arithmetic operations of addition, subtraction, multiplication, and division. The findings showed that the rate of arithmetic problems was very high and was not favorable for the learning outcomes and moods of the students. The findings also showed that qualifications, experience in years, and location had a significant effect on the perceptions of the learning problem by the teachers. The research is important in highlighting awareness on some interventions like specialist teacher training, differentiated instruction, and fair allocation of resources, especially in rural settings. The study has implications for teachers, policymakers, and curriculum developers as they strive to align Saudi Arabia's educational practice with the goals of Saudi Arabia's Vision 2030. Finally, it helps enhance the teaching of mathematics and inclusive learning environments that support the diverse needs of elementary students.

Keywords: Arithmetic Learning Difficulties, Elementary Students, Saudi Arabia, Teacher Perceptions, Educational Intervention, Mathematics Education, Inclusive Learning.

Introduction

Mathematics, particularly elementary mathematics, has an intrinsic contribution towards the cognitive, analytical, and problem-solving capacities of young pupils. Amongst its key constituent elements, fundamental arithmetic operations such as addition, subtraction, multiplication, and division are foundational pieces for the acquisition of further mathematical ability. As basic as these operations may seem, a majority of pupils around the globe, including in Saudi Arabia, face chronic learning disabilities in mastering such skills (Al-Sayed et al., 2024; Çiftçi & Yildiz, 2019). These problems, often grounded in issues such as poor number sense, inadequate place value, and processing problems, typically occur early in the educational career of a student. If left untreated, these issues can lead to long-term loss of academic success, reduced confidence, and loss of interest in mathematics as a subject (Bowers, 2021; Clements & Sarama, 2020). Because mathematics is not only a school subject but also a skill of everyday life, recognizing and solving these problems at the initial stages of education is crucial.

In the Saudi Arabian education system, increasingly it is recognized that there is a need to identify and address arithmetic-specific learning difficulties more systematically. Though

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previous research has investigated general learning disabilities, there is comparatively little specific research on the frequency and character of arithmetic-specific difficulties at the primary level (Al Daajani et al., 2021). Besides, some contextual issues—namely, excessive reliance on traditional instruction, inefficient use of differentiated and visual learning approaches, and ineffective teacher training—magnify the issue (Pion, 2020; Alahmari, 2019). Cultural and linguistic elements, such as the complexity of implementing Arabic numerals and unavailability of culturally responsive materials, cause misinterpretation by most early learners (Gregory et al., 2021; Alenzi, 2024). These are compounded by inequalities in resources between urban and rural schools, absence of formative assessment processes, and low levels of technology uptake, all of which have negative effects on the learning experience and results of the students (Alquraini & Rao, 2020; Khasawneh, 2024; Alamri, 2021). In spite of the increasing global trend towards inclusive education, actual implementation in Saudi schools is still under development and most often does not address the needs of students with arithmetic learning disabilities (Alqahtani, 2023; Mpu & Adu, 2021).

The justification for this research is the critical need to address a notable shortage in educational scholarship in the Saudi context. Although international literature has widely reported the prevalence and consequences of arithmetic learning difficulties, empirical data in the local context is scarce. Determining the scope and causes of these difficulties among Saudi elementary learners will inform the development of effective pedagogical interventions, policy changes, and teacher training programs. In addition, with Saudi Arabia's Vision 2030 striving to improve and modernize its education system, timely and appropriate research becomes imperative to guide data-driven decisions towards providing equitable learning opportunities for all students. The intention in this study is to pursue in-depth investigation on the occurrence of learning-disorder students for computational arithmetic during primary levels of studies in Saudi Arabia. While doing the critical review of the research issue through context-based frame work, it wishes to further efforts on equity during education, enhancing learning experience quality by pupils as well as provide support on utilizing differentiated pedagogy instruction modes meant for purposes of equating differences amongst the learners.

Research Objective

To explore the incidence of learning difficulties in simple arithmetic operations among Saudi Arabian elementary-level students.

