

## RESEARCH ARTICLE

# Secondary school teachers' perception of quality management practices in Ethiopia: Implications for quality education for all [version 1; peer review: 1 approved with reservations]

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**Abstract**





**Background:** Most children in low-income countries complete their elementary education with low competency in essential reading, writing, and arithmetic skills. Besides, about 250 million students are not learning the basics, most of whom have spent at least four years in school, and this failure is coined the global learning crisis. This study aimed to examine educational quality management practices perceived by secondary school teachers.




**Methods:** The study employed a multilevel mixed-method design. Employing a simple random sampling technique, the researcher selected 251 teachers from 10 secondary schools in the research regions. He collected data through a researcher-designed questionnaire, school standards, and student achievement records from November 2018 to March 2019. He analyzed data from a questionnaire using frequency, percentage, mean, Pearson correlation, and exploratory factor analysis. The document review concerning quality management was analyzed using content analysis to triangulate the quantitative findings.

**Results:** At the school level, the study revealed the impracticality of laboratories. Besides, incompetent and unmotivated teachers and students ran the education business from the input side. At the same level, principals' management practices on staff development and encouraging parents to support their schools were low. The principals' management practices in the teaching-learning process were also undesirable at the classroom level. Overall, the study revealed incredibly insufficient input, process, and output management in the study context.

**Conclusion:** Hence, the study concluded that it is difficult to achieve the very objectives of producing creative, critical, and problem-solving individuals through this type of educational provision and its management. Due to this, it is not easy to achieve quality education

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Any reports and responses or comments on the article can be found at the end of the article.

for all goals.

### Keywords

Education quality, Ethiopia, quality, quality management, management practice, secondary education



This article is included in the [Quality Education for All](#) gateway.

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## Introduction

The success of a country is critically linked to its human capital development. According to the [World Bank \(2018\)](#) report, about 64% of the nation's wealth is directly related to human capital. Over the last two decades, education expansion has increased dramatically. Nevertheless, school expansions do not guarantee the levels of students' learning ([Altinok et al., 2018](#); [Glewwe & Muralidharan, 2015](#); [Patrinos & Angrist, 2018](#); [UNESCO, 2015](#); [World Bank, 2018](#)). Most children in low-income countries complete their elementary education with low competency in essential reading, writing, and arithmetic skills ([Benavot & Köseleci, 2015](#); [Treviño & Ordenes, 2017](#); [World Bank, 2018](#)). For example, 15 Eastern and South African countries took part in the Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ) in 2007. However, most scored below the level of 'reading for meaning,' and approximately 60% scored below the level of 'basic numeracy' ([Hungu et al., 2010](#)). According to the Education for All Global Monitoring Report of 2014, about 250 million students are not learning the basics, most of whom have spent at least four years in school ([UNESCO, 2014](#)). UNESCO coined this failure as the 'global learning crisis.'

Ethiopia has been engaging in macroeconomic development programs such as the Sustainable Development and Poverty Reduction Program (1995–2005), Plan for Accelerated and Sustained Development to End Poverty (2005–2010), First Growth and Transformation Plan (GTP) (2010–2015), and Second Growth and Transformation Plan (2015–2020) since 1995 ([Ministry of Education \(MOE\), 2015](#)). All of them were planned to respond to human capital development needs that could contribute to poverty reduction and the country's economic development ([MOE, 2015](#)).

As per the [Transitional Government of Ethiopia \(TGE\), 1994](#), one of the main reasons for establishing the existing Education and Training Policy (ETP) was to address the weaknesses of previous education systems (the Imperial and the Socialist regimes) in addressing access, equity, quality, and relevance problems simultaneously. To materialize these, the MoE launched five consecutive Education Sector Development Programs (ESDPs) ([MOE, 2015](#)). Because of implementing the ESDPs, the education system successfully addressed access and equity issues compared to primary education quality issues.

Although education has been expanding throughout the country, the concern for quality education has become a profound public worry among educational stakeholders in Ethiopia ([Negash, 2006](#)). As a response to public concerns, the MoE and international development partners (World Bank) established the General Education Quality Improvement Programs (GEQIPs) ([MOE, 2015](#)). Implementing these programs improved the quantitative aspects of educational resources, such as the student-textbook and student-teacher ratios ([MOE, 2015](#)). Despite

such quantitative improvements, the MoE did not achieve its goals as expected by stakeholders. It appears that secondary education lacks quality.

Quality is a multidimensional, subjective concept, and sometimes it is political. In this study, quality refers to how an education system provides every student's knowledge, skills, and attitudes. Hence, attempting to fulfil inputs and manage these inputs (process) leads most students to score highly on the national examination. Studies show that principals in Ethiopia emphasized administrative routines ([Ahmed, 2015](#)), and the district supervisors and inspectors interfered with principals' practices ([Aklilu et al., 2021](#)). The reviews of the existing studies show that the management of quality education in secondary schools in Sub-Saharan Africa seems rarely addressed. In support of this idea, [Alexander \(2015\)](#) contends that most African countries have been focusing on achieving the Education for All (EFA) goals. Much attention to expanding schools suggests examining how expanded secondary education gives critical attention to quality management practices, which calls for an empirical investigation. Therefore, this study has investigated the practices and challenges of quality management in terms of input availability and management and the proper functioning of the teaching-learning process to produce desired outputs in secondary schools in the Southern Nations, Nationalities, and People Regions (SNNPR) of Ethiopia.

## Statement of the problem

According to broad and large-scale quantitative data reviews ([Robinson, 2007](#)), effective school leadership and management are the second most essential variables that boost students' learning, next to the classroom teaching-learning process. In recognition of this, the MOE and regions have given training to 25,000 principals and supervisors on how to lead the teaching-learning process during GEQIP implementation ([MOE, 2015](#)).

Though wide ranges of training have been provided to principals and supervisors, [Joshi and Verspoor's \(2012\)](#) report and the National Learning Assessment (NLA) (2014) ([MOE, 2015](#)) reports show that the majority of the students scored below the standard (50%). For instance, the World Bank found that student achievement in secondary school was low, but the graduates lacked the necessary skills to enter the world of work. Similarly, students' results in the NLA also echo the existence of students' low academic achievement. For example, in ESDP IV, the ministry set targets in 2014 for grades 4, 8, 10, and 12 in Mathematics, English, Biology, Physics, and Chemistry. Nonetheless, the ministry did not achieve the targets ([MOE, 2015](#)). These illustrate the legacy of poor-quality education.

While reviewing the Education Statistics Annual Abstracts of the latest Grade 10 student National Examination results (2016–2018) among larger regions such as Amhara, Oromia,

SNNPR, and Tigray, the SNNPR's grade 10 students' National Examination results in all three years were below the larger regions and the national average (own compilation from National Education Assessment and Examinations Agency's Data, 2019). The rationale for choosing SNNPR was the region's three consecutive years of low academic achievement compared to the regions mentioned above and the national average.

This study differs from previous research for two reasons: Firstly, studies on secondary education quality management are scanty (Joshi & Verspoor, 2012; Verspoor & Bregman, 2008). Secondly, the existing literature (Scheerens, 2011) emphasized single-level quality management practice (school or classroom level). Scheerens suggests the importance of conducting quality management at multiple levels. Hence, this study aimed to assess school and classroom levels of quality management practices in secondary education to fill these yawning gaps.

**Research questions**

- (1) How do teachers perceive the inputs to secondary schools in Ethiopia?
- (2) How do teachers perceive school-level quality management practices in Ethiopian secondary schools?

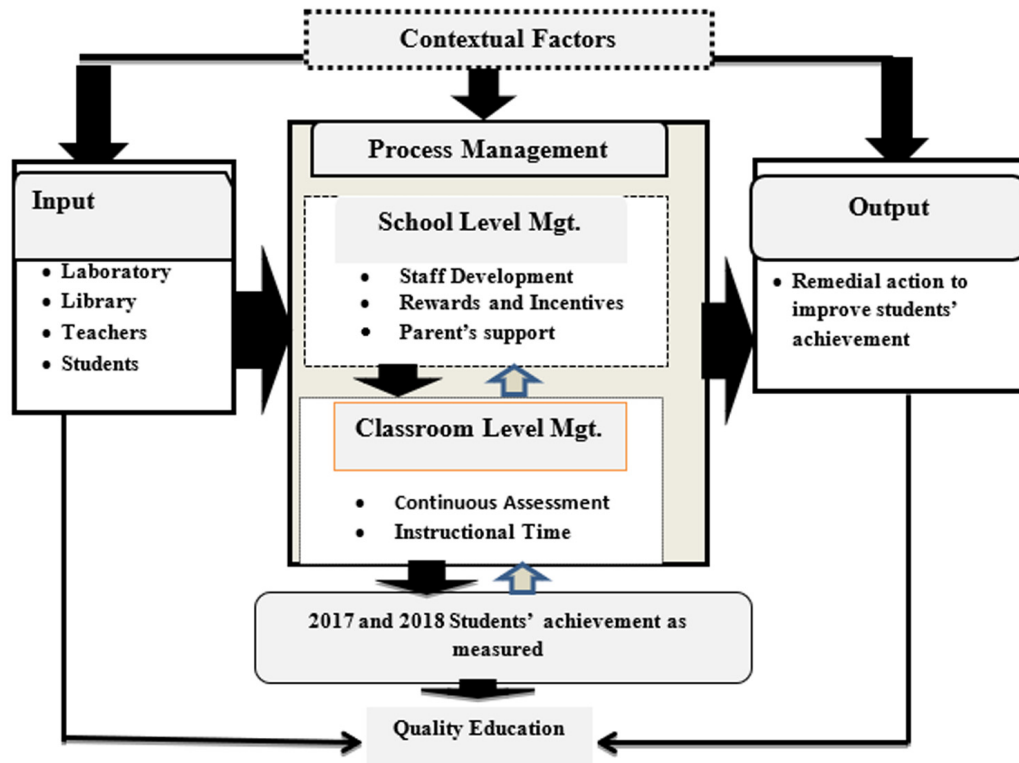
- (3) How do teachers perceive classroom-level quality management practices in Ethiopian secondary schools?
- (4) What are the relationships between input, process, and output management in Ethiopian secondary education?

**Significance of the study**

This study offers pertinent and timely information to policymakers concerning quality management practices in Ethiopian secondary schools. Besides, it helps vital educational stakeholders, such as school principals and teachers, revisit their practices to enhance students' achievement.

**A conceptual framework for quality management in secondary schools**

As per Kast and Rosenzweig (1981), open system theory states that a school takes its inputs from the external environment, transforms them to produce the outputs, and exports the output back to the environment. Furthermore, as an embedded social organization, schools influence the performance of classroom-level decisions (Thien & Razak, 2012). The following conceptual framework was adapted from Scheerens (2011). It shows the relationships among variables in input, process, and output management (Figure 1).



**Figure 1.** Conceptual framework of quality management in secondary education.

## Operational Definition of Terms

High School (secondary education): A school hosts Grade 9–12 students.

Special Woreda is similar to a district not part of a zone administration division and functions as an autonomous entity ([en.m.wikipedia.org/wik](https://en.m.wikipedia.org/wiki/Special_Woreda)).

Woreda: The Ethiopian education administration has four levels—Federal Ministry, Regional Education Bureau, Zonal Department, and Woreda. It is equivalent to the district. It administers the number of schools.

