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Linguistically and culturally responsive classroom practices and teacher professional training

Abstract

This article examines the relationship between Finnish teachers' participation in professional training on teaching the school language as an additional language and culturally responsive education, and the implementation of linguistically and culturally responsive classroom practices. The study further explores how these practices vary across different teaching positions, including class teachers, subject teachers, and special education teachers. Additionally, the article assesses the impact of teachers' background factors—such as prior experience with linguistically and culturally diverse students (LCDS) and the proportion of LCDS in their schools—on the relationship between training and classroom practices. The primary aim of this article is to evaluate whether professional training enables teachers to effectively address increasing classroom diversity, and to identify strategies for enhancing teacher preparation to better support LCDS. The study used survey data from 820 schoolteachers, with the sample size ranging from 557 to 567 teachers across Finnish municipalities. Logistic regression with average marginal effects was employed to estimate the likelihood of teachers adopting linguistically and culturally responsive teaching practices. The findings show a positive relationship between training and the implementation of these practices, with an even stronger effect among teachers who received training in both school language as an additional language and culturally responsive education. The adoption of such practices also varied according to the teachers' position, with different positions influencing the likelihood of employing these methods. This study highlights the importance of comprehensive teacher training programs that are tailored to the specific roles and responsibilities of educators, regardless of their experience or the number of LCDS they teach.

Keywords: diverse students, learning additional languages, linguistically and culturally responsive teaching, teachers' professional development

Språkligt och kulturellt lyhörda klassrumspraktiker och lärarprofessionell fortbildning

Sammanfattning

Den här artikeln analyserade finländska lärares deltagande i utbildning för att lära sig ytterligare språk och kulturellt responsiv utbildning, och undersökte dess samband med implementeringen av språkligt och kulturellt lyhörda klassrumsmetoder. Dessutom undersökte den sambandet mellan dessa metoder och lärares yrkesroller, samt påverkan av bakgrundsfaktorer som tidigare erfarenhet av språkliga och kulturellt mångfaldiga elever (LCDS) och andelen LCDS i deras skolor på förhållandet mellan utbildning och klassrumsövningar. Det primära syftet med den här artikeln var att utvärdera om ytterligare yrkesutbildning utrustar lärare för att skickligt navigera i den ökande mångfalden i klassrum och att lyfta fram förbättrade tillvägagångssätt för att stärka lärare genom utbildning för att erbjuda bättre stöd för LCDS samtidigt som de analyserar hur deras bakgrund påverkar deras utbildning och klassrumsmetoder. Med hjälp av tvärsnittsdata från 820 lärare i alla finska kommuner användes logistisk regression med genomsnittliga marginaleffekter för att uppskatta sannolikheten för att anta lyhörda undervisningsmetoder. Resultaten visade att lärare som deltog i utbildning för både att lära sig ytterligare språk och kulturellt lyhörd utbildning var mer benägna att använda dessa tekniker jämfört med de utan sådan utbildning. Det fanns också ett samband mellan yrkesstatus och rapporterad praxis. Den här studien understryker den avgörande betydelsen av holistiska lärarutbildningsprogram som tillgodoser utbildares specifika roller och ansvar, oavsett deras erfarenhet eller antalet LCDS de instruerar.

Nyckelord: olika elever, lärares professionella utveckling, lära sig ytterligare språk, språkligt och kulturellt lyhörd undervisning

Introduction

The population of students with immigrant backgrounds is increasing in the Global North, and many of them speak the language of instruction as a second language and come from diverse cultural backgrounds (OECD, 2018; UNHCR, 2019, 2021). In Finland, the proportion of students in comprehensive schools whose primary languages are not Finnish or Swedish more than doubled between 2010 and 2018, rising from 3.2 % to 6.8 % (Vipunen, 2020). Despite Finland's education system being internationally acclaimed for its success, national evaluations (Ukkola & Metsämuuronen, 2023) and PISA results from recent years (e.g. Pulkkinen et al., 2024) have shown that students with immigrant backgrounds are falling behind their native peers, with the achievement gap remaining largely unchanged between first- and second-generation immigrant students (Pulkkinen et al., 2024). The downward trajectory in PISA scores, although concerning, still places Finland's students ahead of many other countries, reflecting the strength of the Finnish education system compared to international standards. Nevertheless, these students often face difficulties in language-based subjects, such as language arts, science, and mathematics, as their

proficiency in the language of instruction is still developing, which hinders their ability to fully engage with and understand the subject matter (Kaukko et al., 2022). As a result, they typically seek support from teachers, tutors, and peers (Kaukko et al., 2022). To address these challenges, Finland's national curriculum for basic education mandates that all teachers be linguistically and culturally responsive, ensuring that language is integrated into the teaching of all subjects and that cultural diversity is recognized as an asset to help all students succeed academically (National Agency of Education, 2014).

Linguistically and culturally responsive teaching is an educational approach that integrates students' linguistic and cultural backgrounds into the teaching and learning process aiming to provide more equal learning opportunities for all students (Gay, 2010; Ladson-Billings, 1995; Lucas & Villegas, 2011, 2013). To effectively support linguistically and culturally diverse students (LCDS) in mastering content across all subjects, teachers must develop specific skills and expertise (Lucas & Villegas, 2013; Lucas et al., 2008; Werner et al., 2016). Therefore, teacher education programs must prioritize teaching linguistically and culturally responsive practices. However, there is a global shortage of consistent teacher training in these areas, and this issue is also evident in Finland, where teachers remain inadequately prepared to address the needs of students from diverse backgrounds (Aalto, 2019; Alisaari et al., 2019; Banjeree & Luckner, 2014; Harju-Autti & Sinkkonen, 2020; Michel & Kuiken, 2014; O'Neal et al., 2008; Reeves, 2006; Rodriguez et al., 2010; Slot et al., 2019; Villegas, 2018).

This study aims to explore the effectiveness of professional teacher training in preparing educators to implement linguistically and culturally responsive practices in the classroom. The primary goal is to contribute to the global teaching community by assessing the impact of teacher training on these practices and identifying potential improvements to enhance professional development in this area. Identifying effective strategies for educating teachers to address the diverse backgrounds of students is crucial for ensuring equitable access to learning opportunities and improving academic outcomes for all. Research has shown that teachers' pedagogical practices significantly influence student learning outcomes (Ulferts, 2019). Therefore, providing teachers with professional development in how to teach school language as an additional language and in culturally responsive education could enhance their ability to support linguistically and culturally diverse students.

