Research in Educational Administration & Leadership

Volume: 10, Issue: 3/ September 2025

Distributed Leadership and Student Engagement in Ethiopia: The mediating role of Teacher Self-Efficacy

Eshetu Kibret Emiru
Debre Markos University, Ethiopia

Kelemu Zelalem Berhanu
University of Johannesburg, South Africa

Abstract

Engagement significantly contributes to student learning and academic success; it has preventive benefits against dropout and disruptive behavior. This study examines how principals' distributed leadership strategies affect student engagement with teacher self-efficacy as a mediator in the secondary schools of the state of Amhara, Ethiopia. Accordingly, a cross-sectional survey design was employed to achieve this objective. The quantitative data analysis involved 714 valid and completed data of teachers selected from a multistage random sample from five zones. A questionnaire was used as a tool for data collection. Before the actual study, the measurement tools were validated through a pilot study, and statistical assumptions were made. To achieve the specific objectives of the study, one-sample t-test, Pearson correlation, and structural equation modeling were employed. Low levels of distributed leadership practice, moderate student engagement, and high levels of teacher self-efficacy were all identified in the research. Additionally, the study found a strong positive correlation between student engagement, teacher self-efficacy, and distributed leadership practice. The connection between distributed leadership and student engagement was also significantly partially mediated by teacher self-efficacy. Hence,

Article Info

Article History:
Received:
January 13, 2025
Accepted:
August 1, 2025

Keywords:
Distributed leadership practice, teacher self-efficacy, Secondary schools, student engagement.

the study concluded that principals' distributed leadership significantly contributed to student engagement through teacher self-efficacy. The results suggest that when school leadership responsibilities are distributed more broadly, teachers' sense of efficacy is enhanced, improving student engagement in the learning process. Thus, the study'sfindings have practical, theoretical, and policy implications.

Cite as:

Emiru E. K. & Berhanu, K. Z. (2025). Distributed leadership and student engagement in Ethiopia: The mediating role of teacher self-efficacy. *Research in Educational Administration & Leadership, 9*(2), 672-721. https://doi.org/10.30828/real.1618955

Introduction

The first idea of pupil engagement was to comprehend school dropouts (Fredricks et al., 2004). This concept has attracted the interest of scholars since the mid-1990s due to its positive correlation with students' overall development throughout the educational process (Coates, 2005). The primary causes of the increase in pupil engagement in research were determined by Fredricks et al. (2016). It has preventive benefits against dropout and disruptive behavior, and it is malleable to changes in interventions. The worldwide emphasis on improving student engagement has led to a systematic search for its antecedents and significant outcomes (Lei et al., 2018). Advanced levels of student engagement are therefore linked with favorable learning outcomes, including good academic success, as evidenced by empirical research (Ali & Hassan, 2018; Archambault et al., 2009; Karacabey et al., 2022). The primary focus of engagement is on how actively students participate in educational activities. This encompasses intricate concepts such as how students engage in educational activities that result in behavioral, emotional, and cognitive outcomes (Ben-Eliyahu

et al., 2018; Fredricks et al., 2016). Regular attendance, a positive attitude toward learning activities, and active involvement in class and extracurricular activities are all examples of behavioral engagement in students (Fredricks et al., 2016). According to Lawson and Lawson (2013), cognitive engagement includes students' time and effort put into academic assignments or attitudes toward schooling, the use of metacognitive abilities and learning techniques, and the appreciation of learning. Appleton (2006) states that emotional involvement includes kids' affective and emotional connection, reactions to school and educational activities, psychological attachment or sentiments toward their school and learning, and relationships with instructors and classmates.

There are significant factors that determine students' engagement in their learning activities, such as parent, friend, and education institution-related factors (Audas & Willms, 2001; Ejigu & Belay, 2022; Sahil, 2010). Leadership practices can impact student engagement and learning. School leadership provides a supportive school climate for student engagement by offering academic leadership, resource provision, and effective communication (Trowler, 2013). Similarly, collaborative and shared leadership can create conducive environments that promote students' learning (Kezar, 2005).

In this regard, DL is linked with students' engagement and effective learning (Leithwood & Jantzi, 1999; Trowler, 2013). An empirical evidence review showed that the dispersal of leadership to many individuals had a more significant influence on schools and students through improving teacher capacity, work conditions, motivation, and commitment, which in turn improved student learning outcomes (Ross et al., 2016). There are different models of DL. Spillane's Framework (2006), for instance, characterizes DL as a dispersed activity encompassing leaders, followers, and the circumstance. It

emphasizes the procedure of leadership rather than particular characteristics or jobs. Harris and Muijs's (2004) Model of DL 2004 promotes emergent, lateral, and socially distributed leadership with the intent to nurture professional learning communities along with capacity within schools. Contemporary studies, such as Galdames-Calderón (2023), emphasize the critical significance of customizing DL models to local socio-cultural and institutional contexts. The present study followed Hulpia et al.'s (2009) model of DL. Hulpia et al.'s (2009) identified several constructs or key elements of DL: collaboration within the leadership team (which involves mutual support and encouragement), leadership support (focused on defining and promoting the school's vision while inspiring and motivating teachers), leadership supervision (entailing the observation and management of teachers), and the active involvement and influence of teachers in the decision-making process.

DL is increasingly favored and has garnered scholarly attention around the globe in general and in the Ethiopian secondary schools context in particular, compared to earlier leadership theories, which emphasize the attributes of a single leader to school effectiveness, for several reasons. Primarily, policy reforms have demanded increased leadership accountability and improved student achievement, which require shared leadership responsibilities (Gumus et al., 2018). Second, the heroic (a single individual) leadership approach failed to address the contemporary schools' complexity and dynamism (Harris, 2008). Third, school principals possess multiple responsibilities, which make it difficult for a single individual to perform (Bush, 2023; Ross et al., 2016). Fourth, the trends of decentralized educational management necessitated stakeholders' involvement in school decisions (Gumus et al., 2018). Evidence also revealed that the distribution of leadership practices had positive school-level, teacher-level, and student-level

outcomes (Printy & Liu, 2021; Tian et al., 2016). Thus, this research investigation examines DL as a theoretical construct and an empirical method for improving educational performance in Ethiopian schools. Teachers can employ a wide range of techniques to affect students' engagement in their education, which is the other school-related component. According to empirical data, one of the key elements influencing students' learning engagement was their instructors' encouragement and support (Fredricks et al., 2016; Sahil, 2010). Furthermore, according to Ali and Hassan (2018), teachers play an important role in encouraging student participation by organizing and carrying out pertinent activities. Since teachers have authority over classroom education, it has potential as a means of improving student engagement (Turner et al., 2014; Thien & Chan, 2022; Zee & Koomen, 2016).

Teacher efficacy has three dimensions such as instructional strategies (ability to employ different teaching methods), teacher efficacy in student engagement (belief in inspiring and energizing students to learn), and teacher efficacy in classroom management (belief in preserving classroom order) (Tschannen-Moran & Hoy, 2001; Liu et al., 2021). Consequently, this influences how involved students are in educational activities (Thien & Chan, 2022; Klassen et al., 2011).

Teacher self-efficacy can be influenced by leadership practices (Harris, 2008; Thien & Adams, 2021; Tian et al., 2016). Moreover, leadership practices influence teacher efficacy (Leonard & Maulding Green, 2018). Likewise, it was revealed that school leadership influences teacher self-efficacy through shared decision-making, instructional feedback, and opportunities for collaboration (Muthiah et al., 2019; Nelson, 2018). Moreover, teachers' self-efficacy is more likely to increase when the school leadership team works collaboratively, provides strong support, and involves teachers in decision-making

(Arbabi & Mehdinezhad, 2016; Paletta et al., 2020). Hence, these practices are associated with DL (Bolden, 2011; Spillane, 2006). DL practices have significantly affected teachers' self-efficacy (Hulpia et al., 2009; Thien & Chan, 2022).In the present study context, in Ethiopia, there have been efforts to broaden the participation of teachers, students, and parents in the structures and processes of school leadership. Thus, the country's education and training policy and reforms have pledged to democratize and decentralize educational management (Berhanu, 2023a; Berhanu & Gobie, 2023; Ministry of Education, 2023). Furthermore, Ethiopian secondary schools have implemented structures that may encourage DL. For instance, there are principals, assistant principals (s), department heads for each subject taught, unit leaders, school management teams, homeroom teachers, and coordinators of co-curricular activities. Each teacher has additional leadership roles and responsibilities beyond their actual teaching duties (Mitchell, 2017; Berhanu, 2024). This suggests some form of structure and practice of leadership distribution to utilize school communities' knowledge, skills, experiences, and viewpoints to improve school performance (Berhanu, 2023b).

