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Citation

Azubuike, Obiageri Bridget; Moore, Rhiannon and Vaidya, Gayatri (2023). Using Bourdieu's theory of cultural reproduction to examine English language learning: A multilevel study in three lower- and middle-income countries. *Social Sciences & Humanities Open*, 8(1), article no. 100578.

URL

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Regular Article

Using Bourdieu's theory of cultural reproduction to examine English language learning: A multilevel study in three lower- and middle-income countries

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ARTICLE INFO

Keywords:

English language learning
Cultural reproduction
Schooling
Multilevel analysis
LMICs

ABSTRACT

This study examines the determinants of the gaps in learning outcomes of students in three lower- and middle-income countries (LMICs) – Ethiopia, India, and Vietnam. We examined the extent to which English language performance relates to Bourdieu's theory of cultural reproduction, using the Young Lives international school survey data in the three countries. We employed a three-level multilevel model, to investigate variables at the individual, classroom and school levels that may influence English language skills of students. We find that differences in English test performance are attributable to both home background and school factors in all three contexts. Within countries, we find evidence of a high degree of variation in the English test scores of students between schools, indicating the importance of schooling quality and school characteristics for the development of English language skills. We conclude that the process of cultural reproduction through schooling is different for each country, with school-level factors found to reinforce social stratification in countries that are less equitable. This study provides a robust quantitative contribution to the literature base on English language learning in LMICs, where large-scale cross-country comparisons are relatively uncommon due to a relative lack of suitable data. The results and recommendations would be of interest to education stakeholders within LMIC contexts.

1. Introduction

There are more than 7000 languages spoken around the world. However, alongside this linguistic diversity, English has emerged as a common language for much cross-country and cross-region communication, with the number of speakers continuing to rise in many countries. Evidence suggests that there is a growing demand among both individuals and decision-makers for education policies which support a basic understanding of English language, with many lower- and middle-income countries (LMICs) investing considerable money and effort in building their population's capacity in the language (Erling, 2014; Euromonitor, 2010; Graddol, 2010). As a result, research suggests there are now around 1.5 billion learners of English across the world, emphasising the frequently held view that this is a desirable (or beneficial) language to speak (Focho & Ngwi, 2011). In this context of English as a language of cross-country or cross-region communication, a focus on 'functionality' of English usage is relevant. Functional English

is defined as the ability to communicate in English through listening, speaking, writing, and reading in real-life contexts, with grammar usage focused more on an 'effectivity' perspective than a 'correctness' perspective (Halliday, 1994). In this paper, we make use of test score data intended to measure one aspect of 'functional English' to explore the English skills of adolescents from three LMICs: Ethiopia, India, and Vietnam.

Our countries of focus are rich in language diversity, making use of English as an additional language to varying degrees. For example, in India, many official communications take place in English, leading to potentially greater opportunity for exposure to the language, while in Vietnam and Ethiopia use of English is limited to certain industries, with local languages more dominant in public discourse. These differences in language context are also expressed in other ways. India, which is a highly multilingual nation, has a huge demand for learning English. Due to the aspirational nature of the language (Erling, 2014), English is learned in schools from Grade 3, while private coaching centres,

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<https://doi.org/10.1016/j.ssaho.2023.100578>

Received 8 July 2022; Received in revised form 5 May 2023; Accepted 21 May 2023

Available online 26 May 2023

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'tuition-shops', and English-medium schools have emerged in large numbers throughout the country. Meanwhile, in Ethiopia, another multilingual country, demand for English is also growing. Recent government policies have revived and strengthened the role of English as a medium of instruction in education, with English taught from Grade 1 in an effort to improve English communication skills (Harris, 2015). As in India, English is becoming an aspirational language in Ethiopia (Heugh et al., 2007), although currently, it is not used widely outside of larger urban centres (Birbirso, 2014). Similarly, in Vietnam English is growing in importance. It became the dominant foreign language being taught and used nation-wide following the Đổi mới (renovation) movement in 1986, and is now second only to Vietnamese (Hoang, 2020). The study of English is compulsory from Grade 3 in Vietnam, with a growing industry of private English tuition and language centres similar to those seen in India (Le, 2011). However, as in Ethiopia this currently remains a largely urban phenomenon (Canh, 2000).

Looking across these countries, it is apparent that there has been a move towards increasing English learning in all three, with a particular emphasis on communication, functionality, and employability. While opportunities to speak English may vary, national interests and educational policies in these countries now all include some focus on English language education. English is introduced as a subject in each country in the early grades of primary schooling. Yet less is known about how much 'functional' English students are actually learning. There have been detailed critiques of the quality of education in both India and Ethiopia, accompanied by concerns about lack of progression to secondary grades, especially in the public-school sector in these two countries, while findings on educational quality in Vietnam tend to be more positive (see for example Cueto et al., 2016; Rossiter et al., 2018). Our analyses within this paper add depth to this picture through a particular focus on understanding how students' 'functional' English performance varies between and within these countries, and on exploring the factors which may shape this.

Research across LMIC contexts suggests that young people see English language as a platform to increase their access to employment opportunities, with English skills seen as likely to increase both their earnings and their chances of social mobility outside of the local environments (Asadullah & Xiao, 2019; Erling, 2014; Graddol, 2010). The counter-side to this growing prominence of English in education and employment is the increased risk of further deepening divisions between those who do and do not know English, which evidence suggests has often been found to accentuate other existing disadvantages (Graddol, 2010; Meganathan, 2015). As Dustmann and Fabbri (2003) found in their study, English language proficiency is a major determinant of labour market earnings in many countries, with immigrants in the UK (even within an English labour market) with better English language skills found to have higher employment rates, more likely to be in higher skilled jobs, and more likely to earn higher wages than those with poorer language skills. This existing literature base indicates the relevance of considering recommendations that policies aimed at improving education and English proficiency in parallel offer an effective way of promoting economic growth and reducing inequality (Asadullah & Xiao, 2019).

In this paper, we consider how the role of home background and school factors vary across these three countries to explain the gaps in functional English language skills, helping us to understand more about the learning opportunities and skill development for adolescents in Ethiopia, India, and Vietnam. These represent three developing country contexts where English is not the first language, however, in each country English language is being recognised as a skill that young people 'should' possess. Understanding and exploring how young people develop English Language skills is therefore insightful for researchers and policy makers in similar contexts where such data are scarce or unavailable. The Young Lives school survey data (discussed in section 3) provides a unique opportunity for us to explore English test performance and learning inequalities through a capital reproduction lens on a

comparable scale across these three countries. The countries covered by the Young Lives research were chosen for reasons beyond the scope of the current paper; however, the availability of such rich data enables us to contribute to the discourse highlighted above.

2. Determinants of student learning outcomes

2.1. Bourdieu's theory of cultural reproduction and home background characteristics

The notion of cultural reproduction in education is a theoretical hypothesis used by Bourdieu to explain the differential educational achievements of children from different social classes (Bourdieu, 1986; Bourdieu & Passeron, 1990). This work came as a divergence and critique of the purely economist approach which explains educational achievement (profit) as a function of monetary investments only, or of factors directly convertible to money such as cost of schooling and the monetary value of time spent studying. Bourdieu argues that this narrow perspective of understanding educational achievement leads economists to miss the best hidden and "socially most determinant educational investment", which is the domestic transfer of cultural capital (Bourdieu, 1986, p. 17). In simple terms, Bourdieu posits that the educational outcomes of an individual strongly depend on the cultural capital previously invested in them by their family; indicating that this cultural capital exists in four forms: economic capital (money, other financial resources and material assets), social capital (social networks and contacts of the individual), cultural capital (education and knowledge) and symbolic capital (status) (Bourdieu, 1986).

Scholars in the field of education research have applied Bourdieu's cultural reproduction theory to understand students' language development, educational achievement, educational attainment, psychosocial factors and the digital divide in learning across several contexts. From the research evidence, the forms of capital transferred to children are linked to the following home background factors; household wealth or socio-economic status, parental education, parents occupation, educational resources available for children's learning, a home environment that supports children's learning and the types of schools children attend (Azubuike et al., 2021; Dika & Singh, 2002; Dumais, 2006; Jæger & Møllegaard, 2017; Lamb, 2011; Muller & Ellison, 2001; Parcel & Dufur, 2001).