Theoretical background and country context

This section reviews the concepts of linguistically and culturally responsive teaching, teachers' professional competencies, and the role of teachers' backgrounds in supporting diverse learners. It also provides an overview of the Finnish education system and its approach to teaching multilingual students.

Linguistically and Culturally Responsive Teaching

Linguistically and culturally responsive teaching is a practice in which teachers acknowledge and value students' linguistic and cultural backgrounds, understand the language demands of classroom content and the processes of learning additional languages, and apply this knowledge to support students' learning (Adger et al., 2018; Gay, 2010; Ladson-Billings, 1995; Lucas & Villegas, 2010, 2011, 2013; Walqui, 2006). This approach recognizes that language learning is deeply interconnected with students' home cultures, experiences, and skills (Gay, 2010; Richards et al., 2007). By integrating academic knowledge and skills with students' real-life experiences and cultural perspectives, linguistically and culturally responsive teaching makes learning more meaningful, engaging, and effective.

At its core, culturally responsive teaching incorporates students' cultures into classroom practices to improve learning outcomes (Ladson-Billings, 1995). This inclusive approach fosters a sense of acknowledgement and empowerment among linguistically and culturally diverse students (LCDS), enabling them to engage more effectively with the language of instruction. Its ultimate goal is to bridge the gap between students' homes and schools, creating pathways for academic success and helping students reach their full potential (Ladson-Billings, 1995).

An essential part of linguistically and culturally responsive teaching is incorporating students' first languages¹ in learning processes at school. This can further increase students' confidence and sense of belonging (Tharp et al., 2000) while enhancing participation and academic development for all learners (Bosma et al., 2022; Cummins, 2007;). Activities that integrate students' home languages and cultural references—such as opportunities for meaning-making in their home languages—play a crucial role in supporting their learning (Bosma et al., 2022; Calderon et al., 2011; Cummins, 2007; Lucas & Villegas, 2010; National Agency of Education, 2014). Moreover, acknowledging and embracing diversity positively impacts students' educational outcomes, especially for those at risk of marginalization (Dee & Penner, 2017).

Teachers who practice linguistically and culturally responsive approaches must develop various skills, for instance language awareness to effectively support their students. According to Lucas and Villegas (2013), understanding the role of language in learning is fundamental for educators. Teachers must, therefore, understand students' language needs to simultaneously help them learn subject content and the language of instruction (Lucas et al., 2008). To achieve this, educators must focus on practical aspects of language, such as subject-specific vocabulary and grammar, as well as factors that affect the complexity of texts and students' ability to comprehend them (Adger et al., 2018). Linguistically responsive teaching equips teachers with strategies for delivering subject matter effectively (Lucas & Villegas, 2013), enabling them to be sensitive to their

¹ We use *first language* to describe the languages children may have learned first, often assuming that children of immigrants initially acquire a language other than the dominant societal language.

students' linguistic needs. This sensitivity allows teachers to provide customized assistance and better address the struggles of students learning in a second language (Hammond & Gibbons, 2005).

One important aspect of linguistically and culturally responsive teaching pertains to how teachers can support their students' simultaneous learning of academic content and language skills. Such support is commonly referred to as linguistic scaffolding, which involves providing temporary and tailored assistance to help students navigate and master both linguistic and cognitive challenges (Hammond & Gibbons, 2005; Lucas & Villegas, 2011; Walqui, 2006). Linguistic scaffolding may include a range of strategies, such as pre-planned practices that consider students' prior knowledge, including their home culture and experiences in their home language, as well as spontaneous approaches that arise during real-time interactions. Examples of these strategies are underlining texts, explaining key concepts in both oral and written forms, using visuals like graphics and figures to convey ideas, and integrating vocabulary and summaries. To enhance LCDS' comprehension of a text, linguistic scaffolding may also involve modeling, rephrasing, and modifying language (Hammond & Gibbons, 2005; Lucas & Villagas, 2011;). Furthermore, hands-on activities, such as exhibitions, tactile exercises, demonstrations, plays, dramas, and group projects, can support students' understanding of content and serve as assessment tools (Walqui, 2006). These approaches are essential in fostering a supportive environment where students feel empowered to engage fully with the curriculum while developing their linguistic abilities.

Teachers' professional needs and competences

Educators should possess a strong awareness of language and a comprehensive understanding of the linguistic and cultural diversity in their classrooms (Ladson-Billings, 1995; Tharp et al., 2000). Subject teachers should also function as language instructors in their classrooms; thus, all teachers need a fundamental understanding of language teaching and language-learning methods (Aalto, 2019; National Agency of Education, 2014). However, teachers often lack the requisite skills to effectively cater to the growing diversity in schools (Aalto, 2019; Alisaari & Heikkola, 2020; Heikkola et al., 2022b; Iversen, 2021). Therefore, it is essential to identify teachers' professional needs and provide training to enhance their skills and competencies.

Although many teachers are aware of the challenges associated with improving the educational achievement of children from immigrant backgrounds and hold positive attitudes toward diversity, this awareness and attitude do not always translate into successful educational support (Erling et al., 2022; Harju-Autti & Sinkkonen, 2020; Lorenz et al., 2021; Postholm, 2018). While studies show that Finnish teachers generally have positive attitudes toward cultural diversity and are aware of students' language needs, these factors alone do not guarantee effective classroom practices (Harju-Autti & Sinkkonen, 2020;

Kimmanen et al., 2019; Vigren et al., 2022). Successful educational support requires a deeper integration of this awareness into pedagogical strategies. Teachers who understand the specific language needs of their students and who are aware of linguistically and culturally responsive approaches are more likely to translate that knowledge into effective classroom practices (Heikkola et al., 2022a). However, it is not just awareness, but the ability to apply that understanding within diverse classroom settings that leads to success. Therefore, while positive attitudes and awareness form a foundation, they must be actively implemented through well-supported, linguistically and culturally responsive practices for optimal educational outcomes (Heikkola et al., 2022b).

Teachers' awareness must be effectively translated into pedagogical practice through professional training that deepens teachers' understanding of cultural diversity and language needs. Research indicates that such training not only improves teachers' comprehension of students' identities and language requirements but also equips them with enhanced skills to support learning through the language of instruction (Alisaari et al., 2019; Cummins, 2007; Kimanen et al., 2019). Moreover, it enables teachers to reflect on their teaching methods, better address students' language needs, and implement strategies that foster a more inclusive learning environment (Egert et al., 2018; Heikkola et al., 2022b; Kirsch & Aleksic, 2018). By empowering teachers to integrate inclusivity into their practices, such training not only benefits students but also contributes to the creation of a more linguistically and culturally responsive educational system. This highlights the pivotal role of teacher professional development in bridging the gap between awareness and practical application.