Reviewing international and local studies, the researcher identified the following significant gaps that this research intended to address. First, theoretically, most previous studies were focused on the challenges and practice of DL. Moreover, the available empirical evidence that shows the effects of DL on teacher self-efficacy was contextually established in a Western context (Clifton, 2017; Harris, 2014; Liu et al., 2021). For instance, a systematic review published between 2010 and 2022 on DL found contextually in Europe (32.5%), North America (29.1%), and Asia (26.7%) (Mifsud, 2023). However, an international data set of 32 countries showed that context influences DL practices (Printy & Liu, 2021). However, unlike many Western cultures, several

African cultures, including Ethiopia, are greatly collectivist (Baker & Campbell, 2013). Collectivist cultures prioritize relationships, shared responsibilities within the group, and maintaining interpersonal harmony (Hofstede et al., 2010). Hence, leaders of highly collectivist cultures see themselves more as group members, and group decisions obtain more acceptance than single principles. Moreover, empirical evidence on DL in the Ethiopian context is required to enlarge the globalized understanding of the construct and its cultural adequacy. Local studies, on the other hand (Asrat, 2017; Dejene, 2014; Misgana, 2017; Shimelis, 2018) were conducted on the practice and challenges of DL in primary schools, Addis Ababa University, Hadiya zone, and Aksum town public secondary schools, respectively. They have failed to determine how leadership distribution affects teachers' and students' related variables.

Second, in terms of methodology, most studies were small-scale, either case studies or included two or three schools as a sample, which might lessen the generalizability of the study or may not be significant to large-scale interventions. Third, local studies mainly focused on principals' sole role in distributed leadership, neglecting other school leaders' (vice principals, unit leaders, department heads, and other teachers) roles. Fourth, previous studies lack consistency and comprehensiveness; they did not investigate the combined effects of DL and self-efficacy on student learning engagement. The impact of DL on student outcomes, like engagement and achievement, has shown inconsistent results. Some of them indicated leadership practices had a direct effect on student engagement (Harris & Muijs, 2004; Leithwood & Jantzi, 1999). The others showed the influence of leadership on students' learning and engagement indirectly through improving work conditions and teacher-level variables (Leithwood & Jantzi, 2008). In the Ethiopian context, where teacher motivation and

student participation are ongoing concerns, the relationship between DL, teacher self-efficacy, and student engagement remains underexplored. Therefore, the general objective of the study is to examine the contribution of DL practices to students' engagement as mediated by teachers' self-efficacy in secondary schools in the state of Amhara, Ethiopia. Based on the above objectives and the empirical evidence, the following hypotheses were formulated to address these gaps:

H1: Distributed leadership, teacher self-efficacy, and student engagement each show meaningful patterns in Ethiopian secondary schools.

H2: Schools that practice more distributed leadership tend to see higher levels of teachers' self-efficacy and student engagement.

H3: Teachers' confidence in their abilities (self-efficacy) helps explain how distributed leadership influences student engagement.

By addressing the aforementioned gaps and testing hypotheses, the current research provides context-specific insights that might improve the development of leaders and educational reform initiatives in Ethiopian settings. This research is significant because it examineshow leadership is distributed in Ethiopian secondary schools, how confident secondary schools are in their skills, and how engaged pupils are in learning. These three areas—distributed leadership, teacher self-efficacy, and student engagement—are inextricably linked, particularly in Ethiopian secondary schools that face problems such as large class sizes, scarcity of resources, and heavy workloads. In Ethiopia, there is a rising inspire in giving educational institutions more decision-making authority and increasing teacher involvement

and empowerment in leadership (Berhanu, 2025). However, in practice, many schools continue to rely on top-down administration, which can leave teachers feeling unsupported and students less engaged. Exploring how leadership may be shared more effectively can help schools capitalize on their teachers' skills, establish trust, and enhance student results. By concentrating on Ethiopian secondary schools, this study reveals what works—and what doesn't—in this specific setting, providing insights that may be used to improve leadership training, teacher development, and policies that promote student learning in meaningful ways.

1.2. Theoretical Framework of the Study

DL is theoretically grounded in a combination of activity theory, distributed cognition, system theory, and social constructionist theory. Based on these theories, leadership is viewed as a set of social (shared) and collaborative practices, not solely the single individual activity, but dynamic interfaces among leaders, the situations and all organizational members' knowledge and expertise are utilized to achieve the desired results (Clifton, 2017; Harris, 2007; Harris & Muijs, 2004; K. A. Leithwood et al., 2009).

Self-efficacy's theoretical foundation is grounded in social cognitive theory, which emphasizes that people have self-beliefs that govern their ideas, feelings, and behaviors. According to Bandura's (2006) suggestion, self-knowledge regarding one's efficacy is influenced by data gathered from vicarious experiences (the modeling of others, such as school leaders' leadership practice), verbal or social persuasion (positive or negative feedback), and the understanding of one's own emotional and physical responses (Bandura, 1997).

Student engagement is linked to Astin's (1999) theory of involvement, which suggests that the extent of time and energy students devote to

academic and extracurricular activities determines their persistence and success in their learning. Hence, following the introduction of Bandura's social cognitive theory (Bandura, 1997), how efficacy influences teachers' competency and actions has garnered researchers' attention. Teachers' sense of efficacy, therefore, is conceptualized as teachers' judgment of their ability to bring about the expected results of student learning and engagement (Tschannen-Moran & Hoy, 2001). In line with the above theoretical frameworks, the study proposed that the distribution of leadership functions, such as supportive leaders' feedback, setting clear directions and goals, having and working on the same goal, and encouraging contribution in making decisions, influences teachers' self-efficacy, which is more likely to affect student engagement. In line with the discussions made above about the relationship between variables under consideration, the conceptual framework for the study was created as follows.

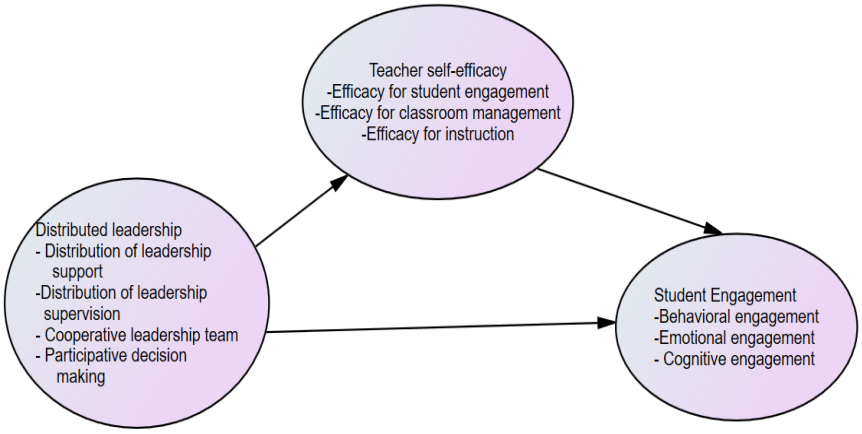


Figure 1. Conceptual Framework of the Study

Methodology

Research Design

This study used a quantitative approach. This approach entails gathering and analyzing quantitative data (Creswell & Clark, 2017). Quantitative data helped researchers to investigate significant relationships and the effects of variables on student engagement. This study was carried out using a cross-sectional survey. A cross-sectional survey approach was used (Subedi, 2016to show the direction and intensity of the correlations between DL practices, teachers' self-efficacy, and student engagement.

Participants

The target population of this study was secondary school teachers in the regional state of Amhara, Ethiopia. In the region, there were twelve zones (East Gojjam, Awi, South Gonder, South Wollo, Central Gondar, West Gojjam, West Gondar, Oromia, North Gondar, North Wollo, North Showa, and Waghimra) and three metropolitan cities (Bahir Dar, Gondar City, and Dessie City) by the year 2020/2021. Based on the ANSREB report (2021), in the region, there are 39,247 (male=29,533, female=9,714) teachers in 652 secondary schools.

Since the number of secondary schools (652 in 2020/2021) and the number of woredas were large, multistage sampling was used to obtain sample respondents. In applying multistage cluster sampling, the researchers divided the population into groups (zones and woredas) in two phases for better data collection, management, and interpretation (Cohen et al., 2018). In the first stage, five zones were selected randomly out of fifteen zones in the region (Awi, East Gojjam, South Gondar, Bahir Dar City, and South Wollo). Since there was not an equal number of woredas (districts) in each zone (province), 11 woredas were chosen using proportionate random selection in the

second phase. In accordance with the quantity of teachers available, sample respondents were ultimately chosen from the sample districts. Regional data for 2020–21 showed that there were 3753 teachers in the sample districts (ANSREB, 2021). To ensure that representatives from each sample district were chosen, a proportionate stratified random sampling procedure was employed to choose the sample teachers (Gay et al., 2012). The Cochran formula was utilized to calculate the sample size (Cochran, 1977) as it works well with large populations and allows researchers to determine the ideal sample size given a desired degree of precision. Furthermore, because the method considers effect size and minimizes sample errors, it was considered appropriate for multistage sampling. When calculating the sample size, Cochran advises multiplying the computed value by the investigation's number of steps.. Accordingly, the sample size for this study was 350 out of 3753 teachers with a 0.05 accuracy. The sample size was 700 after multiplying 350 by the number of steps the investigation underwent. In terms of school type, 27 (45%) were rural and 33(55%) were urban. Proportional to the number of teachers in those schools, 305 (42.7%) and 409 (57.3%) respondents participated from rural and urban schools, respectively. Additionally, the study's total sample size was 771, who completed questionnaires based on the 10% non-response rate recommended by Cohen and colleagues (Cohen et al., 2018).

