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Expenditure Incurred in Odisha to Raise the Quality of Elementary Education: A Trend Analysis

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Abstract: The Right to Education Act 2009, implemented during India's sixth decade of Independence, made elementary education a fundamental right for all children in the age group of 6 to 14. It is expected of the Central and State governments to shoulder the financial responsibilities for its effective implementation of the Act to fulfill the constitutional mandate of Universalisation of Elementary Education. The Act was implemented in Odisha with effect from 1st April 2010.The paper seeks to examine the budgetary provision and expenditure patterns influencing the progress of the elementary education in Odisha from 2001 to 2023. The article presents the research studies related to the quality concerns of elementary education in the State with respect to expenditure incurred from 2000-2001 to 2023-2024.The scholastic review has been documented under the head (i) literature review pertaining to quality and (ii) expenditure trends of elementary education . The analysis of expenditure patterns in elementary education reveals significant trends impacting quality of education. Notably, there has been a persistent underutilization of funds in areas such as ICT and digital initiatives in Education , indicating the evidence of challenges in its implementation . Paradoxically, there is evidence of over-expenditure in areas like Teacher Grants and Programs organised under learning enhancement without budget provision during the period of expenditure. There is evidence of declining focus on research and evaluation, as evidenced by sharp budget cuts, which may hinder data-driven policy-making. Although funding is there for conducting National Achievement Survey but there is inadequate funding for monitoring and supervision. However, fund utilization in areas like development of libraries, composite school grants, and innovation projects reflect better execution and resource utilisation. The government's increased funding for initiatives like the NIPUN Bharat Mission for promoting foundational literacy & numeracy and Rashtriya Aavishkar Abhiyan for Science education underscores a commitment to ensure quality education. There is a need to ensure utilization of funds with proper monitoring and supervision which is the key for effective execution of initiatives for enhancing the quality of elementary education.

Keywords: Elementary education, educational budget trends, quality education.

1. Introduction

In India, the pursuit of universal elementary education has been a longstanding commitment, rooted in constitution and reinforced through various policy initiatives. The Directive Principles of State Policy in the Constitution (Article 45) originally envisioned providing free and compulsory education to children up to the age of fourteen within a decade of independence. This vision was further strengthened with the enactment of the Right of Children to Free and Compulsory Education Act (RTE) in 2009, operationalised from April 1, 2010, making India one of 135 countries to recognize education as a fundamental right.

Prior to the RTE, the Sarva Shiksha Abhiyan (SSA), launched in 2001-02, aimed to bridge gaps in access and quality of elementary education. SSA focused on enhancing infrastructure, providing learning materials, and improving teacher training to ensure that all children aged 6 to 14 received quality education. These efforts align with global commitments, such as the World Conference on Education for All (1990) and the Dakar Framework (2000), which emphasize the importance of education in achieving sustainable development goals (SDG).

In Odisha, the implementation of these policies has been pivotal. The state was actively engaged in various programs to improve educational outcomes, including Operation Blackboard (1987), District Primary Education Programme (1994), Mid-Day Meals (1995), SSA (2000), and the RTE Act (2010) and readiness for implementation of NEP 2020 . These initiatives reflect a comprehensive approach to addressing the

multifaceted challenges of elementary education, aiming not only to increase enrollment but also to enhance the quality of education provided.

This paper seeks to analyze the budgetary provisions and expenditure patterns affecting elementary education in Odisha from 2001 to 2023 and their impact on attainment of learning outcomes. The present article based on financial allocation for learning outcomes aims to identify trends, challenges, and areas requiring policy intervention to further enhance the quality of education in the state.

2. **Review of literature-** A total number of 36 studies have been received and presented under the heads such as (i) quality of education and (ii) budgetary trends.

2.1. Quality of education: The quality of education in India has been a subject of extensive research, with various studies highlighting multiple interconnected factors affecting learning outcomes.

Infrastructure and Learning Materials: Hanushek (1995) emphasized that large class sizes and inadequate learning materials are significant barriers to quality education in developing countries, particularly in underdeveloped and Asian nations. Similarly, the Indian Institute of Education (2002) underlined the importance of school facilities, teacher training, and teaching materials for maintaining education quality, identifying the implementation of policies at the grassroots level as a key area needing improvement.

Teacher Training and Absenteeism: Varghese (1996) highlighted that despite enrollment, students often did not achieve expected learning outcomes, revealing a gap between attendance and actual learning. Rajaram (2000) stressed the necessity of continuous education for all societal segments, especially the vulnerable, to ensure uncompromised education quality. Singh and Prakash (2010) reported that teacher absenteeism significantly impacted education quality in rural areas, with increasing enrollment not translating to effective teaching practices.

Learning Outcomes and Assessments: The National Achievement Survey (2017) revealed a significant decline in grade competency as students progressed from Class 3 to Class 8, highlighting gaps in learning outcomes and the need for improved teaching and learning quality. Kapur, Bordoloi, and Shukla (2018) reported that most Class V students scored poorly in reading comprehension and mathematics, underscoring challenges in achieving quality education nationwide.The NAS (2021) report highlighted that Odisha's Class 5 students scored 43.8% in Mathematics, below the national average of 45.6%, and also underperformed in Language. In Class 8, students scored around 50% in Science but performed less in Social Sciences compared to the national average of 55%. Girls scored less than boys in Mathematics and Science. Rural and tribal students showed significantly lower performance, followed by high dropout rates and inadequate infrastructure.

School Infrastructure and Student Retention: Sharma (2016) reported inadequate infrastructure, such as the lack of basic facilities like toilets, directly affected dropout rates, particularly among girls. Mishra and Dey (2017) and Pratham (2015) observed that urban schools outperformed rural schools due to better facilities and qualified teachers, indicating that disparities in infrastructure contribute to differences in educational quality.

Government Initiatives and Policy Implementation: The evaluation by Government of India on SSA (2019) observed that while enrollment rates had increased, challenges remained in achieving quality of education , especially in rural and tribal areas where infrastructure and teacher quality are inadequate. Jha (2020) observed that although pedagogical skills improved, teachers in rural areas were not effectively applying their training inputs in the classroom.

