JOURNAL OF POLITICAL STABILITY ARCHIVE

Online ISSN: 3006-5879 **Print ISSN:** 3006-5860
DOI: https://doi.org/10.63468/jpsa.3.4.36

Vol. 3 No. 4 (2025)
https://journalpsa.com.pk/index.php/JPSA/about

Recognized by: Higher Education Commission (HEC), Government of Pakistan

Effectiveness of Single National Curriculum of Mathematics at Primary Level: Teachers' Views

Muhammad Adnan Wazeer
School Education Department, Punjab
awr12488@gmail.com

Muhammad Zohaib Qamar*
School Education Department, Punjab
mzohaibqamar@gmail.com

*Corresponding Author

ABSTRACT

A curriculum aids students in achieving academic success, acquiring critical thinking abilities, and preparing for future careers. Diverse curricula was taught in various schools prior to the introduction of Single National Curriculum (SNC). This research paper examines the perceptions of teachers in order to assess the efficacy of Pakistan's Single National Curriculum for mathematics at the primary school level. The SNC seeks to promote equity, national cohesion, and 21st-century skills while reducing socio-educational disparities and standardizing education across public, private, and religious schools. Data was collected from 351 primary school teachers in the Vehari district of Punjab using a validated questionnaire and a descriptive research design. The results show that although most teachers have a positive opinion of the curriculum, particularly its teaching strategies and materials, they also point out important issues like little flexibility, gaps in the curriculum, and unequal resource distribution. Strong relationships between teachers' opinions, instructional strategies, students' development, and identified difficulties were found through correlation analysis. The study emphasizes how important inclusive practices, teacher preparation, and ongoing curriculum review are. More teacher involvement in policy, better resource allocation, and monitoring systems to guarantee successful implementation are among the recommendations. Although the SNC has made progress in promoting educational equity, the study comes to the conclusion that responsive governance, cooperative reform, and real-world assistance are necessary for its long-term viability.

Keywords: Single National Curriculum, Mathematics, Primary Level, Effectiveness,

INTRODUCTION

Pakistan has struggled to establish a unified and equitable educational system since its inception (Iqbal et al., 2024). Due to the nation's educational system's numerous divisions, which include teaching religion and languages like English and Urdu, there are social and cultural divides. These divisions often result in disparities in educational quality, particularly between public and private institutions (Moslimany et al., 2024). The Pakistani government tried to solve these issues by implementing the Single National Curriculum (SNC), which standardized education across the nation and provided equal access to education for all students, irrespective of their socioeconomic background (Ashraf, 2023).

The SNC aims to eliminate educational inequalities by creating a uniform curriculum that can be used in madrassas, public and private schools, and other educational institutions (Qamar & Khalil, 2024). The overall goal is to foster responsible citizenship, national unity, and tolerance by incorporating values like social cohesion and conflict resolution into the curriculum (Malik et al., 2023). The SNC fosters a shared understanding of the nation's history, culture, and values while emphasizing 21st-century skills such as critical thinking, global citizenship, and life skills (Yasmin et al., 2023).

With the adoption of the SNC, a significant step has been taken to address the inequalities in Pakistan's educational system since the nation's independence in 1947 (Khalid et al., 2023). The division of the educational system between regional curricula and different teaching languages has historically resulted in unequal access to high-quality education in Pakistan (Iffi et al., 2024). This division has widened the social, cultural, and economic divide that still exists in Pakistani society. To bridge these gaps, the SNC provides a standardized curriculum that provides equal opportunities for all students, regardless of whether they attend private, public, or religious schools (Nurhidayati & Suharno, 2025).

The SNC was progressively implemented in 2021–2022, starting with primary education (grades 1–5) and progressing to secondary and upper secondary levels in the ensuing years (Niaz & Anand, 2024). The SNC is based on the principle of "One Country, One Curriculum," which seeks to create an integrated and cohesive educational system across Pakistan. It was developed in order to implement a single teaching method and to address the challenges related to different educational streams (Andrews et al., 2023).

There have also been challenges in implementing the SNC. In certain provinces, especially Sindh, local officials have resisted curriculum centralization and the purported infringement of regional authority. Despite the federal government's efforts to mandate the SNC in all schools, some provinces have decided not to fully implement it, citing the need to develop a more locally relevant curriculum (Moriña, 2024). Conflict between the federal and provincial governments has resulted from this, especially in light of the 18th Amendment to

Pakistan's Constitution, which grants the provinces greater authority over education (Khan et al., 2025).

