YOUNG LIVES STUDENT PAPER

Linguistic Groups and Classroom Positioning in Ethiopian Primary Schools: New Evidence from Young Lives

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The data used come from Young Lives, a longitudinal study of childhood poverty that is tracking the lives of 12,000 children in Ethiopia, India (Andhra Pradesh), Peru and Vietnam over a 15-year period. **www.younglives.org.uk**

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Young Lives
An International Study of Childhood Poverty

Linguistic Groups and Classroom Positioning in Ethiopian Primary Schools: New Evidence from the Young Lives International Study of Childhood Poverty

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ABSTRACT

Ethiopia has a fragmented ethno-linguistic landscape and education policy in recent decades has attempted to enforce the language rights of students. This paper seeks to answer if a child's linguistic identity is a significantly associated with where they sit in the classroom in Ethiopia? Classroom seating placement is an important component of the learning experience as it refers to the child's proximity to the teacher, blackboard, and centre of learning. Data from the latest release of the Ethiopia Young Lives Study allows for the specification of a multinomial logistic model to test the association between a child's linguistic group and where a child sits in a classroom, while controlling for confounding individual and household level factors. The results show the child's native language can be a significant determinant of classroom seating. Minority language speakers (with the exception of Oromifa speaking students) tend to sit away from the front of the classroom when compared to the majority, Amharic speakers. These findings add to the body of research by looking beyond traditional primary educational outcomes such as enrolment and test results to examine the seating patterns of linguistic speakers within the classroom.

INTRODUCTION

A historical legacy of complicated ethnic and linguistic relations has left Ethiopia, today, with a highly fragmented linguistic landscape. Ethiopians can generally form the following ethnic groups: Amharic, Tigranyanas, Oromos, Hadiyigna, Sidamigna, Tigrigna and Welayitegna. However, the boundaries between ethnic groups remain ambiguous. Instead, language can be seen as a criterion for grouping Ethiopians. 'With non-Amharas adopting Amharic names and speaking the Amharic language as fluently as the Amharas, the distinction has been blurred even further. The census of recent years has identified about 83 language groups, the number of speakers ranging from scores of millions, as is the case with the Oromos, to only a few thousand, as is the case with the Harari' (Milkias, 2011: 205). Some ethnic groups have totally assimilated and lost their identity, though they were at one time distinct. Amharic has long had a favored position in Ethiopia as the language of government and to a great extent as the non-liturgical spoken language of religion. It can be considered the lingua franca (Bloor and Tamrat, 1996). Despite a rich linguistic landscape, the historical distribution of the political goods of communication, recognition and autonomy has been highly skewed, benefiting native Amharic-speakers disproportionately (Smith, 2008).

Language rights in education have received considerable attention in Ethiopia in the past two decades.

The language issue is one of paramount importance, since the Constitution of 1995 confers rights up to secession to population groups on the basis of their ethno-linguistic character (Yigezu, 2006). The Transitional Government of Ethiopia (TGE), which replaced the Dergue in 1991, confronted, among other things, declining enrollment rates in all levels of education upon assuming power. Because of the complex relationship of Amharic dominance, together with ethno-linguistic demands for autonomy and self-government, the TGE quickly attempted to demonstrate the extent of self-determination provisions for ethnic groups. The language policy was perhaps the earliest and most striking manifestation of how the new government intended to demonstrate its commitment to these principles (Smith, 2008: 222). Under the new language policy there were three important implications for education in Ethiopia: 1) Primary education was established as the medium of the nationality language of the region; 2) Amharic became taught as a language of country-wide communication and 3) English became the medium for secondary and higher education (Transitional Government of Ethiopia, 1994:23 as cited in Bloor and Tamrat, 1996). Teachers and policy makers advocate teaching primary school aged children in their mother tongue as a way to encourage students to learn and find school more enjoyable (Smith, 2008). However, despite the pedagogical benefits, several studies have raised questions about the multilingual policy's effectiveness and issues of unequal implementation in Ethiopian classrooms (Yigezu, 2006; Smith 2008).

This research seeks to unveil aspects of the learning process across linguistic groups in Ethiopian classrooms. Recently released data from the Young Lives Study in Ethiopia offers an opportunity to enhance our understanding of where a child sits in the classroom. This paper seeks to answer the following question: Who are the students who sit in the back of the classroom compared to the front and is the child's language associated with where they sit? The aim of this research is to understand if belonging to certain language groups is a risk factor associated with the outcome of seating arrangements in a classroom in Ethiopia. A child's seat in the classroom speaks directly to the child's proximity to the teacher, blackboard, and centre of learning of the space. However, it is important to note that this research does not aim to explore how language influences classroom seating, only if it does. Furthermore the topic in role of seating arrangements on educational outcomes of linguistic speakers is also beyond the scope of this research. These aspects would be too precipitous, given that there has been very little research on classroom seating in Ethiopia. This research is intended to be a first step by going beyond traditional primary educational outcomes such as enrolment rates or test results to examine if language has a patterning effect on where students sit in the classroom.

