



Linguistically responsive teaching: A requirement for Finnish primary school teachers



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ABSTRACT

We investigated Finnish primary school teachers' understandings of processes of language learning, their reported linguistically responsive practices, their reported professional learning needs, and the links between these. The teachers ($n = 246$) responded to an online survey. Frequencies, possible links between the teachers' background factors and their understandings and reported practices (one-way analysis of variance) and possible correlations between teachers' understandings, reported practices and personal learning needs were investigated. Respondents had a solid understanding regarding the investigated language learning processes and reported using additional semiotic scaffolding practices, such as visual cues, most often. Over half of the respondents reported needing more information about their students' backgrounds, experiences, and skills. The teachers with the highest levels of understanding reported using linguistically responsive practices the most and also sought the most professional learning. However, most Finnish primary school teachers would benefit from both theoretical and practical training in linguistically responsive pedagogy.

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1. Introduction

Recent studies have shown that, in general, teachers and prospective teachers harbor positive stances towards multilingualism (Alisaari et al., 2019; Iversen, 2020; Lundberg, 2019). However, few studies have examined teachers' understandings of how multilingual students from immigrant backgrounds learn new languages, in other words, additional languages. By using this term, we want to focus on the additive value of learning a new language, instead of using the term second language learning, which denotes a hierarchical structure between different languages a student uses. When teachers understand how languages are learned, they are better able to support students' learning in and through the language of instruction (Cummins, 2007). Professional learning (PL) can influence teachers' understandings and practices (Egert et al.,

2018; Kirsch & Aleksic, 2018); as teacher educators become aware of gaps in teachers' understandings, they can optimize professional training.

In Finland, students from immigrant backgrounds have lower learning outcomes than native Finnish students (Harju-Luukkainen et al., 2014; Vettenranta et al., 2016). Finland's current core curriculum for basic education (EDUFI, 2014) seeks to support immigrant-background students by requiring that teachers understand the central role of language in learning. Teachers in Finnish basic education are expected to understand language learning processes, reflecting the linguistically responsive teaching framework (Lucas & Villegas, 2011, 2013), and the principles of culturally responsive pedagogy (Gay, 2010; Ladson-Billings, 1995; Nieto, 2000), and thus understand the role language plays in learning and support students' learning through practices that integrate language and content (EDUFI, 2014).

Accordingly, the current study aims to examine Finnish primary school (grades 1–6) teachers' understandings related to some of the key elements of additional language learning and their reports on implementing practices that support learning in and through the language of instruction, as required by the Finnish core curriculum (EDUFI, 2014). Furthermore, this study aims to examine how teachers' understandings and practices are linked to their re-

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ported PL needs. The study's findings will inform teacher educators of teachers' needs, as well as any gaps in their theoretical understandings or skills in implementing linguistically responsive pedagogy.

The basic education system in Finland consists of 9 grades: Grades 1–6 form the primary school, and grades 7–9 form the upper comprehensive school. Primary school teachers must have a masters' degree in education, including studies in pedagogy, didactics, and multidisciplinary studies in all subjects taught in primary school. They must also complete practice sessions in teacher training schools.

2. Theoretical background

In this section, we first present existent literature on teachers' pedagogical understandings and practices pertinent to this study. Second, we discuss some essential aspects of linguistically responsive teaching. Third, we introduce selected studies on teachers' PL. Finally, we clarify this study's aims.

2.1. Teachers' pedagogical understandings and practices

Teachers' pedagogical practices, which are comprised of their understandings of pedagogy and learning theories (van Manen, 1994; Kansanen, 1995), can affect students' entire lives (van Manen, 2015), as teachers' pedagogical understandings are related to both teaching quality and student learning outcomes (Ulferts, 2019). Thus, teachers and their theoretical understandings and practices play a significant role in supporting students' learning (Peguero & Bondy, 2011). Vulnerable students in particular benefit from teachers having good pedagogical skills (Brühwiler & Blatchford, 2011; Carrasco, 2014).

Teachers' pedagogical understandings are crucial in providing instruction, improving students' learning outcomes, and developing students' proficiency in the language of instruction (Little & Kirwan, 2018; Lucas & Villegas, 2013; Schleppegrell et al., 2004). For example, the better teachers understand additional language learning and linguistic support, the better they can pedagogically justify their practices and support students' learning (Alisaari & Heikkola, 2020). Furthermore, teachers who are able to adapt their teaching style according to students' needs positively affect students' learning progress, especially those who speak a language other than the language of instruction at home (Brühwiler & Blatchford, 2011). Pedagogical practices are considered high quality when they facilitate the learning and well-being of both students and teachers (Ahonen et al., 2014); to be able to respond to learners' individual needs, teachers must continuously develop their skills and adapt their teaching styles (Soini et al., 2010).

Pedagogical understandings are based on both experience and education (Woods & Çakir, 2011). PL can positively affect teachers' understandings and their pedagogical practices (Kirsch et al., 2020), and changes in teachers' pedagogical understandings and practices can improve student learning outcomes (Peleman et al., 2018). Often, when teachers recognize the need to change their practices, they are willing to learn and develop a new approach (Palviainen & Mård-Miettinen, 2015). For example, Palviainen et al. (2016) showed that early childhood education and care teachers moved away from monolingual towards multilingual practices when they noticed that the former approach was ineffective.