Additionally, the success of the SNC depends on how well teachers and schools adapt to the new curriculum. When students find it easy to comprehend whatever they are learning, they will tend to contribute more in classes, finish their assignments much quicker and even enjoy the learning session rather than get overwhelmed (Qamar & Ullah 2025). Even though the SNC was designed to promote innovative teaching methods and a more stimulating learning environment, issues persist with its application. Several educators' express dissatisfaction over the curriculum's failure to sufficiently address students' diverse needs and offer guidance on how to engage students in the learning process (Nurhidayati & Suharno, 2025).

The SNC is also addressing the disparity in educational resources between public and private schools. Private schools, particularly those that use international curricula, may have the infrastructure and resources to successfully implement the SNC, whereas public schools usually struggle with overcrowded classrooms, poor facilities, and a lack of qualified teachers. The goal of ensuring that everyone has access to equal educational opportunities is put in jeopardy by this resource disparity, which exacerbates already-existing disparities (Jalilov et al., 2025). Being able to analyse a text and comprehend the substance of content remains a key to academic performance in school and it also represents an essential prerequisite for deep-rooted learning throughout the life span (Khan et al., 2025).

Despite these challenges, Pakistan's educational disparities have been greatly reduced by the SNC. Along with academic knowledge, the curriculum emphasizes the importance of civic engagement, moral and ethical principles, and social responsibility (Jungjohann & Gebhardt, 2023). Students are encouraged to collaborate, develop their critical thinking skills, and contribute positively to society. Including human rights, environmental concerns, and global citizenship in the curriculum aims to prepare students for the challenges of the contemporary world while fostering a sense of national pride.

The SNC is also seen as a step towards greater social mobility since it provides equal access to education for all students, regardless of their background (Qamar & Khalil, 2024). To ensure that students from different socioeconomic backgrounds and geographic locations receive an education of the same quality, the SNC provides a standardized curriculum. As a result, this might help create a more equitable society and lessen social inequalities.

Objectives Of The Research

The "Effectiveness of Single National Curriculum (SNC) of Mathematics at the Primary Level: Teachers' Views" study was significant because it evaluates how well the SNC supports math education. It highlights the viewpoints of educators on the goals, subject matter, and appropriateness of the curriculum for a variety of student needs. Teachers are key implementers, and their feedback helps guide professional development, resource allocation, and necessary improvements by highlighting their strengths and weaknesses. The research assesses whether the SNC

promotes equitable learning opportunities across regions and supports the development of a strong mathematical foundation, in addition to offering crucial data for future curriculum development.

Theoritcal Framework Of The Study

A framework for evaluating the effectiveness of the Single National Curriculum (SNC) in mathematics is provided by the theories and curriculum models that have been discussed. Tyler's model emphasizes aligning educational goals with instructional strategies and assessment methods to ensure learning objectives are met. Apart from emphasizing the importance of student-centered planning, teacher feedback, and classroom realities, Taba's model also promotes teacher participation in curriculum development. Learning through experience, interaction, and inquiry is emphasized in Piaget and Vygotsky's constructivist theory. It suggests that the degree to which SNC engages students and encourages creative teaching determines how effective it is (Tajammul et al. 2023).

According to Fullan's theory, teachers' values and preparedness have a big impact on implementation (Talib et al., 2025). Positive beliefs are important for curriculum adoption success because they show how teacher expectations can affect student outcomes, according to Rosenthal and Jacobson's Teacher Expectancy Theory (Zhang, 2024). Research on teacher cognition indicates that teachers' attitudes, understanding, and confidence about the SNC have a big impact on how it is taught. In summary, SNC's focus on social justice and educational equity aims to provide equal opportunities across a range of educational contexts, stressing the need for ongoing assessment, adequate funding, and teacher support to ensure inclusive and effective instruction (Theoharis, 2024).

LITERATURE REVIEW

A literature review is a scientific writing process that summarizes the body of knowledge and understanding about a topic, as opposed to a simple book review (Amobonye et al., 2024). Despite their scholarly importance, stand-alone literature reviews are often underappreciated and underutilized in an in-service research and current guidelines hardly ever sufficiently address the range of review types (McKenna, 2024). Reviews of the literature can be used independently or as part of conceptual or empirical studies. This study aims to evaluate the effectiveness of the Single National Curriculum (SNC) of Mathematics at the primary school level, with an emphasis on the perspectives of teachers.