Data Collection Instruments

Three study variables were treated as study variables. Before using instruments in the main study, data collection instruments (questionnaire) validity and reliability were checked through the pilot study. Hence, before using the instruments for the actual data collection, to better capture the nuances of the target respondents' language, the original scales were translated into Amharic (the local tongue) using bilingual translators of English and psychology

instructors. The questionnaires were subjected to forward and backward translation to certify the accuracy of the translation. The instruments were piloted and validated using 92 teachers from Nigus Tekle Haymanot's secondary school in Debre Markos town, which was omitted from the main study. The pilot test of scales was carried out to ensure their reliability (internal consistency), which was assessed using the Cronbach alpha coefficient or inter-item correlation. Moreover, Cronbach's alpha measured the extent to which responses were consistent across the items within a construct (Collier, 2020). As indicated in Table 2, the minimum item-total correlation was .311 (for team cooperation), which exceeded the recommended value.30 (De Vaus & de Vaus, 2013). Accordingly, all items were maintained for further analysis. The Cronbach alpha values for all variables considered in this study ranged from α = 0.763 for normative commitment to α = 0.911 for cognitive engagement.

Table 1.

Cronbach Alpha Values and Minimum Item-Total Correlations for the Study Variables

The Study Variables and dimensions	Number of items	Minimum item-total Correlation observed	Cronbach's alpha if item deleted	Cronbach Alpha (α)
Leadership support	10	.406	.844	.844
Leadership supervision	3	.641	.800	.834
Team cooperation	10	.311	.881	.772
Participative decision making	6	.541	.827	.839
Behavioral Eng.	12	.321	.894	.887
Emotional Eng.	5	.682	.887	.896
Cognitive Eng.	10	.497	.912	.911
Efficacy for Student Engagement	4	.553	.815	.820
Efficacy for Classroom Management	4	.517	.822	.808

Efficacy for Instructional Strategies	4	.555	.858	.844

The DL practice scale

The DL practice was used to measure leadership distribution among formal positions. It was adapted from Hulpia to address schools' DL practices (Hulpia, 2009). The instrument has 29 items with four dimensions: leadership support (10 items), supervision (3 items), teamwork (10 items), and teacher participation in decision-making (6 items). The items are valued on a 5-point Likert scale for each dimension (0 (never) to 4 (always)). Sample item includes: The leadership team provides organizational support for teacher interaction. The DLI reliability scores were previously tested using Cronbach's alpha coefficient on a sample of 1,902 Belgian respondents. They were found to have a high (=.91 to .93) internal consistency (Hulpia et al., 2009). The present study's EFA results indicate the variances explained by each of the four components extracted. The four components jointly explained 70.038% of the variance of the inventory. An alpha coefficient exceeding .80 is highly reliable (Cohen et al., 2018).

Student Engagement Scale

The researchers developed the Student Engagement Scale (SES) because a well-validated and reliable survey was needed. The developed survey was an other-rater form (teacher ratings of students). Most student engagement scales were self-rated or lacked multidimensionality, validity, and reliability reports (Fredricks & McColskey, 2012). This study needed a teacher-rater student engagement scale, bearing in mind the statistical assumptions that test a hypothesized model using homogeneous data collected from the

same respondents. Hence, the scale was developed and validated based on the literature and its multidimensional constructs. For example, emotional engagement (interest, a sense of belonging, and a positive learning attitude) was measured using five items (e.g., I feel that students enjoy when they do their class work). The items were piloted, and alpha coefficients ranged from 83 to .91, suggesting above-acceptable internal consistency (Cohen et al., 2018). The range of responses includes: 1=Strongly Disagree, 2=Disagree, 3=Slightly Agree, 4=Agree, and 5=Strongly Agree. Hence, a self-developed scale of student engagement was given to 20 subject experts (psychology instructors) to rate items in the sub-scales into one of three categories: "essential," "useful, or "not necessary." The items exhibited strong content validity to assess their various dimensions, as indicated by the estimated content validity ratios (CVRs) of.83.87, and.90 for behavioral, emotional, and cognitive involvement, respectively. According to Lawshe, a content validity guarantee is provided by expert agreement of 50% or more. The instruments' convergent and discriminant validity were also guaranteed using component analysis. Three factors were identified by the exploratory factor analysis as the cause of 62.41% of the variation. With an eigenvalue of 13.47, component 1 (cognitive engagement) accounted for 49.87% of the variation, component 2 (behavioral engagement) contributed 6.76%, and component 3 (emotional engagement) accounted for 5.78% of the variance.

Teacher self-efficacy

There are various measures of teacher self-efficacy. However, the Tschannen-Moran and Hoy's (2001) Teacher Sense of Efficacy Scale was utilized in this study. This scale was selected over others due to

the following reasons: (1) the scale was developed based on Bandura's concepts of self-efficacy theory (Klassen et al., 2011); (2) it has good psychometric properties established in various samples; (3) the survey has been most widely used in empirical studies, and (4) it is a self-report scale. Therefore, the teachers' sense of efficacy scale yielded stable factor structure across countries (Ruan et al., 2015), was employed to measure the teachers' sense of self-efficacy. Each item indicates a response from: 1=none at all, 2=very little, 3=some degree, 4=quite a bit, 5=a great deal. Sample items for efficacy for classroom management dimensions include: I control disruptive behavior in the classroom and get children to follow classroom rules. Twelve items made up the scale, four for each of the three sub-factors: instructional techniques, classroom management, and self-efficacy for student involvement. Exploratory factor analysis was used to determine the underlying elements (components) of teachers' self-efficacy. The twelve items had a high factor load. Accordingly, self-efficacy for classroom management (component 2) explained 11.99% of the variance, self-efficacy for instruction (component 3), and self-efficacy for student engagement (component 1) explained 10.08% and 49.98% of the variance, respectively. Together, the three elements explained around 72.05 percent of the variation. The pilot study results revealed internal consistency values for DL subscales: team cooperation, supervision, participation in decision-making, and leadership support, which were found to be .77,.83,.84, and.84, respectively. Cronbach's alpha values for all sub-scale instruments were higher than the permissible (> 0.7).

Data Collection Procedures and Methods to Minimize Bias

First, the instruments for data collection were ready for administration. After ethical approval, the permission letter was given to the districts'

education offices. Then, a list of teachers with their school names was obtained. Appointments were arranged with teachers. In the following days, the discussion was conducted with sample teachers, such as informing them that their participation was voluntary. Orientation about how to fill out the questionnaires was given, and an agreement was made with the respondents regarding the time they would return the questionnaires. Finally, the researcher distributed the questionnaires in sample schools, and explanations were given to those who needed them during administration.

To address possible method bias in the current investigation, the authors used a variety of measures targeted at reducing bias in the data acquired via self-report questionnaires. Procedurally, the researchers ensured that questionnaire items were well phrased and straightforward, reducing the possibility of misinterpretation during the pilot study. Furthermore, participants were guaranteed confidentiality of their comments, which can reduce social desirability bias and encourage more honest reporting (Jordan & Troth, 2020). Confirmatory Factor Analysis (CFA) examines measurement model fit and helps identify and control method bias (Rodríguez-Ardura & Meseguer-Artola, 2020). As a consequence, using procedural precautions (e.g., clear items, anonymity) and statistical checks (CFA analysis), researchers made several corrections (e.g., item improvements and excluding problematic items), and we concluded that method bias had no significant effect on the results of this study.

Data Analysis and Assumption Testing

Before data analysis, there were issues to be considered. In this regard, data coding, data cleaning, preliminary analysis (missing values, errors, outliers, and skewed distribution), and statistical assumptions for structural equation modeling (normality, multicollinearity, linearity, and homoscedasticity) of the quantitative data were

inspected (Tabachnick & Fidell, 2019). The missing data were addressed through the maximum likelihood method before the analysis (Collier, 2020). Univariate and multivariate outliers were also checked. EFA and CFA were conducted to determine the instruments' convergent and discriminant validity.

As suggested by authorities in the field, before quantitative data analysis, data screening (missing values, errors, outliers, and a non-normal (skewed) distribution, preliminary analysis, and testing of statistical assumptions were done (Collier, 2020; Tabachnick & Fidell, 2019). Descriptive statistics outputs were inspected for errors (scores falling outside the possible range) and missing values for each item. Values that fell outside the possible range were checked based on the survey codes; the minimum and maximum scores fell within therange of each item. Missing values were detected by computing the frequencies of items. From the total data set, less than 5% missing values are tolerable (Kline, 2023). Less than 2% of missing data was found scattered randomly in different cases and considered tolerable (Tabachnick & Fidell, 2019). However, structural equation modeling does not allow missing values in the analysis. Therefore, the missing data were addressed through the maximum likelihood method before the analysis (Collier, 2020; Hair et al., 2017).

To assess the normal distributions of the data, statistical sketches were checked. Many sources suggest that the values of normal data skewness and kurtosis fall between 1 and -1 (Kline, 2023; Tabachnick & Fidell, 2019). The ranges of skewness values were -.95 (leadership supervision) to .60 (continuance commitment), and kurtosis valueslay between -.72 (cooperation of the leadership team) and.58 (leadership supervision), suggesting the data met the normality assumption.

Univariate and multivariate outliers were also checked. To examine the univariate outlier values of the variables, they were converted to

standard scores and compared with the threshold of 3.29 (or less than -3.29) for the standardized residual value. It is suggested that standardized residual values falling above 3.29 or below -3.29% are considered univariate outliers (Tabachnick & Fidell, 2019). In order to detect multivariate outliers, the Mahalanobis distance was employed and compared with critical values. With the use of 13 degrees of freedom and a $p < .01$ criterion (the critical value of chi-square (x^2) is 36.12) for Mahalanobis distance, no multivariate outliers were found (Tabachnick & Fidell, 2019).