Significance of Research

The research is of strategic value to various stakeholders in the Saudi Arabian education system, including parents, curriculum planners, educators, and policy experts. Through the confirmation of the existence of challenges in simple arithmetic operations among elementary-level students, the research offers essential data on the nature and scale of mathematical challenges among young learners. Knowledge of these challenges will allow educators to create and apply more effective, evidence-based instructional approaches that meet the various learning needs. For policymakers, the results can guide the development of inclusive education policy, teacher education, and curriculum reforms that align with Vision 2030 goals, which focus on quality and equity in education. In addition, the research can facilitate early intervention in the sense that schools will be able to detect underachievers in good time and provide them with special help in an attempt to prevent them from persisting to fail academically. Generally, the study is also part of the broader goal to improve mathematics learning and ensure all students have basic skills for scholarly success and for lifelong learning.

Literature Review

Mathematics is a core subject that underpins cognitive development, problem-solving, and critical thinking. However, students in various learning settings grapple with universal arithmetic computations, especially at the elementary level. The literature points out that problems of arithmetic learning are prevalent worldwide, and Saudi Arabia is not an exception (Al-Sayed et al., 2024). Studies have shown that the difficulties will significantly impact students' overall performance and confidence levels because arithmetic is a foundation that constitutes the core of elementary math curriculum (Çiftçi & Yildiz, 2019). Students who continuously struggle to understand number sense, place value, and operations like addition, subtraction, multiplication, and division tend to fall behind others even after they receive normal classroom instruction (Bowers, 2021).

Certain cross-country research findings deduce that mathematics learning problems emerge early in the educational life of a child but generally go undetected until their effects start becoming meaningful (Clements & Sarama, 2020). It is especially problematic at the primary level where an understanding of basic arithmetic principles is critical to thriving with more advanced concepts of mathematics. There is a pressing need in Saudi Arabia for additional local evidence of the prevalence of such issues to inform educational interventions and support systems (Al Daajani et al., 2021). General learning disability has been investigated to a certain extent in certain local environments, but there is limited research specifically on arithmetic issues at the elementary level.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) defines dyscalculia as a particular learning disorder that hinders the learning of arithmetic by a child (Castaldi et al., 2020). Dyscalculia children are unable to perform simple operations like counting, comparing magnitudes, or reading symbols in mathematics. Dyscalculia is not intellectual disability but a particular cognitive deficit in math computation (Kunwar, 2022). Recognition of the presence of these conditions within a specific educational setting, e.g., Saudi Arabia, is difficult in terms of diagnostic accuracy and situational understanding of curriculum planning, teaching, and student diversity.

Ineffective teaching methods are a prevalent source of math learning difficulties. Under-differentiated instruction in early grades has the ability to let under-performing students lag behind other students at an equivalent pace in Pion's (2020) survey. Traditional rote teaching is prevalent in Saudi classrooms, while less emphasis is placed on visual, manipulative, or inquiry-based methods of presenting abstract numerical concepts in a coherent manner (Alahmari, 2019). This pedagogical demand-practice gap further compounds the difficulty experienced by students with simple arithmetic-related problems.

Language and indigenous culture also come into mathematical learning. Instruction is in Arabic, the language, but the Arabic number and word structure confuses new learners on occasion (Gregory et al., 2021). Additionally, abstract mathematical concepts difficult to translate to common perception is further complicated by content in books causing difficulty for math concepts to relate to practice. Alenzi (2024) reaffirmed again the manner in which cultural consistency with the situation further contributes to perception, once more suggesting yet more culturally aware books for teaching Saudi in a bid to offset learning glitches. Parental influence and socio-economic status also exert influence on arithmetic outcomes. In the majority of nations, studies have always proven that pupils from lower socioeconomic levels find arithmetic more challenging because they are less privileged with learning resources and support systems

within the home environment (Vadivel et al., 2023). In the Saudi context, Alquraini & Rao (2020) observed that although there are some well-equipped urban schools, most rural schools do not have basic teaching facilities and teacher training, thus the performance gap among students as well as increased instances of arithmetic difficulties among marginalized populations.