2.2. Linguistically responsive teaching

Until the 2010s, teacher education programs around the world have failed to address multilingual language learners' linguistic and cultural needs (Aalto & Tarnanen, 2015; de Jong & Harper, 2005;

O'Neal et al., 2008). Recently, many researchers have emphasized the necessity of teacher education programs that include language and language learning (Alisaari et al., 2022; Vigren et al., 2022; de Jong & Harper, 2005; de Jong et al., 2013; Gollnick, 2002). Culturally responsive teaching aims to challenge traditional deficit theories and include multicultural students' cultures in the classroom (Gay, 2010; Ladson-Billings, 1995). This approach stresses the academic importance of students' prior knowledge and experiences, which strengthens relationships between home and school by making the students' (and their caregivers) languages and cultures visible in the classroom and legitimizing students' existing knowledge (Gay, 2010, 2013).

In addition to culture, various frameworks have been proposed for addressing language in teacher education (e.g., de Jong & Harper, 2005; Vigren et al., 2022; Lucas & Grinberg, 2008; Lucas & Villegas, 2013; Téllez & Waxman, 2006). For example, Lucas and Villegas's (2011, 2013) framework for linguistically responsive teaching (LRT) argues that teachers must understand sociolinguistics, appreciate linguistic diversity, and advocate for multilingual language learners. In addition, this framework expects teachers to have knowledge about multilingual language learners' linguistic backgrounds, experiences, and proficiencies; to recognize the language demands of classroom discourse and tasks; to understand additional language learning; and to be able to scaffold instruction.

In this study, we have focused on specific processes of additional language learning (see Lucas & Grinberg, 2008; Wong Fillmore & Snow, 2018), though we acknowledge that learning an additional language is a much more complex process. Nevertheless, we have focused on processes that we consider prerequisites for promoting additional language learning in a pedagogical context and that involve the main psycho-sociolinguistic and socio-cultural processes involved in language learning (see also Lucas et al., 2008). In order to support linguistically responsive pedagogy, teachers must take into account at least the following aspects: Every-day conversational language differs from academic language (Wong Fillmore & Snow, 2018), and the latter can be challenging and take many years to learn (Uccelli & Phillips Galloway, 2018). Thus, learners need to be provided meaningful linguistic support that is slightly more challenging than their current language level (Lucas et al., 2008; van Lier, 2000), and social interaction is crucial for learning to use the language (Lucas et al., 2008; Teemant, 2018). Furthermore, learners' home languages are valuable resources for learning (Cummins et al., 2005; Lucas et al., 2008). Finally, it is essential for teachers to understand that anxiety can disrupt learning (MacIntyre, 1998), thus the learning atmosphere should be safe and supportive (Lucas et al., 2008).

LRT requires pedagogical practices that support learning for all students. These pedagogical practices can be investigated from the point-of-view of *scaffolding*. Scaffolding, within socio-cultural learning theory, can be defined as the instructional adaptations teachers use to make academic content understandable for learners (see Gibbons, 2002) within their proximal zone of development (Vygotsky, 1987). Scaffolding has long been an important part of culturally responsive teaching (Ladson-Billings, 1995; Teemant, 2018), and it is also an important part of the LRT framework (Lucas & Villegas, 2010). When teachers scaffold language learning, for example, having a student read a text with the support of a more proficient student, learners can perform academic tasks they would otherwise be unable to perform.

The LRT model describes scaffolding as one of eight elements of LRT (Lucas & Villegas, 2011), whereas Hammond and Gibbons (2005) proposed a scaffolding model that focuses more concretely on teachers' practices to support students' learning. This framework is divided into macro and micro levels. The *macro level* focuses on planning instruction and considering students' prior

Table 1
Research questions.

(1a) How do Finnish primary school teachers understand essential processes related to learning additional languages?
(1b) Do any background factors relate to teachers' understandings about additional language learning?
(2a) What teaching practices do Finnish primary school teachers report using with multilingual Finnish language learners the most?
(2b) Do any background factors relate to these practices?
(3) Do teachers' understandings about essential processes of additional language learning correlate with their reported use of practices for MFLs?
(4a) What kinds of PL do these primary school teachers report needing?
(4b) Do any background factors relate to these primary school teachers' reported PL needs?
(4c) How do primary school teachers' reported PL needs relate to their understanding of essential processes of additional language learning and their reported use of practices?

knowledge, experience, and skills. The *micro level* focuses on real-time instruction and considers students' skills as learning occurs, for example by establishing classroom routines, highlighting text, explaining key concepts, using graphic organizers, and providing both oral and written information. Hammond and Gibbons stressed that, compared to typical good teaching, scaffolding enables teachers to "push" students to challenge the limits of their current skills (2005). This requires teachers to plan the scaffolding and to be actively present while teaching in order to support students in moments of interaction.

2.3. Professional learning

Reports from Scandinavia and the United States have suggested that although classrooms are becoming increasingly linguistically and culturally diverse, teachers and prospective teachers are not equipped to provide quality instruction for all learners (Aalto, 2019; Alisaari et al., 2022; Iversen, 2020; Lundberg, 2019; Sullivan, 2016). Thus, PL is needed to support teachers in becoming linguistically and culturally responsive; indeed, greater knowledge about LRT has been demonstrated by teachers who took courses about teaching students from immigrant backgrounds (Sullivan, 2016). Another study (Kimanen et al., 2019) showed that participants who attended training that focused on cultural diversity focused significantly more on affirming students' identities than participants who had not attended such training. Moreover, Kirsch and Aleksić (2018) found that PL courses positively affected early childhood education practitioners' knowledge of what language learning entails, as well as their attitudes, and practices.