Before data analysis, the suitability of the data for factor analysis, correlation tests, and SEM was checked. Most of the assumptions that many sources recommend include data normality, multicollinearity, linearity, and homoscedasticity (Collier, 2020; Kline, 2023; Tabachnick & Fidell, 2019). The issue of the normality of the data was addressed in the data screening and preliminary analysis section. In addition, the standard residual statistics of the regression were checked and found to be between -2.37 and 1.75, which were within the recommended ranges (-3 and 3), suggesting the data satisfied the assumption of normality (Tabachnick & Fidell, 2019).

To avoid much overlap between latent variables, the multicollinearity test between constructs was checked by examining the correlation of independent variables, the variance inflation factor (VIF), and tolerance values. Multicollinearity becomes a concern when independent variables are highly correlated ($r = .9$ and above. In the present study, the correlation coefficients between .123 and .701, suggesting the absence of overlapping among constructs (Kline, 2023). SEM assumes the relationship between predictors and outcome variables is linear (Kline, 2023). To examine the assumption of linearity in the combination of variables, the regression residual normal probability plot (p-plot) was checked.

Using SPSS-27 and AMOS-23 software, descriptive statistics such as frequencies and percentages were used to analyze respondents' background information, and inferential statistics (one-sample T-test, Pearson correlation, and SEM) were used to analyze the data and answer the three research questions, respectively. Ethical Considerations in the Study

The Authors followed the study norms of ethics: do not damage human subjects. Furthermore, steps were taken to safeguard study participants, build trust with them, and promote research integrity (Creswell, 2017). Regarding ethical issues, before conducting the study, the researchers secured an ethical approval letter from Bahir Dar University in Ethiopia. Participants provided informed consent before the study was undertaken. The study's goal, projected length to fill, and methods were informed to participants. The participant's anonymity was kept confidential. In general, the study was done according to the research code of ethics.

Findings

Descriptions of Respondents' Characteristics

771 teachers were given the survey to complete. 736 were returned out of those. They were examined for completeness, outliers, and unengaged replies prior to additional analysis. During the data filtering, 22 surveys were eliminated because of incomplete and disengaged replies. For the main analysis, 714 survey responses were employed.

Table 2

Teachers' Sociodemographic Characteristics

Teachers' characteristics		Frequency	%
Sex	Male	527	73.8
	Female	187	26.2
Qualification	Diploma	10	1.4
	First Degree	497	69.6
	Second Degree	207	29.0
Teaching Experience	Below five years	9	1.26
	5-10	108	15.13
	11-16	276	38.60
	17 and above	321	44.96
	Total	**714**	**100**

As shown in Table 2, the respondents' background characteristics were analyzed to determine their sex, experience, and professional experiences. Regarding qualification, this study showed that most respondents were first-degree and above holders, per the minimum qualification criteria set by the Ministry of Education of Ethiopia (Tesfaye, 2014). Concerning professional experience, in the current study, the highest proportion of sample teachers (83.6%) were well-experienced (above 11 years) and categorized as in the highly accomplished and lead teacher career stages, which are recognized as highly skilled classroom practitioners, serve as role models, lead and mentor others, and are to some extent familiar with leadership functions. This might be used as good input for the study because participants could respond to the survey with awareness of the items raised.

The status of DL practices, teachers' self-efficacy, and students' engagement

The first objective of this study was to examine the status of DL practices, teachers' self-efficacy, and students' engagement in secondary schools in the state of Amhara, Ethiopia. Hence, one-sample t-test statistics were computed. The results are shown in Table 3.

Table 3

One-Sample Test Statistics of DL Practices, teachers' self-efficacy, and students' engagement

Study variables				Test Value = 2.5				
		Mean	SD	T	df	P	Mean Difference	Effect size
DL Dimensions	LDS	2.49	.86	-.385	713	.700	-.012	-.014
	LSP	2.90	.86	12.266	713	.000	.396	.459
	CLT	2.24	.83	-8.353	713	.000	-.259	-.313
	PDM	2.39	.86	-3.420	713	.001	-.110	-.128
	Average	2.50	.73	.132	713	.895	.004	.005
Student Engagement Dimensions	BHE	2.59	.79	-13.600	713	.000	-.406	.50
	EME	2.94	.86	-1.823	713	.069	-.059	.10
	CGE	2.77	.82	-7.601	713	.000	-.232	.28
	Average	2.77	.72	-8.591	713	.000	-.232	.32
Self-efficacy Dimensions	ESE	3.57	.86	17.622	713	.000	0.57	.66
	ECM	4.07	.81	35.475	713	.000	1.07	1.32
	EIS	3.35	.82	11.191	713	.000	0.35	.42
	Average	3.67	.68	25.845	713	.000	.66	.97

Note: CLT: Coherent leadership team; LDS: leadership support; PDM: participative decision making; LSP: leadership supervision; EME:emotional engagement, BHE: behavioral engagement, CGE: cognitive engagement; ESE=Efficacy for Student Engagement, ECM=Efficacy for Classroom Management, EIS=Efficacy for Instructional Strategies

As indicated in Table 3, DL functions were practiced at varying levels. The exhibited average value of DL practices was not significantly different from the expected (M = 2.50, t =.132, df = 713, P >.05). This revealed that dimensions of DL were implemented at different levels. Overall, the results provide a clear picture of the existing situation in Ethiopian secondary schools. On average, Distributed Leadership (DL) techniques are poorly implemented (the effect size d = 0.005). While Leadership Supervision comes out with a modest, positive impact (d = 0.459), indicating that administrators are somewhat adept in directing teachers, other critical aspects, such as team cooperation and shared decision-making, are underdeveloped in Ethiopian secondary schools. These underscores continued difficulty in creating coherent leadership structures, as documented in previous research from Sub-Saharan Africa.

In relation to student participation, Table 3 shows that, of all the subscales, emotional engagement had the greatest mean value (M = 2.94, SD = 0.86). The behavioral involvement of the children, on the other hand, was far lower than anticipated. Cohen's criteria for effect sizes (Cohen, 1998), which state that d = 0.80, 0.50, and 0.20 indicate large, medium, and small effects, respectively, were used to classify the effect size (d = 0.5) as moderate, meaning that the mean degree of behavioral engagement was moderately below the projected value. But there was no discernible difference between the average and pupils' emotional engagement, according to the study. An average degree of emotional involvement among students was determined by the small effect size (d = 0.10). Student engagement has a moderate average effect (d = 0.32). Students are moderately engaged in classroom activities (Behavioral Engagement, d = 0.50), but their deeper emotional and

cognitive commitment is limited, which might be due to psychological or financial constraints typical in the region.

The mean scores on the teacher self-efficacy subscales showed that teachers had above-average self-efficacy in classroom management, instructional tactics, and student engagement. The findings showed that teacher self-efficacy was much greater than normal in terms of student engagement, instructional tactics, and classroom management. The results showed significant differences based on Cohen's effect size benchmarks, with effect sizes of d=0.66 for teacher self-efficacy in student engagement, d=1.32 for classroom management, and d=0.42 for instructional strategies. These results showed that teachers had a significantly higher-than-average sense of efficacy. Their confidence in their teaching abilities is also positive and compares favorably to data from other emerging nations.

The relationship between DL Practices, teachers' self-efficacy, and engagement

Table 4

The relationship between DL Practices, teachers' self-efficacy, and engagement

Study Variables	Distributed leadership practice	Teachers' self-efficacy	Students' engagement
Distributed leadership practice	1		
Teachers' self-efficacy	.458**	1	
Students' engagement	.500**	.420**	1

As shown in Table 4 above, a moderate positive correlation ($r=0.458, p<0.01$) exists between distributed leadership practice and teachers' self-efficacy, suggesting that as school leaders' distributed

leadership practice increases, the self-efficacy of teachers also tends to increase. Similarly, school leaders' distributed leadership practice has a moderate to strong positive correlation with students' engagement ($r=0.5, p<0.01$). All these correlations are statistically significant.

The mediating role of teacher self-efficacy in the relationship between DL practice and student engagement

The study also aimed to explore the mediating role of teacher self-efficacy in the relationship between distributed leadership and student engagement. As presented in Table 5, goodness-of-fit results of the structural model revealed good model fit indices: $\chi2=3833.1$, df=1807, $\chi2/$ df=2.12, P=0.000. The chi-square ($\chi2$) statistic shows significant results. However, its significance doesn't mean the model is bad. Large sample sizes can make the chi-square value higher (Brown et al, 2019; Collier, 2020; Tabachnick & Fidell, 2019). Thus, it is advised to look at other fit indices like CFI, TLI, RMSEA, and RMR for a clearer picture of how well the model fits. Hence, CFI.94, TLI=.93, RMSEA=.040 and RMR=. 041, suggesting the data fit the model well.

