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Exploring the Predictors of Teacher Retention among Beginning Teachers in Ethiopia

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Abstract: There is a global challenge to retain qualified beginning teachers across the school system. In the first 10 years of entering the profession, a large number of beginning teachers exit altogether. While high-income countries have been designing policies and discussing effective ways to retain beginning teachers, the African share of such deliberation is scanty. Using Mason and Matas' (2015) four-capital teacher retention model (structural, social, psychological and human capital) as a conceptual framework, we studied the predictors of retention of beginning

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teachers in Ethiopia. A questionnaire designed on the basis of the tenets of the conceptual framework was used for the data collection. In total, 204 beginning teachers who had graduated from elite teacher training institutions were recruited for this study. The data were analysed using t-tests, analysis of variance and structural equation modelling to estimate the strengths of the relationships and direct logistical and linear regressions. The results show a positive relationship between the four indicators and the demographic variables, such as gender, pre-service training, access to professional development, level of teaching and living with family in the community, which provided additional insight into teacher retention. We discuss the need for a multifaceted approach to retaining beginning teachers in Ethiopia as well as other implications.

Keywords: beginning teachers; retention; teacher education; tracer design; Ethiopia

Explorando los predictores de la retención de docentes entre los docentes principiantes en Etiopía

Resumen: Existe un desafío global para retener a los maestros principiantes calificados en todo el sistema escolar. En los primeros 10 años de ingreso a la profesión, una gran cantidad de maestros principiantes la abandonan por completo. Si bien los países de altos ingresos han estado diseñando políticas y discutiendo formas efectivas de retener a los maestros principiantes, la parte africana de tal deliberación es escasa. Usando el modelo de retención de docentes de cuatro capitales de Mason y Matas (2015) (capital estructural, social, psicológico y humano) como marco conceptual, estudiamos los predictores de la retención de docentes principiantes en Etiopía. Para la recolección de datos se utilizó el cuestionario diseñado en base a los postulados del marco conceptual. En total, 204 maestros principiantes que se habían graduado de instituciones de formación docente de élite fueron reclutados para este estudio. Los datos se analizaron mediante pruebas t, análisis de varianza y modelos de ecuaciones estructurales para estimar las fortalezas de las relaciones y regresiones lineales y logísticas directas. Los resultados muestran una relación positiva entre los cuatro indicadores y las variables demográficas, como el género, la formación previa al servicio, el acceso al desarrollo profesional, el nivel de enseñanza y la convivencia con la familia en la comunidad, lo que proporcionó información adicional sobre la retención de docentes. Discutimos la necesidad de un enfoque multifacético para retener a los maestros principiantes en Etiopía, así como otras implicaciones.

Palabras clave: docentes principiantes; retención; formación docente; *tracer design*; Etiopía

Explorando os indicadores de retenção de professores entre professores iniciantes na Etiópia

Resumo: Existe um desafio global para reter professores iniciantes qualificados em todo o sistema escolar. Nos primeiros 10 anos de ingresso na profissão, um grande número de professores iniciantes sai completamente. Enquanto os países de alta renda vêm elaborando políticas e discutindo formas eficazes de reter professores iniciantes, a parcela africana de tal deliberação é escassa. Usando o modelo de retenção de professores de quatro capitais de Mason e Matas (2015) (capital estrutural, social, psicológico e humano) como uma estrutura conceitual, estudamos os preditores de retenção de professores iniciantes na Etiópia. Um questionário elaborado com base nos princípios do quadro conceitual foi usado para a coleta de dados. No total, 204 professores iniciantes que se formaram em instituições de formação de professores de elite foram recrutados para este estudo. Os dados foram analisados por meio de testes t, análise de variância e modelagem de equações estruturais para estimar as forças das relações e regressões logísticas e lineares diretas. Os resultados mostram uma relação positiva entre os quatro indicadores e as variáveis demográficas, como sexo, formação inicial, acesso ao desenvolvimento

profissional, nível de ensino e convivência com a família na comunidade, que forneceram informações adicionais sobre a retenção de professores. Discutimos a necessidade de uma abordagem multifacetada para reter professores iniciantes na Etiópia, bem como outras implicações.

Palavras-chave: professores iniciantes; retenção; formação de professores; *tracer design*; Etiópia

Exploring the Predictors of Teacher Retention among Beginning Teachers in Ethiopia

Education has been identified as a fundamental human right of all children regardless of their race, ability and ethnicity or the socio-economic status of their parents (Chataika et al., 2012; World Bank, 2009). Education is believed to be a public good, and countries have prioritised its access to all persons. This includes investment in teacher education and curriculum reforms aimed at offering quality access and learning experiences to all children (Ashman, 2015). However, one major challenge facing almost every country is the attrition of qualified teachers (Florian & Linklater, 2010). The available statistics from high-income countries show that a large number of teachers either leave the profession entirely or move to a new school (e.g. Cobbold, 2006; Kelly & Fogarty, 2015; Manuel, 2003; Mason et al., 2015; Mau et al., 2008; Tiplic et al., 2015). This problem is even more pronounced among beginning teachers who are in their first five years of entering the teaching profession (e.g. Hong, 2010; Kelchtermans, 2017; Kidd et al., 2015). For example, in Australia, an estimated 25% of beginning teachers leave the profession annually (Kidd et al., 2015), 15% in the Netherlands (Den Brok et al., 2017) and 3% to 30% in Canada (Karsentil & Collin, 2013). In the United States, 43% of a cohort of over 4,000 teachers indicated their intention to leave within five years, and 46% of teachers leave in their formative years of entering the profession (Ingersoll, 2002). The sizeable number of beginning teachers leaving the profession has contributed to discussions on effective ways to retain teachers for at least 10 years (Kelchtermans, 2017). Unfortunately, in sub-Saharan African countries, such as Ethiopia, strategies to retain beginning teachers are yet to be brought to the forefront of making education accessible to all children.

The concept of beginning teachers is broadly categorised into two groups: experienced and inexperienced (Marlow et al., 1997). In this study, the term beginning teachers was defined as teachers with fewer years of working experience, from zero to four years (inexperienced beginning teachers) and five to 10 years (experienced beginning teachers). Every year, in almost every country, thousands of teachers graduate from teacher training institutions to fill vacant positions in schools (Tamir, 2010). Innovative strategies have been proposed to help induct novice teachers into the profession, among which are the alignment of new teachers to mentors who would initiate them into the profession (Hallam et al., 2012) and school leaders orienting (De Stercke et al., 2015) or supporting new teachers and providing them with vital resources to enable them to get used to the new school environment (Hirsch et al., 2006; Kelchtermans, 2017; Le Maistre & Pare, 2010; Loeb et al., 2005). In some situations, workshops and networking programmes are provided for beginning teachers to enable them to remain in the teaching profession (Helms-Lorenz et al., 2019; Schuck, 2003). However, while teacher preparation has never been a problem in contemporary society (Tamir, 2010), teachers have been found to leave the profession in haste (Kelchtermans, 2017), which has become a source of concern among teacher educators and policymakers.

The consequences of teacher attrition on students' learning and school effectiveness cannot be overemphasised (e.g., Kelchtermans, 2017; Perryman & Calvert, 2020; Sorensen & Ladd, 2020; Tiplic et al., 2015). For instance, the financial implications of teacher retention have been widely

studied (Sorensen & Ladd, 2020). Advertisements, empanelling experts to review applications, interviewing, appointing and organising induction programmes for new teachers all come at a cost. However, the departure of teachers translates into lost investments as other funds have to be sourced to begin another unending recruitment process. Moreover, the departure of teachers in the first few years affects students' learning because of the constant changing of teachers (Sorensen & Ladd, 2020). It has been suggested that the more teachers remain in the profession, the more they gain the necessary experience to provide an effective teaching service to students (Kelchtermans, 2017). The departure of teachers means that they do not learn on the job or acquire the necessary teaching experience for effective practise. In the contemporary era of promoting equitable access to education for all, there is a search for best practises geared towards the retention of teachers.

Literature Review: Teacher Retention/Attrition

The proliferation of empirical research around the world has focused majorly on factors explaining or contributing to beginning teachers' attrition/retention (Fessehatsion & Peng, 2021; Harmsen et al. 2018; Miller et al., 2020; Thomas et al., 2014), factors influencing teacher attrition/retention in rural schools (Acheampong & Gyasi, 2019; Opoku et al., 2020) and teacher-related characteristics influencing retention/attrition (Perryman & Calvert, 2020). For instance, in a longitudinal study in the United States involving 132 early career teachers, Miller et al. (2020) studied the link between organisational fit and teacher retention. They found a strong link between organisational values and the professional goals of teachers. They then recommended that school leadership draw on teachers whose personal goals and values align with those of the school. In another quantitative study of 1,200 beginning British teachers, Perry and Calvert (2020) attempted to explain why some initial teachers wanted to remain in the profession as well as ascertain the factors influencing the decision of those who intend to leave the profession. Of the 1,200 participants, only 48% had plans to remain in the profession. While reasons such as the desire to make a difference and love of subject and children were given to explain why some teachers stayed, others indicated that they wanted to leave the profession for a better life due to the workload and health problems. In a similar quantitative study in the Netherlands, Harmsen et al. (2018) identified teaching stress, discontent and difficulty managing students as contributors to teacher attrition. Nevertheless, the factors contributing to teacher attrition are myriad, and a holistic approach is required to retain qualified teachers so as to ensure quality access to education for all.

In the African context, though some attention has been given to teacher attrition/retention (e.g., Acheampong & Gyasi, 2019; Fessehatsion & Peng, 2021; Opoku et al., 2020; Thomas et al., 2014), there is a dearth of large-scale studies assessing the retention/attrition of beginning teachers. A Few quantitative studies have explored teacher attrition/retention in rural schools (Opoku et al., 2020), and some qualitative studies (Acheampong & Gyasi, 2019; Fessehatsion & Peng, 2021; Thomas et al., 2014) have documented factors contributing to the attrition/retention of teachers. For instance, in a Ghanaian quantitative study, Opoku et al. (2020) studied factors that might enhance teacher retention in rural schools. They reported factors such as remuneration and acceptance of teachers in communities as vital to the retention of teachers in rural schools. In a qualitative study in Eritrea, Fessehatsion and Peng (2021) attempted to understand the factors contributing to teacher attrition and those enhancing teacher retention. While low remuneration, poor school leadership and distance accounted for teacher attrition, love for the job and children explained the decision of some teachers to remain in their posts. However, these studies focused on general teachers without paying attention to those at the early stage of their career.

In the study of teacher attrition/retention, some attention has been given to the association between teachers' background variables and their decision to leave or remain in a given school. Unfortunately, the literature shows the fluidity of the variables that might influence the retention of teachers in schools. In quantitative studies by Guarino et al. (2006), Hong (2010), Mau et al. (2008), and Zhang and Zeller (2016), it was found that several background variables, such as gender, teacher training, age, and years of teaching experience, could influence the retention of teachers in schools. Similarly, teachers' perception of themselves as efficacious (Hong, 2010; Tiplic et al., 2015; Zhang & Zeller, 2016), their emotional well-being (Hong, 2010), commitments (Hong, 2010; Tiplic et al., 2015), and whether they are trusted (Zhang & Zeller, 2016) could have a positive impact on their retention. Also, in a mixed-methods study, Hallam et al. (2012) noted that teachers who graduated from highly ranked universities were more likely to leave, while those who graduated from modestly ranked universities were more likely to remain in the profession. This arguably gives credence to the fact that the school background of beginning teachers could be an important factor in their retention. Teacher training appears to have emerged as a strong predictor of retention (Grant et al., 2019; Tamir, 2010), with Tamir suggesting that ideology, focus, and the faith-based nature of the training programme may impact the commitment of teachers to remain in a given school for a considerable period of time.

Coupled with the lack of uniformity among the variables influencing teacher retention and the complexity of factors influencing teacher retention/attrition, a holistic approach is needed to develop a contextual understanding of the retention of beginning teachers in the profession. Furthermore, in the sub-Saharan African context, the factors enhancing the retention of beginning teachers are rarely the subject of study.

Conceptual Framework

There is a consensus in the literature that a complex set of interrelated factors contribute to the attrition of teachers (Allensworth et al., 2009; De Stercke et al., 2015; Guarino et al., 2004, 2006; Karsentil & Collin, 2013; Kelchtermans, 2017; Kelly & Fogarty, 2015; Mason et al., 2015). Thus, there is a need for a holistic approach in attempting to retain qualified teachers in the profession. Against this backdrop, in a global review of literature from high-income countries, Mason and Matas (2015) designed the four-capital conceptual framework as a useful lens to study teacher retention. The four interrelated indicators are as follows: human, social, structural, and positive psychological capital.

First, human capital refers to the influence of pre-service training and the impact of professional learning on teacher retention (Mason & Matas, 2015). The importance of pre-service training in teacher retention has received some attention in the literature. Over the years, it has been suggested that teacher training offers teachers the requisite knowledge, agency, commitment, and efficacy to remain in the profession (Den Brok et al., 2017; Helms-Lorenz et al., 2012; Lavigne, 2014; Mansfield & Beltman, 2014; Perryman & Calvert, 2020; Tamir, 2010). However, merely having access to professional development (PD) will not enable teachers to see a clear path of growth and acquire new pedagogical skills to overcome all difficulties. According to Den Brok et al. (2017) and Kidd et al. (2015), opportunities for new teachers to meet in workshops or virtual platforms to learn and share experiences enable them to remain in the teaching profession. In the Ethiopian context, formidable pre-service training and opportunities for in-service teachers to participate in professional learning could positively influence their retention.

Second, social capital refers to the creation of a conducive environment for all teachers to work. Under this component, emphasis is placed on the development of a school culture where

every teacher feels welcomed and supported to remain in their school (Mason & Matas, 2015). It is useful to state here that the support provided to beginning teachers during the transition process and while adjusting to life in a new school or community is fundamental to their retention (Ingersoll & Smith, 2003; Kelchtermans, 2017; Le Maistre & Pare, 2010). This has led to suggestions for the development of robust induction programmes to introduce teachers to the profession (Den Brok et al., 2017). In school environments in contexts such as Ethiopia, school leaders are expected to initiate the induction process and design programmes to ensure that teachers are socially adjusted to their new school environments.

Third, structural capital connotes the nature of the school environment and the support provided to beginning teachers to enable them to perform (Mason et al., 2015). Schools must have basic facilities, including the organisation of regular PD for teachers, to ensure effective teaching and services to students. School leaders should prioritise resourcing schools with the requisite facilities to ensure that teachers have access to vital teaching tools (Kelchtermans, 2017; Mason et al., 2015). Previous studies have reported that the nature of the school environment influences teacher retention (Le Maistre & Pare, 2010; Marlow et al., 1997; Mason & Matas, 2015). According to Geiger and Pivovarova (2018), the school climate plays a leading role in teachers' decision to either remain at or leave a school. It is believed that schools with appropriate support services and reward systems that support and promote teachers have low attrition rates compared to schools without such interventions (Geiger & Pivovarova, 2018). Furthermore, working conditions involving a good salary and reward system do impact the retention of teachers (Kelchtermans, 2017; Mansfield & Beltman, 2014; Mason & Matas, 2015). In Ethiopia, there has been no detailed investigation of how school leaders liaise with the appropriate authority to ensure that schools have the proper structures and clear career development plans for beginning teachers to enhance their retention.

The fourth component is the psychological capital of beginning teachers, whose agency and personal characteristics impact their retention in schools (Mason & Matas, 2015). In most instances, teachers' motivation and commitment to the profession do have an impact on their retention (Grant et al., 2019; Harfitt, 2015; Helms-Lorenx et al., 2012; Kelchtermans, 2017; Lavigne, 2014; Tiplic et al., 2015; Zhang & Zeller, 2016). Individuals sometimes enter the teaching profession, not because of the likelihood of financial reward but because they are driven by personal desires, values, and contributions to human development. There is evidence to suggest that teachers who are intrinsically motivated, have a love for children, and are committed to making a difference in the lives of children are more likely to remain in the profession (Hong, 2010; Kelchtermans, 2017).

In this study, the four components of capital were measured to ascertain the factors that potentially influence teacher retention in Ethiopia. We hypothesised that the four components were interrelated and, as such, that a positive association between them could explain the retention of beginning teachers in Ethiopia.

Deployment of Beginning Teachers in Ethiopia

Ethiopia follows a four-tier education structure: early childhood (2–5 years of age), primary (years 1–8), secondary (years 9–12), and tertiary education. The country follows a decentralised administrative structure of government, which is divided into 10 regional states and two city administrations. Each region/city administration has its own bureau of education (REB), a zonal education office in some regions, and woreda education offices (WEOs) and kebeles, with kebele education and training boards (KETBs) responsible for administering and managing the educational system at the school level. Each regional education bureau is both administratively and financially responsible for general education, technical and vocational education and training as well as colleges of teacher education and training that operate in their respective regional states.

Ethiopia has been struggling to increase the number of schools to accommodate all school-age children. According to the Education Statistics Annual Abstract of 2019/20 (Ministry of Education [MoE], 2019), there were 37,750 primary schools around the country. Therefore, relative success is registered in terms of quantity. However, as improving the quality of education has been a challenge, one of the strategies has been teacher education and training. There are more than 39 colleges of teacher education in various regional states. Each regional education bureau is responsible for deciding on the recruitment, training, and deployment of teachers at pre-primary and primary levels (MoE, 1994, 2012). According to the *Education Statistics Annual Abstract of 2019/20* (MoE, 2020), there was a total teaching force of 700,838 across all levels in Ethiopia: kindergarten, primary and secondary school. Of this figure, 35,501 teachers were deployed in kindergarten, 537,596 in primary schools, and 127,741 in secondary schools.

The recent wave of seeking to achieve equitable access to education has also swept through Ethiopia. Though universities have introduced courses in inclusion to equip student teachers with vital skills, courses in teacher retention are very scarce or non-existent. The MoE (2021) is concerned with issues of teacher attrition and is examining effective ways of retaining more qualified teachers. For instance, an MoE (2020) report indicates that teacher attrition rates in primary education decreased from 5% in 2014/15 to 2.2% by 2018/19, placing Ethiopia on track to achieving the target of 2%. However, attrition rates are slightly higher in secondary education, at 3% in 2018/19. The current attrition rate across all grade levels, according to ESDP VI, is 2.6%, and the government's target is to reduce this to 1% by the end of ESDP VI (MoE, 2021). Owing to the dearth of information about strategies to retain qualified teachers in the profession, this study attempted to provide baseline information to policymakers in an effort to improve the retention of beginning teachers.

With the proposition that beginning teachers may either sink or swim, it is essential for systems such as those in Ethiopia to develop a robust environment to enhance the retention of teachers. In this study, the tracer approach was used to follow beginning teachers who graduated from two of 10 universities considered as centres of excellence in Ethiopia to understand retention among graduates. The study was guided by the following research questions:

1. What is the association between beginning teachers' profiles and their retention?
2. What factors predict that beginning teachers in urban or rural communities will retain their position?
3. What are the predictors of beginning teachers' retention in schools in Ethiopia?

Method

Study Design and Participants

A tracer design was used to recruit experienced and inexperienced beginning teachers who had graduated from two of the 10 government-selected teacher training institutions in Ethiopia. The federal government of Ethiopia selected five universities as centres of excellence for teacher training and research. Graduates from these universities and colleges are expected to provide quality teaching services, work in administration and contribute towards research on education around the country. With this in mind, we decided to select two universities based on convenience and follow their graduates in order to understand the factors that might impact their decision to remain in their teaching posts.

According to Badiru et al. (2016), Bolaane et al. (2010), Schomburg (2007) and Schomburg and Teichler (2005), tracer designs are useful for studying the performance of graduates of a given university programme. These designs enable universities to identify the usefulness of the knowledge

transferred to graduates and the discharge of teaching duties to society (Schomburg, 2007). Because of the difficulty keeping beginning teachers in the profession (Kelchtermans, 2017), it was ideal to follow graduates who had completed the universities' programmes, who were expected to help revamp the education sector and help the provision of excellent services to their school communities. Amidst such high expectations among this category of teachers, it was essential to assess the predictors of teacher retention that could provide baseline information to curriculum developers in Ethiopia. The inclusion criteria were as follows: a) completed two institutions of excellence; b) within the first 10 years of their teaching service; c) proficient in reading and speaking English; d) understand teacher retention and e) have the capacity to consent to participate in the study.

Out of 350 questionnaires distributed, 205 were returned, achieving a return rate of 59%. The beginning teachers were recruited from two of the 10 regions in Ethiopia. A paper/pen approach was used to collect data from beginning teachers who had graduated from two universities. Among them, 76% were male compared to 24% female. In terms of age, 53% indicated they were between 20 and 30 years, while 47% were at least 31 years (see Tables 1 and 2 for more details).

Instrument

A five-part questionnaire was used for the data collection. The first part collected information on the demographic characteristics of the participants: gender, age, teaching experience, level of teaching, area of teaching, living with family in the community, training in teacher retention, access to PD and awareness of retention policy.

The remaining sections of the questionnaire were the Teacher Retention Scale (TRS), which was aligned with the four components of the conceptual framework (Opoku et al., 2020, 2022). The TRS consists of 26 items, all of which are positively worded. The statements are anchored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The mean scores, which are the sum scores divided by the number of items, were reported in this study. A mean score of at least 4 was interpreted as a positive favourable disposition towards teacher retention.

Noteworthy, two of the components (social and structural capital) have been used in studies on teacher retention in rural schools (Opoku et al., 2020, 2022). In this study, the draft scale, which was initially composed of 33 items, was given to experts in Ethiopia for content validation. However, after an initial review, they suggested some rewording and omissions of some of the items, especially those on human and psychological capital, leaving 26 items for this study.

Structural capital comprises seven items. Some of the items on this sub-scale are as follows: 'I remained as a teacher because I have been promoted and recognised', 'I remained as a teacher because I am respected by authorities', and 'I remained as a teacher because of career and opportunities for professional development'.

The second sub-scale was social capital, which is made up of five items. Some of the items on the scale are as follows: 'I remained as a teacher because I have a good relationship with management and leaders', 'I remained as a teacher because I have a good relationship with colleagues', and 'I remained as a teacher because the school has basic facilities'.

The third component of the scale was psychological capital, which is made up of seven items. These are some of the items on the scale: 'I always want to be a teacher', 'I want to make changes in the community', and 'I see myself as a committed teacher'.

The fourth sub-scale was human capital, which is made up of seven items. Some of these items included 'My pre-service training was very good', 'I acquired all the needed skills to teach', and 'My training gave me the confidence to work'.

In a previous study, two components (structural [$n = .79$] and social capital [$n = .64$]) of the TRS yielded an internal reliability score of .71 (Opoku et al., 2020). For the purpose of this study, after validating the content, the survey was piloted on 33 teachers, who were not included in the study reported here, and yielded the following reliability scores: TRS = .80 (structural capital = .73; social capital = .66; human capital = .77 and psychological capital = .88).

In this study, the calculation of internal reliability using Cronbach's alpha coefficient produced the following reliability scores: TRS = .95 (structural capital = .86; social capital = .79; human capital = .91 and psychological capital = .78). This underscores the appropriateness of the scale used for this study.

Procedure

The study and its protocol received approvals from the institutional ethics review committee and the Ministry of Education in Ethiopia. At this stage, the **second** and **fourth** authors traced the students for data collection. They liaised with the regional and two educational institutions to identify schools and teachers. They first met the principals of the schools and explained the study and its protocols as they sought permission. Once they received positive feedback, they proceeded to meet the beginning teachers, and those who met the inclusion criteria were considered for participation. The teachers were given an information statement explaining the purpose of the study and its potential benefit to teacher education and quality teaching in Ethiopia. Here, an opportunity was given to the beginning teachers to ask questions, which were appropriately addressed by the research team.

The printed questionnaires were handed to the prospective teachers, who were given up to a month to complete them before they were retrieved by the researchers. Before retrieving the questionnaire, the two authors ensured that the participants had responded to all the questions. All the participants signed an informed consent form before participating in the study. They were neither reimbursed nor given any incentive to participate in this study. Also, the participants were assured that neither their identity nor area of teaching would be disclosed to anyone outside the research team. The data were collected between January 2019 and October 2019. Each participant spent approximately 30 minutes completing the questionnaire.

Data Analysis

The data were entered into Microsoft Excel for cleaning before being transferred to SPSS, version 26, for analysis. The normality of the data was assessed to ensure that it met the assumption for parametric tests. From the histograms, we realised that the data were fairly normal. We calculated the mean scores for the TRS and its sub-scales before continuing to answer the research questions.

In answering research question 1, we calculated t-tests and analyses of variance (ANOVA) to determine the association between the background variables and teacher retention. While the t-tests were computed for demographics with two levels (e.g. gender), the ANOVAs were computed for demographics with at least three levels (e.g. access to professional development). Here, we checked the assumption of homogeneity of variance and ensured that it was not violated. Using Levene's test, we reported the within-groups results in the event of a violation of homogeneity of variance with respect to the t-tests. Using ANOVAs, we reported the results of the Welch statistics in the event of a violation of the homogeneity of variance. We also checked the effect sizes using partial eta squared, which was interpreted as follows: (.01–.05), moderate (.06–.09), and large (at least .1) (Pallant, 2016).

To answer research question 2, we used direct logistical regression to assess the likelihood of teachers in rural or urban areas remaining in the profession. The results showed that the model satisfied the goodness of fit test (omnibus tests of model coefficient = 17.03, $df = 8$, $p = .03$). The

Hosmer-Lemeshow goodness of fit test was also appropriate (chi-square = 16.08, $df = 8$, $p = .07$) as well as the logistic regression model, as explained by the two goodness of fit tests.

To answer research question 3, we first used structural equation modelling (SEM) to compute the correlation between the measures. The goodness of fit of the model was assessed using the comparative fit index (CFI), the Tucker–Lewis Index (TLI) and the RMSEA. The correlations were interpreted as small (.1–.29), moderate (.30–.49) and large (.50–1) (Pallant, 2016). We then proceeded to compute a linear regression model to assess the predictors of teacher retention. We checked to make sure that the assumptions of linearity and homoscedasticity were not violated.

Results

The overall mean score on the retention scale was 3.51 ($SD = .79$), with the mean scores on the sub-scales as follows: structural capital ($M = 3.22$; $SD = .90$), social capital ($M = 3.12$; $SD = .90$), psychological capital ($M = 3.86$; $SD = .75$) and human capital ($M = 3.73$; $SD = .93$).

Association Between Teachers' Profiles and Retention

The association between the two-level teacher profiles and retention was analysed using an independent samples t-test (see Table 1 for details). First, in terms of gender, there was a significant difference between the teachers on structural capital, $t(203) = -2.44$, $p = .04$, with female teachers scoring higher on structural capital than male teachers. In addition, there was a significant difference between male and female teachers on human capital, $t(202) = -1.96$, $p = .05$, with the former scoring higher than the latter.

Second, there was a significant difference between the teachers on level of teaching. In terms of general retention, the primary school teachers were more positive on retention than those teaching in secondary school, $t(203) = 6.04$, $p = .001$. Similar trends were observed in the remaining four sub-scales, with primary school teachers more positive than those in secondary school.

Third, in the area of teaching, there was a significant difference between the teachers on human capital only, $t(203) = 2.14$, $p = .03$. Specifically, those teaching in urban communities scored higher on human capital than those teaching in rural communities. Moreover, on living with family in the community, a significant difference was reported between the teachers on social capital only, $t(203) = 1.75$, $p = .04$. Those who had family in the community scored higher on social capital than those whose families were not living in the community.

An ANOVA was used to understand the relationship between the three-level demographic variables and retention (see Table 2 for details). With respect to the training module on teacher retention, there were significant relationships on overall teacher retention, $F(2, 204) = 7.00$, $p = .001$. A post hoc comparison using the Tukey HSD test found a difference between teachers who had taken at least two modules in retention and those who had not taken any. However, there was no difference between those who had taken one module and those who had taken at least two modules in teacher retention. Similar observations were made in all the sub-scales.

Table 1
Association between Two-level Demographics and Retention

Category (N = 205)	Sample (%)	TRS	Structural Capital	Social Capital	Psychological Capital	Human Capital
Gender						
Male	155 (76%)	3.46	3.14 (.95)	3.08	3.83 (.76)	3.65 (.91)
Female	50 (24%)	(.80)	3.44 (.66)	(.93)	3.94 (.70)	3.95 (.96)
<i>t</i>		3.68	-2.44*	3.27	-.84	-1.96*
partial eta squared		(.72)	.02	(.91)	.003	.02
		-1.72		-1.32		
		.01		.008		
Age						
20-30 years	108 (53%)	3.56	3.31 (.93)	3.17	3.87 (.81)	3.76
31 years and above	97 (47%)	(.86)	3.11 (.86)	(1.03)	3.85 (.68)	(1.03)
<i>t</i>		3.46	1.64	3.07	.19	3.69 (.81)
partial eta squared		(.70)	.01	(.73)	.001	.48
		.95		.86		.001
		.004		.004		
Teaching Experience						
86 (42%)		3.50	3.29 (.94)	3.12	3.85 (.86)	3.67
0-4 years or less	119 (58%)	(.89)	3.16 (.86)	(1.06)	3.87 (.66)	(1.07)
5-10 years		3.51	1.05	3.12	-.07#	3.77 (.81)
<i>t</i>		(.70)	.005	(.77)	.001	-.75#
partial eta squared		.001#		.004		.003
		.001		.001		
Level of Teaching						
Primary	70 (34%)	3.91	3.64 (.77)	3.52	4.19 (.65)	4.19 (.69)
Secondary school	135 (66%)	(.64)	2.99 (.88)	(.74)	3.69 (.74)	3.48 (.94)
<i>t</i>		3.30	5.22**	2.92	4.95#**	6.13#**
partial eta squared		(.78)	.12	(.91)	.10	.13
		6.04#**		4.76**		
		.08		.10		
Area of Teaching						
Urban community	152 (74%)	3.55	3.27 (.86)	3.16	3.85 (.74)	3.81 (.83)
Rural community	53 (26%)	(.73)	3.07 (.99)	(.80)	3.88 (.78)	3.49
<i>t</i>		3.41	1.36	3.02	.40	(1.14)
partial eta squared		(.92)	.009	(.74)	.001	2.14*
		1.01		.80		.02
		.006		.004		
Family in the Community						
168 (82%)		3.53	3.26 (.90)	3.17	3.87 (.76)	3.71 (.92)
Yes	37 (18%)	(.80)	3.03 (.89)	(.91)	3.82 (.70)	3.78 (.95)
No		3.42	1.42	2.90	.34	-.39
<i>t</i>		(.73)	.01	(.83)	.001	.001
partial eta squared		.79		1.75*		
		.003		.01		

** $P < .01$; $P < .05$; TRS = Teacher Retention Scale

Table 2
Association between Three-level Demographics and Retention

Category	Sample (%)	TRS	Structure Capital	Social Capital	Psychological Capital	Human Capital
Training (n = 204)						
No Unit/Module	65 (32%)	3.29 (.81) ^a	2.98 (.92) ^a	2.85 (.88) ^a	3.73 (.79)	3.47 (.98) ^a
1 unit/Module	93 (45%)	3.52 (.78) ^{a,b}	3.19 (.89) ^{a,b}	3.18 (.94) ^{a,b}	3.86 (.72)	3.72 (.90) ^{a,b}
2 or more Units/modules	46 (23%)	3.81 (.66) ^{b,c}	3.61 (.76) ^{b,c}	5.50**	2.42	4.09 (.81) ^{b,c}
F			6.99**	.05	.02	
<i>Partial eta squared</i>		7.00###**	.07			6.21**
		.06				.06
PD (n=204)						
None	55 (27%)	3.15 (.98) ^a	2.84 (1.02) ^a	2.74 (1.15) ^a	3.57 (.81) ^a	3.32 (1.28) ^a
PD by School	69 (34%)	3.69 (.70) ^b	3.44 (.86) ^b	3.22 (.82) ^b	4.04 (.71) ^b	3.92 (.70) ^b
PD for personal dev.	80 (39%)	3.61 (.62) ^b	3.28 (.76) ^b	3.30 (.68) ^b	3.90 (.75) ^b	3.83 (.71) ^b
F			8.13**	.07	.06	
<i>Partial eta squared</i>		6.23**	.07			4.88**
		.08				.07
Awareness of Policy (n=204)						
In-depth understanding	33 (16%)	3.56 (.72)	3.26 (.78)	3.27 (.79) ^{a,c}	3.81 (.79)	3.82 (.93)
Fair understanding	84 (41%)	3.59 (.74)	3.28 (.91)	3.33 (.82) ^{a,b}	3.89 (.72)	3.80 (.83)
No idea	87 (43%)	3.42 (.85)	3.14 (.93)	2.87 (.95) ^{a,b,c}	3.85 (.77)	3.62 (1.01)
F		1.13	.53	6.62**	.18	
<i>Partial eta squared</i>		.01	.005	.06	.001	.95
						.009

** $P < .01$; $P < .05$; PD = Professional Development; TRS = Teacher Retention Scale; superscripts = significant difference between participants

Furthermore, there was a significant relationship among access to PD, overall retention and all the sub-scales. First, a significant association was observed between access to PD and teacher retention, $F(2, 204) = 6.23, p = .001$. A post hoc comparison using Tukey's HSD test found a significant difference between those who had taken PD that was either organised by their school or for personal development and those who indicated otherwise. Again, similar observations were made between access to PD and all the sub-scales.

Moreover, there was a significant association between the teachers' awareness of the country's retention policy and one sub-scale only, social capital, $F(2, 204) = 6.62, p = .002$. A post hoc comparison using the Tukey HSD test found a significant difference between teachers who had never heard of the retention policy and those who had a fair understanding of it. However, there was no difference between those who had in-depth understanding and the other measures.

Table 3*Direct Logistic Regression of Area of Study*

	B	S. E	Wald	df	p	Odds Ratio	95% CI for Odds ratio	
							Lower	Upper
Gender	.08	.40	.04	1	.84	1.08	.49	2.38
Age	-.44	.44	1.00	1	.32	.65	.27	1.52
Years of Teaching	.55	.45	1.51	1	.22	1.74	.32	4.18
Level of Teaching	-.44	.36	1.52	1	.22	.64	2.95	1.30
Family in the Community	1.08	.40	7.38	1	.001**	2.95	.87	6.43
Training	-.14	.23	.35	1	.55	.87	.66	1.38
PD	.42	.22	3.62	1	.05*	.66	1.16	1.01
Awareness of Policy	.15	.25	.36	1	.55	1.16	.64	1.89

** $P < .01$; $P < .05$; PD = Professional Development**Table 4***Summary of Linear Regression of Teacher Retention*

	B	S. E	B	t	p
Gender	7.18	3.19	.15	2.25	.03**
Age	-3.20	3.43	-.08	-.93	.35
Years of Teaching	.74	3.45	.02	.22	.83
Level of Teaching	-16.10	2.79	-.38	-5.78	.001**
Area of Teaching	-3.38	3.02	-.07	-1.12	.27
Family in the Community	-5.88	3.42	-.11	-1.72	.09
Training	4.08	1.77	.15	2.30	.02*
PD	6.00	1.68	.24	3.58	.001**
Awareness of Policy	.003	1.85	.001	.002	.99

** $P < .01$; $P < .05$; PD = Professional Development

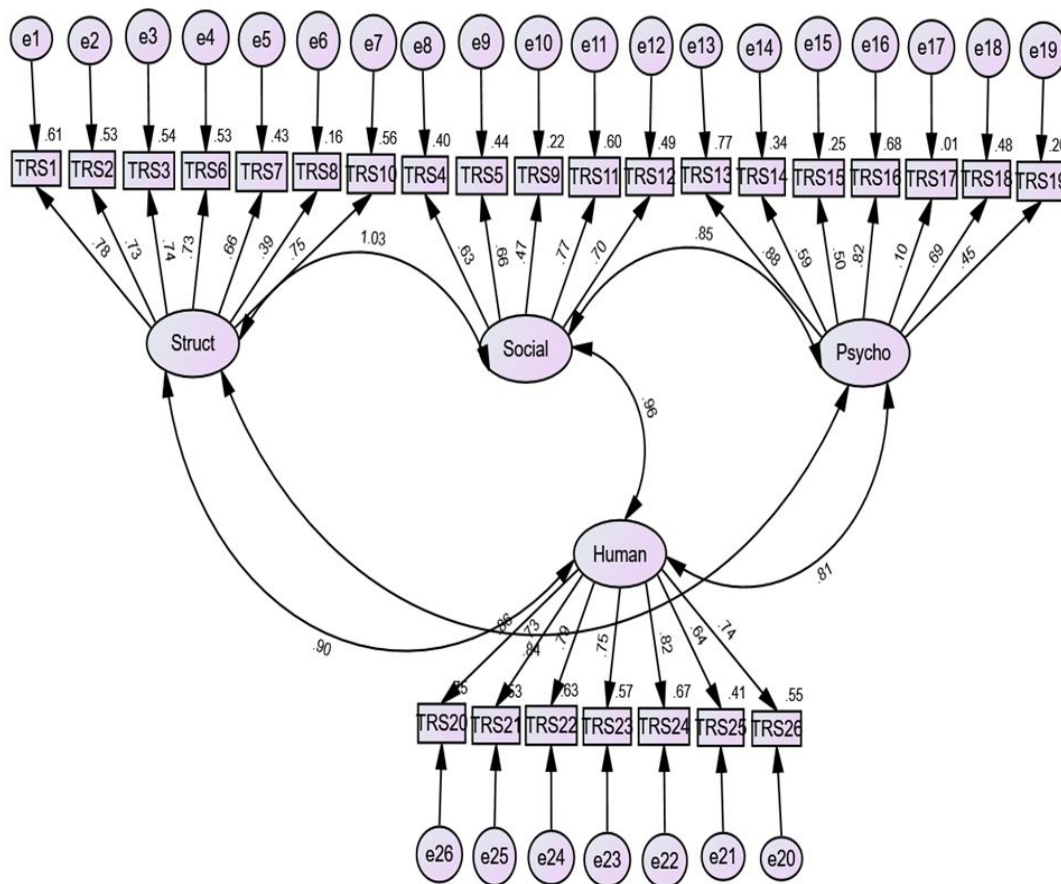
Influence of Area of Teaching on Retention

Direct logistic regression was performed to assess the impact of a number of factors on the likelihood that teachers would remain in the community. The model contained eight variables (gender, age, years of teaching, level of teaching, family in the community, training, PD and awareness of policy). The full model containing all the predictors was statistically significant, $X^2(8, N = 205) = 17.03, p = .03$, which indicates that the model was able to distinguish between participants who were willing to remain in their post and those who were not. The model as a whole explained between eight percent (Cox and Snell R squared) and 12% (Nagelkerke R squared) of the variance in retention and correctly classified 75.1% of the cases. As shown in Table 3, only two independent variables made a significant contribution to the model (family in the community and PD). The strongest predictor of teachers in urban or rural communities remaining in their post was having family in the community (odds ratio = 2.95, $p = .001$). This indicates that respondents living in urban or rural communities were two times more likely to remain in their post when they were living with their family in the community. Also, the odds ratio of PD was less than 1 (odds ratio = .66, $p = .05$), suggesting that if the participants remained in their post in urban or rural schools, they were .66 times less likely to receive any form of PD.