Survey research was chosen in order to gather distinctive and reliable data pertinent to the study's objectives. Among the subjects discussed in the literature review for this study are the function of mathematics, curriculum development and modifications, teacher involvement, and stakeholders' perspectives on the effectiveness of the SNC (Usmonov, 2024). With its roots in the Greek word mathematica, which means "knowledge" or "wise thinking," mathematics is regarded as a foundational discipline that studies spatial relationships and patterns. This

historically geometric field has evolved into a broad scientific discipline focused on objective reasoning as its definition has grown over time (Nita et al., 2023).

Children's logical thinking, spatial awareness, and problem-solving skills are fostered by mathematics at the primary school level, establishing the cognitive and attitude groundwork for future academic and personal success (Gnawali, 2024). Thus, numeracy is emphasized alongside literacy and social values in Pakistan's basic education system. Although the National Mathematics Curriculum (2006) aims to foster critical thinking within this framework by integrating technology, conceptual understanding, and real-world problem solving, its effectiveness is limited by a lack of resources and teacher preparation (Speaks, 2024).

The Single National Curriculum, which was implemented to standardize learning nationwide and lower regional disparities, is at the heart of recent revisions that aim to make mathematics instruction more engaging and relevant (Shirawia et al., 2023). Teachers play a crucial dual role in these reforms, co-designing curricula and adapting them to learners' needs while navigating technological shifts and diverse classroom contexts (Bang et al., 2023). In order to guarantee long-lasting gains in mathematics education, new research on the SNC assesses its efficacy based on student achievement, content coverage, and educator perceptions. It emphasizes the necessity of constant curriculum review, robust professional development, and balanced theoretical-practical instruction (Lehmann,2023).

It establishes the foundation for understanding numbers and spatial relationships, two concepts essential to problem-solving in both academic and practical settings. In many cases, mastering scientific concepts requires a solid grasp of mathematics, which is considered the language of science (Dairo et al., 2024). The study of numbers, space, measurement, and quantities is part of this field, which develops critical cognitive skills like logical thinking, abstract reasoning, calculation, and problem-solving. These abilities help individuals comprehend and navigate complex relationships and patterns found in nature, modern technology, and daily life (Jamil et al., 2024).

For young students, particularly those in elementary school, arithmetic is crucial for both the study of mathematics and the development of more general cognitive skills. Primary education introduces the fundamental concepts that subsequently support more intricate mathematical reasoning (Malik et al., 2023). The primary objective of this stage is to develop foundational skills such as analytical thinking, logical reasoning, and practical problem-solving (Saeed, 2025). Early exposure to these competencies is essential because it creates the foundation for future academic success in more difficult mathematical subjects. Effective math instruction at this level requires a balance between traditional teaching methods and modern approaches, such as frameworks like TPACK (Technological Pedagogical Content Knowledge), which meaningfully integrate technology into education (Li & Li 2024).

Schools across Pakistan are adopting teaching methods that emphasize problem-solving, critical thinking, and technology use. The curriculum has been

modified to prioritize deeper comprehension over rote memorization and to highlight student-centered learning (Shuaib et al., 2024). With the help of numerous software programs and online resources, students can now visualize and comprehend difficult mathematical ideas. Teachers are encouraged to relate math lessons to real-world situations in order to increase student engagement and comprehension (Pokhrel et al., 2024). An effective curriculum must include both ongoing teacher professional development and student assessment because these ensure that educators are prepared to implement new strategies and changes (Isa et al., 2024).

The SNC of Pakistan aims to provide equal education to all students, irrespective of their socioeconomic status. The SNC aims to end inequalities in educational opportunity and quality by developing a common curriculum for public, private, and religious schools. The program's main objectives are equality, national identity, and standardized testing. However, the nation's diverse student body and constrained financial resources make it difficult to accomplish these goals. The particular needs of students from different regions and the preparedness of teachers also differ significantly (Qamar & Khalil, 2024).

Teachers' ability to successfully implement any curriculum, including the SNC, in the classroom is crucial to its success. To improve learning outcomes, educators must modify course materials to meet the various learning requirements of their students and utilize digital tools efficiently. Without sufficient teacher assistance, training, and resources, curriculum reforms are unlikely to be successful (Qamar & Khalil 2024). Reasoning has become an essential tool for all students to cope with challenges of the modern world. Therefore, to foster the reasoning among the students, the teachers should use effective strategies in the teaching process (Ullah et al 2025). Through their feedback based on their experiences in the classroom, teachers contribute significantly to the curriculum's ongoing development (Zaman et al., 2021).