According to Lamb (2011), English language represents a highly valued form of cultural capital in itself, with the development of English language skills also strongly influenced by learners' social and cultural capital. Lamb (2011:17) in a study on Indonesian adolescents (aged 11–13) concludes that the capital provided by home background and early educative experiences enabled adolescents to benefit more from English language education and opportunities to develop their English language outside the school setting. Boateng et al. (2021) linked parental education to students' academic performance and concludes that there is a significant relationship between the two in Ghana. Similarly, Rolleston (2014) in their study on schooling and skills development in Ethiopia, India, Peru and Vietnam finds that inequalities in learning progress are strongly linked to home background in all four countries and early learning abilities play a key role in learning progress at later education levels.

The findings from the research evidence above therefore informs our inclusion of similar home background factors in the data to examine the differences in the English language performance of students in the current study (see table 5 in the appendix for the full variable list).

2.2. Schooling and learning outcomes

Beyond the home characteristics that contribute to the development of skills in English language for adolescents, school environments also play an important role (Rolleston, 2014). There is substantial evidence in the literature that schooling, and schooling resources positively

impact on students' learning in cognitive domains and language subjects (Singh & Sarkar, 2012; Rolleston & Krutikova, 2014; Wössmann, 2001). In developing country contexts where resources are at low levels of endowment, even low levels of schooling have been shown to have substantial effects on students' development of skills (Tooley et al., 2011; Wössmann, 2001) not least English language skills. According to Rolleston and Krutikova (2014), school and class resources matter for students' achievement. In their study on schooling quality and home disadvantage in the Vietnamese context, they found that factors such as 'opportunities to learn' in terms of the number of hours of instruction received and learning resources such as computers, significantly improved the learning outcomes of students and were key differentiation factors between 'disadvantaged' students and their 'advantaged' peers. Rolleston (2014) in examining schooling and skills development in Ethiopia, India, Peru and Vietnam found that learning and skills development were significantly related to schooling, with pupils who failed to enrol in school facing strong learning disadvantages. The same paper also argues that, in countries such as Ethiopia and India, improvements in education quality should be at the top of education policy priority for the improvement in learning and skill development. Other studies have similarly linked student learning and skill development to the effects of teaching resources, teacher experience and overall teaching quality. For example, Singh and Sarkar (2012) examine teaching quality and student learning outcomes in India, finding that teacher characteristics and practices were key factors in determining student outcomes, with teachers' practices and perceptions of their school found to have the greatest impacts on the learning outcomes of students.

Building on this existing literature base, in this paper, we hypothesize that children from more advantaged home backgrounds will have better functional English language skills because of their background and there exists a process through which these advantages are translated into better outcomes. This may be through access to schools where they can learn more English, access to peers with whom they can communicate in English, or access to an environment that encourages greater use of English language. In addition, we argue that the reproduction of social and cultural capital will operate differently in different contexts, with potential implications for educational policy, international research and scholarship of learning outcomes across countries.

In light of the above, this study seeks to answer the following the research questions.

1. How does the English test performance of students vary across Ethiopia, India and Vietnam?
2. To what extent is student English test performance a function of schooling factors or individual level factors? Does this vary by country?
3. What insights does the data on English Language test reveal about cultural reproduction and learning inequalities within each country?

We address these questions using quantitative multilevel analysis (as discussed in the next sections) to explore how students' English language skills are developed, and the extent to which this occurs through factors relating to students' home advantages, the schools they attend, or a combination of cumulative interactions between these different factors.

3. Data, sample and methods

3.1. The Young Lives study & school effectiveness survey data

The data used in this paper comes from the 2016–2017 Young Lives school effectiveness survey. Young Lives is an international longitudinal

study which has collected data at household level from 12,000 children in four low- and middle-income countries (Ethiopia, India, Peru, and Vietnam) since 2002. In each country, Young Lives has 20 study sites¹, semi-purposively selected to ensure a pro-poor sample²; this means that the data is not statistically representative at the country level. However, sampling for the study as a whole has been undertaken with the aim of ensuring socio-economic, geographic and demographic diversity within each country. Young Lives data is collected using instruments which are common across countries where possible (Young Lives, 2017), with the intention of "highlighting areas for cross-country policy learning" (Rolleston & James, 2015, p. 288).

In 2010, Young Lives introduced a series of school surveys in each country to explore in more depth the role which formal schooling had to play in the lives of children within the sampled communities (see Boyden & James, 2014). This was followed by a further round of 'school effectiveness' surveys in Ethiopia, India (Andhra Pradesh and Telangana) and Vietnam³ in 2016-17, collecting data at upper primary level in Ethiopia and secondary level in India and Vietnam (see section 3.2). The school effectiveness survey design used is based on the assumption that there are school-based factors which impact student learning outcomes, and that these can be separated from other effects such as prior attainment and educational background (Reynolds et al., 2014). In school effectiveness research, students are tested at the beginning and end of the school year, typically with common link items between the two tests, to provide a measure of student progress and enable estimation of the 'value added' by schools across the academic year.

The 2016-17 school survey data used in this paper includes multiple outcome measures at the student level, including learning progress in maths and functional English (Azubuikwe et al., 2017). This was collected through tests administered at the beginning and end of the school year (Wave 1 and Wave 2 of data collection respectively)⁴ in order to assess students' learning progress in these domains. This survey represents Young Lives' first assessment of English across multiple countries in a comparable manner, reflecting its increasing importance as a 'transferable skill' with relevance for the labour market and higher education options in these three countries (Azubuikwe et al., 2018). The survey also includes background data at student, teacher and school level, offering the opportunity to better understand some of the factors which may be linked to student learning. However, it must be remembered that the data is not nationally representative in any of the three countries, and as such may not reflect the full picture of English language skills, social capital, and the factors associated with the relationship between these in these contexts.

In this paper, the dependent variable of interest is the English test score achieved by surveyed students at the end of the school year, which our analytical model seeks to model as a function of student characteristics (both at the individual level and in terms of home background) and school-level factors (which include fixed school context variables, such as location, and those which are more malleable). The English tests used in the Young Lives survey varied by country: the test development process prioritised the creation of tests which allowed detailed understanding of performance in each individual country, while only

¹ The Young Lives study sites are all anonymised and no data can be traced to specific sites included in this research.

² Young Lives data has been collected from a pro-poor sample throughout the study's history due to a particular focus on understanding experiences of childhood poverty across and within countries. At the household level, this means that poorer communities have been oversampled, with children then sampled randomly within each community (Young, 2017).

³ A school survey was also undertaken in Peru in 2017; however due to differences in survey methodology the data is not directly comparable to that collected in the other three countries and so will not be discussed in this paper.

⁴ See the Country Sample sections below for details of attrition between Wave 1 and Wave 2 in each country.

secondarily focusing on the inclusion of cross-country items while maintaining a sufficient number in order to allow for cross-country analysis. A more detailed discussion of the test development process, the conceptualisation of functional English, and sample test questions can be found in [Azubuikwe et al. \(2018\)](#).

3.2. Country Sample

3.2.1. Ethiopia

The sample in Ethiopia is made up of around 11,000 students who were in Grade 7 and 8 in the 2016–2017 school year. Students were distributed across 63 schools and 271 classes in total (134 Grade 7 classes and 137 Grade 8 classes). The survey sampled all schools, irrespective of ownership, across 30 Young Lives school survey sites: the twenty original Young Lives sites identified at the beginning of the household surveys in 2001, and ten additional sites included in school surveys from 2010. These sites are located in seven of the nine regions in Ethiopia⁵: Amhara, Oromia, SNNP, Tigray, Addis Ababa, Afar and Somali. In Ethiopia, the sample is effectively a census of all schools in the 30 sites which cover Grades 7 and 8, and all students in these grades present on the day of the survey. The rate of student attrition between Wave 1 and Wave 2 of the survey was 12% in Ethiopia.

The Ethiopia sample includes almost exactly the same number of female and male students, with an average student age of 14.4 years⁶. In the majority of sites, students are within one year of the correct age-for-grade, with the average age of the Grade 7 sample equal to 13.9 years and of the Grade 8 sample equal to 14.8 years. A more detailed discussion of the sample can be found in [Rossiter et al. \(2017\)](#).

3.2.2. India

The sample in India includes around 9,000 students who were in Grade 9 in the 2016–17 school year. These students are distributed across 205 schools and 317 classes, located within the twenty Young Lives sites in Andhra Pradesh (AP) and Telangana. In the Young Lives sites in India, there is a much larger number of schools than in the sites in Vietnam or Ethiopia; as a result, a stratified random sampling approach was used at the school level. In each site, schools were stratified into the four most common school management types: State Government; Private Unaided; Private Aided; and Tribal/Social Welfare; although not every type was present in each site. A proportionate number of schools of each school type was sampled within each site, and all students in each school who were present on the day of the survey were included. The ability to assess school effectiveness within and across different types of schools was of particular interest to education stakeholders in India because of the diverse educational context within India.