The standardized regression weight results in Table 5 disclosed that leadership support (ß=.28, S.E. =.03, p<.05), leaders' supervision (ß=.20, S.E. =.03, p<.05), and teachers' participation in decisions (ß=.13, S.E.=.04, p<.05) had a significant positive influence on teacher self-efficacy. However, leadership team cooperation (ß=.03, S.E. =.03, p=.565) was found to have a non-significant effect on teacher self-efficacy. The standardized regression results indicated that one standard deviation variation in leadership support, leaders' supervision, and teachers' participation in decisions was accompanied by .28, .20, and .13 variations in teacher self-efficacy, respectively. Moreover, leaders' supervision and participative decision-making had

a small effect, and leadership support had a relatively medium effect on teacher self-efficacy, according to Cohen's (1988) effect size estimates. This indicated that not all DL dimensions appear to be equally effective in influencing teacher self-efficacy. Interestingly, team collaboration did not significantly affect teacher self-efficacy. This shows that merely increasing teacher collaboration may not be sufficient to raise confidence or improve teaching. In contrast, when school leaders give direct assistance and constructive oversight, teachers may feel more empowered and capable in their responsibilities.

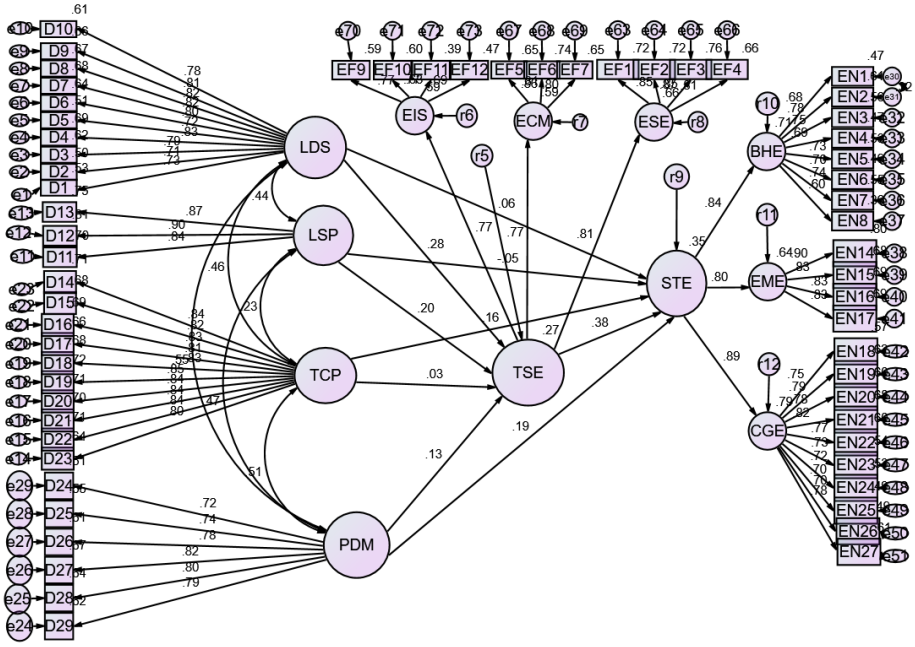
Table 5

Regression Weight results in Predicting Student Engagement from teacher self-efficacy and DL practice

No	Hypothesized relationships	ß	S.E.	C.R	p-value
1	Teacher self-efficacy <--- Leadership supervision	.203*	.033	4.128	***
2	Teacher self-efficacy <--- Participation in decisions	.133*	.035	2.328	.028
3	Teacher self-efficacy <--- Team cooperation	.028	.027	.575	.565
4	Teacher self-efficacy <--- Leadership support	.284*	.031	5.291	***
5	Student engagement <--- Team cooperation	.164*	.029	3.681	***
6	Student engagement <--- Leadership support	.058	.032	1.148	.251
7	Student engagement <--- Leadership supervision	-.054	.034	-1.174	.240
8	Student engagement <--- Participation in decisions	.193*	.037	3.639	***

No	Hypothesized relationships	ß	S.E.	C.R	p-value
9	Student engagement <--- Teacher self-efficacy	.373*	.061	7.144	***
	Squared multiple correlations (R^2)				
	Distributed leadership dimensions	.27			
	Teacher self-efficacy	.35			
	Model fit indices: χ^2=3833.1, df=1807, χ^2/ df=2.12, P=0.000, CFI=.94, TLI=.93, RMSEA=.040 and RMR=. 041				

Note: Mediation was tested using a bootstrap analysis with a 95% confidence interval. * indicates P<.05



Note: LDS=Leadership Support, LSP=Leadership Supervision, TCP=Team Cooperation, PDM=Participation in Decision Making, TSF=Teacher Self-Efficacy, STE=Student Engagement

Figure 2. The mediating role of teacher self-efficacy in the relationship between DL practice and student engagement

On the other hand, leadership team cooperation (ß=.16, p<.05) had a direct significant effect on student engagement. However, leadership support (ß=.28, p<.05) and leadership supervision (ß=.20, p<.05) had significant indirect positive effects on student engagement through teacher self-efficacy. Alternatively, participative decision-making had both significant direct (ß=.13, p<.05) and indirect (ß=.19, p<.05) effects on student engagement. The variables had a small to medium effect on student engagement based on Cohen's (1988) effect size estimates. The study demonstrates that not all DL dimensions have an equal impact on student engagement. For example, increasing engagement in decision-making and teamwork had significant effects, suggesting that when teachers feel involved and collaborate effectively, the students are more likely to remain interested and engaged. However, leadership support and leadership supervision had no substantial direct effect. This might be because these dimensions of DL have a more indirect influence on students, impacting teacher self-efficacy before influencing their engagement.

The squared multiple correlations (R^2) values in Table 5 and Figure 2 showed that DL dimensions (leadership support, leadership supervision, team cooperation, and teachers' participation in decisions) jointly accounted for 27% (R^2 =.27) of the variations in teachers' self-efficacy. Likewise, DL dimensions and teacher self-efficacy explained 35% (R^2 =.35) of the variation in student engagement.

Table 6

Mediation analysis results for the effects of teacher efficacy on the relationship between DL practice and student engagement.

Predictor Variables	Teacher Self-efficacy	Student Engagement		
	Direct effect	Direct effect	Indirect effect	Total effect
	ß	ß	ß	ß
LDS	.284*	.058	.109*	.166*
LSP	.203*	-.054	.078*	.024
TCP	.028	.164*	.011	.175*
PDM	.133*	.193*	.051*	.243*
TSE	---	.383*	---	.383*

Note: LDS=Leadership Support, LSP=Leadership Supervision, TCP=Team Cooperation, PDM=Participation in Decision Making, TSE=Teacher Self-efficacy.

In general, the model two standardized regression weight and the mediation analysis results in Table 5, Table 6, and Figure 2 disclosed that exogenous variables included in the study contributed 35% of the variance in student engagement. Moreover, teacher self-efficacy played a significant partial mediation role in the relationship between DL and student engagement.

Discussion

Status of DL practices, teachers' self-efficacy, and students' engagement

The first research question sought to address in this study was to examine the extent of DL practices exhibited, teachers' self-efficacy, and students' engagement in secondary schools in the Amhara region, Ethiopia. Hence, the study revealed moderate DL practices in secondary schools. This finding indicates that secondary school

teachers received substantial supervisory support from various school leaders: principals, vice principals, department heads, and senior teachers. Consistent with the findings of the present study, it was found that supervision support is provided by multiple actors, such as district experts, cluster supervisors, leaders, and peers in Ethiopia (Eshetu, 2020), which may lead supervision practices to be exhibited as a highly DL function. Inconsistent with this study's findings, previous evidence suggests that Amhara region secondary school principals provided below-average supervisory services to teachers (Melaku & Demeke, 2022). This result variation might be due to the present study measuring supervision provided by multiple leaders: principals, vice principals, department heads, and senior teachers. Conversely, the dimensions of cooperative leadership (M = 2.24) and participative decision-making (M = 2.39) were found to be significantly below average. This result shows inconsistency with the national education policy aspiration, which aims to decentralize educational management and empower teachers to assume leadership roles alongside their teaching responsibilities (MoE, 2022, 2023), highlighting the improvement in the implementation of DL practices.

The present study found a low level of behavioral and cognitive engagement among the students. This shows that secondary school students in Ethiopia were hesitant to prioritize education, participate in extracurricular activities, or dedicate more time and energy to their academics. These results are in line with the desk review report from the Ethiopian Ministry of Education, which indicates that secondary school students were less eager to study and engaged in academic pursuits (MoE, 2018). Previous studies have shown that students' levels of involvement with learning activities tend to decrease as they progress through high school (Klem & Connell, 2004; Martin & Torres, 2016).

Teachers' self-efficacy in classroom management, instructional tactics, and student engagement was found to be above average. To some extent, the research's findings are consistent with a study conducted in Ethiopian elementary schools (Romel et al., 2021). Romel et al. (2021) found that contextual variables, including educational qualification levels, influenced teachers' self-efficacy views. They found that instructors with diplomas, who made up 66% of their sample, felt more efficacious than those with first degrees. The majority of teachers in the current study, 98.6% (704), had a first degree or higher, whereas just 1.4% (n = 10) held a diploma.