Zone: an administrative level between the region's governments and the woreda. It manages various woredas.

## Literature review

### Education quality

Scholars define the term 'quality' in different ways. For many scholars (Reddy, 2007), the students' national examination results are a starting point for defining education quality. Differently, the World Bank conceptualizes the learners' cognitive achievement to measure the quality of education (Ndofirepi, 2012). The United Nations International Children's Fund (UNICEF) (2006) defines education quality as the education system that helps every individual develop his or her full capacity. Ibrahim *et al.* (2017) provided a more comprehensive definition of educational quality. The authors state quality from seven dimensions—providing adequate instructional materials, educational infrastructure, imparting the proper knowledge, meeting educational yardsticks, teacher support, creating a conducive learning atmosphere, and the availability of high-quality education teachers. Secondary education provides competent citizens with tertiary education and work experience (O'Sullivan, 2017; Pourrajab *et al.*, 2015). Hence, secondary schools could consciously plan and lead quality management practices (Elahi & Ilyas, 2019; Lewal & Yakubu, 2018; van Kemenade, 2022).

### Quality assurance or management

The concept of quality management has a wide range of discussions. It can be defined from diverse perspectives. Accordingly, there appears to be no globally accepted definition of quality management (Darojat, 2018). For Vroeijenstijn (1995), quality assurance is "... systematic, structured, and continuous attention to quality in terms of quality maintenance and quality improvement" (p. xviii). Similarly, Harman and Meek (2000) define quality assurance as "systematic management and assessment procedures adopted by higher education institutions and systems to monitor performance against objectives and to ensure achievements of quality outputs and quality improvements" (p. 4). Although the definition varies among scholars, the main thrust of quality management in education is to produce quality graduates that can cope with the environment in which they live.

Discerning the incompleteness of single-level quality management studies (school level or classroom level), scholars (Creemers, 1999; Thien & Razak, 2012) suggest the importance

of conducting studies to evaluate the effectiveness of education at different levels. The researcher conducted the study at the school and classroom levels based on the scholar's guide.

## The choice of study variables

The researcher included variables that significantly influence students' achievement-based literature reviews. For instance, Fuller & Clarke (1994) conducted a meta-analysis on input and process variables that revealed a significant association with student learning in developing countries. They have found that 7 out of 9 studies show the significance of the quality of the facility, 19 out of 22 studies show the importance of the library, 8 out of 13 studies show the worth of a laboratory, 11 out of 17 studies depict the significance of staff development, and 27 out of 33 studies show the significance of instructional time. Therefore, he chose the study variables based on a literature review.

## Methods

### Ethical statement

There is no process for ethical approval in education in our region; this study design and tools were reviewed during the proposal, curved article, and final defense sessions and approved by a panel of researchers as part of the Ph.D. dissertation undertaken at Addis Ababa University. However, no written approval was given to the researcher as part of the Ph.D. process.

Written informed consent was obtained from all participants prior to participation in the study.

### Description of the study area

The SNNPR's overall area is estimated to be 109,015 km<sup>2</sup>, accounting for 10% of the country's total land, and its population is projected to be 20 million, accounting for roughly 20% of the country's total population in 2009. The region's average population density is 181 people per square kilometer, making it one of the country's most populous areas. The region is multination, with roughly 56 ethnic groups living together, each having its distinct geographical location, language, culture, and social identity. The region is divided into 14 zones based on ethnic and linguistic identities, with 132 woredas, four special woredas, and 28 town administrations. In November 2021, one of the zones, Sidama, was established. As of 2015, there were 761 kindergartens, 6,452 primary schools, and 705 secondary schools in the region. There were 86,851 teachers in primary schools and 17,812 teachers in secondary schools, with 4,244,044 students in primary schools (World Bank, 2020).

### Research design

The study employed a multilevel design because different levels of education management have different functions to achieve similar objectives (Creswell, 2014). The study followed a quantitative approach using qualitative data from document analysis.

### Sample

In the SNNPR, there were 14 zones and five special woredas. The researcher clustered zones and special woredas into five groups based on their geographical proximities. These are



northern (Gurage, Silty, and Yem); southern (Dawuro, South Omo, Gamogofa, Derashe, Konta, and Basketo); eastern (Sidama, Gedio, and Segen People); western (Bechi-Maji, Kaffa, and Sheka); and central clusters (Wolayta, Hadya, Kambata-Tambaro, and Alaba). The researcher selected the Western cluster for the study using a simple random sampling technique. Though the researcher selected the Western cluster, the remaining clusters share the same economic and social characteristics as the selected cluster. Hence, the finding of this study represents other clusters too.

In the selected cluster, there were 19 secondary and preparatory schools. Since the study aimed to see the two consecutive years (2017 and 2018) of the Grade 10 students' national examination results, the researcher set two criteria for the appropriate sample schools. First, he differentiated between those schools that prepared their students for the earlier years. Second, to respond to the whole questionnaire, the respondents could teach in those schools that host grades 9–12 because the questionnaire requires knowledge of what is going on in general secondary and preparatory schools simultaneously. Hence, based on the above criteria, he only include 10 secondary and preparatory schools in the study out of the initial 19.

Finally, the researcher selected teachers using the simplified sample determination formula Yamane developed and cited in [Singh and Masuku \(2014\)](#). According to the formula,

$$n = \frac{N}{1 + N(e)^2}$$

Where  $n$  is the sample size,  $N$  is the population, and  $e$  is the margin of error (5%).

In the sampled schools, there were 528 teachers. By using the formula, the researcher selected 229 teachers. Again, he added 10% of the samples to the initial samples to enhance the response rate ([Johnson & Christensen, 2014](#)).