Teachers' background

Teachers' backgrounds play a crucial role in shaping their approaches to teaching, particularly in classrooms with culturally and linguistically diverse students (LCDS). These backgrounds, including professional experience and exposure to diverse learning environments, can significantly influence how teachers engage with students, manage classroom dynamics, and implement effective teaching strategies. Teachers with more experience in diverse settings often demonstrate a stronger sense of responsibility toward their LCDS, feeling more confident in adapting their methods to meet the unique needs of these students. For example, teachers with greater experience working with multilingual students have reported experiencing increased joy when teaching larger groups of these learners (Alisaari et al., 2022). This suggests that experience with diverse student populations may enhance a teacher's motivation and capacity to provide a supportive learning environment.

Similarly, teachers with more experience tend to utilize their knowledge and skills more effectively than those with less experience (Basturkmen, 2012), highlighting the value of professional growth in improving classroom practices. Teachers who encounter more LCDS are often motivated to seek training in

culturally responsive education and develop skills in teaching the school language as an additional language to better meet their students' needs. This increased exposure to diverse learners can drive teachers to pursue further professional development, even if they have not received formal training in these areas. The prevalence of LCDS in a school, combined with a teacher's personal experience, can encourage the use of linguistically and culturally responsive practices, fostering a more inclusive learning environment.

However, experience alone does not automatically lead to higher achievement or improved teaching practices. While experience can shape how teachers approach diverse students, it is important to recognize that other factors, such as professional development, support structures, and reflective teaching practices, also contribute to competence. Research suggests that competence development involves a combination of experience, training, and ongoing learning (Ericsson, 2006; Heikkola et al., 2022a). In conclusion, while experience with diverse students is important for fostering inclusive teaching practices, it must be complemented by continuous professional development and other factors to ensure teachers' effectiveness in diverse classrooms.

Teachers in the Finnish education system

In the Finnish education system, one class teacher teaches all or most subjects in primary school (grades 1–6). Thereafter, subject teachers teach different subjects in lower and upper secondary school (grades 7–9). Although special education teachers usually provide educational assistance for students with special needs, such as reading and learning difficulties (Takala et al., 2009), in many schools, special education teachers work with multilingual students (OwalGroup, 2021), and schools in Finland usually have at least one special education teacher. Teachers have different functions depending on their position and responsibilities; thus, trainings vary, leading to different levels of knowledge, which can affect teachers' abilities to deliver linguistically and culturally responsive classes. In general, class teachers have a master's degree in education, whereas subject teachers have a master's degree in the subject they teach together with extensive pedagogical training.

The varying levels of training and professional focus across teacher positions have significant implications for how educators address linguistic and cultural diversity in classrooms. Specifically, teachers' positions and responsibilities influence their approaches to these issues; those with more experience in individual and small-group interactions with students, such as school counselors, special education teachers, Finnish-as-a-second-language teachers, and class teachers in primary school classes, tend to prioritize the affirmation of diverse identities more than subject-specific teachers (Kimanen et al., 2019). This variation suggests that the extent to which teachers practice the linguistically and culturally responsive teaching may often be tied to their professional position categories and assigned responsibilities. In the Finnish context, this connection is

particularly prominent, given the clearly delineated positions and responsibilities within the teaching workforce.

The present study

This study investigates the professional development needed to equip teachers with the skills to implement linguistically and culturally responsive practices. Specifically, it explores how teacher training influences the adoption of such practices in the classroom. Additionally, the study examines whether a teacher's professional position is associated with their use of linguistically and culturally responsive teaching methods. Furthermore, it considers how factors such as a teacher's position, experience working with LCDS, and the percentage of LCDS in their school may shape their training choices and application of learned strategies. For instance, teachers in different roles may have distinct training needs or implement responsive practices differently. Those with greater experience teaching LCDS might already incorporate these methods, even without additional training. Similarly, educators in schools with a higher percentage of LCDS may be more inclined to seek relevant professional development opportunities. By accounting for these factors, this study aims to isolate the true impact of training on teaching practices, ensuring that observed effects are not merely the result of pre-existing experience or school demographics. Accordingly, the research is guided by the following questions:

1. Does Finnish teacher training in teaching the school language as an additional language and in culturally responsive education affect teachers' implementation of linguistically and culturally responsive practices in the classroom?
2. Is there a relationship between a teacher's position and their reported use of linguistically and culturally responsive practices?
3. Do factors such as teacher roles, experience in teaching LCDS, or the percentage of LCDS in a school explain the relationship between teacher training and teachers' use of linguistically and culturally responsive practices?

Data and methods

The data were collected through an online survey of 820 schoolteachers in all municipalities in Finland in 2016. The purpose of the survey was to obtain teachers' views on LCDS and the use of linguistically and culturally responsive teaching practices. The questionnaires were based on Lucas and Villegas' (2011, 2013) theory of linguistically responsive teaching and Gay's (2010) and Ladson-Billings' (1995) culturally responsive theories. The survey consisted of Likert-

scale questions, categorical questions, and open-ended questions. This study analyzed only the Likert-scale and categorical questions.

Participants

The participants in this study included class teachers, subject teachers, and special education teachers. The study primarily focused on teachers who were actively involved in instructing LCDS. To maintain precision and relevance, principals, counsellors, and other education professionals were deliberately excluded, resulting in the omission of 116 participants from the initial pool of 820 teachers (of whom 812 reported their position). Consequently, the sample size was reduced to 696 teachers. The sample size was further reduced due to incomplete responses from participants, with the extent of missing responses varying across different questions. This resulted in an overall sample size ranging from 550 to 567 teachers across the different dependent variables (i.e., the measured outcomes of the study). Nevertheless, the sample was quite similar in terms of independent and control variables (e.g., the teacher characteristics) across the different dependent variables, and none of the individual variables showed a notably different distribution when comparing the complete cases and the analyzed samples (see Table 2).