The relationship between DL practices, teachers' self-efficacy, and students' engagement

In the present study, the relationship between DL practices and teachers' self-efficacy was a significant and positive relationship. This result is consistent with previous findings (Kurt, 2016; Liu et al., 2021; Printy & Lui, 2021; Zheng et al., 2019). DL facilitates collaborative and supportive school cultures that involve more people in decision-making processes, which have a relationship with teachers' self-efficacy (Sun & Xia, 2018). Similarly, increased collaboration and cooperation among leadership teams in schools would result in the accomplishment of team-based goals, the resolution of issues, and an improvement in teacher effectiveness (Thien & Chan, 2022). In particular, a prior study in Malaysian secondary schools discovered a strong positive correlation between DL and teachers' self-efficacy, which is in line with the current study's findings (Halim & Ahmad, 2016). Similarly, employing previously conducted 32-country data of secondary collected from 104,358 participants in lower secondary schools, a study found an indirect effect of DL on teachers' self-efficacy (ß=.038) through collaboration and supportive school culture (Liu et

al., 2021). Consistent with the present study findings, empirical evidence revealed that DL positively correlates with teacher self-efficacy (Halim & Ahmad, 2016; Spillane, 2006; Brown et al., 2019). Conversely, the result of this study contradicts the study conducted in Romania using an online survey, which found a negative relationship between DL and teacher self-efficacy (r = -.07) (Tucaliuc et al., 2023). The differences in results might be due to variations in the data collection method (they employed an online survey, and respondents might be laissez-faire in filling it out) and study context differences (Spillane, 2006).

The present study also found that teacher self-efficacy influenced student engagement. In a similar way, the available literature that shows the link between teacher self-efficacy and student engagement disclosed that efficacious teachers use different teaching strategies to manage and engage students in learning activities (Turner et al., 2014; Zee & Koomen, 2016). According to Shuukat and Iqbal (2012), teachers who are highly effective also typically exhibit high levels of organization and preparation, as well as spend more time supervising and evaluating their students' work. One possible explanation for this might be because educators who possess high levels of self-efficacy are confident in their abilities and demand excellence from their students (Stronge, 2018). Teachers set higher learning goals and work harder to meet them in order to affect students' interest in learning, which appears to be another effective factor (Thien & Adams, 2021). It is possible that teachers who feel more effective spend more time helping pupils learn and bolstering their intrinsic drive (Bandura, 1997). In addition, educators that are very effective may participate in professional development and experiment with and adopt several new instructional methods to engage students in their learning.

The mediating roles of teachers' self-efficacy in the relationship between DL practice and student engagement

DL functions (leadership support, supervision, and participative decision-making) had a significant positive direct effect on teacher self-efficacy. DL had mainly an indirect, significant positive effect on student engagement through teacher self-efficacy. However, although the results showed limited effect, participative decision-making and collaboration within the leadership team were found to have a direct effect on student engagement. In other words, teacher self-efficacy played a partial mediation role in the relationship between DL and student engagement. This result has implications for school leaders in that improving student engagement in learning activities necessitates enhanced teacher self-efficacy, which DL practices determine.

The present study, leadership team cooperation mainly had a weakly significant direct (.12) effect on student engagement. This finding is linked to the assertion that the more leadership is distributed to teachers and middle leaders, the closer leadership involvement is to the teaching practice, and the greater the improvement in student learning and engagement (Harris & Jones, 2023).

The overall structural model results indicated that DL dimensions significantly raised teacher self-efficacy. These results are, to some extent, consistent with prior studies (Berjaoui & Karami-Akkary, 2020; Halim & Ahmad, 2016; Hulpia & Devos, 2009; Hulpia et al., 2012; Liu et al., 2021; Thien & Adams, 2021). Similarly, self-efficacy (ß=.26) significantly influenced student engagement. In other words, DL dimensions explained 41% of the variations in student engagement through teacher self-efficacy. These results suggested that teacher self-efficacy had a significant partial mediating role in the contribution of DL to student engagement. Put simply, DL, specifically the leadership team cooperation dimension, had a weak direct effect on student

engagement. This finding is to some extent parallel with Harris and Jones's (2023) claim that the nearer to the teaching and learning processes, the greater the leader's likelihood to directly impact student learning. Inconsistent with the present study's finding, Leithwood and Jantzi (1999) found no significant effect of teacher leadership on student engagement. Furthermore, the mediation effect of teacher self-efficacy in the link between DL and student engagement supports earlier research, implying that when educators feel more capable and supported, students are far more likely to be motivated and involved in their academic setting. These findings are similar to previous studies by Tschannen-Moran and Hoy (2001) and Fredricks et al. (2004), providing additional data from a sub-Saharan African environment. Therefore, more studies are needed to ensure the consistency of the study findings. Mainly, in the current study, DL had a modest to medium significant indirect positive effect on student engagement through teacher self-efficacy. In this regard, another study concluded that the implementation of DL in schools promotes the sharing of responsibilities and decision-making involvement among teachers, which positively affects the classroom environment and students' academic success (Khan et al., 2023). Therefore, the study revealed that DL practices can improve teachers' sense of efficacy, which in turn enhances student engagement in learning activities.

Conclusion

The study found a moderate level of DL practices in secondary schools in the state of Amhara, Ethiopia. Students demonstrated a low level of engagement in their learning while teachers exhibited above-average self-efficacy. Hence, the study inferred that students were reluctant to participate in classroom activities, had limited involvement in co-curricular activities, and had a general tendency to invest less value,

time, and effort into their education. The study found that leadership practices characterized by support, supervision, and inclusive decision-making significantly enhance teachers' self-efficacy. Teacher self-efficacy was found to have a significant positive relationship with student engagement. Hence, the more teachers develop confidence in their assessment techniques, classroom practices, and instructional strategies, the more students engage in learning activities. Moreover, efficacious teachers are more likely to employ innovative instructional strategies and various assessment techniques, which improve the likelihood of students' engagement in educational activities. Despite the leadership team cooperation having a weak direct effect on student engagement, SEM full model results disclosed that teachers' self-efficacy plays a significant partial mediation role in the relationship between DL and student engagement. It indicated that DL had a medium significant effect on student engagement through teacher self-efficacy. These findings confirmed the significance of the distribution of leadership support and teachers' participation in decisions to increase teacher commitment to school and self-efficacy and, in turn, student engagement.

Implications and Limitations

This study has practical, theoretical, and policy implications. In terms of practical implications, as the findings indicate, to increase student engagement in learning activities, teachers' affective needs should be met first. Moreover, the study has practical implications that teacher self-efficacy should be given emphasis to improve student engagement. Specifically, the mediation analysis suggests that leaders who provide support, supervision, and involve teachers in decisions are more likely to improve teacher self-efficacy. For school leaders, the

positive relationship between distributed leadership and teacher self-efficacy suggests that empowering teachers through shared leadership can enhance their confidence and motivation. School principals should foster collaborative decision-making, delegate meaningful responsibilities, establish strategies for successful teacher cooperation, give continuous leadership support, and create an inclusive school culture where teachers feel valued and supported. This, in turn, can contribute to a more engaged and responsive teaching force. For teachers, the results highlight the importance of self-efficacy in promoting student engagement. Professional development programs that focus on building teachers' instructional skills, classroom management, and ability to motivate students can enhance their sense of efficacy and, by extension, their students' involvement in learning activities. In sum, this study provides practical implications about how leaders improve teacher self-efficacy, in turn, student engagement.

The study has implications for policymakers. The selection, preparation, and in-service training of school leaders and teachers can take into account the study findings. Moreover, educational policy and its directives can focus on enhancing the distribution of leadership in schools, teacher self-efficacy, and organizational commitment to improve student engagement.

Regarding theoretical implications, the available literature lacks empirical evidence that shows the interplay between the distributions of leadership functions, teacher self-efficacy, organizational commitment, and student engagement. Hence, this study provides empirical evidence on the link between leadership variables, teacher variables, and student engagement. Moreover, the study adds new knowledge to the emerging body of literature on how leader-level factors contribute to teacher-level factors and, in turn, student engagement.

The limitations of this work give future research directions. First, a self-reported survey was used to gather data on teacher self-efficacy, which may have been skewed by social desirability bias or overreporting of commitment and effectiveness levels. However, teachers graded the student engagement data, and they may have trouble grading the affective or implicit behaviors of students' emotional involvement. Hence, future research should integrate other-report and self-report data to ensure the comparison of results across various surveys. Future research that uses different information sources, such as observations in the classroom, interviews, or questionnaires from students, may assist in triangulating the data and strengthening validity. Second, the study used teacher respondents only due to the homoscedasticity statistical assumption and the employed study design effect. This limits the comparison and generalization of the study results among different populations. Thus, future studies should incorporate diversified samples (such as students and school leaders) to provide additional evidence and a deeper understanding of the findings. Third, the scope of this study was secondary schools. To provide dependable results and robust conclusions, it is suggested that future studies be replicated in other education settings (kindergarten, primary, and tertiary). Fourth, the study used a cross-sectional design, which collected data at a particular point in time. As a consequence, we are unable to identify causal connections between the study variables. Longitudinal studies in the future might help follow variations over time and give a stronger basis to grasp the connection between cause and effect. Finally, the overall SEM model revealed a 59% unexplained variance of student engagement. Therefore, to better comprehend the determinants of student engagement, future researchers need to address more theoretically based mediating variables, such as family

support, peer support, and teacher-classroom practices, in the relationship between DL and student engagement.

References

Ali, M. M., & Hassan, N. (2018). Defining concepts of student engagement and factors contributing to their engagement in schools. *Creative Education*, *9*(14), 2161-2170. https://doi.org/10.4236/ce.2018.914157

Amhara National Regional Education Bureau [ANSREB]. (2021). Annual education statistics abstract 2013 E.C. (2020/2021). ANRSEB Education Bureau.