The Annual Status of Education Report (ASER) provides critical insights into the state of education in India, including Odisha. The ASER 2022 and 2024 reports highlight key aspects such as enrollment trends, learning levels in reading, arithmetic, and English, as well as school infrastructure for children aged 6-14 years.The enrollment of children in government schools in Odisha has shown a steady rise. In 2022, the enrollment rate stood at 92.1%, which further increased to over 95% in 2024. This trend indicates a growing preference for government schools and suggests the impact of educational policies and initiatives aimed at universal access to education.Regarding the Learning Outcomes it reports, Foundational literacy is a crucial aspect of early education. In 2022, approximately 40% of Class 3 students in Odisha could read a Class 2-level textbook. By 2024, there was an improvement, with around 70% of students able to read a Class 1 textbook. Despite this progress, further interventions are necessary to enhance reading fluency among students. For Numerical Skills it states that numeracy skills have also shown improvement. In 2022, 30-35% of students in Class 3 were able to perform basic arithmetic operations. By 2024, this percentage increased to 65%, indicating a positive trend. However, challenges remain in advanced mathematical skills, necessitating targeted remedial programs. English language proficiency remains a concern in Odisha's schools. In 2022, only 25% of Class 5 students could read simple sentences in English. By 2024, this figure rose to 35%, showing considerable progress. There is a need for structured language programs to improve English learning outcomes among students. Further while examining School Infrastructure it reports, the availability of basic facilities in schools has seen significant improvements. In 2022, 82.1% of schools had usable toilets, with 76.5% having separate toilets

for girls. By 2024, this increased to over 85%. Access to drinking water also improved, reaching 75% of schools in 2024. The availability of electricity has shown remarkable progress. It increased from 56.5% in 2018 to 93.7% in 2022, maintaining stability in 2024. However, access to educational resources remains a challenge. In 2024, only 50% of schools had libraries, and less than 40% had digital learning resources, indicating the need for further investment in educational technology and learning materials.
To sum up, these studies collectively highlight that infrastructure, teacher quality, and policy implementation are critical to enhancing learning outcomes.

2.2.Budgetary Trends : The literature review highlights various perspectives on budget provision and expenditure in the education sector, particularly elementary education, through the work of several authors. Saran (1993) underscored the crucial relationship between education and economic development, advocating for stronger investments in primary education, especially in developing countries. Tilak (1995) emphasized the inefficiencies in resource allocation for education in India, with focus on improving funding for quality education. He further reported that the financial burden on parents despite the purportedly free concept of primary education, still persists leading to higher dropout rates (Tilak, 1996).
Ramchandran et al. (1997) assessed the financial investment required to achieve universal primary education, identifying specific states in India that needed more substantial funding. Tilak (1997) raised concerns about alternative funding methods, stressing that over-reliance on community contributions could be detrimental to universal education goals. Misra and Kaur (2003) explored the influence of social sector spending on education and health, noting how the allocation of resources impacts primary education more in poorer states. Al-Samarrai (2003) presented a global view of the link between public education investment and primary school outcomes, concluding that increased spending is not sufficient for improved educational outcomes. Hussein et al. (2004) examined the disparities in budget allocation across regions in Pakistan, while Chakrabati and Jogelkar (2006) highlighted the relationship between state income and government spending on education. De and Endow (2008) analyzed trends in education funding, showing that increased spending in less developed areas has yet to result in better educational outcomes.
Baldacci et al. (2008) argued that the effects of educational expenditure are often delayed, requiring better governance to achieve significant educational improvements. Government reports (e.g., Accountability Initiative, 2015-16, and Kaint , 2016) identifed inefficiencies in spending within Sarva Shiksha Abhiyan, particularly in terms of underutilized funds and lack of basic infrastructure in schools. Dholaka et al. (2010) and Dongre et al. (2014) discuss the inadequacies of public funding in meeting educational demands, particularly in the context of Universal Elementary Education (UEE).
Halder (2016) reported that school infrastructure and the quality of education are closely linked, with better infrastructure leading to better student learning outcomes. Mallick et al. (2016) stressed that increases in government spending are crucial for improving educational quality. Gajakosh et al. (2017) analyzed the improvement of educational infrastructure in Karnataka, and reported that increased spending has had positive effects on primary education. Yun and Yusoff (2018) explored trends in Malaysia's education expenditures, indicating the need for solutions to rising costs in public education.
Lastly, Kaint (2016) highlighted the need for effective teacher training and management to improve the quality of education. JRM reports related to Odisha (2015) provided further insights into the challenges of utilizing SSA funds effectively, pointing out delays in fund transfers and regional disparities in infrastructure development.
To sum up, the studies observed that significant challenges in the allocation of funds and lack of proper utilisation of funds affect the quality of education. Issues such as inefficiencies in resource allocation, the financial burden on families, and regional disparities are also noteworthy. The researches also emphasized the need for a more balanced approach to funding education, which includes better governance, efficient fund utilization, and improved infrastructure to meet educational goals.

3. Rationale:

Analyzing budgetary provisions and expenditure patterns has been crucial for understanding their impact on quality of education. Effective financial management needs to be ensured that resources are allocated efficiently and which is likely to influence student learning outcomes. Studies have shown that linking financial data with student achievement can enhance budgeting efficiency and educational effectiveness. Furthermore, examining public expenditure trends can help to identify areas needing attention so as to ensure that investments in education leads to tangible benefits. This article is an attempt to analyse Odisha's educational expenditure, so as to review planning activities for better utilization of available funds. By focusing on the period from 2001 to 2023-24, the study provides a comprehensive view of financial trends

and their implications, contributing valuable knowledge to policymakers, educators, and researchers interested in enhancing the quality of elementary education in Odisha.

4. Objectives :

- To examine the budgetary provisions and expenditure patterns affecting elementary education in Odisha from 2001 onwards.
- To evaluate financial allocations and fund utilization in elementary education in Odisha State.
- To assess the impact of these expenditures on the quality of elementary education.
- To identify trends, challenges, and areas requiring attention for effective implementation of policy.

5. Methodology of the study:

The study employs a qualitative approach, analyzing expenditure data from 2000-2001 to 2023-24 captured through different government reports, budget documents, and records maintained by the Odisha School Education Programme Authority (OSEPA). This analysis focused on various intervention categories approved by the Project Appraisal Board (PAB) of Government of India to assess their impact on educational outcomes. Learning outcomes are analysed by using National Achievement Survey (NAS) reports and the School Education Quality Index (SEQI) of NITI Ayoga, which provide insights into student performance and the effectiveness of educational interventions.

6. Learning Achievement Trends in Odisha

The educational landscape of Odisha has undergone significant transformations over the years, reflecting both progress and persistent challenges. The state's education system has been critically assessed through national frameworks such as the School Education Quality Index (SEQI) and the National Achievement Survey (NAS). These frameworks provide valuable insights into the quality of education, learning achievements, and overall performance of students in Odisha.

One of the key national indices, the SEQI, was introduced by NITI Aayog in 2019 as a comprehensive tool to evaluate the performance of states and Union Territories (UTs) in the school education sector. This index comprises 30 key indicators that measure various aspects of education delivery, including effectiveness, efficiency, and quality. Odisha has demonstrated commendable progress in this regard. In the base year (2015-16), the state was ranked 13th, but by 2016-17, it had moved up to the 7th position, showcasing an upward trajectory in educational quality and governance.

The monitoring of Sustainable Development Goals (SDGs) in education by NITI Aayog emphasizes the importance of students attaining nationally defined learning outcomes. The following table presents the percentage of students in Grades 3, 5, 8, and 10 achieving at least the minimum proficiency level across India and Odisha:

Table No.6.1- Attainment of learning Outcomes in Grades 3, 5, 8, and 10

Year	India (%)	Odisha (%)
2019-2020	71.03	70.93

Source: NITI Aayog. (2020). School Education Quality Index Report 2019-2020 Government of India. Retrieved from https://niti.gov.in/content/school-education-quality-index on 15.01.2025.