Furthermore, a cross-tabulation analysis of missing responses for the five practices was conducted on the full dataset, revealing some distinct non-response patterns. Missing responses were more common among teachers with five years or less experience with LCDS, those with no training, and those working in schools where LCDS made up less than 1% of the student population. In contrast, a separate cross-tabulation analysis of missing teacher background data among respondents with complete practice responses showed a random pattern of missingness. These findings suggest a potential response bias in reported practices, with more experienced and trained teachers being overrepresented in the sample, which may influence the interpretation of results.

Dependent variables

We analyzed five indicators of reported pedagogical classroom practices, treating each as a distinct dependent variable. In this study, dependent variables represent the outcomes being measured to evaluate the impact of teacher training and teacher position. These indicators are based on the concept of linguistic scaffolding, as discussed in the Linguistically and Culturally Responsive Teaching section. The indicators reflect the following linguistically and culturally responsive practices: a) assessing LCDS through hands-on activities; b) highlighting key textual information (i.e., main ideas, concepts, vocabulary, or summaries); c) modifying difficult texts to enhance readability for students; d) discussing topics relevant to LCDS' home cultures; and e) utilizing online bilingual dictionaries and picture search tools to discover word meanings. Drawing a clear distinction between what constitutes linguistically, or culturally

responsive teaching practices can be challenging; therefore, we considered all indicated practices to reflect both linguistically and culturally responsive approaches.

In the survey, teachers were asked how frequently they implemented the listed linguistically and culturally responsive practices during a typical week, with response options categorized as “never,” “once,” “two to three times,” and “four or more times.” To align with the study’s goal of examining the presence, rather than the frequency, of these practices, the ordinal data was collapsed into a binary measure. The “never” category was retained, while the other responses were combined into a “yes” category. This simplification made the data more directly relevant to the research question. As a result, all five dependent variables in this analysis are binary. As a sensitivity check, the original categories were also analyzed using ordered logistic regression models with the results aligning with those presented here.

The proportion of teachers using each of the different practices can be seen in Table 2. The least popular practices (assessing through hands-on activities and highlighting key texts) were used on a weekly basis by approximately 56% of teachers, whereas the most popular practice (using online bilingual dictionaries/picture search tools) was used by almost 73% of teachers. To further highlight the use of different practices, Table 1 presents the distribution of teachers in terms of the number of different practices that they report using on a weekly basis. Almost a third of teachers employed all five teaching practices, with two-thirds utilizing at least four, suggesting a strong tendency towards the adoption of multiple teaching strategies. However, approximately 10% of teachers reported using none of the five practices and a further 13% used only one practice, indicating that a notable group of teachers are not fully engaging with the available strategies.

Table1: Distribution of Teachers by Number of Linguistically and Culturally Responsive Teaching Practices Used

Number	Frequency Percentage	
	0	57
1	72	12.7
2	79	13.9
3	95	16.8
4	79	13.9
5	184	32.5
Total	566	100%

Note. The sample for this table consists of teachers who had valid responses across all variables used in this study (n = 566).

Independent variables

We examine the direct relationship between teachers' training and the linguistically and culturally responsive teaching. We also investigate the direct relationship between teachers' position and linguistically and culturally responsive teaching. As a result, teachers' training and teachers' position are the main independent variables.

Regarding the first independent variable—teachers' training—participants were asked a question on whether they had received any training related to teaching the school language as an additional language, with the respondent being able to choose from the following eleven options: 1) *I participated in Finnish-as-a-second-language studies at a university*; 2) *I participated in Finnish-as-a-second-language studies at an open university*; 3) *I received in-service training regarding Finnish-as-a-second-language*; 4) *I studied Finnish at a university in my home country*; 5) *I took courses that had Learning in a second language as a topic*; 6) *I participated in culturally responsive education at a university*; 7) *I participated in culturally responsive education at an open university*; 8) *I received in-service training regarding culturally responsive education*; 9) *I participated in courses that had culturally responsive education as a topic*; 10) *I have not studied issues related to learning in a second language*; 11) *I have not studied issues related to culturally responsive education*.

All training related to teaching the school language as an additional language, regardless of the institution (including universities outside Finland) (i.e., response options 1–5), was categorized into a single variable, “L2 training”, with response option 10 being categorized as not having received such training. Similarly, culturally responsive education², whether obtained through in-service training or from an institution (response options 6–9), was grouped into the variable “culturally responsive education”, with those who chose option 11 being categorized as not having received such training.

Since respondents could have received one or both types of training, or neither, a new variable “training” was created by combining L2 training and culturally responsive education. This variable is categorized into four groups: “only L2,” “only culturally responsive,” “both trainings,” and “neither training”. Table 2 below illustrates the percentage distribution of training across different dependent variables.

The second independent variable, teachers' position, was analyzed for its impact on the reported classroom practices. Based on responses to the question “*I am a class teacher, subject teacher, special education teacher, counsellor, principal, or other (please specify)*,” we categorized the variable into three groups for this study, excluding rest of the groups. The final categories were class teachers (approx. 25%), subject teachers (approx. 57%), and special education teachers (approx. 17%), as shown in Table 2.

² In the original survey, these studies were called multicultural, but we prefer to use more updated terms in this paper.

Control variables

As control variables, we included teaching experience with LCDS and the number of LCDS in their schools. In response to the question “How many years have you taught LCDS?”, experience was an ordinal variable (none, 0–5, 5–10, and over 10 years). From the question “How many of the students in your school have a migrant background?”, LCDS percentage was categorized as fewer than 1%, 1–5%, 5–10%, and over 10%. Table 2 presents their distributions, showing minimal variation across dependent variables.

Table 2: Distributions (column percentages adding to 100% within each variable) of dependent and independent variables

Dependent variables	Assessing through hands-on activities (%)	Highlighting key texts (%)	Modifying difficult texts for readability (%)	Discussing topics related to home culture (%)	Using online bilingual dictionaries/picture search tools (%)
Linguistically and Culturally Responsive Practices					
Never	44.3	44.3	39.5	35.1	27.3
Yes	55.7	55.7	60.5	64.9	72.7
Explanatory/Control Variables					
Training					
Only L2	14.2	14.0	14.3	14.4	14.5
Only culturally responsive	20.8	21.2	21.2	20.9	21.4
Both trainings	17.4	17.6	17.1	17.8	17.3
Neither training	47.6	47.2	47.4	46.9	46.8
Teachers' Professional Roles					
Class teacher	24.8	25.1	25.8	24.9	25.2
Subject teacher	57.3	56.9	56.9	58.0	57.5
Special education teacher	17.9	18.0	17.3	17.1	17.3
Experience Teaching LCDS					
No experience	13.1	12.9	14.81	13.1	14.6
0–5 years	44.2	43.8	43.03	43.3	43.1
5–10 years	19.0	19.4	18.87	19.6	18.9
Over 10 years	23.7	23.9	22.28	24.0	23.4
Number of LCDS in School					
Less than 1%	28.6	28.6	29.1	28.2	29.3
1–5%	34.8	34.8	34.8	34.9	34.6

Dependent variables	Assessing through hands-on activities (%)	Highlighting key texts (%)	Modifying difficult texts for readability (%)	Discussing topics related to home culture (%)	Using online bilingual dictionaries/picture search tools (%)
Linguistically and Culturally Responsive Practices					
5–10%	15.6	15.6	15.5	15.6	15.2
Over 10%	21.0	21.0	20.6	21.3	20.9
Number of observations (N)	557	557	567	550	560

Statistical analysis

We conducted the data analysis using Stata software (version 16.1). The five dependent variables were structured as dichotomous to examine the presence of the linguistically and culturally responsive teaching practices rather than their frequency; thus, logistic regression analysis was used (Norton et al., 2019). To make the findings easier to interpret across different models and outcome variables, the results are presented as average marginal effects (AMEs). These AMEs show the relationships between the explanatory variables and the outcome variables in percentage point terms. The percentage point differences are calculated by multiplying the AME values by 100. The results are based on the average predicted outcome probabilities derived from the sample (Norton et al., 2019).

We developed separate models for each dependent variable to address research questions 1 and 2, focusing on the relationship between an independent variable and reported practices. For research question 3, we used a stepwise approach to examine how teachers' positions, experiences, and the number of LCDS in schools influence the relationship between training and practices. Figure 2 below highlights the main findings, while detailed results are in tables in the Appendix (1 & 2). The first model includes the relationship between training and practices, whereas the second model adds teachers' positions, experience with LCDS, and the number of LCDS in schools as control variables to examine their influence on the relationship between training and practices.

We assessed multicollinearity to ensure the robustness of the logistic regression results, using the Variance Inflation Factor (VIF) for all independent and control variables (O'Brien, 2007). A VIF value greater than 5 was considered indicative of moderate multicollinearity, while values exceeding 10 suggested more severe issues. In the models addressing Research Questions 1 and 2, each incorporating a single independent variable, multicollinearity was not a concern. However, for Research Question 3, where multiple predictors were included in a single model, VIF values were calculated to ensure no distortion. The results showed no significant multicollinearity, as all VIF values remained well below

the threshold of 5, with the average VIF being 1.21. These findings affirm the integrity of the statistical models used in the analysis.

Results

In this section, we present the results addressing the first research question concerning Finnish teachers' participation in trainings related to teaching the school language as an additional language and culturally responsive education and its relation to the use of linguistically and culturally responsive practices in the classroom. We then present the findings related to the second research question regarding how a teacher's position as a class teacher, subject teacher, or special education teacher influences their use of linguistically and culturally responsive practices. Finally, we report the findings related to the third research question concerning the influence of background factors (teachers' position, experience teaching LCDS, and percentage of LCDS in a school) on the relationship between teachers' training and practices.

Training affecting teachers' practices

The analysis (Table 3) reveals that teacher training in teaching the school language as an additional language (L2), culturally responsive methods, or both is significantly associated with the adoption of linguistically and culturally responsive classroom practices when compared to teachers without any training. Teachers who received both L2 and culturally responsive training consistently demonstrated the highest likelihood of adopting these practices, followed by those with only L2 training and those with only culturally responsive training.

On average, teachers with both types of training were 36.8 percentage points more likely to assess students through hands-on activities, 40.6 percentage points more likely to highlight key texts, 29.4 percentage points more likely to modify difficult texts, 38.0 percentage points more likely to discuss topics related to students' home culture, and 18.4 percentage points more likely to use online bilingual dictionaries and picture search tools, all compared to teachers without any training. In contrast, teachers with only L2 training were, on an average, 24.3, 23.0, 21.1, 28.3, and 14.9 percentage points more likely, respectively, to engage in these practices. Teachers with only culturally responsive training showed similar trends, with likelihoods of 20.6, 20.0, 26.5, 30.6, and 15.0 percentage points higher, respectively, than those without any training. Notably, discussing topics related to home culture showed the highest overall increase (38.0 percentage points for combined training), while the effect of training on using online bilingual dictionaries and picture search tools was the smallest. Comparing the three training categories reveals that the effects of acquiring both training types were somewhat additive. In other words, there is an additional benefit to

acquiring both types of training, although in some cases the addition is not significantly different to having just one type of training.

The pseudo-R-squared values show that training explains some variation in classroom practices, with the highest impact on discussing topic related to home culture (0.095) and the lowest on using bilingual dictionaries (0.028). This suggests that training is particularly effective for practices involving cultural integration, like discussing topic related to home culture, but less so for practices like using online bilingual dictionaries and picture search tools, which may depend more on other factors beyond training that require further investigation.

In conclusion, teachers who received both L2 and culturally responsive training were consistently the most likely to adopt linguistically and culturally responsive practices compared to those without any training. Single-type training also led to notable improvements, particularly in cultural practices like discussing topics related to home culture.

Table 3: Relationship Between Teachers' Training and Classroom Practices

Training (Ref: neither)	Assessing through hands-on activities	Highlighting key texts	Modifying difficult texts for readability	Discussing topic related to home culture	Using online bilingual dictionaries/picture search tools
Only L2	0.243*** [0.061]	0.230*** [0.062]	0.211*** [0.060]	0.283*** [0.057]	0.149** [0.054]
Only culturally responsive	0.206*** [0.054]	0.200*** [0.054]	0.265*** [0.051]	0.306*** [0.049]	0.150** [0.047]
Both trainings	0.368*** [0.052]	0.406*** [0.049]	0.294*** [0.053]	0.380*** [0.047]	0.184*** [0.049]
Observations	557	557	567	550	560
Pseudo R-squared	0.063	0.073	0.055	0.095	0.028

Note. Logistic regression results showing the relationship between teachers' training and their use of linguistically and culturally responsive classroom practices. Values represent average marginal effects, with standard errors in parentheses. The reference category is "neither" training.

* $p < .05$, ** $p < .01$, *** $p < .001$

Teachers' position influencing practices

Our analysis of the relationship between teachers' position (class teacher, subject teacher, or special education teacher) and reported classroom practices (Table 4) revealed notable differences among teachers in different roles. However, these differences were not consistent across all types of practices.

Class teachers, who teach a variety of subjects to children in primary schools, were more likely than subject teachers (mostly teaching in secondary schools) to assess students through hands-on activities (10.9 percentage points higher) and to modify difficult texts (10.8 percentage points higher). However, they were 23.2 percentage points less likely to use online bilingual dictionaries and picture search tools.

In contrast, special education teachers were, on average, 19.2 percentage points more likely to highlight key texts. They were also 27.7 percentage points more likely than subject teachers to modify challenging texts for students. However, teachers' roles did not appear to influence practices related to discussions on topics connected to students' home cultures.

Regarding model fit, the Pseudo R-squared values, which indicate how well the teacher position explains the variation in classroom practices, were generally low across all practices. These values ranged from 0.001 for discussions on topics related to home culture, to 0.039 for using online bilingual dictionaries and picture search tools. These low values suggest that, while teachers' roles have some impact on specific practices, other factors—such as individual teaching approaches, professional development, and classroom resources—likely play a more significant role in shaping these practices.

In conclusion, while a teacher's position does influence certain classroom practices, it does so to a limited extent. Class teachers in primary education are slightly more likely to assess students through hands-on activities and modify challenging texts compared to subject teachers. Special education teachers, on the other hand, are significantly more inclined to highlight key texts and modify challenging texts to better support students with linguistic difficulties. Class teachers are less likely to use online bilingual dictionaries and picture search tools compared to both subject teachers and special education teachers. However, discussions around topics related to students' home cultures do not appear to be influenced by the teacher's position.

Table 4 : Relationship Between Teachers' Position and Classroom Practices

Teachers' position (ref: subject teacher)	Assessing through hands-on Activities	Highlighting key texts	Modifying difficult texts for readability	Discussing topic related to home culture	Using online bilingual dictionaries/picture search tools
Class teacher	0.109* [0.050]	0.056 [0.050]	0.108* [0.049]	-0.011 [0.049]	-0.232*** [0.048]
Special Ed teacher	0.086 [0.056]	0.192*** [0.054]	0.277*** [0.049]	0.035 [0.055]	-0.039 [0.049]

Observations	557	557	567	550	560
Pseudo R-squared	0.007	0.015	0.035	0.001	0.039

Note. Values represent average marginal effects after logistic regression, with standard errors in parentheses. The reference category is "subject teacher," selected based on our assumption that subject teachers are less likely to integrate the linguistically and culturally responsive teaching practices compared to other positions, as their primary focus is on teaching subject-specific content.

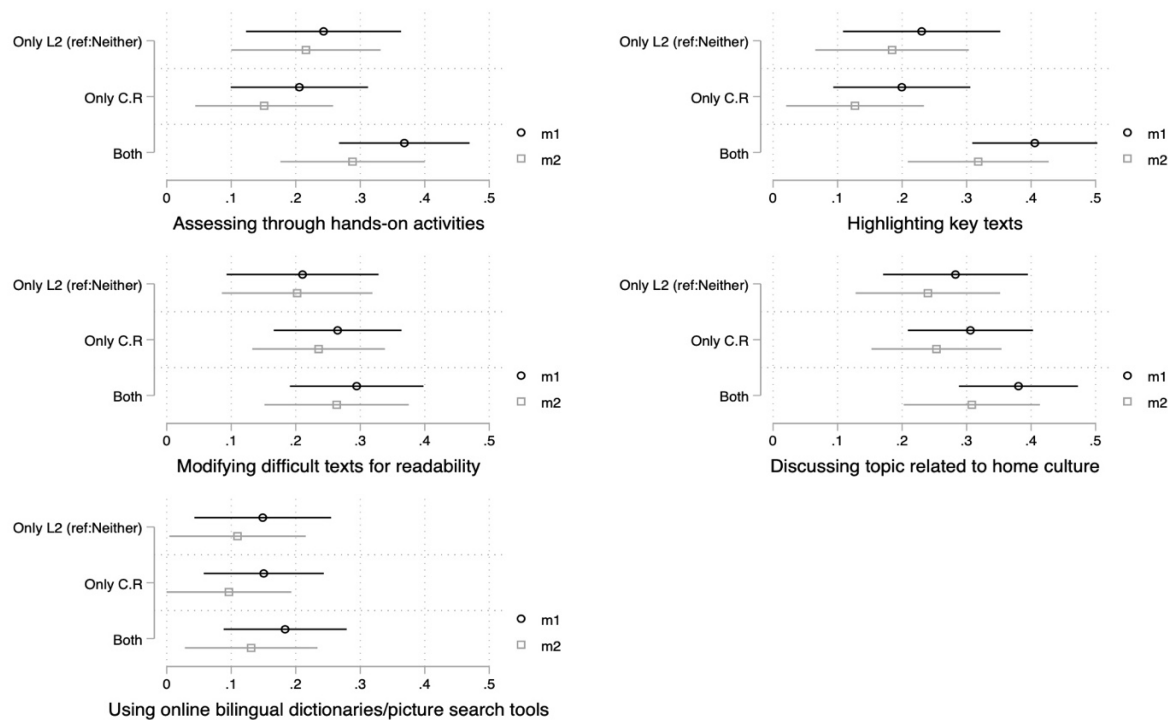
* $p < .05$, ** $p < .01$, *** $p < .001$

The influence of teachers' position, experience, and number of LCDS on the relationship between training and teaching practices

The results in Figure 1 demonstrate that training remains a key factor influencing teaching practices, even when accounting for teacher position, experience, and the percentage of LCDS in the school. However, the impact of training on teaching practices slightly diminishes when these additional factors are considered.

The influence of teachers' positions on the adoption of certain practices has been discussed above. Teacher experience also had a positive relationship with most practices, particularly for those with 5–10 years and over 10 years of experience. In contrast, the number of LCDS in the school had a marginal effect on the likelihood of engaging in specific practices. While these control variables modestly increased the explanatory power for most practices, the changes were relatively small. The Pseudo R-squared values (available in the Appendix) increased from 0.063 to 0.130 for assessing through hands-on activities, from 0.073 to 0.131 for highlighting key texts, from 0.055 to 0.086 for modifying challenging texts, from 0.095 to 0.146 for discussing topics related to home culture, and from 0.028 to 0.086 for using online bilingual dictionaries and picture search tools. This suggests that teacher position, experience, and the number of LCDS contributed to explaining variation between teachers in their practices, although the overall explanatory power of the models remained modest.

In summary, while training remains a significant factor, teacher position, experience, and school context (specifically the number of LCDS) also play important roles in shaping teaching practices. The slight reduction in the effect of training after accounting for these factors suggests that they partially explain its impact. Thus, training is crucial, but contextual elements are also key in shaping teaching behaviours.



Note: In the figure, m1 shows the association between training and practices, and m2 with controls. C.R. stands for culturally responsive training.

Figure 1: Average marginal effects of different types of training and five different linguistically and culturally responsive classroom practices, before and after controlling for other teacher characteristics. Results are derived from Tables 1 and 2 in the Appendix.

Discussion

We analyzed the relationship between teachers' training related to teaching the school language as an additional language and culturally responsive education and their reported use of five distinct linguistically and culturally responsive teaching practices: assessing through hands-on activities, highlighting key texts, modifying challenging texts for improved readability, discussing topics related to students' home cultures, and allowing the use of online bilingual dictionaries and picture search tools. Our findings revealed a positive and statistically significant relationship between teachers' training and the implementation of all five teaching practices. This aligns with prior research (Egert et al., 2018; Heikkola et al., 2022b; Kirsch & Aleksic, 2018), which highlights that professional development plays a crucial role in enabling teachers to critically reflect on and adapt their instructional approaches. Such training equips teachers to better meet diverse students' needs by adopting strategies that foster more inclusive and linguistically and culturally responsive learning environments, thereby conforming and extending the evidence base supporting the value of targeted teacher professional development program.

Similarly, prior studies have shown that professional training which enhances teachers' understanding of cultural diversity and teaching school language as

additional language equips them with a deeper comprehension of students' identities and strengthens their ability to support students' learning through the language of instruction (Alisaari et al., 2019; Cummins, 2007; Kimanen et al., 2019). Consistent with these studies, our findings show that teachers who had received training in either L2 or culturally responsive teaching showed a higher likelihood of integrating linguistically and culturally responsive strategies into their classrooms than those who had not received such training. Furthermore, for many practices, teachers who received training in both L2 education and culturally responsive teaching demonstrated an even stronger tendency to utilize these practices compared to their counterparts who had not received such training. This implies that teachers with combined expertise in teaching the school language as an additional language and culturally responsive education possess a more comprehensive understanding of the diverse needs of students and are better prepared to implement effective linguistically and culturally responsive teaching practices.

In addition to the previous findings, our results also support Kimanen et al.'s (2019) conclusion that a teacher's professional role and duties play an important part in shaping their understanding of linguistic and cultural diversity, which may affect how they use linguistically and culturally responsive teaching practices. The primary school class teachers typically provided more support to students through hands-on activities. In contrast, the special education teachers were more inclined to highlight texts and adapt complex texts to improve readability for LCDS. Notably, other than allowing the use of online bilingual dictionaries and picture search tools, the subject teachers were less likely to use the linguistically and culturally responsive practices compared to their other colleagues. This difference may be attributed to the expectation that students develop autonomy in using these tools, making them more suitable for secondary schools, where more abstract concepts are taught. Meanwhile, primary school class teachers may focus on simplifying concepts through concrete examples, while special education teachers may emphasize structured scaffolding and text modifications to accommodate diverse linguistic needs, ensuring that LCDS can engage meaningfully with academic content. Interestingly, there was no observed relationship between the teachers' position and their engagement in practices related to discussions about LCDS' home culture. This may suggest that the use of this practice is influenced more by individual teacher beliefs or a general awareness of the importance of affirming students' identities, rather than by formal training. This interpretation aligns with previous research indicating that Finnish teachers generally hold positive attitudes toward cultural diversity and demonstrate awareness of students' language needs (Harju-Autti & Sinkkonen, 2020; Kimanen et al., 2019; Vigren et al., 2022).

While the findings suggest that training is a significant factor influencing teaching practices, its impact is somewhat diminished when accounting for other factors such as teacher position, experience, and the percentage of LCDS students

in the school. This outcome may carry several important implications. First, while training is crucial, these other factors also play a role in determining whether teachers implement these practices —supporting previous research by Basturkmen (2012), which suggests that more experienced teachers apply their knowledge and skills more effectively, as well as studies by Ericsson (2016) and Heikkola et al. (2011a), which highlight that teacher competence develops through a combination of experience, formal training, and ongoing learning. Second, observed reduction in the magnitude of the effect of training after incorporating these control factors indicates that some of the influence initially attributed to training may, in fact, be explained by these other factors. For example, teachers with many years of experience in teaching LCDS or those in specific positions with distinct responsibilities may be more likely to adopt certain practices regardless of their training. Similarly, teachers working in schools with a higher proportion of LCDS students might be more influenced by their school's needs than by training alone when adopting practices. Therefore, while training remains a relevant factor, it is essential to recognize that other teacher characteristics and contextual elements also play a role in shaping teaching behaviours. Thus, an exclusive focus on training may neglect the important contributions of these other factors.

The descriptive statistics in Table 2 highlight a concerning trend: almost half the teachers in this study had no training in either teaching the school language as an additional language or culturally responsive teaching. However, it is important to note that the data were collected in 2016, before the introduction of Finland's updated national core curriculum. The new curriculum, which was implemented after the data collection, requires all teachers, regardless of the subject they teach, to use more linguistically and culturally inclusive teaching methods. In response to this change, Finnish schools may have encouraged teachers to take part in professional development to gain the necessary training. As a result, there is a growing likelihood that more teachers have pursued this training in the years following the curriculum update. This shift calls for further research to understand how the updated curriculum has affected teachers' involvement in training programs related to linguistic and cultural responsiveness as well as their practices.

Despite this potential progress, the training status of Finnish teachers resembles the global trend of inconsistent professional development regarding teaching linguistically and culturally diverse students, as demonstrated by previous literature (Aalto, 2019; Alisaari et al., 2019; Banjeree & Luckner, 2014; Harju-Autti & Sinkkonen, 2020; Michel & Kuiken, 2014; O'Neal et al., 2008; Reeves, 2006; Rodriguez et al., 2010; Slot et al., 2019; Villegas, 2018). This underscores the necessity for tailored trainings focused on teaching the school language as an additional language and culturally responsive education. Our findings strongly indicate that such targeted professional development provides teachers with crucial skills and a deeper understanding of approaches for

linguistically and culturally responsive teaching. Moreover, depending on their position, certain teachers seem to exhibit a greater propensity to incorporate such teaching practices. In this context, it is advisable to develop training programs for teachers that are tailored to the academic levels with which they engage and the tasks they are expected to fulfill. Addressing both the content and scope of the learning that students are expected to acquire would ensure that teachers are more effectively equipped to assist the students in their classrooms. Therefore, based on the findings of this study, a comprehensive professional development program related to teaching the school language as an additional language and culturally responsive education is recommended for all teachers, irrespective of background, to better support the increasing diversity in today's classrooms.

Limitations and recommendations for future research

A primary limitation of this study was its dependency on a survey conducted at a singular time point, which restricted the assessment of variations in teacher training and the incorporation of linguistically and culturally responsive practices over time. For a more nuanced understanding of teachers' professional strengths and development points and the expansion of improvement strategies, it is recommended to employ longitudinal data that traces teachers' professional backgrounds and education and the influence of these factors on linguistically and culturally responsive teaching practices across multiple time periods. Furthermore, since the practices investigated in this study were self-reported by the participants, it would be beneficial to collect data through actual classroom observations.

It is essential to recognize that the findings of this study may be subject to bias, as participant responses could have been influenced by social desirability, potentially distorting the representation of the actual situation (Chung & Monroe, 2003). Furthermore, the sample of teachers involved in this study may not be fully representative of the broader teaching community in Finland, thereby limiting the generalizability of the results. Another potential source of bias lies in individual differences in response tendencies, with some participants generally providing more positive answers and others more negative ones. This may have led to a correlation between responses, such as those affirming that "yes, these issues were discussed in my teacher training" and "yes, I use these methods," irrespective of actual practices.

The data of this study were collected via a survey conducted in 2016, preceding the introduction of the new national core curriculum. At that time, teachers may not have received sufficient training in teaching the school language as an additional language and culturally responsive education. In addition, there might have been a lack of motivation or obligation for teachers to integrate linguistically and culturally responsive practices into their classrooms. To overcome these limitations, further research on the same topic is needed,

particularly with data collected after the implementation of the new core curriculum.

Conclusion

Teachers who have undertaken training in teaching the school language as an additional language and culturally responsive education displayed a notable positive relationship with all instructional practices, indicating a strong link between teachers' proficiency and their ability to support LCDS. This study underscores the critical importance of holistic teacher training programs that cater to the specific position and responsibilities of educators, regardless of their experience or the number of LCDS they instruct.

The number of LCDS in Finland is rapidly increasing, while countries such as Australia, Canada, Germany, and the US not only surpass Finland regarding proportions of LCDS but also continue to experience significant growth. However, there is a global shortage of appropriate professional development programs to support LCDS. Teacher education related to LCDS is pertinent; this study, which was conducted in the Finnish context, offers a broad perspective for global teaching communities. This article addresses the global teaching community regarding the need for more effective, holistic teacher training programs that foster linguistically and culturally responsive teaching practices.

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Appendix

Table 1

Logistic regression with average marginal effects. Predicted probability differences in the teachers' reported practices related to hands-on activities, highlighting texts, and modifying texts.

Variables	Assessing through hands-on activities (n = 557)		Highlighting key texts (n = 557)		Modifying difficult texts for readability (n = 567)	
	M1a	M2a	M1b	M2b	M1c	M2c
Training (Neither)						
Only L2	0.243*** (0.061)	0.216*** (0.059)	0.230*** (0.062)	0.184** (0.061)	0.211*** (0.060)	0.202*** (0.060)
Only culturally responsive	0.206*** (0.054)	0.151** (0.054)	0.200*** (0.054)	0.127* (0.055)	0.265*** (0.051)	0.235*** (0.052)
Both	0.368*** (0.052)	0.288*** (0.057)	0.406*** (0.049)	0.318*** (0.056)	0.294*** (0.053)	0.263*** (0.057)
Position (Subject teacher)						
Class teacher		0.163*** (0.045)		0.106* (0.047)		0.125** (0.047)
Special Ed.		0.055 (0.053)		0.157** (0.052)		0.245*** (0.052)
Experience (not at all)						
0–5 years		0.273*** (0.067)		0.303*** (0.065)		0.011 (0.062)
5–10 years		0.368*** (0.079)		0.373*** (0.077)		0.021 (0.075)
Over 10 years		0.315*** (0.080)		0.363*** (0.077)		-0.007 (0.075)
Number of LCDS in school (under 1%)						
1–5 %		0.104 (0.053)		0.048 (0.052)		-0.040 (0.052)
5–10 %		0.138* (0.068)		0.059 (0.066)		0.045 (0.067)
Over 10%		0.121 (0.065)		0.059 (0.064)		0.001 (0.065)
Observations	557	557	557	557	567	567
Pseudo R-squared	0.063	0.130	0.073	0.131	0.055	0.086

Table 2

Logistic regression with average marginal effects. Predicted probability differences in the teachers' reported practices related to discussing topics related to home culture in classrooms and using bilingual online dictionaries.

Variables	Discussing topic related to home culture (n = 550)		Using online bilingual dictionaries/pict ure search tools (n = 560)	
	M1d	M2d	M1e	M2e
Training				
(Neither)				
Only L2	0.283*** (0.057)	0.240*** (0.057)	0.149** (0.054)	0.110* (0.054)
Only culturally responsive	0.306*** (0.049)	0.253*** (0.051)	0.150** (0.047)	0.096 (0.049)
Both	0.380*** (0.047)	0.308*** (0.054)	0.184*** (0.049)	0.131* (0.052)
Position				
(Subject Teacher)				
Class teacher		0.041 (0.044)		-0.192*** (0.047)
Special Edu		-0.023 (0.053)		-0.065 (0.052)
Experience (not at all)				
0–5 years		0.232*** (0.070)		0.162* (0.065)
5–10 years		0.271*** (0.082)		0.166* (0.078)
Over 10 years		0.306*** (0.082)		0.215** (0.076)
Number of LCDS in school (under 1%)				
1–5 %		0.088 (0.051)		0.004 (0.047)
5–10 %		0.090 (0.066)		0.044 (0.062)
Over 10%		0.119 (0.063)		0.015 (0.060)
Observations	550	550	560	560
Pseudo R- squared	0.095	0.146	0.028	0.086