Finland's current core curriculum for basic education requires that all teachers be linguistically and culturally aware, that attitudes about language and language communities be discussed, and that the role of language in learning, identity building, and socializing into society be understood. The curriculum further states that in a language-aware school, every adult is a linguistic model and a teacher of the language of their subject (EDUFI, 2014). However, the core curriculum does not define the term linguistic awareness more specifically. As we have argued elsewhere (Alisaari et al., 2022), linguistic awareness has been defined in research as teachers giving value to different languages, understanding the meaning of language in teaching (Kuukka, 2020), and understanding subject-specific language (Aalto & Mustonen, 2020) through their understandings of language and language use and their pedagogical skills (Aalto & Tarnanen, 2015). This definition, however, does not answer the question of how to support linguistic awareness.

In this study, we have chosen to use the term *linguistically and culturally responsive teaching* (Lucas & Villegas, 2010), as it is directly linked to the school context and teachers' work, and it highlights how teachers can be linguistically responsive, thereby supporting students' linguistic awareness. As this study investigates the ways teachers pedagogically support students' learning, we will also use the term when referring to the Finnish core curricula.

The current Finnish core curricula's requirement of LRT (EDUFI, 2014) is a noticeable change in the teaching culture in Finland, thus much is required from teachers. To implement extensive policy changes at the classroom level, changes must be made to the schools' structures (James & McCormick, 2009). As Postholm's (2018) review indicated, optimal PL occurs when teachers have support from school administration and when teachers cooperate with other personnel at their school. Furthermore, school leaders play an important role in enabling and supporting schools' operational cultures (James & McCormick, 2009). However, PL has also been shown to be influenced by other factors, including teachers' reflections and abilities to determine their own goals based on their interests, external resources, and a positive, encouraging school atmosphere (Postholm, 2012). This kind of PL results in better learning outcomes for teachers as well as students.

In the Finnish primary school teacher training, all students take their masters in educational sciences. The studies also include didactical studies concerning different subjects at primary school, as well as teaching practice in schools that are specially targeted for training future teachers. Until 2016, the culturally and linguistically responsive teaching described in the current Finnish core curriculum was not included in Finnish teacher training (see, e.g., Aalto & Tarnanen, 2015), and little research has addressed Finnish teachers' knowledge about LRT and classroom use of linguistically responsive practices (however, see, e.g., Alisaari et al., 2019; Harju-Autti & Sinkkonen, 2020). To address curricular mandates and designs, and to deliver appropriate PL, teacher educators must be aware of teachers' existing knowledge about LRT and their current uses thereof.

2.4. The aims of the study

This study aims to examine Finnish primary school (grades 1–6) teachers' existing knowledge about learning an additional language (an aspect of LRT), which linguistically responsive practices they reported using with multilingual Finnish language learners (MFLs), and how these two elements relate to one other, as well as teachers' reported PL needs. The current study is framed by four research questions (Table 1).

3. Methods

In this section, we present the instrument for data collection and the data itself. In addition, we present the participants and their relevant background information. Finally, we explain the analysis used in the study.

3.1. Materials

The data for this study were collected via an online survey in the spring of 2016. This survey was a Finnish adaptation of a survey by Milbourn et al. (2017) about linguistically and culturally responsive teaching. The theoretical bases for learning in

Table 2
Participating primary school teachers ($n = 246$) distribution by age group.

Age group	Percentage of teachers
20–30 years	9.8
31–35 years	9.9
36–40 years	11
41–45 years	15.1
46–50 years	15.9
51–55 years	20.8
56–60 years	15.5
> 61 years	3.3

this survey were Lucas and Villegas (2013) LRT framework and Ladson-Billings's (1995) and Gay's (2010) works on culturally responsive teaching. The original by Milbourn et al. (2017) included all 12 items from the "Learning to Teach for Social Justice-Beliefs Scale (LTSJ-B)" by the Boston College Evidence Team (Cochran-Smith et al., 2012); nine items were included in the current study's Finnish adaptation of the survey.

The survey included both Likert scale and open-ended questions. In the resulting analysis, we investigated six Likert scale statements related to processes of additional language learning that reflect LRT (Table 5). We do not assume that these six statements cover all the complicated and intricate processes of additional language learning as a whole, but we do suggest that these statements include the bare minimum of what a linguistically responsive teacher should understand about additional language learning. These six statements were selected for this study based on our previous research in which these statements constituted a summed variable reflecting teachers' knowledge of additional language learning (Vigren et al., 2022). In addition, we examined teachers' reported practices through four summed variables that were formed from 21 individual statements (Table 6) based on our previous research (see Heikkola et al., 2022' expressed PL needs for content analysis.

Test items were reviewed for validity and applicability to the Finnish setting by several experts at the Finnish Network for Language Education Policies (Kieliverkosto) and the Finnish National Agency of Education (EDUFI). The survey's internal reliability was tested by calculating Cronbach's alphas for interconnected items. The Cronbach's alphas were high for the six items related to processes of additional language learning (0.77) and the four summed variables for teachers' reported practices: Factor 1 (*Awareness of language demands*) = 0.89 (5 items), Factor 2 (*Linguistic scaffolding*) = 0.70 (4 items), Factor 3 (*Additional semiotic systems*) = 0.75 (5 items), and Factor 4 (*Explicit attention to language*) = 0.87 (3 items). The survey was administered through various websites, social media platforms, and seminars (Educa Fair organized in 2016), as well as emails sent to all of Finland's school districts (for a more precise description, see (Alisaari et al., 2019)).

