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How Multilingual Experience Shapes Linguistic Development in English:

A Study on Accent Perception with Elementary School Children in Sweden

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Abstract

This thesis explores how bilingual and trilingual children aged 7–11 develop their English pronunciation in an international school where English is the main language of learning and play. Recordings from a storytelling task were rated for accent and comprehensibility, and background data from parental questionnaires provided detailed language profiles. Analyzing these data, it examines whether the two groups differ in perceived accentedness and comprehensibility, and what individual factors—such as Age of Onset of Acquisition, Age of Onset of English Instruction, dominance, and preference—shape these outcomes. It also looks at whether native speakers can detect traces of the children's other languages in their English speech, and what determines the perceived source of such transfer. Findings show that both bilingual and trilingual children reached high levels of comprehensibility and native-like accents. Group differences were not statistically established; descriptively, trilinguals showed a slightly tighter clustering at the higher end of the scale. Individual variation was more closely linked to English dominance and preference than to AoO. Signs of cross-linguistic influence were modest and often tied to the child's dominant or preferred language. These results suggest that the school's stimulating, socially rich environment may act as a "phonological accelerator" fostering strong phonological skills.

Keywords: *accentedness, comprehensibility, bilingualism, trilingualism, cross-linguistic influence, phonological development, international school*

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Abbreviations

AoI	Age of Instruction
AoO	Age of Onset of Acquisition
CEM	Cumulative Enhancement Model
CLI	Cross-Linguistic Interaction
CPH	Critical Period Hypothesis
ESAM	American Spanish
HL	Heritage Language
ISLK	International School of Lund - Katedralskolan
IND	Bahasa Indonesia
L1	First Language
L2	Second Language/Bilingual
L2SFM L2	Status Factor Model
L3	Third Language/Trilingual
ML	Majority Language
PT	Portuguese
RW	Kinyarwanda
SLA	Second Language Acquisition
TLA	Third Language Acquisition
TPM	Typological Primacy Model
VOT	Voice Onset Time

Chapter 1 Introduction

In multilingual classrooms around the world, it is not unusual to hear several languages spoken within the same space—sometimes even within the same sentence. Children who grow up in such environments often develop complex language repertoires shaped by family, community, and schooling. One such setting is the International School of Lund Katedralskolan (ISLK) in southern Sweden, where students use multiple languages both in and outside the classroom. Lund itself is a unique academic hub that attracts researchers and professionals from around the world—many of whom choose to enroll their children in international schools like ISLK. Although the teaching language is English, as an International Baccalaureate (IB) school, ISLK actively supports linguistic diversity and encourages children to maintain and develop their home languages. In such a setting, peer interaction plays a central role, as children are constantly exposed to a variety of accents, registers, and language models throughout their school day. Observing how fast many children develop and increase proficiency in English—often regardless of their linguistic background—sparked my interest in what shapes children's pronunciation in a multilingual school environment.

Research has shown that bilingual and trilingual development is often linked to enhanced metalinguistic awareness and phonological sensitivity, which are believed to support the acquisition of additional languages—particularly when it comes to developing a more native-like accent. But even though multilingual learners have been widely studied, most research on phonological development and cross-linguistic influence (CLI) has focused on adults or heritage bilinguals acquiring a third language (e.g., Lloyd-Smith et al., 2017; Wrembel, 2012; Gut, 2010).

Studies involving trilingual children are fewer and tend to focus either on early development or specific segmental features (e.g., Montanari, 2011; Einfeldt, 2022). While some research has explored phonological transfer in trilingual children (Anastassiou & Andreou, 2017) or examined global accent perception in children (Laméris et al., 2024, Kupisch et al., 2021,Wrembel et al., 2019), there is still very limited work on how global accent is perceived in primary-aged trilingual children, and even less on what factors contribute to their pronunciation. First mentioned by Asher and Garcia (1969), the phenomenon of perceived foreign accent in the speech of L2 learners started receiving attention from many scholars, since determining the

factors that shape the accent in L2 could provide teaching suggestions to enhance the phonological acquisition (Thompson, 1991). The recent review by Kupisch (2023) outlines key factors that influence multilingual phonological development, but further empirical research is needed to understand how these factors emerge in children's speech—particularly in school settings where English is the primary language of instruction but not necessarily the home language.

Therefore, the present study aims to address this gap by examining the English pronunciation of bilingual and trilingual children aged 7–11. It investigates whether trilingual children have phonological advantages related to accent compared to bilingual children (RQ1), what factors influence the degree of perceived nativeness in English in Bilinguals and Trilinguals (RQ2), whether children show evidence of phonological transfer from their early-acquired languages when speaking English (RQ3), and what factors influence listeners' perception of the transfer source in English (RQ4). To this end, I collected data from 33 children. These child participants were recorded narrating a short picture-based story, and their speech was evaluated through accent and comprehensibility ratings provided by external raters. In parallel, detailed background data were collected via parental questionnaires to build each child's language profile. By focusing on children in middle childhood—a period when phonological systems are still flexible and English is acquired as a new language, while the acquisition of their other languages is still ongoing—this study provides new insights into how multilingual environments, peer interactions, and school-based exposure influence the development of native-likeness in speech.

The structure of this thesis is as follows: Chapter 2 presents the theoretical background, including research on child bilingualism and trilingualism, cross-linguistic influence, and key factors such as age of onset, input, and dominance. Chapter 3 provides a short overview of the study and the research questions raised in this thesis. Chapter 4 describes the methodology, participants, materials, and procedures. Chapter 5 presents the results in relation to each research question. Chapter 6 discusses the findings in light of existing studies and reflects on their implications for understanding phonological development in multilingual children and, finally, Chapter 7 summarises the conclusion of this study.

Chapter 2 Theoretical Background

2.1 Bilingualism and Trilingualism

The concept of trilingualism is often treated as an extension of bilingualism (Baetens Beardsmore, 1982), partly because "bilingual" has been broadly defined to include more than two languages (Kupisch, 2023: 271). As a result, trilingual studies often rely on bilingual frameworks for both data collection and analysis, which is a reasonable and safe approach; however, if research in trilingualism expands, these frameworks could be refined and tailored specifically for trilingualism (Hoffmann, 2001: 2–3). In line with this, the present thesis takes trilingual children as its main focus, with bilinguals included as a comparison group to strengthen the analysis. After Stavans and Hoffman's (2015) clarification in the relevant definitions, most recently Kupisch (2023) refers to the term of trilingualism as the one that "makes explicit that there are three languages (rather than two, four, five, and so on)" actively used by a speaker (Kupisch, 2023: 271).

In connection with language development, there are several studies that support the idea that trilingual development is not simply double bilingualism—it involves additional complexity and different strategies for managing multiple languages (e.g. Clyne, 1997; Dewaele, 2000; Hoffmann, 2001; Montanari, 2010). Clyne (1997) points out that, as a part of its complexity, trilingualism is not always stable over time. If one of the languages receives little input or support, it can gradually fade away, leading the child to become bilingual instead. His findings highlight how language dominance and social context play a key role in maintaining all three languages.

It might seem that a bilingual is only one language apart from a trilingual, but things are more complicated in trilinguals' communicating system. As Hoffmann (2001: 12) explains, a bilingual child can choose between speaking language A, language B, or a mix of both (A+B). But for a trilingual child, the range of possible combinations expands significantly—they can speak A, B, or C, as well as combinations like A+B, A+C, B+C, or even all three at once (A+B+C). So, while bilinguals manage three possible language choices, trilinguals are navigating seven. Seven language choices among all the language domains (lexicon, morphology, syntax, phonology) can be activated in a trilingual mind.

In addition, similar to bilingual development, there are different ways that a child can become trilingual. A typology of trilinguals is proposed by Hoffmann (2001), categorizing them based on their language acquisition circumstances and social contexts. This classification aids in understanding the diverse experiences of trilingual individuals. Furthermore, it acknowledges the variability among trilinguals and the influence of social, cultural, and psychological factors on language competence. Five groups of trilinguals are identified in her work (2001: 3) mentioned in *Table 1*:

Table 1. Hoffman's typology of trilinguals

Group	How they become trilingual
i	children who are brought up with two home languages which are different from the one spoken in the wider community
ii	children who grow up in a bilingual community and whose home language (either that of one or both parents) is different from the community languages
iii	third language learners, i.e. bilinguals who acquire a third language in the school context
iv	bilinguals who have become trilingual through immigration
v	members of trilingual communities

The trilingual children participating in the present study belong to the groups in (i), (iii) and (iv). For example, (i) L3_18 was born in Sweden with a Bengali-speaking mother and a Hindi-speaking father and learned English in school from a really young age. An example for group (ii) is L3_24 who was born in Germany, with Hindi/English speaking parents while she learned German in school and from her sister. Lastly, many of the participants belong to the (iv) group. As an example, L3_13 who was Latvian-Spanish speaker because of his parents' mother tongues and he moved to Sweden where he started learning English in the international school.

2.1.1 Simultaneous vs. Sequential Acquisition

Bilingual children are typically classified as either simultaneous or sequential bilinguals, depending on when and how they are first exposed to their two languages. Simultaneous bilinguals are exposed to both languages from early infancy—usually because each parent speaks a different language, such as a heritage language (HL) and the societal majority language (ML).

In contrast, sequential bilinguals acquire at home first HL and only begin to learn the ML later, often through social exposure in preschool or school settings, when both parents speak the same non-majority language or they grow up monolingually and learn a foreign language at school. While this distinction is widely used in the literature, the boundaries can be blurred in contexts where children enter early childcare—such as in Højen and Bleses' (2023) study, where children in Denmark are exposed to the majority language as early as 12–15 months. Similarly, in Sweden children can enter *förskola* (preschool) from 12 months. In the present study, simultaneous bilinguals and trilinguals are considered the children who acquired the second/third language between the first 2 years of their life and sequential bilinguals and trilinguals the ones that were exposed to the additional language after the age of 3. This distinction becomes especially relevant in studies of trilingual children, where children's early experiences with multiple languages can vary significantly. Some trilinguals may resemble simultaneous bilinguals if they are exposed to all three languages from early infancy, while others may follow a more sequential pattern, adding English (typically the school language) later or even starting as monolinguals and acquiring two more languages later in childhood (after 4-5 years). There are many studies cited in Hoffmann (2001: 9) that refer to bilinguals who turned into trilinguals through schooling: e.g., in Canada (Genesee 1998), the Basque Country (Cenoz 1998), in the United States (Klein 1995) and in Belgium (Jaspaert & Lemmens, 1990).

Understanding whether children were exposed to their languages simultaneously or sequentially can help explain differences in accentedness and the transfer mechanisms between their Ls. For example, children with early and sustained exposure to ML (English) may have a greater chance of developing a native-like accent than those who acquired English later. Thus, the timing and context of language exposure—often referred to as Age of Onset of Acquisition (AoO)—can influence early phonological development and may contribute to later differences in accentedness (see *section 2.3.2* for more on AoO and CLI).

2.1.2 Phonological Development in Trilinguals

Since phonological development is central to this study, this section provides a brief account of how it develops in trilingual children. As implied before, trilingual children's language systems are more complex and variable than in monolingual or even bilingual learners. As Gut et al. (2015) argue, L3 learners tend to show greater heterogeneity in both speech perception and

production, a pattern they attribute to the increased number of factors influencing phonological acquisition in multilinguals compared to L2 learners. This includes variables such as prior language learning experience, phonological overlap between languages, and individual learner strategies (Wrembel et al., 2020: 2).

This variability can be explained by the nature of phonological development itself, which is a gradual and dynamic process that continues well into later childhood. Montanari (2011) highlights that trilingualism may enhance a child's attention to phonological properties, improve articulatory precision, and foster greater metalinguistic awareness compared to monolingual peers (2011: 17). These advantages could support more flexible management of multiple sound systems, yet they do not eliminate the possibility of cross-linguistic interference—particularly in early stages of acquisition.

Multilinguals develop distinct language systems where linguistic features interact with each other according to the holistic model and the notion of multicompetence (Grosjean, 1985, 1992; Cook, 1991). Rather than acquiring each language in isolation, trilingual children build an interconnected system in which their languages co-develop and potentially influence one another and therefore it is assumed that the same applies for the phonological features. Within this framework, phonological representations are influenced by how the multilingual mind coordinates multiple linguistic features shaped by experience and cognitive flexibility. Montanari (2011) provides evidence that even in the earliest stages of trilingual development, children are capable of differentiating phonological systems before the age of 2 years (2011: 18). This supports the view that early trilinguals do not develop an undifferentiated "multilingual" phonological system, but rather three distinct systems influenced by timing and language experience (see *section 2.3* for further discussion on input). Adding to this, Einfeldt (2022) provides a summary of the findings across studies on Voice Onset Time[1] (VOT) acquisition and CLI which are mixed, partly due to differences in the majority language and testing timelines. Most studies on bilinguals suggest that the input plays an important role in VOT acquisition, but

[1] Voice Onset Time (VOT) is a phonetic measure that captures the interval between the release of a stop consonant (such as /p/, /t/, or /k/) and the onset of vocal cord vibration (voicing). Children learning to speak, like monolinguals, need time to learn the small sound differences (like VOT) that help distinguish speech sounds. This learning takes years and follows several stages. For bilingual children, the challenge is greater because they must learn two different sets of VOT patterns, which can vary between languages. Research has shown that the two languages can affect each other in how children pronounce sounds (Mayr & Montanari, 2015: 2). To my knowledge only Mayr and Montanari (2015) and Einfeldt (2022) had looked at what happens when children grow up with more than two languages.

different factors can add complexity to it and overall bilinguals maintain separate phonological systems, evidenced by their distinct productions in each language (2022: 115-120). In her own research, the trilingual child could develop separate sound systems early. Tommaso used different VOT patterns in each of his three languages, showing early signs of language separation and matched what is expected in monolingual development (Einfeldt, 2022).

Additionally, Mayr and Montanari (2015) found that the trilingual children developed separate stop systems in their phonology but showed cross-linguistic influence between their two languages. Interestingly, their Spanish—learned only from a nanny—remained unaffected, suggesting that consistent input from a single native speaker may support more stable phonological development and reduce CLI. Their study suggests that the nature of a child's linguistic environment – particularly the number of languages actively used, the presence of foreign accents, and the consistency of input from individual speakers – plays an essential role in shaping the degree of interaction between their developing phonological systems. However, these interactions are not always detrimental and can, in fact, sometimes be advantageous for language learning.

2.1.3 Phonological and Metalinguistic Advantages of Trilinguals Compared to Bilinguals

While bilinguals and trilinguals share many features—particularly when compared to monolinguals—several key differences have been highlighted in the literature. Trilinguals are not simply bilinguals with one additional language; rather, they manage a more intricate linguistic repertoire. This increased complexity is reflected in the number of language combinations they may activate in everyday interactions. Multilinguals are often reported to develop superior language learning abilities compared to both monolingual and bilingual learners, likely due to their accumulated experience with acquiring and managing multiple languages (Herdina & Jessner, 2002). They also tend to exhibit stronger metalinguistic and metacognitive skills—such as enhanced awareness of language structure and the ability to monitor and adjust their own language use—which actively support further language learning (Jessner, Megens & Graus, 2015). One concept that encapsulates this phenomenon is *multilingual awareness*, introduced by Jessner (2006, 2008), which refers to an emergent, dynamic feature of the multilingual mind that is both shaped by and shaping language acquisition, use, and development.

These cognitive advantages are particularly relevant in the domain of phonology. Evidence by Verhoeven (2007) showed that early bilinguals with high proficiency in both languages exhibit better phonemic and phonotactic awareness and segmental manipulation. That means that they can distinguish L1 and L2 categories (phonemes, segments, sound patterns) more easily (Moyer, 2013: 42). De Angelis (2007) emphasizes that multilingual learners benefit from prior experience with foreign language learning, allowing them to apply established strategies and linguistic knowledge when acquiring a new language. As a result, they often have access to a broader range of speech sounds, enhanced perceptual acuity, and a more refined sense of phonological structure (Gut, 2010; Wrembel, 2015). Several studies claim that multilingual experience positively affects L3 acquisition (Enomoto, 1994; Beach, 2001; Marx & Mehlhorn, 2010; Tremblay, 2010; Lloyd-Smith, Gyllstad & Kupisch, 2017). As it is generally agreed in L3 acquisition research, learning a third language is not quite the same as learning a second one—mainly because learners can draw on more than one previously acquired language. As Bardel and Falk (2007) point out, this idea has been supported by several scholars over the years (e.g., Hufeisen, 1998; Cenoz & Jessner, 2000; Cenoz, 2001, 2003).

These claims are connected to the present study's first research question (RQ1) that investigates if trilingual children will be rated as more native-like in accent compared to bilinguals when acquiring English. Based on the previous evidence in adult trilinguals, we hypothesize that trilingual children will receive higher ratings in English than bilinguals (RQ1), due to their wider phonological repertoire. On the other hand, one could argue that this exposure to many different languages could lead instead to more accented speech. However, this case would be more relevant to adult L3 learners who have their phonological system developed, but even the adult trilinguals have shown great language skills in previous studies. Taking everything into consideration, it seems more possible that the enhanced metalinguistic awareness and the developed perceptual skills that trilingual children have will induce high English nativeness scores. This assumption guides the comparative analysis of bilingual and trilingual children's speech in the study that follows.

2.2 Cross-Linguistic Influence (CLI) in Third Language Acquisition (TLA): Theoretical Models and Factors

The impact of previously acquired languages on the learning of a new one is commonly described as cross-linguistic influence (CLI) or transfer[2]. Researchers such as Selinker (1972), Gass and Selinker (1992), and Odlin (2003) have emphasized that CLI is a fundamental part of SLA. However, scholars continue to debate the exact conditions under which CLI occurs, what triggers it, and which areas of language it affects. While much of the early research focused on how a learner's first language (L1) shapes their second (L2), more recent studies have expanded the focus to include additional languages, raising questions about the limitations of traditional SLA and bilingualism frameworks. As Hoffmann (2001: 1) points out, Third Language Acquisition (TLA) has emerged as a field in its own right—one where the influence of both L1 and L2 must be examined in parallel (Llama et al. 2010: 39).

This broader understanding of CLI is particularly relevant for studies on trilingual children, who must navigate multiple systems that interact at various linguistic levels. As Wrembel and colleagues (2020) emphasize, in L3 acquisition, CLI can not only shape the new language's phonological structure but also feed back into the previously acquired languages, altering their use or production. Thus, in multilinguals, CLI is not linear or uniform—it is dynamic, context-sensitive, and shaped by the learner's history, dominance patterns, and communicative environment. While CLI is sometimes linked to non-target-like forms, it can also result in positive transfer when similarities between known languages and the target language support acquisition.

Cross-linguistic influence also functions differently in multilinguals than in bilinguals. While bilingual CLI typically involves transfer from the L1 to the L2, multilinguals can experience transfer from any of their known languages, depending on a combination of factors such as dominance, typological proximity, recency of use, and context of learning (Herdina & Jessner, 2002; De Angelis et al., 2015). This is particularly relevant for the third research question (RQ3), which asks whether trilingual children exhibit phonological transfer from their early-acquired languages when speaking English. Evidence from previous studies indicates that in cases where a trilingual speaker is perceived as accented in English, raters can often identify

[2] The term "transfer" actually falls under the term of CLI, along with the "acceleration" and "declaration". All describe the types of CLI in SLA according to Paradis and Genesee (1996).

the influence of L1 or L2, suggesting detectable CLI (Wrembel & Cabrelli, 2018; Wrembel, 2010; Gut, 2010) (see section 2.2). Although the phonological advantages of multilingual learners have been discussed in several studies, most of this research has focused on adults or early childhood, leaving a gap in our understanding of accent development and CLI in middle childhood trilinguals—a gap this study aims to address.

2.2.1 Models for CLI in L3 Acquisition

Different models have been proposed to explain which language influences the third one when learning an L3. Lloyd-Smith et al. (2017) provide the overview that follows of those that occur in the L3 initial transfer. First, the *Cumulative Enhancement Model* (CEM), introduced by Flynn et al. (2004), suggests that transfer can come from any previously acquired language—L1 or L2. In other words, CLI is always positive and builds cumulatively. Leung (2005) maintained that the L3 initial state is not the same as L2 initial state, since the speaker can transfer from different languages when acquiring a L3, which supports the CEM framework. Moreover, Hammarberg, (2001) and Wrembel (2010) claim that during the initial learning phase of L3, speakers unconsciously relied on their L2 as a strategy to manage unfamiliar sounds and to prevent an L1 sound in their speech (Lloyd-Smith et al., 2017: 132, 136).

In contrast with CEM, the *Typological Primacy Model* (TPM) by Rothman (2011, 2015) argues that the language most typologically similar to the L3 will be the main source of transfer, regardless of whether it is the L1 or L2. This model focuses on perceived similarity across the language systems and brings the factor of typological proximity. However, it can be argued that because of the cognitive economy early/experienced bilinguals with well-established L1 and L2 systems (from long experience) have stronger inhibitory control and therefore, might be more skilled at learning an L3 without having to fall back completely on just one of their existing languages. Gut (2010) provides no evidence for typological proximity in her study showing that the L2 proficiency is a barrier for the L1 transfer to L3 when she tested L2 and L3 of adult trilinguals with different L1 (Lloyd-Smith et al., 2017: 132, 137).

Another approach is the *L2 Status Factor Model* (L2SFM), proposed by Bardel and Falk (2012), which suggests that adult learners are more likely to transfer from their L2, since it tends to be more active in their minds when learning yet another language. This is often explained in terms of memory systems: L2 and L3 knowledge in adults is typically based on declarative

memory, while L1 is more rooted in procedural memory. Similarly the model of Paradis (2009) distinguishes L1 as being acquired in a more implicit, automatic way, while L2 tends to involve explicit, rule-based learning—especially in instructed settings. Since L3 learning often mirrors how L2s are acquired—especially when formal instruction is involved—the L2SFM proposes that learners are more likely to draw on their L2, particularly in areas that rely on conscious, explicit knowledge (Lloyd-Smith et al., 2017: 133-134). However, it is important to keep in mind that this model is based on adult sequential learners, which does not quite reflect the context and the sample of this study. The children in the present study are still developing all their languages, and most likely rely on procedural memory not only for their L1 but also for their L2 and L3. Evidence from Anastassiou et al. (2017) challenged this model, since Greek/Albanian children with English as L3 were transferring from Greek regardless of whether it was their L1 or L2. These results highlighted the importance of the majority language and the frequency of the input as well as they implied the importance of the 'social status' of Greek, since all the participants were living in Greece (Anastassiou et al., 2017: 33).

While these models offer valuable insight into the mechanisms behind CLI in L3 acquisition, they rely on factors that are often difficult to measure directly in young learners. Moreover, they were largely developed through adult or adolescent data and, as Loyd-Smith et al. observed, none of the studies they reviewed provide full support for those models. Instead, they indicate that more factors such as AoO, overall language proficiency, and phonological awareness may play a more decisive role in shaping accent (2017: 137-138) and they chose to investigate the role of dominance, taking its effects separately (phonological proficiency and frequency) in L3 learning. As Ortega (2008: 124–127) argues, CLI in multilingual acquisition is not driven by a single factor, but rather shaped by whichever elements are most salient in the learner's linguistic experience. Among these are recency of exposure, language proficiency, and contextual elements such as the setting, topic, and interlocutor. Order of acquisition and memory-related constraints are also highlighted in her work. Altogether, such research emphasizes that CLI is a dynamic outcome of cognitive, experiential, and contextual factors. The following sections present the variables that the present study chose in order to test the presence of cross-linguistic influence in trilingual children's phonological development. This directly addresses one of the central questions of this thesis, namely RQ3, which explores what extra-linguistic factors modulate CLI in participants' performances.

2.2.2 Age of Onset of Acquisition (AoO)

Age of Onset of Acquisition (AoO) has traditionally been regarded as central to language acquisition under the *Critical Period Hypothesis* (CPH) (Lenneberg, 1967), but several studies in multilingualism listed by Lloyed-Smith et al. (2017: 137-138) challenge this theory and suggest that accent is affected by other factors such as language input, proficiency, or phonological awareness (e.g., Kupisch et al., 2021; Moyer, 2013; Wrembel et al., 2020). According to the CPH, earlier exposure is generally associated with better phonological outcomes (see Piske et al. 2001 overview on L2 acquisition). For instance, Long (1990) claimed that an L2 is usually spoken accent-free if it is learned by the age of 6 years and although some studies have reported the same (Tahta et al., 1981; Flege & Fletcher, 1992; Flege et al., 1995), there are few studies in bilinguals that provide different evidence, showing that an AoO earlier than 6 is not necessarily connected to accent-free speech (Thomson, 1991; Flege et al., 1997). Additionally, there are studies reporting native-like accents with an AoO that exceeds the 12 years or even takes place in adulthood (some in Flege et al. 1995, Bongaerts et al. 1997, Moyer, 1999), as reviewed by Piske et al. (2001: 196-197). However, those studies are limited to L2 learners and as it was mentioned before, trilinguals have a different language repertoire which could accelerate language attainment.

The mixed evidence indicate that AoO may set the stage, but it does not fully determine phonological outcomes in multilingual learners. Native-like performance is usually the product of several variables working together and this study aims to investigate its relation with these variables through RQ2. Along with AoO, other factors that are mostly known to modulate CLI in L3 phonology include language dominance and input, which are presented in the following sections.

2.2.3 Language Dominance

The concept of Language Dominance dates back to early bilingualism studies in 1939-1949 (Leopold, 1939, 1947, 1949) and connected to studies in bilingualism, but there is no consensual approach for it. Lately the term has received increased interest around SLA and multilingual acquisition. There are proficiency-based (Treffers-Daller & Silva-Corvalán, 2015; Birdsong, 2014; Kupisch & van de Weijer, 2015) and frequency-based approaches to it (Argyri & Sorace, 2007), with the first highlighting the performance of the speakers in different language skills and

the second one measuring the amount of the input of the languages the speakers speak. While the approaches are different, it seems that one is influenced by the other since more use tends to result in more proficiency as it was shown in Kupisch and van de Weijer (2015) (Lloyd-Smith et al. 2017: 138).

Recent research suggests that language dominance and context of use are equally—if not more—important than AoO (Kupisch et al., 2021; Moyer, 2013; Piske et al., 2001; Benmamoun et al., 2013). For instance, a child who receives early but limited input in a heritage language may develop weaker phonological representations than one who receives sustained, daily interaction in the same language throughout childhood. Similarly, the school environment and peer interactions can shift dominance toward English or the community language, shaping the child's developing accent in all three languages. These observations highlight that trilingual development does not proceed evenly or automatically. In studies of phonological development, such as the one undertaken here, these factors are crucial in interpreting both the presence of CLI and the degree to which accentedness reflects exposure, dominance, or transfer.

As discussed in Einfeldt (2022: 14), several studies (e.g., Kehoe et al., 2004; Paradis, 2001) have found that a dominant language can influence a minority language's phonology. However, reverse influence—minority to majority—has also been documented (Stoehr et al., 2018; Almeida et al., 2012), suggesting that dominance alone cannot account for all cases of CLI. Einfeldt's own findings from a simultaneous trilingual child (Tommaso) support the idea that balanced input and use across three languages may foster native-like phonological development. In Tommaso's case, both syntactic proficiency and language use were evenly distributed, likely contributing to his ability to separate languages and produce monolingual-like patterns. While this case reflects the early developmental stage of a two-year-old and is therefore not directly comparable to the elementary-aged participants here, it provides valuable insight into how simultaneous trilingualism may function under ideal conditions of balance.

Still, uneven exposure can result in dominance in one language, which may then become the source of phonological CLI into less dominant ones. Such dominance patterns are not only shaped by the home environment, but also emerge through peer interaction, school language use, and broader community norms. These factors deserve close attention when examining accent ratings and the directionality of CLI. As a result, real-world social and educational contexts must be included in any interpretation of phonological development in multilingual children.

In this study, I adopt the framework proposed by Lloyd-Smith, Gyllstad, and Kupisch (2017), who operationalize language dominance through two distinct but complementary measures: (1) phonological proficiency, assessed via native speaker accent ratings, and (2) language use, captured by the Turkish Use Score (TUS), a tool designed to quantify the frequency and quality of heritage language exposure across life domains. By treating these as separate constructs, the authors acknowledge an important point: proficiency and input do not always align, and may independently shape L3 phonological transfer.

Although language dominance is often treated as a separate construct, it is closely intertwined with input. In many cases, what is labeled "dominance" reflects long-term patterns of exposure—how often a language is heard and used, in which settings, and with whom. Still, for analytical clarity, it is useful to shift focus now to input itself, as the distribution, consistency, and quality of exposure can influence the direction and extent of cross-linguistic influence in trilingual children's phonological development.

2.2.4 The Role of Input for CLI

In multilingual development, input is often the hidden variable behind many observable outcomes. It is not just about how much language a child hears, but who speaks it, in what context, and how consistently. Input can be direct, like a parent speaking to the child, or indirect, such as overheard conversations or media exposure. What matters is not only quantity but also quality—especially when it comes to phonological development. Research shows that early phonologies are sensitive to both the amount and richness of input, with clear, native-like, and context-specific exposure supporting the development of distinct sound systems across languages (Kupisch, 2023; Vihman, 1998).

While the amount of input a child receives is important, its quality often carries more weight—particularly when it comes to developing clear, separate phonological systems. Input is most effective when it is consistent, rich, and linked to a specific speaker or context (Mayr & Montanari 2015). For example, when caregivers consistently use one language each, it helps children separate their languages more easily and reduces cross-linguistic overlap. Kupisch (2023) notes in her studies review that this kind of structured, monolingual input—especially when tied to specific people or settings—supports language differentiation more effectively than mixed-language approaches (2023: 287-289). This highlights that quality input is not just about

frequency, but about how clearly and predictably it is delivered and also how native-like is the parental accent.

Beyond the home environment, school and peer interaction play a major role in shaping children's linguistic experience—especially in multilingual settings like the one in this study. Even when early exposure to a heritage or minority language is present, daily routines in a school where English is the main language of instruction can quickly shift input patterns. Peer conversations, classroom talk, and the social pull of the community language all contribute to increased dominance in English, which may gradually weaken the child's active use of their other languages. Research confirms that peer interaction plays a crucial role in language development, sometimes even outweighing parental input (Quay, 2008; Maneva, 2004) (Chevallier, 2011: 72). And, as noted in Kupisch's review (2023), many researchers suggest that using community language at home might affect the other languages, because it limits the domains in which the minority languages would otherwise have opportunities for use (De Houwer, 2004; Braun & Clyne, 2010; Braun, 2012; Choi, 2019).

As children spend more time in school environments where English is the dominant medium, daily peer conversations and classroom discourse begin to shape their language habits. Moyer (2013) suggests that what is often seen as an early age advantage in phonology may instead reflect consistent exposure and peer interaction in the school language (2013: 25–26). School input becomes not only more frequent, but also more socially embedded and emotionally relevant—factors that have been shown to affect how children sound in each language. Stavans and Swisher (2006) indicate that the community language (school language) became the dominant for the trilingual children in this study, without being used a lot at home. This aligns with Hoffman's (1985) observation that her children rapidly developed English as their dominant language after starting school, despite not receiving it from their parents at home and supports the idea of the importance of quality input. While this may seem unexpected, it highlights how powerful school-based exposure can be—even outweighing the language most frequently spoken in the home (Chevalier, 2011: 75). A question that arises here is what happens if the community language is different from the school language? This is a distinct case and this study will bring insights to it, as well as the importance of the children's preferred language.

This is particularly relevant to this study's second research question, which examines whether children's degree of proficiency in English is potentially linked to specific factors, such

as their language use and Age of Onset of Instruction. In this way, input from the school context is a central driver of cross-linguistic influence and phonological outcomes. Therefore, it is assumed here that if English dominates their day-to-day interactions, especially through peers and schooling, it will reinforce native-like pronunciation. If this is the case, then that input actively shapes language development and it may determine which language becomes dominant, which features are maintained, and which may transfer across systems. For trilingual children, whose languages are constantly interacting, the source, quality, and context of input help determine the direction and strength of CLI, although the language complexity may have negative results. Therefore, in phonological development, where even subtle differences in exposure can affect how a child sounds, input is a key piece of the puzzle.

Altogether, understanding how trilingual phonological systems emerge, interact, and diverge over time provides important context for evaluating why some children may be perceived as more native-like in one language than another. It also raises questions about how early exposure, input quality, and language use influence accent development in multilingual settings. This study aims to contribute to those queries.

Chapter 3 Study Overview, Research Questions and Predictions

This study examines accentedness and comprehensibility in 33 multilingual children (19 trilingual, 14 bilingual) aged 7–11 (mean=9.6) attending an international school. It follows the exact process: children's natural speech recording in all of their languages, the parents fill in a questionnaire with questions regarding their children's language background. Then, native speakers/raters listen to the anonymous soundfiles and provide proficiency rating scores on accent and comprehensibility for English and the English raters try to identify the L1 of each child. Individual native speakers of the other home languages rate the relevant audio files. Finally, the dominance profiles are estimated by the proficiency scores and the language use as reported by the parents.

The following research questions guided the study:

RQ1: Do trilingual children have phonological advantages connected to accent over bilingual children when acquiring English?
RQ2: What factors influence the degree of perceived nativeness in English?
RQ3: Do the bi- and trilingual children exhibit transfer from their early acquired languages when they speak English?
RQ4: What factors influence the perceived transfer source in English?

It is predicted that trilinguals will receive higher ratings in the accent (corresponding to more native-like performances) than the bilingual group (RQ1), due to their wider knowledge of speech sounds, higher metalinguistic awareness, and potentially superior perceptual abilities, all of which can facilitate the acquisition of a new phonological system (De Angelis, 2007; Gut, 2010; Wrembel, 2015; Jessner et al., 2015) and therefore their pronunciation. This assumption is aligned with many studies that support the idea that multilingual experience is beneficial for learning a third language (L3) (Enomoto, 1994, Beach 2001, Marx & Mehlhorn 2010, Tremblay 2010, Lloyd-Smith, Gyllstad & Kupisch 2017).

In relation to RQ2 it is expected that various factors might influence the degree of nativeness in English, if we consider that the sample of the participants is reflecting the heterogeneity of the multilingual community. These include age of onset of acquisition, age of onset of English instruction, language dominance, and language use (input), all of which may shape perceived nativeness in English. Language preference is also considered, as children's alignment with a particular language—socially or emotionally—can influence usage patterns and potentially affect accent. These variables are explored as possible influences in multilingual children's pronunciation and, following the latest studies (e.g. Kupisch et al., 2021; Moyer, 2013), it is expected that dominance (language use and proficiency) will play a crucial role in the degree of nativeness in English.

Regarding the RQ3 it is also assumed that if any home languages are identified, then the child shows signs of phonological CLI from those language(s). This means that some phonological representations could stem from a L1 or L2, based on evidence that tranfer can stem from any of the known languages (Flynn et al., 2004; Wrembel & Cabrelli, 2018).

Finally, it is predicted that dominance will mainly modulate CLI (RQ4). This assumption is based on evidence from previous studies on heritage adult speakers (bilinguals) acquiring a L3 (Lloyd-Smith et al., 2017: 155-156) and from the belief that the peer interactions and the school setting are essential for defining language dominance and preferences of young learners linked to speakers' identity.

Chapter 4 Methodology

4.1 Preparation of the Study

4.1.1 Recruitment and Participants' Profile

An invitation letter was sent to parents through the Newsletter of each classroom presenting the study and the criteria for application (see Appendix A). Some of the invitations were given in a printed form. Some constraints to deal with were the parental permissions and the age gap between the participants. I aimed for more trilinguals, since this was the main focus of the study and I tried to gather more children from the upper primary (PYP4-PYP6) and only one child was from PYP3, in order to have a minimum age gap. The two groups were formed after the examination of the applications.

The trilingual group consisted of 19 children (7-11 years old, mean age=9.6) and the control group of 14 bilingual children (7-11 years old, mean age=9.7) from an international school located in the South part of Sweden in the region of Skåne (ISLK school of Lund). The 33 children reflect ≅19% of the elementary population of this school. The children originate from a wide range of countries, including Brazil (n=1), China (n=3), Costa Rica (n=1), Denmark (n=1), France (n=2), Germany (n=2), India (n=3), Indonesia (n=1), Italy (n=1), Jordan (n=1), Kazakhstan (n=1), Pakistan (n=2), Poland (n=3), Rwanda (n=2), Spain (n=2), Sweden (n=1), Switzerland (n=2), Turkey (n=2) and the United Kingdom (n=2). These children speak a variety of home languages, including Bahasa Indonesia (n=1), Bengali (n=1), Catalan (n=1), Chinese (Mandarin) (n=3), Danish (n=1), French (n=6), German (n=3), Hindi (n=2), Italian (n=2), Latvian (n=1), Kinyarwanda (n=2), Polish (n=3), Portuguese (n=1), Russian (n=1), Spanish (n=4), Swedish (n=14), Telugu (n=1), Turkish (n=2), Urdu (n=2) and Ukrainian (n=1).Most of them shared the Swedish language (41,18%), while French (17,64%) and Spanish (11,76%) were among the most common languages other than Swedish,

At the time of data collection, all participants attended an English international school, with English serving as the main language of instruction. Some of them had attended different schools in the past either in Sweden, or in the country they lived before they arrived in Sweden. Of those, 5 attended English Language Support (ELS) lessons in school, which means that their English proficiency was still comparatively low. However, in this study accent ratings and

comprehensibility serve as proxies for proficiency. This design prioritizes external perceptual measures over institutional classifications, but a distinction between students of ELS and the others will help interpret the results at a later point.

After parental permission was given, the trilingual participants were selected based on their ability to communicate in English and two additional languages. This means that the trilingual students were able to understand and speak in their school language (English) and two more languages and make use of those on a daily basis —at home, at school, or with family and friends. Similarly, the inclusion criterion for the bilingual controls was the ability to speak and understand English and one additional language beyond their native language.

The profile of the trilingual and the bilingual participants is summarized in *Tables 1* and *2* respectively. As *Table 2* shows, the trilingual group was formed by 10 simultaneous and 9 sequential trilinguals with a mean age of 9.6.

Table 2. Overview of the participants - L3 Group

IDs	Age	Languages Spoken	Type of trilingualism	English fluency
L3_1	10	Italian, English, Swedish	sequential	advanced
L3_2	10	German, English, Swedish	sequential	advanced
L3_3	11	Polish, English, Swedish	sequential	advanced
L3_4	10	Kinyarwanda, French, English	simultaneous	advanced
L3_5	10	Swedish, French, English	simultaneous	beginner
L3_6	10	Swedish, English, Italian	simultaneous	advanced
L3_7	11	French, Spanish, English	simultaneous	advanced
L3_8	9	Mandarin, Swedish, English	simultaneous	advanced
L3_10	9	Mandarin, Swedish, English	simultaneous	advanced
L3_12	10	Spanish, Catalan, English	simultaneous	advanced
L3_13	8	Spanish, Latvian, English	sequential	advanced
L3_14	8	Kinyarwanda, French, English	simultaneous	advanced
L3_17	10	Danish, English, Swedish	sequential	advanced
L3_18	10	Hindi, Bengali, English	sequential	advanced
L3_21	8	Swedish, French, English	simultaneous	beginner
L3_22	9	German, English, Swedish	sequential	advanced
L3_23	10	Turkish, Ukrainian, English	sequential	beginner
L3_24	11	English, Hindi, German	sequential	advanced
L3_29	10	Spanish, English, Swedish	simultaneous	advanced

Similarly, *Table 3* below presents the bilingual group consisting of 6 simultaneous and 8 sequential bilinguals with mean age 9.7. In this group 2 out of the 14 participants were attending ELS lessons.

Table 3. Overview of the participants - L2 Group

IDs	Age	Languages Spoken	Type of bilingualism	English fluency
L2_9	9	Polish, English	sequential	advanced
L2_11	9	Polish, English	sequential	advanced
L2_15	10	Bahasa Indonesia, English	sequential	advanced
L2_16	7	French, English, (Spanish)	simultaneous	advanced
L2_19	9	Urdu, English	sequential	advanced
L2_20	10	Russian, English, (Kazakh)	sequential	beginner
L2_25	11	Portuguese, English	sequential	beginner
L2_26	10	Mandarin, English	simultaneous	advanced
L2_27	10	Turkish, English	sequential	beginner
L2_28	10	Telugu, English	simultaneous	advanced
L2_30	11	Urdu, English	sequential	advanced
L2_31	10	English, Swedish	simultaneous	advanced
L2_32	10	English, Swedish	simultaneous	advanced
L2_33	10	English, Swedish	simultaneous	advanced

4.1.2 The Parental Questionnaire

After the participants were selected, their parents received through an email an online questionnaire (see Appendix B) that included information on the following variables:

- the child's age,
- the child's linguistic background (languages spoken with the child, the mother tongue of both parents,
- Age of Onset of Acquisition (AoO) in each of his/her languages,
- Age of Onset of Instruction in each of his/her languages,
- formal[3] and informal[4] language exposure/use for each of his/her languages,
- language preference.

[3] Receiving education in a language (at school, mother tongue lessons, tutoring).
[4] Listen to the language at home, with friends, in activities outside of school, from family members, while watching TV or playing video games.

Language Use (input) was estimated by the parents on a 5-point-scale (1=very low input, 5=very high). The language data from the questionnaire were used to categorize participants and explore predictors of dominance. It should be noted that the questionnaire describes the linguistic experience of each participant at this particular moment of time and the information connected to the amount of exposure (formal or informal) does not necessarily imply that this was the same in the past.

4.2 Materials

4.2.1 MAIN (Multilingual Assessment Instrument for Narratives)

The speech elicitation conducted by using pictures from the MAIN (Multilingual Assessment Instrument for Narratives), an instrument that provides stories in sequential pictures and it is used for narrative skill assessments in monolingual, bilingual or multilingual children (Gagarina et al., 2019). The narrative task was adapted from the MAIN framework but focused on descriptive ability, a narrative activity that the elementary school children of ISLK are familiar with.

The *CAT* narrative was selected as the primary stimulus for English, while the *BABY BIRDS* story served as a simplified alternative for participants less confident in one of their languages[5]. A few times the *BABY BIRDS* story was used (it was kept as an alternative for participants that were less comfortable using a particular language or for the ones that did not want to narrate the same story again). The *BABY BIRDS* story had easier vocabulary such as "cat", "dog", "birds", "tree" compared to the *CAT* story that required words such as "fishing rod", "spiky bush" and "bucket". Indeed, the participants who picked that story admitted that it seems easier than the other one.

4.2.2 Recordings

Their speech was recorded using the Redmi Note Pro 10 mobile phone's Recorder. Audio files were converted to .mp3 format using an online tool (https://convertio.co/) for ease of processing, then the files were uploaded in Google Drive, so theý could be linked to Google Survey Form for

[5]The creators of MAIN suggest the stories with many characters are more difficult to narrate, but here the story that had the simpler vocabulary (in my opinion as an educator) was kept as an easier alternative. Providing different stories to children for each language can create the same degree of difficulty (since they repeat the same vocabulary), but here I kept the same story to ensure equal narrating length and I assumed that the vocabulary in their different languages might not be as easy to elicit in each of them.

the rating task. Audacity(R) 3.7.37[6] was used to cut the English audio files to 14-16 seconds that were carefully selected from the original audios in order to minimize the time for the rating process.

4.3 Data Collection Procedure with Children

The meetings with the children were scheduled in collaboration with their classroom teachers. The narrative tasks were conducted in a quiet room during school hours. Each participant was planned to be engaged in a detective-themed activity in which they had to narrate a story to me in English and then to their detective friends who live in another country/other countries in the languages they speak. It was explained that this is a fun activity and it helps the university, it is not connected to school work and their syntax or grammar will not be judged. After the participants were told about the process, they started with the main task. They were shown a story in six sequential pictures from MAIN and they had to explain the story to their colleague detective who lives abroad. The aim of storytelling here was to collect naturalistic speech data from the participants for all of their languages to be used in the rating process.

The majority started with the storytelling in English (only two of them chose to start with their L1) and then they repeated the same task in the other(s) language(s). To minimize cross-linguistic activation, a brief break was included between narrative tasks in each language. Starting the task in English was considered as the optimal choice to minimize language interference, because the instructions were given in English too and it was expected for the children to be biased by the interlocutor's language[7].

After the task, there were some follow-up questions, in order to identify any connection between the children's language preferences and their performance;

I. What language do you like speaking the most? Why?
II. Do you think in another language before you speak in English?
III. When do you feel like a real English speaker?

[6] Audacity® software is copyright © 1999-2019 Audacity Team. Web site: https://audacityteam.org/. It is free software distributed under the terms of the GNU General Public License. The name Audacity® is a registered trademark of Dominic Mazzoni.
[7] As mentioned at Genesee et al. (1995), interlocutor sensitivity refers to children adjusting their language use based on who they're speaking to.

The first question (I) was also part of the parental questionnaire to ensure that the reported preference from the children is reliable. The second question (II) aimed to check their internal speech to evaluate if the participants need to translate in another language before they speak English or if they - as native speakers - do not need to. And the last question (III) aimed to identify the ideal context where the participants feel more as native speakers in English, in order to explore whether the environment of the input plays a role. The children's responses were used to measure how many children preferred English and compared with the proficiency scores to further interpret the results. Preference was also explored as a variable that affects cross-linguistic influence. Lastly, the thitd question was used in order to further discuss the results and explore the possible impact of the school.

After all tasks in all languages were completed, each student received a certificate of participation and a small gift card as a form of appreciation for their time and effort.

4.4 Speech Rating Task in English

The speech data elicited in the narrative tasks were presented to English raters in a Survey. This Survey was created by using a Google Form. The 33 different sound files were uploaded in the Form and they were divided in different sections (each section for a child). Every section asked the rater to listen to the sound file and then come back and evaluate the speech. The participants were presented mixed (bilinguals and trilinguals) and anonymous. For each sound file, the raters had to provide one score for accent and one comprehensibility. They were also asked if they were able to identify the L1 of the child and report it.

4.4.1 Raters

The English rater group consisted of 22 adult participants, 14 females (63,6%) and 8 males (36,4%) that were recruited through my personal network (former colleagues, friends and family).

To my knowledge, they had not had former experience with accent rating tasks. In terms of age distribution, 22,7% of the raters were between 18-30 years old, 27,3% were between 31-40 years old, 36,4% were between 41-50 years old and 13,6% were over 51. The majority were native English speakers (86,4%, n= 19) and the rest of them were Greek native speakers (n=3) with an

experience in teaching English[8]. In total, 9 of the raters had some experience in teaching English. Additionally, 12 participants (54,5%) had experience working in an international school setting, which means that they were exposed to a variety of accents of the target language.

4.4.2 Speech Rating Task for English

The rating task presented the English sound files of all participants in a mixed order, but everyone listened to the samples in the same order. It was explained to the raters that they could save their progress in case they wanted to have short breaks, since the whole task needed 25-35 minutes. The raters were presented with the instructions for completing the task in detail; they would have to listen to short samples (14-16 seconds). Raters were not told which children were bilingual or trilingual and they needed to evaluate two aspects: accent and comprehensibility[9]. The following questions were given for each audio file:

STEP 1: How easy is it to understand what the child says (comprehensibility)?
STEP 2: How native-like they sound (native-likeness)?

Afterwards, an optional question regarding the L1 of each child was followed; if raters could guess which was the L1 of the child, they could give a short answer. Before they started, they were informed that the children are between 7 and 11 years old, and they are still in the process of developing their language skills. It was highlighted that the raters should not judge their grammar, syntax, or vocabulary. Instead, they were asked to focus only on how the speech sounds. Also, it was mentioned that any dialect of English should be considered to be "English-sounding".

The raters had to assess how easy they could understand the children's speech on a 6-point scale (1=almost incomprehensible, 6=very comprehensible) and how accented their speech was (1=heavily accented - 6=native-like). While it is common to use a Likert scale with

[8] Although these raters were not English native speakers, I decided to include them because apart from their experience in teaching English, one of them used to live and study in England and the other two are living also in the United Kingdom for more than 10 years. Besides, their ratings did not deviate substantially.

[9] In alignment with Munro and Derwing (2011) *"We understand ACCENTEDNESS as how different a pattern of speech sounds compared to the local variety. And, like other researchers, we assess it by having listeners rate speech on a Likert scale. We define COMPREHENSIBILITY as the listener's perception of how easy or difficult it is to understand a given speech sample. This dimension is a judgment of difficulty and not a measure of how much actually gets understood."*

6-9 points, studies with children have used smaller scales (Kupisch et al., 2024: 13). It should be noted that, “heavily accented” may sound “inappropriate” but it was named in this way in the scale to make it clear for the raters that I meant that the lowest score referred to completely opposite from native pronunciation. The procedure of the rating task is displayed in *Figures 1,2,3* below, showing the questions that the raters had to answer for all of the participants after listening to the sound files. The number of the hashtag refers to the number of the participant.

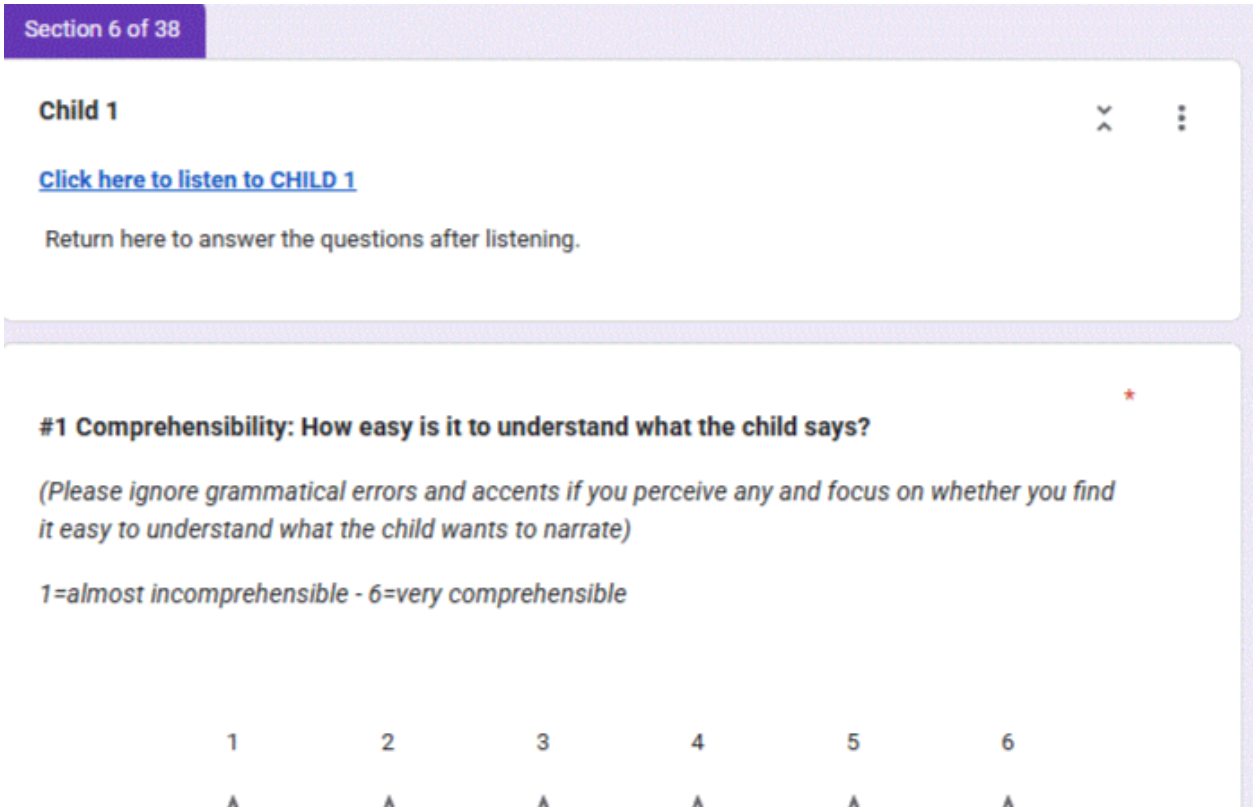

Figure 1. English Rating Task - Comprehensibility Rating Question

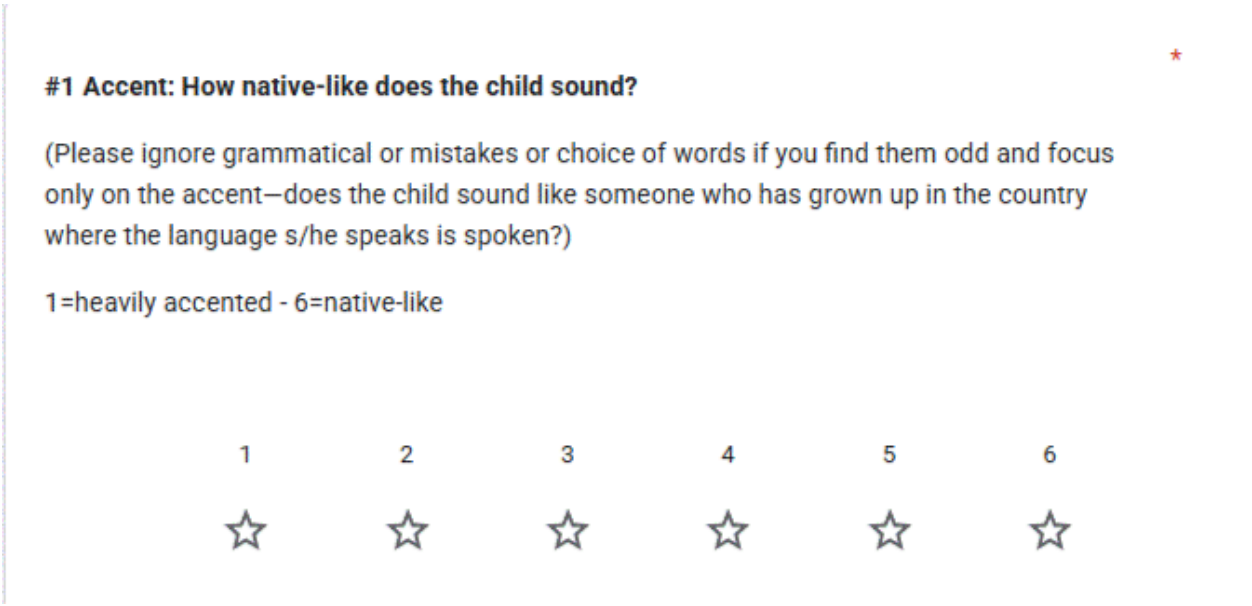

Figure 2. English Rating Task - Accent Rating Question

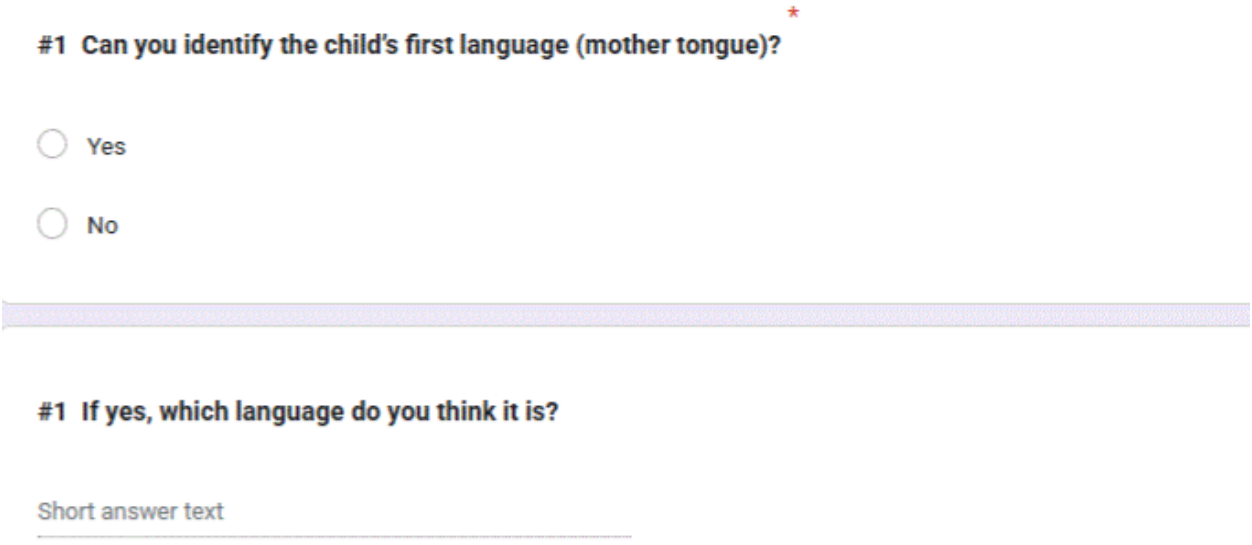

Figure 3. English Rating Task - L1 identification question

Additionally, to ensure that the raters would be familiarized with the process, they were given two practice items, which were excluded from the actual rating task data at the end.

4.4.3 Speech Rating for the Background Languages

Proficiency rating scores for the background languages were also collected to establish a dominance profile for each child. Regarding the other languages that the children could speak apart from English, native speakers of 18 different languages[10] (one for each language) were contacted to evaluate the children's narration regarding comprehensibility, accentedness and errors in speech. Again, a 6-point-Likert scale was used for assessment. The rating task was the same, but these raters were asked also to evaluate the errors in the speech. This was done in order to get as much information as possible to add a more objective measure of the children's dominance, since in this task there was only one rater per language.

4.5 Data Analysis

First, a close look at the rater data was needed to ensure reliability among their answers. To check that the raters were consistent in their judgments, I looked at how much their scores differed from each other. In most cases, the ratings for each child did not vary more than two points from the average score, which suggests that there was a good level of agreement across raters. Based on this, I calculated a mean score for each child's comprehensibility and accent, and these averages were used in the analysis. After that, descriptive statistics (e.g., mean scores, percentages) and qualitative analysis were used to explore patterns in children's pronunciation and potential sources of phonological transfer.

For RQ1, I compared accent and comprehensibility ratings between the trilingual and bilingual groups from the English rating task. Each child's accent and comprehensibility scores were calculated by averaging multiple ratings on a 6-point Likert scale, where higher scores indicated more native-like performance.

For RQ2, I had to look at the factors that were related to accent ratings in English. In order to explore both RQ2 and RQ4, I needed to operationalize dominance. Therefore, I used the following information from the questionnaire: Languages within the family (Mother's Language with the child, Father's Language with the child and Grandparent's Language with the child), Formal and Informal Input (*Tables 4, 5*). The Input was reported by parents in a scoring system from 1 to 5 (1=very low, 5=very high) and it was the evidence for Language Use for each

[10] All languages apart from Bahasa Indonesia, Telugu and Ukrainian, due to the difficulty of finding and recruiting native raters from those.

language. For the English input index used in Figures 12(a–b), I added the formal and informal 1–5 scores for each participant with the languages used within the family[11], which resulted in a scale ranging from 7 to 12. The overall estimated input was combined with the proficiency ratings for English and the ratings for the other languages (if available) to estimate the dominance. In cases where the values were similar across languages, the child was classified as balanced bilingual or dual balanced trilingual. Then, I used scatterplots to visualise possible correlations between the degree of perceived nativeness in accent and three variables: age of onset of English exposure (AoO), age of instruction (AoI), and reported Language Use (a combined score from informal and formal input). I also compared average accent scores across different dominance categories (by grouping the children in "only English Dominance" , "Dual Dominance with English one of the Languages" and "non- English Dominance") and language preferences to see whether children who were dominant in or preferred English had developed a native pronunciation.

To investigate RQ3, I analysed the raters' responses, where they were asked to guess the child's L1 based on the English sound files. If two or more raters identified the same language—or was closely related to one of the child's known languages—it was taken as possible evidence of transfer/phonological CLI[12]. These patterns were then reviewed alongside the children's profiles.

Finally, to answer RQ4, I looked more closely at the cases where a clear transfer source was identified. I compared the identified language with each child's dominance, preference, and the typological proximity between the identified language and English. This helped to explore which factors might have shaped the raters' perceptions of accent source.

This mixed approach—combining descriptive statistics, and qualitative interpretations—allowed for a flexible yet focused analysis of how multilingual children are perceived when speaking English. It also made it possible to explore how different factors interact with each other, which was essential given the diversity of language backgrounds in the sample.

[11] Language with the mother: +1 point, Language with the father: +1 point, Language with the grandparents: +1 point. If the family member used more than one language with the child, then each language got 0.5 points.
[12] Although CLI is underlying term of transfer, scholars have been using both terms "CLI" and "transfer" to refer to the same phenomenon. In this thesis the terms CLI and transfer will be used interchangeably meaning the same thing.

4.6 Ethical Considerations

All the participants were treated ethically in accordance with Lund University's ethical guidelines within the Humanity Faculty[13] [14]. The students were approached by invitations regardless if they were multilingual or not. Parents provided written consent after accepting the invitations and volunteered to participate in the study. The children were asked if they want to participate as well and if not, they were not recorded. The design of the study, the materials and methods, the purpose and their right of the participants to withdraw at any time were mentioned in the invitation letter. The data collection took into consideration the requirements for information about the processing of personal data according to Article 13 of the GDPR, since the study included recordings. These recordings were securely stored and only used for the rating task. These audio files were named after nicknames (L3_1, L3_2 etc.) and these nicknames were used to refer to the participants throughout the study. Raters had no relation or met the participants before, therefore participants' voices could not be identified. All data will be deleted after three months of the completion of the study unless the parents consent to be kept in university for future research purposes in the Linguistic field of research[15]. Small tokens of appreciation (a certificate and a gift card) were offered to thank the students for their participation without any pressure.

[13] https://www.staff.lu.se/support-and-tools/legal-records-management-and-data-protection/personal-data-and-data-protection-gdpr/area-specific-information/research

[14] https://www.ht.lu.se/fileadmin/user_upload/ht/dokument/Fakulteterna/policydok_planer/Ethical_review_2021_ENG_web.pdf

[15] In accordance with Article 89(1) of the GDPR.

Chapter 5 Results

5.1 Participants' Profiles and Language Dominance

The data collection, proficiency ratings and some of the background information used in this study are presented in *Tables 4* and *5* for the Bilingual Group and the Trilingual Group, respectively. These tables show the languages spoken by children, language use within the family, levels of formal and informal input (reported by parents; see *4.2.2*) for each language, proficiency ratings (comprehension and accent mean scores for English) and comprehension, accent, errors for the other languages), estimated Language Dominance, Language Preference and Age related information. The latter includes Age, Age of Onset (AoO) and Age of Instruction (AoI) for each language. The dominance estimation is based on a combination of input data and proficiency ratings as described in the Methodology chapter (see *section 4.5)*. If no proficiency ratings were available, as was the case for L3_12 and L3_23, the estimate of balance is based on Language within the family, Language Use and Language Preference.

In the Bilingual group, three children are clearly balanced based on all measures: L2_9, L2_11, L2_20, L2_26, while 7 children are clearly unbalanced with a dominance only in English (based on Language within Family, Language Use and Proficiency Ratings): L2_16, L2_19, L2_27, L2_30, L2_31, L2_32, L2_33. Some cases (n=2) were less clear (L2_15, L2_28), because there were no proficiency ratings available for their other language and the Language Use or Proficiency in English were high (their Dominance is marked by a '?'). These children are fluent in English, but they might have a balanced language profile too. Most of the time the Language Dominance matched the Language Preference in both groups. In cases where a child is considered Balanced and although they claim to have a preferred Language, we need to consider that during this age period language preference can easily change due to motivation or other environmental factors (e.g., friends?). In a few cases, children's reported language preferences diverged from their measured dominance profile (e.g. L2_16 and L2_19).

Among the trilingual participants, there are no clearly trilingual balanced profiles. One child (L3_1) is dominant in his home language. Fourteen (14) children are dual dominance in English and in one of their home Languages: L3_2, L3_3, L3_5, L3_6, L3_8, L3_10, L3_12,

L3_13, L3_17, L3_18, L3_21, L3_22, L3_23, L3_29. Four (4) children are English dominant (based on Language within Family, Language Use and Proficiency Ratings): L3_4, L3_7, L3_14, L3_24, although L3_4 and L3_14 could have been balanced between English and Kinyarwanda (since this is the main language spoken in their home), but as siblings between them they use English and considering they speak English with their father gives a slight advantage to English. Furthermore, L3_23 could have been balanced between Turkish and Ukrainian, because Language Use is high in both of these languages, but the proficiency ratings for this language are missing. The same holds for L3_12, who could be balanced between all three languages, but the Catalan proficiency data are not available. It seems that while bilinguals displayed a clearer distinction between balanced and English-dominant profiles, trilinguals tended to show dual dominance, with English consistently playing a central role.

Table 4. Bilingual Group - Background Information

ID	Language	Language within the family			Language Use		Proficiency Ratings			Domi-nance	Age related			Child's preference
		Mother	Father	Grand-parents	Informal	Formal	compr	accent	errors		Age	AoO	AoI	
	Polish	Polish	Polish	Polish	4	2	5	6	5			0	0	
L2_9	English	-	-	-	5	5	5.45	5.09	--	Balanced	9	2	2	English
	Polish	Polish	Polish	Polish	4	3	4	6	5			0	0	
L2_11	English	-	-	-	5	5	4.45	4.22	--	Balanced	9	2	2	Polish
	IND	IND	IND	IND	4	3	?	?	?			0	2	
L2_15	English	-	-	English	5	5	5.63	5.04	--	English?	10	5	5	English
	French	French	-	French	4	1	3	3	2			0	x	
L2_16	English	-	English	-	4	5	4.81	3.72	--	English	7	0	3	French
	Urdu	Urdu	Urdu	Urdu	5	3	2	3	3			0	5	
L2_19	English	English	English	-	5	5	5.13	4.45	--	English	9	4	5	Urdu
	Russian	Russian	-	Russian	5	1	6	6	5			0	1	
L2_20	English	-	English	-	5	5	4.81	3.81	--	Balanced	10	7	7	English
	PT	PT	PT	PT	3	2	6	5	6	Portugue		0	1	Portugues
L2_25	English	-	-	-	4	4	3.63	2.31	--	se	11	5	6	e
	Mandarin	Mandarin	Mandarin	Mandarin	4	2	5	5	5			0	5	
L2_26	English	-	-	-	5	5	5.22	4.45	--	Balanced	10	1	3	Mandarin
	Turkish	Turkish	Turkish	Turkish	4	2	3	4	2			0	8	
L2_27	English	-	-	-	5	5	4.72	3.86		English	10	3	4	English
	Telugu	Telugu	Telugu	Telugu	4	1	?	?	?	English?		0	x	
L2_28	English	English	English	English	5	5	4.36	3.27	--		10	2	2	English
	Udu	Urdu	Urdu	Urdu	5	2	2	3	1			0	x	
L2_30	English	English	English	English	4	5	5.13	4.45	--	English	11	0	3	English
	English	English	English	English	4	5	5	4.45	--			0	5	
L2_31	Swedish	-	-	-	1	2	3	2	2	English	10	0	6	English
	English	English	English	English	5	4	5.27	5.13	--			0	6	
L2_32	Swedish	-	-	-	4	3	3	3	2	English	10	0	1	English
	English	English	English	English	5	5	5.72	5.86	--			0	4	
L2_33	Swedish	Swedish	-	Swedish	3	5	6	6	4	English	10	0	6	English

(Note: AoO = Age of Onset of Acquisition; AoI= Age of Onset of Instruction - start schooling in a language, IND= Bahasa Indonesia, PT= Portuguese)

Table 5. Trilingual Group - Background Information

ID	Language	Language within the family			Language use formal		Proficiency Ratings			Dominance	Age related			Child's preference
		Mother	Father	Grand-parents	informal	formal	compr	accent	errors		Age	AoO	AoI	
L3_1	Italian	Italian	Italian	Italian	5	2	6	6	5	Italian	10	0	4	Italian
	English	-	-	-	5	5	3.9	2.63	--			5	5	
	Swedish	-	-	-	5	3	1	2	1			6	6	
L3_2	German	German	German	German	5	2	6	6	4	German/ English	10	0	1	German
	English	-	-	-	2	5	5.04	4.72	--			7	6	
	Swedish	-	-	-	3	4	4	3	3			8	6	
L3_3	Polish	Polish	Polish	Polish	5	5	6	6	6	Polish/ English	11	0	3	English
	English	-	-	-	5	5	5.27	4.36	--			3	6	
	Swedish	-	-	-	2	3	4	3	2			8	8	
L3_4	RW	RW	RW	RW	2	1	5	4	5	English	10	0	x	English
	French	-	-	-	1	1	2	1	1			0	3	
	English	-	English	-	5	5	5	4.09	--			0	3	
L3_5	Swedish	Swedish	-	Swedish	5	4	6	6	6	Swedish/ French	10	0	2	French
	French	French	French	French	5	2	5	5	4			0	3	
	English	-	-	-	5	5	4.68	3.59	--			0	7	
L3_6	Swedish	-	Swedish	Swedish	5	5	6	6	5	Swedish/ English	10	0	2	English
	English	English	-	English	5	5	5.27	4.31	--			0	4	
	Italian	Italian	-	Italian	3	3	4	2	3			0	5	
L3_7	French	French	-	French	3	1	4	4	3	English	11	0	x	English
	Spanish	-	Spanish	-	3	2	6	2	5			0	7	
	English	-	English	-	4	5	5.5	4.54	--			0	6	
L3_8	Mandarin	Mandarin	Mandarin	Mandarin	3	2	3	4	5	English/ Mandarin	9	0	6	English
	Swedish	-	-	-	3	3	5	5	4			0	6	
	English	-	-	-	4	5	5.68	5.59	--			1	6	
L3_10	Mandarin	Mandarin	Mandarin	Mandarin	3	2	4	5	5	English/ Mandarin	9	0	6	English
	Swedish	-	-	-	3	3	4	4	3			0	6	
	English	-	-	-	4	5	4.9	4.54	--			1	6	
L3_12	Spanish	Spanish	-	Spanish	4	1	6	5	6	English/ Spanish	9	1	5	English
	Catalan	-	Catalan	Catalan	4	1	?	?	?			1	5	
	English	English	English	-	5	5	5.36	4.13	-			5	7	
L3_13	Spanish	-	Spanish	Spanish	4	3	6	3	5	English/ Spanish	8	0	3	English
	Latvian	Latvian	-	Latvian	1	1	4	2	2			0	4	
	English	English	-	English	5	5	4.63	3.9	-			3	6	
L3_14	RW	RW	RW	RW	2	1	5	4	5	English	8	0	x	English
	French	-	-	-	1	1	2	1	1			0	3	
	English	-	English	-	5	5	4.22	3.77	--			0	3	
L3_17	Danish	Danish	Danish	Danish	4	3	5	6	4	English/ Danish	10	0	8	English
	English	-	-	-	5	5	5.27	4.81	--			0	5	
	Swedish	-	-	-	3	3	5	5	4			8	8	
L3_18	Hindi	-	Hindi	Hindi	3	1	4	6	5	English/ Hindi	10	0	x	English
	Bengali	Bengali	-	Bengali	2	1	4	2	3			0	x	
	English	English	English	-	5	5	5.68	5.4	--			2	3	
L3_21	Swedish	Swedish	-	Swedish	5	4	6	6	5	Swedish/ French	8	0	2	French/ English
	French	French	French	French	5	2	6	6	5			0	4	
	English	-	-	-	5	5	4.45	3	--			0	7	
L3_22	German	German	German	German	5	2	6	6	6	German/ English	9	0	3	English
	English	-	-	-	4	4	5.09	4.86	--			6	6	
	Swedish	-	-	-	3	2	4	3	2			6	8	
L3_23	Turkish	Turkish	Turkish	Turkish	5	3	6	6	4	Turkish?	10	0	0	Turkish
	Ukrainian	Ukrainian	-	Ukrainian	3	3	?	?	?			0	3	
	English	-	-	-	4	4	3.59	2.81	--			3	7	
L3_24	English	English	English	English	5	5	5.77	5.36	--	English	11	0	5	English
	Hindi	Hindi	Hindi	Hindi	3	2	3	4	5			0	8	
	German	-	-	German	2	2	4	6	1			2	6	
L3_29	Spanish	Spanish	-	Spanish	5	1	5	2	4	English/ Spanish	10	0	7	English
	Swedish	-	Swedish	Swedish	2	2	4	3	3			0	2	
	English	-	English	English	5	5	5.63	5.54	--			0	5	

(Note: AoO = Age of Onset of Acquisition; AoI= Age of Onset of Instruction, RW = Kinyarwanda)

5.1.1 Language Preference and Internal Speech

This paragraph presents participants' internal speech and Language Preference as part of their multilingual experience. Internal Speech, as used in this study, refers to the language individuals use in their thoughts before expressing themselves verbally in English and Language Preference refers to the language they prefer to use most. To explore these, participants were asked follow-up questions such as "Do you think in another language before you speak in English?" and "What language do you prefer to speak most?". These responses provided insight into their preferred language for mental processing and self-expression. The majority of children reported a preference for English in their everyday lives regardless of their dominance profile presented above (*Tables 4 and 5*). 22 out of 33 children (67%) preferred English dominance and 11 preferred another language (see *Child's Preference* in *Table 4* and *5* above). These answers will be used to evaluate to what extent preference modulates CLI. When the participants were asked about "in which language they think before speaking English", 11 said they think only in English, 21 reported sometimes thinking in one of their home languages, and just 1 reported another language, which shows that English is strongly connected to their identity. In general, the participants showed preference and connection with the English language, something that allows for early predictions in the proficiency scores in the English rating task that is presented in the next section.

5.2 English Speech Ratings Results (RQ1)

This section addresses the ratings received for both groups for their comprehensibility and accent in English. The raters seemed reliable, since most of them[16] did not deviate more than 2 points from the majority's scores[17] (see Appendix D). The results showed that both groups performed very well overall, receiving high scores in both dimensions. The trilingual children scored similarly for comprehensibility (5.0) as the bilingual group (4.93). In terms of accentedness, trilinguals averaged 4.31, while bilinguals scored 4.2.

[16] Rater 15 deviated in 4 out of 66 answers (1 time in L2 Comprehensibility, 2 times in L2 Accent and 1 in L3 Accent) providing much lower scores than the majority in these specific cases. Then, Rater 9 deviated 1 time in L2 Accent and 1 time in L3 Comprehensibility. Some raters deviated only 1 time (Raters 5, 12, 13, 16, 18) in the whole rating task. Rater 18 seemed more insecure, providing most of the time lower scores (1.0-3.0 points) especially in accent scores and Raters 17 and 21 were grading with high scores (4-6points) relatively more than others.

[17] By looking at the 22 rater's responses for each child, I spotted out the raters that deviated more than 2.0 points from the majority's responses (majority was considered more than 11 raters), and for example if a child had received from the majority 4.0-5.0 points and a rater provided 1.0 point, then this was considered as not reliable.

5.2.1 English Comprehensibility Scores

The comprehensibility mean scores are presented in the bar charts below for each individual participant (*Figure 4* for the Bilingual Group and *Figure 5* for the Trilingual Group). Each bar represents the mean rating, reflecting how easily the participants' speech could be understood. As discussed in the Methodology (see section *4.4*), comprehensibility was rated on a 6-point Likert scale, with higher values indicating greater ease of understanding (1=almost incomprehensible - 6 =very comprehensible).

As illustrated in *Figure 4*, comprehensibility scores in the Bilingual group ranged from 3.6 to 5.7. Most participants (approximately 87%) scored between 4.0 and 5.6, suggesting a generally high level of comprehensibility in this group. Similarly, as shown in *Figure 5*, scores in the Trilingual group also ranged from 3.6 to 5.8, with an even stronger clustering at the higher end: 17 out of 19 participants (about 89%) scored between 4.0 and 5.8, indicating very high comprehensibility overall.

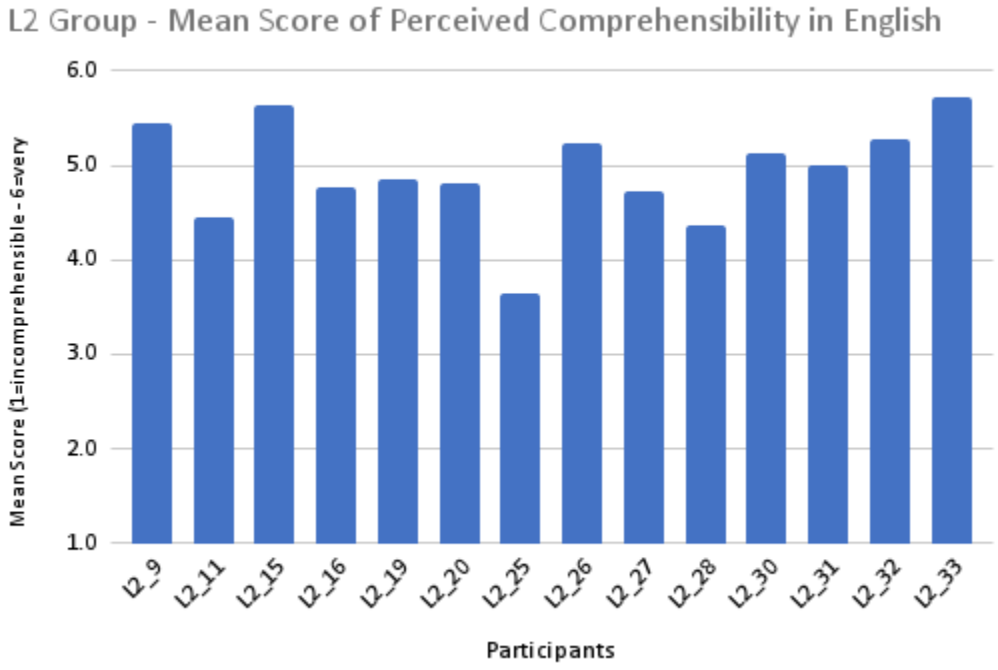

Figure 4. L2 Group - Mean Scores of Perceived Comprehensibility in English

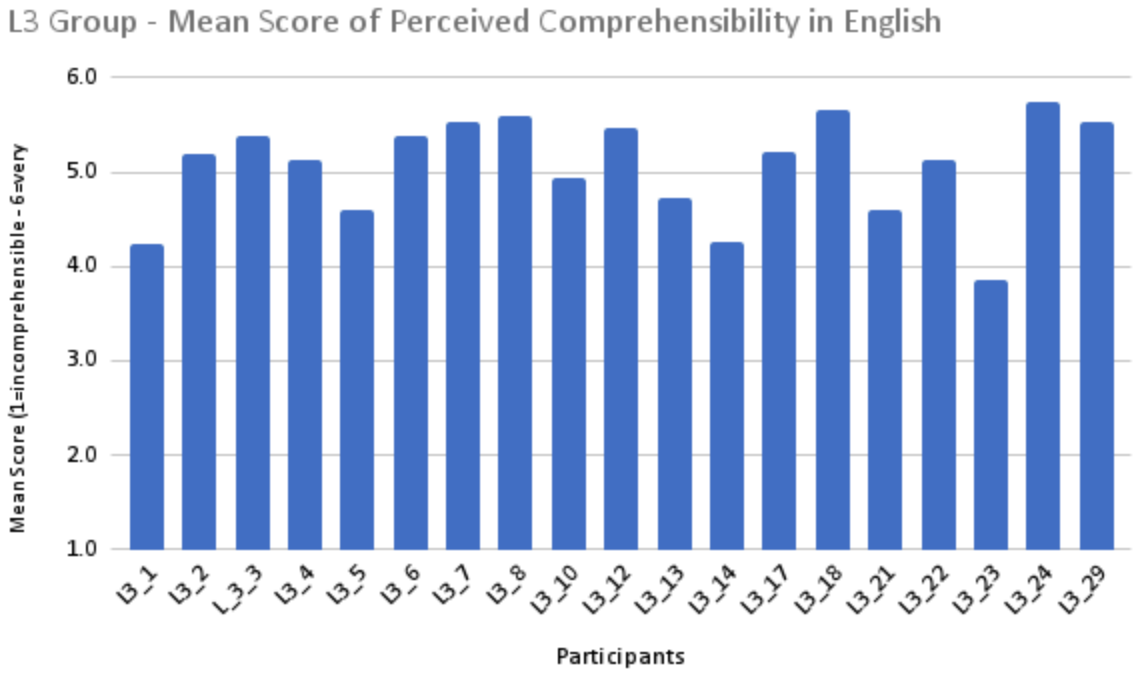

Figure 5. L3 Group - Mean Scores of Perceived Comprehensibility in English

5.2.2 English Degree of Nativeness/ Accent Scores

Figures 6 and 7 display the English accent ratings for each participant in the Trilingual (L3) and Bilingual (L2) groups. Ratings were based on a 6-point Likert scale, where higher scores reflect more native-like pronunciation (1= heavily accented - 6 = native-like).

As *Figure 6* below illustrates, in the Bilingual Group, the distribution of accent scores ranged from 2.3 to 5.9. The majority (71%) scored between 3.0 and 4.9, suggesting a concentration in the mid-range.

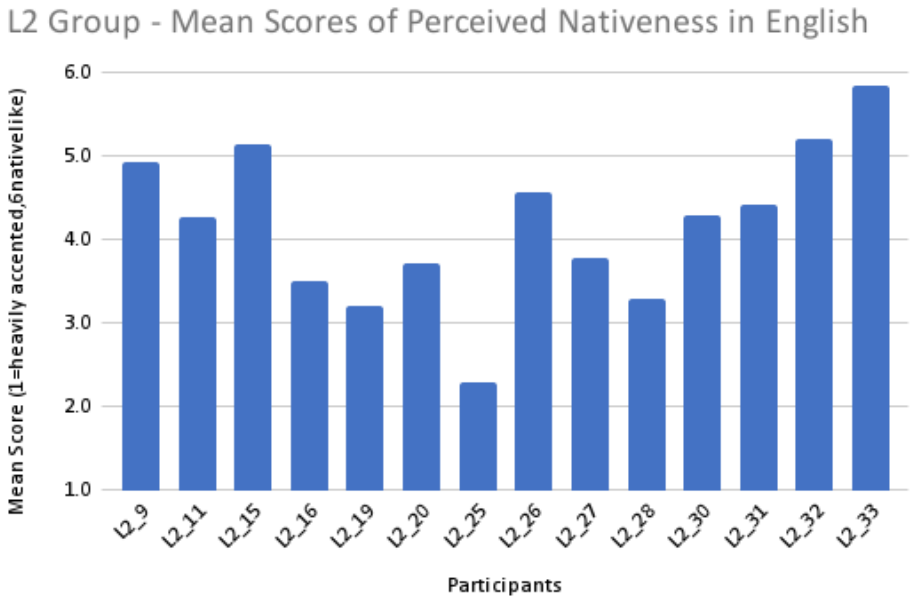

Figure 6. L2 Group - Mean Scores of Perceived Nativeness in English

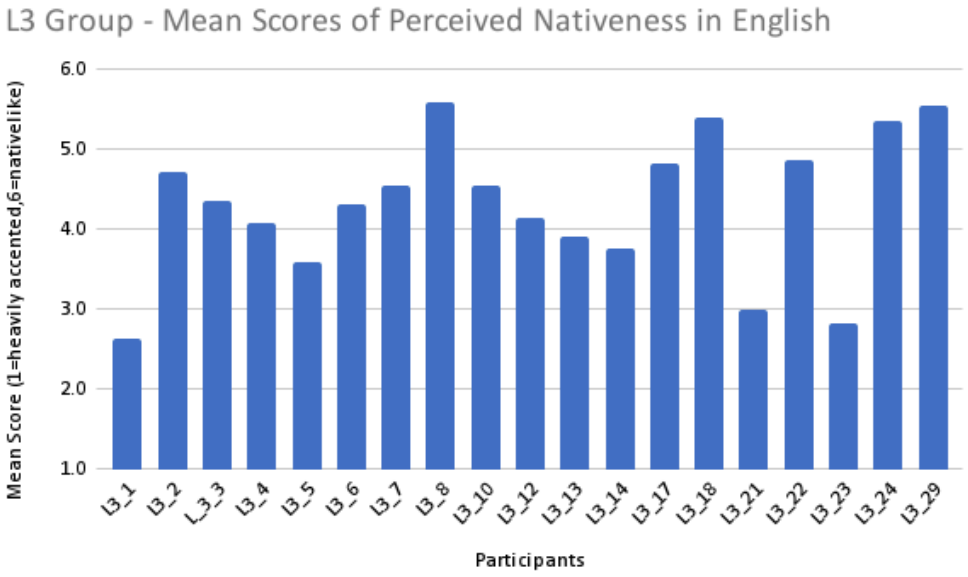

Figure 7. L3 Group - Mean Scores of Perceived Nativeness in English

As illustrated in *Figure 7* above, scores in the Trilingual group ranged from 2.9 to 5.5. The majority of participants (approximately 68%) scored between 4.0 and 5.5, indicating a general tendency toward higher ratings within this group.

5.2.3 Group Comparisons

Figures 8 and *9* present a comparative overview of the English comprehensibility and accentedness ratings across the Bilingual (L2) and Trilingual (L3) groups. Each horizontal bar represents the proportion of participants in each group who received a given mean score divided in different "score levels" (1.0 - 2.9, 3.0 - 3.9, 4.0 - 4.9 and 5.0 - 6.0).

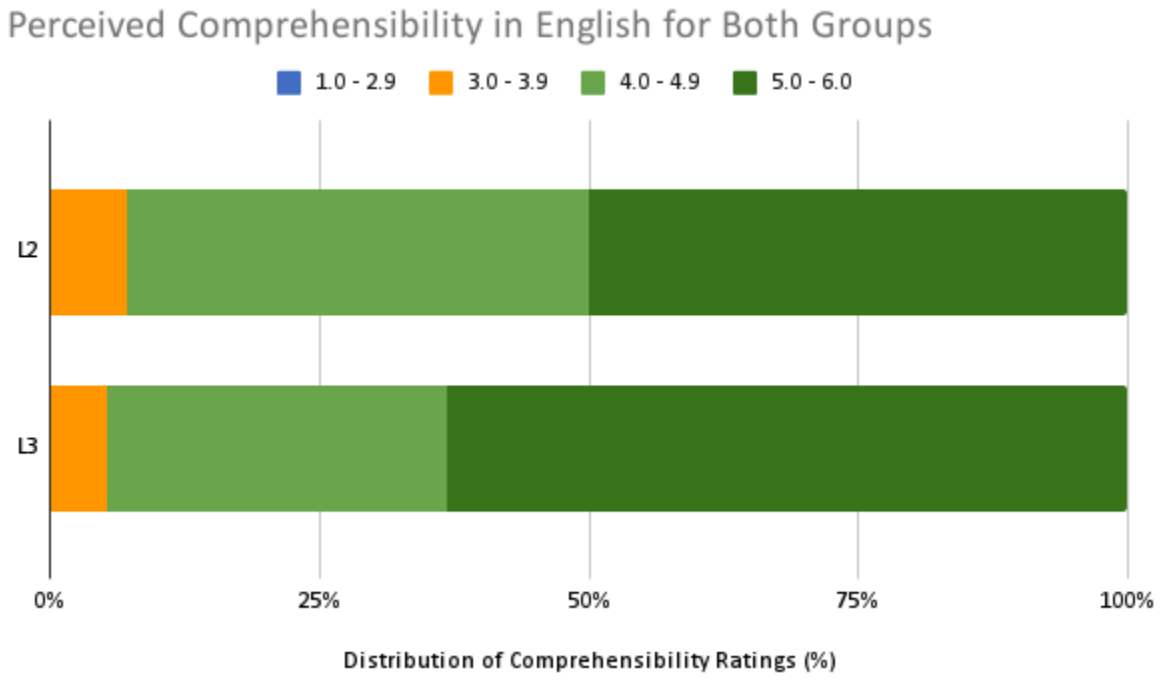

Figure 8. Perceived Comprehensibility in English for Both Groups

(Note: Scores reflect mean rater judgments of comprehensibility (1 = almost comprehensible, 6 = very comprehensible))

In terms of comprehensibility (*Figure 8*), the Trilingual group shows slightly higher scores compared to the Bilingual group. 75% of trilingual participants received mean scores in the upper range (5.0–6.0), while the Bilingual group shows a higher percentage in the 4.0–5.0 range. Both groups have no representation in the lower rating scores, indicating that all participants were generally rated as at least moderately comprehensible.

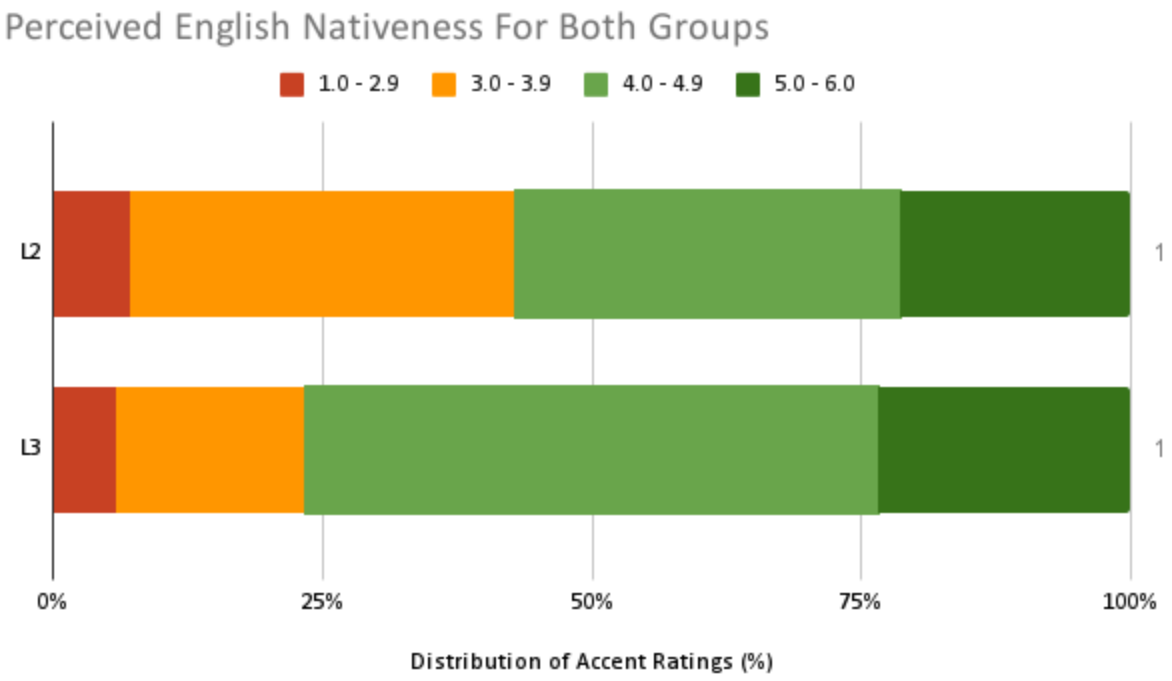

Figure 9. Perceived English Nativeness for Both Groups

(Note: Scores reflect mean rater judgments of accentedness (1 = highly accented, 6 = native-like))

In the case of accent ratings (*Figure 9* above), the distribution is wider for the Bilingual group. While both groups show a strong concentration in the 4–6 range, the Bilingual group includes a small percentage of participants rated as low as 2, and slightly more participants fall into the 3-range. In contrast, the Trilingual group shows no scores below 3, and a visibly larger proportion of participants were rated with a mean accent score in the 5–6 range.

Looking at these figures together, the Trilingual group displays a greater percentage in the higher rating score for both comprehensibility and accent, while the Bilingual group shows a wider spread, particularly in accent ratings.

5.3 Degree of Perceived Nativeness in English and Influencing Factors (RQ2)

To address RQ2, I examined the relationship between accent ratings and five variables: (1) language use (input), (2) age of instruction, (3) Age of Onset (AoO) of English acquisition, (4)

language dominance, and (5) participant's language preference. The first three were analyzed using scatterplots with trendlines to visualize correlation. In sections 5.3.1–5.3.3, I first plot all participants together with a single trendline; I then add a second Figure (b) that color-codes the L2 and L3 groups to enable direct group comparisons for variables (1)–(3).

5.3.1 Relationship between Age of Onset of Acquisition (AoO) and Accent in English

Figure 10(a) presents the relationship between AoO in English and Accent ratings. The vertical axis represents the mean accent ratings on a 6-point scale, where low values indicate higher perceived accentedness, and the horizontal axis indicates each participant's AoO in English, ranging from 0 to 7 years. Each dot represents one child.

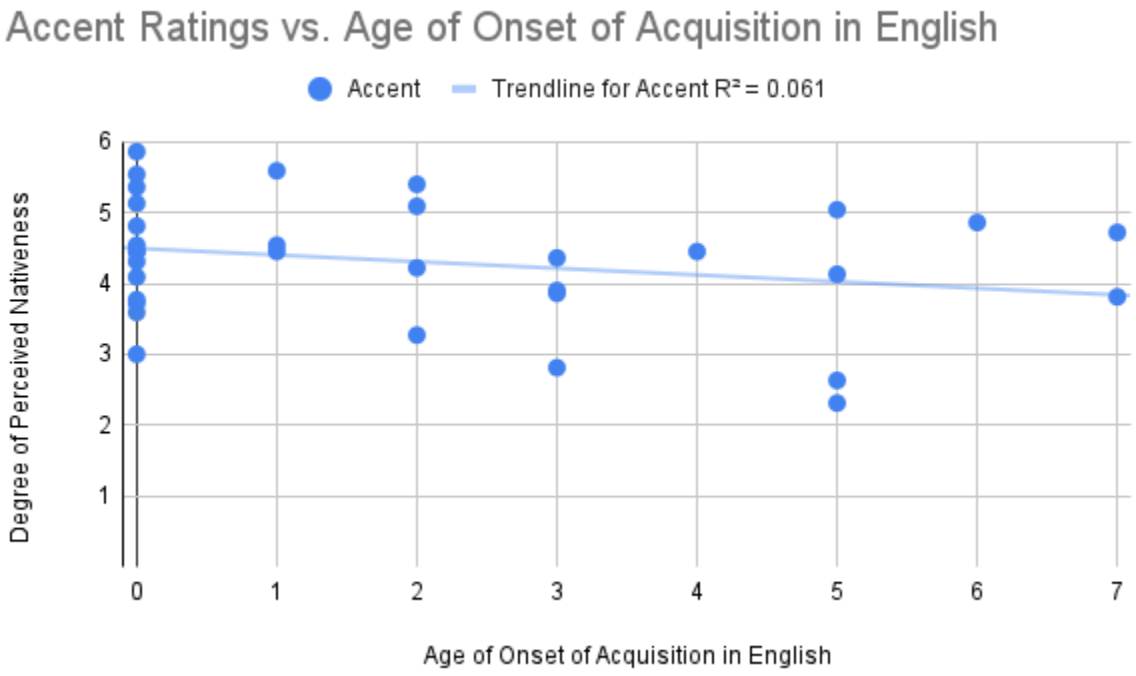

Figure 10(a). Relationship Between AoO in English and Degree of Perceived Nativeness in Young Learners

(Note: Degree of perceived nativeness: 1=heavily accented - 6=native-like)

A slight downward trend is visible in the distribution, and the trendline ($R^2 = 0.061$) suggests a weak negative correlation. This means that children who were exposed to English at an earlier age were slightly more likely to be deemed as native, although the effect is not strong.

As suggested by the figure, the visual inspection shows children with AoO=0 had a wide variety of mean scores (3.0-6.0).

Figure 10(b) below represents the same data, but the two groups of participants are color coded (Blue=L3 Group/Trilinguals, Red=L2 Group/Bilinguals) in order to allow for group comparisons.

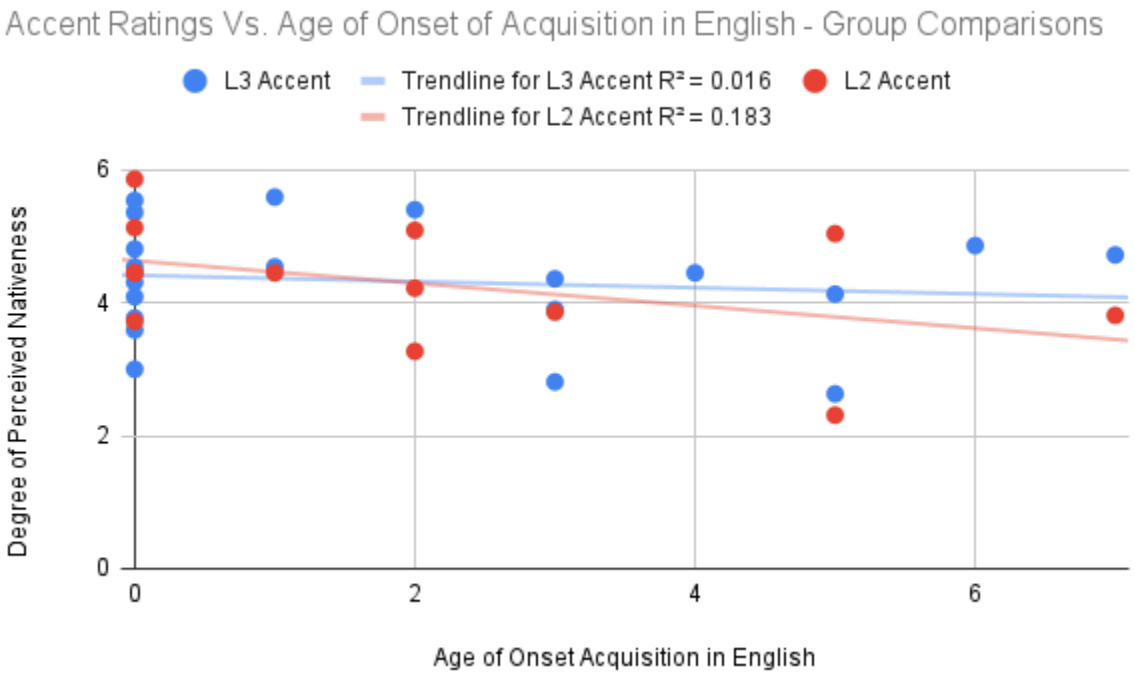

Figure 10(b). Relationship Between AoO in English and Degree of Perceived Nativeness in Young Learners - Group Comparisons

(Note: Degree of perceived nativeness: 1=heavily accented - 6=native-like)

The trendlines now indicate different trends for the two groups of participants and their distribution across the age range seems balanced. The relationship between AoO and perceived nativeness is stronger for Bilinguals than Trilinguals. For the L3 Group the trend line is almost flat (R^2=0.016), but in the L2 Group the trend line has a more noticeable negative slope (R^2=0.183). This suggests earlier English acquisition is associated with higher accent ratings in the L2 group.

5.3.2 Relationship between Age of Onset of English Instruction and Accent

Figure 11(a) below displays the relationship between participants' age when they first began formal English instruction and their accent ratings. The vertical axis shows the average accent scores on a 6-point scale representing the degree of perceived nativeness by the raters (higher scores = more native-like accent), while the horizontal axis reflects the Age of Onset of English Instruction, ranging from 2 to 7 years.

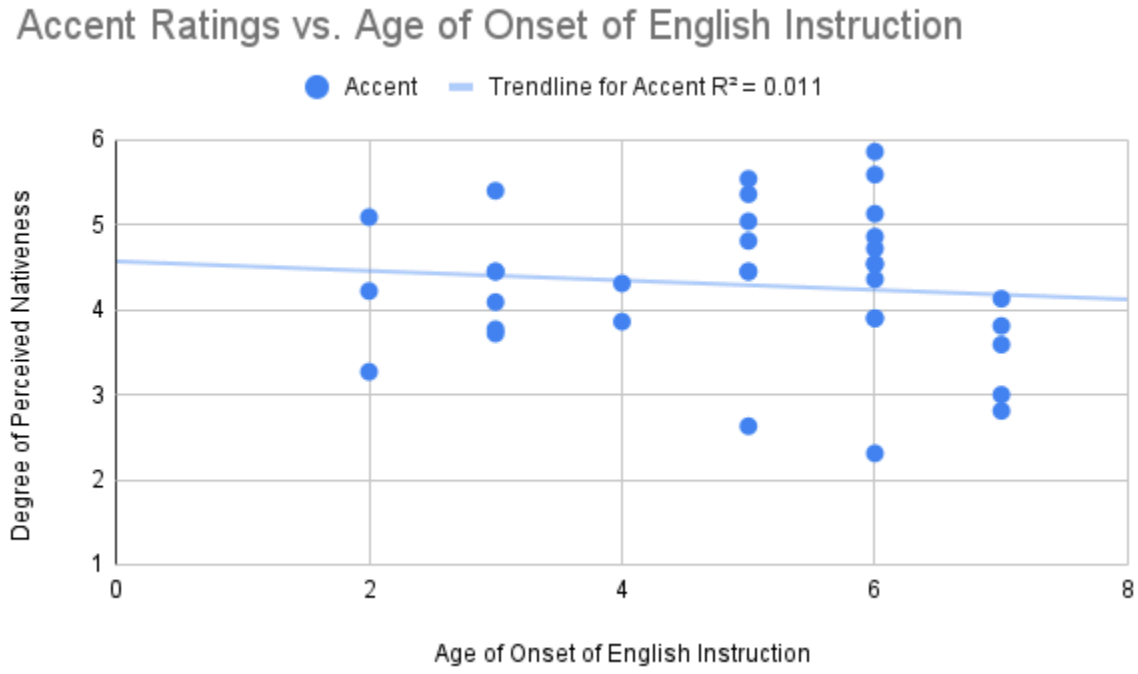

Figure 11(a). Relationship Between Age of Onset of English Instruction and Degree of Perceived Nativeness in Young Learners

(Note: Degree of perceived nativeness: 1=heavily accented - 6=native-like)

The trendline is nearly flat, and the corresponding R^2 value is 0.011, indicating no meaningful relationship between the age of formal instruction and perceived accentedness. There is no visible pattern, and even though many children had AoI = 6 years yet received native-like scores.

Similarly as in section 5.3.2, *Figure 11(b)* below represents the same data, but with L2 and L3 Groups colorcoded differently.

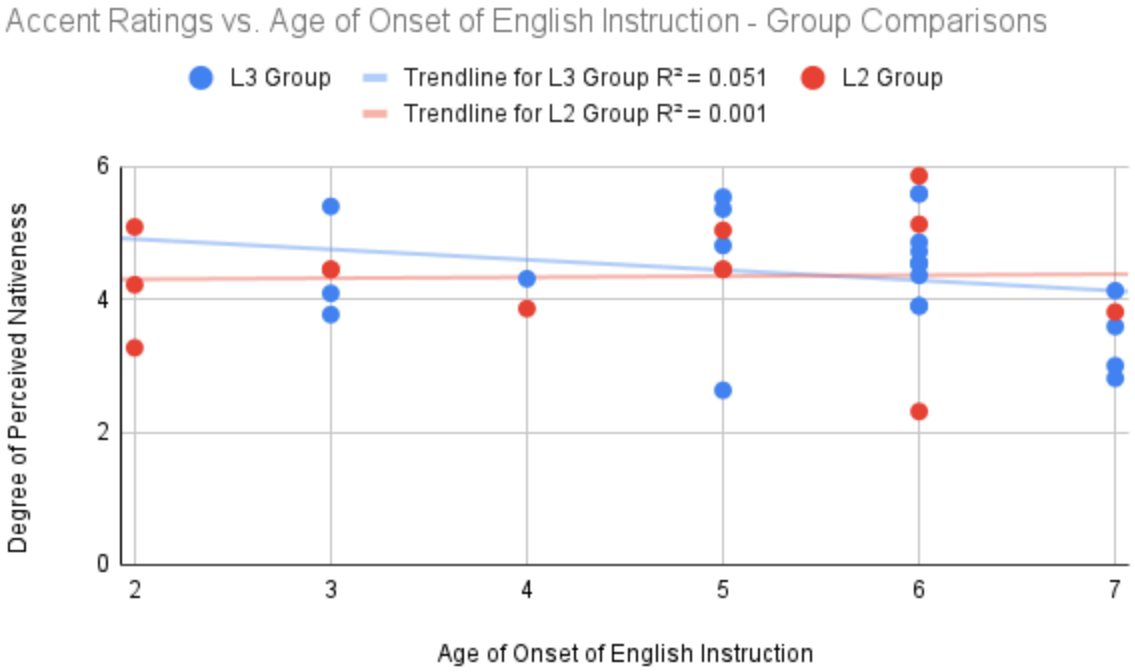

Figure 11(b). Relationship Between Age of Onset of English Instruction and Degree of Perceived Nativeness in Young Learners - Group Comparisons

(Note: Degree of perceived nativeness: 1=heavily accented - 6=native-like)

The trendlines are again quite flat, with $R^2 = 0.001$ for the L2 group and 0.051 for the L3 group. However, relatively few trilingual children had a late AoI: 6 started formal English instruction after age 5, compared to 14 bilingual children at the same age. Therefore, again these results do not support a strong connection between AoI and accent.

5.3.3 Relationship between Language Use and Accent in English

Figure 12(a) illustrates the relationship between the amount of English formal and informal input as reported by the parents and their accent rating. The horizontal axis represents an input score ranging from 7 to 12, based on reported exposure and use across different contexts (e.g., home, school). The vertical axis again shows the mean accent ratings on the 6-point scale (low values indicate higher perceived accentedness).

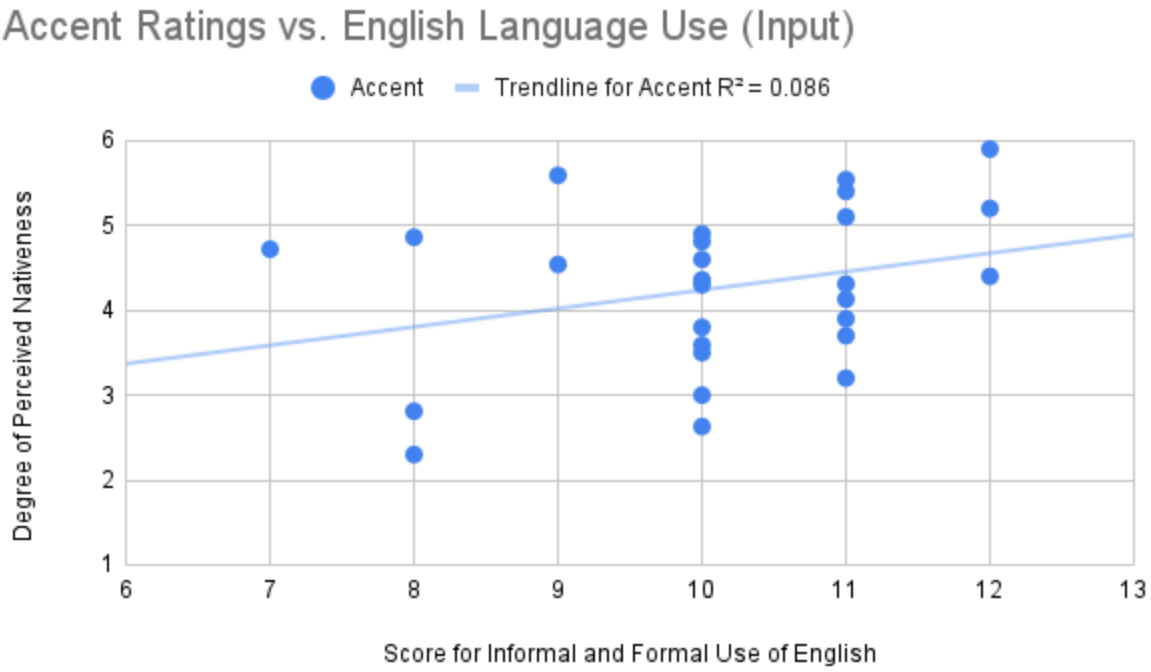

Figure 12(a). Relationship Between Informal and Formal Use of English (Input) and Degree of Perceived Nativeness in Young Learners

(Note: Degree of perceived nativeness: 1=heavily accented - 6=native-like)

The data show a slight positive trend, and the trendline has an R^2 value of 0.086. While the relationship remains weak and there is some variability, looking at the plot it is visible that many of the highest accent ratings (5–6) are clustered around input scores of 10–12. There are fewer high scores in the lower input range (6–8). These results suggest that children who receive more consistent or extensive English input are somewhat more likely to be rated as having a native-like accent.

Following the analysis from the previous sections (*5.3.1 & 5.3.2*), the same data are presented above in *Figure 12(b)* with the Groups represented in different colors.

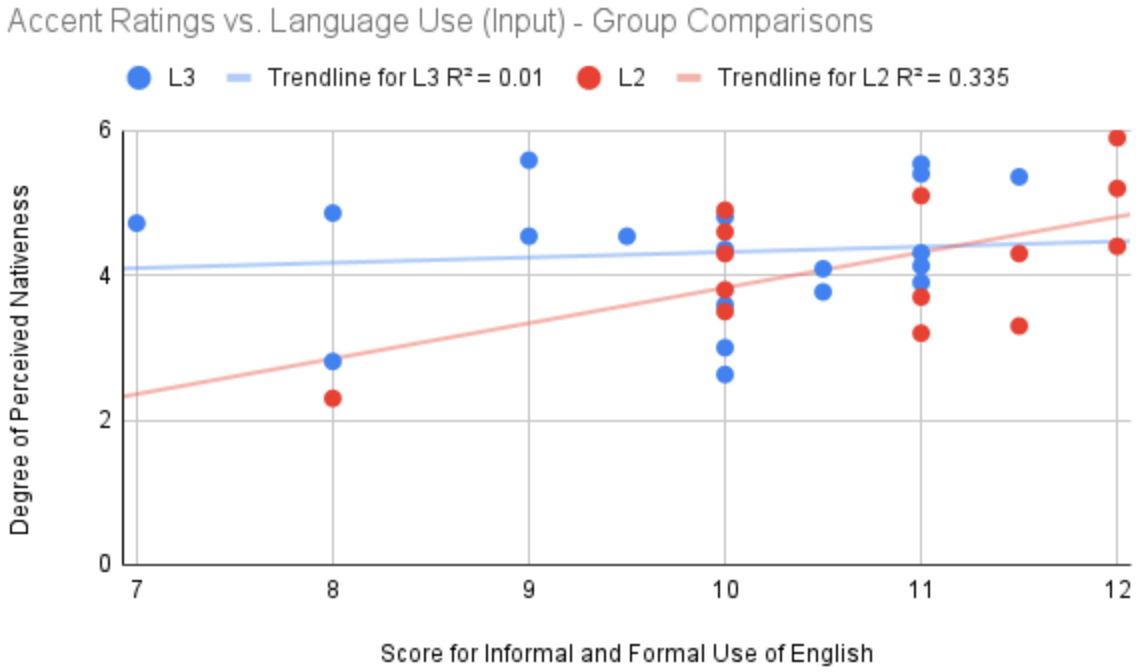

Figure 12(b). Relationship Between Informal and Formal Use of English (Input) and Degree of Perceived Nativeness in Young Learners - Group Comparisons

(Note: Degree of perceived nativeness: 1=heavily accented - 6=native-like)

In the L3 Group there is correlation between those two (R^2= 0.01), whereas in the L2 Group the positive relationship between input and accent is stronger (R^2 = 0.335). However, the distribution of participants does not allow for more interpretations in group comparisons.

5.3.4 Relationship Between Language Dominance and Accent in English

To examine whether language dominance was related to the children's English accent ratings and the Background Language ratings, each participant was categorized based on reported input and proficiency measures into English-dominant, Balanced, or "without dominance in English"[18]. In *Table 6* below all participants (Bilingual and Trilingual) are grouped based on their dominance and each group's accent range score is given on the last row. Both groups' participants are presented within their group for group comparisons and the table is readable vertically.

[18] For their detailed profiles see section 5.1 (*Tables 4, 5*).

Table 6. Accent Ratings and Dominance

	Bilinguals with Dominance in English	**Bilinguals without dominance iEnglish**	**Trilinguals with English as one of the dominant languages**	**Trilinguals without dominance in English**
	Only English Dominant (n=9): L2_15, L2_16, L2_19, L2_27, L2_28, L2_30, L2_31, L2_32, L2_33 **Balanced (n=4):** L2_9, L2_11, L2_20, L2_26	**n=1** L2_25	**Only English Dominant (n=4):** L3_4, L3_7, L3_14, L3_24 **Dual dominance - English + one home language (n=11):** L3_2, L3_3, L3_6, L3_8, L3_10, L3_12, L3_13, L3_17, L3_18, L3_22, L3_29	**n=4:** L3_1, L3_5, L3_21, L3_23
Accent range (mean)	**Only English Dominant:** 3.2 - 5.9 **(4.3)** **Balanced:** 3.7 - 4.9 **(4.3)**	**(2.3)**	**Only English Dominant:** 3.8 - 5.4 **(4.4)** **Dual dominance - English + one home language:** 3.9 - 5.6 **(4.7)**	2.6 - 3.6 **(3.0)**

Both groups' children with dominance only in English have similar accent range and mean score (3.2-5.9 average: 4.3 and 3.8-5.4 average: 4.4). Although English is the dominant language, from this range it is evident that some low performances occur between the bilingual group. Comparing the Balanced Bilinguals to Trilinguals with English as one of the dominant languages, the averages are very close (4.3 and 4.7 respectively), but the accent range is slightly wider towards the 6.0points (Bilinguals:3.7-4.9, Trilinguals: 3.9-5.6). Finally, Bilinguals and Trilinguals without dominance in English are only a few, which explains the high level of proficiency that resulted from the English rating task.

After the previous comparison, looking at the children in the category that falls into their dominance profile[19] a few things were observed. Bilinguals and Trilinguals with Dominance in only in English were 13, Balanced Bilinguals and Trilinguals with English as one of the dominant languages were 15 and Bilinguals and Trilinguals without English dominance were only 5. Of the 13 children that had only English as the dominant language, the mean rating was 4.35, with most scores falling in the mid-4 range. The 15 children that had balanced dominance between English and another language showed almost similar mean of 4.57, also with a general

[19] Children were grouped into "only English Dominance" , "Dual Dominance with English one of the Languages" and "non- English Dominance". The accent averages for this grouping are presented in the Appendix E.

clustering around the mid to high 4s. In contrast, the non-English-dominant participants (5 in total from both groups) received consistently low ratings with an average of 2.65.

Overall, children who were dominant in English or having English as one of the dominant languages tended to receive higher accent ratings, while those dominant in non-English language(s) consistently scored lower, showing that dominance is influencing the accent performance.

5.3.5 Relationship Between Language Preference and Accent in English

Table 7 below shows the language that the children prefer most to speak as they answered in the follow up questions and the mean score they received for their accent.

Table 7. Accent Rating and Language Preference

	Both Groups	
	N (IDs)	**Accent range (mean)**
Prefer English	**22** (L2_9, L2_15, L2_20, L2_27, L2_28, L2_30, L2_31, L2_32, L2_33, L3_3, L3_4, L3_6, L3_7, L3_8, L3_10, L3_12, L3_13, L3_14, L3_17, L3_18, L3_22, L3_24)	3.3 - 5.9 **(4.56)**
Prefer Other Language	**10** (L2_11, L2_16, L2_19, L2_25, L2_26, L3_1, L3_2, L3_5, L3_23, L3_29)	2.8 - 5.5 **(3.71)**
Prefer Other Language and English	**1** (L3_21)	**(3.0)**

Children who preferred English (n = 22) had a higher average accent rating (4.56), with most scores falling in the mid-to-high 4 range. In contrast, children who preferred other languages (n = 10) had a lower average rating of 3.71, with several scoring below 4.0—particularly those who preferred Portuguese, Italian, Turkish, or French. However, a few exceptions were noted in the children who reported preference in another language, including higher scores in English from children who preferred Spanish, German and Mandarin.

Summarising RQ2, dominance and Language Preference are most tightly linked to higher English ratings; additionally, among Bilinguals only, greater English input and earlier AoO show some associations with native-like accent.

5.4 Evidence of Cross-Linguistic Influence (RQ3)

This section explores whether children exhibit CLI from their early-acquired languages when speaking English. To examine this, raters were asked to guess the child's L1 based on their English speech. This response was not obligatory, but the gathered responses show some common patterns. *Table 8* and *Table 9* below summarize for L2 and L3 Group, respectively, each participant's background languages and the languages that raters reported. Each language mentioned in the table is reported only by one rater, unless there is a number in the parenthesis that refers to more than one similar response. The responses with the most instances are placed at the last column. Some responses were grouped to family languages - when the languages reported belonged to one[20].

Table 8. Language Source Detected by Raters - L2 Group

ID	Background Languages	Transfer Source detected	Most common response
L2_9	Polish	American English (3), English (2)	**English (5)**
L2_11	Polish	English (2), Hindi, Italian, Swedish	**English (2)**
L2_15	B. Indonesia	American English, British, English (3), Germanic Language, Scottish	**English (6)**
L2_16	French	Germanic, Indian, Scandinavian	**-**
L2_19	Urdu	British, Bulgarian, German, German or Swedish, Hindi, Indian/Urdu (5), Slavic Language	**South Asian(6)**
L2_20	Russian	Croatian, Germanic Language, Russian, Scandinavian, Spanish, Swedish	**Germanic (3)**
L2_25	Portuguese	Brazilian Portuguese or French, Chinese, German or Scandinavian, Germanic Language, Greek, Indian, Italian, Portuguese, Spanish or Italian	**Romance (4)**
L2_26	Mandarin	British, English, Germanic Language	**English (2)**
L2_27	Turkish	French, Dutch, Germanic Language, Swedish	**Germanic (3)**
L2_28	Telugu	Chinese, French, Germanic Language, Hindi or Urdu, Indian	**South Asian (2)**
L2_30	Urdu	English, Germanic Language	**-**
L2_31	Swedish	English (3), Germanic Language, Russian	**English (3)**
L2_32	Swedish	American English, English (7), Germanic Language, Swedish	**English (8)**
L2_33	Swedish	British (5), English (11), Germanic Language	**English (16)**

[20] For example, the Scandinavian languages belong to the Germanic Language family. This way, for the participant L2_27 Dutch and Swedish were grouped together with Germanic Languages as the most common response (3 times reported) (since there was no specific language reported more than 3 times).

Table 9. Language Source Detected by Raters - L3 Group

L3_1	Italian Swedish	Italian (3), French, Germanic Language	**Italian (3)**
L3_2	German Swedish	American English, English (2), Germanic Language, Portuguese, Swedish	**English (3)**
L3_3	Polish Swedish	Germanic, Swedish	-
L3_4	Kinyarwanda French	Arabic, American English, German, Germanic Language, Kenyarwanda, Scandinavian	**Germanic (3)**
L3_5	Swedish French	French (7), Germanic Language, Swedish	**French (7)**
L3_6	Swedish Italian	Dutch, English (2), Finnish, Germanic Language, Swedish (6)	**Swedish (6)**
L3_7	French Spanish	Australian English, English (2), German, Germanic Language, Indian, Portuguese	**English (3)**
L3_8	Mandarin Swedish	American English (4), English (4), German	**English (8)**
L3_10	Mandarin Swedish	American English (2). English (2), German, Germanic Language, Lebanese, Scandinavian	**English (4)**
L3_12	Spanish Catalan	English, Dutch, Germanic Language, Greek	**Germanic (2)**
L3_13	Spanish Latvian	English, Germanic Language, Indian, Irish	-
L3_14	Kinyarwanda French	English, French (2), Germanic Language, Spanish	**French (2)**
L3_17	Danish Swedish	English, Germanic Language, Scandinavian	**Germanic (2)**
L3_18	Hindi Bengali	English (5), Germanic Language	**English (5)**
L3_21	Swedish French	French (6), German (2), Germanic Language, Hindi, Swedish	**French (6)**
L3_22	German Swedish	American English, British, English, Germanic Language	-
L3_23	Turkish Ukrainian	Croatian, Germanic Language, Greek, Romanian, Russian, Turkish	-
L3_24	Hindi German	British, English (2), Germanic Language, Hindi or Urdu, Scandinavian, Swedish	**English (3). Germanic (3)**
L3_29	ESAM Swedish	American English (2), English (5), North American	**English (7)**

(Note: ESAM = American Spanish)

CLI was considered present when raters consistently identified an accent source that aligned with a child's L1 or L2. A total of 10 children from both groups showed a clear match between their linguistic background and the most frequent rater responses, offering indirect evidence of cross-linguistic influence in their English speech. These included bilinguals such as L2_25 (Portuguese) and L2_28 (Telugu), who were associated with Romance and Indian language families, respectively. Among trilinguals, several participants—particularly those with French, Swedish, Italian, or Danish in their profiles—were frequently matched to languages from the Romance or Germanic families, with L3_5 and L3_21 standing out as the most consistently identified.

In addition, a group of children (n=8) from both groups received at least one background-matching response, though not as the dominant identification. These included participants with German, Swedish, Turkish, Russian, and Spanish in their language repertoires, suggesting either more subtle traces of CLI or that the raters were not familiar with those accent sources, or even that the accents were native-like. While these instances were less consistent, they still reflect patterns of typological proximity in listener perception. The remaining participants were not clearly linked to their background languages by the majority of the raters who responded, highlighting the variability in how transfer is perceived and the potential influence of individual listener sensitivity. Generally, the languages most commonly identified by raters were French, Germanic/Scandinavian, and Romance languages. While the data offer interesting indications of transfer, the number of clear matches is limited and highlights the need for cautious interpretation, a point that I will come back to in the discussion.

From these 10 participants that show clear phonological transfer, some had a "direct match" with their L1, others were identified with their L2 and some were identified as a speaker of a typologically closed language to their L1/L2. For these participants it is assumed that there is presence of phonological CLI in their speech. *Table 10* summarizes the participants from both groups for whom the raters' most common guess matched the child's background language(s) and provides a description of the match. "Match" indicates direct match with the L1, "Match*" refers to responses that refer to the language family or a typologically close language to the one(s) of the participant.

Table 10. Participants that showed phonological CLI

ID	Background Language(s)	Raters Most Common Response	Match Type
L2_19	Urdu	Indian Languages (6)	Match*
L2_25	Portuguese	Romance Languages (4)	Match*
L2_28	Telugu	Indian Languages (2)	Match*
L3_1	Italian, Swedish	Italian (3), French	\Match+Match*
L3_5	French, Swedish	French (7)	Match
L3_6	Swedish, Italian	Swedish (6), Finnish, Germanic	\Match+Match*
L3_14	Kinyarwanda, French	French (2)	L2 match
L3_17	Danish, Swedish	Germanic Languages (2)	Match*
L3_21	French, Swedish	French (6)	Match
L3_24	Hindi, German	Germanic (3)	L2 match

5.5 Factors Connected to Perceived CLI (RQ4)

To address the final research question—what factors predict the presence of cross-linguistic influence (CLI) in children's English speech—this section examines the subset of participants who were identified in RQ3 as showing evidence of CLI. These are the children for whom the raters' most common guess matched one or more of their background languages or a related one. Based on this sample, I compared the raters' responses with each child's reported and measured language dominance, language preference, and the typological proximity of their language to English. If the identified transfer source aligned with a child's dominant and preferred language, this was taken as strong evidence for the impact of that factor. Similarly, if the transfer source involved a language rated as typologically close to English, this was interpreted as typological proximity influencing CLI. *Table 11* below provides an overview of these comparisons for each participant, allowing for an exploration of whether one factor appears to play a stronger role than others—or whether CLI is more likely shaped by a combination of interacting variables.

As shown in *Table 11*, the presence of CLI appears to be most strongly associated with language dominance and preference. In 6 out of the 10 cases, the language identified by raters matched the child's dominant language, and in 5 cases, it matched their stated preference.

Table 11. Overview of Participants' Profiles That Showed CLI

IDs	Family Language(s)	Raters' Most Common Response	Dominance	Preferance	Typological Proximity
L2_19	Urdu	South Asian (6)	English	Urdu	very low
L2_25	Portuguese	Romance (4)	Portuguese	Portuguese	medium
L2_28	Telugu	South Asian (2)	English?	English	very low
L3_1	Italian, Swedish	Italian (3), French	Italian	Italian	medium
L3_5	French, Swedish	French (7)	Swedish/ French	French	medium
L3_6	Swedish, Italian	Swedish (6), Finnish, Germanic	Swedish/ English	English	high
L3_14	Kinyarwanda, French	French (2)	English	English	medium
L3_17	Danish, Swedish	Germanic (2)	English/ Danish	English	high
L3_21	French, Swedish	French (6)	Swedish/ French	French/ English	medium
L3_24	Hindi, German	Germanic (3)	English	English	high

(Note: Typological Proximity refers to Proximity between English and Language that was detected - Dominance = as measured from proficiency ratings and reported language use)

Particularly, for 4 participants, both dominance and preference aligned with the identified transfer source, which may indicate that CLI is especially likely when these two factors reinforce each other. However, there are also instances where typological proximity may reinforce the transfer. For example, L2_28 and L2_19 were both associated with South Asian languages, which are typologically distant from English, and their CLI may reflect deeper structural influence from these languages despite varying dominance and preference profiles. On the other hand, participant L3_14 was identified with French, his L2, despite no clear connection in terms of dominance or preference—possibly due to the greater typological distance between his L1 (Kinyarwanda) and English, or simply a coincidence, given the small number of the instances of identification. Similarly, L3_24 represents a more complex case: although her CLI was attributed

to German (her L2), both her dominance and preference lie in English. In this case, again, the low number of raters predicting the source of transfer does not allow for further explanations.

Finally, it is worth noting that several children were not assigned a clear transfer source by any of the raters. This could suggest that their accents were more neutral or less marked overall, making any CLI more difficult to detect. It could also be that the raters lacked familiarity with the relevant background languages, which may have limited their ability to pinpoint specific sources of influence. This ambiguity raises important questions about how transfer is perceived and identified, and these will be discussed further in the following chapter. Overall, the findings in this section highlight the variability in how CLI is manifested and perceived across individual speakers.

Chapter 6 Discussion

6.1 Overview of the Goals of the Study

This study explored the accentedness and comprehensibility of 33 multilingual children, both trilinguals and bilinguals, in the context of an international school. Four research questions shaped the investigation: whether trilingual children have a phonological advantage over bilinguals in global accentedness in English (RQ1), which factors influence how their English global accent is perceived (RQ2), whether children show signs of transfer (CLI) from their early-acquired languages when speaking English (RQ3), and what factors influence the perceived transfer source in English (RQ4). In the following discussion, I reflect on the most central findings, consider how they align with previous research, and point to some of the more interesting outcomes—especially in relation to how language dominance, preference, and environment interact in complex, sometimes unexpected ways.

6.2 Phonological Performance in Bilingual and Trilingual Children

This section discusses the findings related to RQ1, which asked whether trilingual children show phonological advantages over bilingual children when acquiring English, as reflected in perceived comprehensibility and accentedness.

The results showed that all participants across both groups performed well in English, with only 4 children (L2_25, L3_1, L3_21, L3_23) scoring 3.0 or below mainly in accent mean score ratings. All of them apart from L3_1 belong to the ones who attend ELS classes. This indicates that both bilingual and trilingual children were perceived as generally easy to understand and not heavily accented, confirming high levels of phonological development overall. These results align with earlier studies that highlight the positive effects in L3 learning (Enomoto, 1994; Beach, 2001; Marx & Mehlhorn, 2010; Tremblay, 2010; Lloyd-Smith, Gyllstad & Kupisch, 2017).

While the performance was strong in general, the trilingual group showed a slightly more concentrated pattern in the higher rating scales. For comprehensibility, more than half of the trilinguals scored in the highest range (5.0–6.0), while bilinguals were more often rated in the 4.0–5.0 range. Neither group had scores in the lowest range, indicating that all participants were

at least moderately comprehensible. For accent, the distribution was towards higher scores in the trilingual group, since 9 scored between 4.0 - 4.9 and 4 between 5.0 - 6.0. The bilingual group, in contrast, demonstrated a wider distribution in the scoring scale. These observations suggest that while both groups performed strongly, trilinguals showed a modest descriptive concentration in the higher rating ranges; however, we did not establish statistical group differences in this sample. These trends may be carefully interpreted in light of research that points to phonological and metalinguistic advantages associated with trilingual development. As discussed in the theoretical background, trilinguals are often exposed to a wider range of phonetic systems and develop more refined mechanisms for speech perception and production (Gut, 2010; Wrembel, 2015; Montanari, 2011). Their linguistic experience across three languages may lead to enhanced attentional control and greater flexibility in managing sound patterns, which could explain their stable performance across both measures. The findings also resonate with Verhoeven (2007) and De Angelis (2007), who have shown that multilingual learners tend to demonstrate stronger segmental control and phonotactic awareness compared to bilinguals. While this study does not directly measure such cognitive-linguistic abilities, the higher concentration of high scores among trilinguals are in line with the presence of such underlying skills.

Another layer to this finding emerges when considering the participants' dominance profiles. As outlined in the results section, bilingual children tended to show a clearer division between balanced and English-dominant profiles, while the trilinguals more often exhibited a dual-dominance pattern, with English consistently playing a central role alongside another language. English was not only the school language but also frequently a home or peer language, giving it a consistent, embedded presence across domains. The dual-dominance profile may have created an environment where English pronunciation was supported by both quantity and quality of exposure—through diverse channels and contexts—which in turn could contribute to their higher native-likeness in accent and comprehensibility.

It is also important to highlight that bilingual participants showed very strong performance as well. With the majority scoring in the 4.0–6.0 range for both comprehensibility and accent, they too demonstrated clear advantages in phonological learning, consistent with findings by Moyer (2013) and Piske et al. (2001) that early bilingualism supports accent acquisition, especially when combined with sufficient input in the target language. Multilingual learners are often described as having an advantage in language learning compared to monolinguals or

bilinguals, shaped by their experience managing more than one language system (Herdina & Jessner, 2002). This idea is supported by the results, since both groups performed well overall. Thus, the overall high performance across both groups supports the broader claim that early multilingual exposure—whether in two or three languages—facilitates strong phonological development in English.

Another point worth highlighting is the small gap between accent and comprehensibility ratings. In many cases, children were rated higher on the comprehensibility scale than on the accentedness scale, meaning that even in those cases where their English was not perceived as entirely native-like, they were still easy to understand. This distinction is especially relevant in a multilingual school setting like ISLK, where the goal is not necessarily to sound native, but to communicate clearly across diverse linguistic backgrounds. In this context, comprehensibility may be a more meaningful and realistic indicator of phonological development. It reflects not only how children pronounce words but also how fluent in English they are and how well they can make themselves understood within a shared environment. This reinforces the idea that native-likeness alone does not tell the full story—especially when children are navigating multiple language systems at once.

Overall, these outcomes are consistent with prior research showing that multilingual learners develop enhanced phonological skills and often acquire additional languages with greater ease than monolingual peers.

6.3 Factors that influence degree of perceived accent in English

Overall, the results from RQ2 suggest that native-likeness in young learners' English accents is not the outcome of a single defining factor, but rather shaped by different variables. In this section, I reflect on five potential predictors—age of onset (AoO), age of instruction (AoI), language input, dominance, and language preference—and how they relate to the children's accent performance.

Across the full sample, the amount of English input showed a modest positive association with high accent proficiency ($R^2 = 0.086$). Consistent with this, the scatterplot shows many of the highest accent ratings (5–6) near the upper end of the input scale (9–10). These findings resonate with what several scholars have argued: that input—especially when it is sustained, varied, and rich in quality—is foundational in phonological development (e.g., Einfeldt, 2022, Kupisch et

al., 2021; Moyer, 2013; Wrembel et al., 2020). When the groups are separated, this pattern is driven primarily by the Bilingual group (R^2=0.335), but the results overall do not provide further interpretations for group comparison. This could be due to the small amount of the sample or due to the high overall proficiency scores.