The United States also faces similar difficulties, with out-of-date curricula, uneven teacher preparation, and a lack of funding continuing to be major problems. In order to raise student performance, the text makes the case for frequent curriculum reviews and teacher training initiatives (Goshu & Ridwan 2024). Attempts to modernize education are hampered by the fact that many American schools lack the digital resources and infrastructure they need. In order to stay current with effective teaching strategies, educators must participate in ongoing professional development. Students' critical thinking and practical skills are frequently overlooked by current evaluation techniques (Farida et al., 2024). Science is essential for human life because it enables humans to cope with modern challenges. Effective teaching methods help students enhance their performance in science (Ullah et al., 2023). To guarantee that education becomes more effective, equitable, and relevant in the future, educational systems must make greater investments in technology, curriculum revisions, and thorough teacher preparation (Amiri et al., 2025).

RESEARCH METHODOLOGY

The research paper used a descriptive research design to assess the Single National Curriculum's (SNC) effectiveness for mathematics at the primary level. With a focus on the viewpoints and experiences of primary school teachers, this method allowed for the methodical collection and analysis of data in authentic educational settings.

Population

The study, which recruited 3,516 primary school teachers from 1,035 schools in the Vehari district of Punjab, covered all three Tehsils: Burewala, Vehari and Mailsi.

Sampling

Stratified sampling was the method used to choose the study's sample.

Sample

According to Krejcie and Morgan's sampling table, the researcher used a stratified sampling technique to choose a representative sample of 351 teachers based on the distribution of tehsil and gender.

Development and Validity of the Instrument

A structured Google Form questionnaire with five sections evaluating different facets of the SNC's efficacy was used to gather data. It included 28 Likert-scale items and six demographic questions. Three academic experts reviewed and improved the questionnaire to ensure its validity. A pilot study with 35 teachers verified response consistency and produced a high reliability score (Cronbach's Alpha = 0.952), which rose to 0.963 in the main study, indicating excellent internal consistency.

Data Collection

To guarantee widespread participation, the validated survey was disseminated electronically through channels like teacher community groups, email, and WhatsApp.

Statistical Package for Social Sciences (SPSS) version 27 was used to analyze the data, and inferential statistics were used to draw broad conclusions about the SNC's influence on math instruction at the primary level.

DATA ANALYSIS

Table No 1: Descriptive Statistic

ITEMS	Mean	Std. Deviation	N
Teachers' Perceptions of the Curriculum	28.54	5.062	351
Teaching Methodology & Resources	29.46	4.547	351
Affects Student Progress	29.17	4.809	351
Challenges & Areas for Improvement	29.59	5.187	351

Based on the answers of 351 primary school teachers, Table No. 1 displays the descriptive statistics pertaining to the four main study areas. Teachers' Views of the Curriculum, Teaching Methods & Resources, and Impact on Student Development and Difficulties & Opportunities for Development are some of these areas. The Mean and Standard Deviation are used to analyze each item.

Teachers' Perceptions of the Curriculum

Standard Deviation = 5.062, Mean = 28.54

Teachers' average opinion of the current curriculum is reflected in this score. A mean near 28.5 denotes an overall perception that is moderately positive. A moderate spread in responses is indicated by the standard deviation of 5.062, which indicates that there was some but not a significant difference in the opinions of the teachers.

Teaching Methodology & Resources

Standard deviation = 4.547, Mean = 29.46

The slightly higher mean score for this area suggests that teachers generally have a positive opinion of the curriculum's teaching strategies and resources. In comparison to the other areas, the lower standard deviation (4.547) in this case indicates somewhat greater consistency in the responses.

Affects Student Progress

Standard Deviation = 4.809, Mean = 29.17

Teachers think that the curriculum has a moderately positive impact on students' progress. Despite being marginally lower than the preceding item, the mean still shows a positive trend. The standard deviation indicates that there was some variation in the participants' viewpoints.

Challenges & Areas for Improvement

Standard Deviation = 5.187, Mean = 29.59

The item with the highest mean score (29.59) indicates that teachers are highly aware of the difficulties and potential areas for curriculum improvement. The fact that the standard deviation is the highest (5.187) suggests that opinions among teachers on the precise changes that are required differ more widely.

According to the descriptive statistics, teachers acknowledge the existence of challenges but generally have positive opinions about the curriculum and its elements. Although the standard deviations show some variation in responses, especially in identifying difficulties, the mean scores for all items are comparatively high (above 28), indicating general agreement or satisfaction.

Table No 2: The Correlation

Variable	Teachers' Perceptions of the Curriculum	Teaching Methodology & Resources	Affects Student Progress	Challenges & Areas for Improvement
Teachers' Perceptions of the Curriculum	1			

Teaching Methodology & Resources	.714**	1		
Affects Student Progress	.684**	.748**	1	
Challenges & Areas for Improvement	.589**	.713**	.765**	1

Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation coefficients between the four main variables are shown in this table:

1. Teachers' Perceptions of the Curriculum
2. Teaching Methodology & Resources
3. Affects Student Progress
4. Challenges & Areas for Improvement

Teachers' Perceptions of the Curriculum and Teaching Methodology & Resources

The correlation coefficient is 0.714.

This strong positive correlation implies that teachers who have favorable opinions of the curriculum also typically have positive opinions of the resources and teaching strategies offered. If one gets better, the other will probably get better too.

Teachers' Perceptions of the Curriculum and Affects Student Progress

The correlation coefficient is 0.684.

Teachers who have a positive opinion of the curriculum also think it helps students advance, according to this somewhat strong positive correlation.

Teachers' Perceptions of the Curriculum and Challenges & Areas for Improvement

The correlation coefficient is 0.589.

This weaker but positive correlation demonstrates that even people with a positive perception of the curriculum are able to identify areas that require improvement and current difficulties.

Teaching Methodology & Resources and Affects Student Progress

The correlation coefficient is 0.748.

According to teachers, there is a strong positive correlation between improved student progress and appropriate resources and effective teaching strategies.

Teaching Methodology & Resources and Challenges & Areas for Improvement

The correlation coefficient is 0.713.

This implies that teachers are more conscious of the gaps and difficulties when the teaching resources and methodologies are better, possibly as a result of real-world classroom experiences.

Affects Student Progress and Challenges & Areas for Improvement

A correlation of 0.765

This correlation, which is the strongest in the table, shows a strong relationship between perceived difficulties and student progress. More difficulties may be perceived by teachers as having a greater impact on students' progress, or vice versa.

There is a significant and positive correlation between all the variables, indicating that improvements in one area are probably going to be linked to improvements in other areas. The findings show a close relationship between teachers' views of the curriculum, how they employ resources and teaching strategies, student outcomes, and the recognition of difficulties. These results highlight the significance of designing and implementing curricula holistically, with each component influencing and supporting the others.

FINDINGS

Following were teachers based on the research instrument mentioned the findings about effectiveness of SNC of Mathematics at the primary level.

According to 351 primary school teachers' responses, they generally have a favorable opinion of the Single National Curriculum (SNC) for mathematics. The majority of educators concur that the curriculum works well overall, particularly in terms of the resources and instructional strategies offered. This indicates that they think the SNC's teaching resources, methods, and tools are useful and organized. Although their views on teaching strategies and resources are more strongly held, teachers also believe that the curriculum has a positive impact on students' learning and development. In other words, even though the curriculum is helping students, it can still be improved to better support their academic success.

Teachers are also well aware of the curriculum's shortcomings, including content gaps, its lack of adaptability, and its inability to be used in various classroom contexts. This indicates that even though they generally support the SNC, they see room for improvement. All components of the curriculum experience are closely related, according to the correlation analysis, which examines the relationships between various areas. Better teaching strategies, for instance, result in better student progress, and teachers who are satisfied with the curriculum are more likely to observe favorable outcomes from their students. Additionally, teachers often assume that student progress may be impacted when they observe more difficulties.

SUGGESTIONS

These are some suggestions:

1. Fill in the identified gaps in the curriculum. Despite generally positive opinions, teachers acknowledge obvious difficulties, so policymakers should: Update the curriculum often to reflect the realities of the classroom.
2. Incorporate loops for teacher feedback into cycles for curriculum revision. Boost Training for Teachers Enhance professional development courses to make sure that instructional strategies and resource utilization are optimized.
3. Customize instruction to: Make use of updated instructional resources. Oversee classrooms with a variety of personalities. To accommodate students with different learning needs, modify your instruction.
4. Increase the Availability of Resources Make sure all schools have equal access to teaching resources, particularly those in underdeveloped areas. The resources ought to be: in line with the curriculum's objectives. Modern in terms of technology. Both contextually and culturally appropriate.

5. Combine Curriculum with Practical Use to increase student engagement and deeper understanding, particularly in science and math's, strengthen the curriculum's ties to real-world, practical situations.
6. Create an ongoing monitoring and evaluation system. Establish systems to evaluate on a regular basis: Curriculum efficacy, Instructional strategies, learning objectives for students. Helpful School Administration Encourage school administrators to establish cooperative settings where educators are encouraged to try out novel approaches and candidly discuss difficulties.
7. Promote Curriculum Design Collaboration Engage educators directly in policy and curriculum development processes. Their real-world knowledge can be used to create more practical and efficient educational frameworks.
8. Emphasis on Student-Centered Learning Adopt curriculum models that place more emphasis on students' comprehension, critical thinking, and creativity rather than ones that are content-heavy.

The Single National Curriculum in Pakistan can be enhanced and made more successful in accomplishing its objectives of standardizing and raising the standard of education throughout the nation by taking these recommendations into account. It might be possible to come to an agreement to establish a suitable alliance between professional practice issues, where educators must be allowed to have a say in decisions, and national policy issues, where the government must take the lead. It is reasonable to assume that the professional contributions of educators will influence the formulation of governmental policy as part of the curriculum's dynamics. The administrative hierarchy, which includes the district education officers, divisional directors, and the secretary of education, is responsible for ensuring that SNC is applied appropriately in every school through the use of appropriate monitoring and evaluation protocols. Higher ranking officers should be knowledgeable about the procedures involved in creating, assessing, and implementing curricula since they are required to watch classroom demonstrations and offer teachers helpful criticism.

CONCLUSION

In conclusion, Pakistan's Single National Curriculum (SNC) is a big step towards standardizing the educational system, getting rid of inequalities, and giving every student access to a high-quality education. Even though the SNC has drawn some criticism, its content and implementation must be closely watched to make sure that it fosters diversity, inclusivity, and critical thinking all of which are vital for the advancement of the nation. The government's dedication to the SNC's implementation, efficient teacher preparation, and the participation of all parties involved in the educational process will all be necessary for its success.

REFERENCES

Ali, R. A., Aurangzeb, M., Uddin, S. S., & Farooq, A. (2025). THE ROLE OF ARTIFICIAL INTELLIGENCE IN THE FOREIGN POLICY OF USA AND CHINA. *Journal for Current Sign*, *3*(1), 175-186.

Amiri, S. M. H., Islam, M. M., & Akter, N. (2025). Rethinking Education Policy: Pathways to Equitable and Future-Ready Learning. *Available at SSRN 5194153*.

Amobonye, A., Lalung, J., Mheta, G., & Pillai, S. (2024). Writing a scientific review article: comprehensive insights for beginners. *The Scientific World Journal*, *2024*(1), 7822269.

Andrews, J. W., Murry, A., & Istvanffy, P. (2023). A holistic approach to on-reserve school transformation: Pursuing pedagogy, leadership, cultural knowledge, and mental health as paths of change. *Canadian Journal of School Psychology*, *38*(1), 64-85.

Ashraf, H. (2023). The ambivalent role of Urdu and English in multilingual Pakistan: aBourdieusian study. *Language policy*, *22*(1), 25-48.

Aurangzeb, M. M., & Uddin, S. S. (2025). THE ARTIFICIAL INTELLIGENCE (AI) ERA: CHALLENGES AND OPPORTUNITIES FOR PAKISTAN AND THE GLOBAL SOUTH. *Journal for Current Sign*, *3*(2), 254-264.

Bang, H. J., Li, L., & Flynn, K. (2023). Efficacy of an adaptive game-based math learning app to support personalized learning and improve early elementary school students' learning. *Early Childhood Education Journal*, *51*(4), 717-732.

Dairo, N. O. M., Okonkwo, N. C. A., & Orakwe, N. C. U. (2024). A review of primary school teachers' insight into traditional instruction and activity-based learning in mathematics education. *International Journal of Applied Research in Social Sciences*, *6*(11), 2778-2790.

Farida, F., Rotama, A., Dharmawan, D., &Pahrudin, A. (2024). How relevance of philosophy, science and philosophy science through the study of mathematical logic?. *Al-Jabar: JurnalPendidikanMatematika*, *15*(1), 75-86.

Gnawali, Y. P. (2024). Paradigm Shift in Mathematics Education. *Janajyoti Journal*, *2*(1), 29-47.

Goshu, B. S., & Ridwan, M. (2024). A Receptor-Oriented Approach to Overcoming Universal Challenges in Science Education. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, *7*(4), 187-204.

Hsu, W. K., Huang, S. H., Le, T. N. N., Wahidah, U., Huynh, N. T., & Tai, H. H. (2025). Assessment of Logistics Operations for International Short-Sea Express: A Case Study in Taiwan. *Transportation Research Record*, 03611981251375008.