3.2. Participants

In this study, we analyzed primary school teachers' ($n = 246$) responses to our survey. Table 2 presents these teachers' distribution into age groups. Approximately 10% of the teachers in this analysis reported having had some training in linguistically responsive teaching.

Of the respondents, 73% worked in schools with fewer than 5% MFLs (Table 3). This percentage reflects the current dynamic in Finnish schools, where students from immigrant backgrounds represent around 5% of all students in basic education. However, in larger cities in Finland, the immigrant population is denser (Statistics Finland, 2021).

Almost half of the respondents in this study had more than 20 years of teaching experience; close to one-third had no prior ex-

Table 3
Participating primary school teachers' ($n = 246$) schools' percentage of MFLs.

Percentage of MFLs	Percentage of teachers
Less than 1	37.3
1–5	35.6
5–10	12.8
10–20	5.2
20–30	3.9
30–40	1.7
40–60	2.6
60–80	0.9
> 80	0

Table 4
Participating primary school teachers' ($n = 246$) distribution by overall teaching experience and experience with MFLs.

Years	Percentage of teachers with general teaching experience	Percentage of teachers with experience teaching MFLs
None	–	27.6
< 1 year	1.6	11.9
1–2 years	2.9	16.5
2–5 years	9.1	17.7
5–10 years	11.5	13.2
10–20 years	28.8	8.2
> 20 years	46.1	4.9

perience with students from immigrant backgrounds (Table 4). The presented teacher demographics reflect the overall demographics of teachers in Finland, thus this study's respondents represent the broader Finnish teacher population (Kumpulainen, 2017).

3.3. Analysis

This data of this study were analyzed by considering frequencies of responses to the survey's five-point Likert scale statements regarding additional language learning. The Likert scale values for the study's additional language learning statements were 1 (*strongly agree*), 2 (*agree*), 3 (*disagree*), 4 (*strongly disagree*), and 5 (*I do not know*). We also looked at the frequencies of the responses regarding linguistically responsive practices. The survey's Likert scale values for how often teachers reported using a practice were 1 (*never*), 2 (*once a week*), 3 (*two or three times a week*), and 4 (*four or more times a week*).

In addition, we used one-way analysis of variance (ANOVA) and post hoc tests to examine possible differences between groups' understanding of additional language learning and their reported linguistically responsive practices based on the following factors: (a) overall teaching experience in years, (b) experience with MFLs in years, and (c) the percentage of MFLs at their schools. Depending on the data distribution's normalcy, either Bonferroni or Tamhane tests were reported.

We tested for possible correlations between teachers' understanding of language learning and their reported practices with MFLs using Pearson and Spearman correlation coefficients and depending on the dataset's distribution normalcy.

Finally, we investigated teachers' needs for PL through content analysis (see, e.g., Krippendorff, 1980) based on one open-ended survey question: "Which three topics would you like to learn more about in order to better support your multilingual Finnish learners?" Our qualitative analysis was data-derived, although the final analysis categories related to the LRT framework (Lucas & Villegas, 2013), focusing specifically on its descriptions of teachers' pedagogical skills. In addition, we examined how these PL needs related to teachers' understanding of additional language learning and reported use of practices through crosstabs, chi-square tests, and z-tests. Since the respondents answered the open-ended question about PL by providing three answers, our related statistical

Table 5
Distribution of participating primary school teachers' responses to statements regarding processes of additional language learning.

Statements	I strongly agree (%)	I agree (%)	I disagree (%)	I strongly disagree (%)	I do not know (%)
(1) "Learning a second language is similar for all students." (R) (n = 243)	2.5	7.8	43.6	34.6	11.5
(2) "Social interaction in real communication situations supports Finnish language learning among students with immigrant backgrounds." (n = 242)	68.8	24.8	1.7	2.1	2.9
(3) "Students from immigrant backgrounds benefit from teaching in different subjects investigating Finnish language." (n = 242)	44.6	44.2	0.8	1.7	8.7
(4) "If students from immigrant backgrounds retain their own first language, learning Finnish is difficult for them." (R) (n = 244)	4.5	2.5	38.5	45.5	9
(5) "Anxiety about using a second language can hinder learning." (n = 241)	34.4	47.7	3.3	1.2	13.3
(6) "Teachers should advocate for their multilingual students' Finnish language development." (n = 244)	57.4	34	0.8	2.5	5.3

Note. R = reversed questions.

analysis used the "multiple response set" function. All statistical analyses were performed with IBM SPSS, Version 26.

4. Results

This study's findings are presented according to the four research questions from Section 2.4. First, we analyze teachers' understandings of selected processes related to additional language learning. Second, we examine the practices teachers reported using with MFLs. Third, we find correlations between teachers' understandings of processes of additional language learning and their reported practices. Finally, we present teachers' reported PL needs and the possible relationships between these needs, their understandings of selected processes of additional language learning, and their reported use of practices.

4.1. Teachers' understandings of additional language learning

The frequencies of teachers' answers to the survey's six Likert-scale statements regarding selected processes of additional language learning are presented in Table 5. Based on the survey's statements, respondents had substantial understanding of additional language learning processes in general. Over 90% of the respondents agreed that social interaction during authentic communication situations with native speakers supports Finnish language learning. Moreover, almost 90% of the respondents understood that MFLs benefit from a focus on Finnish language across various subjects. Over 80% of the respondents also expressed awareness that their students' home languages do not harm their Finnish learning and that anxiety can hinder learning. Almost 80% recognized that additional language learning varies for all students. In addition, over 90% of the respondents agreed that teachers should advocate for, not just teach, the Finnish language.