Percentage of students in grade 8 achieveing atleast minimum proficiency level in terms of nationally defined learning outcomes to be attained by pupilsat the end of each of the above grades.

Table No.6.2- Attainment of learning Outcomes in Class VIII

Year	India (%)	Odisha (%)
2020-2021	71.9%	71.9%

Source: NITI Aayog (2021). SDG India Index-Baseline report,2020-2021: Partnerships in the Decade of Actions. Overnment of India retrieved from https://www.niti.gov.in/reports-sdgon 15.01.2025.

The table indicates that Odisha's student proficiency levels closely align with the National average. In 2019-2020, Odisha's proficiency level stood at 70.93%, slightly below the national average of 71.03%. However, by 2020-2021, Odisha matched the national average at 71.9%, reflecting consistent efforts to enhance learning outcomes. These improvements highlight the state's commitment to strengthening its educational framework through policy reforms, infrastructure development, and teacher training initiatives.

Despite these advancements, Odisha still faces many challenges such as disparities in educational access between rural and urban areas, teacher shortages, and the need for continuous curriculum reforms. Addressing these issues is crucial for ensuring sustained educational growth and achieving higher learning outcomes across all student demographics. With ongoing government interventions and strategic educational policies, Odisha is poised to further improve its standing in National education metrics.

Alongside the SEQI, the National Achievement Survey (NAS) is a crucial assessment tool used to measure learning outcomes across India, including in Odisha, serving as a crucial measure of academic proficiency at different grade levels. This periodic survey evaluates the academic performance of students at various educational stages (Class III, Class V, and Class VIII) in subjects like mathematics, science, and language. By examining Odisha's performance over the different NAS cycles, we can assess how its students are faring in comparison to national trends.

Moreover, understanding the link between the state's budget allocation for education and its learning outcomes is essential. The budgetary analysis of Odisha's education sector can offer insights into how financial investments in infrastructure, teacher training, and learning materials have contributed to the improvements reflected in the SEQI and NAS assessments. By evaluating these interconnected aspects, a clearer picture of the factors driving the state's educational progress and challenges in the broader national context can be obtained.

Table No. 6.3- Comparative Analysis of National and State Average Learning Levels of Children assessed under NAS

Sl. No.	Class	CYCLE III (2009-13)		CYCLE IV(2013-16)		NAS 2021	
		National Level	Odisha	National Level	Odisha	National Level	Odisha
1	Class3	65	62.5	65.7	62.0	59	61.3
2	Class 5	52.22	50	56.0	54.0	49	49.4
3	Class 8	50	49.5	46.08	45.5	41.9	42.5

The comparative overview of the National and State Average Learning Levels of children assessed under the National Achievement Survey (NAS) for Class 3, Class 5, and Class 8 across different cycles (Cycle III 2009-13, Cycle IV 2013-16, and NAS 2021) provides a clear picture of the trends in learning outcomes at both national and state levels.

For Class III, in Cycle III (2009-13), Odisha's performance was 62.5, which was slightly below the national average of 65. However, in Cycle IV (2013-16), while Odisha's score marginally improved to 62.0, it still lagged behind the National level of 65.7. In NAS 2021, both national and state performance saw a decline, with the national average dropping to 59, while Odisha's performance remained relatively stable at 61.3. This suggests that although Odisha has consistently performed close to the national average, the overall trend across the years indicates a decrease in learning levels.

For Class V, Odisha's performance in Cycle III (2009-13) was 50, which was below the National average of 52.22. However, in Cycle IV (2013-16), Odisha's performance improved significantly to 54.0, narrowing the gap with the national average of 56.0. Despite this improvement, in NAS 2021, both national and Odisha's performance experienced a decline. The national average dropped to 49, while Odisha's score stood at 49.4, showing that the learning outcomes for both have declined since the previous cycle, with Odisha's performance being almost on par with the national level.

The Class VIII, Cycle III (2009-13) observed Odisha's performance at 49.5, which was very close to the national average of 50. However, in Cycle IV (2013-16), there was a noticeable drop in both national and state performance. The national average decreased to 46.08, and Odisha's performance fell slightly to 45.5. By NAS 2021, both national and state learning levels had declined even further, with the national average at 41.9 and Odisha at 42.5. Although Odisha performed slightly better than the national average, the trend of declining performance over the years indicates that there are serious challenges in improving learning outcomes at the state level.

Overall, the data reveals a consistent decline in learning outcomes across all levels, with Odisha's performance generally staying near or just below the national average. The decline in NAS 2021 across all grades is particularly concerning, and it may be attributed to factors such as the impact of the COVID-19 pandemic, changes in the education system, or other systemic challenges that have affected students' learning outcomes. This trend suggests that both national and state education systems need to focus on strategies to reverse these declines, emphasizing the need for stronger educational interventions, improved infrastructure, and better teaching methodologies to enhance learning outcomes for students in Odisha and across India.

Table No.6.4- Comparative Analysis of subject wise and class wise National and State Average Learning Levels of Children assessed under NAS of Class III

Class III							
Sl. No.	Subject	2014		2017		2021	
		National Average	State Average	National Average	State Average	National Average	State Average
1	Language	64	62	67	62	62	65
2	Mathematics	66	63	63	59	57	60
3	EVS	-	-	64	58	57	59

The table presents a comparative analysis of the national and state average learning levels of Class III students in Language, Mathematics, and Environmental Studies (EVS) based on the National Achievement Survey (NAS) conducted in 2014, 2017, and 2021. The data highlight trends in student performance across these three assessment years, reflecting changes in learning outcomes at both the national and state levels. In Language, the national average improved from 64 in 2014 to 67 in 2017 but declined to 62 in 2021. In contrast, the state average remained stagnant at 62 in 2014 and 2017 but increased to 65 in 2021, surpassing the national level. This indicates a positive shift in language learning at the state level, even as national performance declined in the most recent assessment.

In Mathematics, a declining trend is observed both nationally and at the state level. The national average dropped from 66 in 2014 to 63 in 2017 and further to 57 in 2021. Similarly, the state average declined from 63 in 2014 to 59 in 2017. However, in 2021, the state average showed slight improvement, reaching 60, whereas the national performance continued to decline. This suggests that while mathematics learning has weakened over time, the state may have implemented measures to address the decline, resulting in some progress in 2021.

For EVS, no data is available for 2014. In 2017, the national average was recorded at 64, while the state average stood at 58. By 2021, the national average declined to 57, whereas the state average improved slightly to 59, indicating a narrowing gap between the state and national performance. This suggests that while national learning outcomes in EVS declined, the state showed minor improvements, potentially due to targeted interventions.

