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Quality of Primary Education in Bannu Division: An Analysis of Quality of Input, Process, and Output Indicators

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Abstract: This study examined the achievement of Sustainable Development Goal 4 (Quality Education) targets in public primary schools of Bannu Division, Khyber Pakhtunkhwa, by examining input, process, and output quality indicators. The population comprised (N=19,272) teachers, of which 345 were selected through multistage stratified random sampling. A descriptive design was employed, using a self-developed questionnaire aligned with SDG-4, while data were analyzed through Mean and SD. Findings on input quality showed that school funds, classroom furniture, sanitation facilities, and safe drinking water were generally adequate, while the availability of instructional materials and sufficient teachers remained inconsistent. School management and administration were positively perceived, particularly in conflict resolution, student cooperation, and resource utilization, though coordination among staff members was weaker. Process quality indicators revealed that teaching practices were largely aligned with learning outcomes and supported by student-centered methods, yet gaps persisted in promoting conceptual learning and the effective use of educational technologies. By contrast, output quality indicators—such as student retention, completion, and academic performance—were mostly rated in the "Undecided" category. While proficiency in key subjects was acknowledged, broader measures of student success and preparedness for secondary education were less convincing. It is recommended that policy measures focus on equitable teacher deployment, improved provision of instructional materials, strengthened participatory decision-making, and enhanced community involvement. Greater emphasis on conceptual learning, assessment reforms, and accountability mechanisms is also necessary to raise student outcomes and move closer to achieving SDG 4 targets.

Keywords: Primary Education, SDG 4, Input Indicators, Process Indicators, Output Indicators, Bannu Division, Quality of Education

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Introduction

Education is globally recognized as the foundation for social progress, human development, and economic growth. The United Nations, through the adoption of the Sustainable Development Goals (SDGs) in 2015, placed education at the center of its development agenda. Specifically, Sustainable Development Goal 4 (SDG-4) calls upon countries to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030 (UNESCO, 2015). Quality education is no longer defined merely by access or enrollment but by its ability to equip

learners with the knowledge, skills, values, and attitudes necessary for meaningful participation in society and the workforce.

The concept of educational quality is multidimensional. Adams (1993) explained that education quality cannot be restricted to outcomes alone but must be examined in terms of inputs (resources, infrastructure, teachers), processes (teaching, management, school climate), and outputs (student learning, skills, and values). This framework is widely accepted in education research and policymaking, forming the basis for evaluating progress toward SDG-4 in diverse contexts.

Importance of Quality Education

Globally, education systems face a learning crisis, whereby rising enrollment has not been matched by improvements in learning outcomes. The World Bank (2018) reported that millions of children, especially in low- and middle-income countries, attend school without mastering foundational skills such as reading, numeracy, and problem-solving. UNESCO (2021) emphasized that this crisis is not only quantitative but also qualitative: schools often fail to prepare children for the complex social, moral, and professional challenges of the 21st century.

High-quality education requires more than physical resources. It depends on effective teaching, supportive school leadership, equity in access, and relevance of learning to local and global contexts (Tikly & Barrett, 2011). Teachers, in particular, play a central role. Darling-Hammond (2017) stressed that teacher preparation and continuous professional development are critical in transforming curriculum into meaningful learning. Similarly, Fullan (2007) highlighted that leadership and collaborative school management create the conditions for sustainable improvements in learning outcomes.

Quality of Education in Pakistan

In Pakistan, education remains a critical policy priority but continues to face systemic challenges. Although enrollment has increased in recent decades, disparities persist across gender, regions, and socioeconomic groups. According to the Pakistan Education Statistics 2020–21 (Government of Pakistan, 2022), issues such as teacher shortages, overcrowded classrooms, and lack of infrastructure remain widespread. Furthermore, while government spending on education has improved over the years, it remains insufficient to address the challenges of equity and quality (Akram & Khan, 2007).