### Instrumentation

**Questionnaire.** The researcher developed structured questionnaires that incorporate 50 items for data collection. Experts were invited to comment on the questionnaire, and their comments were considered for administration. The language experts translated the English version of the questionnaire to the Amharic (an official language of Ethiopia) version backward and forwards ([Aklilu, 2022](#)). The questionnaire consists of two parts. Part one seeks teachers' background information. The second part aims to collect information about quality management practices at the school and classroom levels, using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' The Amharic version of the draft questionnaire was pilot-tested with 60 teachers. These teachers were incorporated for the pilot study based on their willingness to participate and availability in the school compound, and we did not involve them in the actual study to offer chances to other teachers. The Cronbach Alpha calculated the reliability statistics of the pilot test, and the result was 0.97. For the actual data with the sample of 240, the reliability statistics for factor 1 (0.90), factor 2 (0.89), factor

3 (0.93), factor 4 (0.85), factor 5 (0.82), factor 6 (0.86), factor 7 (0.87), factor 8 (0.82), factor 9 (0.81), and factor 10 (0.88) were above the suggested 0.7 ([Rohwer, 2010](#)).

The researcher checked the validity of the internal scale structure through dimensions extracted using eigenvalues greater than the suggested (0.7) except for two dimensions. Furthermore, all the Average Variance Extracted (AVE) was greater than 0.5, as indicated in extended data ([Field, 2009](#)). The AVE ensures the instrument's construct validity ([Weerasinghe & Fernando, 2018](#)). Besides, the researcher invited five experts from the education and psychology fields from Addis Ababa University based on their long-term experiences and their areas of scholarly research to examine the tool's content validity, and the experts provided comments to change some terminologies (e.g., school head was changed to the principal, throughput to process, and continuous evaluation to continuous assessment). The researcher seriously considered and improved as per experts' comments. Besides, the experts suggested deleting the 'medium of instruction proficiency' variable because they argued that the level of a student's English language proficiency is not affected by principal quality management practices, and the researcher found the comment valuable and deleted it, and face validity of the tool was examined through an extensive review of the literature and expert judgment ([Weerasinghe & Fernando, 2018](#)).

### Document analysis

This study found Grade 10 national examination results for two consecutive years (2017 and 2018) from the National Educational Assessment and Examination Agency (NEAEA) and analyzed whether most students scored 2.0 or above. The Addis Ababa University Department of Educational Planning and Management wrote a cooperation letter to the NEAEA for access. After finding the document, the researcher categorized the scores below two points and above two points and analyzed them through the content analysis technique. Besides, the researcher asked the target zones to provide 2014–2018 grade 8 students' regional examination results with their cut-points to know whether incoming grade 9 students had the required knowledge and skills that go with their level of education. Moreover, the researcher reviewed the high school standards ([MOE, 2009](#)) to check whether the secondary schools performed satisfactorily per the standard.

### Data analysis

The researcher employed SPSS version 23 for data analysis. To ensure content, face, and construct validity and reliability measures, we tested the validity and reliability of the instrument ([Weerasinghe & Fernando, 2018](#)). Data analysis follows two stages. Firstly, he run EFA to check the development of psychometric measures. As a result, item validity and reliability of the internal structure of dimensions were tested. Cronbach's alpha coefficient calculated the reliability statistics, and all items were above the suggested 0.7 ([Rohwer, 2010](#)).

Data analysis followed the following steps: Firstly, the researcher checked the issues of outliers, missing values, and normality via Skewness and Kurtosis via SPSS. All values were

found in +2 (Garson, 2012). Secondly, he checked the adequacy of the sample through Kaiser-Meyer-Olkin (KMO), and the result was 0.8, labeled as meritorious (Tabachnick & Fidell, 2001). Besides, Bartlett's Test Sphericity was 0.000, less than 0.05 (Maat *et al.*, 2011). Furthermore, the absence of multicollinearity was checked using the correlation matrix value (determinant), and the result was (0.00086), which is greater than the suggested 0.00001 (Tabachnick & Fidell, 2001). Thirdly, exploratory factor analysis was run with 50 items via principal component analysis extraction and varimax rotation methods with an eigenvalue greater than 1 with a minimum cut-off of 0.4-factor loading (Field, 2009). These statistics show the factorability of data.

Furthermore, he inspected the scree plot. The eigenvalues greater than one and the scree plot suggest retaining ten factors. Based on the rotated component matrix, five items were deleted because they did not meet the minimum criterion of 0.4, and three items were eliminated because they were cross-loaded. Therefore, 42 items were retained. Finally, factors were nominated based on shared characteristics of the dimensions.

After checking the reliability and validity, the researcher analyzed the data under the input category, school level, and classroom-level quality management practices. Hence, data analyses had the following patterns:

Frequency and percentages were utilized to analyze and interpret respondents' background information. Means and standard deviations were employed to analyze items gathered through the Likert scale. The calculated mean values were interpreted as follows: a mean score of 3 and above indicates 'for-ness,' and a mean score below 2.51 shows "against-ness." A mean score of 2.51–2.99 is undecided (Best & Kahn, 1995). Finally, the Pearson correlation was employed to examine whether there were relationships between school input, process, and output.

## Results

The researcher invited 251 teachers using a simple random sampling technique, with 240 valid completed questionnaires returned from the respondents (95.6% response rate). In this study, 96 (40%) of the respondents had a diploma, 124 (52%) had a first degree, and the remaining 20 (8%) had a second degree. From the data, under-qualified teachers were involved in teaching-learning processes. Concerning their workload, 48 (20%) of the respondents had three-10 periods per week, 186 (77.5%) had 11–20 periods per week, and the remaining six (2.5%) had 21–30 periods per week. From this, teachers had ample time to provide tutorials and makeup classes.

### Data analysis on school-level quality management practices

**Input availability.** From Factor 2 of Table 1, teachers disagreed that their respective schools had well-equipped physics, chemistry, and biology laboratories; they argued that these laboratories did not frequently offer services to students, and

they also confirmed that schools did not have the necessary chemicals. However, the high school standard states that all secondary schools must have three separate laboratories. From this, one can infer that the teaching-learning process in science subject lessons lacks practical experience.

From Factor 6 of Table 1, respondents agreed when they were asked whether their respective school libraries had recent books, whether students usually used the school libraries, and whether orientation was given to students on how to search for books. On the contrary, teachers disagreed with the item because the school has trained librarians. From this, one can infer that libraries offered services to their students without trained librarians.

The researcher reviewed five years (2014–2018) of grade eight regional examination results from the three zones to triangulate the data. The triangulation was done to determine whether secondary schools received qualified students from primary education. From Factor 7 of Table 1, teachers disagreed with the incoming grade nine students' knowledge, English language proficiency for the grade level, and motivation to learn.

The analysis shows that out of students promoted to grade nine, 48% scored below standard. Consequently, about half of the students entered grade nine without having the necessary knowledge, skills, or attitudes.

From Factor 10 of Table 2, teachers were asked to rate whether they selected the teaching profession as the last option and agreed with the item. One can infer that those teachers have been teaching without interest. Besides, teachers were asked whether all secondary school teachers had a first degree in any subject and disagreed with the item. The statistical data of teachers' qualifications from three zones were reviewed, and 30% of teachers in the three zones were diploma holders to triangulate this finding (own compilation from zones report, 2019), which compromised the high school standard. A teacher must have a first degree to teach secondary education as per the standard. Hence, one can infer that those incompetent teachers were teaching secondary education, which affected the quality of education.

### Data analysis on process management at the school level

From Factor 4 of Table 3, respondents disagreed with the statement that principals frequently call parents to discuss how to improve students' achievement and that principals often call parents to discuss students' disciplinary problems. However, they were undecided when they were asked whether principals encourage parents to support the schools in the form of labor, whereas they agreed with the item that principals initiate parents to support the school by contributing cash.

From Factor 5 of Table 3, teachers disagreed when they were asked to rate whether principals usually evaluate students' achievements, whether they discuss the drawbacks

**Table 1. Availability of quality and quantity of secondary school inputs.**

Factor	Factor Loading	Availability of Well-equipped Laboratories and their Practices in Schools	Mean	SD
2	.723	A well-equipped Physics laboratory is found in our school	2.34	0.823
	.702	In Physics teaching-learning process, students usually use the Physics laboratory	2.27	1.127
	.824	The well-equipped Chemistry laboratory is found in our school	2.11	1.565
	.716	In the Chemistry teaching-learning process, students usually use the Chemistry laboratory	2.19	0.931
	.862	A well-equipped Biology laboratory is found in our school	2.13	0.566
	.775	In the Biology teaching-learning process, students usually use the Biology laboratory	2.17	1.016
	.716	Necessary chemicals are available in the laboratory centers	2.28	1.143
	Grand Mean			2.21
Factor	Factor L.	Availability and Functionalities of School Libraries	Mean	SD
7	.760	Our library has recent books	3.32	1.119
	.703	Students often use the library	3.43	1.029
	.696	Orientation was given to students on how to search books	3.02	1.134
	.699	The school has trained librarians	2.61	1.279
	Grand Mean			3.10
Factor	Factor L.	Incoming Grade 9 Students' Readiness to Learn	Mean	SD
8	.814	Grade 9 students have the knowledge that deserves the grade	1.80	0.852
	.802	Grade 9 students have a good command of the English language	1.68	0.850
	.758	Grade 9 students have the motivation to learn	2.22	0.961
	Grand Mean			1.90
Factor	Factor L.	Incoming Teachers' Readiness to Teach	Mean	SD
10	.777	Teachers select the teaching profession as a last option	3.40	1.015
	.722	All secondary school teachers had a first degree in any subject	2.34	1.302

**Table 2. Grade nine students' achievement in regional examinations in 2014–2018.**

Year	Zone	Took Exam	Promoted	No of students who scored 50% and above	% of promoted having score of below standard	Cut-points
2014	Sheka	3,619	2,306	889	61.5	Male=38 Female=37
	Bench-Maji	6,658	5,071	1,579	68.9	
	Kafa	18,164	8,989	3,870	57.0	
	<b>Total</b>	<b>28,441</b>	<b>16,366</b>	<b>6338</b>	<b>Average 62.5</b>	
2015	Sheka	4,002	2,835	1,400	50.7	40 for both
	Bench-Maji	8,509	6,696	3,923	41.5	
	Kafa	23,505	18,062	9,727	46.2	
	<b>Total</b>	<b>36,016</b>	<b>27,593</b>	<b>15,050</b>	<b>Average 46.1</b>	



Year	Zone	Took Exam	Promoted	No of students who scored 50% and above	% of promoted having score of below standard	Cut-points
2016	Sheka	5,042	4,328	3,087	28.7	42 for both
	Bench-Maji	11,879	10,501	8,054	23.4	
	Kafa	21,062	17,119	11,911	30.5	
	<b>Total</b>	<b>39,983</b>	<b>31,948</b>	<b>23,052</b>	<b>Average 27.5</b>	
2017	Sheka	5,383	3,468	1,408	59.5	40 for both
	Bench-Maji	11,837	6,886	2,729	60.4	
	Kafa	20,235	15,777	8,971	43.2	
	<b>Total</b>	<b>37,455</b>	<b>26,131</b>	<b>13,108</b>	<b>Average 54.4</b>	
2018	Sheka	6,197	5,397	2,949	45.4	Male=40 Female=38
	Bench-Maji	14,906	10,952	5,189	52.7	
	Kafa	20,814	16,664	8,298	50.3	
	<b>Total</b>	<b>41,917</b>	<b>33,013</b>	<b>16,436</b>	<b>Average 49.5</b>	
<b>Five years</b>					<b>Average 48.0</b>	

