

Article

Multilingual Children's Motivations to Code-Switch: A Qualitative Analysis of Code-Switching in Dutch-English Bilingual Daycares

Nina-Sophie Sczepurek, Suzanne P. Aalberse and Josje Verhagen *

Faculty of Humanities, University of Amsterdam, 1000 BP Amsterdam, The Netherlands

* Correspondence: j.verhagen@uva.nl

Abstract: This paper investigates code-switching in young multilingual children through a qualitative analysis. Our aim was to examine which types of code-switches occur and to categorize these in terms of children's motivations for code-switching. Data were collected from 70 children aged two to three years who attended Dutch-English daycare in the Netherlands where teachers adopted a one-teacher-one-language approach. We observed seven types of code-switches. Motivations for code-switching related to social, metalinguistic, lexical, or conversational factors. These data indicate that young children can tailor their language choices towards the addressee, suggesting a certain level of meta-linguistic awareness and perspective taking. Implications for computational approaches are discussed.

Keywords: bilingual toddlers; codeswitching; bilingual daycare; qualitative analysis



Citation: Sczepurek, Nina-Sophie, Suzanne P. Aalberse, and Josje Verhagen. 2022. Multilingual Children's Motivations to Code-Switch: A Qualitative Analysis of Code-Switching in Dutch-English Bilingual Daycares. *Languages* 7: 274. <https://doi.org/10.3390/languages7040274>

Academic Editors: A. Seza Doğruöz and Sunayana Sitaram

Received: 16 May 2022

Accepted: 14 September 2022

Published: 26 October 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Multilinguals often switch between their languages (Moodley 2007; Paradis and Nicoladis 2007; Song 2016), and young children are no exception: even children as young as two years have been found to switch between languages in a conversation (Comeau et al. 2003; Lanvers 2001; Paugh 2005). Many studies have investigated adults' speech to shed more light on the motivations for code-switching (Bhatt and Bolonyai 2011; De Fina 2007; Koch et al. 2001; Liu 2019; Yim and Clément 2019). This work has shown that switching between languages can be motivated by a variety of factors, and involve, amongst others, attempts to avoid breakdown in conversation or to better express a concept in one of the languages (David 2003; Du-Re 2012). Comparably little research has been carried out on the types of switches children produce and children's motivations for switching. The few available studies (see Table 1) have shown that children may be motivated by a variety of code-switching factors such as insistence from peers, lexical gaps in their vocabulary, and even conversational functions.

Previous studies have pointed out that younger bilingual children tend to show more lexically motivated code-switches than older children (McClure 1981; Köppe and Meisel 1995; Zentella 1997). These children may use code-switching as a strategic medium to 'fill the gap' in one language by using a word from the other language. It is commonly believed that this gap-filling strategy serves to compensate for the lack of language proficiency in one of children's languages. Furthermore, it has been observed that older bilingual children typically code-switched more (Reyes 2004) and exhibit a greater variety of code-switching factors than younger bilingual children (Ervin-Tripp and Mitchell-Kernan 1977; Halmari and Smith 1994; Jørgensen 1998; Reyes 2004).

Table 1. Overview of factors underlying code-switching in bilingual children in earlier work *.