Language dominance, assessed through reported input and use across languages and both comprehensibility and accent ratings, also showed a clear association with accent performance. Children classified as English-dominant or balanced (with English included) received higher ratings overall than those dominant in another language. Those in the "no English dominant" group consistently scored lower, and included the children with the lowest accent ratings. This reinforces the claims that dominance is, if not equal, as important as AoO (Kupisch et al., 2021; Moyer, 2013; Piske et al., 2001; Benmamoun et al., 2013). It was evident here that children tend to sound more native-like in the language they use the most and feel most confident in. In this study, dominance in English clearly supported more target-like pronunciation, particularly when paired with strong input.

Language preference revealed a similar pattern as dominance. Most of the children in the sample preferred English, and they also tended to receive higher accent scores on average (4.56) than those who preferred another language (3.71). The children with the lowest scores (below 3.0) were all from the group that did not prefer English. While preference is a subjective measure, it often reflects the child's emotional connection to the language and their willingness to use it in different contexts. This finding aligns with Moyer's (2013) claim that motivation and affective engagement with a language can significantly influence accent development.

Importantly, the generally high accent ratings across the sample can likely be explained by the fact that the majority of participants had English preference and dominance. In a school where English is the medium of instruction and the social language, this trend is not surprising. The linguistic environment appears to reinforce English use both academically and socially, offering children ample opportunities to refine their pronunciation.

In contrast, the more traditional predictors—AoO and AoI—did not show strong effects in this study. The scatterplot for AoO for both groups revealed a weak negative correlation (R^2=0.061), suggesting that earlier exposure might offer a slight advantage, but not consistently so. Children with an AoO of 0 varied widely in their accent ratings, ranging from 3.0 to 6.0, which complicates any straightforward interpretation. At the group level, AoO showed a small

association among bilinguals ($R^2 = 0.183$), but was essentially uninformative among trilinguals ($R^2 = 0.016$). In line with work emphasizing use and dominance over age alone, this pattern tentatively suggests that trilinguals' accent outcomes in this setting were shaped more by English use/dominance than by AoO. These findings challenge the assumptions behind the Critical Period Hypothesis as a sole explanation for accent outcomes for the Trilingual children, but also support the idea that earlier age of acquisition promotes phonological development for the Bilingual children. At this point of the study, the Trilingual group seemed unaffected by the AoO for English, which is aligned with Montanari's (2011) view that trilingualism may enhance a child's attention to phonological properties, and as stated here could overcome AoO. Trilinguals' accumulated experience with managing multiple languages (Herdina & Jessner, 2002) and their access to a broader range of sounds could enhance their sense of phonological structure, as suggested by Gut, 2015 and Wrembel, 2015. These claims may explain why the early acquisition is not a strong factor for their phonological development after all.

The results for age of instruction did not provide strong evidence. With an almost flat trendline and $R^2 = 0.011$, the scatterplot showed no meaningful relationship between the age at which children began formal English instruction (AoI) and the degree of nativeness. This supports previous research that questions the predictive power of AoI (e.g., Piske et al., 2001) and emphasizes that earlier is not always better—particularly when it comes to pronunciation in multilingual environments. AoI remains uninformative in both groups (R^2=0.001–0.051), underscoring the limited role of formal start age in English nativeness.

Finally, AoO may provide a foundation, but it does not guarantee higher proficiency- at least not for the Trilingual children in this study. Preference may reflect emotional closeness to a language, but it likely draws its strength from daily use and functional need. In that sense, native-like phonological development appears to be built not through age or instruction alone, but through living the language—using it socially, academically, and emotionally. These claims reinforce Ortega's (2008) point that cross-linguistic influence and phonological development are not driven by one variable, but shaped by the child's entire linguistic experience. The children in this study live in a school environment where English is both the medium of instruction and the social norm, but their varying degrees of connection to English, as well as their variability in their profiles, explain itself the complexity of multilingualism.

6.4 Evidence of Phonological Transfer (RQ3)

The RQ3 examined whether bilingual and trilingual children exhibit phonological transfer from their early-acquired languages when speaking English. Transfer was assumed to be present when the majority of the raters' responses showed consistency with the child's L1 or L2, either directly or via typologically related languages.

A total of 10 children were consistently associated with one of their background languages or a related language family. These included both bilinguals and trilinguals, and in most of these cases, the source language identified by the raters aligned with either the child's L1, L2, L1's/L2's family language or typologically close language. In a few additional cases, only one rater guessed the correct background language, indicating possible—but less robust—evidence of CLI. It is also noteworthy that some of the children had a wide range of perceived transfer sources among raters. However, there was no common factor behind those participant profiles. Some had received low English proficiency sores and others had scored high.

Moreover, for 13 out of 33 children, the most common response was that they sounded English native-like. This suggests that, in the majority of cases, there was no clear evidence of CLI from the children's other languages. Several factors may explain this outcome. One possibility is that many of these children simply did not exhibit phonological transfer, particularly if their exposure to English had been early, sustained, and socially embedded. As previous studies have shown, children who acquire an L2 or L3 before the age of six in immersive contexts are more likely to develop native-like accents. The children in this study attend an international school where English is the primary language of instruction and peer interaction, which likely contributed to their perceived native-likeness in English.

Another reason for the low frequency of CLI-related responses may lie in the high diversity of the sample. With over 20 different home languages represented, many of which are not widely recognized outside their regions, it is possible that raters simply lacked familiarity with the relevant languages and their phonetic features. Even when subtle traces of transfer were present, they may have gone unnoticed or been attributed to general non-nativeness. Moreover, perceptual judgments are inevitably shaped by the raters' own linguistic background and familiarity with the accents they are exposed to. Several of the children in this study speak home languages that are rarely heard in European contexts (e.g., Mandarin, Kinyarwanda, Urdu),

which may have limited the raters' ability to recognize or label them—even if subtle phonological transfer was present. This highlights a methodological limitation: phonological CLI may exist in the speech signal but remain undetected due to raters' unfamiliarity with the language in question.

Furthermore, the uneven input that trilingual children often receive across their languages reduces the likelihood of phonological features surfacing in English. This challenge is not just about language loss at the lexical or grammatical level—it also affects pronunciation. Without regular, distinct exposure to the phonological patterns of a language, children may deprioritize them in production, especially when a dominant language like English occupies most communicative contexts. As Kupisch (2023) points out, quantity alone is not enough—sustained, high-quality input is necessary to maintain active use and prevent attrition, particularly in minority languages. In many trilingual contexts, the school or community language becomes dominant, while other languages receive more limited exposure. This dynamic may explain why transfer was not as evident in several children: even if they had early exposure to their L1, inconsistent or weaker input over time may have reduced the likelihood of phonological features surfacing in English.

A third and crucial factor is the design of the question prompt itself. Raters were explicitly asked to identify the child's mother tongue. This framing may have had an impact on the responses to English, especially in cases where the child sounded highly proficient. If the question had instead asked, "What other language do you think this child speaks based on their English accent?", raters might have excluded English from consideration and been more inclined to identify possible transfer sources or they might not have responded.

In some cases, raters came close to identifying the child's background language but instead named a related one—for instance, attributing a Romance language influence without pinpointing the exact language spoken by the child. This pattern still supports the presence of CLI, particularly when the detected language is typologically close to the child's actual L1 or L2. For the 13 children whose most common response was "English" (native-like), their actual L1/L2s were often not typologically close to English (e.g. Polish, Indonesian, Mandarin, Hindi, Russian, Kinyarwanda, etc.). What is clear is that English emerged as the dominant perceptual target in most cases—either due to actual native-likeness or a combination of task design, input environment, and rater bias.

These results suggest that phonological transfer, when present, may not always be recognisable—especially in contexts where children receive high-quality and consistent English input. As discussed in Chapter 2, transfer is not a uniform process but one that depends on several interacting factors, including typological proximity, age of onset (AoO), language dominance, and input quality (Ortega, 2008; Lloyd-Smith et al., 2017). Moreover, the fact that most children were rated as English native-like can be evidence that multilingual exposure supports strong phonological development.

Furthermore, CLI in phonology is not exclusively inhibitory; it can also enhance metalinguistic awareness and accelerate phonological development, especially when children draw on a rich and varied sound inventory across languages. This may account for the high number of children who were rated as English native-like despite multilingual exposure and the general high accent ratings reported in the RQ1, supporting the view that CLI in trilinguals can be a source for phonological acceleration. Also, the low frequency of detected CLI may be due to a combination of factors: the high level of proficiency in English among participants, the early and immersive exposure in a multilingual school context, and the limited familiarity of raters with the children's home languages. Especially when the child's L1 or L2 is typologically distant from English or rarely heard in Europe, subtle phonetic traces might go unnoticed. Future studies could control for this by including raters with expertise in a broader range of languages or complementing perception tasks with acoustic analysis to detect CLI cues.

In conclusion, the results for RQ3 provide modest evidence of phonological transfer in the speech of bilingual and trilingual children, though such effects were not widespread or consistent across the sample and such a claim cannot be fully supported due to the limited responses. The findings highlight the complexity of CLI in multilingual children, and the need to interpret perceptual data with caution. In particular, future studies would benefit from a refined rating task and a complementary phonetic analysis to better capture the dynamic of CLI in L3 acquisition.

6.5 What factors predicted phonological CLI in English?

As discussed in the previous section, not all children may have exhibited CLI, or at least it was not evident for the raters because they have high degrees of native-likeness and

comprehensibility. Therefore, for the final research question (RQ4) I focused only on those who seemed to exhibit some degree of CLI.

The RQ4 explored which factors—dominance, preference, or typological proximity—seem to predict whether a child will exhibit phonological transfer from their other languages into English. The analysis focused on the ten participants who showed clear evidence of CLI. Although CLI might be more observable at lower levels of proficiency, four (4) of those participants had received high proficiency scores in English and six (6) had lower degrees, which does not allow for further interpretation. For each case, the language identified by the raters was compared with the child's dominant and preferred languages, as well as with the typological similarity of the identified language to English.

The findings suggest that language dominance is the most consistent predictor: in 6 out of the 10 cases, the identified source of CLI aligned with the child's dominant language. Preference was also a strong predictor, appearing in 5 of the 10 cases. Specifically, for 4 children, both dominance and preference aligned with the rater-identified language, providing strong evidence that CLI becomes more salient when both of these factors reinforce each other. This supports claims in the literature that dominance plays a central role in multilingual phonological development (Kupisch et al., 2021; Moyer, 2013) and, adds to it that, when considered alongside with language preference the phonological CLI is even more recognisable.

However, not all cases followed this pattern. Participant L2_28, whose mother tongue is Telugu—a language with low typological similarity to English—showed CLI that might be shaped more by phonological distance than by dominance or preference contrary to the Typological Primacy Model. Interestingly, this participant had an early AoO and AoI in English (2 years) and a very high amount of formal and informal input in English (5 points). Another interesting case is participant L2_19, where raters perceived influence from South Asian languages, potentially because of the distinct phonological features of Urdu regardless of the high accent and comprehensibility scores in English. This participant had low scores in his L1 and the reported Language Use was equally divided between English and Urdu. This participant has a later AoO and AoI (4-5 years) in English. Despite this, his profile shows dominance in English, but the preference in Urdu in combination with the rater responses allow for more interpretation. These two cases (L2_19 and L2_28) challenge the TPM, which argues that CLI can come from the typologically closest language to the target language (Rothman, 2015). There

were also more complex or inconclusive cases. For instance, L3_14 was identified with French (his L2), even though neither dominance nor preference pointed to it. This could be due to the distinct prosodic features of French (it has prosoding phrasing and the stress is assigned at a phrasal level in contrast with English and other languages that have word specific stress). The L2 identification supports the L2 Status Factor Model (Bardel & Falk, 2012) that L2 may serve as the dominant source of CLI due to recency, salience, or frequency of use.

Since only two raters selected this option, this may be a coincidental pattern, or perhaps it reflects the typological distance between Kinyarwanda (his L1) and English, which might have made the French-accented features more recognizable to raters. L3_24 similarly poses interpretive challenges. Although German (her L2) was identified by three raters, her dominance and preference were both aligned with English and her proficiency scores in her three languages showed English dominance. But it could be that some L2 CLI had accelerated the English phonological development or raters were familiar with the German accent which distincts for its final voicing. Again the limited number of the answers cannot account for this case.

Overall, these findings indicate that dominance and preference were well connected to the majority of the raters' responses, but other variables can support the phonological transfer too. This aligns well with Ortega's (2008) view that transfer is not guided by a single mechanism but emerges from a complex interplay of cognitive, experiential, and typological factors.

One important limitation of this analysis lies in the number of rater responses. For many children, the identification of CLI was based on a small number of responses—sometimes only two or three. This makes it difficult to draw firm conclusions in borderline cases and highlights the need for caution when interpreting results. It is possible that different raters, or a higher number of responses, might have led to different patterns and it does not account for individual variation in rater experience or sensitivity to specific accents. Despite this limitation, the findings contribute valuable insight into how CLI manifests in trilingual children's English speech. It shows the importance of examining not only linguistic factors like typological proximity, but also subjective ones like preference—especially in complex multilingual environments where input is distributed across multiple domains.

What stood out in this analysis is the role of language preference. Although I did not initially include preference as a measure of dominance, it allowed for further explanations in the patterns of CLI, often aligning with dominance and the language raters perceived as the

influencing source. This raises an interesting possibility—maybe preference isn't just a secondary detail, but a real reflection of which language is most active in the child's mind. In multilingual settings like this one, where children navigate several languages across different social spaces, preference might actually serve as a more intuitive indicator of dominance than input quantity alone. The effect of language preference was supported also by the children's own reports from the follow-up questions. Out of the 33 participants, 22 indicated that they preferred speaking English over their other languages. Of those, 14 explicitly linked this preference to their daily use of English at school or in conversations with friends when they were asked "Why do you prefer this language?". These responses highlight how regular social use of English—especially in peer interactions—can deepen children's emotional connection to the language and strengthen its role in daily communication. In combination with the results, this suggests that phonological development in multilingual children is shaped not just by which language they hear most, but by how personally meaningful that language is in their daily lives. Overall, preference is something that could be explored further or taken as a dominance factor in future studies, especially when thinking about how social identity and emotional attachment to a language play into how children sound.

6.6 Implications for Multilingual Education and Accent Development

These findings have several implications for understanding phonological development in multilingual children, particularly in international school contexts. First, they suggest that high-quality input and consistent use of English—especially through peer interaction and schooling—support native-like accent development, even in children who did not acquire English as their first language. This emphasizes the role of school environments not just in instruction but also in socializing children for increasing fluency in a certain language. Second, the variability in CLI highlights the need to consider emotional and identity-related aspects of language use when evaluating pronunciation. Language preference, often overlooked in educational settings, emerged here as a strong indicator of whether transfer would occur. Educators and researchers might benefit from including simple questions about language

preference in their assessments, as it can shed light on performance patterns that input data alone might miss.

In addition, international schools might consider small, intentional strategies to support home languages alongside English. For instance, teachers could invite students to share words or cultural references from their L1 or L2 during class discussions, especially when relevant to the topic. This kind of informal integration helps validate children's broader linguistic repertoire. Group projects could also offer flexibility in language choice especially if connected to culture and traditions, allowing students to prepare or present content using different languages. Beyond the classroom, setting up language buddy groups or allowing home language use during unstructured time—like breaks or lunch—could help maintain fluency and confidence in languages that are otherwise at risk of being sidelined. Small actions like these do not require significant restructuring but can have a real impact on how children value and retain their home languages. Communication with families can also play a role here, by encouraging routines and spaces for L1 use at home in parallel with the school's English-based environment.

Finally, the overall strong performance of both bilingual and trilingual groups suggests that multilingualism itself does not hinder language development—on the contrary, it may offer advantages. However, these advantages depend on how languages are distributed across settings, how much input each receives, from whom and the quality of it, and in general how children engage with their linguistic repertoire on a daily basis. The home languages might become weaker in the future if the amount and the quality of input does not overcome the school or the society language. How these home languages might be affected by the use of the ML or the school language would be an interesting aspect to look at. This was not thoroughly investigated in this study, rather some individual judgments on each of the background languages, where in some cases the proficiency ratings were high, but there were few that were low. This was a small window, but it would be beneficial for future studies to investigate what happens to the home languages that are not used in school or particularly whether high proficiency in English as a ML or school language threatens the home languages.

6.7 Future Directions

As noted before, this study included a diverse sample of children with varying language backgrounds and levels of English exposure, and it relied on single-rater judgments for

non-English languages. While these aspects might traditionally be seen as limitations, they also reflect the complex and dynamic nature of real-world multilingual environments—particularly in international schools like ISLK. Rather than controlling for every variable, this design captured the variability that naturally occurs in multilingual language development. In that sense, the diversity of the sample can be viewed as a strength. It allowed the study to explore phonological development as it unfolds in authentic, heterogeneous settings, rather than under idealized or overly controlled conditions. Future research can build on this by continuing to embrace this complexity and seeking meaningful patterns within it, instead of viewing it as something to be minimized.

Looking ahead, future research could build on this work in several ways. A longitudinal design would provide a clearer picture of how accent and cross-linguistic influence evolve over time, especially in relation to shifting dominance and input patterns. Given that accent is a moving target in childhood, capturing its development across school years would help clarify which factors have lasting effects. In addition, combining perceptual ratings with more objective measures like acoustic analysis or segmental phonology might also deepen insights into what shapes “native-likeness”.

Finally, more attention could be given to affective and identity-related variables. Language preference emerged in this study as a strong predictor of accent and transfer, but this remains an underexplored area in multilingual phonological research and possibly accounts for dominance too. Understanding how children emotionally relate to their languages—and how that shapes their speech—may be key to explaining why transfer occurs in some cases and not others.

6.8 The Role of School Environment: Identity and Language Use in Multilingual Children

Although this study focused mainly on accentedness and transfer, the findings also touch on something broader: the realities and challenges that come with growing up trilingual or bilingual. It’s easy to highlight the cognitive and phonological benefits of multilingualism. But what sometimes gets less attention are the difficulties these children face in keeping all their languages active and balanced over time. The truth is, just being exposed to three languages doesn’t guarantee equal development in all of them. Input matters—but not just the amount. What kind

of input, in what context, from whom, and how often—it all plays a role. Several children in this study were clearly stronger in English, not necessarily because they started with it earlier, but because English was central to their schooling and friendships, it became deeply embedded in how they interact and express themselves.

Children's own reflections also highlight the central role that school plays in shaping their sense of identity in English. When asked *"When do you feel like a real English speaker?"* 24 out of 33 participants said they feel that way when speaking with friends or during school time. Another 6 responded that they always feel like a native speaker, both at school and at home and 3 children mentioned other contexts: one when speaking to her father at home, one said in England, and one said when thinking alone. These answers show that for many of the children, school is not just where English is learned—it is where English becomes part of who they are.

This finding makes us wonder if over time, that kind of consistent, socially meaningful input can easily make one language take over. And unless there's strong support at home or in other contexts, the other languages may slowly fade—not disappear, but become harder to access or less natural to use. That is something worth thinking about—not just for researchers, but for teachers, schools, and families too. Research has shown that without deliberate support—such as clear domains of use, consistent exposure, and distinct speaker models—minority languages can quickly become vulnerable in trilingual children's repertoires. This challenge is especially relevant when the school language dominates social and educational interactions. In this study, English became the socially embedded language for most children, and while this supported strong phonological development in English, it may have also contributed to the phonological declaration for other languages.

A few of the children in this study, especially those who preferred or identified with a home language, still showed influence from that language in their English speech—even if they were also doing really well in English. Others, who had lost that connection or their home language use was limited, did not show any evidence of transfer. That might also be a sign that the language is losing ground. It raises important questions: How do we help children keep using all their languages confidently? What kind of support can schools offer for children's home languages—especially when they are not used in class? And when we talk about "native-likeness," what are we really measuring? Is it about sounding like a monolingual child,

or is it about being able to use your languages flexibly across different contexts and be comprehensible?

This study does not answer all of those questions, but it does suggest that phonological development is deeply connected to input, identity, and language use. It's not just about when a child starts learning a language—it's also about how that language fits into their everyday life and sense of self. For trilingual children especially, that journey is rarely simple or symmetrical, and understanding that complexity is key if we want to support them in meaningful ways.

6.9 Study Limitations

While designing this study, I aimed to keep the task manageable and focused, but as with any research involving young multilinguals, some limitations naturally emerged along the way. Being conducted in a linguistically diverse international school, which enriched the dataset but at the same time made it difficult to compare bilingual and trilingual children with matched language profiles. While this diversity allows for broader patterns to emerge, it also limits how far the findings can be generalised to specific language constellations or typological groupings.

Regarding the background information, some limitations encountered connected to the levels of proficiency in English, the AoO and the parental respones. Although most participants had early exposure to English, there was some variation in age of onset and acquisition context. However, there was a balance between the two groups, since there were beginners of English almost equally distributed to them. The differences in the AoO may have shaped phonological outcomes to some extent, but they also allowed for individual interpretation (e.g. participant L3_19). Additionally, since AoO showed only weak effects, and exposure was relatively balanced across groups, this is not considered a major limitation. Another limitation relates to the background information gathered through parent questionnaires. While parents provide valuable insights into their child's language exposure, use, and preference, these reports are inevitably subjective. Children may relate to and use their languages differently across settings, and this can't always be captured through parental estimates alone.

Regarding the rating tasks, for the other languages apart from English, since only one rater was used per language, the dominance results are shaped by individual familiarity and perception. To strengthen the given scores, another measure was added ("errors"). For the English rating task, the use of multiple raters and averaged scores strengthened reliability, but

subjective variation remains an inherent part of perceptual data. However, it is still a rating process and therefore is considered a perceptual task, where individuals have subjective opinions.