Iffi, I. A. K., Ansari, A. A., Maqsood, S., &Kasuri, M. R. (2024). The Role of Police in the Criminal Justice System of Pakistan a Historical Perspective and Contemporary Analysis. *Pakistan Research Journal of Social Sciences*, *3*(4).

Iqbal, K., Abbas, N., & Abbas, F. (2024). Thematic Analysis of Teachers' Opinion about Primary Level Mathematics Single National Curriculum in Pakistan. *Archives of Educational Studies (ARES)*, *4*(1), 39-58.

Isa, M., Neliwati, N., &Hadijaya, Y. (2024). Quality improvement management in teacher professional development. *Munaddhomah: Jurnal Manajemen Pendidikan Islam*, *5*(2), 136-147.

Jalilov, F., Safarova, R., Akramov, A., Musayev, E., Rakhimova, U., Shukrullayev, S., &Mirzaxmetova, X. (2025). Integrating Ethical, Cultural, and Legal Dimensions into Higher Education: Advancing 21st-Century Competencies in Central Asia. *Qubahan Academic Journal*, *5*(2), 420-445.

Jamil, M., Bokhari, T. B., & Iqbal, J. (2024). Incorporation of critical thinking skills development: A case of mathematics curriculum for grades I-XII. *Journal of Asian Development Studies*, *13*(1), 375-382.

Jungjohann, J., &Gebhardt, M. (2023). Dimensions of classroom-based assessments in inclusive education: A teachers' questionnaire for instructional decision-making, educational assessments, identification of special educational needs, and progress monitoring. *International Journal of Special Education*, *38*(1), 131-144.

Khalid, H. B., Naseem, A., & Khalid, S. (2023). Moral and Social Development of Students: A Content Analysis of Single National Curriculum of English Textbook for Grade V. *Journal of Asian Development Studies*, *12*(4), 103-111.

Khan, A. N., Noreen, M. N., & Nawaz, F. (2025). The Legal Impact of the 18th Amendment on Provincial Autonomy in Khyber Pakhtunkhwa: A Comprehensive Analysis. *Competitive Research Journal Archive*, *3*(02), 300-312.

Khan, M. L., Ayaz, M., & Iram, S. (2021). Interpersonal trust and social adjustment among children of separated parents. *Psychology and Education*, *58*(5), 4554-4566.

Khan, S., Ullah, S., Siraj, D., & Amjad, I, A., (2025). Examining Classroom Strategies: Reciprocal Teaching and its Effect on Reading Comprehension. *Sage Open*, *15*(4), 21582440251380709.

Lehmann, S. (2023). Reconnecting with nature: Developing urban spaces in the age of climate change. *Emerald Open Research*, *1*(5).

Li, M., & Li, B. (2024). Unravelling the dynamics of technology integration in mathematics education: A structural equation modelling analysis of TPACK components. *Education and Information Technologies*, *29*(17), 23687-23715.

Malik, S. A., Ch, M. S., Batool, Z., & Mahmood, S. (2023). Challenges and opportunities in implementation of single national curriculum: A qualitative inquiry. *Journal of ISOSS*, *9*(1), 85-98.

Masih, S., Punchanathan, U. E., & Osigwe, L. K. (2024). Influence of Green Transformational Leadership on Environmental Citizenship Behaviors via Green HRM Practices. Application of Resource-Based View Theory in the Tourism Industry of Pakistan. *International Journal of Business and Economic Affairs*, *9*(3), 1-15.

McKenna, J. W. (2024). Systematic Literature Reviews. In *Research Methods in Special Education* (pp. 89-111). Routledge.

Moriña, A. (2024). When what is unseen does not exist: disclosure, barriers and supports for students with invisible disabilities in higher education. *Disability & Society*, *39*(4), 914-932.

Moslimany, R., Otaibi, A., & Shaikh, F. (2024). Designing a holistic curriculum: Challenges and opportunities in islamic education. *Journal on Islamic Studies*, *1*(1), 52-73.

Niaz, L., & Anand, K. (2024). Populist Visions and the Issue of Exclusion: An Exploration of Educational Policy Reforms in India and Pakistan. In *Exploring Education and Democratization in South Asia: Research, Policy, and Practice* (pp. 55-77). Cham: Springer International Publishing.

Nita, L., Mazzoli Smith, L., Chancellor, N., &Cramman, H. (2023). The challenge and opportunities of quantum literacy for future education and transdisciplinary problem-solving. *Research in Science & Technological Education*, *41*(2), 564-580.