Next, we investigated teachers' understandings of specific processes of additional language learning and explored whether these related to background factors, specifically their teaching experience (in years), their experience teaching students from immigrant backgrounds (in years), and the percentages of students from immigrant backgrounds at their schools. No significant interactions were observed between teachers' understandings of select processes of additional language learning (coded in the summed variable) and their schools' number of multilingual students. However, a significant relationship was found between teachers' general experience and their understanding of additional language learning (coded in the summed variable, $F_{6, 143} = 2.462, p = 0.027$), though multiple comparisons revealed no significant differences between groups. An examination of the survey's individual statements revealed no significant links.

No significant correlation was found between teachers' understandings of select processes of additional language learning (coded in the summed variable) and their experience with teaching MFLs. However, an examination of the survey's individual statements and the teachers' years of experience teaching MFLs revealed a significant link concerning one statement: "Learning a second language is similar for all students" ($F_{6, 188} = 3.345, p = 0.004$). The post hoc tests found that teachers with one to two years of experience had substantially better understanding of additional language learning than other teachers. These differences are presented below.

- Teachers with one to two years of experience with MFLs ($M = 1.57, SD = 0.78$) differed from teachers with less than one year of experience with MFLs ($M = 2.0, SD = 1.4; p = 0.03$).
- Teachers with one to two years of experience with MFLs ($M = 1.57, SD = 0.78$) differed from teachers with two to five years of experience with MFLs ($M = 1.83, SD = 0.92; p = 0.02$).
- Teachers with one to two years of experience with MFLs ($M = 1.57, SD = 0.78$) differed from teachers with five to ten years of experience with MFLs ($M = 1.64, SD = 0.58; p = 0.006$).

4.2. Teachers' reported practices with multilingual Finnish language learners

Next, we investigated the practices that teachers reported using with MFLs. First, we reviewed the frequencies of the reported practices. Second, we analyzed how three background factors (overall teaching experience, experience teaching students from immigrant backgrounds, and schools' percentages of students from immigrant backgrounds) may have related to the teachers' reported use of these practices. Finally, we investigated whether teachers' understandings of select processes of additional language learning related to their reported use of practices.

Of the four summed variables (Table 6), the most used group of practices was *additional semiotic systems scaffolding* ($M = 3.2, SD = 0.7$), which teachers reported using two or three times weekly on average. *Identifying language demands* was reported to be used almost as often ($M = 2.7, SD = 1.0$). *Explicit attention to language* ($M = 2.3, SD = 1.0$) and *linguistically scaffolding practices* ($M = 1.2, SD = 0.8$) were reported to be used only once weekly, on average (for more detailed information about the creation of the study's four summed variables, see Heikkola et al., 2022).

The Likert scale values for the above practices were as follows:

- 1 = never
- 2 = once a week
- 3 = two or three times a week

Table 6
Individual items in the four summed variables.

Factor 1: Awareness of language demands	Factor 2: Linguistic scaffolding
"I take my LCDSS' Finnish proficiency levels into account when designing assignments." "In a typical week, when I speak, I pause for longer periods to give LCDSSs time to form responses." "In a typical week, when I grade assessments, I think about ways that language may impact my understanding of my LCDSS' responses." "In a typical week, I create opportunities for my LCDSSs to interact with native Finnish speakers." "I encourage my LCDSSs to ask me questions about unclear issues during tests."	"In a typical week, I give LCDSSs highlighted texts to signal important information." "In a typical week, I translate key concepts into students' home languages." "In a typical week, I allow students to use bilingual or online dictionaries or search for words' meanings with image-search tools online." "In a typical week, I modify written texts to reduce readability demands."
Factor 3: Additional semiotic systems ¹	Factor 4: Explicit attention to language
"In a typical week, I use visual cues and extra-linguistic support." "In a typical week, I use graphic organizers." "In a typical week, I write directions on a blackboard or on paper regarding how students can proceed with their assignments." "In a typical week, I give both oral and written instructions." "In a typical week, I am able to use my students' interests to make learning meaningful for them."	"In a typical week, I explicitly draw LCDSS' attention to Finnish grammatical structures while teaching." "In a typical week, I automatically correct my LCDSSs' speech when they make Finnish language mistakes." "In a typical week, I automatically correct my LCDSSs' writing when they make Finnish language mistakes."

Note. LCDS = linguistically and culturally diverse students.

¹ Factor 3 includes semiotic practices, such as visual cues, but also additional semiotic cues, such as – in a wide sense – cultural cues that the students find important.

- 4 = four or more times a week

Next, we investigated the teachers' experience and reported practices in relation to the number of immigrant students in their schools. A significant link was found between a schools' percentage of students from immigrant backgrounds and the teachers' reported use of *additional semiotic systems practices* ($F_{7, 174} = 3.1$, $p = 0.005$); teachers at schools where 20–40% of the students came from immigrant backgrounds reported using these practices the most ($M = 3.4$).

We then examined the possible correlations between teachers' understandings of processes of additional language learning using the summed variable based on six statements about additional language learning processes, the six individual statements in the survey, and the four summed variables measuring teachers' groups of practices (Factors 1–4). This examination revealed no significant correlations between teachers' knowledge and their reported practices.