Overall, the trends indicate that the state has made notable progress in Language and EVS, whereas Mathematics remains a challenge both nationally and at the state level. The decline in national averages across subjects in 2021, particularly in Language and Mathematics, points to broader systemic challenges in primary education. The improvements seen in the state-level performance of Language and EVS highlight areas where educational initiatives may have had a positive impact. However, sustained efforts will be required to further strengthening numeracy skills and maintain progress in literacy and environmental education.

Table No.6.5 - Comparative Analysis of subject wise and class wise National and State Average Learning Levels of Children assessed under NAS of Class V

Class V					
Sl. No.	Subject	2017		2021	
		National Average	State Average	National Average	State Average
1	Language	58	51	55	54
2	Mathematics	53	55	44	47
3	EVS	56	55	48	48

The table provides a comparative analysis of the national and state average learning levels of Class V students in Language, Mathematics, and Environmental Studies (EVS), as assessed under the National Achievement Survey (NAS) in 2017 and 2021. The data highlight changes in student performance over time, reflecting broader trends in learning outcomes at both the national and state levels.

In Language, the national average declined from 58 in 2017 to 55 in 2021, indicating a decrease in overall literacy skills among Class V students. However, the state average showed improvement, rising from 51 in 2017 to 54 in 2021. This suggests that while national performance in Language weakened over time, the state demonstrated progress, possibly due to focused interventions in literacy development. The narrowing gap between the national and state averages indicates that the state has made strides in enhancing language learning outcomes.

In Mathematics, both national and state performance declined between 2017 and 2021. The national average dropped significantly from 53 in 2017 to 44 in 2021, reflecting a substantial decrease in mathematical proficiency among students at the national level. Similarly, the state average decreased from 55 in 2017 to 47 in 2021. Although the state maintained a higher average than the national level in both years, the decline suggests challenges in mathematics education, potentially influenced by factors such as curriculum effectiveness, teaching methodologies, and learning disruptions.

For EVS, a similar trend is observed. The national average fell from 56 in 2017 to 48 in 2021, while the state average also declined from 55 to 48. This suggests that the decline in learning levels in EVS was consistent across both national and state levels, pointing to broader systemic issues affecting student comprehension in this subject. Unlike Language, where the state improved relative to the national average, the performance in EVS mirrored the national decline, indicating the need for renewed efforts to strengthen environmental education.

Overall, the data indicate a downward trend in learning levels across subjects at both national and state levels, with the most significant decline observed in Mathematics. While the state showed improvement in Language, it experienced a decline in Mathematics and EVS, aligning with national trends. These findings highlight the need for targeted interventions to enhance student learning, particularly in Mathematics and EVS, while maintaining the progress achieved in Language education. Addressing these gaps will require a strategic focus on curriculum enhancement, teacher training, and student engagement to improve overall learning outcomes in primary education.

Table No.6.6 - Comparative Analysis of subject wise and class wise National and State Average Learning Levels of Children assessed under NAS of Class VIII

Class VIII					
Sl. No.	Subject	2017		2021	
		National Average	State Average	National Average	State Average
1	Language	56	51	53	53
2	Mathematics	42	42	36	38
3	Science	44	42	39	40
4	Social Scence	43	39	39	39

The table presents a comparative analysis of the national and state average learning levels of Class VIII students in Language, Mathematics, Science, and Social Science, based on the National Achievement Survey (NAS) conducted in 2017 and 2021. The data provide insights into subject-wise performance trends over time, highlighting variations in student achievement at both the national and state levels.

In Language, the national average declined from 56 in 2017 to 53 in 2021, reflecting a drop in literacy skills among Class VIII students. However, the state average improved from 51 in 2017 to 53 in 2021, equaling the national performance. This suggests that while national Language proficiency weakened, the state showed progress, possibly due to interventions aimed at strengthening reading and writing skills. The improvement at the state level indicates a narrowing gap with the national average, signifying efforts to enhance language education.

In Mathematics, a consistent decline is observed at both the national and state levels. The national average dropped from 42 in 2017 to 36 in 2021, reflecting a significant decrease in mathematical proficiency. Similarly, the state average decreased from 42 in 2017 to 38 in 2021. Although the state performed slightly better than the national average in 2021, the overall downward trend highlights persistent challenges in mathematics education, such as conceptual understanding, application of mathematical principles, and effective pedagogy. The decline in performance suggests the need for targeted interventions to strengthen numeracy skills among students.

In Science, the national average fell from 44 in 2017 to 39 in 2021, while the state average declined from 42 to 40 over the same period. This downward trend at both levels suggests a weakening grasp of scientific concepts and practical applications. The slight difference between the national and state averages indicates that while the state maintained a performance close to the national level, challenges in science education remain, necessitating a focus on inquiry-based learning and hands-on experimentation to enhance scientific understanding.

In Social Science, the national average dropped from 43 in 2017 to 39 in 2021, while the state average remained constant at 39 across both years. The stagnation in the state's performance suggests that despite national-level decline, the state was able to maintain its learning outcomes. However, the overall decline in national performance points to broader challenges in student engagement with historical, political, and geographical concepts, emphasizing the need for innovative teaching approaches to make Social Science more interactive and relevant.

Overall, the data indicate a decline in learning outcomes across all subjects at the national level, with a similar trend at the state level, except in Language, where the state showed improvement. The most concerning drop is observed in Mathematics and Science, highlighting the need for interventions to improve analytical and problem-solving skills among students. The findings underscore the importance of strengthening subject-specific pedagogical approaches, enhancing teacher training, and incorporating active learning strategies to reverse the decline and ensure better academic outcomes for Class VIII students.

Comparative Analysis of Learning Levels Among Class III, V, and VIII Students Based on NAS Assessments

6.1 Language Performance Across Classes

Table No.6.7: National and State Average Scores in Language (Class III, V & VIII)

Year	Class	National Average	State Average
2014	III	64	62
2017	III	67	62
2021	III	62	65
2017	V	58	51
2021	V	55	54
2017	VIII	56	51
2021	VIII	53	53

The data suggest a general decline in language learning outcomes at the national level from 2017 to 2021. However, the state has shown improvement, particularly in Class III and VIII, where it surpassed or matched the national average in 2021. This indicates potential positive interventions at the state level in literacy education.

6.2 Mathematics Performance Across Classes

Table No. 6.8- National and State Average Scores in Mathematics (Class III, V & VIII)

Year	Class	National Average	State Average
2014	III	66	63
2017	III	63	59
2021	III	57	60
2017	V	53	55
2021	V	44	47
2017	VIII	42	42
2021	VIII	36	38

Mathematics performance shows a consistent decline at both the national and state levels across all classes. The most significant drop is seen in Class V and VIII, where the national averages fell from 53 to 44 and from 42 to 36, respectively, between 2017 and 2021. The state performed better than the national average in Class III and VIII in 2021, but the overall trend indicates major challenges in numeracy education.