Neurocognitive studies tell us about the cognitive processes of the brain in the context of arithmetic processing. Zerafa (2020) pointed out certain areas in the parietal lobe in the brain that are related to numerical cognition, and abnormalities in these areas are common in mathematics learning disability students. Implications regarding the neurocognitive basis for such problems could be applied in designing more effective assessment and interventions student-specific. The neuro-educational approach per se continues to be at an infancy stage of studies within Saudi education studies thus far.

Teacher sensitization and training are also crucial in managing learning difficulties in mathematics. Büscher & Prediger (2024) research confirmed that teachers who receive professional training on identifying and supporting students with mathematical learning difficulties perform better in establishing inclusive classrooms. In Saudi Arabia, however, teacher training has few modules on learning difficulties, and this limits early identification and intervention. Altokheas (2023) emphasized the urgent necessity for policy-level reforms to incorporate special education approaches into standard teacher training curricula.

The assessment practices' contribution to the recognition of arithmetic learning challenges cannot be exaggerated. Classic summative assessment rarely identifies students' cognitive processing complexities and understanding misconceptions in arithmetic (Zhang et al., 2022). Effective use of formative assessment can offer instructors meaningful information regarding students' personal knowledge gaps. There is little use of formative assessment for mathematics in Saudi primary schools, and it is difficult to detect initial symptoms of learning issues Khasawneh, 2024).

Technology-based learning has emerged as a possible solution to assist students with mathematics difficulties. Interactive learning platforms and computer programs have been proven to enhance math proficiency in learning-challenged students (Ökörđi & Molnár, 2022). Efforts towards embracing technology-based instruction are picking pace in Saudi Arabia, particularly in the context of Vision 2030. The efficacy of the tools, though, in responding to arithmetic-specific challenges is understudied, and their integration is uneven in different regions (Alamri, 2021).

Gender differences in arithmetic attainment have been the subject of controversy in education studies. Although there is evidence that shows boys performing better than girls in mathematics tasks, there is no difference observed (Rodriguez et al., 2020). Gender education in Saudi Arabia can lead to variation in the quality of instruction and resource provision affecting arithmetic achievement and incidence of learning difficulties by gender. Additional work is necessary to describe these relationships in the Saudi environment.

Psychosocial variables such as anxiety, motivation, and self-efficacy also play a role in students' arithmetic achievement. Al-Sayed et al. (2024) added that mathematical anxiety can play significant roles on working memory as well as the ability to solve problems, especially in students with pre-existing arithmetic difficulties. In Saudi Arabia, where academic achievement is culturally prized, students are under more pressure and therefore may experience learning

difficulties due to anxiety. Teacher involvement and counseling facilities become a critical function in overcoming such psychological obstacles to learning.

Inclusive education practices help to lower the prevalence of learning difficulties. Alqahtani (2023) highlighted the importance of building supportive classroom learning environments to respond to different learning requirements. In Saudi Arabia, though awareness regarding inclusive education is growing, its practice remains under construction. Mpu & Adu (2021) found that majority of schools are not practicing inclusive interventions due to the absence of available trained personnel and facilities and thus restricting services provided for children with arithmetic learning difficulties.

Comparing with other countries offers a general overview of how varying education systems have handled arithmetic learning problems. Finland and Singapore, for example, have used far-reaching early intervention and tailored models of learning (Meilasari et al., 2023). The two can prove to be highly valuable tools to Saudi Arabia when attempting to modify its practice in learning. It is through comparisons to global best practice that informs policy locally as an attempt to limit the cases of arithmetic learning difficulties among elementary pupils.

Research Methodology

Research Design: This research used the quantitative and descriptive research design to determine the incidence of learning disabilities in simple arithmetic calculations among Saudi students at the elementary level. The descriptive design was suitable for quantifying the extent of the problem and determining patterns and trends based on the feedback from teachers who deal with students with learning disabilities directly.

Population of the Study: The population of the study was comprised of teachers who work with students having mathematics learning problems at the elementary level. They were selected from government and private schools of various regions of Saudi Arabia to provide a diversified and representative image of the problem.