4.3. Professional learning needs

Finally, we investigated which PL needs respondents reported. Content analysis revealed that teachers reported five different PL needs:

- knowledge about MFLLs' linguistic (and cultural) backgrounds, experiences, and skills (56.6%)
- identification of language demands (0.8%)
- knowledge about additional language learning principles (19.7%)
- methods to support learning (34.3%)
- structural resources and advocacy for students (1.6%)

In addition, some teachers reported needing to know more about "everything" (2.5%) or "nothing" (1.6%), while other teachers reported not knowing what kind of professional learning they needed (20.5%). The teachers were able to provide multiple responses to this question.

Next, we report our findings on relationships between teachers' reported PL needs and their identified backgrounds. We also discuss the relationships between teachers' reported PL needs and their understandings of select processes of additional language

learning, as well as the relationships between teachers' PL needs and their reported use of practices. Our statistical testing results are presented in Table 7. Only statistically significant findings are discussed in the text.

No significant differences were found between teacher groups based on their overall teaching experience or their schools' number of students from immigrant backgrounds. However, significant differences were observed between teacher groups when investigating their experience with MFLLs. Teachers with no experience responded that they "cannot state their professional learning needs" significantly more often than the other teacher groups ($p < 0.05$).

Next, we investigated whether teachers' understandings of select processes of additional language learning related to their reported PL needs. The teachers with the most understanding of additional language learning reported wanting to know more about their students' backgrounds more often than teachers with lower understandings of additional language learning ($p < 0.05$).

Finally, we examined teachers' reported use of practices and possible correlations with their reported PL needs. Statistical testing revealed a significant result for *explicit attention to language practices*: The teachers who reported using these practices only once a week responded "I do not know" about their PL needs more often than the other groups ($p < 0.05$). In addition, teachers who reported using these practices two to three times weekly expressed a need to know more about their students' backgrounds more often than teachers who reported using these practices less than twice weekly or more than four times weekly ($p < 0.05$). No other statistically significant links were found between teachers' reported use of practices and their reported PL needs.

This study's main findings in relation to each of the research questions are summarized in Table 8, and they are also discussed in the following section.

5. Discussion

The Finnish primary school teachers who participated in this study demonstrated substantial understanding of selected processes of additional language learning. The responses from 80 to 90% of the respondents aligned with the current research regarding additional language learning; the teachers appeared to understand the relationship between classroom interaction and language use

Table 7

The relationship (or correlations) between teachers' reported PL needs, understandings of select processes of additional language learning, and reported use of practices.

		Teachers' reported PL needs (z-tests)				
		PL needs (crosstabs and chi-square test)	Knowledge about students' backgrounds, experiences, and skills	Understanding additional language learning	Methods to support learning	Inability to state PL needs
Teachers' background factors	Teaching experience	$X^2 = 41.9, df = 40, p = 0.39$	n.s.	n.s.	n.s.	n.s.
	Experience teaching MFLLs	$X^2 = 72.9, df = 48, p = 0.012$	n.s.	n.s.	n.s.	Teachers with no experience reported this category more than teachers with experience ($p < 0.05$)
Understanding additional language learning	Number of MFLLs at teachers' schools	$X^2 = 84.7, df = 56, p = 0.008$	n.s.	n.s.	n.s.	n.s.
		$X^2 = 52.5, df = 32, p = 0.013$	Teachers with more knowledge reported this category more than teachers with less knowledge ($p < 0.05$)	n.s.	n.s.	
Teachers' reported use of practices	Explicit attention to language	$X^2 = 41.7, df = 24, p = 0.014$	Teachers using practices two to three times per week reported this category more than teachers using practices less than once per week ($p < 0.05$)	n.s.	n.s.	Teachers using practices once per week reported this category more than teachers using these practices less than once per week ($p < 0.05$)
	Identifying language demands	$X^2 = 23.4, df = 24, p = 0.49$	n.s.	n.s.	n.s.	n.s.
	Linguistic scaffolding	$X^2 = 19.7, df = 21, p = 0.54$	n.s.	n.s.	n.s.	n.s.
	Additional semiotic scaffolding	$X^2 = 16.8, df = 24, p = 0.86$	n.s.	n.s.	n.s.	n.s.

Notes. MFLL = multilingual Finnish language learner.
PL = professional learning.

vis-à-vis aspects essential to LRT (Fillmore & Snow, 2002; Lucas & Villegas, 2013; Wong Fillmore & Snow, 2018), for example the perspective that social interaction in real communication situations supports Finnish language learning. Since Finland's current core curriculum requires all teachers to account for the role of language in all learning, these results are promising (EDUFI, 2014).

Based on our experience as teacher educators both for pre-service and in-service teachers, we can cautiously assume that the teachers of this study have received information about the essential processes of additional language learning either during their initial teacher training or possible professional development courses. Based on the results of this study, it seems that they do understand the processes of additional language learning, which are essential for teachers to teach multilingual learners effectively (Coady et al., 2011; Cummins, 2001; Lucas & Villegas, 2013). We are aware that the six statements in this study do not reflect additional language learning processes as a whole; however, we do take the findings to mean that teachers have at least the minimum necessary understanding about the essential processes of additional language learning. The findings may also reflect the fact that every student in Finland studies at least two additional languages (other than Finnish or Swedish, depending on the language of instruction) during their basic education, thus the teachers have themselves experienced additional language learning. Our results differ from corresponding findings from the United States (Sullivan, 2016), where teachers were found to not have under-

standing of additional language learning; this difference may reflect the monolingualism of the teacher population in the United States (see e.g., Sullivan, 2016). Again, we investigated the teachers' understandings of only some of the essential processes of additional language learning. In the future, teachers' understandings of additional language learning should be investigated with a wider survey, as well as possible in-depth interviews.