Predictors of Teacher Retention

SEM was used to estimate the correlation between the sub-scales (see Figure 1 for details). The model produced acceptable factor loadings (see Awang, 2015). Of the 26 items, one obtained the lowest factor loading of 0.96, while three loaded slightly below .50. The remaining items obtained factor loadings ranging from .503 to .878, which exceeded the recommended value of .50 (Field, 2018). Again, the model yielded a chi-square of 961.391, with 293 degrees of freedom. The data produced an acceptable CFI of .801, with a TLI value of .762 and RMSEA values of .10. Overall, the findings suggest that the model was acceptable.

Figure 1
Summary of Correlation between Factors



The results indicate that all the covariances were significant ($p = .001$), which shows a good relation among the variables. The findings show a very high correlation between the sub-scales, such as between structural capital and social capital ($r = 1.03$), structural and psychological capital ($r = .84$), structural and human capital ($r = .90$) and human and psychological capital ($r = .81$).

Linear regression was used to assess the predictors of teacher retention. The overall model made a significant contribution of 26% to the variance in retention, $F(9, 203) = 7.61, p = .001$. The

following demographic variables made significant contributions to teacher retention: gender ($beta = .15; p = .03$), level of teaching ($beta = -.38; p = .001$), influence of pre-service training ($beta = .15; p = .02$) and PD ($beta = .24; p = .001$), with the level of teaching being the best predictor of teacher retention.

Discussion

While thousands of teachers graduate from teacher training institutions every year, there is still a persistent challenge to retain qualified teachers in the profession. In the conception of the four-capital model, Mason and Matas (2015) suggested that the factors influencing teacher retention are myriad and interconnected. The results of the SEM used to estimate the correlation between the continuous variables showed a positive interrelationship between the four sub-scales: structural, social, psychological and human capital. This finding confirms our earlier hypothesis on the possibility of a relationship between the sub-scales. The complexity of the factors impacting teacher retention globally has been well explored in some seminal papers (Kelchtermans, 2017; Kidd et al., 2015; Mason & Matas, 2015; Tiplic et al., 2015). This arguably connotes that initiatives geared towards the retention of teachers ought to be broad and should directly address the factors that may lead to the departure of beginning teachers. In the Ethiopian context, it appears that policymakers may have to take a multidimensional approach to be able to retain school teachers. For instance, policymakers may consider approaches such as improving the working conditions of teachers (Geiger & Pivovarova, 2018), networks (Kidd et al., 2015; Schuck, 2003), mentorship (Helms-Lorenz et al., 2012), an effective induction programme (Helms-Lorenz et al., 2013), making professional development accessible (Mason & Matas, 2015), building teachers' agency, self-efficacy and contribution to nation-build (Tiplic et al., 2015; Zhang & Zeller, 2016) as well as the reform of pre-service teacher education to include units/modules on retention (Mason & Matas, 2015). With an all-encompassing effort to promote the retention of beginning teachers in schools, these teachers may feel support from the various facets of best retention approaches.

The results of the mean scores showed that beginning teachers were ambivalent about school retention. This finding is partly consistent with a previous quantitative study report regarding uncertainty and changes in teachers' decisions to leave the profession (Harfitt, 2015). This might not be a positive outlook in efforts toward promoting the retention of qualified teachers in schools in Ethiopia. The neutrality of teachers could be linked to the fact that beginning teachers may not know whether or not they will remain in the profession. Ethiopia, like many developing countries, especially those in sub-Saharan Africa, does not have a teacher retention policy. It is apparent that policymakers do not problematise the migration of teachers between schools or they leaving the teaching profession entirely. As such, they do not seem to have formulated a plan to help retain qualified teachers in the profession. The instability regarding teacher retention could have a dire impact on the future of education in Ethiopia. It is useful to mention here that the education system in Ethiopia is already struggling, especially with a lack of resource provision for schools and teachers. The likelihood that teachers may leave the profession could further jeopardise the education system. On one hand, schools may lack qualified teachers and also experience the unavailability of basic teaching and learning resources. This finding arguably calls for a further rethinking of formidable policy on the retention of qualified beginning teachers for at least 10 years in the teaching profession.

The influence of background variables on the retention of beginning teachers was noted. The computation of the t-tests and linear regression showed the teachers' level of teaching as an important predictor of teacher retention. In particular, teachers who indicated that they were teaching in primary schools were more positive on retention than their colleagues in secondary

school. In Ethiopia, there may be two explanations for this finding. First, the differences in workload between primary and secondary schools could explain the study results. It appears that the workload in secondary school is much higher than in primary school. According to Helms-Lorenz et al. (2012) and Perryman and Calvert (2020), the more the workload of beginning teachers, the more likely they may leave the profession. It is apparent that secondary school teachers may be concerned about their workload, hence their low rates of school retention. Compounding this situation is the fact that, in Ethiopia, beginning teachers are given a greater workload than experienced teachers. With the burden of work and demands of teaching in secondary school, beginning secondary school teachers may consider exiting the profession. Second, the maturity of primary and secondary school students could offer additional insight into the study's findings. Secondary school students are more mature because of the transition from adolescence to adulthood, are more opinionated, and sometimes, it is difficult to manage their behaviours in the classroom. Beginning teachers who encounter negative experiences with students might not enjoy the teaching profession and may consider exiting. Previous studies have noted that teacher–student relationships might contribute to attrition among teachers (e.g. Harmsen et al., 2018), specifically beginning teachers who have negative experiences with students. Indeed, there is a high possibility for secondary school teachers to have higher degrees than primary school teachers. This probably suggests that secondary school teachers may have more job options than primary school teachers. Consequently, it is exigent for policymakers to provide tailored induction to beginning teachers based on their level of teaching.