The learning issue is most noticeable in Pakistan's elementary education system, where attrition rates are high and student performance levels remain below expectations. Investments in curriculum change, teacher hiring, and school infrastructure have not improved student performance in reading, numeracy, and problem-solving skills (World Bank, 2018). According to UNESCO (2021), the availability of resources alone cannot guarantee improved learning results in the absence of effective education, inclusive behaviors, and stringent accountability.

Educational Quality in the Context of Bannu Division

Bannu is one of the major city of Khyber Pakhtunkhwa in which education play a key role in national development and social progress. There are different issues and challenges faced by the education system in Bannu. Bannu Division, located in Khyber Pakhtunkhwa, reflects the national challenges of education but also has unique contextual issues. Social hurdles, poor infrastructure, and a lack of resources have all affected the area, making it difficult for everyone to have equal access to education. The teaching and learning processes in Bannu schools are frequently hampered by overcrowded classrooms, a lack of resources, and a teacher shortage. Although significant curricular and infrastructural improvements have been made possible by government changes, it is still unclear how well these contributions will result in the intended educational outcomes.

In line with Adams' (1993) framework, the quality of education in Bannu Division must be assessed through inputs, processes, and outputs. Inputs include curriculum, teacher qualifications, school management, and resources. Processes involve classroom pedagogy, assessment practices, and governance mechanisms. Outputs reflect student learning in cognitive, emotional, moral, physical, and social domains. However, as suggested by UNESCO (2021) and Addey (2021), in many low-resource contexts, there is often a gap between inputs and outputs—resources are

provided, but learning outcomes remain weak. This gap is central to understanding the quality of education in Bannu Division.

Research Gap and Rationale

Globally, the quality of primary education has been studied with emphasis on access, equity, resources, and teacher effectiveness (Adams, 1993; UNESCO, 2015). In Pakistan, research has mostly concentrated on input dimensions such as teacher qualifications, funding, and curriculum reforms. While these studies highlight important aspects, they often overlook the interconnection between inputs, processes, and actual learning outcomes. Specifically, there is a lack of evidence on how effective management and resource availability translate into improved student performance, retention, and future preparedness—areas central to SDG 4 (Addey, 2021).

In the regional context of Khyber Pakhtunkhwa, studies have highlighted challenges such as insufficient infrastructure, teacher shortages, and limited instructional materials. However, very limited empirical work has assessed these issues holistically in Bannu Division, particularly linking input and process indicators to measurable outputs such as academic achievement and student aspirations. Because it keeps stakeholders from completely comprehending why robust inputs and processes do not always result in better educational results, this understudied feature constitutes a crucial gap.

The foundation of national development is primary education, and attaining SDG 4 necessitates guaranteeing both access and high-quality learning outcomes. In Pakistan, results including student retention, conceptual learning, and secondary school readiness are still lacking despite significant investments in curriculum development and school infrastructure (Ailaan, 2018). Significant questions concerning the effectiveness and accountability of the educational system are raised by this discrepancy between input provision and output accomplishments.

The justification for this study is strengthened in Bannu Division, where socioeconomic difficulties, a lack of teachers, and unequal access to resources continue to exist.

By examining school management, resource availability, teaching practices, and student outcomes together, the study addresses both local needs and global priorities. It contributes to filling the literature gap by providing context-specific evidence on whether educational investments and policies are translating into meaningful learning outcomes. Findings from this research will not only guide local stakeholders but also add to the broader discourse on achieving SDG 4 in developing regions.

Objectives

1. To examine the perceived quality of educational inputs, including school management and administration and availability of resources, in primary schools of Bannu Division.
2. To assess the quality of process indicators, such as teaching techniques and utilization of available resources, at the primary school level.
3. To evaluate the output quality of primary schools in terms of students' academic performance, completion and retention rates.

Research Questions

1. What is the perceived quality of educational inputs (e.g., school management, administration, and availability of resources) in primary schools of Bannu Division?
2. How do process indicators (e.g., teaching techniques and utilization of available resources) contribute to the quality of primary education in Bannu Division?
3. What is the level of output quality in primary schools, as reflected in students' academic performance, retention and completion rates, and their future perspectives?