The rate of student attrition between Wave 1 and Wave 2 of the survey was around 15% in India. The India sample has a mean age of 14 years, with slightly more female students (55%) than male. For a more detailed discussion of the sample of students and schools, see [Moore et al. \(2017\)](#).

3.2.3. Vietnam

The sample in Vietnam is made up of around 7,000 students who were in Grade 10 in the 2016–17 school year. Students are distributed across 220 classes and 52 upper secondary schools located in five provinces: Ben Tre, Da Nang, Hung Yen, Lao Cai and Phu Yen. All schools are within the 14 districts in which the twenty Young Lives sites are located. In Vietnam, schools are considerably larger than in either Ethiopia or India, with a total of 17,344 students enrolled in Grade 10 in

the 55 sampled schools. As a result, a census of students was not feasible in this case, and a random sample of classes (a maximum of five in each school) was used for schools with more than five classes, while in schools with five or fewer Grade 10 classes, all were included in the survey.

The rate of student attrition in Vietnam between Wave 1 and Wave 2 of the survey was similar to that in the other two countries, at 13%. The Vietnam sample is slightly older than the other two countries, with a mean age of 15.3 years. See [Iyer et al. \(2017\)](#) for a more detailed discussion of the sampling and data collection in Vietnam.

3.2.4. Ethical considerations

Documentation relating to the secondary Young Lives data used for this analysis confirms that the data collection exercise received approval from ethics boards within each study country, as well as from the Social Science Division at University of Oxford ([Young Lives, 2017](#)). As secondary data, it was fully anonymised (at the levels of the individuals, schools and sites) prior to use. Throughout the process of data analysis and discussion of findings, the authors remained cognisant of the contexts in which the data was collected and of the intended purposes for the data, in line with [BERA \(2018\)](#) guidelines for the use of secondary data.

3.3. Methodology

3.3.1. Descriptive analysis

Our analysis begins with an exploration of simple descriptive statistics from a combined three-country dataset for Ethiopia, India and Vietnam to gain an understanding of English test scores in each country at the beginning and end of the school year (defined as ‘Wave 1’ and ‘Wave 2’). Test scores are estimated using two-parameter IRT; Wave 1 test scores in this dataset have been scaled to have a mean of 500 and a standard deviation of 100 (with weights applied)⁷, while Wave 2 test scores have been placed onto the same scale using ‘concurrent scaling’ ([Kolen, 2004](#))⁸. As a result, the difference between Wave 1 and Wave 2 mean scores can be understood as a measure of mean progress between the start and end of the school year.

Descriptive analysis considers both start and end of year test scores, as well as the difference between them; this approach offers an initial overview of both ‘one-off attainment’ and ‘progress’ over the course of the school year, with the latter representing a key element of understanding school effectiveness and the contribution of schools to student learning ([Scheerens, 2001](#)).

3.3.2. Multilevel analysis

We then extend this descriptive analysis using multilevel (hierarchical) modelling to consider further how English test scores vary and the factors which may be associated with this. Multilevel modelling is used as it takes into account the nested nature of the data, with students located within classes and schools ([Goldstein, 1997](#)). As well as reducing bias by accounting for clustering and dependencies within the data, this approach also allows us to consider in more depth the effect of factors at different ‘levels’ (student, class or school), exploring the extent of variation within and between clusters (rather than simply for controlling for this, as in a fixed effects model) ([Goldstein, 1997](#)). As such, it is well-suited to the research questions for this paper.

Within the paper, we make use of a series of three-level models (students within classes - level 1, classes within schools - level 2, and schools - level 3) with cluster robust standard errors. We do this first

⁵ In 2016, there were cases of unrest around parts of Ethiopia including student led protests. However, as the Young Lives study sites are anonymised, we don’t know if the specific sites of unrest were included this study.

⁶ These and other selected student characteristics for each country are also listed in [Table 4](#) in section 4.2.

⁷ A test-score scale estimated through IRT and scaled to have a mean of 500 and standard deviation of 100 is commonly used within international comparative education research, for example PISA and TIMSS.

⁸ Weights have been used in the creation of the cross-country scale in order to account for sampling procedures at school-level in India and class-level in Vietnam.

using the cross-country dataset, which places all students onto the same scale, thereby allowing us to look at variation in English attainment and ‘value-added’ (the amount of gain in test score which can be attributed to the class or school) between our three countries of focus. The value-added models therefore control for prior attainment at the start of the school year in order to isolate what the ‘school effect’ might be, and control for differences in school intake (Perry, 2016). Value-added analysis forms the focus of much of the discussion within this paper as it allows for ‘like-for-like’ comparison between schools as institutions, while controlling for differences in student prior attainment (Goldstein, 1997; Perry, 2016). Building on this initial cross-country comparison, we then use individual country datasets to continue the multilevel analysis. These individual country datasets include student test score data scaled to have a mean of 500 and standard deviation of 100 within each country, thus allowing a finer level of detail and relative student performance and permitting us a greater understanding of factors associated with variation in English learning and progress in each country. The factors explored within these models were identified as being potentially relevant for English language learning and progress following a review of existing literature, as discussed above in Section 2. These potential ‘determinants’ are categorised in three groups: those relating to student background; those relating to student home context; and those relating to the school or school context.

Table 1 provides details of the models used, highlighting that Models 1–2 look across the three countries, while Models 3–8 are each run separately for each country, thus allowing the explanatory variables to have a different association with English learning and progress in each country. As such, our discussions of ‘school effectiveness’ and ‘school performance’ in relation to these latter models are country-specific, as they relate to the ‘school value-added’ estimates from these country-specific models. ‘School value-added’ is a relative construct, estimated in terms of the extent to which each school differs from the ‘average

Table 1
Multilevel models used in the analysis.

Outcome variable for all models: Wave 2 English score		
Model	Dataset	Explanatory variables
Model 1: Cross-country ‘empty model’	Cross-country	Country
Model 2: Cross-country value-added model	Cross-country	Country; Wave 1 English score
Model 3: Individual country ‘empty model’	Individual country	
Model 4A-C: Individual country contextual ‘raw attainment model’	Individual country	
Model 4A: Individual country contextual ‘raw attainment model’	4A: Student gender; student age; caste (India only)	
Model 4B: Individual country	4B: wealth index; mother’s literacy; number of books in home; home language	
Model 4C: Individual country	4C: school location; school type; medium of instruction (Ethiopia and India only)	
Model 5: Individual country value-added model	Individual country	Wave 1 English score
Model 6: Individual country value-added plus student background	Individual country	Wave 1 English score; Wave 1 maths score; student gender; student age; caste (India only)
Model 7: Individual country value-added plus student home context	Individual country	Wave 1 English score; wealth index; mother’s literacy; number of books in home; home language
Model 8: Individual country value-added plus school context and institutional-related factors	Individual country	Wave 1 English score; school location; school type; medium of instruction (Ethiopia and India only)

school’ within that sample in terms of its contribution to student learning (Goldstein, 1997). Similarly, what we are comparing in the country-specific models is the *relative* importance of each factor in each country in its relationship to English learning. This is important to consider, as the three country contexts are very different, and many of the explanatory variables may be operationalised differently in each. Appendix Table 5 gives details of each of the explanatory variables used in this paper, identifying the construct each is intended to measure, and occurrences where they vary by country.

4. Results

4.1. RQ1 - how does the English test performance of students vary across Ethiopia, India and Vietnam?

We begin by examining between-country variation in English test scores at the beginning (Wave 1) and end (Wave 2) of the school year, using a combined dataset which places the three countries onto the same scale as discussed in Section 3. Through descriptive analysis, we find that English test scores are highest among children in India at both the start and end of the school year, followed by those in Vietnam, and then in Ethiopia (Table 2). Variation in test scores is also greatest in India, while in Ethiopia they cover a much smaller range of scores, suggesting a higher degree of homogeneity in children’s outcomes.

Building on this descriptive analysis, we then explore variation in English test performance and learning across the three countries using multilevel analysis. As shown in Table 3 (Model 1), we find that the students in both India and Vietnam have end-of-year English scores which are around 0.5 SDs higher than in Ethiopia on the common cross-country scale, suggesting considerable geographic variation in the functional English performance of adolescents between these three countries.