Teacher training has been found to be pivotal in efforts to promote the retention of qualified teachers (Helms-Lorenz et al., 2012; Mason & Matas, 2015; Tamir, 2010). In this study, the results of the ANOVA, direct logistic regression, and regression showed that the opportunity for beginning teachers to participate in one or more units/modules in teacher retention was positively associated with their retention. Moreover, access to PD was a significant predictor of retention among them. This finding partly corroborates previous quantitative reports that have described pre-service training (Boyd et al., 2006; Tamir, 2010) and opportunities for beginning teachers to collaborate with peers and learn as useful for their retention in the profession (Kidd et al., 2015). These findings were expected in the sense that the opportunity for pre-service teachers to participate in units/modules on retention would enable them to build agency and confidence and have a rationale to remain in the profession. Beginning teachers may value their contribution to national development, and they may view the financial cost of their departure as a burden on the nation and detrimental to the school administration and the effective teaching of children. Furthermore, opportunities for beginning teachers to participate in PD would enable them to have access to current best practices and acquire knowledge leading to growth. It is essential to add that, in Ethiopia, teachers are promoted based on the qualifications they have acquired while teaching. In cases where there is no career training path or school-led effort to promote learning among teachers, they might be dissatisfied and eager to move to a new profession.

The family variable emerged as important based on the computation of the direct logistic regression and *t*-test. Specifically, the results show that the participants who lived in the community with their families were more likely to remain compared to those who indicated otherwise. Whether the participants taught in rural or urban schools, having their families with them could inform their decision to remain in the profession. The importance of the family in the socialisation of individuals has been well explored (J-F et al., 2020). Ethiopia is a cultural and religious society, and as such, the relationships between individuals and their families shape their way of life in the society. Beginning teachers who live with their families may be more inclined to remain in the profession for the foreseeable future. This appears to have been noted in other comparable contexts, such as Ghana, where the teacher retention policy has been tied to community relationships (Cobbold, 2006). In

particular, individuals were more frequently considered for recruitment if they attended teacher training institutions and dedicated themselves to serving a deprived community where they have family ties (Cobbold, 2006). Once they identified themselves with the community, they would receive both formal and informal support to teach in local schools. Ethiopia could probably emulate such a strategy and consider posting teachers to communities where they have family, ethnic, or blood ties.

The computation of the t-test and linear regression showed that the gender of beginning teachers was an additional explanatory factor in teacher retention. To elaborate, female beginning teachers scored high on structural and human capital compared to their male counterparts. This finding was slightly inconsistent with a previous study which reported more satisfaction among male teachers on retention than female teachers (Mau et al., 2008). Gender has a cultural interpretation in Ethiopia. Anecdotal evidence shows that being female is intricately related to loyalty, commitment, and being more concerned about the welfare of others in society (Shabaya & Konadu-Agyemang, 2004; Tuwor & Sossou, 2008). It is apparent that the female teachers who took part in this study were genuinely interested in the teaching profession and dedicated to improving the well-being of others in society. Conversely, there are social responsibilities on males which arguably partly explain this result. For instance, being male means being a breadwinner and providing for both the immediate family and other members of the extended family (Tuwor & Sossou, 2008). Men likely enter the teaching profession with the intention of making enough money to enable them to perform their responsibilities. However, if such needs are not met, they might consider other professions where they might earn enough money to support their families. In the development of teacher agency, tailored training programmes ought to be designed for both male and female teachers in order to enable them to have a realistic idea of their emoluments and how they could expend such resources.

Study Limitations

Caution ought to be exercised in the interpretation of the findings of the study reported here because of several limitations. First, the participants of the study were recruited from two of 10 schools of excellence whose graduates have been selected to provide exceptional teaching services to children in Ethiopia. In view of this, the findings may not be representative of the views of all beginning teachers in Ethiopia. However, there is a commonality in terms of the school system, conditions of service, and the support provided to teachers across Ethiopia. It is our considered view that the responses provided by the beginning teachers reflect their current circumstances, which could also mirror patterns in other schools. Second, the school principals provided information on the beginning teachers. Thus, there is potential for study bias because of the mode used to nominate the teachers. Here, the teachers were informed about the study and were given adequate time to complete the questionnaire. Third, it was beyond the scope of this study to inspect documents to verify whether the study participants were within the first 10 years of teaching. We explained the inclusion criteria to potential participants before they took part in this study. Therefore, we are confident that all the study participants were qualified teachers who were in their first 10 years of teaching. Fourth, like all quantitative studies, an in-depth explanation of the findings was not provided in this study. It is recommended that future studies use a qualitative method to develop deeper insights into the retention experiences of beginning teachers in the African context. Overall, this study appears to be the first of its kind in Ethiopia, and its findings could be relevant for policymaking on the retention of beginning teachers in other comparable contexts in sub-Saharan Africa.

Conclusion and Policy Implications

Sub-Saharan Africa's share of research or scholarly discussions on teacher retention is very low. With beginning teachers at high risk of attrition, it is vital to study how to retain qualified beginning teachers in the profession. It is against this backdrop that we studied the predictors of retention among beginning teachers in Ethiopia. This study was conducted using Mason and Matas' (2015) four-capital teacher retention framework. We used a tracer design to follow the beginning teachers of specific institutions to keep track of their perspectives and provide a clear guide to policymakers and teacher educators in Ethiopia. Indeed, the study's findings showed a positive relationship between the four interrelated indicators of teacher retention. Unfortunately, the beginning teachers who took part in this study were unsure whether they would remain in their designated posts. Other background variables, such as gender, training, PD, level of teaching, and living with family in the community, provided additional insights into the factors explaining teacher retention. Education is a fundamental human right that ought to be extended to everyone. It is undeniable that having stable teacher retention in schools would go a long way towards achieving quality access to education.

The findings of this study have implications for policymaking in Ethiopia and, perhaps, similar contexts in the sub-Saharan African region. First, the positive relationship between all four indicators showed that a multifaceted approach was required to retain beginning teachers in the teaching profession. For example, a pre-service module on teacher retention, improved conditions of service, regular access to PD, and school-level support could be implemented to enable beginning teachers to enjoy the teaching profession and remain in it. Also, policymakers could consider gender in the provision of training or policy formulations on teacher retention. It is apparent that different factors could influence the decision of male or female teachers to either leave or remain in the profession. As such, the cultural responsibilities and obligations of both male and female beginning teachers could feature in teacher retention strategies. Third, policymakers and teacher educators could consider family dynamics in an effort to promote the retention of teachers. In particular, deploying beginning teachers in communities where they have family or ethnic relations may inform their decision to remain in the teaching profession. In Ethiopia, policymakers could consider helping beginning teachers swim (and not sink) to foster their retention in the profession. The strategies discussed above could be considered in order to optimise access to quality education for all children in Ethiopia.

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