Research Methodology

Research Design

The research design was descriptive. The survey method was applied to collect data. A descriptive research design is appropriate for gaining an in-depth understanding of the current status and characteristics of the Public primary

education system in Bannu Division, Khyber Pakhtunkhwa, as it pertains to Sustainable Development Goal 4: Quality Education. This design involves systematic data collection and analysis to describe the existing conditions, without manipulating variables or establishing causal relationships.

The descriptive research design aims to paint a detailed and accurate picture of the current state of Public primary education in Bannu Division, providing a foundation for future interventions and policy decisions.

Population

All the primary school teachers of Bannu Division, KPK, constituted the population of the study. The district-wise primary schools strata and gender wise teachers' strata of the population are shown in the following table. The data was taken from the District Education offices of all three districts.

Table 1

Population Frame

District	Male Primary Schools	Female Primary Schools	Male Teachers	Female Teachers
Bannu	807	593	4,342	3,247
Lakki Marwat	751	539	3,950	3,055
North Waziristan	543	349	2,735	1,943
Total	2,101	1,481	11,027	8,245

Note: The population includes all male and female primary school teachers from the three districts of Bannu Division (N = 19,272).

The population of the study comprised all primary school teachers working in the Bannu Division, Khyber Pakhtunkhwa. Bannu, Lakki Marwat, and North Waziristan are the three districts that make up the division. There are 2,101 primary schools for boys and 1,481 for girls overall, and there are currently 11,027 male and 8,245 female instructors working in these institutions. Thus, 19,272 teachers from the three districts made up the total population frame. Teachers from established and tribal districts, as well as male and female teachers, were all well represented thanks to this thorough population frame.

Sampling, Size and Procedure

Several stages. Stratified random sampling was employed. A technique used in educational research to make sure the sample chosen is representative of various population segments is stratified random sampling. According to specific traits that are pertinent to the study, this method separates the population into discrete subgroups, or strata. To create a representative sample, randomizer.org is used to select samples at random from each stratum.

Table 2

District and Gender Wise Sampling Frame of Schools and Teachers

S.N	District	Gender	Schools	Working teachers	Sampled teachers
1	Bannu	Male	81	565	78
		Female	60	418	58
		Total	141	983	136
2	Lakki Marwat	Male	75	526	73
		Female	54	380	52
		Total	129	906	125
3	North Waziristan	Male	55	326	45
		Female	35	281	39
		Total	90	607	84
Total			360	2496	345

There were two phases to the sampling process. The 3,582 primary schools spread across the three districts of Bannu Division were taken into consideration in the first stage. Using an online sampling calculator with a 95% confidence level and 5% margin of error, a representative sample of 360 schools was identified. In the second stage, teachers working within these sampled schools were considered as the sampling frame. The total number of teachers in the

sampled schools was 2,496, from which a sample of 345 teachers was proportionally selected. The distribution of sampled teachers was stratified by district and gender to ensure fair representation. Accordingly, 136 teachers (78 male and 58 female) were selected from Bannu, 125 teachers (73 male and 52 female) from Lakki Marwat, and 84 teachers (45 male and 39 female) from North Waziristan. This two-stage stratified proportional sampling design enhanced the representativeness of the study and ensured that both male and female teachers from settled and tribal districts were adequately represented (Taherdoost, 2017).

Ethical Considerations

Informed consent was obtained from participants, ensuring confidentiality and voluntary participation. The researcher adhered to ethical guidelines in the treatment of sensitive information, and the privacy of individuals involved will be maintained.

Data Collection Tool

A self-developed questionnaire was used to collect data for providing responses to the key questions of the study. Five-point Likert's scale, i.e. Strongly Disagree, Disagree, Undecided, Agree and Strongly Agree, was used for the questionnaire. The focus remained on the following parameters:

Input

1. Availability of Resources
2. School Management and Administration

Process

3. Utilization of available resources
4. Teaching techniques

Output

5. Completion and retention
6. Academic performance of students

Data Collection

The researcher collected the data in person. A self-developed questionnaire was used for data collection.