Research Sample and Sampling Method: The sample was 320 teachers. Selected by applying the simple random sampling method, the sample gave every member of the population an equal opportunity to be included, thereby improving the generalizability of results.

Research Instrument: The major research instrument used was a self-generated questionnaire developed on the basis of literature and earlier research concerning problems of learning mathematics. It was made to provide elaborate information about teachers' experience and observations concerning students' problems in elementary arithmetic calculations.

Validity and Reliability: To establish validity, the questionnaire was tested by mathematics education and special education experts who evaluated its content for comprehensiveness, clarity, and relevance. Reliability was confirmed through a pilot study with a small sample of teachers (not included in the final sample), and internal consistency in the questionnaire was tested with Cronbach's Alpha, showing that the instrument had a good level of reliability.

Data Collection: Data were collected both physically and electronically. Printed copies of the questionnaire were circulated in schools selected, while a Google Form link was shared with teachers in other locations to make it convenient to participate on a large scale. This two-mode approach allowed the researcher to reach a large sample in an effective way and made it inclusive based on geographical location.

Data Analysis: The collected data were processed employing descriptive and inferential statistical analysis using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as frequencies, percentages, means, and standard deviations were utilized to aggregate the responses while inferential statistics were used in drawing conclusions regarding the prevalence as well as any possible correlations of variables related to learning difficulties in arithmetic.

Title	Description	Frequency	Percentage (%)
Gender	Male	109	34.1%
	Female	211	65.9%
		320	100%
Age of Respondents	21-30 Y	4	1.3%
	31-40 Y	94	29.4%
	41-50 Y	182	56.9%
	51-60 Y	40	12.5%
		320	100%
Designation	Senior Teacher	178	55.6%
	Junior Teacher	142	44.4%
		320	100%
Qualification	Master	218	68.1%
	M.Phil.	94	29.4%
	PHD	8	2.5%
		320	100%
Area of Posting	Rural	51	15.9%
	Urban	269	84.1%
		320	100%
Experience	1-5 Y	62	19.4%
	6-10 Y	156	48.8%
	11-15 Y	89	27.8%
	>15 Y	13	4.1%
		320	100%

Table 1: Frequency Distribution at the Basis of Demographics

The demographic profile indicates that the majority of participants were female (65.9%), 41–50 years old (56.9%), senior teachers (55.6%), holding a Master's degree (68.1%), teaching in urban areas (84.1%), and had 6–10 years of experience (48.8%).

Sr.	Statements of Questions	SA	A	UD	DA	SDA	M	SD
1	Many of my students struggle to understand basic arithmetic concepts such as addition and subtraction.	180	119	17	4	0	4.48	0.66
		56%	37%	5%	1%	0%		
2	A significant number of students in my class have difficulty	162	146	12	0	0	4.47	0.57
		51%	46%	4%	0%	0%		

	remembering multiplication tables.							
3	Students often confuse the steps involved in solving division problems.	131 41%	177 55%	10 3%	0 0%	2 1%	4.36	0.61
4	Despite repeated instruction, some students fail to grasp the concept of place value.	146 46%	146 46%	8 3%	15 5%	5 2%	4.29	0.85
5	I frequently encounter students who cannot apply arithmetic operations to real-life situations.	96 30%	167 52%	40 13%	17 5%	0 0%	4.07	0.80
6	There are students in my class who rely heavily on counting fingers for simple calculations.	114 36%	139 43%	47 15%	20 6%	0 0%	4.08	0.87
7	Basic arithmetic errors (e.g., incorrect addition or subtraction) are common in student assignments.	113 35%	158 49%	39 12%	5 2%	5 2%	4.15	0.81
8	Some students demonstrate a lack of number sense even after consistent teaching.	117 37%	169 53%	26 8%	3 1%	5 2%	4.22	0.76
9	I have observed that some students struggle to understand the difference between addition and subtraction.	101 32%	171 53%	33 10%	0 0%	15 5%	4.07	0.92
10	Students often mix up the symbols for mathematical operations (e.g., +, -, ×, ÷).	130 41%	137 43%	24 8%	19 6%	10 3%	4.12	0.99
11	Difficulty with arithmetic operations negatively impacts students' performance in other subjects.	120 38%	148 46%	39 12%	5 2%	8 3%	4.15	0.87
12	I believe that a considerable proportion of students require additional support for learning arithmetic.	104 33%	144 45%	49 15%	19 6%	4 1%	4.02	0.91
13	Students with arithmetic difficulties show signs of math-related anxiety during lessons or assessments.	97 30%	170 53%	36 11%	14 4%	3 1%	4.08	0.82
14	Many students need individual attention to perform basic calculations correctly.	121 38%	159 50%	25 8%	15 5%	0 0%	4.21	0.78
15	Students often take more time than expected to solve simple arithmetic problems.	133 42%	149 47%	29 9%	9 3%	0 0%	4.27	0.74