CONCEPTUAL FRAMEWORK

The conceptual framework for this paper draws on theory from international development, psychology and linguistics. We will first begin by examining the theoretical underpinnings of this research in the field of international development. The study of education in international development is moving past examining educational inputs or outputs and rather to consider education as a process by applying a 'capability' approach (Sen, 1992; Sen, 1999). Sen (1992) defines these capabilities to be 'the various

combinations of functionings (beings or doings) that a person can achieve. Capability, is, thus a set of vectors of functionings, reflecting the person's freedoms to lead one life over another' (Sen, 1992: 40). When applied to education, the capability approach examines education in terms of the freedom individuals or social groups have to achieve valued functionings (the capability set) and the ways that conversion works to limit or expand these capabilities. Conversion can be thought to work internally (with regard to how individuals learn or understand the value of education) or externally (with bearing on the quality of school provision, the level of teacher skill, or forms of discrimination). 'A capability approach therefore alerts us that we cannot simply evaluate resources and inputs and we must look at whether learners are able to actually convert resources into capabilities' (Unterhalter, 2009: 218-9).

This capability approach to development is supplemented with psychological theory that sees the classroom as an environment with its own ecology. The theory of classroom ecology postulates that there is a relationship between the physical proximity of the students to the front of the room and the quality of their learning experience in the classroom. In the 1960s, research on the "ecology" of a classroom was burgeoning in the field of psychology. Walberg argues that the physical distance that the student has in a classroom is related to a psychological distance from educational learning (Walberg, 1969). This is because the front of the space is seen as the centre of the academic learning in a typical classroom and those that sit in the back, for example, are placed at a greater distance from this centre. Being close to this centre of learning is vital as students in the front have a stronger visual access to the instructor in the front of the room, encouraging more participation and engagement (Sommer, 1967).

Finally, linguistic scholars argue that the classroom can equally be seen as a micro linguistic ecology. Language ecology theory examines the linguistic diversity within specific socio-political settings where the processes of language is used to create, reflect and challenge particular hierarchies and hegemonies, however transient they maybe. (Creese and Blackledge, 2011: 4). Classrooms can be considered as micro language ecologies and are places where 'power is negotiated through language' (Creese and Martin, 2003:3). A language ecological approach allows for the exploration of the interactions and inter-relationships across different linguistic speakers within the space of the classroom.

PREVIOUS EMPIRICAL RESEARCH

Research traditionally has seen classroom seating as a product of self-selection, with the better more motivated students choosing the front and central seats. The existing research on the determinants of classroom seating primarily focuses on the context of the developed world. Leipold (1963) shows evidence that there is a relationship between personality and personal space. Introverted, highly anxious students kept greater distance by choosing a farther chair. Waller (1965) goes a step further and claims that students who choose the front of the class are symbolically expressing value for school learning. Those who select seats in the back express negation. According to Walberg (1969), knowing where a student says he prefers to sit in class when he has a choice, we can make a number of significant predications about his reported biographical characteristics. If the front of the room is the centre of attention for academic learning in a typical classroom, those who sit near it express high positive value for learning and those who sit in back, negative value. Students in the front were not only more

enthusiastic about schoolwork than the other students but more in learning, reading, and creativity generally. Parents with high as aspirations for their children often tell them to sit near the front (Walberg, 1969). According to Wallerstein (1985), when students are permitted to select their own classroom positions, the evidence is substantial that position is highly related to motivation, personality variables, and participation. Ethnographic evidence from an Australian study by Macpherson (1983) finds that the front of the room tends to be associated with attention to academic matters and dependence on teachers. The rear tends to be associated with reduced opportunities for attention to academic matters but also with freedom from teacher control, freedom for student interaction, and freedom for the development of control in student interaction.

More recent studies find results that challenge the self-selection hypothesis and contend that classroom seating should be instead be considered an environmental factor that has a determinative effect on the performance and attitudes of the students (Koneya, 1976, Stires, 1980, Moore 1984). This is largely because sitting in the front row offers students some key learning advantages: the visibility of what is on the blackboard, audibility of the teacher, and greater opportunities for one-to-one interaction with the teacher (MacPherson, 1983). This body of thought leaves many open questions regarding what then does determine classroom seating, if not learning motivation. However, regardless of the dispute over the 'self-selection' hypothesis or the 'environmental hypothesis' there is a consensus across the studies to support the notion that teacher-pupil interaction, and student interaction more broadly, is strongly related to the student's position in the learning space (Koneya, 1976; MacPherson, 1983; Montello, 1988; Sommer 1967; Stires, 1980).

The existing research summarized above was conducted in developed countries and may not be directly applicable to the Ethiopian context. In developing countries, where teachers may be less concerned with seating arrangements and space may be limited, the proximity to the blackboard and teacher may be correlated with more than simply a student's motivation. Some indication, mostly qualitative, has emerged from the developing world on how social norms can influence classroom in seating arrangements. Ethnographic evidence from Ghana and Botswana claims that seating positions in classrooms are a gendered process. Boys tend to dominate the seating, opting to sit in the back with the girls in the front. 'With limited teacher intervention, these conditions constituted the informal, hidden learning in a context of identity formation and affirmation of little or no challenge to the dominant norms. Such conditions clearly constrain the educational opportunities and future aspirations of the students' (Dunne, 2007: 243).

There has been limited research on classroom seating in Ethiopia. Most of the research and policy has focused on improving enrolment and sanitary conditions in schools. Smith (2008) conducts focus groups on challenges faced in education. Parents reported that their children had an average class size of 100, and teachers were unable to circulate in the room to correct homework or deal with disciplinary issues. Under such conditions, as this evidence suggests, a child's proximity to the front of the classroom may be even more vital. Most research on education in Ethiopia, as well as other developing countries, focuses on input variables such as government spending on education, or output variables such as enrollment or test results. However, what occurs within the confines of the classroom remains a bit of a mystery and is not

easily recorded or quantifiable. Therefore, there is little existing research that can help us understands if, how or why language may be a determinant in classroom seating position in Ethiopia. This research takes advantage of the availability of new data to begin to understand the positioning of linguistic groups in Ethiopian primary school classrooms.

RESEARCH METHODS

I. Data and Measurement of Variables

The data used for this study was part of the Young Lives project, an international study of poverty. The project follows the lives of 12,000 children over 15 years in Ethiopia, India (Andhra Pradesh), Peru and Vietnam. In each country, two groups of children are followed: 1) approximately 2,000 children born in 2001-2 and 2) approximately 1,000 children who were born in 1994-5. Through a large-scale household survey of all the children and their primary caregiver, interspersed with more in-depth interviews, group work and case studies with a sub-sample of the children, their parents, teachers and community representatives, the project collects a wealth of information not only about their material and social circumstances, but also their perspectives and aspirations, set against the environmental and social realities of their communities (Young Lives, 2011).

The data sample for this analysis is from the third wave of the Young Lives project (collected in 2009) survey results for the younger cohort (7-8 years old) in Ethiopia. The third wave has been selected, as this is the first time that a child's seating position in the classroom appears in the survey. The younger cohort has lower school dropout rates than the older cohort, thereby reducing the possibility for sample bias. The sample size for this analysis was 1,433 children. Although 1,444 children were interviewed for the study, ten observations were excluded for having missing answers pertaining to classroom seating.

The independent variable that is examined is linguistic identity. The linguistic categories are: Amhara, Hadiyigna, Oromifa, Sidamigna, Tigrigna, Welayitegna, and other. The language category of 'other' includes languages such as Afarigna, Agewigna, Guragigna, and Siltigna, which combined, only represent 4% of the children sampled. The dependent variable (or outcome) is the location that the child sits in the classroom. This categorical variable is divided into the children's self-reported seating placements in the classroom, which are given the following categories: 1) first row, 2) second row, 3) third row, 4) one of the middle rows, 5) second to last row and 6) last row.

A series of controls of child-level differences that could influence their choice of seat in a classroom have been introduced. As an indicator of low social capital, we have used the answer to the following survey question "Do you find it hard to talk to other children?" Children who responded that they 'always' have trouble have been given an indicator of 1. Children who responded 'sometimes' or 'never' have been given an indicator of 0. Secondly, an indicator of interest in learning and a positive attitude towards the classroom environment is introduced. Children were asked what they liked about being in school and the following responses were considered to be an indicator of interest in learning and the classroom environment: 1) my teachers teach me well, 2) participating in activities in class or an interactive learning environment, 3) better prospects for my future, 4) lessons are easy to understand 5) interested in studying and 6) feeling proud to be in school. Children whose responses referred to the social or facilities aspects of school were not given an indicator of having a strong engagement towards learning. Next, an indicator

to capture the child's perception of the teacher and the quality of the teaching is introduced. The children were given an opportunity to identify three aspects of school that they did not like. The following responses are marked as a indicator that the child has a negative perception of the teaching: 1) teachers beating us, 2) teacher or principal shouting at us, 3) teachers discriminate against me, 4) the teaching is poor and 5) I find it hard to understand the language that the teacher uses. It is important to note that this indicator only captures the child's perception of the teaching and is not an objective indicator of the quality of the teaching provided to the student. Finally, a control for whether or not the students chose their own seat (or it was assigned) is introduced.

Next, a series of variables to control for the child's household characteristics are also included. A variable to indicate that the child lives in a poorer household compared to the village average is introduced. The poverty level of the household is based on a perceived measure relative to other households in their village. Respondents that claimed that their household is a bit poorer than most, amongst the poorest or the poorest have been given an indicator of 1. Children who have to travel a longer time to arrive at school are given an indicator of 1. The length of time it takes the child to get to school is considered long if it takes more than 25 minutes. 25 minutes marks the 75% quartile, that is that only 25% of the students take 25 minutes or more to get to school, the rest have a much shorter travelling time. As a way to measure the importance and expectation of educational attainment in the family, caretakers that responded that they hoped the child would complete university or post secondary (including vocational) education were given an indicator of 1.

Variables to control for school or community level characteristics are not required because the seating arrangement variable is a relative measure. Seating placements are relative to other students in the classroom who share the same school (such as the curriculum) and community-level characteristics (such as urban vs. rural). The survey does ask the children if they enjoy the place where they sit. This information has to potential reveal differences between preferences and actual seating positions in the classroom. However, this question could not be included as a variable because only 2% (n=15) of the respondents admitted being unhappy with their seating position in the classroom. This could be due to genuine satisfaction or ambivalence. It could also be a cultural norm for children to not admit dissatisfaction with their circumstances.

II. Descriptive Information

Descriptive statistics indicate that linguistic identity, the independent variables of this study, could be a determinant of where children seat themselves in a classroom (the outcomes of interest). Table 1 shows that 493 children (37%) report sitting in the front row of the classroom, 202 (15%) report sitting in the second row, 180 (13.4%) report sitting in the third row, 235 (18%) report sitting in one of the middle rows, 41 (3%) report sitting in the second to last row, and 191 (14%) report sitting in the last row. Table 1 also shows that seating placement varies across language groups. For example, 43% of Welayitegna speaking children, 47% of Oromifa speaking children and 50% of Sidamigna speaking children sit in the

front row of the classroom, all higher than the sample average of 37%. Tigrigna speaking children have the highest frequency of sitting in the last row (23%) and a low frequency of sitting in the front of the classroom (33%). 31% of Hadiyigna speaking children sat in one the middle rows, the highest frequency across linguistic groups. Amhara speakers, the largest linguistic group show no extreme values.

The children's characteristics that have been included as confounding factors in seat selection also indicate a role in a child's classroom position. The descriptive results indicate a pattern of gender difference. Boys tend sit in the middle or the back rows where as girls tend to sit in the front row. 40% of the girls responded that they sit in the first row of the classroom where as 33% of the boys did so. Children who describe themselves as always finding hard to interact with other children tend to sit in the middle or the back of the classroom.

The household characteristics that have been included as confounding factors in seat selection offer additional potential determinants in a child's classroom seating arrangement. Children who live in a household that is poorer than others, have a longer travelling time to school or having a caregiver that has high educational expectations of the child only show minor deviations from the sample averages.

The descriptive results indicate that the child's characteristics may be more important than household characteristics in determining classroom positions of Ethiopian children. In particular, it appears that there is considerable variation in the classroom seating arrangements across linguistic groups. However, this can only be confirmed by controlling for confounding factors through multivariate analysis. Although these descriptive results indicate that seating arrangements vary by child and household characteristics, they cannot untangle the influence of certain characteristics from the others. Further multivariate analysis is required to understand how each individual characteristic is associated with seating placement outcomes and the level of significance (if any).

III. Multivariate Results

Table 2 shows the relative risk ratios by the child's language and the fit statistics from four multinomial logistic regression models: a baseline model, two models that control for each set of control variables separately and a full model that contains all of the explanatory variables simultaneously. Each multinomial logistic model contains 6 outcomes and uses full-information maximum likelihood. For each model, the referent outcome category is the middle rows. The omitted independent variable category for language is Amhara speaking children. The results are displayed as relative risk ratios for the predictors and are the exponentiation of the coefficients. The relative risk ratios of a coefficient indicates how the risk of the outcome falling in the comparison group compared to the risk of the outcome falling in the referent group (middle rows) changes with the variable in question. An relative risk ratio > 1 indicates that the risk of the outcome falling in the comparison group relative to the risk of the outcome falling in the referent group (middle rows) increases as the variable increases. In other words, the comparison outcome is more likely. A relative risk ratio < 1 indicates that the risk of the outcome falling in the comparison group relative to the risk of the outcome falling in the referent group decreases as the variable increases. The fit of the model is represented by -2 log likelihood statistics with lower values representing a better fit. Another measure of the models explanatory power is the Nagelkerke R^2. Although it cannot be interpreted independently or compared across datasets, the Nagelkerke R^2 values are valid and useful

in evaluating multiple models predicting the same outcome on the same dataset. The higher Nagelkerke R2 , indicate which model predicts the better outcome.

The baseline model in Table 2 indicates that Oromifa speakers are significantly more likely to sit in the front of the classroom than Amhara speakers. Hadiyigna speakers are significantly less likely to sit in second, third rows, or last rows than the middle rows when compared with Amhara speakers. Tigrigna speaking children are less likely to sit in the front rows (first, second, third) than the middle rows when compared with Amhara speaking children. Sidamigna, Welayategna, and other language-speaking children do not demonstrate any significant relationships.

Adding the block of child's characteristics in Model 2 leads to an increase in Nagelkerke R^2 although it does not improve the model fit statistics. Differences in children's characteristics, however, do little to explain the classroom placement of children of different linguistic groups. Although, the propensity of Tigrigna speakers (compared to Amhara speakers) to sit in the front row is reduced to statistical insignificance, most of the linguistic contrasts in classroom seating remain. It also amplifies the contrasts between Amhara speaking children and the Oromifa and Tigrigna speaking children. The differences between Hadiyigna and Amhara remain the same amongst the significant risk ratios.

A comparison of Model 1 and 3 shows that adding the household characteristics improves the fit statistics of the model as well as increases the Nagelkerke R^2. This model erodes the magnitude of the risk ratios for the Hadiyigna. However, the propensity for Hadiyigna speakers to sit in the third row has increased from a level of significance that is less than .05 to a level that is less than 0.1. Additionally, the propensity for Oromifa to sit in the front row, as well as the propensity for Tigrigna to not sit in the second row, is amplified in this model.

It is only in the full specification of the model that we observe a substantial attenuation of the linguistic differences that characterized the baseline model and intermediate specifications. The -2 log likelihood fit statistics show that the full model is an improvement over models 1 and 2, but not over model 3. However, the full model shows the highest the Nagelkerke R^2 values of all four models. The propensity of "other minority" language speakers as compared to Amhara speakers to sit in the second to last row is pushed into statistical significance. However, the significant difference in the propensity of the Tigrigna speaking children to not sit in the first row of the classroom, as seen in Model 1, is eroded in the full model. The level of significance of Tigrigna speaking children sit in third row is reduced but nevertheless remains significant. The differences between the Hadiyigna and Amhara continue to show significance albeit the magnitude of the risk ratio is slightly reduced. Finally, the propensity of the Oromifa to sit in the first row of the classroom is magnified in the full model.

Table 3 shows the final model with the full set of relative risk ratios for all covariates. The only control characteristic that has achieved statistical significance is gender. Girls have a significantly higher propensity than boys to sit in the first row of the classroom. The interaction between gender and linguistic groups was also included in an alternative version of a full-specification model however the interaction was not significant nor did it improve the explanatory power of the model. The results of this alternative model are not included here but are available upon request.

IV. Limitations

This analysis has several limitations that must be carefully considered. First, since the responses on which row a child sits in are not reported with regular intervals, they cannot be used as ordinal categories. As a pragmatic solution, the ordinal aspects of the dependent variable, the classroom seating, are ignored and the variable is treated as a categorical variable. Furthermore, this paper will not be able to take advantage of the longitudinal nature of the study because Wave III is the first time seating arrangements appear on the questionnaire. Therefore the results cannot be applied to children of other ages. There is also no ability to understand if these seating arrangements change over time. Also, there also may be confounding factors in classroom seating that the survey does not capture and therefore cannot be controlled for when testing the model. For example, the model cannot control for the influence of other students in the classroom (friend, rivals, and bullies) in a child's seating placement, whether or not the language of instruction in the child's language, the language of the classroom materials such as textbooks, or the overall classroom size. Finally, as the child self-reports his or her seating placement, there is the possibility that they may be inaccurate and opens the possibility for measurement error in the dependent variable.

DISCUSSION AND CONCLUSION

This analysis focused on where young students of different native languages in Ethiopia sit in their school classroom. The descriptive results showed that Welayitegna speaking children, Oromifa speaking children and Sidamigna speaking children display higher frequencies of sitting in the front row of the classroom than other language groups. Tigrigna speaking children have the highest frequency of sitting in the last row and a low frequency of sitting in the front of the classroom. Hadiyigna speaking children sat in one the middle rows, the highest frequency across all linguistic groups. Amhara speakers, the largest linguistic group, do not show evidence of any differentiating seating trends.

The multivariate results found evidence that the native language of the student does play a role in where he or she sits in a classroom even when controlling for other covariates. The control characteristics included the student's gender, the student's social ability the student's interest in learning, the student's perception of the teacher, as well as the child's ability to choose his or her own classroom seat position. A further set of household level controls were included to adjust for differences in household income, distance of the household from the school and the expectations at home for the child's high educational attainment.

The multivariate results indicate that the native language of the child can be a significant determinant of classroom seating. Hadiyigna speaking children were found to significantly sit in the middle rows rather than the second or third rows, as well as the second to last row of the classroom. Tigrigna speaking children were also found to significantly sit in the middle rows rather than the second and third row. Oromifa speaking children were significantly associated with sitting in the first row. All results used Amhara, the predominant language in Ethiopia, speaking children as the referent category. Other minority language speaking children, which is a composite category of Afarigna, Agewigna, Guragigna, Siltigna speakers, was significantly associated with sitting in the second to last row of the classroom. There was no evidence, however, of a significant relationship between Sidamigna or Welayitegna speakers and classroom seating. To summarize, these findings indicate that there is significant variation in the seating

arrangements amongst young school aged children of different native languages in Ethiopia. Minority language speakers (with the exception of Oromifa speaking students) tend to sit away from the front of the classroom when compared to the majority, Amharic speakers.

These findings confirm that there may be systematic barriers to some linguistic minorities converting educational resources into the 'capabilities' that Sen (1992) describes as essential for an individual to fulfil their potential. The results directly challenge claims that seating placement is indicates the 'self-selection' of individuals into positions, which indicate their value towards learning and the teacher. Even, after controlling for the child's attitude towards learning, their feeling towards the teaching, and parental expectations for educational attainment, there is still evidence that language has a patterning effect on classroom seating.

On the other hand, these findings cannot go as far as to disprove or confirm the rival claims that classroom seating is an 'environmental' factor since examining the influence on the educational outcomes goes beyond the scope of the research question. These results are merely a first step in uncovering systematic patterns in the classroom that challenge the equal conversion of educational resources across Ethiopian linguistic speakers. As mentioned previously, research into classroom seating in the development context is in a nascent stage. Further research will be necessary to confirm the findings of this research and explore the mechanisms, which may be causing this patterning effect. This would likely involve exploring the how seating placement might explain different patterns of educational outcomes across linguistic speakers. These further topics should be explored as a way understanding linguistic exclusion and taking actions to avoid any conditioned marginalisation of linguistic speakers in Ethiopian classrooms.

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APPENDIX

Table 1. Descriptive Characteristics by Classroom Row

		First	Second	Third	Middle	Second to last	Last	Total
Dependent Variable								
Child's Language	Amhara	33%	18%	16%	16%	3%	13%	675
	Hadiyigna	43%	8%	11%	31%	1%	6%	72
	Sidamigna	50%	13%	22%	6%	3%	6%	32
	Oromifa	47%	16%	16%	10%	2%	9%	194
	Tigrigna	33%	10%	8%	23%	3%	23%	352
	Welayitegna	43%	20%	12%	18%	2%	6%	51
	Other minority	40%	19%	12%	11%	5%	12%	57
Child Characteristics								
Gender	Male	33%	16%	13%	19%	3%	16%	739
	Female	40%	15%	14%	15%	3%	13%	694
Difficulty socializing								
	Yes	32%	16%	17%	15%	4%	15%	185
Interested in learning								
	Yes	38%	15%	13%	17%	3%	14%	961
Negative perception of teaching								
	Yes	40%	14%	12%	16%	4%	16%	103
Chooses seat himself/herself								
	Yes	41%	15%	12%	16%	3%	12%	594
Household Characteristics								
Household poor								
	Yes	37%	17%	12%	18%	3%	13%	457
Long travel to school								
	Yes	39%	15%	13%	14%	4%	14%	328
High attainment expectations								
	Yes	36%	16%	14%	17%	3%	14%	1205
Total		**40%**	**14%**	**12%**	**16%**	**4%**	**16%**	**1433**

Table 2. Relative Risk Ratios (95% Confidence Intervals)