Validity and Reliability of the Tool

The researcher applied Item Objective Congruence (IOC) for content validity. IOC is a method in which experts evaluate the instrument by checking the questionnaire structure, grammar and item relevance. The instrument was examined by a group of subject-matter experts who used a three-point grading system: +1 (obviously congruent), 0 (uncertain), and -1 (not congruent) to assess each item's relevance to the study's goals. Each item's IOC index was determined by dividing the total number of experts by the sum of their ratings (Rovinelli & Hambleton, 1977). Items with IOC values of 0.50 or greater were deemed acceptable in accordance with published validation standards (Polit & Beck, 2006); items with values below the threshold but not completely rejected were suggested for correction; and items with extremely low IOC values were deleted. By ensuring that the completed questionnaire had items with strong content validity, this process improved the accuracy and dependability of the data collection that followed (Lynn, 1986). The completed questionnaire was given to a sample of thirty teachers who were not involved in the primary study in order to guarantee the instrument's reliability. Cronbach's alpha coefficient, a commonly used metric for assessing scale reliability, was used to analyze the questionnaire's internal consistency (Cronbach, 1951). A high degree of internal consistency was shown by the analysis, which showed that the reliability coefficients for every questionnaire part were above 0.80 (Nunnally & Bernstein, 1994). This implies that the instrument was appropriate for use in the primary data collection and that the items consistently measured the desired constructs.

Data Analysis

To identify the quality of primary education, descriptive statistics, Mean and Standard Deviation (SD) were used.
Scale weightage for analysis and interpretation of data.

This categorization allowed the numerical means to be translated into meaningful descriptive categories. According to Boone and Boone (2012), Likert-type items provide ordinal data, but when several items are combined

into a composite scale, the resulting data can be treated at the interval level. This justifies the calculation of means and standard deviations and the interpretation of scores using predefined ranges.

To measure perceptions related to SDG-4 Quality of Primary Education, a five-point Likert scale was employed. Each statement in the questionnaire offered five possible responses, ranging from Strongly Disagree (1) to Strongly Agree (5). For interpretation, the following mean ranges were adopted (Nyutu et al., 2021)

Table 3

Weight	Scale	Numbering	Range of Mean
1	Strongly Disagree	1	1.00 – 1.80
2	Disagree	2	1.81 – 2.60
3	Undecided	3	2.61 – 3.40
4	Agree	4	3.41 – 4.20
5	Strongly Agree	5	4.21 – 5.00

Table 4

Rank Order of "Availability of Resources" Indicators

S.N	Input Quality Indicators	M	SD
1	The school have enough funds to be utilised.	3.64	0.73
2	Furniture available in the class is sufficient.	3.63	0.64
3	A Clean Toilet facility is available at the school.	3.62	0.77
4	Clean water for drinking is available at school.	3.5	0.92
5	Teaching materials like textbooks, models, whiteboards, and display boards are available.	3.25	1.02
6	Teachers are available in school according to the requirements of students.	3.05	1.09
	Overall	3.44	0.35

The table shows that the availability of school funds (M = 3.64, SD = 0.73) was rated highest, falling in the "Agree" category, suggesting schools are relatively well resourced financially. Furniture in classrooms (M = 3.63, SD = 0.64) also received strong agreement, indicating that seating and classroom arrangements are generally adequate and fall in the range of "Agree". The provision of toilet facilities (M = 3.62, SD = 0.77) was rated within the "Agree" range, showing that sanitation facilities are reasonably ensured. Clean drinking water (M = 3.50, SD = 0.92) was also rated in the "Agree" range, indicating that schools generally provide safe drinking water, though with some variability in responses. The availability of teaching materials such as textbooks, models, whiteboards, and display boards (M = 3.25, SD = 1.02) fell into the "Undecided" category, reflecting uncertainty and inconsistency in the provision of instructional aids. The availability of teachers according to student requirements (M = 3.05, SD = 1.09) also fell in the "Undecided" category, highlighting gaps in the teacher-student ratio and staffing. The overall mean score (M = 3.44, SD = 0.35) lies within the "Agree" category, showing that respondents generally acknowledge the presence of basic resources in schools. However, instructional materials and adequate teacher availability remain areas requiring significant improvement.