16	The prevalence of arithmetic learning difficulties in my class is higher than in other academic areas.	105	181	23	11	0	4.19	0.71
		33%	57%	7%	3%	0%		

Table 2: Frequency Distribution at the Basis of Question Asked

The findings shown in Table 2 give a general picture of teachers' views about the extent of learning difficulties in basic arithmetic calculations among Saudi Arabian elementary-level students. On all 16 items of the questionnaire, the findings show a clear agreement among teachers that arithmetic problems are common in their classrooms. For example, a considerable percentage of educators (56% strongly agree and 37% agree) indicated that most students have difficulty with basic concepts like addition and subtraction ($M = 4.48$, $SD = 0.66$), emphasizing the elementary nature of the issue. Likewise, more than 97% of the teachers agreed or strongly agreed that students have difficulty memorizing multiplication tables ($M = 4.47$), and 96% reported confusion in dividing problems ($M = 4.36$).

There is also evidence of challenges with place value, number sense, and operation symbol confusion, suggesting persistent shortcomings in students' basic numeric understanding. For example, mean scores for questions evaluating place value ($M = 4.29$), number sense ($M = 4.22$), and confusing operation symbols ($M = 4.12$) were all above 4, suggesting evidence of these challenges. In particular, the errors of calculation and digit counting ($M = 4.15$ and $M = 4.08$, respectively) were mentioned fairly frequently, once again testifying to the frequency of difficulties in operation.

Teachers also reported concern about the intellectual and psychological impact of such struggles on the students as a whole. By a very wide margin, instructors indicated that struggles with math affect grades in other subjects ($M = 4.15$) and induce math anxiety ($M = 4.08$). Individual time and supplemental help requirements were also similarly reported ($M = 4.21$ and $M = 4.02$, respectively), indicating an individualized approach to teaching. Lastly, the general assumption that arithmetic learning difficulties are prevalent compared to other learning problems was confirmed at a high mean rating of ($M = 4.19$). Overall, these results point towards the significance of responding to arithmetic learning difficulties through special instruction, teacher training, and curriculum assistance in an attempt to foster good mathematical capability among elementary school students.

Gender	N	Mean	Std. Deviation	Df	T	Sig. (2-tailed)
Male	109	67.29	6.58	318	0.15	0.883
Female	211	67.18	6.50			

Table 3: Independent Sample t-test at the Basis of Gender of Respondents

Independent sample t-test reveals that there is no significant difference in the perception of arithmetic learning problems between female and male teachers ($p = 0.883$).

Designation	N	Mean	Std. Deviation	df	T	Sig. (2-tailed)
Senior Teacher	178	68.21	5.77	318	3.08	0.002
Junior Teacher	142	65.98	7.18			

Table 4: Independent Sample t-test at the Basis of Designation of Respondents

The independent sample t-test identifies a significant difference by designation, with senior teachers having greater awareness of arithmetic learning difficulties compared to junior teachers ($p = 0.002$).