Classroom Row	First vs. middle	Second vs. middle	Third vs. middle	Second to last vs. middle	Last vs. middle
1. Baseline					
Child's Language (vs. Amhara)					
Hadiyigna	0.66 (0.37, 1.2)	0.24** (0.09, 0.61)	0.35* (0.15, 0.82)	0.22 (0.03, 1.71)	0.21** (0.07, 0.64)
Oromifa	2.28** (1.32, 3.93)	1.43 (0.76, 2.68)	1.57 (0.84, 2.95)	1.01 (0.31, 3.27)	1.04 (0.51, 2.12)
Sidamigna	3.77 (0.85, 16.69)	1.75 (0.31, 9.76)	3.37 (0.69, 16.6)	2.41 (0.21, 27.75)	1.16 (0.16, 8.44)
Tigrigna	0.67* (0.47, 0.97)	0.38*** (0.24, 0.62)	0.32*** (0.19, 0.53)	0.53 (0.23, 1.21)	1.15 (0.76, 1.74)
Welayitegna	1.15 (0.51, 2.59)	0.97 (0.38, 2.49)	0.64 (0.22, 1.87)	0.54 (0.06, 4.44)	0.39 (0.1, 1.48)
Other minority	1.81 (0.71, 4.57)	1.61 (0.57, 4.49)	1.12 (0.37, 3.45)	2.41 (0.56, 10.37)	1.36 (0.44, 4.19)
Constant	0.75	0.13	0.04	-1.57	-0.15
-2 Log Likelihood	149.5				
Nagelkerke R^2	7.2%				
N	1433				
2. Controls for Child's Characteristics					
Child's Language (vs. Amhara)					
Hadiyigna	0.66 (0.36, 1.2)	0.24** (0.09, 0.62)	0.35* (0.15, 0.84)	0.23 (0.03, 1.77)	0.21** (0.07, 0.62)
Oromifa	2.34** (1.35, 4.05)	1.46 (0.77, 2.74)	1.6 (0.85, 3.02)	1.08 (0.33, 3.53)	1.05 (0.51, 2.15)
Sidamigna	3.7 (0.83, 16.46)	1.83 (0.33, 10.23)	3.73 (0.75, 18.51)	2.74 (0.24, 31.96)	1.26 (0.17, 9.17)
Tigrigna	0.7 (0.48, 1.01)	0.39*** (0.24, 0.63)	0.32*** (0.19, 0.53)	0.54 (0.23, 1.25)	1.14 (0.75, 1.74)
Welayitegna	1.11 (0.49, 2.51)	0.97 (0.38, 2.49)	0.64 (0.22, 1.88)	0.57 (0.07, 4.81)	0.38 (0.1, 1.46)
Other minority	1.77 (0.7, 4.52)	1.68 (0.6, 4.73)	1.27 (0.41, 3.93)	2.75 (0.63, 12.1)	1.45 (0.47, 4.49)
Constant	-0.09	-0.05	-0.33	-1.96	-0.14
-2 Log Likelihood	580.6				
Nagelkerke R^2	9.1%				
N	1433				
3. Controls for Household Characteristics					
Child's Language (vs. Amhara)					
Hadiyigna	0.62 (0.34, 1.14)	0.23** (0.09, 0.59)	0.32** (0.14, 0.76)	0.18 (0.02, 1.45)	0.2** (0.07, 0.61)
Oromifa	2.29** (1.32, 3.98)	1.53 (0.81, 2.89)	1.53 (0.8, 2.93)	1.03 (0.32, 3.36)	0.98 (0.47, 2.04)
Sidamigna	3.57 (0.8, 15.93)	1.27 (0.21, 7.83)	2.98 (0.6, 14.82)	2.01 (0.17, 23.62)	1.03 (0.14, 7.53)
Tigrigna	0.67 (0.46, 0.98)	0.39*** (0.24, 0.63)	0.32*** (0.19, 0.54)	0.5 (0.22, 1.14)	1.16 (0.76, 1.77)
Welayitegna	1.31 (0.56, 3.05)	0.89 (0.32, 2.45)	0.36 (0.09, 1.42)	0.57 (0.07, 4.77)	0.3 (0.06, 1.44)
Other minority	3.98 (0.49, 32.3)	3.98 (0.44, 35.91)	1.73 (0.15, 20)	10.01 (0.92, 109.15)	0.95 (0.06, 15.88)
Constant	0.52	-0.29	-0.33	-2.20	-0.21
-2 Log Likelihood	1.2				