Table 5

Rank Order of "School Management and Administration" Indicator

S.N	Input Quality Indicators	M	SD
1	Conflicts among stakeholders (teachers, students, or parents) are resolved through dialogue and cooperation.	3.74	0.85
2	Cooperation with students is maintained.	3.59	0.87
3	Efficient and effective use of overall school resources is ensured.	3.51	0.98
4	Goals and strategies for the institution are devised.	3.47	0.96
5	Cooperation with teachers is evident.	3.42	1.08
6	Coordination among staff members is encouraged for effective school functioning.	3.30	1.30
	Overall	3.51	0.43

The results of the table concerning school management and administration in Public primary schools of Bannu Division reflect a moderately positive perception from respondents. The highest-rated indicator was the resolution of

conflicts among stakeholders through dialogue and cooperation (M = 3.74, SD = .85), which falls in the "Agree" category, highlighting effective conflict-resolution practices. Cooperation with students (M = 3.59, SD = .87) was also rated in the "Agree" range, showing that school leadership maintains supportive relationships with learners. Similarly, the efficient and effective utilization of school resources (M = 3.51, SD = .98) received an "Agree" response, indicating reasonable administrative efficiency. Institutional goals and strategies being devised (M = 3.47, SD = .96) also fell in the "Agree" category, suggesting that schools generally plan their objectives systematically. Cooperation with teachers (M = 3.42, SD = 1.08) was rated in the "Agree" range as well, reflecting moderately positive support for teacher collaboration. In contrast, coordination among staff members for effective school functioning (M = 3.30, SD = 1.30) was rated in the "Undecided" category, suggesting inconsistency and a need to strengthen teamwork within schools. The overall mean score (M = 3.51, SD = .43) lies within the "Agree" category, indicating that stakeholders hold a generally favorable view of school management and administration, though staff coordination remains a weaker area requiring improvement.

Table 6

Rank order of the "Utilization of Available Resources" indicator

S.N	Process Quality Indicators	M	SD
1	Parents-Teachers Council (PTC) Meetings are conducted on a regular basis.	3.56	0.80
2	Teachers and administration ensure optimal use of school resources.	3.43	0.70
3	Proper utilization and maintenance of fundamental material is ensured by the teachers and administration.	3.41	0.72
4	Parents' and community suggestions are considered in budget planning.	3.30	0.59
5	Administration utilize school fund and budget in consultation with PTC.	3.24	0.58
	Overall	3.39	0.31

The findings of the table on the utilisation of available resources in Public primary schools of Bannu Division show moderately positive perceptions with some critical gaps. The highest-rated indicator was the regular conduct of Parent-Teacher Council (PTC) meetings (M = 3.56, SD = 0.80), which falls in the "Agree" range, indicating that PTCs are actively engaged in school affairs. This was followed by the optimal use of resources by teachers and administration (M = 3.43, SD = 0.70), also rated in the "Agree" category, suggesting efforts toward efficiency, though not at a very strong level. Similarly, proper utilization and maintenance of fundamental materials by teachers and administration (M = 3.41, SD = 0.72) was rated in the "Agree" range, reflecting that schools generally ensure the upkeep of basic facilities. In contrast, the consideration of parents' and community suggestions in budget planning (M = 3.30, SD = 0.59) fell into the "Undecided" category, highlighting a gap in inclusive financial planning. The lowest-rated item was the consultation of administration with PTC in utilizing school funds and budgets (M = 3.24, SD = 0.58), also in the "Undecided" range, showing that financial decision-making is not consistently participatory. The overall mean score (M = 3.39, SD = 0.31) falls within the "Undecided" category, suggesting that while schools make some efforts in resource utilization, there is a clear need for stronger financial transparency, participatory budgeting, and consistent maintenance of resources.