We extend these initial cross-country analyses by including Wave 1 English test scores (from the start of the school year) in Model 2. This changes the focus from one-off test scores to the ‘value-added’ over the course of the school year. In this model, we find a smaller, yet still highly significant country effect for India and Vietnam (see Table 3). This indicates that children in Ethiopia have both lower end-of-year test scores and make less progress than those in India and Vietnam, suggesting a between-country disparity which arises earlier in the life course (hence the difference in one-off test scores) and which is continuing to widen with each additional school year (indicated by the difference once prior attainment is controlled for). Perhaps surprisingly, given the variation in the country contexts discussed above, there appears to be less difference in the scores and progress made in India and Vietnam. Children in India appear to have slightly higher one-off scores and make slightly more progress, but further testing reveals that this difference is not statistically significant.

4.2. RQ2 - to what extent is the student English test performance a function of schooling factors or individual level factors? Does this vary by country?

To consider the factors associated with student English test performance in each country with a greater level of detail, we address RQ2

Table 2
Summary statistics for English Wave 1 and 2 for each country.

	Variable	N	Mean	Std. Dev.
Ethiopia	Wave 1 English score	11,616	402.84	60.17
	Wave 2 English score	10,180	413.60	61.10
India	Wave 1 English score	9,596	500.57	100.61
	Wave 2 English score	8,498	513.88	99.86
Vietnam	Wave 1 English score	8,343	469.69	77.42
	Wave 2 English score	7,899	480.13	88.91

Table 3
Fixed effect parameters for Models 1 and 2.

Outcome: Wave 2 English score	Model 1: Variance components model + country	Model 2: Value-added model + country
Fixed effects parameters		
Wave 1 English score		0.51*** (0.00)
Country (base: Ethiopia)		
India	50.47*** (8.67)	24.38*** (4.68)
Vietnam	41.37*** (10.92)	19.64*** (5.75)
Constant	411.4*** (7.41)	205.30*** (4.55)
Observations	25,431	25,431
Number of groups	316	316

Standard errors in parentheses.
***p < 0.01, **p < 0.05, *p < 0.1.

using data which has been scaled separately for each country – that is, the test scores in each country have been scaled to have a mean of 500 and standard deviation of 100. Through a series of three-level multilevel models run separately for each country, we explore the association of student individual characteristics, student home factors, and school characteristics with English outcomes, both in terms of one-off end-of-year scores (Models 3 - 4C) and value added (Models 5–8). As Table 4 shows, initial descriptive analysis of the data indicates that there is some variation in selected individual, home and school-level factors of interest when looking across these three countries; for example, a much greater proportion of children in the India sample have no books at home in comparison to the other two countries. However there also appears to be a degree of similarity in terms of some of the characteristics; such as the proportion of mothers who have attended higher education.

The subsequent inferential analysis will consider the extent to which these and other factors may relate to student test score performance in English. For clarity of presentation within this paper, findings from these models are discussed below and model coefficients are presented in graph form in Figs. 1–3, while the full model output is presented in Appendix Tables 6–8

4.2.1. A high degree of between-school variation

Considering the models’ random effect parameters first, we find that schools are important for understanding students’ English test performance in all three countries. Almost half of the variation in one-off end-of-year test scores is found at the school level in Ethiopia (the school-level variance partition coefficient (VPC) is 46%) and India (47%), a finding which both confirms the importance of modelling the data using a multilevel approach and highlights the need to consider factors at this level when attempting to understand differences in student learning outcomes. In Vietnam, there is less between-school variation (school-level VPC is 34%) than in the other two countries, suggesting a greater degree of consistency in outcomes across schools. However, it should be noted that this is still higher than that found in school-effectiveness

Table 4
Selected student characteristics.

	Ethiopia	India	Vietnam
% girls in sample	50.21	56.73	50.33
Mean student age (years)	14.4	14.06	15.32
% mothers who have not attended school	27.99	33.05	6.79
% mothers who have attended higher education	6.15	4.20	7.53
% with no books at home	11.44	28.42	13.3
% attending English medium school ^a	70.26	67.54	–
Total observations	12,182	9,820	8,740

^a In the Ethiopia data, we define an English medium school as one where maths is taught in English. In India, English medium schools teach all subjects in English, while there are no English medium schools in the Vietnam sample.

studies in other contexts, particularly those with higher incomes (Scheerens, 2001), suggesting a relatively high ‘school effect’ in this context as well.

Moving from raw attainment to ‘value-added’ models, in both Ethiopia and India we find that between-school variation more than halves when we control for Wave 1 test scores. This indicates that what may initially appear to be differences in performance between schools actually largely relates to disparities in school intake. The same is also seen in Vietnam, albeit to a smaller extent, suggesting that intake is still important for explaining between-school variation in this context as in the other two countries.

4.2.2. Individual student characteristics have some importance, especially in India

We then move to examine the model fixed effect parameters. We find that individual student characteristics are important to understanding both end-of-year test scores and progress made (see Fig. 1 and Appendix Tables 6–8 for details). In all three countries, students’ Wave 1 test scores in English are strongly positively associated with end of year outcomes, with 1 additional point of learning at Wave 1 equal to around 0.5 additional points of learning at Wave 2. Prior attainment in maths is also positively and significantly associated with students’ performance on the English language test in all three countries, albeit with a slightly larger effect size in Ethiopia, indicating the potential for a broader understanding of prior attainment which is not subject-specific.

In Ethiopia, student age appears particularly important, with older children found to have significantly lower scores and make less progress over the school year. This may be a result of grade repetition, with older children being those who have repeated the same grade more than once; it may also relate to a later school starting age. Student self-efficacy is also positively associated with English outcomes in both Ethiopia and Vietnam (this variable was not included in the India survey so cannot be examined there).

In India, as in Ethiopia, age is negatively associated with English outcomes. This finding is less expected as grade repetition was not legally permitted in Indian schools at the time this data was collected; however, this may relate to children being held back at an earlier stage of their schooling. Being from a more disadvantaged caste group also has a negative association with English outcomes, with children from scheduled tribe (ST), schedule caste (SC), and other backward caste (OBC) groups all found to have lower scores and make less progress than those from the most advantaged group (GC).

Meanwhile in Vietnam, the most notable individual effect is that of being female, which is strong and highly significant, equivalent to almost 0.13 SDs in the value-added model. A smaller positive female effect is also seen India in terms of both one-off scores and progress.

4.2.3. Home background factors are strongly predictive of English test performance

As indicated by the existing literature base on language learning discussed in Section 2, we find that students’ home background factors are strongly predictive of their English learning and progress in all three countries, although with a less clear relationship in Vietnam (see Fig. 2 and Appendix Tables 6–8). Wealthier students have higher test scores in all three countries, and also make more progress in Ethiopia and India, indicating gaps in attainment which will continue to widen over time. It is of interest that this indication of widening gaps in learning is not seen in Vietnam (as shown in Fig. 2), a finding which suggests a more ‘equalising’ education system, confirming that found in earlier grades in the same context (Rolleston et al., 2013). The number of books in the home, a further indicator of household socio-economic status, is also positively associated with test scores in both Ethiopia and India, and with progress in India, as is mothers’ literacy in India. In Ethiopia and Vietnam students’ home language is also significantly associated with English progress: in both countries those students who speak a language other than the most common one (Vietnamese in Vietnam, and

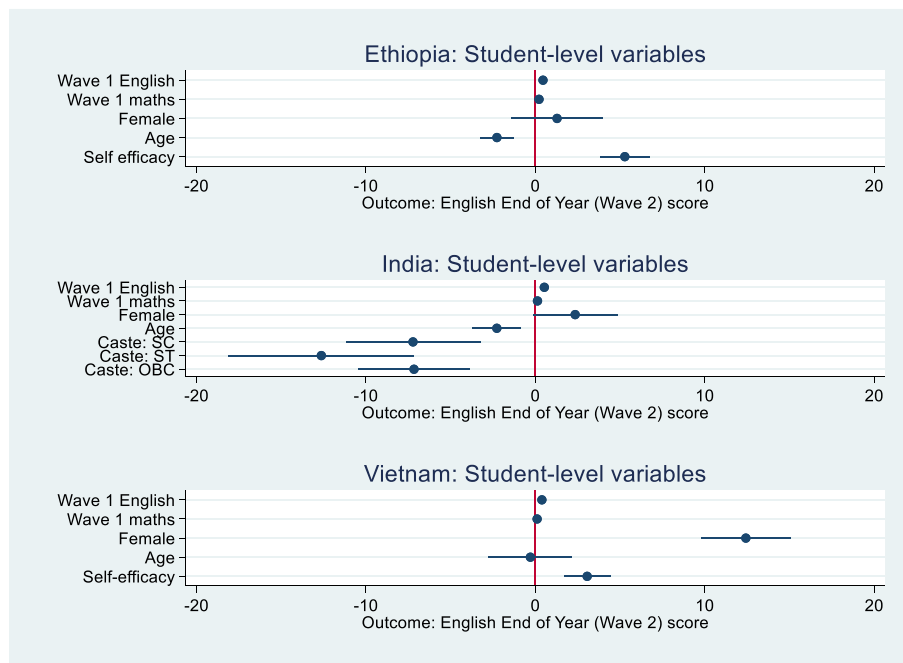


Fig. 1. Multilevel Model coefficients (student individual characteristics)⁹¹.

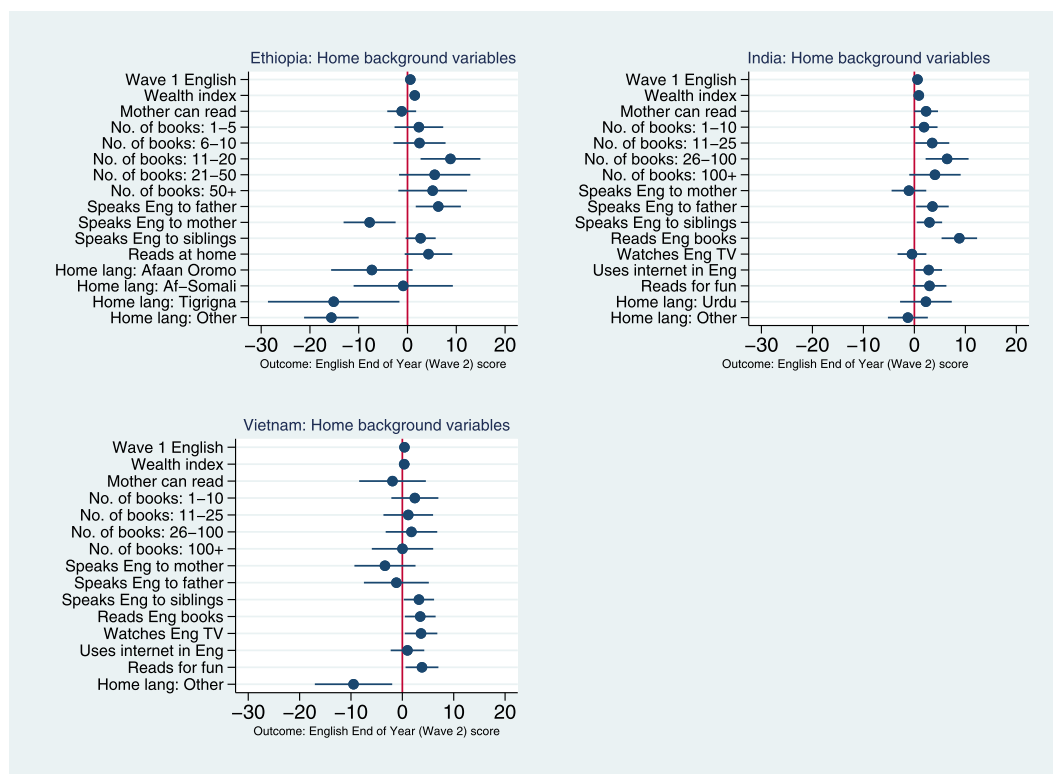


Fig. 2. Multilevel model coefficients (student home background characteristics).

Amarigna in Ethiopia) are found to have lower test scores and make less progress. This may relate to underlying differences in socio-economic status between different language groups; alternately it may also reflect linguistic differences which are associated with learning an additional language such as English.

As may be expected, variables related to exposure to English outside school are also strongly associated with outcomes. In all three countries, being able to talk to siblings in English is associated with higher test

scores and greater progress. In contrast, the effect of being able to talk to parents¹⁰ in English is more mixed: students talking to their father in English is positively associated with learning in Ethiopia and India,

¹⁰ In cases where students do not have a mother or father present (due to absence or death), their response to this question is classified as 'not applicable'; these cases are excluded from this analysis.

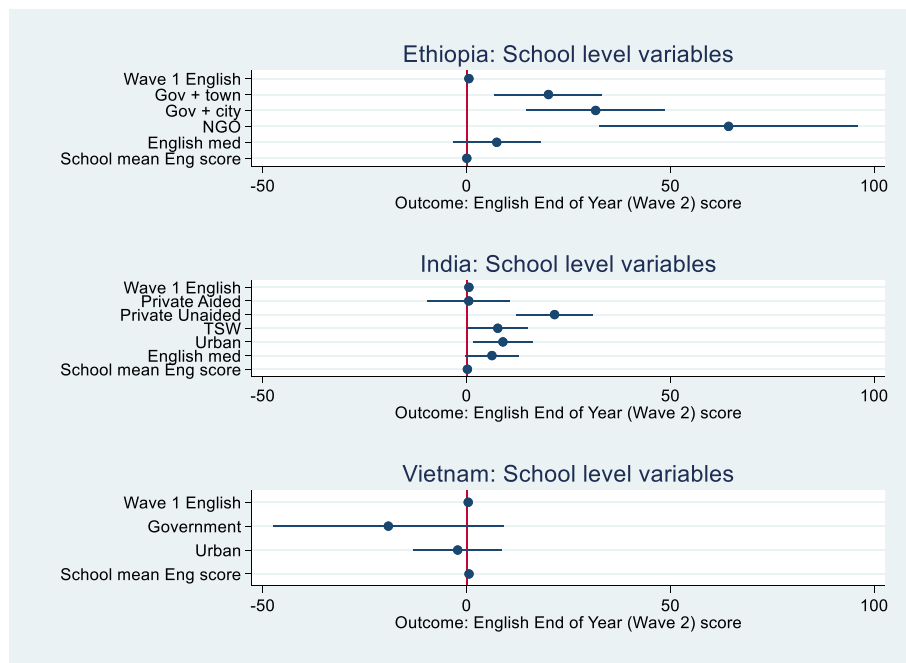


Fig. 3. Multilevel model coefficients (school level variables).

while talking to their mother is insignificant (India) or negative (Ethiopia). This may relate to the lower likelihood of women speaking English in these contexts (Erling, 2014). In Vietnam, the effect of talking with both parents is insignificant; this again is likely to relate to the lower prevalence of spoken English more generally in this context (Canh, 2000).

In India and Vietnam, children who read English magazines, newspapers, and books, watch TV in English (Vietnam only), or use the internet in English (India only) have higher scores and make more progress. These questions were not asked in Ethiopia, so no comparison can be made there. Meanwhile, in all three countries students who read for fun (in any language) are found to have higher English test scores, and to make more progress in Ethiopia and Vietnam.

4.2.4. School-level factors are particularly important in Ethiopia and India

In addition to student individual and home factors, our analysis confirms that school-level factors (both in terms of institutional factors and those relating to school context) are also particularly important to understanding variation in English outcomes in India and Ethiopia, as shown by the size of the coefficients in Fig. 3 and the full model output in Appendix Tables 6–7. In India, urban schools, English-medium schools, and private unaided schools are found to be strongly associated with students having higher English end-of-year scores and making greater progress than those in rural schools, government schools, and those which are not taught in English medium. There is also indication of a positive ‘peer effect’¹¹ in India, with students attending schools with a higher mean English score found to achieve higher scores and make more progress.

Meanwhile, in Ethiopia, school type and location is also important

⁹ This coefficient plot shows coefficients with 95% confidence intervals for selected student-level characteristics from the value-added model for each country. The ‘dot’ on the figure represents the coefficient, while the ‘line’ represents the standard error; a longer ‘line’ indicates less certainty in the coefficient, while a very short line (or no visible line, as in the prior attainment scores in Fig. 1) indicates a more precise estimate in which there is a great deal of certainty. Full model output is given in Models 6–8.

¹¹ In this analysis, we define the mean school-level English score as a potential ‘peer effect’ which may be associated with students’ English learning outcomes.

(this variable combines location and school management here), with rural government schools found to have significantly lower scores and to make less progress than any other school type. In contrast to India, children in schools classed as English medium (which for Ethiopia is defined as being those where maths is also taught in English) do not perform significantly better. There is also less of a peer effect than that seen in India.

In contrast to the other two countries, in Vietnam, we find that few of the school-level variables considered here are important for understanding English learning and progress. The exception to this is the association with the school mean English score. This indicates a strong peer effect on both learning and progress, with a mean English score which is 1 point higher associated with a student Wave 2 score which is 0.01 SDs higher in Vietnam. School type and school location are not found to be important for learning outcomes in Vietnam; in particular, it is notable that these findings indicate that students attending schools located in urban areas do not have higher attainment or greater progress than those in rural areas. This is in clear contrast with findings from Ethiopia and India and is somewhat surprising given the greater prevalence of spoken English outside the school in urban areas (Canh, 2000). As with the above discussion on the effects of student home background, this may indicate that schools in Vietnam are potentially more equalising than those in the other two countries.

Looking across the series of multilevel models for each country reveals that there is considerable between-country variation in whether we understand English test performance as a function of school or individual level factors. In Ethiopia, school-level factors are very important, particularly the location and type of school, with the inclusion of these factors explaining almost all of the between-school variation in student test scores and progress. Student context and home background are also important, but our analysis suggests that the location of the school (which of course is also associated with these student-level factors) is of central importance in Ethiopia.

As in Ethiopia, school-level factors are important in India, including school type, location, and medium of instruction, with these found to explain a large proportion of the variation in student learning and progress. Student individual and home background factors are also important, although (with the exception of prior attainment), these do not explain a great deal of the variation between schools. In contrast, in

Vietnam we find that it is only really individual student factors which are important in explaining between-school variation in learning and progress, while both home background and school-level factors have very little to offer in helping to explain variation in functional English skills.

4.3. RQ3- what insights does the data on English language test reveal about cultural reproduction and learning inequalities within each country?

Our findings also reveal that the way these factors predict functional English skills is not homogenous across our focus countries. In Ethiopia, we find that school type and school location are among the most important predictors of functional English skills, with students who attend schools in urban cities found to have significantly higher scores on their functional English test. This signals a large rural-urban gap in English skills, with potential implications for future mobility and employment opportunities for adolescence in the future. We suggest that programmes designed to help rural youth develop their English language skills may therefore become important in Ethiopia.

In contrast, in India we find that individual, home and school factors are important in explaining variation in English language skills, highlighting a situation which is potentially more intersectional. Our findings suggest that understanding English proficiency in India is not just about what schools do or what background the survey participants are from, but the ways in which these different factors work overlap and interrelate. Future research may therefore consider employing intersectionality methodologies to investigate English skills development in India more holistically, for example as discussed in [Taş et al. \(2014\)](#) on the interaction of multiple social structures and their impact on individuals' outcomes.

Finally, in Vietnam, our findings suggest that schools and societal structures may be more equitable than in the other two countries. While students' prior attainment is very important for predicting their English test score performance, our data in Vietnam does not show schools to be further exacerbating these gaps; rather, all students have equal chance of doing well. Similarly, we find that students' home background is of little importance in understanding English skills, while differences between schools such as school type and school location are also largely unimportant. This indicates that, unlike in Ethiopia and India, there is perhaps less evidence of Bourdieu's theory of cultural reproduction: the factors which make the biggest difference to English skills here are individual differences in ability at the student level. It is worth noting that of the three countries, Vietnam is more linguistically and socially homogenous which may also be partly responsible for this finding.

On the basis of the empirical evidence in this study, we can conclude that our findings are consistent with Bourdieu's theory of cultural reproduction, however, the process of social capital reproduction through schooling is different for each country. Schools play a big role in reinforcing the existing societal stratifications particularly in Ethiopia and India but helps to reduce this stratification in Vietnam.

5. Limitations, summary, and conclusions

5.1. Study limitations

Our study is not without its limitations, and we recognise that comparing student outcomes across three very different country contexts can be in itself contentious, particularly when using a dataset which, while designed to be comparable, does have some differences in the data collected. However, we believe that contributing to the discourse on learning inequalities through the theory of cultural reproduction in three contexts where little to no comparative quantitative research in this area has been reported is an important contribution to the literature. The three datasets used were designed in tandem and collected using highly similar instruments and implementation processes, albeit with slight differences in methodology and sampling.

Another limitation is that we are unable to address the inequalities in access to school because the study only covers individuals who are already enrolled in school. Also, while we cannot claim causality from our findings, our use of multilevel modelling has allowed us to respect the hierarchical nature of the data used in this study and allows us to consider in more depth the effect of factors at different 'levels' (student, class, or school) and to identify the extent to which these are associated with differences in learning attainment (as a one-off test score), progress (from a value-added model), or both. As such, it offers a robust, quantitative contribution to the literature base on what shapes student learning and how this varies across three very different contexts.

5.2. Summary

In this paper we have studied some of the factors that predict student English language test performance for students in three lower- and middle-income countries. We employed multilevel 'value-added' analysis to test for social capital reproduction in English language skills, allowing us to consider variables at the individual, household and school-level; these approaches are relatively uncommon in LMIC contexts where there are fewer large-scale datasets with repeated measures of learning available. Making use of a secondary dataset which allows for cross-country and individual country analysis, we have analysed student test performance in Ethiopia, India and Vietnam together and separately to fully examine the predictors of performance on a comparable English language test administered in school. However, it must be remembered that the secondary dataset we are using is not nationally representative and consists of a semi-purposive sample within selected regions of each country. As such, while we discuss 'Ethiopia', 'India' and 'Vietnam' throughout this paper, the findings we relate cover specific areas of each, and cross-country comparisons in particular must be treated with caution ([Boyden & James, 2014](#)).

Our findings show that there are both within- and between-country variations in the English language test performance of students in our data. This is found to be the case both when we consider disparities in students' level of English performance as a one-off measure at the end of the school year, and when we examine differences in progress made over the school year, suggesting that it is of interest to explore both of these aspects of the different learning trajectories in each country, and some of the factors which may be associated with them. Overall, students in India are found to have higher English scores at the end of the school year than those in Vietnam and in Ethiopia; a finding which is somewhat unsurprising given the longer colonial backdrop of English language use in India. Alongside this, we also find evidence of a high degree of variation in English performance between schools within each country both in terms of end of year scores and progress made over the school year. This indicates the importance of examining schooling quality and characteristics for English skills development *within* each of these contexts as well as between them. In addition, once we factor in a number of student background characteristics, we find that variation in both attainment and progress at the school level also relates closely to student background, highlighting the extent of homogeneity in student intake in many schools (particularly in India and Ethiopia) which further exacerbates already existing inequalities. One of the main contributions of our analysis is therefore that it extends what has been found by other work on learning inequalities in these contexts (for example, [Cueto et al., 2016](#)), using value-added analysis to highlight how students not only start off with different levels of attainment according to their relative level of advantage (capital) but that these factors are also associated with different rates of progress. We find that in both Ethiopia and India in particular, students from more advantaged home backgrounds learn more English over the course of the school year, suggesting that initial gaps in attainment present at the start of the school year will continue to widen year on year.

In both Ethiopia and India our findings indicate that stark differences in both learning attainment and progress between urban and rural areas,

and between different types of schools, are interwoven with differences in student home background and exposure to cultural capital. Taken in combination, these factors are likely decisive in determining the student’s opportunity to develop socially and cognitively, and therefore highly influential in informing their level of English language skills. Interestingly, this is consistent with Bourdieu’s theory of social and cultural reproduction literature (Lamb, 2011), providing further evidence that students from more advantaged backgrounds are likely to have greater support for learning at home, attend better schools, and therefore perform better than their counterparts from less advantaged backgrounds. This leads to inequalities in both absolute learning levels in the form of end-of-year test scores, and in the degree of learning progress over the school year (in terms of value-added).

We also find that students’ prior attainment in English was a major predictor of their scores at the end of the school year. As a result of this, those who had received better investment in English language at earlier points in their schooling (either through family background or prior investment in their education) were more likely to continue to do better in developing English language skills. Similarly, in line with Bourdieu’s theory of cultural reproduction, we find that family support of children’s English language development through factors such as use of English at home and exposure to English language materials offers an enabling environment which further allows skills to be improved relative to those who do not benefit from these advantages. Interestingly, exposure to English medium schooling appears to have mixed results in this regard, as we find it be associated with greater learning and progress in India, but not in Ethiopia. This highlights the need for further context-specific work to understand the mechanisms for this type of cross-country dissimilarity.

5.3. Conclusion

In conclusion, our findings from this paper provide evidence that background characteristics and schooling characteristics matter for future outcomes of adolescents, while also highlighting that the way in which they operate may differ depending on the context. In addition, our analysis also highlights the potential for schooling to help reduce some of the disadvantages present when students enrol into school. With reference to the findings from Vietnam in this paper, we suggest that education policy which guarantees a minimum quality standard of schooling in all schools, regardless of their location or management type, offers the potential for schooling to act as an equaliser between students from more advantageous backgrounds and their peers from less. Given the extent of literature highlighting gaps between children’s learning in LMICs on the basis of their background, this is an important (and potentially positive) finding. While, there is no one-size-fits-all solution for LMICs to tackle the inequalities adolescents face within these contexts, our analysis indicates that there is a need for policy to be

implemented within their educational and social systems to support all groups in developing the English language skills they need for social and economic advancement. This is especially crucial given the increasing importance of English language in these contexts for employment, higher education and other future opportunities for social mobility.

Funding

Two of the authors (OBA and RM) receive funding from the UK Research and Innovation (UKRI) [grant ref ES/P000630/1] for their PhD research which allowed them to prepare this paper for publication.

Data availability statement

The Young Lives datasets from each round of household and school surveys are publicly archived and available to download from the UK Data Archive.

CRedit authorship contribution statement

Obiageri Bridget Azubuike: conducted the literature reviews, wrote the introduction, data and conclusion sections, participated in the interpretation of the results, proof-reading, Writing – review & editing, editing and approval of the final revision of the manuscript for submission, Conceptualization, All authors have contributed significantly to the research conceptualisation and writing of this manuscript. **Rhian-nnon Moore:** Formal analysis, conducted the data analysis and wrote the methods and results sections, participated in the interpretation of the results, proof-reading, Writing – review & editing, editing and approval of the final revision of the manuscript for submission, Conceptualization, All authors have contributed significantly to the research conceptualisation and writing of this manuscript. **Gayatri Vaidya:** contributed to the introduction and background of the manuscript, Conceptualization, All authors have contributed significantly to the research conceptualisation and writing of this manuscript.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

We would like to thank the two anonymous reviewers and the editor for their constructive comments and feedback which significantly strengthened this paper.

Appendices.

Table 5
Description of variables in models

Variable	Description of construct measured	Cross-country comparability
Level of analysis: Student background. <i>Variables which differ at the level of each individual student participating in the survey.</i>		
Wave 1 English	Student test score in English at the start of the school year; scaled to have a mean of 500 and standard deviation of 100 when weights are applied	Collected in all three countries using tests designed to suit each country while retaining sufficient common items to allow cross-country comparison.
Wave 1 maths	Student test score in maths at the start of the school year; scaled to have a mean of 500 and standard deviation of 100 when weights are applied	Collected in all three countries using tests designed to suit each country while retaining sufficient common items to allow cross-country comparison.
Student gender	Male; female	Collected in all three countries.
Student age	In years	Collected in all three countries.
Student caste	Scheduled caste; scheduled tribe; other backward caste; general caste. From school records.	India only

(continued on next page)

Table 5 (continued)

Variable	Description of construct measured	Cross-country comparability
Level of analysis: Student home context. <i>Variables which differ at the household level for each individual student participating. In other words, the response would be the same for each individual in that household.</i>		
Wealth index	Household wealth index score from student report of physical assets in their home. Constructed using principal components analysis.	Collected in all three countries using a wealth index designed to suit each country context.
Mother's literacy	Can read; can't read	Collected in all three countries.
Number of books	Number of books student reports in their home (not school books)	Collected in all three countries.
Home language	The language the student reports speaking most commonly at home.	Collected in all three countries, albeit with different language options. <i>Ethiopia:</i> Amarigna; Afaan Oromo; Af-Somali; Tigrigna; Other <i>India:</i> Telugu; Urdu; Other <i>Vietnam:</i> Vietnamese; Other
Speak English to mother/father/siblings	Does student speak English to different family members	Collected in all three countries.
Reads books at home/Reads books for fun	Does student read books outside school/for fun	Collected in all three countries.
Read English books/watch English TV programmes or movies/use internet in English	Does student do these activities in English	Collected in all three countries.
Self-efficacy	Student self-efficacy score; constructed scale score for latent trait	Ethiopia and Vietnam only.
Level of analysis: School context. <i>Variables which differ at the school level. That is, responses would be the same for all individuals participating from that school. These may concern fixed school characteristics (e.g. location) or malleable traits (e.g. medium of instruction).</i>		
School location	School context: urban; rural	Collected in all three countries.
School type	How the school is managed and/or funded.	Collected in all three countries; albeit with different options to reflect differences in education systems. In Ethiopia options also included school location. <i>Ethiopia:</i> Government + rural; Government + town; Government + city; NGO <i>India:</i> Private Aided; Private Unaided; State Government; Tribal Social Welfare <i>Vietnam:</i> Private; Government
English medium of instruction	Whether English is used as the medium of instruction in this school.	Ethiopia and India only. <i>Ethiopia:</i> Are maths classes taught in English <i>India:</i> Is school taught in English medium
School mean English score	Average Wave 1 English score for sampled students in this school.	Measure constructed from individual scores, collected in each country.

Table 6
Multilevel Models 3–8 (Ethiopia)

Ethiopia								
	VC model	RA model + individual st vars	RA + st home vars	RA + sch vars	VA model	VA model + individual st vars	VA + st home vars	VA + sch vars
	Model 3	Model 4A	Model 4B	Model 4C	Model 5	Model 6	Model 7	Model 8
Outcome: Wave 2 English score								
Fixed effects parameters								
Wealth index			3.276*** (0.625)				1.490*** (0.529)	
Mother can read			-2.960* (1.784)				-1.192 (1.511)	
Number of books at home (base: 0)								
Books at home: 1-5			8.305*** (3.005)				2.334 (2.545)	
Books at home: 6-10			9.194*** (3.216)				2.458 (2.726)	
Books at home: 11-20			23.25*** (3.682)				8.809*** (3.129)	
Books at home: 21-50			23.07*** (4.387)				5.572 (3.725)	
Books at home: 50+			22.72*** (4.229)				5.155 (3.590)	
Speak Eng to father			10.81*** (2.770)				6.312*** (2.358)	
Speak Eng to mother			-14.93*** (3.207)				-7.772*** (2.721)	
Speak Eng to siblings			7.078*** (1.858)				2.689* (1.574)	
Reads at home			6.948** (2.938)				4.300* (2.490)	
Home language (base: Amarigna)								
Afaan Oromo			-16.82***				-7.301*	

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Table 6 (continued)

Ethiopia								
	VC model	RA model + individual st vars	RA + st home vars	RA + sch vars	VA model	VA model + individual st vars	VA + st home vars	VA + sch vars
Outcome: Wave 2 English score	Model 3	Model 4A	Model 4B	Model 4C	Model 5	Model 6	Model 7	Model 8
Af-Somali			(5.157) -2.228 (6.426)				(4.263) -0.878 (5.190)	
Tigrigna			-20.32** (9.167)				-15.13** (6.876)	
Other			-24.87*** (3.410)				-15.61*** (2.854)	
Maths Wave 1		0.434*** (0.00865)				0.215*** (0.00966)		
Female		1.143 (1.480)				1.280 (1.372)		
Age		-3.274*** (0.549)				-2.270*** (0.509)		
Self-efficacy		6.109*** (0.809)				5.280*** (0.751)		
School type + location (base: Gov + rural)								
Gov + town				19.31*** (7.175)				20.10*** (6.733)
Gov + city				33.02*** (9.223)				31.67*** (8.666)
NGO				67.16*** (17.44)				64.29*** (16.16)
English medium				7.433 (5.833)				7.410 (5.499)
School mean Eng score				0.631*** (0.0789)				0.0643 (0.0739)
English Wave 1					0.590*** (0.00879)	0.451*** (0.0110)	0.585*** (0.00921)	0.582*** (0.00889)
Constant	516.1*** (10.25)	345.3*** (11.77)	510.0*** (9.539)	173.8*** (33.97)	223.1*** (6.427)	217.0*** (10.17)	224.3*** (6.784)	166.2*** (31.65)
Observations	10,180	8,819	9,308	10,180	9,810	8,613	9,070	9,810
Number of groups	63	63	63	63	63	63	63	63
Random-effects Parameters								
School level var (cons)	6047.835	2816.737	4325.049	0	992.451	877.355	616.340	25.9
Std. Err.	1204.136	615.586	910.679	0	288.086	267.009	234.316	59.3
Class level var (cons)	1349.004	1180.99	1313.980	1329.876	1031.286	1055.525	1037.987	1039.007
Std. Err.	150.42	132.58	148.687	132.27	117.353	120.477	120.994	114.588
Student level var (cons)	5742.964	4479.613	5599.934	5746.503	3976.323	3767.051	3912.940	3978.178
Std. Err.	81.596	68.522	83.326	81.675	57.598	58.344	59.043	57.636
School VPC	0.46	0.33	0.38	0.00	0.17	0.15	0.11	0.01
Class VPC	0.10	0.14	0.12	0.19	0.17	0.34	0.19	0.21

Standard errors in parentheses.
***p < 0.01, **p < 0.05, *p < 0.1.