Motivation	Type	Definition
Social	Privacy (Reyes 2004)	Switching to another language to speak privately
	Group identity and management (Cheng 2003; Moodley 2007)	Creating a sense of (group) belonging and friendship
	Change in setting, activity or context (Ervin-Tripp and Reyes 2005; Halmari and Smith 1994; Kwan-Terry 1992; see also Gumperz 1982)	Change of context/ situation as a source for code-switching
	Own preference (Dolitsky 2000; Gort 2012)	“Momentary inclination” (Gort 2012, p. 61)
	Teacher/ parental insistence (Lanvers 2001)	Adults’ preferences toward child’s language choices
	Peer insistence (Davidiak 2010)	Children’s preferences toward child’s language choices
	Accommodation of addressees’ preferences (Davidiak 2010; Ervin-Tripp and Reyes 2005; Genesee et al. 1996; Lanvers 2001; Lanza 1997; Paradis and Nicoladis 2007)	Accommodating the language preferences or choices of the addressee
	Person specification (Davidiak 2010; Reyes 2004)	Referring to another person
	Evaluation and self-regulation skills (Cromdal 2004; Gort 2012)	Self-reflection of own process
	Meta-linguistic	Literal translation (Cheng 2003; Lanvers 2001)
Metalinguistic insights (Gort 2012)		“Learner interest in and knowledge about the relationship between their two languages” (Gort 2012, p. 57)
Lexical	Lack of translation-filling the gap (Cheng 2003; Davidiak 2010; Lanvers 2001)	Compensating for the lack of words in the L1 by choosing a word from the L2 (i.e., filling the gap)
	Lack of translation-word does not exist in the other language (Cheng 2003; Davidiak 2010; Dolitsky 2000; Ervin-Tripp and Reyes 2005; Gort 2012)	Using a term from the L1 to express a concept either unique to or more thoroughly captured using a term from the L2
	Emphasis (Cheng 2003; Gort 2012)	Creating emphasis, i.e., to highlight a message, e.g., with the use of translational equivalents
	Dominance/proficiency (Lanvers 2001; Paradis and Nicoladis 2007)	Expressing a preference in language(s) choice(s)
	Lexical preference (Lanvers 2001)	Preferring lexical items in one language over similar lexical items in the other language
Conversational	Emphasis/insistence and de-emphasis (Cheng 2003; Cromdal 2004; Davidiak 2010; Lanvers 2001; Reyes 2004)	Creating emphasis, i.e., to highlight a message, e.g., with the use of discourse particles
	Shift in topic, person or conversational form (Cheng 2003; Davidiak 2010; Gort 2012; Halmari and Smith 1994; Kyratzis 2010; Lanvers 2001; Paugh 2005; Reyes 2004)	Changing the topic, person or conversational form (situational switch)
	Discourse marker (Ervin-Tripp and Reyes 2005; Gort 2012; Moodley 2007; Reyes 2004)	Discourse marker function as instrument of the context (Reyes 2004)
	Question shift (Davidiak 2010; Reyes 2004)	Presenting a question
	Clarification or persuasion (Davidiak 2010; Moodley 2007; Reyes 2004)	Elaborating with the help of CS
	Opposition (Cromdal 2004)	Marking a conflicting interest
	Turn accommodation (Davidiak 2010; Moodley 2007; Reyes 2004)	Code-switching taking place between speaker turns

* Note: It is important to point out that this is not an exhaustive list. In addition, studies sometimes used other terminology to describe a certain code-switching type than the terminology used here. Finally, there is a certain degree of overlap across categories, especially among the lexically-motivated types.

The present study analyzed code-switches in the speech of multilingual two- and three-year-old children in bilingual English-Dutch daycares in the Netherlands. Looking at natural interactions in this particular setting allows us to examine diverse switching behaviors given the diversity of the context: multiple speakers of various ages and language backgrounds, and as such investigate a range of potentially underlying factors. Our aim was to see which types of switches occurred and examine children's motivations for switching, so as to shed more light on the types of switches that very young children produce in a natural, multilingual setting. We did not attempt to propose a new taxonomy of switching but rather, see whether types of code-switches that have been proposed for adults and school-aged children can be found in productions of children as young as two or three years of age in a bilingual interactional setting. In doing so, we aimed to contribute to a better understanding of the ways in which very young children code-switch and their motivations to code-switch.

1.1. Theoretical Background

In this paper, we define code-switching “as the alternation of two languages within a single discourse, sentence or constituent” (Poplack 1980, 2001), thus including both intra- and intersentential code-switching. Our focus is on lexical code-switching in which lexical elements from one language are inserted in another language, as opposed to code-switching involving morphological elements or word order patterns. In our study, we do not distinguish between code-switching and code-mixing—a term that has also been used in the literature. We do not equate code-switching and transfer, however, as we consider transfer a broader term involving all sorts of cross-linguistic influence, including overuse and underuse of words or structures, and avoidance patterns (cf. Ortega 2009).

1.2. Adult Code-Switching

Past research on bilingual adults has demonstrated that code-switching is associated with several factors, which relate to various motivations, such as: motivations regarding the speakers executing the code-switch, which includes their perception of and attitudes to the language(s), the social environment surrounding the speakers, including the nuclear family, relationships and (sub-)communities; such as (ethnic) identity (Yim and Clément 2019), (different) inter-community constraints (Bhatt and Bolonyai 2011), and attitudes toward code-switching (Koch et al. 2001). Additional motivations closely relate to social attitude and likability (Liu 2019), context (formal vs. informal setting) (Koch et al. 2001; see also Schau et al. 2007), and (ethnic) group identity (Auer 2005; De Fina 2007). In addition, adults may be motivated to code-switch by discourse-related factors, for example when trying to explain or clarify a certain concept (David 2003). Specifically, discourse-related motivations are at play when speakers use code-switching to design, structure and optimize the conversation, for example, through emphasis (Gardner-Chloros et al. 2000), turn-taking (Muñoz Barredo 1997; Kootstra et al. 2010), and topic shifts (Muñoz Barredo 1997).