Nurhidayati, E., &Suharno, S. (2025). Strengthening Tolerance Character as A Form of Civic Disposition Through Community Engagement In Multicultural Societies. *Journal of Social Research*, *4*(2), 148-156.

Nurhidayati, E., &Suharno, S. (2025). Strengthening Tolerance Character as A Form of Civic Disposition Through Community Engagement In Multicultural Societies. *Journal of Social Research*, *4*(2), 148-156.

Pokhrel, M., Sharma, L., Sharma, T., Poudel, M. P., & Laxmi, G. C. (2024). Enhancing Mathematics Learning through Self-Directed Pedagogy: Strategies and Evaluation Techniques for Effective Student Engagement. *Journal of Computational Analysis & Applications*, *33*(8).

Qamar, M. Z., & Ullah, S. Effect of Activity Based Learning on Foreign Language Skills of Primary Students.

Qamar, Z., & Khalil, I. (2024). Educational Reforms: Perception of Primary School Teachers towards Online Training Program for Single National Curriculum (SNC). *Pakistan Social Sciences Review*, *8*(2), 345-359.

Qamar, Z., & Khalil, I. (2024). Educational Reforms: Perception of Primary School Teachers towards Online Training Program for Single National Curriculum (SNC). *Pakistan Social Sciences Review*, *8*(2), 345-359.

Qamar, Z., & Khalil, I. (2024). Educational Reforms: Perception of Primary School Teachers towards Online Training Program for Single National Curriculum (SNC). *Pakistan Social Sciences Review*, *8*(2), 345-359.

Saeed, Z. (2025). Bloom's Taxonomy in Pakistani School Education: A Pathway to Enhance Higher Order Thinking Skills (HOTS). *The Critical Review of Social Sciences Studies*, *3*(1), 856-863.

Shirawia, N., Alali, R., Wardat, Y., Tashtoush, M., Saleh, S., &Helali, M. (2023). Logical mathematical intelligence and its impact on the academic achievement for pre-service math teachers. *Journal of Educational and Social Research*, *13*(6), 242-257.

Shuaib, M., Adnan, M., Ullah, I., & Ali, N. (2024). Exploring the Challenges and Effectiveness of Teacher Education Programs in Pakistan for Promoting 21st Century Skills Acquisition. *Journal of Social Sciences Research & Policy*, *2*(3), 213-234.

Speaks, C. E. (2024). *Introduction to sound: acoustics for the hearing and speech sciences*. Plural Publishing.

Tajammul, M., Khan, A., & Ahmad, R. (2023). Assessing the impact of the single national curriculum on teaching practices in mathematics: A classroom perspective. *Journal of Educational Policy and Practice, 15*(1), 45-60.

Talib, S. A., Nasri, N. M., & Mahmud, M. S. (2025). Leading with Numbers, Teaching with Vision: Reimagining Teacher Readiness for Transformative Mathematics Education. *Journal of Advanced Research in Social and Behavioural Sciences*, *39*(1), 165-178.

Theoharis, G. (2024). The school leaders our children deserve: Seven keys to equity, social justice, and school reform. *Teachers College Press*.

Ullah, S., Akhtar, M., & Kaleem, M. F. (2025). Assessing the Role of Metacognition in Mathematics Education for Female Students: empirical Evidence from Pakistan. *ACADEMIA International Journal for Social Sciences*, *4*(1), 927-932.

Ullah, S., Khatoon, M., Abbas, M. M., Chaudhery, F. R., Kaleem, M. F., & Akhtar, M. (2023). Effect of Collaborative Learning on Elementary School Students' Academic Achievement in Science. *Journal of Hunan University Natural Sciences*, *50*(10).

Usmonov, M. (2024). General Concept of Mathematics and Its History. *INDEXING*, *1*(1), 71-75.

Yasmin, F., Zaman, A., & Khan, K. (2023). Historical perspective and current practices of language in education planning in Pakistan. *Perennial Journal of History*, *4*(1), 62-81.

Zaman, M. S., Saleem, K., & Ali, S. (2021). Implementation of the single national curriculum (SNC) at primary level: Teachers' expectations and concerns. *Jahan-e-Tahqeeq*, *4*(4), 161-168.

Zhang, B. (2024). The Impact of Teachers' Expectations on Academic Achievement for Students with Social, Emotional, and Behavioral Difficulties. *Frontiers in Educational Research*, *7*(10).