Finally, the study focused only on one area of language—accentedness and comprehensibility in brief oral production. While useful, this offers only a partial picture of multilingual proficiency. Other aspects such as vocabulary and syntax were not examined. In addition, as a cross-sectional study, it captures just one moment in time. Since dominance and CLI are likely to shift as children grow, a longitudinal design would offer more insight into developmental changes. Lastly, as mentioned in the discussion, the elaboration on how home languages are affected by the school language was not possible, due to the focus on English proficiency, but this is something future research would look at.

At the end, the variability in the profile of the participants and the obstacles along the way to objective results reflect the real-life multilingual reality of many school contexts—complex, dynamic, and shaped by varied input and identities. Rather than controlling for every variable, this study embraces that variability and offers a snapshot of how young multilinguals sound and why.

Chapter 7 Conclusion

This thesis set out to explore how multilingual children—both bilingual and trilingual—develop phonological skills in English within the context of an international school. The study focused on perceived accentedness and comprehensibility, as well as potential phonological cross-linguistic influence (CLI) from the children's other languages to English. By combining rater-based judgments with detailed background profiles of the participants, the study aimed to better understand not only how children sound, but perhaps more importantly, why they might sound the way they do. Overall, the results show that both bilingual and trilingual children performed very well, with the vast majority receiving high scores for both accent and comprehensibility. On average, the two groups were remarkably similar in performance, with only minor differences in how scores were distributed. These findings are in line with previous research suggesting that early exposure to more than one language—whether two or three—can support robust phonological outcomes.

By examining the relationship between perceived nativeness and factors such as AoO, AoI, language use, dominance, and preference, it became evident that input (language use) was the strongest predictor at the whole-sample level. Among trilinguals, AoO did not show a clear association with high accent scores. Rather than group status alone, individual variation in accent ratings appeared to be more strongly shaped by factors such as dominance and preference. Children who were dominant in English, or who preferred using it, tended to receive higher native-likeness scores. Interestingly, age of onset (AoO) and age of onset of English instruction (AoI) did not show strong predictive power in this study and AoO impacted only the Bilingual Group, suggesting that Trilingual children performed well regardless of their age of acquisition.

These findings perhaps add further support to the idea that quality and frequency of exposure, rather than timing alone, are key drivers of phonological development. From my perspective, these findings reinforce the idea that international schools—such as ISLK—may act as accelerators of language development. The combination of English as the language of instruction, daily peer interaction in English, and a linguistically diverse classroom seems to create an immersive environment that facilitates accent development. It is not just the quantity of input that matters here, but the richness and authenticity of communication across academic and

social contexts. One could argue that this social use of English accelerates phonological growth more effectively than structured instruction alone.

The analysis of cross-linguistic influence revealed modest evidence of transfer from children's other languages into their English speech. In about a third of the cases, raters associated children's accents with one of their background languages or a typologically similar one. Yet for many children, English was perceived as their L1. This likely reflects the high-quality, socially embedded input they receive at school, where English is not only the instructional medium but also the main peer language. In such contexts, sustained exposure may support highly target-like pronunciation. Where transfer was perceived, it tended to align most clearly with language dominance and preference, particularly when both pointed to the same language. Typological proximity also seemed to play a role in some cases. However, given the linguistic diversity of the sample, and the raters' limited familiarity with many of the children's background languages, it is quite possible that some transfer went unnoticed. This highlights a methodological limitation that future studies could address through more detailed phonetic analysis or raters with experience in phonology.

An interesting insight that emerged during the study was the potential role of language preference—not only as a reflection of language use, but as a meaningful emotional and social alignment. Children who preferred English tended to receive higher accent ratings, suggesting that preference may be more than just a passive attitude. It could function as a motivational driver, influencing how often children choose to use English, whom they use it with, and how they feel about sounding native-like. While more research is needed, this study suggests that preference deserves more emphasis in multilingual phonological research—not as a secondary variable, but as an active influence on how children develop and use their languages.

Summarising, this study contributes to our understanding of phonological development in multilingual children by showing that high levels of comprehensibility and native-likeness are possible regardless of whether a child is bilingual or trilingual. What seems to matter more is how children use their languages—which ones they feel most connected to, how often they hear and speak them, and in which contexts. The findings underscore the potential of international school environments to support phonological development through consistent and meaningful English use.

By focusing on elementary school children and combining perceptual measures with background profiling, this study helps to address a gap in phonological research on primary-aged trilinguals. It underscores the complexity of multilingual phonological development and supports a dynamic, usage-based perspective on accentedness—one that moves beyond static categories like AoO and instead considers the full ecology of the child's linguistic experience.

As a final reflection, it seems clear that accent is not simply a product of when a language is learned or how many languages a child speaks. Rather, it emerges through daily interaction, identity formation, and social belonging. Within this environment, the accent becomes less about imitation and more about participation. Understanding this interplay may offer valuable insights—not just for researchers, but also for educators and families working with multilingual children.

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APPENDIX A - Study Invitation Material

Invitation to Participate in a Research Study on Trilingualism

Dear Parents,

For my master's thesis at Lund University I would like to focus on children who grow up speaking three or two languages. My study will explore how children's languages influence each other and, specifically, to what extent they make use of their background languages when speaking English (the language at school).

More precisely, my attempt is to explore:
- How is trilinguals' 'global accent' perceived in an elementary international school? How does the language of the school affect their performance in English?
- If students' accent is connected to their general proficiency in English.
- How does their linguistic experience affect their performance in English? What is the connection between their age of acquisition and the age of instruction and their phonological skills?

The goal is to celebrate their linguistic abilities and explore how they adapt their language use in different contexts with the hope that this research will provide further insights to teaching multilingual students.

● Who can participate?
Children who regularly use three or two languages in their daily lives—at home, at school, or with family and friends—are welcome to take part.

● What is the process?
If you and your children are interested in participating, you will be sent a short questionnaire to be filled out by parents/ guardians. The questions will primarily be concerned with the amount of language use within and outside of the home during the past and currently. Afterwards, in

collaboration with their homeroom teachers the students will participate in a task that will be using visual material from The MAIN (Multilingual Assessment Instrument for Narratives).

● What does participation involve?
- The study will take place at school and will last no more than 10 minutes per child.
- Each child will engage in a fun detective-themed activity, describing a picture (a daily event) in English. After that, they will exchange information with "detectives in another country" using their other two languages. In the end, the child will be asked which languages she/he likes best.

Data collection
Your child's responses to the picture task will be audio-recorded for comprehension and accent analysis. A native English speaker will listen to the recordings to identify potential sources of transfer. The description in the other two languages will be used to assess the child's fluency in the respective languages. The data will remain anonymous (your child's name will not be recorded or disclosed). The recordings will be deleted following the completion of this study (unless you consent to making it available for future studies).

The participation is voluntary and you and your child has the right to withdraw from the process any time.

If you are interested in having your child participate, please reply to this email. Feel free to reach out with any questions.

Best regards,
Eva Kalogeropoulou
PYP6 LSA & ASP pedagogue
Master's Student, Lund University

APPENDIX B - Parental Questionnaire

Questionnaire for parents
Study research on Trilingualism in elementary students

The following questionnaire will provide essential information regarding your child's informal and formal exposure to each language, age of first instruction and first exposure and preferences. Please, read the instructions carefully before you fill in the answers. It takes less than 10 minutes to complete the questionnaire.

I. Basic information - regarding language background

Name and age of the child:	
Which languages does your child speak?	
Mother tongue of father	
Mother tongue of mother	
What language does the mother use with the child?	
What language does the father use with the child?	
What language does the child speak with the grandparents?	

II. Regarding informal exposure

*Fill in the boxes with the languages that your child speaks and **mark with an X** the **informal exposure** you think that he/she has in those languages(listen to the language at home, with friends, in activities outside of school, from family members, while watching TV or playing video games):*	**Languages:**	VERY LOW	LOW	MEDIUM	HIGH	VERY HIGH
	1.					
	2.					
	3.					

III. Regarding formal exposure

*Mark with an **X** how much **formal exposure** (school, mother tongue lessons, tutoring) you think that your child receives in the languages that she/he speaks:*	**Languages:**	VERY LOW	LOW	MEDIUM	HIGH	VERY HIGH
	1.					

	2.					
	3.					

IV. Age of instruction to English and other languages

*In what age did your child receive **intentional and structured learning** in their languages? Fill in the languages and write the **number of the age** that he/she started structured learning in those languages. In case the child has not had lessons in some of the languages, please leave the box empty. Then, answer with **Yes** or **No** if the child still receives structured learning in those languages today:*		**Language:** _____	**Language:** _____	**Language:** _____
	AGE			
	Does he/she STILL receive language lessons in that language?	• Yes • No	• Yes • No	• Yes • No

V. Age of first informal exposure to all these languages

*In what age was your child first exposed **informally** to their languages (listening from parents at home, or other family members, watching movies or listening to songs)? Fill in in the same way as in section IV. Write **0** if the exposure started from birth.*		**Language:** _____	**Language:** _____	**Language:** _____
	AGE			

VI. Regarding your own judgment/experience with your child

What language do you think your child prefers most?	

Parental consent for Lund's University to keep the recordings and data of the child in order to be available for future studies:

- Yes
- No

Thank you for taking the time to participate in this questionnaire.
Your input is important for this study!

Eva Kalogeropoulou
evangeliakalogeropoulou@gmail.com

APPENDIX C - Rating Task: Evaluating Children's Speech - Comprehensibility & Accent

This survey (rating task) was distributed via Google Forms. The content has been transcribed for clarity and formatted for inclusion here.

Introduction and Instructions

Evaluating Children's Speech: Comprehensibility & Accent

Thank you for participating in this study. The aim of this research is to better understand language development in children who acquire English. You will listen to a number of children speaking English, and we are interested in what you think about their speech. In addition, we will ask you some biographical questions about yourself. The task will take between 25 and 35 minutes to complete.

Your data will remain anonymous, which means that we will not reveal your name in any publication of this study.

Your responses are valuable and will contribute to research on multilingual children's language development. Thank you again for your time and support!

Evangelia Kalogeropoulou
Lund University

Rater Consent

1. Do you agree to participate?

☐ Yes

☐ No

Rater Demographics

2. What is your gender?

☐ Female

☐ Male

☐ Prefer not to say

3. What is your age group?

☐ 18–30

☐ 31–40

☐ 41–50

☐ 51+

4. Are you a native English speaker?

☐ Yes

☐ No

5. Do you have experience as an English teacher?

☐ Yes

☐ No

Rating Instructions

Speech samples

In the following, you will listen to short samples (14-16 seconds) from children who are telling a story in English.

After each recording, you'll be asked to rate:

STEP 1:

How easy it is to understand what the child says (comprehensibility).

STEP 2:

How native-like they sound.

Throughout the task, feel free to take breaks at any time. You can rate a few children at a time and return to the task when you're ready.

Only for STEP 2, note the following:

1. The children you will listen to are between 7 and 11 years old, and they are still in the process of developing their language skills. Please do not judge their grammar, syntax, or vocabulary. Instead, we ask you to focus only on how the speech sounds.

2. If you think the children speaks a dialect of English, consider this to be 'English-sounding'.

Practice Examples

Two practice examples will follow to make you familiar with the actual rating task. The ratings given will not be counted for the study results. Please proceed with rating them to get familiar with the format.

Practice Example 1

Click here to listen to EXAMPLE 1

Return here to answer the questions after listening.

Practice Example 1

Comprehensibility:

How easy is it to understand what the child says?

(Please ignore grammatical errors and accents if you perceive any and focus on whether you find it easy to understand what the child wants to narrate)

1=incomprehensible - 6=very comprehensible

*

Practice Example 1

Accent: How native-like does the child sound?

(Please ignore grammatical or mistakes or choice of words if you find them odd and focus only on the accent—does the child sound like someone who has grown up in the country where the language s/he speaks is spoken?)

1=heavily accented - 6=native-like

Sample Rating Questions – Child 1

Below is one section from the rating form used by external listeners to evaluate children's speech samples.

Child 1

Click here to listen to CHILD 1

Return here to answer the questions after listening.

1. Comprehensibility

How easy is it to understand what the child says?

(Please ignore grammatical errors and accents if you perceive any and focus on whether you find it easy to understand what the child wants to narrate.)

Scale:

1 = Incomprehensible - 6 = Very comprehensible

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

2. Accent

How native-like does the child sound?

(Please ignore grammatical mistakes or choice of words and focus only on the accent—does the child sound like someone who has grown up in the country where the language s/he speaks is spoken?)

Scale:

1 = Heavily accented - 6 = Native-like

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

3. Can you identify the child's first language (mother tongue)?

☐ Yes

☐ No

4. If yes, which language do you think it is? (optional)

APPENDIX D - Raters' Accent & Comprehensibility Scores for English

L2 Group - Comprehensibility Scores

	L2_9	L2_11	L2_15	L2_16	L2_19	L2_20	L2_25	L2_26	L2_27	L2_28	L2_30	L2_31	L2_32	L2_33
RATERS														
R1	5	4	6	5	6	5	3	5	5	5	5	5	6	6
R2	6	5	6	5	6	6	5	6	6	5	6	6	5	6
R3	5	5	5	4	4	4	2	5	4	4	5	5	6	6
R4	6	6	6	3	3	5	2	6	4	3	6	4	6	6
R5	6	4	6	6	5	4	4	6	5	5	5	6	5	6
R6	5	3	5	6	3	5	3	5	5	3	5	6	4	6
R7	5	3	4	3	5	4	3	4	4	4	5	5	5	6
R8	5	5	6	4	5	4	4	5	4	5	5	4	4	6
R9	4	5	6	4	6	4	3	5	4	4	4	5	4	6
R10	5	4	6	4	4	5	4	5	5	4	5	4	4	5
R11	5	2	5	4	5	5	3	5	3	4	4	5	4	5
R12	5	4	6	6	6	5	5	5	6	2	6	5	6	6
R13	6	5	6	5	5	5	3	4	4	4	4	5	5	6
R14	6	6	6	6	6	6	5	6	6	6	6	6	6	6
R15	6	4	4	4	4	3	2	5	4	4	5	3	6	2
R16	6	4	6	6	4	5	6	5	4	5	5	5	4	6
R17	6	5	6	6	6	6	5	6	6	6	6	6	6	6
R18	5	4	5	4	4	5	3	5	4	4	5	5	6	6
R19	6	6	6	5	4	5	4	5	5	4	6	6	6	6
R20	6	4	6	6	6	4	3	5	5	5	5	3	6	6
R21	5	5	6	4	6	6	4	6	5	6	5	5	6	6
R22	6	5	6	5	4	5	4	6	6	4	5	6	6	6

L3 Group - Comprehensibility Scores

RATERS	L3_1	L3_2	L_3_3	L3_4	L3_5	L3_6	L3_7	L3_8	L3_10	L3_12	L3_13	L3_14	L3_17	L3_18	L3_21	L3_22	L3_23	L3_24	L3_29
R1	3	3	5	6	5	4	6	6	5	5	3	4	4	6	3	5	2	6	6
R2	4	6	6	4	6	5	6	6	5	6	6	5	6	6	5	6	4	6	6
R3	4	5	5	4	4	5	5	6	4	5	4	4	5	5	4	4	2	6	6
R4	4	5	6	5	5	6	6	6	6	6	6	5	6	6	4	6	2	6	6
R5	1	5	4	5	6	6	6	6	5	5	5	4	6	6	5	5	5	6	6
R6	3	4	4	5	4	4	5	6	4	5	4	4	6	6	5	5	3	6	5
R7	3	5	5	4	4	5	4	5	5	4	3	3	5	5	3	4	3	5	6
R8	3	5	5	5	4	5	6	5	6	5	4	4	5	6	4	5	4	6	6
R9	3	4	3	5	2	5	6	5	5	5	5	5	6	6	3	6	3	5	5
R10	4	5	5	5	5	5	5	5	4	5	4	4	5	5	4	5	4	5	5
R11	5	5	4	4	4	6	5	5	3	6	5	3	5	6	5	5	4	5	4
R12	5	4	6	6	5	6	6	6	4	6	4	4	6	6	5	5	2	6	6
R13	5	5	5	5	5	5	5	6	5	5	5	4	5	5	4	5	4	6	6
R14	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6
R15	3	5	6	3	3	5	5	4	4	4	4	3	4	5	5	3	2	6	5
R16	4	6	6	4	5	6	6	6	5	6	5	4	5	6	4	5	3	6	5
R17	4	5	5	5	5	4	6	6	5	6	4	5	6	6	6	6	5	6	6
R18	5	5	6	6	4	5	5	6	5	5	5	3	3	5	4	4	5	5	5
R19	4	5	6	5	6	6	5	6	6	6	5	5	5	6	6	5	4	6	6
R20	4	6	6	6	5	5	5	6	6	5	6	5	6	6	4	6	3	6	6
R21	5	6	6	6	5	6	6	6	5	6	4	4	5	6	4	6	5	6	6
R22	6	6	6	6	5	6	6	6	5	6	5	5	6	5	5	5	5	6	6

L2 Group - Accent Scores

RATERS	L2_9	L2_11	L2_15	L2_16	L2_19	L2_20	L2_25	L2_26	L2_27	L2_28	L2_30	L2_31	L2_32	L2_33
R1	5	4	5	4	4	4	3	4	4	4	5	4	5	6
R2	5	4	6	4	3	4	2	5	4	2	5	4	6	6
R3	5	5	4	5	1	4	1	4	4	3	5	4	6	6
R4	6	5	4	2	2	3	2	4	3	2	4	3	5	5
R5	6	4	6	6	4	4	4	6	5	5	5	6	5	6
R6	5	3	5	5	3	5	2	3	5	2	4	6	4	6
R7	6	3	4	3	5	4	2	3	3	3	5	5	5	6
R8	5	5	5	4	3	4	3	5	4	5	5	4	4	6
R9	4	5	6	4	6	4	3	5	4	4	4	5	4	6
R10	5	4	6	4	4	5	4	5	4	4	4	4	4	6
R11	3	3	4	2	2	3	1	3	3	2	3	2	4	5
R12	4	5	6	4	1	3	1	3	3	2	5	3	5	6
R13	6	5	6	2	2	2	1	4	4	2	2	5	5	6
R14	4	6	6	4	2	4	3	6	5	4	6	5	6	6
R15	6	2	2	2	2	2	1	5	3	2	4	3	6	6
R16	6	4	5	4	6	4	2	5	3	4	4	6	5	6
R17	6	5	6	5	5	6	4	5	4	5	6	5	6	5
R18	3	2	4	3	2	2	2	3	3	2	5	5	6	6
R19	6	5	4	3	3	4	1	5	3	2	5	4	6	6
R20	6	4	6	4	2	3	2	4	4	4	4	4	6	6
R21	4	4	5	4	5	5	4	6	5	5	5	5	5	6
R22	6	6	6	4	3	5	3	5	5	4	3	6	5	6

L3 Group - Accent Scores

RATERS	L3_1	L3_2	L_3_3	L3_4	L3_5	L3_6	L3_7	L3_8	L3_10	L3_12	L3_13	L3_14	L3_17	L3_18	L3_21	L3_22	L3_23	L3_24	L3_29
R1	3	5	5	5	4	4	5	6	4	4	4	4	5	5	3	4	3	5	5
R2	2	6	5	3	3	4	5	6	4	3	4	4	5	6	2	6	3	6	6
R3	2	5	4	3	3	3	5	6	4	4	3	3	5	6	2	5	1	6	6
R4	2	4	5	4	4	5	5	6	5	4	5	3	5	5	3	5	2	5	6
R5	1	5	3	5	5	6	6	6	5	5	5	5	6	6	4	5	5	6	6
R6	2	4	4	4	3	4	4	6	4	4	3	4	5	5	3	5	3	5	4
R7	3	4	4	4	4	5	4	6	4	4	3	3	5	5	3	4	3	5	6
R8	2	5	4	3	4	4	5	5	5	4	4	4	5	6	3	5	3	6	6
R9	1	4	1	5	2	5	6	5	5	5	5	5	6	6	3	6	3	5	5
R10	2	3	4	5	4	4	4	5	4	5	4	4	5	5	3	5	4	5	5
R11	4	5	4	3	4	6	2	5	3	4	4	3	4	5	3	5	3	4	4
R12	4	5	5	4	4	3	2	6	4	2	2	3	3	6	1	3	3	5	6
R13	1	5	5	5	3	5	5	6	6	4	4	4	4	5	1	5	1	6	6
R14	4	6	5	5	4	4	6	6	5	5	6	4	5	6	4	5	2	5	5
R15	1	2	4	2	1	3	4	5	4	2	2	2	5	4	2	5	1	4	6
R16	4	5	5	6	4	6	5	6	5	5	4	3	5	5	3	5	2	5	6
R17	4	5	4	4	5	3	5	5	5	5	4	4	5	6	5	6	5	6	6
R18	2	5	4	3	2	3	4	4	4	2	4	3	3	4	2	4	3	5	6
R19	3	5	5	4	5	4	5	6	5	4	4	4	4	5	4	3	3	6	5
R20	3	5	6	5	3	4	3	6	5	6	4	6	6	6	4	5	2	6	6
R21	4	5	4	4	4	4	5	5	4	5	4	4	5	6	4	5	4	6	6
R22	4	6	6	4	4	6	5	6	6	5	4	4	5	6	4	6	3	6	5

APPENDIX E - English Dominance in both groups

	L2 Group		L3 Group		Total N of children (accent mean score)
	N (IDs)	**Accent range (mean)**	**N (IDs)**	**Accent range (mean)**	
Balanced	**4** (L2_9, L2_11, L2_20, L2_26)	3.7 - 4.9 **(4.3)**	**11** (L3_2, L3_3, L3_6, L3_8, L3_10, L3_12, L3_13, L3_17, L3_18, L3_22, L3_29)	3.9 - 5.6 **(4.7)**	**15** **(4.57)**
English	**9** (L2_15, L2_16, L2_19, L2_27, L2_28, L2_30, L2_31, L2_32, L2_33)	3.2 - 5.9 **(4.3)**	**4** (L3_4, L3_7, L3_14, L3_24)	3.8 - 5.4 **(4.4)**	**13** **(4.35)**
Other	**1** (L2_25)	**(2.3)**	**4** (L3_1, L3_5, L3_21, L3_23)	2.6 - 3.6 **(3.0)**	**5** **(2.65)**