6.3 Environmental Studies (EVS) Performance

Table No 6.9: National and State Average Scores in EVS (Class III & V)

Year	Class	National Average	State Average
2014	III	-	-
2017	III	64	58
2021	III	57	59
2017	V	56	55
2021	V	48	48

EVS scores show a declining trend at both national and state levels. However, in Class III, the state improved slightly in 2021, indicating some progress at the foundational level. The decline in Class V suggests difficulty in maintaining conceptual learning beyond the early years of education.

6.4 Science Performance (Class VIII Only)

Table No.6.10- National and State Average Scores in Science (Class VIII)

Year	Class	National Average	State Average
2017	VIII	44	42
2021	VIII	39	40

Science scores indicate a national decline, while the state showed slight improvement in 2021. This suggests that state-level initiatives may have helped sustain learning outcomes despite national challenges in science education.

6.5 Social Science Performance (Class VIII Only)

Table No.6.11- National and State Average Scores in Social Science (Class VIII)

Year	Class	National Average	State Average
2017	VIII	43	39
2021	VIII	39	39

Social Science performance declined at the national level, while the state remained stagnant. The absence of improvement suggests a lack of significant policy interventions in this subject.

The data reveal a general decline in learning outcomes across subjects, particularly in Mathematics and Science. The state has shown progress in Language and Science, but it still faces challenges in sustaining learning outcomes in Mathematics, EVS, and Social Science.

7. Budget Provisions and Expenditure for Quality Education

Table 7.1-Yearwise and Componentwise Budget & Expenditure Under SSA
(Amount Rs. in Lakhs)2001-2014

Name of the Component	2002-03			2008-09			2014-15		
	Budget	Expr.	%of expr.	Budget	Expr.	%of expr.	Budget	Expr.	%of expr.
Block Resource Centre	176.14	0.00	0.00	500.21	177.66	35.52	5471.06	1757.07	32.12
Cluster Resource Centre	482.94	0.00	0.00	389.16	293.56	75.43	5887.32	5452.47	92.61
Remedial Teaching				4.96		0.00			
Innovative Activities	899.99	16.76	1.86	2833.50	2440.04	86.11	588.90	556.97	94.58
Learning Enhancement Programme							274.47	275.68	100.44
Research & Evaluation	375.16	53.18	14.18	723.50	427.12	59.04	482.60	348.81	72.28
School Grants	614.78	536.80	87.31	3148.46	2822.91	89.66	4166.01	3488.17	83.73
Teacher Grants	437.15	242.00	55.36	721.85	670.75	92.92		-9.56	
Teaching Learning Equipment	285.85	0.00	0.00	987.51	565.30	57.24		15.59	
Teacher Training	1099.64	4.34	0.39	2802.56	1725.73	61.58	2902.34	1569.56	54.08
Community Mobilisation	729.67	2.66	0.36	194.71	177.69	91.26	900.25	312.86	34.75
Infrastructure for setting School libraries								24.35	
Computer Aided Education in UPS Under Innovation							1405.68	1138.58	81.00

In Odisha, the scope of quality education was expanded from the academic year 2015-16 with several key interventions. These initiatives included the addition of allocation of funds for quality improvement, along with the introduction of the Composite School Grant to support various educational activities at the school level. The state also focused on the training of educational administrators to enhance their leadership and management skills, so as to ensure effective school governance. ICT and digital initiatives were integrated into the educational framework, promoting the use of technology to improve learning outcomes. Moreover, Odisha adopted national initiatives such as the Rashtriya Aavishkar Abhiyan to foster creativity and innovation in science and mathematics, while the NIPUN Bharat Mission was launched to ensure foundational literacy and numeracy among children. Additionally, the development of teacher resource materials was prioritized to equip educators with the tools necessary to improve their teaching methods and better students' engagement. These measures collectively aimed to improve the quality of education across the state.

Table No7.2 Yearwise and Componentwise Budget & Expenditure Under SSA (Amount Rs. in Lakhs) 2015-2023

Quality Component	2015-16			2018-2019			2021-2022		
	Budget	Expenditure	%of expr.	Budget	Expenditure	%of expr.	Budget	Expenditure	%of expr.
Funds for quality Improvement				14363.3	6,335.19	44.11			
Teachers' Training	3820.07	1,848.75	48.40	3686.42	1,142.21	30.98		1348.57	
Academic support through BRC/URC	5694.32	2,224.32	39.06	9330.91	3,362.47	36.04	4283.07	3185.85	74.384
Academic support through CRC	5887.32	5,698.22	96.79				1529.79	1212.25	79.24
Libraries in School		15.68		2170.06	310.65	14.32	3682.35	3658.68	99.3
Teacher Grant/Financial Support for Teachers(HMs/Teachers)		133.44							
School Grant	4191.86	4,373.70	104.34						
Composite School Grant				13520.86	6,909.30	51.10	12562.05	13403.64	106.70
Research,Evaluation,Monitoring & Supervision	806.75	710.27	88.04	263.82	246.45	93.42		6.59	
Maintenance Grant	5346.45	4,069.37	76.11						
Computer Aided Education/ICT		68.79		8885.5	38.58	0.43		46.78	
Training of Educational Admisnistrator	21.85	1.17	5.35						
Learning Enhancement Program	906.86	735.47	81.10				4626.83	7787.39	168.309404 1
Teaching Learning Material					35.17			1.5	
Innovation Projects									
ICT & Digital Initiatives									

Rastriya Aavishkar Abhiyan							83.2	30.48	36.64
NIPUN Bharat Mission							9595.25	7945.33	82.81
Teacher Resource Material								8.34	

The allocation and expenditure of funds under the quality component of SSA reflect the evolving priorities of elementary education in Odisha. Over the years, there has been a significant increase in budgetary provisions, but expenditure patterns reveal inconsistencies in fund utilization, particularly in crucial areas such as teacher training, digital education, and research. The analysis of various indicators provides insight into the strengths and challenges in improving educational quality.

- ***Academic Support through BRCs and CRCs***

The Block Resource Centres (BRCs) and Urban Resource Centres (URCs), created to provide onsite support to schools, saw substantial budget increase over time. However, fund utilization remained low, with only 32.12% of the allocated amount i.e., ₹5,471.06 lakhs spent in 2014-15 and 39.06% in 2015-16. Even in 2018-19, when the budget was ₹9,330.91 lakhs, expenditure was just 36.04%, indicating iunderutilisation of resource centers at the block level.

Conversely, Cluster Resource Centres (CRCs) demonstrated higher expenditure to the extent of 75.43% utilization in 2008-09, 96.79% in 2015-16, and 79.24% in 2021-22. The stronger performance of CRCs suggests that decentralized academic support at the cluster level was more effectively implemented than at the block level. This variation in utilization may be attributed to the reorganisation of administration structure in Education.

- ***Teacher Training***

A well-trained teaching workforce is fundamental to improving learning outcomes, yet teacher training expenditure has been consistently low. In 2002-03, only 0.39% of the ₹1,099.64 lakhs allocated was spent, showing the initial neglect of teacher capacity-building. Although utilization improved to 61.58% in 2008-09, it remained below 50% in 2015-16 and fell further to 30.98% in 2018-19.