Overall, studies on code-switching behavior have shown that bilingual adults exhibit a variety of motivations to code-switch. In comparison to bilingual children, adults' code-switching is likely to be subject to a greater range of code-switching motivations due to their age, assuming that a higher level of L2 proficiency and thus greater grammatical and lexical knowledge in both the L1 and L2 is a factor that is associated with code-switching productivity (Muysken 2000; Poplack 1980, 2001; see also Duñabeitia et al. 2010a, 2010b; Perea et al. 2008). This assumption is further supported by the notion that the degree of balance in bilingual speakers' proficiency in their two languages is related to the use of code-switching (Poplack 1980; Zentella 1982, 1997).

Overall, code-switches in adults exhibit a range of underlying motivations, from social motivations to discourse-related motivations. The question arises what code-switching motivations are already found in young bilingual speakers.

1.3. Children's Code-Switching and Language Proficiency

Many studies have investigated the relation between code-switching and language proficiency in bilingual children (Bernardini and Schlyter 2004; Jisa 2000; Kuzyk et al. 2019; Lanvers 2001). Typically, in this earlier literature, bilingual children's 'dominance' in one language (and thus the 'weakness' in the other language) has been related to the direction or type of code-switching (Foroodi-Nejad and Paradis 2009; Jisa 2000; Lanza 1997; Paradis and Nicoladis 2007; Yip and Matthews 2000; Yow et al. 2017), such that switching from the non-dominant to the dominant language is more frequent than vice versa (Genesee et al. 1995; Lanvers 2001). Relatedly, studies have often interpreted code-switching as a gap-filling strategy, especially in younger children (Bernardini and Schlyter 2004; Nicoladis and Secco 2000). That is, it has been proposed that bilingual children may use code-switching to fill lexical gaps in one language—especially the language they are least proficient in—with words from the other language.

Determining cross-language language proficiency in bilingual children is not trivial, however: various assessments have been used (e.g., MLU, vocabulary knowledge, parent ratings), each with their own limitations. Moreover, the relationship between language proficiency and language dominance is a complicated one, with language dominance often being based on a set of separate but interrelated factors, including language proficiency, language use and language exposure (Unsworth et al. 2018).

Researchers therefore have argued against assessing language dominance (Birdsong and Vanhove 2016; Quick Endesfelder et al. 2018), and proposed that language 'dominance' and the choice of language should be considered in relation to the topic and participants in a conversation.

In former studies, children's code-switching behavior has frequently been compared to their expressive and receptive language proficiency (see Ribot and Hoff 2014 for an overview). These studies report a correlation between code-switching and proficiency: lower proficiency is associated with more code-switching. This correlation could result from community norms that value language separation. In such cases there is a barrier to switch and a lack of proficiency that might trigger crossing this barrier: because a child does not know a word in one language, it uses the other language as a gap-filler. The correlation between proficiency and likelihood of code-switching might not be generalizable to children in all bilingual communities. See for example Bosma and Blom (2019) and Parafita Couto et al. (2021) for the importance of taking the bilingual community and norms in the bilingual community into account when formulating generalizations on code-switching or of the absence of code-switching all together (Doğruöz et al. 2021).

All in all, the relation between language proficiency and code-switching in early bilinguals has frequently been the subject in prior research. Some difficulties may arise from the determination of language proficiency and/or language dominance, and the gap-filling strategy that is often acknowledged may only be able to cover some code-switching motivations.

1.4. Other Motivations for Children's Code-Switching

Studies on bilingual children's code-switching have also investigated other factors other than language proficiency, such as pragmatic, contextual or social factors that may serve as motivations for code-switching (Cheng 2003; Comeau et al. 2003; Davidiak 2010; Ervin-Tripp and Reyes 2005; Genesee et al. 1996; Gort 2012; Lanvers 2001; Reyes 2004).

A social motivation for bilingual children to code-switch that has been proposed relates to their sensitivity to an interlocutor. Comeau et al. (2003) found that six English-French bilingual children were highly sensitive to an unknown interlocutor who visited the children during 3 visits. During these 3 visits, the interlocutor changed his code-switching rate from rather little (15%) to an increased rate in the second visit (40%) and then back to 15% in the third visit. The children adapted their code-switching rate as well—indicating a heightened sensitivity to the immediate language choices by an unknown bilingual speaker.

Lanvers (2001) found that bilingual children were sensitive to an interlocutor's language preferences. She investigated two children from around two to three years of age and found that one of the motivations for these children to code-switch was 'social switching' when the children accommodated their language preference to the preferred language of the addressee, in this case the parents.

In addition, Genesee et al. (1996) investigated English-French bilingual children aged 2 years who were exposed to strangers in a play setting. This data was then compared to the children engaging in the same setting with their children. They found that all of the four children accommodated the language preference(s) (English-only, French-only, both languages) of the stranger.

The ability for children to control and adapt their language choices to the language choices of an addressee has also been shown by other studies involving peers (Davidiak 2010; Gort 2012; Moodley 2007; