The Relationship between School Leadership Practices and Students' Academic Achievement in Selected Secondary and Preparatory Schools in the Somali Regional State

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Abstract: The main purpose of this study was to examine the extent to which school leadership practice is related to students' academic achievement in the context of the Somali region. A correlational research design was used in which data were generated through a questionnaire administered to a sample of 337 teachers and the academic achievement of students of Grade 10 and 12 national exams. Data were analyzed using mean, standard deviation, correlation and multiple regressions. The findings unveiled that there was a statistically significant correlation between school leadership practices and students' academic achievement in the Somali region. Furthermore, the results of the regression analysis indicate that framing school goals positively predicted academic achievement of grade 12 natural ($\beta = 0.91$, $p < 0.01$) and social science ($\beta = 0.80$, $p < 0.006$) students, whereas communicating school goals ($\beta = 0.12$, $p < 0.38$), supervising and evaluating instruction ($\beta = -0.61$, $p < -1.47$) and protecting instructional time ($\beta = 0.54$, $p < 1.66$) had a non-significant effect. It is recommended that school principals should be trained and they should practice those activities which have a higher probability of being associated with better school outcomes. Accordingly, there needs to be a paradigm shift from the concept of schooling (input) to the concept of learning (output) to transform the school leadership system and improve student academic achievement.

Keywords: school effectiveness, school leadership, student academic achievement

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Introduction

School leadership is very important for student learning. School leaders can influence students' academic achievement through their leadership practices (Andrews & Soder 1987, Hallinger & Leithwood, 1994). School leaders perform certain practices, as instructional leaders or as administrative managers. For instructional leadership, school leaders give more emphasis to classroom-related activities such as supervising and monitoring teachers, coordinating curriculum and handling student discipline. As administrative managers, school leaders prepare the budget of the school and manage the school facilities (Miller, 2013).

According to Hallinger & Kovacevic (2021), educational leadership and management emerged during the late 1950s with an emphasis on administrator behaviour in the schools and teacher job satisfaction. School leadership was not a common topic; however, in the 1980s the focus shifted to how school leadership makes a difference in student learning. During this period, the knowledge base of educational leadership was dominated by scholars from Anglo-American countries. Subsequently, different schools of thought surfaced, but the dominant ones were leadership for learning, leading change, leading teachers, and school effectiveness and school improvement. The seeds planted by these schools of thought created a shift in the intellectual purpose of the field of educational leadership and management from the administration of the schools to leadership for learning.

School leadership in its current form was started (Sammons, Hillman, & Mortimore, 1995) by the findings of Coleman et al. (1966), which stated that *family background accounts for far more variation in school achievement than variations in school characteristics* (p. 228). Based on this finding, researchers (e.g., Hallinger et al., 1983) began to conduct various school effectiveness studies and found that school-level factors such as strong school leadership can strongly influence student academic achievement. Later on, these factors were translated into school leadership policies, practices and behaviours (Edmonds, 1979).

The effect of school leadership on student outcomes begins by rejecting the concept that asserts *family background is the principal cause of student achievement* (Edmonds, 1979) and ends by organizing school-level factors in a way to achieve higher student achievement. Edmonds (1979) argued that the concept which states that the family background of the student is the major contribution to student achievement relieves school principals from their obligation to improve student achievement. In short, although student family background is a factor that influences student achievement, there is the possibility that schools can improve student achievement, irrespective of their family background, and school principals are expected to overcome the negative impact of family background and utilize its positive side.

For example, Hallinger & Murphy (1986), contrasted the difference and similarities between low and high socioeconomic status (SES) schools. They found both high and low-SES effective schools asserted that the most important school goal is student achievement. They noted that *parents from low socioeconomic communities often prefer an emphasis on social and vocational education, whereas parents from high-SES communities generally prefer an emphasis on intellectual or academic goals* (p. 348). Effective schools for the urban poor provide a climate of high expectations that is also available in high SES schools but absent in low SES schools. Therefore, effective low SES schools isolate themselves from the home environment of their students which typically promotes failure.

Leithwood, Harris, & Hopkins (2008) reviewed the most important results of previous school leadership studies and concluded that *school leadership is second only to classroom teaching as an influence on pupil learning* (p. 28). They also found that leadership accounts for 27% of the variation in student achievement across schools. This means that school leaders can improve student achievement indirectly by influencing teacher satisfaction and school climate.

Researchers of school leadership (Heck, Larsen, & Marcoulides, 1990; Krüger, 2009; Miller, 2013) attempted to study the contribution of the principal to student academic achievement by using a single dimension, two-factor model or multidimensional model of school leadership in addition to meta-analysis or review studies. Employing a multidimensional model, Heck et al. (1990) found that the school principal governs the work structure of the school which consists of school climate and school instructional organization and these two constructs directly affect student academic achievement.

Leithwood & Montgomery (1982) noted that reviews of research, large-scale evaluations of federally funded change projects, and clinically oriented investigations of educational change, indicated that elementary school principals are critical determinants in the process of improving school outcomes. However, a small proportion of these principals recognize this potential. Even those who understand their role confront pervasive norms of teacher autonomy and they have minimal control over the classroom practices of the teachers. Despite these problems, some school principals are successful while others are not.

Edmonds (1979) reviewed studies of school effectiveness which compared high and low-achieving schools. He found the main characteristics of high achieving schools are having strong school leadership, high expectations, strongly emphasizing student acquisition of basic skills, and monitoring student progress. Edmonds argued that schools can have a major effect on student performance irrespective of their family background and social class by designing appropriate teaching strategies, modifying the curricular design, and improving textbook selection. He asserted that most of the school effectiveness factors are under the schools' control and schools can teach all children the basic skills to improve their academic performance.

Schreens (2000) stated that school effectiveness involves the performance or the output of schools, which can be measured by using the schools' students' academic achievement. Although the

socioeconomic background of students may be similar, schools differ in their performance and this necessitates naming some schools as effective schools whereas others are less effective or ineffective schools.

Bush (2008) stated that one characteristic of a successful or improved school is having competent and sound school leadership. Bush mentioned that there is a relationship between inadequate school leadership and the failure of the school. School principals have a powerful impact on the process related to school effectiveness and school improvement and schools that bring improvements in their students' learning are led by effective leaders (Hallinger & Heck, 1998). Moreover, there is increasing recognition that the quality of leaders, and their leadership practices are very important for the learning of students.

Keefe & Kelley (1990) argued that an important condition for school improvement is achieving growth in the student's academic achievement through careful planning. In the Ethiopian context, Mitchell (2015) reviewed school improvement studies conducted in Ethiopia and concluded that the Ethiopian school improvement program is nationally mandated and *imported on the advice of the United States Agency for International Development (USAID), Department for International Development (DFID) and other development partners and are implemented mechanistically without adaptation for societal or organizational cultural context* (p. 328).

The current Ethiopian educational leadership paradigm is input oriented and gives less emphasis on the performance of the schools or their students' academic achievement (Davison et al., 2010). Ethiopian Education Development Roadmap (2018) clearly states that Ethiopian student learning outcome not only is very low, but in fact, it is in deteriorating trend despite government initiatives such as book supply, teacher qualification, new curriculum and school improvement packages.

According to Ethiopian Education Development Roadmap (2018), the main reason for this discrepancy is *that the mission of schools has shifted from learning to schooling, a display of buildings, students, teaching materials and teachers* (p,25). The policy document suggested a paradigm shift from the concept of schooling (input, and process) to the concept of learning (output or student academic achievement). To implement the recommendations stated in Education Development Roadmap (2018) and to get remedy the challenges and gaps observed in the education system and improve the deteriorating trend of Somali region student achievement, more emphasis should be given to the academic achievement of the students (learning) and factors that may influence.

Statement of the Problem

There is a common agreement between lay and professional circles that school leadership influences the performance of teachers, students and schools, and most scholars in the field of school leadership mentioned that principals make a difference in student achievement (Hallinger & Heck, 1996b).

According to Leithwood & Levin (2005), school leadership plays a key role in the attempts of the government to improve schooling systems. The literature on school leadership also indicates that school leadership strongly influences student academic achievement. Leithwood and his colleagues argued that the contributions of school leadership are highest where they are needed most because leadership stimulates and facilitates the impact of the capacity of factors that already exist in the school.

Wiliam (2009) emphasized that higher student achievement matters because it has a benefit for both the individual student and society. For the individual, higher student achievement results in an increased lifetime salary, improved health, and resulted in a longer life. For society, higher student achievement brings higher tax revenues, lower

healthcare costs and reduced criminal justice costs. Moreover, Harlen (2007) noted that student academic achievement can be used to monitor the progress of students and to evaluate the performance of schools, local authorities and the country as a whole. In short, low student academic achievement indicates the poor performance of the teachers, schools, woreda and regional education offices, and the country as a whole.

Hallinger & Heck (1998) reviewed the literature on school leadership by investigating the contributions of the principal and concluded that school leadership practices have a meaningful and statistically significant effect on student academic achievement and school effectiveness. Leithwood, Sammons, & Hopkins (2006), stated that *there is not a single documented case of a school successfully turning around its pupil achievement trajectory in the absence of talented leadership* (p. 15).

Eyarus (2017) studied the perceptions of teachers concerning principals' effectiveness to enhance students' academic achievement. Data were collected through questionnaires from 31 secondary school teachers of Addis Ababa Nifas Silk Lafto sub-city. The researcher found that the leadership role of the school principal has an impact on student academic achievement by creating a vision for the school, setting high expectations for both teachers and students and providing optimal learning opportunities for the students. Similarly, Marga (2019), Tesema (2019) and Teshale (2007) investigated the influence of school leadership effectiveness on students' academic achievement. Data were collected through questionnaires from 43, 86 and 89 teachers respectively. These studies found the poor performance of school leaders in setting the vision, mission and goals for their schools to improve the academic achievement of their students.

Although these studies have identified the school leadership variables that may influence student academic achievement, none examined the association between school leadership practices and student academic achievement. Moreover, they did not collect student academic

achievement data that may indicate the impact of poor school leadership on student performance. Therefore, the main purpose of this study was to examine the relationship between school leadership practices and student academic achievement in the context of the Somali region. Particularly the study focuses on the following questions:

- To what extent do the school leadership behaviours correlate with students' academic achievement in the Somali region?
- What aspects of principal leadership behaviours are highly related to student academic achievement in the Somali region?

Definition of Terms and Concepts

Preparatory School is the second cycle of secondary school and enables students to choose subjects or areas of training which will prepare them adequately for higher education.

School Effectiveness means the process of comparing and contrasting schools based on the performance of their students after controlling student background conditions.

School Leadership is the work of directing and influencing the staff to achieve the school's shared goals.

School Leadership Practice is a result of what the school principal knows, believes, and does, in and through particular social, cultural, and material contexts.

Secondary School consists of two years of general secondary education (first cycle) which will be completed in grade 10.

Student Academic Achievement is the national examination result that indicates student transition or retention status, i.e., passing or failing in the case of grade 10 examination results; or placing or not placing

students in different fields of study in the university in the case of grade 12 examination results.

Methodology

Study Design

According to Creswell (2015), correlational design is used to describe and measure the degree of association or relationship between two variables or sets of scores such as school leadership practices and students' academic achievement. In this study, a quantitative correlational design was used to collect and analyze data to determine the extent school leadership practices (independent variable) influence student academic achievement (dependent variable) in the context of the Somali region.

According to Gumus, Bellibas, Esen & Gumus (2018), the four dominating conceptual frameworks that researchers of school leadership mostly used are distributed leadership, instructional leadership, teacher leadership and transformational leadership. This study used instructional leadership because it focuses on student academic achievement. It is also aligned with the recommendation of the Ethiopian education roadmap document (2018), which suggests more emphasis should be given to the concept of student learning. So, the conceptual model utilized in this study is that school principals' practices of defining the school mission, managing the instructional program and developing a positive learning climate influence student academic achievement.

Study Area

The Somali region is one of the ten regional states of Ethiopia. Geographically, the region is the second-largest region (Central Statistical Authority, 2020). Its population grew from 3.5 million in 1997 to 5.3 million in 2020, which indicates a 52 per cent increase in only less

than two decades, or a growth rate averaging 3.5 per cent a year during this period. According to Central Statistical Authority (2020 and 1998), school-age children in the Somali region increased from 1,801,070 students in 1994 to 2,228,000 students in 2021. The Somali region education bureau is expected to educate and train all these children. In 2019, more than 991,094 students attended more than 3358 schools (Ethiopian Somali Education Bureau, 2019) in the hope that they will finish 12 years of schooling; however, very few students reach and finish grade 12 - only with a completion rate of 12% (Ethiopian Somali Education Bureau, 2019).

Data Collection Instruments

To measure school leadership practices, Principal Instructional Management Rating Scale (PIMRS) developed by Hallinger & Murphy (1985) was used. This instrument contains three dimensions, 10 functions and 50 leadership practices. PIMRS consists of three forms: principal, teacher and supervisor form. All the items of the three forms are similar; only stems change to reflect the differing perspective of the role groups i.e., principals, teachers, and supervisors. The PIMRS teacher form contains 50 behaviorally anchored items, in which each item is scored on a five-point Likert scale: 1 Almost never; 2 Seldom; 3 Sometimes; 4 Frequently and 5 Almost always.

To determine the extent to which the instrument provides reliable data, the reliability coefficient of the teacher form of PIMRS was calculated in terms of the three dimensions and the whole scale.

Table 1: Reliability of Whole Scale and Three Dimensions

Dimensions	*Reliability (n=337)*	*Number of items*
Defines school mission	0.813	10
Manages the instructional program	0.890	15
Develops school climate	0.924	25
Whole scale	0.952	50

Reliability estimates are Cronbach's *alpha* coefficients

As shown in Table 1, the whole scale alpha reliability estimate is 0.95. Reliability estimates for the three dimensions are 0.81 for 'defines the school mission,' 0.89 for 'manages the instructional program,' and 0.92 for 'develops a positive school learning climate.' All these reliability estimates indicate a high-reliability level. As revealed in Table 1, as the number of items increases from 10 to 15 and then 25 items, the reliability estimates also increase. This indicates that the length of the instrument influences the reliability estimates of the scale.

The reliability estimates reported in this study are similar to the reliability estimates of studies conducted in other countries like the US. According to Hallinger and Wang (2015), the Principal Instructional Management Rating Scale (PIMRS) has good internal consistency in US, with a Cronbach alpha coefficient reported of 0.97 for the whole scale, 0.90 for defining school mission, 0.92 for managing the instructional program and 0.94 for developing school climate.

Hallinger & Wang (2015) conducted a validation study by using 13 independent PIMRS studies carried out between 2008 and 2012. They analyzed the data of these studies by using Rasch analysis and differential item function (DIF) and concluded that the PIMRS instrument meets commonly applied standards of reliability and internal validity.

For student academic achievement, 26,412 students' result of the Ethiopian General Secondary Education Certificate Examination

(EGSECE) and Ethiopian University Entrance Examination (EUEE) of the sample schools of three years (2009-11 E.C.) was collected and utilized to measure the student academic achievement of the Somali region with the assumption that the result of the national examination is more accurate and reliable than the teacher or researcher prepared tests.

These two national exams are prepared and graded by the national educational assessment and examination agency and are conducted jointly with regional education bureaus. EGSECE is the sum score of the following subjects: Af-Somali, Amharic, English, math, physics, chemistry, biology, civics, geography and history. The maximum score that a student can obtain is 4.00 with an average score of 2.00. The Ethiopian University Entrance Examination (EUEE) for natural science students covers English, math, aptitude, physics, chemistry, biology, and civic. For social science students, physics, chemistry and biology are replaced by geography, economics and history. Both for natural and social science streams, the highest score is 700 with an average score of 350.

Participants

The sample of the study consisted of 337 secondary and preparatory school teachers of whom 178 and 159 participants were secondary and preparatory school teachers respectively. Among the participants, 81.6% were male while the remaining 18.4% were female. More than three fourth of the participants were 39 years or less old. This indicates the majority of the teaching force in the secondary and preparatory schools were young. Regarding participants' qualifications, 5.3%, 88.1% and 6.5% were diploma, B.A/BSc and master's degree holders respectively.

Sampling

A small population formula (Rea & Parker 2014, Anderson, Sweeney & Williams 2011, Triola 2018) was used to determine the sample of the study with a 95 per cent level of confidence and a margin of error that does not exceed ±3 per cent. Based on the formula, the sample size became 334 participants, but to collect reliable data which can represent the target population, 350 copies of the questionnaire were prepared and distributed. The actual number of participants used for analysis was 337, with a response rate of 96%.

Multi-stage sampling was utilized to select the sample from the population by using three steps. In the first step, six zones were selected from 11 zones of the Somali region by using cluster sampling. In the second step, from each zone, one secondary and preparatory school were selected, except Fafan and Shebele zones. Four and two schools were selected from Fafan and Shebelle zones respectively based on the number of schools and students in these two zones. Schools were selected from each zone based on the following criteria:

- The selected school served the highest number of students in the zone
- The school principal of the selected school was in the principalship position at least in the last three years

These criteria were set with the assumption that the school principal should be in the principalship position for at least three years to determine his or her effect on student academic achievement. Lastly, participants were selected from each school by using simple random sampling (Anderson, Sweeney & Williams, 2011).

In addition to the questionnaire, student academic achievement results of 14,990 grade 10, 6,966 grade 12 natural science and 4,456 social science students were collected from National Education Assessment and Examination Agency.

Data Analysis

Data were analyzed in three different steps. In the first step, the means and standard deviations of instructional leadership practices of the principal as perceived by the teachers; and student academic achievement of grade 10 and grade 12 natural and social science students were calculated. In the second step, to measure more objectively, the association between school leadership practices and student outcome, the Pearson product-moment correlation between measures of student academic achievement and scores on the three dimensions and 10 subscales of the Principal Instructional Management Rating Scale were computed. Lastly, to determine the effect of school leadership practices on student performance, regression analysis was conducted for instructional leadership practices which were significantly related to student academic achievement.

Result

School Leadership Practices

In Table 2, the means and standard deviations of the instructional leadership practice of 10 secondary and preparatory school principals of the Somali region were presented. The instructional leadership practices of these principals were analyzed in terms of specific job practices and the mean score of the three dimensions and 10 leadership functions was below the average score of the scale.

Concerning the three dimensions, teachers indicated that their school principals relatively engage more with the defining school mission dimension (M=-2.86; SD=-0.64) followed by managing instructional program (M=-2.70; SD=-0.69) and lastly developing school climate (M=-2.61; SD=-0.66). So, to create academic press which emphasizes students' academic achievement, school principals must invest more time in developing the mission of their schools.

Regarding the 10 functions of leadership practices as indicated in Table 2, school principals spent their time more in framing school goals (M=-2.95; SD=-0.70) and communicating school goals (M=-2.77; SD=-0.72). In framing school goals, it is essential that school principals set school goals in a manner that increases their usefulness for instruction and assessment.

Table 2: Means and Standard Deviations for Three Dimensions and Ten Functional Leadership Practices of School Principals as Perceived by the Teachers

Dimensions and Subscales	No. of items	Mid value	Mean	Std dev	t-value	Level of sig.
Defines School Mission	10	3	2.86	0.64	-4.008	0.000
Frames school goals	5	3	2.95	0.70	-1.301	0.194
Communicates school goals	5	3	2.77	0.72	-5.808	0.000
Manages Instructional Program	15	3	2.70	0.69	-8.092	0.000
Supervises and evaluates instruction	5	3	2.73	0.80	-6.103	0.000
Coordinates curriculum	5	3	2.70	0.78	-7.086	0.000
Monitors student progress	5	3	2.66	0.83	-7.566	0.000
Develops School Climate	25	3	2.61	0.66	-10.967	0.000
Protects instructional program	5	3	2.72	0.75	-6.872	0.000
Maintains high visibility	5	3	2.76	0.79	-5.606	0.000
Provides incentives for teachers	5	3	2.36	0.87	-13.527	0.000
Promotes professional development	5	3	2.62	0.80	-8.747	0.000
Provides incentives for learning	5	3	2.60	0.88	-8.748	0.000

Note. -All ratings are based on a Likert Scale, which runs from 1-'almost never'-to 5-'almost always.' Lower mean scores represent job functions that the principal performs less frequently

Table 2 also shows that the school principals invest some time in the second dimension which incorporates three leadership functions: supervising and evaluating instruction (M=-2.73; M=-0.80), coordinating curriculum (M=-2.70; SD=-0.78) and monitoring student progress (M=-2.66; SD=-0.83). In supervising and evaluating instruction, the school principal ensures the classroom priorities of teachers are in line with the goals and direction of the school.

On the other hand, school principals invest less time in providing incentives for teachers (M=-2.36; SD=-0.87), providing incentives for

learning (M=-2.60; SD=-0.88), promoting professional development (M=-2.62; SD=-0.80), protecting instructional time (M=-2.72; SD=-0.75), and maintaining high visibility (M=-2.76; SD=-0.79). These functions compose the developing positive school climate dimension.

As displayed in Table 2, there is sufficient evidence to support the claim that the mean of the three dimensions and 10 leadership functions was below the average score of the scale except for the framing school goals function (t (336) = -1.30*, p* = 0.19).

Student Academic Achievement

The preparation, execution, and correction of grade 10 and 12 national examinations are the responsibility of the National Educational Assessment and Examination Agency (NEAEA). As shown in Table 3, from 2009 to 2011 E.C., 26,412 students sat for grade 10 and 12 national examinations in the sample schools. Of these 14,990, 6966 and 4456 students were grade 10, and grade 12 natural and social science students respectively. This indicates that more grade 10 students took the national examination than grade 12 students. Mean and standard deviation of academic achievement results for grade 10 and 12 students who took national examinations between 2009 to 2011 E.C. were calculated.

Table 3: Means and Standard Deviations Scores of Students Academic Achievement of Sample Schools from 2009-11 E.C.

	Number of Students	Mean	Standard Deviation	t-value	Level of sign
Grade 10 Students	14,990	2.28	0.31	2.91	0.017
Grade 12 Students					
Natural Science	6,966	273.68	25.89	-9.32	0.000
Social Science	4,456	306.32	26.31	-5.25	0.001

In the context of Ethiopia, academic achievement for grade 10 students is measured on a 4.0 scale. The top grade is A, which equals 4.0 and least score is F, with the value of 0, and the average score is 2.0. For grade 12 students, the maximum score is 700, with an average score of 350.

As revealed in Table 2, the mean score of grade 10 students' academic achievement was statistically significantly higher (M=2.28, SD=0.31) than the average score, t (9) =2.91, *p*=0.017. Conversely, the academic achievement of grade 12 students was also statistically significantly lower (for natural science, M=273.68, SD=25.89; for social science, M=306.32, SD=26.31) than the average score.

This indicates that the majority of grade 10 students scored higher than the average score, whereas most of the grade 12 students gain a score which is below the average score. This implies that more grade 10 students are promoted in the national examinations than grade 12 students.

Correlational Analysis

Table 4 indicates the relationship between student academic achievement of grade 10 and grade 12 students with the three dimensions of instructional leadership. Grade 12 students are disaggregated into natural and social science students.

Table 4: Pearson Product-Moment Correlation Between Measures of Student Academic Achievement and Three Dimensions of Instructional Leadership

		Preparatory (Grade 12)	
Dimensions	Grade 10	Natural Science	Social Science
Defining school mission	0.81**	0.89**	0.73*
Managing Instructional Program	0.62	0.66*	0.57
Developing School Climate	0.69*	0.55	0.54

**. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed)*

As revealed in Table 4, all variables, both independent and dependent, are positively correlated with each other. However, the following variable is significant: student academic achievement for grade 10 students is significantly correlated with defining school mission ($r=0.81$, $p < 0.01$) and developing school climate ($r=0.69$, $p < 0.05$). Student academic achievement of grade 12 natural science students is significantly correlated with defining school mission ($r=0.89$, $p < 0.01$) and managing instructional programs ($r=0.66$, $p < 0.05$). The student academic achievement of social science students is significantly correlated with defining the school mission ($r=0.73$, $p < 0.05$). These three dimensions of instructional leadership, only defining school mission are significantly correlated with the academic achievement of grade 10, and grade 12 natural and social science students. Managing instructional programs and developing a positive school climate is significantly correlated with the academic achievement of grade 10 and grade 12 natural science students respectively.

In Table 5, the relationship between school leadership practices and student academic achievement was investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. For grade 10 students, there was a strong positive correlation between student academic achievement and framing school goals ($r=0.72$, $p < 0.05$), communicating school goals ($r=0.85$, $p < 0.01$), coordinating curriculum ($r=0.67$, $p < 0.05$), providing incentives for teachers ($r=0.71$, $p < 0.05$) and providing incentive for learning ($r=0.74$, $p < 0.05$).

For grade 12, natural science students, there was a strong positive correlation between student academic achievement and framing school goals ($r=0.93$, $p < 0.01$), communicating school goals ($r=0.75$, $p < 0.05$), supervising and evaluating instruction ($r=0.64$, $p < 0.05$) and protecting instructional time ($r=0.68$, $p < 0.05$). For social science students, there was a strong positive correlation between student academic achievement and framing school goals ($r=0.80$, $p < 0.05$).

According to Table 5, school leadership functions that are correlated with student academic achievement can be categorized into four groups. The first group is associated with the academic achievement of grade 10 and grade 12 students. This is a framing school goals function. The second category is related to the academic achievement of grade 10 and grade 12 natural science students. This is communicating school goals. The third group is correlated with the academic achievement of grade 10 students. These are coordinating curriculum and providing incentives for teachers and learning. Lastly, supervising and evaluating instruction and protecting instructional time is associated with the academic achievement of grade 12 natural science students.

Table 5: Pearson Product-Moment Correlation between Measures of Students' Academic Achievement and 10 Functions of Instructional Leadership

		Preparatory (Grade 12)	
Subscale	Grade 10	Natural Science	Social Science
Frames school goals	0.72*	0.93**	0.80*
Communicates school goals	0.85**	0.75*	0.56
Supervises and evaluates instruction	0.61	0.64*	0.52
Coordinates curriculum	0.67*	0.61	0.62
Monitors student progress	0.43	0.61	0.45
Protects instructional program	0.49	0.68*	0.38
Maintains high visibility	0.44	0.55	0.54
Provides incentives for teachers	0.71*	0.22	0.27
Promotes professional development	0.55	0.22	0.40
Provides incentives for learning	0.74*	0.48	0.63

**. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed)*

Regression Analysis

Multiple regression analysis was conducted where the mean score of student academic achievement was regressed with the instructional leadership practices which were positively and significantly correlated with student achievement. Table 6 indicates that the result of regression analysis revealed that instructional leadership practices have a non-significant effect on the academic achievement of grade 10 students.

Table 6: Regression Coefficients of Instructional Leadership Practices on Academic Achievement of Grade 10 Students

Variables	*B*	*SE*	*t*	*P*	*95% CI*
Grade 10 Students					
Constant	-1.89	0.94	-2.02	0.11	[17.66, 0.71]
Framing school goals	0.89	0.52	1.72	0.16	[-0.56, 2.32]
Communicating school goals	0.64	0.58	1.09	0.34	[-0.98, 2.56]
Coordinating curriculum	-0.97	0.57	-1.71	0.16	[-2.55, 0.61]
Providing incentives for teachers	1.66	0.93	1.80	0.15	[-0.91, 4.23]
Providing incentives for learning	-0.62	0.56	-1.10	0.33	[-2.18, 0.94]

As shown in Table 7, for grade 12 natural science students, the R^2 value of 0.91 revealed that the predictor variables explained 91% of the variance in the outcome variable. with $F\ (4, 5) = 12.68, p < 0.008$. The result indicates that framing school goals positively predicted student academic achievement $(\beta = 0.91, p < 0.01)$, whereas communicating school goals $(\beta = 0.12, p < 0.38)$, supervising and evaluating instruction $(\beta = -0.61, p < -1.47)$ and protecting instructional time $(\beta = 0.54, p < 1.66)$ have a non-significant effect on student academic achievement.

Table 7: Regression Coefficients of Instructional Leadership Practices on Academic Achievement of Grade 12 Natural Science Students

Variables	*B*	*SE*	*t*	*P*	*95% CI*
Grade 12 Natural Science Students					
Constant	26.21	42.74	0.61	0.57	[-83.65, 136.07]
Framing school goals	72.88	18.33	3.98	0.01	[25.76, 120.01]
Communicating school goals	12.60	33.48	0.38	0.72	[-73.46, 98,66]
Supervising and evaluating instruction	-51.49	34.68	-1.49	0.20	[-140.64, 37.65]
Protecting instructional time	50.20	30.17	1,66	0.16	[-27.35, 127.76]

Lastly, as indicated in Table 8, for grade 12 social science students, the R^2 value of 0.64 indicated that the predictor variable explained 64% of the variance with $F(1, 8) = 14.01$, $p < 0.006$. The finding indicated that framing school goals positively predicted student academic achievement *($\beta = 0.80$, $p < 0.006$)*. Although, the study indicates a relationship between school leadership and student academic achievement, however, only framing school goals has an impact on student academic achievement.

Table 8: Regression Coefficients of Instructional Leadership Practices on Academic Achievement of Grade 12 Social Science Students

Variables	*B*	*SE*	*t*	*P*	*95% CI*
Grade 12 Social Science Students					
Constant	112.80	51.98	2.17	0.06	[-7.07, 232.66]
Framing school goals	64.96	17.36	3.74	0.01	[24.94, 10.99]

Discussion

The study shows that there is a relationship between school leadership practices and student academic achievement. The dimensions defining the school mission, managing the instructional program and developing the school climate were positively and significantly related to student academic achievement. The result supports earlier findings (Heck, Larsen, & Marcoulides, 1990, Leitner, 1994, O'Donnell & White, 2005, and Gaziel 2007) that school leadership practices are associated with student academic achievement.

For example, research conducted by O'Donnell & White, (2005) found a significant positive relationship between the three leadership dimensions and student mathematics and reading achievement. Particularly, developing a school learning climate was strongly related to student academic achievement followed by defining the school mission and managing the instructional program. Whereas in this study, defining the school mission was strongly correlated with student academic achievement followed by managing the instructional program and developing the school climate. One possible explanation of the difference is that low socio-economic status (SES) schools' principals such as schools located in the Somali region, tend to be more goal-oriented whereas high SES schools' leaders are more relationship-oriented (Hallinger & Murphy, 1986).

Concerning the second research question, it was found that aspects of principal leadership practices which are significantly correlated with student academic achievement were framing and communicating school goals, supervising and evaluating instruction, coordinating curriculum, protecting instructional time and providing incentives for teachers and learning. Likewise, Gaziel (2007) conducted a study in the secondary schools of Israel and found that school leadership functions such as framing the school goals and communicating to staff, supervising and evaluating instruction, monitoring student performance, maintaining high visibility, providing incentives to teachers and students and promoting

academic standards are positively and significantly correlated with student achievement.

The most important finding of this study was that in the regression analysis only one PIMRS subscale (function), framing school goals, was found to affect student achievement of only preparatory school students, while the other subscales of the PIMRS had no significant effect upon student achievement. This finding is consistent with the finding of Gaziel's (2007) study which found two leadership practices, framing goals and communicating with staff have an impact on student academic achievement.

The findings of the current study have implications for supporting school leaders to better understand the practices of school leadership that are crucial to student academic achievement and school performance. Policymakers can also be in a position to formulate better school policies that facilitate the teaching-learning process of the schools and that make teachers and schools accountable for their performance. The finding of the study also guides researchers to isolate school leadership variables and develop models that are more related to the context of developing countries like Ethiopia.

Conclusion

Based on the finding of the study, it can be concluded that school leadership practices influence student academic achievement. Regarding the dimensions of school leadership practices, school principals invest more time in defining the school mission, followed by managing instructional programs and developing a positive school climate. This creates an environment in which teachers can teach appropriately and students can learn. The study also indicated that the mean score of the academic achievement of grade 10 students was significantly higher than the average score while the mean score of grade 12 students was below the average. This implies that more grade

10 students were promoted in the national examination than grade 12 students.

The study reveals that there is an association between student academic achievement and school leadership functions. However, only framing school goals affects student academic achievement. Therefore, school leaders who invest most of their time in practising these school leadership functions can organize their schools around the teaching and learning process. They can also set teaching and learning objectives that challenge both teachers and students to establish higher-performing schools which over time can achieve higher student academic achievement.

The current Ethiopian educational leadership paradigm focuses on school inputs and gives less emphasis to performance or student learning achievement (Davison et al., 2010). Ethiopian Education Development Roadmap (2018) clearly states that most of our interventions focus on input with less attention to the output. Therefore, the Ethiopian educational system gives more emphasis to the concept of schooling and less attention to the concept of learning. So, the researcher is suggesting a fundamental paradigm shift from input to output, from the concept of schooling to the concept of learning, to transform our educational leadership as a whole and school leadership in particular.

Recommendation

Understanding the school leadership practices which are associated with student academic achievement can provide insight into why some principals are more effective than others. School principals should get training on those activities which have a higher probability of being associated with better school outcomes. The regional government should enact policies which guide the professional development of aspiring (preservice) and practising (in-service) school leaders. The content of the training of principal preparation programs should be based

on aspects of school leadership practices that are associated with increased student achievement.

School principals should closely align curricular objectives with both the content taught in classes and the achievement tests used by the school. School principals should provide teachers with test results in a timely and useful fashion, discuss test results with the staff as a whole, with grade level staff and individual teachers, and provide interpretive analyses for teachers detailing the relevant test data in a concise form because having discussions with students about their performance before the national examinations had a positive impact on their achievement.

The Somali region education bureau should spend one-third of its time discussing student academic achievement. The education bureau should make school principals and woreda education office heads promise achievement test scores for their schools and woredas one year before the national examinations are given. The bureau should publish school performance reports through school league tables and make schools, woredas, zones and regional education bureaus accountable for their performance.

More research is also needed for systematic investigation of the relationship between gender, age, educational training, experience as principal, administrative training and experience, years at the current school site, level of experience as a teacher, and years of teaching experience of the school principal and school leadership practices.

Lastly, for conducting school leadership studies, future researchers should generate behavioural descriptions of what occurs in the secondary schools of the Somali region by using inductive process, instead of using the functional descriptions of effective school processes that are already available in the literature on school leadership of western countries which may differ from the context of developing countries such as Ethiopia.

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