Source: Own compilations from the zones' examination experts' reports

**Table 3. Principals' quality management practices at the school level.**

Factor	Factor Loading	Principals' Management Practices on Parental Support	Mean	SD
4	.737	Principals frequently call parents to discuss how to improve students' achievement	1.85	1.153
	.715	Principals often call parents to discuss students' disciplinary problems	2.01	0.792
	.765	Principals encourage parents to support the school in the form of labor	2.52	1.229
	.767	Principals initiate parents to support the school in the form of contributing cash	3.04	1.158
	<b>Grand Mean</b>			2.35
Factor	Factor L.	Principals' Management Practices on Students' Achievement (Outputs)	Mean	SD
5	.719	Principals usually evaluate students' achievements	2.40	0.875
	.759	Principals discuss the drawbacks of cheating on the exam with the school community	2.26	0.975
	.727	Principals usually discuss with the school community how to improve teaching	2.34	0.879
	.751	Principals strictly follow examination provision	2.10	0.959
	.732	Principals prohibit students not to bringing their phones during the examination	2.55	1.029
	<b>Grand Mean</b>			2.33
Factor	Factor L.	Principals' Management Practices on Staff Development	Mean	SD
6	.726	Principals conduct need assessment before offering training	2.40	1.097
	.745	Principals offer training to teachers	2.26	0.957
	.732	School-level teacher training is based on students' achievements	2.64	1.111
	.718	Principals encourage teachers to participate in training	2.68	1.154
	<b>Grand Mean</b>			2.49

Factor	Factor Loading	Principals' Management Practices on Parental Support	Mean	SD
Factor	Factor L.	Principals' Management Practices on the Provision of Incentives	Mean	SD
9	.867	Principals acknowledge those students who are working better	3.14	1.268
	.804	Principals acknowledge those students who displayed good behavior in the community gatherings	3.13	1.273
	.765	Principals acknowledge teachers with good performances in staff meetings	2.81	1.236
	Grand Mean		3.03	

of exam cheating with the school community, whether they strictly follow examination provisions, and whether they often discuss with the school community how to improve teaching. Differently, they were undecided when they were asked to rate whether principals prohibit students from bringing their phones during the examination. From this, one can infer that principals' practices in monitoring students' progress were poor.

From Factor 6 of Table 3, teachers were asked to respond to 'whether their school principals conduct needs assessments before offering training to teachers and whether principals offer training to teachers,' and they disagreed with the items. Alternatively, when they were asked to respond to 'whether school-level teacher training was based on students' achievement, principals encouraged teachers to participate in training,' they rated the items as undecided. The overall staff development practices were low.

Teachers agreed with the items in Factor 9 of Table 3 when asked if principals acknowledge those students who work harder and those who display good behavior in community gatherings. When they were asked to respond to whether 'principals acknowledge teachers' good performances in staff meetings,' they rated the items as undecided. Hence, the practices for incentives were average and above average.

#### Data analysis on quality management practices at the classroom level

From Factor 1 of Table 4, teachers agreed when they were asked to respond to whether principals encourage teachers to apply continuous assessment, whether they encourage teachers to show the results of the evaluation, whether they encourage teachers to change teaching methodology, and whether they encourage teachers to offer a tutorial class. Differently, they disagreed when they were asked whether principals follow whether teachers enter the classroom on time and whether they use the allocated time properly. Conversely, they were undecided when asked whether principals encourage teachers to offer make-up classes.

From Factor 3 of Table 4, teachers disagreed with items such as principals' practices of following up on whether teachers offer and check classwork and homework. From this, one can infer that the principals' management of instructional time was poor.

Grade 10 students' National Examination achievements When the inputs are available in quantity and quality and their interactions are managed carefully, most Grade 10 students score according to the standard (50%). The following table shows the extent of students' achievement.

Table 5 shows the average sample school Grade 10 national examination results in 2017, better than the 2018 results. In 2017, out of 4508 students who took national examinations, 46.5% scored below standard. The situation was worse in 2018. Of 5,911 students who took the grade 10 national examination, 55% scored below standard. However, we should note the results of the national examination with caution. The way we gain the results matters most. We might attain the result through backbreaking efforts made at different levels of education management or by allowing examination cheating. Hence, it is difficult to infer that school 'A' performed better than school 'B,' 'C,' or *vice versa*.

#### The relationship between input, process, and output management

This study examined the relationships between input, process, and output management. We base the interpretation of the strength of the relationship on Cohen's (1988) classification of correlation. According to the author,  $r = 0.10-0.29$  is small,  $r = 0.30-0.49$  is medium, and  $r = 0.50-1.0$  is high.

The relationship between input and process is positive and significant with a correlation value of 0.572, whereas the relationship between input and output is moderate and positive with a correlation value of 0.385. Finally, the relationship between process and output is positive and high, with a correlation value of 0.647 (Table 6).

**Table 4. Principals' quality management practices at the classroom level.**

Factor	Factor Loading	Principals' Practices on Continuous Assessment	Mean	SD
<b>1</b>	.753	Principals encourage teachers to apply continuous assessment	3.77	1.020
	.713	Principals encourage teachers to show the results of the evaluation	3.33	1.054
	.751	Principals encourage teachers to offer a tutorial class	3.50	1.093
	.743	Principals follow whether teachers enter the classroom just on time	2.36	0.513
	.708	Principals ensure whether teachers use the allocated time properly	2.38	0.563
	.700	Principals encourage teachers to offer makeup classes	2.87	0.614
	Grand Mean			3.09
Factor	Factor L.	Principals' Practices in Managing Instructional Time	Mean	SD
<b>3</b>	.855	Principals follow whether teachers give homework	2.50	1.111
	.843	Principals follow whether teachers check homework	2.42	1.067
	.812	Principals follow whether teachers give classwork	2.28	1.057
	.810	Principals follow whether teachers check classwork	2.36	1.061
	Grand Mean			2.39

**Table 5. Sample schools' grade 10 national examination results in 2017 and 2018.**

No	School's Name	2017 Grade 10 National Exam			2018 Grade 10 National Exam		
		Took exam	Score 2 & above	% of students scored below standard	Took exam	Score 2 & above	% of students scored below standard
1	"A" Secondary & Preparatory	370	179	51.7	419	207	50.6
2	"B" Secondary & Preparatory	271	154	43.2	295	115	61.1
3	"C" Secondary & Preparatory	447	217	51.5	710	321	54.8
4	"D" Secondary & Preparatory	554	350	36.9	858	453	47.3
5	"E" Secondary & Preparatory	1,120	545	51.4	1,292	344	73.4
6	"F" Secondary & Preparatory	486	236	51.5	652	103	84.3
7	"G" Secondary & Preparatory	208	128	38.5	342	182	46.8
8	"H" Secondary & Preparatory	269	139	48.4	359	179	50.2
9	"I" Secondary & Preparatory	323	203	37.2	449	277	38.4
10	"J" Secondary & Preparatory	460	214	53.5	535	224	41.9
<b>Total</b>		<b>4,508</b>	<b>2365</b>	<b>Average 46.5</b>	<b>5,911</b>	<b>2405</b>	<b>Average 55</b>

Source: Researcher's compilation from secondary schools' reports in outlined in document analysis methods.

**Table 6. The correlation between input, process, and output.**

		Correlations		
		Input	Process	Output
Input	Pearson Correlation	1	.572**	.385**
Process	Pearson Correlation	.572**	1	.647**
Output	Pearson Correlation	.385**	.647**	1

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

## Discussions

In this study, the researcher examined the availability of inputs. Besides, he examined whether the schools received qualified teachers and students from the external environment. The findings show that secondary school laboratories were not functioning correctly because of a lack of laboratory equipment and chemicals. This finding resonates with [Zengele and Alemayehu's \(2016\)](#) findings. However, [Fuller and Clarke \(1994\)](#) conducted a meta-analysis, and they found that eight out of 13 studies show the significance of laboratories on students' achievement. Hence, students lack the practical experience that could help them think critically and solve problems they face.

Various studies ([Darling-Hammond, 2000](#); [van den Bergh et al., 2014](#)) show a positive relationship between students' achievement and teachers' subject knowledge, skills, and motivation. Besides, teachers' readiness and commitment affect the implementation of educational reforms. However, from the outset in Ethiopia, most teachers were not interested in the teaching career because the salary in the career is relatively lower than the similar status of other professions such as accountants, lawyers, and so forth. This finding resonates with [Kassa's \(2014\)](#) finding. For instance, Kassa found that the initial reason for the students' entering a teaching career was the absence of other alternatives. From this, one can infer that the Ethiopian government expects teachers' contributions to economic development from unmotivated and inept teachers. Finally, the researcher reviewed zone students' regional examination results for five years (2014–2018). On average, 48% of grade nine students scored below the standard (50%). Studies show that students' achievement and motivation for learning have significant and positive relationships ([Singh et al., 2017](#)). It is challenging to expect motivated and committed students from unmotivated, incompetent, and uncommitted teachers.

The importance of incentivizing good-performing teachers is not a matter of choice; instead, a one standard deviation increment in teacher performance is associated with a 0.15–0.24 standard deviation increment in mathematics and reading achievements ([Aaronson et al., 2007](#); [Rockoff, 2004](#)). In this study, the provision of rewards for good performance was average. This

finding is inconsistent with [Ahmed's \(2015\)](#) finding. The author found that the principal's practices for providing incentives to teachers and students were poor.

Studies show a relationship between staff development and student achievement ([McMeeking et al., 2012](#)). However, staff development in the study area was low. This finding resonates with the findings of [Berehe et al. \(2018\)](#). They found out that staff development was inadequately implemented.

There is a significant relationship between student achievement and continuous assessment ([Fareo, 2020](#)). However, continuous assessment practice was not as expected in the study area. Though principals encourage teachers to offer tutorial and makeup classes and continuous assessments, it is impractical due to large class sizes, a shortage of classrooms, and demotivated teachers and students. This finding is consistent with [Asale's \(2017\)](#) finding. The author found that continuous assessments were not correctly implemented because of similar problems. Besides, [Fuller and Clarke's \(1994\)](#) meta-analysis results show that out of 33 studies conducted to examine the effect of instructional time on student achievement, 27 studies showed the significance of instructional time on student learning. However, the management of instructional time was abysmal. This finding goes with [Asale's \(2017\)](#) finding. The author found that the management of instructional time was impoverished.

This study found relationships between inputs, processes, and outputs. This finding resonates with the findings of [Rumberger and Palardy \(2005\)](#). They found that there are relationships between inputs, processes, and outputs. Generally, this study found that the dearth of school resources, the ineffectiveness of process management, and the resultant students' lower achievement generally were causally linked. The country's policy implementation practices exacerbate the problem. Since Ethiopia signed the Education for All, it has been expanding schools at all levels at the expense of quality to convince donor organizations to borrow money. Consequently, the promotion policy was compromised, the importance of motivation of principals, teachers, and students were forgotten, and the secondary education budget was switched to higher education ([Joshi & Verspoor, 2012](#)).

The global community highly values the right to quality education. It is enshrined in a set of human rights obligations and politicians regarded as critical in building social transformation. This understanding is illustrated by the global goals approaches and is expected to address over the last two decades. The international community established EFA goals in 1990 in Jomtien, Thailand, and in 2000, they were confirmed at the World Education Forum in Dakar, Senegal. The EFA debate has seen a wide range of national responses, as well as large swings in the international agenda: focusing on educational outcomes and quality rather than school access, enrolment, and retention; and moving away from understanding equity and quality

as two sides of the same coin, in that education for all cannot correctly entail quality for just some (Lim, 1999; Tishkovskaya & Lancaster, 2012; UNICEF, 2007; Weldemariam, 2008).

### Limitation of the study

Quality management practices involve the efforts of different actors such as policy planners, researchers, education managers at different levels, principals, teachers, and students. However, this study focused only on principals' quality management practices. The role of context was uncovered in this study. A more comprehensive study is crucial to see the whole picture of quality management practices.

### Conclusion

The school imported under-qualified teachers and students, together with other poor-quality inputs from the external environment, and the interactions of these inputs were not correctly managed. Furthermore, students' promotion policies and teachers' recruitment policies were compromised. Besides, schools were not working in line with the standards. Due to this, the policy's intention on paper and the practices on the ground are incongruent. Therefore, achieving the very objectives of producing creative, critical, and problem-solving individuals through the existing educational provision and management is complex.

### Recommendation on management practices

As argued in the discussion, the schools lacked key school inputs, the processes were managed ineffectively, and students' achievements were unacceptably low. Although the study was conducted at the school and classroom levels, principals could not solve these problems independently. Therefore, the Regional Education Bureau should fulfill the schools' inputs per the high school standard. The Ministry of Education should revisit its practices of compromising promotion policies, under-funding secondary education, and recruiting unmotivated and under-qualified teachers. Finally, principals should revisit their practices on quality management to do their best.

### Recommendation for future research

The Ethiopian Education Road Map study showed that school principals, teachers, and students lack the motivation to engage in the teaching-learning process. Therefore, a comprehensive study is suggested to examine why principals, teachers, and students lack motivation and commitment to teaching-learning.

### Data availability

#### Underlying data

The information gathered for this study relates to three zone education departments in the Southern Nations, Nationalities, and People's Region, which provides a significant competitive advantage. The zones do not believe that all data gathered was public because education quality issue is more political and for data protection of zone education departments and teachers. As a result, the raw data are restricted and only the processed data and the Amharic and English versions of questionnaires are available as underlying and extended data. If the raw data are needed for scientific purposes or to clarify ambiguities in the manuscript, they will be available from the corresponding author ([aklilualemu16@gmail.com](mailto:aklilualemu16@gmail.com)).

Figshare: Exploratory Factor Analysis Output.docx <https://doi.org/10.6084/m9.figshare.20092661>. (Akililu, 2022).

This project contains the following underlying data:

- The Average variance extracted.docx (No of items, their factor loadings, and average variance explained).
- Exploratory factor analysis out put.docx. (Descriptive statistics, KMO & Bartlett's test, total variance explained, and communalities).

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

#### Extended data

Figshare: Exploratory Factor Analysis Output.docx <https://doi.org/10.6084/m9.figshare.20092661>. (Akililu, 2022).

This project contains the following extended data:

- Questionnaire (English version after expert review).
- Questionnaire (Amharic version).
- Questionnaire (English version before expert review)

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

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# Open Peer Review

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## Version 1

Reviewer Report 05 June 2023

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### Introduction:

The introduction needs to add a paragraph to attract the reader's attention by describing the situation of quality management practice globally in school, it should explain how the quality management in other countries as well before going to specify in the author's countries. As a reader, I need to know the story of how the quality management addressed all over the world (development and other developing countries). Over all, the introduction provides a clear context and rationale for the study and highlighting the significance of investigating quality management practice in secondary school in Ethiopia.

### Literature review:

The author has described a few theories in education quality, and management quality assurance. Over all, the literature review is well-organized and supported the research. However, it would be helpful if the author add the school management theory.

### Methodology:

1. Regarding the ethical statement, it would be beneficial if the author provides more information on how the potential risks to participants were mitigated and how confidentiality was ensured.
2. In describing the study area, the author should give more details about the geographical location, socio-economy characteristics, and culture, and political to provide the clear picture of research setting.
3. For sampling, you should provide your strategy to choose teacher and school within the cluster to enhance you transparency study.
4. For document analysis, you should provide why you chose two documents to see the quality management (NEAEA (assessment result), and MOE (high school standard)).

5. For data analysis process, author provides clear techniques. As a reader, it would be helpful if author can provide more information on the criteria used in the data analysis.

**Results and Discussion:**

It has been written clearly, however, preferably after the table there is an explanation given so that the reader can understand it.

**Is the work clearly and accurately presented and does it cite the current literature?**

Yes

**Is the study design appropriate and is the work technically sound?**

Yes

**Are sufficient details of methods and analysis provided to allow replication by others?**

Yes

**If applicable, is the statistical analysis and its interpretation appropriate?**

Yes

**Are all the source data underlying the results available to ensure full reproducibility?**

Yes

**Are the conclusions drawn adequately supported by the results?**

Yes

**Is the argument information presented in such a way that it can be understood by a non-academic audience?**

Yes

**Does the piece present solutions to actual real world challenges?**

Yes

**Is real-world evidence provided to support any conclusions made?**

Yes

**Could any solutions being offered be effectively implemented in practice?**

Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Educational management, leadership, school principals, teacher competences, educational policy, teaching learning process, school management, School quality, educational quality

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**