Continuous Professional development is instrumental in the capacity building of teachers.This downward trend suggests systemic gaps in implementation of inservice teacher education. Either teachers were not accessing training opportunities, or the training programs were not effectively planned and executed. The declining trend in teacher training raises concerns about the state's commitment to continuous professional development, which is crucial for improving instructional quality.

- ***School and Teacher Grants***

Unlike teacher training, school grants consistently saw high utilization, often exceeding 100% expenditure in some years. For instance, in 2015-16, ₹4,191.86 lakhs was allocated, and 104.34% was utilized, showing strong demand at the school level. By 2021-22, the Composite School Grant received ₹12,562.05 lakhs, with 106.7% expenditure, reflecting effective fund utilisation and the necessity of direct school-level funding.

- ***Research, Evaluation, and Monitoring***

Investment in research and evaluation showed fluctuating trends. While it improved from 14.18% expenditure in 2002-03 to 88.04% in 2015-16. Later it declined, with only ₹6.59 lakhs spent in 2021-22. This sharp fall indicates a reduction in emphasis on data-driven decision-making and policy evaluation. Given the increasing focus on evidence-based education policies, the lack of sufficient investment in research and evaluation indicates the weakness of the system at the State level.

- **Innovative Activities**

The Innovative Activities component, designed to promote experiential learning, creativity, and alternative pedagogical approaches, were to be used under the heads Early Childhood Care and Education, Girls' Education, Computer Education for Upper Primary Classes and education for SC/ST community showed strong utilization in early years. In 2002-03, ₹899.99 lakhs was allocated, but only 1.86% was spent. By 2008-09, ₹2,833.50 lakhs were allocated, with an impressive 86.11% utilization, indicating successful program implementation.However, by 2014-15, funding dropped sharply to ₹588.90 lakhs, albeit with 94.58% utilization.

This downward trend suggests that innovation-focused initiatives lost budgetary priority over time. With increasing emphasis on 21st-century skills, reviving and expanding innovative education programs should be a key focus area in upcoming policies.

- ***Digital Education and ICT***

With the growing importance of technology in education, funds for Computer-Aided Education (ICT) were significantly increased, particularly in 2018-19 (₹8,885.5 lakhs allocated). However, only 0.43% of this was spent, signaling severe underutilization. Similar pattern was observed in 2021-22, where only ₹46.78 lakhs were spent despite increasing focus on digital learning.

This persistent underutilization suggests major implementation bottlenecks, such as lack of infrastructure, inadequate teacher training in ICT, and administrative inefficiencies. Given the post-pandemic shift towards digital learning, addressing these barriers should be a key policy priority.

- **Remedial teaching** is a crucial intervention for students who require additional learning support. However, this component received minimal financial attention over the years. In 2008-09, ₹4.96 lakhs was allocated, but no expenditure was incurred . The non-utilisation of funds suggests either a lack of implementation plan or lack of know how to conduct remedial classes may be the reason. This might have been the reason for non-allotment of funds under the head during 2014-15. After that, remedial teaching was no longer mentioned as a separate budget head, indicating that either the initiative was discontinued or merged with other learning enhancement programs.

- **Learning Enhancement Programs**

Investment in Learning Enhancement Programs (LEP) remained modest in earlier years but gained significant traction after 2015-16. In 2014-15, ₹274.47 lakhs was allocated, with full utilization (100.44%), while by 2021-22, ₹4,626.83 lakhs was allocated, but expenditure soared to 168.3% (₹7,787.39 lakhs spent). This overspending suggests that learning enhancement programs were in high demand and likely to be effective in improving students' learning outcomes. This shift reflects a growing recognition of the need for targeted interventions, such as remedial education, skill-building programs, and curriculum improvements, to strengthen learning outcomes.

- **New Initiatives**

The Rashtriya Aavishkar Abhiyan (RAA), aimed at strengthening STEM education in schools, revealed low fund utilization (36.64% in 2021-22), indicating challenges in implementation. These challenges likely stem from lack of infrastructure, inadequate teacher training, and difficulties in integrating STEM activities into the curriculum. Many schools, especially in rural areas, may not have the necessary science labs, digital resources, or experiential learning frameworks to support STEM initiatives effectively. This aligns with findings by Sharma (2016) and Mishra & Dey (2017), who emphasized that inadequate infrastructure, including the lack of essential school facilities, directly affects learning outcomes and student retention, particularly in rural schools. Similarly, Hanushek (1995) and the Indian Institute of Education (2002) highlighted the importance of school facilities, teacher training, and teaching materials for maintaining education quality, identifying grassroots-level policy implementation as a major challenge.

Additionally, limited awareness and engagement among educators and students could have contributed to poor adoption of STEM initiatives. Singh & Prakash (2010) reported that teacher absenteeism significantly impacts education quality in rural areas, indicating that even when training is provided, its practical application remains inconsistent. This aligns with Jha (2020), who found that while pedagogical skills improved through training programs, teachers in rural areas often failed to apply these skills effectively in the classroom. The National Achievement Survey (2017) and Kapur, Bordoloi, & Shukla (2018) further reported that students struggle with foundational competencies, particularly in reading comprehension and mathematics, underscoring the need for better teaching strategies and learning support systems.

In contrast, the NIPUN Bharat Mission, which focuses on foundational literacy and numeracy (FLN), had a significantly higher utilization rate (82.81%), reflecting a strong push towards improving early-grade learning. The NAS (2021) report on Odisha revealed that students performed below the national average in Mathematics and Language, with rural and tribal students facing the greatest challenges due to high dropout rates and inadequate infrastructure. The urgency of addressing learning losses post-pandemic, coupled with the relative ease of implementing FLN initiatives compared to STEM, likely drove higher fund absorption. While government initiatives like SSA have helped increase enrollment rates, the persistent challenges in teacher quality and infrastructure, particularly in rural and tribal areas, continue to hinder education quality.

This trend highlights a policy preference for strengthening basic literacy and numeracy skills, but also underscores the need for greater investment in teacher capacity-building and infrastructure development to enhance STEM education in schools.

8. Findings-

8.1.Findings related to budgetary provisions and expenditure patterns affecting elementary education

The analysis of the budgetary provisions and expenditure patterns for elementary education in Odisha over the last two decades reveals a clear evolution in funding priorities, as well as significant challenges in fund utilization. The findings highlight both the successes and the persistent inefficiencies that have characterized the implementation of various educational programs under initiatives such as Sarva Shiksha Abhiyan (SSA), Samagra Shiksha, and the NIPUN Bharat Mission. Despite a marked increase in financial allocations, discrepancies in the absorption and utilization of funds continue to impact the quality of education delivery and the achievement of desired educational outcomes.

Key Findings-

1. There has been a significant increase in the budget allocations for elementary education, focusing on access, infrastructure, and quality improvements. For instance, the allocation for Block Resource Centres (BRCs) grew from INR 176.14 lakhs in 2002-03 to INR 5,471.06 lakhs in 2014-15, while Cluster Resource Centres (CRCs) saw an increase from INR 482.94 lakhs to INR 5,887.32 lakhs during the same period.
2. **Variability in Fund Utilization** :Across Components While some components have demonstrated high fund absorption rates, others exhibit underutilization due to administrative delays and inefficiencies. In 2014-15, CRCs reported a utilization rate of 92.61%, whereas BRCs (32.12%) and Teacher Training (54.08%) lagged behind, reflecting disparities in execution.
3. **Challenges in Fund Absorption:** In the early years (2002-03), key areas such as Block and Cluster Resource Centres, Teacher Training, and Teaching Learning Equipment had near-zero utilization, indicating delays in fund disbursement and execution. While quality enhancement initiatives like Learning Enhancement Programmes (LEP) saw improved absorption (100.44% in 2014-15), fund utilization remains inconsistent across various components.
4. **Declining Focus on Teacher Training:** A concerning trend is the reduction in funding for teacher training. Budget allocations declined from INR 3,820.07 lakhs in 2015-16 to INR 3,686.42 lakhs in 2018-19, while expenditure dropped from 48.4% to 30.98% in the same period. This decline raises concerns about the sustainability of teaching quality improvements.
5. **Emphasis on Quality Enhancement and Infrastructure:** Significant investments have been made in learning enhancement and digital education initiatives. LEP saw an expenditure of 168.3% in 2021-22, and library funding had 99.3% utilization in 2018-19. However, ICT-based initiatives faced low utilization (38.58% in 2018-19), highlighting implementation challenges.
6. **Efficient Utilization in Certain Areas:** School grants and CRCs have consistently demonstrated high fund absorption, with school grants exceeding 100% expenditure (104.34% in 2015-16) and CRCs reporting 96.79% utilization. These figures suggest effective implementation at the grassroots level.
7.**Declining Investment in Monitoring and Evaluation** Allocations for Research, Evaluation, Monitoring, and Supervision have significantly declined, from an 88.04% utilization rate in 2015-16 to just 6.59% in 2021-22. This reduction undermines the necessity to assess program effectiveness and accountability of officials.
9. **School Infrastructure and Grants School and composite school grants** have been highly utilized, with 104.34% and 106.7% utilization rates in 2015-16 and 2021-22, respectively. While this suggests a prioritization of infrastructure, over-expenditure may indicate gaps in initial budgeting and planning.
10. **Gaps in Teaching Learning Materials and ICT Integration** While library allocations have been efficiently used (99.3% in 2021-22), funding for teaching-learning materials remains insufficient. Additionally, the ICT budget has fluctuated, and its utilization remains low, reflecting challenges in large-scale digital education implementation, particularly in rural areas.

In conclusion, while Odisha has demonstrated a strong commitment to improving elementary education through significant financial allocations, the patterns of fund utilization reveal several key areas that require attention. The inefficiency in teacher training expenditures, challenges in scaling digital education, and gaps in the allocation for teaching materials suggest that more strategic planning and better implementation are needed. Additionally, while localized support systems such as CRC and BRC have proven effective, the overall system would benefit from more balanced resource allocation and improved management to enhance the quality of education. Going forward, Odisha must focus on optimizing the use of allocated funds,

especially in critical areas like teacher training, ICT integration, and resource distribution, to maximize the impact on learning outcomes and bridge existing gaps in educational quality.

8.2. Findings related to financial allocations and fund utilization in elementary education in Odisha State.

Table No.8.1 - Summarizing the three most utilized and three least utilized components in elementary education funding from 2002 to 2023 based on fund utilization percentages:

Category	Component	Year	Utilization (%)	Key Observations
Most Utilized	School Grants	2015-16	104.34	Consistently high fund utilization, exceeding allocation in some years.
	Academic Support through CRC	2015-16	96.79	Strong absorption, indicating effective grassroots academic support.
	NIPUN Bharat Mission	2021-22	82.81	High utilization due to post-pandemic focus on foundational literacy and numeracy.
Least Utilized	Rashtriya Aavishkar Abhiyan (RAA)	2021-22	36.64	Low adoption due to infrastructure and teacher training challenges in STEM education.
	Training of Educational Administrators	2015-16	5.35	Minimal expenditure, indicating lack of prioritization.
	Computer-Aided Education/ICT	2018-19	0.43	Poor uptake due to digital infrastructure and teacher training gaps.

The table highlights how basic operational components like school grants and foundational literacy programs received high utilization, while technology-driven and specialized initiatives like RAA and ICT education struggled with fund absorption due to implementation challenges.

8.3.Findings related to impact of expenditures on the quality of elementary education.

· 2002-03 to 2010-11: Odisha witnessed a significant rise in elementary education expenditure, primarily driven by the implementation of Sarva Shiksha Abhiyan (SSA) and large-scale infrastructure expansion. The introduction of the Right to Education (RTE) Act in 2010 further strengthened efforts toward universalizing elementary education. This led to steady improvements in early-grade learning outcomes, particularly in Language and Environmental Studies (EVS) for Class III and V. However, Mathematics proficiency remained stagnant, indicating persistent challenges in numeracy skills.

· 2011-12 to 2017-18: Increased investments were made in teacher training, digital learning initiatives, and school infrastructure, with SSA funding peaking during this period. Odisha recorded a positive impact on Language learning outcomes, surpassing the national average by 2021. However, learning levels in Mathematics and Science for Class VIII began to decline, suggesting instructional challenges and gaps in subject-specific pedagogy.

· 2018-19 to 2021-22: The introduction of Samagra Shiksha in Odisha in 2018-19 marked a shift towards an integrated approach to school education, covering elementary, secondary, and teacher education under a single framework. However, this period also saw a decline in fund utilization rates, likely due to pandemic-related disruptions. Reduced budget allocations for teacher training and infrastructure further affected the quality of education delivery. As a result, learning achievements in Mathematics, Science, and EVS dropped sharply, while Language remained relatively stable. The impact of COVID-19 increased the existing challenges, highlighting the need for targeted interventions to address learning losses and improve overall educational outcomes.

8.4.Findings related to identification of trends, challenges, and areas requiring attention for effective implementation of policy.

8.4.1. Trends:

- Increased Focus on Learning Outcomes: There has been a growing emphasis on improving learning outcomes through programs like Learning Enhancement Programs and localized academic support stems (BRC, CRC). This reflects a shift towards addressing foundational skills in literacy and numeracy.
- Shift Towards Digital and ICT-Based Learning: With the introduction of ICT initiatives and the NIPUN Bharat Mission, there is a clear trend toward integrating digital tools to enhance teaching and learning. However, this remains inconsistent, especially in rural areas.

- Rise in School Infrastructure Investments: There has been an increasing focus on improving school infrastructure, including libraries and basic facilities like sanitation and drinking water, to create conducive learning environments.

8.4.2. **Challenges:**

- Teacher Training and Capacity Building: Despite substantial budget allocations, teacher training programs have shown less fund utilization, indicating inefficiencies in execution. Teacher training continues to face challenges in reaching the required scale and improving the quality of pedagogy.
- Delayed Fund Utilization and Disbursements: There have been issues with delayed disbursements of funds, which have impacted the timely implementation of various education programs. This often leads to underutilization of allocated funds and affects program effectiveness.
- Digital Divide and ICT Accessibility: The disparity in the availability and utilization of digital education tools between urban and rural areas is a major challenge. Insufficient infrastructure and low training rates for digital education have hampered the effective use of ICT in classrooms, especially in under-resourced areas.
- Uneven Distribution of Resources: There is a significant gap in resource allocation between urban and rural districts, with rural and tribal areas often receiving fewer resources, which leads to disparities in educational quality.

8.4.3. Areas Requiring Attention:

- Improved Monitoring and Evaluation Mechanisms: Strengthening monitoring and evaluation systems is essential to ensure that funds are utilized effectively and programs are implemented as intended.
- Capacity Building for Teachers: Scaling up teacher training programs with a focus on improving teaching methodologies and digital literacy is crucial. This would enable teachers to effectively integrate new teaching tools and strategies in the classroom.
- Expansion of ICT Infrastructure: Expanding digital infrastructure, particularly in rural and tribal areas, and ensuring adequate training for teachers and students is critical for bridging the digital divide and ensuring that ICT initiatives have a meaningful impact.
- Focus on Inclusive Education: More attention is needed to ensure that students with disabilities and other marginalized groups receive the support and resources they need for an inclusive educational experience.
- Timely Fund Allocation and Disbursement: Streamlining fund disbursement processes to prevent delays and ensuring equitable distribution across all regions will help in implementing policies more effectively and reduce bottlenecks in program execution.

9. Discussion

The analysis of financial allocations and expenditure patterns in Odisha's elementary education sector over the past two decades reveals a complex interplay between policy intent, administrative efficiency, and educational outcomes. While significant progress has been made in expanding access and infrastructure through flagship programs like the Sarva Shiksha Abhiyan (SSA) and Samagra Shiksha, disparities in fund utilization and program implementation continue to hinder the state's ability to realize its educational goals.

Consistent with Tilak (2007) and Mehta (2011), this study finds that increased financial allocations alone do not guarantee improvements in educational quality. In Odisha, while allocations for Block and Cluster Resource Centres (BRCs and CRCs) rose substantially, their fund utilization varied widely, with BRCs showing as low as 32.12% utilization in 2014–15. These inconsistencies echo broader national challenges in decentralized educational administration, where capacity constraints at the district and sub-district levels often impede effective execution (Kingdon, 2009).

Teacher training, a critical determinant of learning outcomes, has experienced both declining investment and poor utilization in Odisha. This trend undermines the goals of quality improvement envisioned under SSA and later under Samagra Shiksha. As noted by Bashir et al. (2013), professional development for teachers must be both adequately funded and systematically implemented to influence classroom practices. The drop in utilization from 48.4% in 2015–16 to 30.98% in 2018–19, despite steady allocations, indicates a lack of prioritization and follow-through in Odisha’s training programs.

Another significant concern is the integration of Information and Communication Technology (ICT) in education. Despite national policies advocating for digital learning (MHRD, 2012), Odisha has struggled with low ICT utilization (0.43% in 2018–19), largely due to infrastructural gaps and limited teacher preparedness. This finding aligns with Jha and Parvati (2010), who argued that without parallel investments in training and maintenance, ICT initiatives in rural areas remain symbolic rather than transformative.

Furthermore, the post 2017 period saw a shift in policy focus with the introduction of Samagra Shiksha, which aimed to unify elementary and secondary education funding streams. While this integrated approach holds promise, the COVID-19 pandemic severely disrupted implementation. Studies by Azim Premji Foundation (2021) and NUEPA (2020) confirm widespread learning losses across India during the pandemic, particularly in Mathematics and Science—trends mirrored in Odisha's declining outcomes in these subjects during the same period.

Despite these challenges, Odisha has shown encouraging trends in specific areas. High fund absorption in CRCs, school grants, and Learning Enhancement Programmes (LEPs) suggests that when implementation is localized and directly linked to learning processes, results are more promising. These findings support the assertions of Pandey et al. (2014), who emphasize the importance of community and school-level ownership in improving educational effectiveness.

The reduction in expenditure on Monitoring and Evaluation (M&E), from 88.04% in 2015–16 to just 6.59% in 2021–22, poses a significant threat to policy feedback mechanisms. Effective M&E is crucial for course correction and transparency in implementation (Govinda & Bandyopadhyay, 2010). This decline indicates a weakening of institutional accountability systems at a time when evidence-based policymaking is most needed.

Finally, the issue of equity in resource distribution remains central. Tribal and rural areas in Odisha continue to face barriers to equitable access to quality education. This aligns with findings from Ramachandran (2009), who noted that marginalization is often exacerbated by uneven administrative attention and resource flows. In this context, Nanda (2024) underscores that while the goals of the RCFCE Act (2009) are seen as achievable, their realization is heavily dependent on the strategic and equitable utilization of resources. Nanda's study, based on perspectives of DEOs and BEOs, highlights that child-centered pedagogy and inclusive educational reforms can be sustained only through robust financial and institutional support.

In summary, Odisha's experience illustrates that while budgetary expansion is a necessary condition for educational improvement, it is not sufficient in isolation. The effectiveness of spending, particularly in teacher training, ICT integration, and inclusive education, depends heavily on timely disbursement, institutional capacity, and sustained monitoring. The state's progress can be accelerated by strengthening decentralized management, improving digital infrastructure, and embedding robust evaluation mechanisms into the educational governance structure.

10.**Conclusion**

The analysis of Odisha's elementary education expenditure patterns reveals that financial investment alone is not enough to improve educational quality. Effective implementation depends on timely disbursement, equitable distribution, and strong institutional capacity at all levels. Persistent challenges in teacher training, ICT integration, and monitoring highlight the need for more strategic planning and localized execution. Encouraging trends in specific areas like school grants and Learning Enhancement Programmes suggest that targeted, community-driven interventions can yield positive outcomes. Moving forward, a more integrated and accountable approach to financial planning and utilization is essential to achieve inclusive and sustainable improvements in elementary education.

11.Educational Implications

- Strategic financial planning must be strengthened at all levels; school, district, and state by aligning allocations with evidence-based needs and learning goals.
- At the school level, participatory budgeting involving SMCs, teachers, and local stakeholders should guide fund prioritization for key areas like infrastructure and remedial learning.
- District authorities should adopt performance-based budgeting, linking resource distribution to utilization efficiency and learning outcomes across clusters.
- State-level planning should integrate real-time data systems to monitor fund flow, assess impact, and ensure equity across regions, especially in rural and tribal districts.

- Continuous feedback and audits at each level will enhance transparency, accountability, and responsiveness in fund utilization.

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