Table 7

Rank Order of "Teaching Techniques" Indicator

S.N	Process Quality Indicators	M	SD
1	Teaching methodologies are based on student learning outcomes and selected according to the nature and demand of the content.	3.73	0.64
2	Teachers are aware of new emerging concepts, theories, and trends relevant to their subject content.	3.72	0.66
3	Activity-based methods are used in classrooms where content requires student-centred engagement.	3.68	0.68
4	Teachers prepare lessons regularly based on content needs and learning outcomes.	3.59	0.92
5	Conceptual learning of students is ensured through suitable teaching methods as per content demands.	3.47	1.08
6	Educational technologies are available and utilized effectively as per teaching content and context.	3.45	0.93
	Overall	3.61	0.36

The results of the table show that the overall mean score of 3.61 (SD = 0.36) falls in the "Agree" category, indicating that respondents generally perceive process quality indicators as being practiced in schools. At the top, respondents agreed that teaching methodologies are based on student learning outcomes and are selected according to the nature and demand of the content (M = 3.73, SD = 0.64, Agree). This was followed by agreement that teachers are aware of new emerging concepts, theories, and subject-related trends (M = 3.72, SD = 0.66, Agree) and that activity-based teaching methods are adopted where student-centered engagement is required (M = 3.68, SD = 0.68, Agree). Similarly, teachers are reported to prepare lessons regularly according to content needs and expected learning outcomes (M = 3.59, SD = 0.92, Agree). On the lower side, respondents agreed that conceptual learning of students is ensured through suitable teaching methods (M = 3.47, SD = 1.08, Agree) and that educational technologies are available and utilized effectively as per teaching content and context (M = 3.45, SD = 0.93, Agree). The relatively higher standard deviations in these two areas reflect greater variation in practices across schools. Overall, the findings suggest that schools are effectively promoting process quality in teaching and learning; however, greater consistency is needed in ensuring conceptual learning and the effective use of educational technologies.

Table 8

Rank order of "Completion and Retention" Indicator

S.N	Output Quality Indicators	M	SD
1	The community actively participates in initiatives to improve primary school completion rates	3.10	0.59
2	Increased primary school enrollment rates are positively associated with improved pass-out and retention outcomes.	3.04	0.80
3	Government education policies directly influence primary school graduation/retention rates.	3.03	0.69
4	There is a strong community commitment to reducing dropout rates in primary schools	2.97	0.72
5	Education plays a significant role in improving student retention rates in primary schools.	2.77	0.78
6	Parent-teacher collaborations have a positive impact on primary school completion rates	2.62	0.75
	Overall	2.92	0.30

The findings of the table reveal that the overall mean score of 2.92 (SD = 0.30) falls in the Undecided (UD) category, indicating that respondents are generally uncertain about the effectiveness of output quality indicators in improving primary school completion and retention rates. At the top, community participation in educational initiatives was rated the highest (M = 3.10, SD = 0.59, UD), though still reflecting only moderate confidence in its role. This was followed closely by the perceived link between increased enrolment and retention outcomes (M = 3.04, SD = 0.80, UD) and the influence of government education policies on graduation and retention (M = 3.03, SD = 0.69, UD). Community commitment to reducing dropout rates was also viewed with neutrality (M = 2.97, SD = 0.72, UD), while the role of education in improving retention received a lower but still undecided rating (M = 2.77, SD = 0.78, UD). The lowest-rated factor was parent–teacher collaboration (M = 2.62, SD = 0.75, UD), showing limited confidence in its contribution to student completion. Overall, these results suggest that although there is some recognition of the role of communities, policies, and enrolment efforts, stakeholders remain largely unconvinced of their strong or consistent impact on improving completion, retention, and pass-out rates in primary schools.

Table 9

Rank Order of "Academic Performance of Students" Indicator

S.N	Output Quality Indicators	M	SD
1	The majority of students demonstrate proficiency in key subjects at their respective grade levels	3.99	0.88
2	Primary schools effectively prepare students for further education	3.28	0.64
3	Students in primary schools perform well in assessments and classroom activities.	3.26	0.85
4	Students from primary schools are well-prepared for the challenges of secondary education	3.24	0.77
5	Students exhibit a strong understanding of fundamental concepts taught in primary school	3.07	0.88
6	The academic performance of primary school students in our community is generally satisfactory.	3.05	0.79
	Overall	3.19	0.36

The findings of the table indicate that the overall mean score of 3.19 (SD = 0.36) falls within the Undecided (UD) category, suggesting that respondents are generally neutral about the academic performance of primary school students in the Bannu Division. At the top, respondents agreed that the majority of students demonstrate proficiency in key subjects at their respective grade levels (M = 3.99, SD = 0.88, Agree), showing relative confidence in subject-specific achievement. This was followed by agreement, though weaker, that primary schools effectively prepare students for further education (M = 3.28, SD = 0.64, UD) and that students perform well in assessments and classroom activities (M = 3.26, SD = 0.85, UD). Similarly, the perception that students are well-prepared for the challenges of secondary education was also rated in the Undecided range (M = 3.24, SD = 0.77). On the lower side, respondents remained neutral about whether students exhibit a strong understanding of fundamental concepts taught in primary school (M = 3.07, SD = 0.88, UD) and whether the overall academic performance of students is satisfactory (M = 3.05, SD = 0.79, UD). In summary, while student proficiency in key subjects was acknowledged positively, most other indicators of academic performance were rated as Undecided, highlighting the need for strengthening conceptual learning, assessment outcomes, and preparation for secondary education.

Discussion

The findings of this study provide significant insights into the quality of primary education in Bannu Division, analyzed through input, process, and output indicators. According to the input indicator analysis, school administration and management, together with resource availability, were scored in the "agree" range on the Likert scale (M = 3.50, SD = 0.43; M = 3.45, SD = 0.35). According to the overall input quality (M = 3.66, SD = 0.22), schools appear to be quite well-equipped in terms of fundamental provisioning, infrastructure, and governance. These findings are in line with earlier studies showing that increased resource availability and administrative effectiveness act as enabling factors for successful instruction and learning (Adams, 1993; Addey, 2021). Notwithstanding favorable evaluations, the diversity of answers shows that not all schools receive equal inputs, underscoring the need for more consistent resource allocation.

Process indicators presented a slightly different picture. Teaching techniques were positively rated (M = 3.61, SD = 0.36), falling in the "agree" category, while the utilization of available resources was rated lower (M = 3.39, SD = 0.31), which corresponds to "undecided." The overall mean for process quality (M = 3.52, SD = 0.18) suggests that teachers demonstrate effective classroom practices but do not consistently maximize the resources at their disposal. This finding supports earlier studies, which highlight that resource allocation alone does not guarantee improved educational outcomes unless coupled with effective utilization strategies (UNESCO, 2015). It also underscores the importance of capacity-building and training for teachers in innovative and resource-based pedagogies. In contrast, the output indicators showed considerably weaker results. Academic performance of students (M = 3.19, SD = 0.36), completion and retention (M = 2.92, SD = 0.30), and future perspectives of students (M = 2.66, SD = 0.35) all fall in the "undecided" to "disagree" range. The overall output quality (M = 2.98, SD = 0.16) indicates that despite adequate inputs and moderately strong processes, the system is not effectively translating these into strong educational outcomes. This aligns with global evidence that access and provision improvements often do not correspond directly to enhanced learning outcomes (World Bank, 2018). Particularly, the low ratings for student retention and future perspectives highlight systemic challenges such as dropouts, limited career guidance, and insufficient support structures for long-term student development.