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools*, *45*(5), 369–386. https://doi.org/10.1002/pits.20303

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology*, *44*(5), 427-445. https://doi.org/10.1016/j.jsp.2006.04.002

Arbabi, A., & Mehdinezhad, V. (2016). School principals' collaborative leadership style and its relation to teachers' self-efficacy. *International Journal of Research Studies in Education*, *5*(3), 3-12. https://doi.org/10.5861/ijrse.2015.1218

Archambault, I., Janosz, M., Fallu, J.-S., & Pagani, L. S. (2009). Student engagement and its relationship with early high school dropout. *Journal of adolescence*, *32*(3), 651-670.

Asrat, D. (2017). The Practice and Challenges of Distributed Leadership at Some Selected Primary Schools of Debark

District: Ethiopia. *British Journal of Education, Society & Behavioural Science*, *20*(3), 1-10.

Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *ournal of College Student Development*, *40*(5), 518–529. https://doi.org/https://doi.org/10.1016/j.adolescence.2008.06.007

Audas, R., & Willms, J. D. (2001). *Engagement and dropping out of school: A life-course perspective*. Citeseer.

Avolio, B. J., Walumbwa, F. O., & Weber, T. J. (2009). Leadership: Current theories, research, and future directions. *Annual review of psychology*, *60*, 421-449.

Baker, C., & Campbell, M. (2013). Context matters: An Ethiopian case study. Adapting leadership development methods to serve different cultures. *Center for Creative Leadership*.

Berhanu, K. (2025). Strategies principals used to develop teachers' psychological empowerment in primary schools, Ethiopia: qualitative study. *Curr Psychol* 44, 864–881. https://doi.org/10.1007/s12144-025-07566-9

Berhanu, K. Z. & Gobie,D. (2023). Adequacy of capacity building and stakeholder involvement in decentralized education management: Evidence from Ethiopia, *Cogent Social Sciences*, 9 (2), 2247151. DOI:10.1080/23311886.2023.2247151.

Berhanu, K. Z. (2023a). Practices, challenges, and prospects of implementing School-Based Management (SBM) system in Ethiopian schools: Implications for policy makers. *Research in Educational Administration and Leadership, 8(2), 465-504*. ***https://doi.org/10.30828/real.1275282***.

Berhanu, K. Z. (2023b). Relationship between Pedagogical Leadership and Teachers' Job Performance as Mediated by Organizational

Commitment. *International Journal of Learning, Teaching and Educational Research*, 22(11), 243-258. https://doi.org/10.26803/ijlter.22.11.13

Berhanu, K. Z. (2024). The mediating role of teachers' attitudes toward instructional supervision in the association between instructional supervisory practice and teachers' job performance. *Participatory Educational Research*, 11(2), 212-229. https://doi.org/10.17275/per.24.27.11.2 2

Bandura, A. (1997). Self-efficacy: The exercise of control New York. In: WH Freeman and Company.

Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on psychological science*, *1*(2), 164-180.

Ben-Eliyahu, A., Moore, D., Dorph, R., & Schunn, C. D. (2018). Investigating the multidimensionality of engagement: Affective, behavioral, and cognitive engagement across science activities and contexts. *Contemporary Educational Psychology*, *53*, 87-105. https://doi.org/10.1016/j.cedpsych.2018.01.002

Berjaoui, R. R., & Karami-Akkary, R. (2020). Distributed leadership as a path to organizational commitment: The case of a Lebanese school. *Leadership and Policy in Schools*, *19*(4), 610-624. https://doi.org/10.1080/15700763.2019.1637900

Bolden, R. (2011). Distributed leadership in organizations: A review of theory and research. *International journal of management reviews*, *13*(3), 251-269. https://doi.org/10.1111/j.1468-2370.2011.00306.x

Brown, M., McNamara, G., O'Hara, J., Hood, S., Burns, D., & Kurum, G. (2019). Evaluating the impact of distributed culturally responsive leadership in a disadvantaged rural primary school in Ireland. *Educational Management Administration & Leadership*, *47*(3), 457-474. https://doi.org/10.1177/1741143217739360

Bush, T. (2023). The importance of middle leadership for school improvement. In (Vol. 51, pp. 267-269): SAGE Publications Sage UK: London, England.

Clifton, J. (2017). Taking the (heroic) leader out of leadership. The in situ practice of distributed leadership in decision-making talk. *Challenging leadership stereotypes through discourse: Power, management and gender*, 45-68. https://doi.org/10.1007/978-981-10-4319-2_3

Coates, H. (2005). The value of student engagement for higher education quality assurance. *Quality in higher education*, *11*(1), 25-36. https://doi.org/10.1080/13538320500074915

Cochran, W. G. (1977). *Sampling techniques*. john wiley & sons.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.

Collier, J. (2020). *Applied structural equation modeling using AMOS: Basic to advanced techniques*. Routledge.

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage Publications.

De Vaus, D., & de Vaus, D. (2013). *Surveys in social research*. Routledge.

Dejene, L. (2014). *The Practices and challenges of distributed leadership in Addis Ababa University*. Addis Ababa University. http://etd.aau.edu.et/bitstream/handle/123456789/11197/Dejene%20Leta.pdf?sequence=1&isAllowed=y.

Ejigu, O., & Belay, T. (2022). Family, teachers and peer support as predictors of school engagement among secondary school Ethiopian adolescent students. *Cogent Psychology*, *9*(2). https://doi.org/10.1080/23311908.2022.2123586

Eshetu, M. (2020). Identifying improvements in supervision practices in Ethiopian primary schools: A pragmatic perspective. *Issues in Educational Research*, *30*(3), 866-882.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, *74*(1), 59-109. https://doi.org/10.3102/00346543074001059

Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2016). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. In (Vol. 43, pp. 1-4): Elsevier.

Galdames-Calderón, D.(2023). Distributed leadership: school principals' practices to promote teachers' professional development for school improvement. *Education Sciences*, 13(7), 715. https://doi.org/10.3390/educsci13070715

Gumus, S., Bellibas, M. S., Esen, M., & Gumus, E. (2018). A systematic review of studies on leadership models in educational research from 1980 to 2014. *Educational Management Administration & Leadership*, 46(1), 25-48.

Gay, L. R., Mills, G. E, & Airasian, P. (2012). *Educational Research: Competencies for Analysis and Applications* (10th ed.). Pearson Education, Inc.

Halim, R. A., & Ahmad, H. (2016). Distributed leadership, contextual factor and teachers' self-efficacy in Malaysia. *Educational Leader (Pemimpin Pendidikan)*, *4*, 31-38.

Harris, A. & Muijs, D. (2004). Distributed leadership and school improvement: Leading or misleading? *Educational Management Administration & Leadership*, *32*(1), 11-24. https://doi.org/10.1177/1741143204039297

Harris, A. (2007). Distributed leadership: Conceptual confusion and empirical reticence. *International Journal of Leadership in Education*, *10*(3), 315-325. https://doi.org/https://doi.org/10.1080/13603120701257313

Harris, A. (2008). Distributed Leadership: What We Know? *Journal of Educational Administration*, *48*(2), 172-188.

Harris, A. (2014). *Distributed leadership matters: Perspectives, practicalities, and potential*. Corwin Press.

Harris, A., & Jones, M. (2023). The importance of school leadership? What we know. In (Vol. 43, pp. 449-453): Taylor & Francis.

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind* (Vol. 2). Mcgraw-hill New York.

Hulpia, H. (2009). *Distributed leadership and organizational outcomes in secondary schools* Ghent University. http://hdl.handle.net/1854/LU-4333589

Hulpia, H., Devos, G., & Rosseel, Y. (2009). Development and validation of scores on the distributed leadership inventory. *Educational and psychological measurement*, *69*(6), 1013-1034. https://doi.org/10.1177/0013164409344490

Hulpia, H., Devos, G., Rosseel, Y., & Vlerick, P. (2012). Dimensions of distributed leadership and the impact on teachers' organizational commitment: A study in secondary education. *Journal of Applied Social Psychology*, 42(7), 1745-1784. https://doi.org/10.1111/j.1559-1816.2012.00917.x

Jordan, P. J., & Troth, A. C. (2019). Common method bias in applied settings: The dilemma of researching in organizations. *Australian Journal of Management*, 45(1), 3-14. https://doi.org/10.1177/0312896219871976(2020).

Karacabey, M. F., Bellibaş, M. Ş., & Adams, D. (2022). Principal leadership and teacher professional learning in Turkish schools: Examining the mediating effects of collective teacher efficacy and teacher trust. *Educational studies*, 48(2), 253-272.

Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford Publications.

Kezar, A. (2005). Promoting student success: The importance of shared leadership and collaboration. Occasional Paper No. 4. *National Survey of Student Engagement*.

Khan, F., Khan, M., & Wahid, A. (2023). Unlocking Academic Success: Exploring the Impact of Distributed Leadership on Schools' Climate and Students' Achievement at the Secondary Level in District Kohat. *Global Social Sciences Review, VIII*. https://doi.org/10.31703/gssr.2023(VIII-I).35

Klassen, R. M., Tze, V. M., Betts, S. M., & Gordon, K. A. (2011). Teacher efficacy research 1998–2009: Signs of progress or unfulfilled promise? *Educational psychology review*, *23*, 21-43. https://doi.org/10.1007/s10648-010-9141-8

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health*, *74*, 262-273.