Nagelkerke R^2	9.1%				
N	1433				
4. Full Model					
Child's Language (vs. Amhara)					
Hadiyigna	0.61 (0.33, 1.12)	0.23** (0.09, 0.59)	0.32** (0.13, 0.76)	0.19 (0.02, 1.5)	0.19** (0.06, 0.58)
Oromifa	2.36** (1.35, 4.13)	1.55 (0.81, 2.94)	1.58 (0.82, 3.04)	1.11 (0.34, 3.64)	0.98 (0.47, 2.05)
Sidamigna	3.5 (0.78, 15.72)	1.32 (0.21, 8.17)	3.36 (0.67, 16.82)	2.31 (0.19, 27.39)	1.1 (0.15, 8.06)
Tigrigna	0.7 (0.48, 1.02)	0.39** (0.24, 0.64)	0.32** (0.19, 0.54)	0.51 (0.22, 1.18)	1.14 (0.74, 1.76)
Welayitegna	1.23 (0.52, 2.88)	0.85 (0.31, 2.38)	0.36 (0.09, 1.4)	0.59 (0.07, 5.05)	0.28 (0.06, 1.37)
Other minority	3.97 (0.49, 32.43)	4.15 (0.46, 37.59)	1.97 (0.17, 22.89)	11.84* (1.07, 131.4)	0.98 (0.06, 16.38)
Constant	-0.36	-0.63	-0.72	-2.67	-0.36
-2 Log Likelihood	2.2				
Nagelkerke R^2	11.0%				
N	1433				

* P<0.05,
**p<0.01,
***p<0.001

Table 3. Multinomial logistic model of classroom row: relative risk ratios (95% confidence intervals)

Classroom Row	First vs. middle	Second vs. middle	Third vs. middle	Second to last vs. middle	Last vs. middle
Child's Language (vs. Amhara)					
Hadiyigna	0.61 (0.33, 1.12)	0.23** (0.09, 0.59)	0.32** (0.13, 0.76)	0.19 (0.02, 1.5)	0.19** (0.06, 0.58)
Oromifa	2.36** (1.35, 4.13)	1.55 (0.81, 2.94)	1.58 (0.82, 3.04)	1.11 (0.34, 3.64)	0.98 (0.47, 2.05)
Sidamigna	3.5 (0.78, 15.72)	1.32 (0.21, 8.17)	3.36 (0.67, 16.82)	2.31 (0.19, 27.39)	1.1 (0.15, 8.06)
Tigrigna	0.7 (0.48, 1.02)	0.39** (0.24, 0.64)	0.32** (0.19, 0.54)	0.51 (0.22, 1.18)	1.14 (0.74, 1.76)
Welayitegna	1.23 (0.52, 2.88)	0.85 (0.31, 2.38)	0.36 (0.09, 1.4)	0.59 (0.07, 5.05)	0.28 (0.06, 1.37)
Other minority	3.97 (0.49, 32.43)	4.15 (0.46, 37.59)	1.97 (0.17, 22.89)	11.84* (1.07, 131.4)	0.98 (0.06, 16.38)
Child Characteristics					
Female	1.55** (1.13, 2.14)	1.26 (0.85, 1.85)	1.38 (0.92, 2.05)	1.19 (0.6, 2.33)	1.18 (0.8, 1.74)
Difficulty socializing	1.04 (0.64, 1.7)	1.14 (0.64, 2.03)	1.5 (0.85, 2.65)	1.9 (0.78, 4.63)	1.02 (0.57, 1.83)
Interested in learning	1.09 (0.77, 1.53)	0.97 (0.64, 1.46)	0.87 (0.57, 1.33)	1.02 (0.5, 2.09)	0.95 (0.63, 1.44)
Negative perception of teaching	1.49 (0.8, 2.8)	1.25 (0.58, 2.7)	1.24 (0.56, 2.78)	1.86 (0.66, 5.21)	1.41 (0.66, 3)
Chooses seat himself/herself	1.3 (0.94, 1.8)	0.95 (0.64, 1.41)	0.78 (0.51, 1.18)	0.97 (0.49, 1.95)	0.84 (0.56, 1.26)

Household Characteristics					
Household poor	1.01 (0.72, 1.42)	1.12 (0.74, 1.68)	0.86 (0.55, 1.32)	1.18 (0.58, 2.39)	0.78 (0.51, 1.19)
Long travel to school	1.32 (0.89, 1.95)	1.29 (0.8, 2.07)	1.3 (0.8, 2.12)	1.78 (0.82, 3.89)	1.37 (0.85, 2.19)
High attainment expectations	1.23 (0.79, 1.92)	1.46 (0.84, 2.54)	1.55 (0.86, 2.78)	1.86 (0.66, 5.21)	1.06 (0.63, 1.81)
Constant	-0.36	-0.63	-0.72	-2.67	-0.36
-2 Log Likelihood	2.2				
Nagelkerke R2	11.0%				
N	*1433*				

* P<0.05,
**p<0.01,
***p<0.001