These findings reveal a disconnection between educational inputs, teaching processes, and actual outputs. While schools are reasonably well-managed and equipped, and teachers employ effective techniques, the ultimate goals of education—academic achievement, completion, and future readiness—remain unmet. This gap may be attributed to several factors, including inadequate monitoring of learning outcomes, socioeconomic barriers affecting retention, and the absence of structured career and life skills education. It also reflects the broader challenges identified in developing contexts, where achieving Sustainable Development Goal 4 (SDG 4) requires not only provision and process improvements but also a focus on measurable student outcomes (Addey, 2021; UNESCO, 2015).

Conclusion

Input, process, and output indicators were used in the study to evaluate the standard of elementary education in Bannu Division. Schools are relatively well-equipped with basic infrastructure, according to the data, which showed

that input quality criteria such as the availability of school funds, furniture, sanitary facilities, and safe drinking water were typically rated highly within the "Agree" category. However, there were clear deficiencies in the availability of sufficient teachers and the supply of educational resources, both of which were scored as "Undecided," indicating variations throughout schools. Respondents agreed that resource use, student cooperation, and dispute resolution were all successfully implemented in school management and administration. However, staff coordination was thought to be comparatively worse, highlighting the need for better collaboration and cooperative techniques.

The use of the resources that were available also revealed conflicting opinions: although Parent-Teacher Council meetings and facility upkeep were praised, participatory budgeting and financial consultation with stakeholders were still lacking, as evidenced by the "Undecided" responses.

The examination of instructional strategies revealed largely favorable opinions, with a high degree of agreement that approaches were in line with current trends, content requirements, and learning objectives. However, disparities in the use of educational technologies and conceptual learning were observed, indicating that successful teaching methods were not uniformly applied in all schools.

Output quality indicators presented a more concerning picture. Completion and retention outcomes, as well as academic performance, were largely rated in the “Undecided” category, reflecting uncertainty about the effectiveness of educational policies, community commitment, and parent–teacher collaboration in sustaining student progress. While proficiency in key subjects received agreement, overall academic preparedness, retention, and progression to secondary education were viewed with scepticism.

Overall, the findings suggest that while schools in Bannu Division are moderately resourced and show relative strengths in management, administration, and teaching practices, critical challenges remain in the equitable provision of instructional materials, teacher availability, participatory governance, and—most importantly—student learning outcomes and retention. Addressing these gaps requires targeted interventions in resource allocation, teacher deployment, inclusive financial planning, and strategies to strengthen community involvement in education, thereby aligning school practices more closely with the objectives of Sustainable Development Goal 4 (Quality Education).

Recommendations

1. Teacher recruitment and deployment should be made according to actual student–teacher ratios, especially in underserved areas, while instructional resources such as textbooks, models, and digital learning tools should be provided consistently.
2. Equitable distribution of financial and material resources across schools must be ensured, with priority given to those facing acute shortages. Professional development workshops and team-building activities should also be arranged to enhance staff coordination and performance.
3. Teachers should be regularly trained in innovative, activity-based methodologies, classroom management, and the use of educational technologies. The utilization of school funds must be made transparent and participatory by involving Parent-Teacher Councils in decision-making.
4. While more use of ICT in the classroom may enhance student engagement and learning opportunities, community involvement in school development and oversight should be promoted to increase accountability.
5. With remedial programs and enhanced assessment systems, measurable learning outcomes should receive more attention. Conditional financial transfers, incentive-based programs like midday meals, and scholarships can all help increase retention and completion rates.
6. To assist students in gaining clarity on their academic and professional trajectories, career guidance and counseling services ought to be implemented at the elementary school level. The curriculum should also incorporate life skills instruction that emphasizes problem-solving, resilience, and critical thinking.
7. Education programs must continue to be closely matched with the objectives of Sustainable Development Goal 4. To track not just the supply of inputs but also the efficacy of instruction and student learning outcomes, more robust monitoring and assessment methods are required.
8. Particular focus should be placed on equity and inclusion, guaranteeing that marginalized groups, girls, and children with disabilities have equitable access to high-quality education.

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