Table 7
Multilevel Models 3–8 (India)

India								
	VC model	RA model + individual st vars	RA + st home vars	RA + sch vars	VA model	VA model + individual st vars	VA + st home vars	VA + sch vars
Outcome: English Wave 2 score	Model 3	Model 4A	Model 4B	Model 4C	Model 5	Model 6	Model 7	Model 8
Fixed effects parameters								
Wealth index			2.014*** (0.473)				0.871** (0.388)	
Mother can read			4.406*** (1.443)				2.302* (1.190)	
Number of books at home (base: 0)								
Number of books: 1-10			5.707*** (1.643)				1.889 (1.354)	
Number of books: 11-25			8.742*** (2.067)				3.499** (1.704)	
Number of books: 26-100			13.89*** (2.607)				6.417*** (2.150)	
Number of books: 100+			5.387* (3.123)				4.037 (2.570)	
Speak Eng to mother			2.186				-1.069	

(continued on next page)

Table 7 (continued)

India								
	VC model	RA model + individual st vars	RA + st home vars	RA + sch vars	VA model	VA model + individual st vars	VA + st home vars	VA + sch vars
Outcome: English Wave 2 score	Model 3	Model 4A	Model 4B	Model 4C	Model 5	Model 6	Model 7	Model 8
Speak Eng to father			(2.103) 2.476				(1.735) 3.545**	
Speak Eng to siblings			(1.967) 4.888***				(1.626) 2.957**	
Read Eng books/ newspapers			(1.546) 15.21***				(1.270) 8.817***	
Watch Eng TV/movies			(2.163) 0.523				(1.777) -0.474	
Use Eng internet			(1.757) 6.859***				(1.443) 2.804**	
Reads for fun			(1.621) 4.994**				(1.335) 2.972*	
			(2.059)				(1.686)	
Home language (base: Telugu)								
Urdu			4.097 (3.219)				2.264 (2.587)	
Other			1.570 (2.469)				-1.276 (1.997)	
Maths Wave 1		0.312*** (0.00766)				0.125*** (0.00785)		
Female		2.885** (1.456)				2.349* (1.273)		
Age		-3.405*** (0.824)				-2.275*** (0.728)		
Caste (base: GC)								
Caste: SC		-9.358*** (2.306)				-7.224*** (2.027)		
Caste: ST		-13.95*** (3.292)				-12.63*** (2.799)		
Caste: OBC		-8.378*** (1.908)				-7.164*** (1.677)		
School type (base: Gov)								
Private Aided				2.347 (7.044)				0.541 (5.185)
Private Unaided				24.09*** (6.612)				21.59*** (4.796)
Tribal Social Welfare				7.098 (5.287)				7.665** (3.764)
Urban				8.315* (5.040)				8.926** (3.721)
Eng medium				9.547** (4.689)				6.238* (3.356)
School mean Eng score				0.784*** (0.0425)				0.215*** (0.0322)
English Wave 1					0.618*** (0.00899)	0.529*** (0.0107)	0.613*** (0.00968)	0.590*** (0.00938)
Constant	460.0*** (4.860)	369.3*** (13.10)	428.4*** (5.222)	93.08*** (17.05)	182.6*** (4.561)	202.2*** (11.72)	168.3*** (5.073)	85.29*** (12.42)
Observations	7,662	7,063	6,756	7,662	7,662	7,063	6,756	7,662
Number of groups	201	199	201	201	201	199	201	201
Random-effects Parameters								
School level var (cons)	3452.136	2016.478	2701.916	0	565.156	511.139	430.968	55.407
Std. Err.	475.636	290.691	382.530	0	93.31	86.405	77.650	38.486
Class level var (cons)	1592.865	997.312	1308.440	874.013	362.826	329.193	309.751	338.243
Std. Err.	221.034	145.915	186.570	80.673	57.178	53.794	51.636	48.838
Student level var (cons)	2342.591	1871.773	2304.632	2343.57	1580.08	1476.58	1585.456	1576.774
Std. Err.	38.633	32.221	40.628	38.663	26.141	25.504	28.081	26.026
School VPC	0.47	0.41	0.43	0.00	0.23	0.22	0.19	0.03
Class VPC	0.22	0.20	0.21	0.27	0.14	0.14	0.13	0.17

Standard errors in parentheses.
 ***p < 0.01, **p < 0.05, *p < 0.1.

Table 8
Multilevel Models 3–8 (Vietnam)

Vietnam								
	VC model	RA model + individual st vars	RA + st home vars	RA + sch vars	VA model	VA model + individual st vars	VA + st home vars	VA + sch vars
Outcome: English Wave 2 score	Model 3	Model 4A	Model 4B	Model 4C	Model 5	Model 6	Model 7	Model 8
Fixed effect parameters								
Wealth index			0.962* (0.565)				0.363 (0.526)	
Mother can read			0.598 (3.554)				-1.914 (3.311)	
Number of books at home (base: 0)								
Number of books: 1-10			3.572 (2.507)				2.437 (2.334)	
Number of books: 11-25			1.979 (2.647)				1.154 (2.466)	
Number of books: 26-100			3.985 (2.750)				1.777 (2.560)	
Number of books: 100+			0.570 (3.274)				0.0331 (3.048)	
Speak Eng to mother			-4.038 (3.250)				-3.381 (3.036)	
Speak Eng to father			-2.315 (3.449)				-1.161 (3.225)	
Speak Eng to siblings			5.685*** (1.611)				3.238** (1.502)	
Read Eng books/ newspapers			6.797*** (1.636)				3.488** (1.525)	
Watch Eng TV			5.377*** (1.736)				3.645** (1.617)	
Use Eng internet			2.794 (1.791)				1.003 (1.668)	
Reads for fun			5.856*** (1.750)				3.822** (1.631)	
Home language (base: Vietnamese)								
Other			-15.04*** (4.139)				-9.501** (3.844)	
Maths Wave 1		0.208*** (0.0115)				0.103*** (0.0113)		
Female		18.49*** (1.416)				12.43*** (1.346)		
Age		-0.391 (1.335)				-0.293 (1.261)		
Self-efficacy		3.579*** (0.747)				3.057*** (0.705)		
School type (base: Private)								
Gov				-18.43 (18.38)				-19.19 (14.39)
Urban				-2.258 (7.132)				-2.169 (5.565)
School level mean Eng score				1.020*** (0.0589)				0.613*** (0.0472)
Wave 1 Eng score					0.423*** (0.0110)	0.385*** (0.0118)	0.414*** (0.0115)	0.415*** (0.0110)
Constant	472.6*** (9.114)	373.4*** (22.62)	458.1*** (9.427)	18.71 (32.10)	276.3*** (7.616)	244.6*** (21.16)	274.4*** (8.322)	15.15 (25.09)
Observations	7,792	7,302	7,245	7,792	7,638	7,239	7,182	7,638
Number of groups	52	52	52	52	52	52	52	52
Random effect parameters								
School level var (cons)	3460.693	2203.823	2976.491	0	1180.537	905.656	1065.695	0
Std. Err.	866.68	574.46	764.620	0	334.026	270.815	311.771	0.00
Class level var (cons)	3180.16	2364.726	3032.647	2645.37	1754.066	1578.389	1742.376	1584.937
Std. Err.	361.23	273.54	346.083	262.563	203.59	184.878	203.003	160.956
Student level var (cons)	3421.85	3245.791	3340.842	3421.773	2899.616	2855.079	2874.248	2898.622
Std. Err.	55.60	54.559	56.367	58.01	47.629	48.225	48.742	47.596
School VPC	0.34	0.28	0.32	0.00	0.20	0.17	0.19	0.00
Class VPC	0.32	0.3	0.32	0.44	0.3	0.3	0.31	0.35

Standard errors in parentheses.
***p < 0.01, **p < 0.05, *p < 0.1.

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