Area of Posting	N	Mean	Std. Deviation	df	t	Sig. (2-tailed)
Rural	51	70.53	6.64	318	4.05	0
Urban	269	66.59	6.31			

Table 5: Independent Sample t-test at the Basis of Area of Posting of Respondents

The independent sample t-test shows a significant difference by area of posting, with rural teachers perceiving a greater frequency of arithmetic learning problems than urban teachers ($p = 0.000$).

Age	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	942.13	3	314.04	7.88	0.00
Within Groups	12598.56	316	39.87		
Total	13540.69	319			

Table 6: One-way ANOVA test at the Basis of Age of Respondents

The one-way ANOVA reveals a statistically significant difference in teachers of different age groups' perceptions of arithmetic learning difficulties ($p = 0.00$).

Qualification	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	499.71	2	249.85	6.07	0.00
Within Groups	13040.98	317	41.14		
Total	13540.69	319			

Table 7: One-way ANOVA test at the Basis of Qualification of Respondents

The one-way ANOVA discloses a statistical difference in views of arithmetic learning challenges by qualification of teachers ($p = 0.00$).

Experience	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	891.61	3	297.21	7.43	0.00
Within Groups	12649.07	316	40.03		

Total	13540.69	319			
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Table 8: One-way ANOVA test at the Basis of Experience of Respondents

The one-way ANOVA shows that there is a statistically significant difference in perceptions of arithmetic learning difficulties depending on the years of experience of teachers ($p = 0.00$).

Findings

Findings from this study unveil significant facts regarding the impression of elementary level instructors about how pervasive arithmetic learning disabilities are for learners in Saudi Arabia. Table 1 population statistics indicate a gender majority to be female (65.9%) and 41–50 years of age (56.9%). There were high proportions of senior teachers (55.6%) and holding Master's levels (68.1%). Also, the majority of teachers were stationed in urban settings (84.1%) and possessed 6–10 years of teaching experience (48.8%).

As evident from Table 2, arithmetic challenges are viewed as a general phenomenon among students. Teachers mentioned that most students have problems with fundamental arithmetic operations including addition and subtraction ($M = 4.48$), and that most students experience difficulties with memorizing multiplication tables ($M = 4.47$) and division calculations ($M = 4.36$). In addition, issues with place value, number sense, and operation symbol understanding were repeatedly reported. A significant proportion of teachers also reported that finger counting and arithmetic mistakes were widespread, with scores ranging from 4.08 to 4.15 on average. Teachers were concerned that these issues extended beyond the confines of mathematics classes, including impacting performance in other subjects and generating math-related anxiety.

Statistical tests such as independent sample t-tests and one-way ANOVA reported significant differences in perceptions according to different demographic characteristics. Independent sample t-test statistics in Table 3 report that there is no significant difference between male and female teachers' perceptions ($p = 0.883$). Nevertheless, there were significant differences by teachers' designation (Table 4), and senior teachers registered a greater level of awareness about arithmetic difficulties compared to junior teachers ($p = 0.002$). Additionally, rural teachers more frequently reported higher incidences of arithmetic learning difficulties compared to their urban peers ($p = 0.000$), as can be seen from Table 5.

The one-way ANOVA tests (Tables 6, 7, and 8) indicated that views of arithmetic learning difficulties differed considerably by different age groups ($p = 0.00$), qualifications ($p = 0.00$), and years of teaching experience ($p = 0.00$). Teachers aged between 41–50 years, with higher qualifications (e.g., Master's and M.Phil.), and with more years of experience tended to report greater awareness of arithmetic difficulties.

The results highlight the prevalence of arithmetic learning disabilities in primary education in Saudi Arabia. Teachers are clearly aware of the necessity of special interventions to tackle these issues, with considerable differences in attitudes depending on demographic attributes of teachers. The outcomes highlight the need for due consideration of variables such as age, qualification, experience, and location while outlining measures to help students who are struggling with arithmetic in the primary school level.