Our examination of the respondents' understandings of selected processes of additional language learning and their backgrounds revealed that overall teaching experience and schools' percentages of students from immigrant backgrounds did not relate to teachers' understandings. However, teachers' experience with MFLLs significantly related to their understandings, but only vis-à-vis one survey statement: Teachers with one to two years of experience demonstrated more knowledge in response to the statement "Learning a second language is similar for all students" than teachers with less than one, two to five, or five to ten years of experience teaching MFLLs. This result can be cautiously interpreted as an indication that teachers who have graduated more recently have had more exposure to this information during their studies, though experience can further strengthen this understanding. Thus, expertise does not develop automatically; instead, it requires specific contexts to transform into competence (see also Ericsson, 2006). When looking at the teachers' reported practices, surprisingly, overall teaching experience did not seem to relate to them. This finding is interesting because previous research has

Table 8
Research questions and main study results.

Research questions	Main study results
(1a) How do Finnish primary school teachers understand the essential processes related to learning additional languages? (1b) Do any background factors relate to teachers' understandings about additional language learning?	(1a) Over 80% of primary school teachers understand some essential processes related to additional language learning. (1b) No significant differences between groups were found, except with regard to one individual statement ("Learning a language is similar for all students"); teachers with one to two years of overall teaching experience (versus less than one year and two to ten years) demonstrated greater understanding.
(2a) What teaching practices do Finnish primary school teachers report using the most with MFLLs? (2b) Do any background factors relate to these teachers' reported use of practices?	(2a) <i>Additional semiotic systems scaffolding</i> and <i>identifying linguistic demands</i> were reportedly used two or more times weekly on average. <i>Explicit attention to language</i> and <i>linguistically scaffolding practices</i> were reportedly used only once weekly. (2b) No significant differences between teacher groups were found, except that <i>additional semiotic systems scaffolding</i> was used more by teachers at schools where 20–40% of students came from immigrant backgrounds compared to other teacher groups.
(3) Do teachers' understandings about essential processes of additional language learning correlate with their reported use of practices for MFLLs? (4a) What kinds of PL did teachers report needing? (4b) Do any background factors relate to these primary school teachers' reported PL needs? (4c) How do primary school teachers' reported PL needs relate to their understandings of essential processes of additional language learning and their reported use of practices?	(3) No significant correlations were found between understandings of additional language learning and the groups of reported practices. (4a) Of all of the teachers, 56.5% reported wanting to know about their students' backgrounds, experiences, and skills. Meanwhile, 34.3% reported wanting to know about methods to support students' learning, 19.7% reported wanting to know about additional language learning, and 20.5% were unable to verbalize their PL needs. (4b) Teachers with no experience teaching students from immigrant backgrounds were unable to state their PL needs more often. (4c) Better understandings of essential processes of additional language learning were linked to a need to know more about students' backgrounds, experiences, and skills. No significant differences were found between groups, except for with regard to <i>explicit attention to language</i> practices; teachers who used these practices two to three times weekly (versus once or more than four times weekly) reported wanting to know more about students' backgrounds, experiences, and skills. Teachers who reported using these strategies only once weekly reported not knowing their PL needs the most often.

shown that the understandings of more experienced teachers align better with their practices compared to less-experienced teachers (Basturkmen, 2012).

Additionally, no significant correlations were found between teachers' understandings about processes related to additional language learning, measured as the sum variable, correlated with the groups of practices teachers reported using. Similar results have been found in previous research, specifically that teachers' understandings and practices do not always align (Borg, 2006). Since the current study was not observational, our findings must be interpreted cautiously. Nevertheless, we can tentatively conclude that although our findings point to teachers having considerable understanding of processes related to additional language learning, this does not seem to translate into linguistically responsive practices in classroom settings. However, more research on the relationship between teaching experience and teachers' understandings of additional language learning and their reported practices is needed.

The practices the teachers' reported using the most were *additional semiotic systems* and *identifying language demands*, both of which they reported using two or three times weekly on average. *Additional semiotic systems* practices, e.g. visual cues, can be categorized as both macro-level and micro-level scaffolding in the model by Hammond and Gibbons (2005), depending, respectively, on whether they have been planned or implemented spontaneously. *Identifying language demands*, however, could be categorized as micro-level scaffolding and places more demands on teachers. Similar results have been found in other Scandinavian studies (for use of visual scaffolding, see, e.g., Iversen, 2020). In Finnish teacher education, using visual scaffolding has been a part of good pedagogy for many decades, although these have not been deemed linguistically responsive practices in this context. However, for example Lucas and Villegas (2013), have listed such practices as linguistically responsive.

More specific practices that support multilingual students, such as using multilingual students' home languages as a learning resource, are still often not implemented in the classroom in the Scandinavian context (Alisaari et al., 2019; Iversen, 2020; Lundberg, 2019), in line with the results of this study. Additionally, other practices that require more linguistic and linguistically responsive knowledge from teachers—*explicit attention to language* and *linguistically scaffolding practices*, which Hammond and Gibbons (2005) categorized as interactional, micro-level scaffolding—were reported to be used less often in this study. These practices require teachers to make linguistic decisions in real time while considering students' backgrounds, experiences, and skills to scaffold students' learning across various linguistic situations.