Kurt, T. (2016). A model to explain teacher leadership: The effects of the distributed leadership model, organizational learning, and teachers' sense of self-efficacy on teacher leadership. *Egitim Ve Bilim-Education and Science*, *41*(183). https://doi.org/10.15390/EB.2016.5081

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel psychology*, *28*(4), 563-575. https://doi.org/10.1111/j.1744-6570.1975.tb01393.x

Lawson, M. A., & Lawson, H. A. (2013). New conceptual frameworks for student engagement research, policy, and practice. *Review of Educational Research*, *83*(3), 432–479. https://doi.org/10.3102/00346543134808

Lei, H., Cui, Y., & Zhou, W. (2018). Relationships between student engagement and academic achievement: A meta-analysis. *Social Behavior and Personality: an international journal*, *46*(3), 517-528. https://doi.org/10.2224/sbp.7054

Leithwood, K., & Jantzi, D. (1999). The relative effects of principal and teacher sources of leadership on student engagement with school. *Educational Administration Quarterly*, *35*(5), 679-706. https://doi.org/10.1177/0013161X99355002

Leithwood, K., & Jantzi, D. (2008). Linking leadership to student learning: The contributions of leader efficacy. *Educational Administration Quarterly*, *44*(4), 496-528. https://doi.org/10.1177/0013161X08321501

Leithwood, K. A., Mascall, B., & Strauss, T. (2009). *Distributed leadership according to the evidence*. Routledge.

Leonard, E. E., & Maulding Green, W. (2018). Are leader behavior and emotional intelligence related to teacher efficacy? *The Journal of Values-Based Leadership*, *11*(2), 10. https://doi.org/10.22543/0733.62.1225

Liu, Y., Bellibaş, M. Ş., & Gümüş, S. (2021). The effect of instructional leadership and distributed leadership on teacher self-efficacy and job satisfaction: Mediating roles of supportive school culture and teacher collaboration. *Educational Management Administration & Leadership*, *49*(3), 430-453. https://doi.org/10.1177/1741143220910438

Martin, J., & Torres, A. (2016). User's guide and toolkit for the surveys of student engagement: the high school survey of student

engagement and the middle grade school survey of student engagement. *National Association of Independent Schools*.

Melaku , M. G., & Demeke, W. A. (2022). The leadership and supervisory practices of principals in public secondary schools of the State of Amhara, Ethiopia, as perceived by teachers. *Bahir Dar Journal of Education*, *22*(2), 1-21.

Mifsud, D. (2023). A systematic review of school distributed leadership: Exploring research purposes, concepts and approaches in the field between 2010 and 2022. *Journal of Educational Administration and History*, 1-26.

Misgana, T. A. (2017). Distributive leadership practices and challenges in secondary schools of hadiyazone, in southern nations nationalities and peoples Regional State. *International Journal of Research in Social Sciences*, *7*(9), 289-324.

Mitchell, R. (2017). Democracy or control? The participation of management, teachers, students and parents in school leadership in Tigray, Ethiopia. *International Journal of Educational Development*, *55*, 49-55. https://doi.org/10.1016/j.ijedudev.2017.05.005

Ministry of Education. (2018). *Ethiopian education development roadmap (2018-30).* In *An integrated Executive Summary. Ministry of Education Strategy Center (ESC) Draft for Discussion: Addisababa*: Ministry of Education.

Ministry of Education (2023). Ethiopian Education and Training Policy, Amharic version [Yeethiopia Temeheretena Selitena Polisi, Amarigna Teregume]. Addis ababa: Ministry of Education.

Muthiah, V. V., Adams, D., & Abdullah, Z. (2019). Distributed leadership and teachers' affective commitment in international schools. *International Online Journal of Educational Leadership*, *3*(2), 22-40.

Nelson, E. (2018). The principal's influence on teacher efficacy to foster student engagement: A case study of two elementary schools.

Paletta, A., Basyte Ferrari, E., & Alimehmeti, G. (2020). How principals use a new accountability system to promote change in teacher practices: Evidence from Italy. *Educational Administration Quarterly*, *56*(1), 123-173. https://doi.org/10.1177/0013161X19840398

Printy, S., & Liu, Y. (2021). Distributed leadership globally: The interactive nature of principal and teacher leadership in 32 countries. *Educational Administration Quarterly*, *57*(2), 290-325. https://doi.org/10.1177/0013161X20926548

Rodríguez-Ardura, I. & Meseguer-Artola, A. (2020). Editorial: How to prevent, detect and control common method variance in electronic commerce research. Journal of Theoretical and Applied Electronic Commerce Research, 15(2), 1-5. https://doi.org/10.4067/S0718-18762020000200101

Romel, H., Tadesse, T., & Jibat, N. (2021). Teacher quality, self-efficacy, and quality teaching in Ethiopian primary schools: An integrated sociological and psychological perspective. *Studies in Educational Evaluation*, *70*, 101029.

Ruan, J., Nie, Y., Hong, J., Monobe, G., Zheng, G., Kambara, H., & You, S. (2015). Cross-cultural validation of teachers' sense of efficacy scale in three Asian countries: Test of measurement invariance. *Journal of Psychoeducational Assessment*, *33*(8), 769-779.

Sahil, S. A. S. (2010). *A structural model of the relationships between teacher, peer, and parental support, behavioural engagement, academic efficacy and cognitive engagement of secondary school adolescents* Universiti Utara Malaysia].

Shuukat, S., & Iqbal, H. M. (2012). Teacher self-efficacy as a function of student engagement, instructional strategies and classroom

management. *Pakistan Journal of Social and Clinical Psychology*, *9*(3), 82-85.

Shimelis, M. (2018). Practices and challenges of distributed leadership in secondary schools of Aksum town, Tigray, Ethiopia. *Journal of Education and Practice*, *9*(7), 1-7.

Spillane, J. P. (2006). Towards a theory of leadership practice: A distributed perspective. In *Rethinking schooling* (pp. 208-242). Routledge.

Stronge, J. H. (2018). *Qualities of effective teachers*. Ascd.

Subedi, D. (2016). Explanatory sequential mixed method design as the third research community of knowledge claim. *American Journal of Educational Research*, *4*(7), 570-577.

Sun, A., & Xia, J. (2018). Teacher-perceived distributed leadership, teacher self-efficacy and job satisfaction: A multilevel SEM approach using the 2013 TALIS data. *International Journal of Educational Research*, *92*, 86-97. https://doi.org/10.1016/j.ijer.2018.09.006

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Allyn and Bacon.

Tesfaye, S. (2014). Teacher preparation in Ethiopia: A critical analysis of reforms. *Cambridge Journal of education*, *44*(1), 113-145.

Thien, L. M., & Adams, D. (2021). Distributed leadership and teachers' affective commitment to change in Malaysian primary schools: the contextual influence of gender and teaching experience. *Educational Studies*, *47*(2), 179-199. https://doi.org/10.1080/03055698.2019.1680349

Thien, L. M., & Chan, S. Y. (2022). One-size-fits-all? A cross-validation study of distributed leadership and teacher academic optimism. *Educational Management Administration & Leadership*, *50*(1), 43-63. https://doi.org/1177/1741143220926506

Tian, M., Risku, M., & Collin, K. (2016). A meta-analysis of distributed leadership from 2002 to 2013: Theory development, empirical evidence and future research focus. *Educational Management Administration & Leadership*, *44*(1), 146-164. https://doi.org/10.1177/1741143214558576

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, *45*(1), 89-125. https://doi.org/10.3102/00346543045001089

Trowler, V. (2013). Leadership practices for student engagement in challenging conditions. *Perspectives: Policy and Practice in Higher Education*, *17*(3), 91-95. https://doi.org/10.1080/13603108.2013.789455

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, *17*(7), 783-805. https://doi.org/10.1016/S0742-051X(01)00036-1

Tucaliuc, M., Curșeu, P. L., & Muntean, A. F. (2023). Does distributed leadership deliver on its promises in schools? Implications for teachers' work satisfaction and self-efficacy. *Education Sciences*, *13*(10), 1-15. https://doi.org/10.3390/educsci13101058

Turner, J. C., Christensen, A., Kackar-Cam, H. Z., Trucano, M., & Fulmer, S. M. (2014). Enhancing students' engagement: Report of a 3-year intervention with middle school teachers. *American educational research journal*, *51*(6), 1195-1226. https://doi.org/10.3102/0002831214532515

Zee, M., & Koomen, H. M. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher well-being: A synthesis of 40 years of research. *Review of Educational Research*, *86*(4), 981-1015. https://doi.org/10.3102/0034654315626801

Zheng, X., Yin, H., & Liu, Y. (2019). The relationship between distributed leadership and teacher efficacy in China: The mediation of satisfaction and trust. *The Asia-Pacific Education Researcher*, *28*, 509-518. https://doi.org/10.1007/s40299-019-00451-7

About the authors:

Eshetu Kibret Emiru, Ph.D in educational policy and leadership. His research focuses on leadership, self-efficacy and organizational commitment and behavior. His research has been published in several international journals.

E-mail: eshetu_kibret@dmu.edu.et

Kelemu Zelalem Berhanu, a senior postdoctoral research fellow at University of Johannesburg, South Africa. He holds a PhD in Educational Management, inspection, economics and planning from Akdeniz University – Turkey. His research focuses on leadership, empowerment, school-based management, and organizational commitment and behavior. His research has been published in several international journals.

E-mail: lkelemu@yahoo.com