Discussion

Implications of the Study

Results of the research give a general view of how elementary-level educators perceive common math learning challenges prevalent in Saudi Arabia. The outcome substantiates the fact that math challenges are general to the majority of the instructors and particularly basic concepts like addition, subtraction, multiplication, and division. These results are consistent with earlier research that points to the universality of such problems for young students (Louw & Mofolo-Mbokane, 2019). Teachers' complaints of problems with basic arithmetic operations, including being unable to apply arithmetic in real-life situations, are consistent with findings that mathematics-learning students do not prefer to apply learned concepts in real-life situations (De Vito et al., 2023).

Perhaps one of the most intriguing findings is the wide diversity of teachers' perception depending on their demographic background. Experienced teachers, the research states, are more sensitive to arithmetic problems than novice teachers can be, perhaps due to having greater teaching experience and being more familiar with the learning patterns of students. This is consistent with research outcomes, which state that teachers with higher years of experience are found to be more sensitive to students' learning needs and, specifically, math problems (Noël & Karagiannakis, 2022). Likewise, teachers most experienced and having graduate degrees (Master's, M.Phil.) were higher on recognition of the problems with math, once again indicating that professionalism and higher education are critical for facilitating greater teacher perception and intervention approaches.

Another observation is the higher proportion of reported difficulties in mathematics experienced in rural as compared to urban settings. Such a difference may be attributed to differing teacher resources, professional development, and student support within rural schools. Rural instructors are most likely to experience higher challenges of the type more pupils per instructors and less availability of specialized teaching equipment that could make it more difficult for students (Alghamdi & Malekan, 2020). The above observation highlights the importance of addressing disparities in education between rural and urban regions to equalize learning opportunities for all pupils, especially those with learning disabilities.

Additionally, the findings on age differences indicate that teachers aged 41-50 years have a stronger perception of mathematical challenges. This age group most likely both has teaching experience and a better awareness of the thought processes involved when learning mathematics. This finding concurs with evidence that teacher experience and age may affect teachers' capacity to determine and tackle students' learning challenges effectively (Irvine, 2019).

Teachers' awareness of the wider consequences of difficulties with arithmetic—e.g., negative impact on achievement in other subjects and reinforcement of math anxiety—underline early intervention and special assistance for students with learning difficulties. The results imply that interventions should not only be specifically aimed at learning arithmetic skills but also respond to the emotional and psychological consequences, e.g., anxiety, usually involved with learning difficulties in mathematics.

The current study is focused on the prevalence of arithmetical difficulty in learning among Saudi Arabian elementary school children and widespread heterogeneity in teacher perceptions based on demographic variables like designation, experience, and posting location. The findings support intervention targeting, professional training, and material provision, particularly rural

postings, for more support to underachieving students of elementary arithmetic. Since the research shows, a combination of teacher awareness, training, and experience is essential in the effective mitigation of these challenges.

Conclusion

This study offers perceptive details regarding the perception of Saudi Arabian students' occurrence of arithmetic learning difficulties among elementary-level teachers. The findings indicate that arithmetic difficulties, particularly in elementary operations such as addition, subtraction, multiplication, and division, are common among students. Teachers also agreed on the overall academic and emotional impact of such difficulties, including difficulties in other subjects and mathematics anxiety. The demographic circumstances, such as post-experience, qualifications, and posting region, were found to significantly influence awareness and perceptions by teachers of such problems, implying the need for targeted interventions aimed at specific profiles of teachers as well as regional contexts.

The study highlights the importance of addressing the widespread occurrence of arithmetic learning deficits through enhanced teacher training, professional growth, and instructional assistance. Teachers, especially experienced teachers with higher qualifications, expressed higher sensitivity towards student challenges. In addition, rural-urban inequities necessitate more equitable delivery of resources and skilled services to students in underprivileged regions. According to the study objective, these findings highlight the urgent need for effective strategies and interventions to improve the arithmetic skills of Saudi Arabian elementary students so that all the students get adequate support to overcome these root issues.

Recommendations

Establish specialist teacher training schemes with a focus on identifying and working on arithmetic learning problems.

Enhance resource and specialist provision to rural schools to meet the attainment gap.

Develop and integrate differentiated teaching methods to cater to the differing learning needs of pupils who are struggling with simple arithmetic operations.

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