Interestingly, we found a statistically significant link between the group of practices focusing on *explicit attention to language* and teachers' reported PL needs. Teachers who reported using these practices less often reported not knowing their PL needs more often. This finding may suggest that when teachers report not using linguistically responsive practices in their classrooms, they may not be aware of the knowledge needed to implement a linguistically responsive pedagogy. This was supported by another finding: Teachers who used these practices more often also wanted to know more about their students' backgrounds, experiences, and skills more than other teachers. Thus, when teachers are already implementing linguistically responsive pedagogy, they are motivated to gain even more knowledge (see Postholm, 2012). This finding reflects Postholm's (2012) argument that a teacher's ability to set their own goals based on their interests influences the effects of PL; if teachers are motivated or interested in a topic, they might also be more receptive to professional training.

When examining teachers' reported PL needs, we found that over half of the respondents stated needing more "knowledge about MFLLs' linguistic (and cultural) backgrounds, experiences,

and skills.” Based on our own experience organizing PL training, we believe teachers in Finland are uncomfortable discussing students’ backgrounds or experiences with their students, which they may find inappropriate; they expect to gain this information outside of the classroom, for example from professional training courses. Thus, Finnish primary school teachers seem to need PL about how to use students’ backgrounds to support learning.

Over one-third of the respondents reported needing more information about “methods to support learning.” In addition, one-fifth of the teachers reported wanting more “understanding about additional language learning principles.” The teachers’ reported PL needs were statistically related to their understanding of additional language learning; those who had the most understanding were also the most interested in learning more about their students’ backgrounds, experiences, and skills. This finding may have resulted from teachers’ own PL interests (see Postholm, 2012), but more research is needed to confirm this interpretation.

Interestingly, one-fifth of the respondents were unable to name any necessary PL areas. The teachers with the second-lowest level of understanding about additional language learning answered “I do not know [which type of PL I need]” more often than the other groups. This finding may reflect the Dunning-Kruger effect, which suggests that people with less knowledge often have a cognitive bias toward thinking their level of knowledge is greater than it actually is (Kruger & Dunning, 1999). Teachers with less understanding of processes of additional language learning seem to experience difficulty verbalizing their PL needs.

6. Implications and conclusions

When drawing conclusions based on this study’s findings, we must consider the reliability of the data. Since this study’s data were gathered through an online survey, and responses to this survey were voluntary, the respondents who chose to participate may constitute teachers with substantial understanding about additional language learning or LRT. However, this study’s findings can guide further examination of the identified practices and refine the questions that we, as researchers and teacher educators, should ask. Moreover, an examination of how teachers’ understandings and practices regarding linguistically and culturally responsive teaching relate to students’ outcomes—and whether teachers’ PL affects students’ outcomes—is important.

One limitation of this study is that we only investigated teachers’ reported practices. Future studies concerning teachers’ practices should be conducted with an ethnographic approach, including observations and interviews. Such studies would constitute an important step in ensuring that teachers provide all students with quality instruction that accounts for the different ways language and culture affect learning. Focusing on language in instruction can ensure that MFLs receive fair opportunities to meet their full potential.

In investigating teachers’ reported PL needs, we identified a general trend: Teachers who already understood additional language learning and reported using linguistically responsive practices the most also reported needing more PL. For change to occur, teachers must consider developing linguistically responsive competence to be worth their time and effort (see also Postholm, 2012). Teachers’ motivation for change can be further supported by external resources and an encouraging atmosphere, which is created in part by school leaders (Postholm, 2012). Also James and McCormick (2009) stress that changes to the school’s structure are imperative, when implementing extensive policy changes at the classroom level (2009). Indeed, the best place for this development is teachers’ work environments, where they can set their own goals and make PL part of their everyday tasks (Postholm, 2012; see also Negueruela-Azarola, 2011).

The current Finnish curriculum for basic education requires teachers to be linguistically responsive and have a sound understanding of additional language learning to ensure that all students, including Finnish language learners, can fully benefit from instruction. This requirement has not been achieved practically, as research has shown that Finnish language learners’ academic outcomes are lower than those of native Finnish students (Harju-Luukkainen et al., 2014; Vettenranta et al., 2016). Prior to the implementation of the new core curriculum (EDUFI, 2014), very few Finnish teachers had received any training regarding LRT (see Alisaari & Heikkola, 2020).

Our findings revealed that teachers have at least an elementary level of understanding regarding learning an additional language, and this translated into linguistically responsive teaching practices in some cases, but not in others. Teachers reported using mostly visually scaffolding practices that can be considered relatively basic pedagogical skills, not necessarily linguistically responsive practices per se. Practices that require higher levels of knowledge and reactive skills for teachers to respond to students’ needs in complex linguistic classroom situations (Hammond & Gibbons, 2005), were generally missing. These might be more challenging to implement.

Based on these results, we teacher educators should better emphasize how theory translates into practice. This kind of training should be offered in both pre-service and in-service teacher education to ensure that educational equity can be maintained in Finnish education and that all students receive the instruction necessary to support their learning.

This goal could be supported if both pre-service and in-service teachers would be provided with opportunities to observe teachers who instruct in multilingual classrooms, use linguistically responsive practices, and have received teacher training opportunities at multilingual schools. In addition, school leaders play an important role in enabling and supporting schools’ operational cultures (James & McCormick, 2009), and resources should be allocated to enable structures to support teachers’ professional development.

Declaration of Competing Interest

The authors reported no potential conflict of interest.

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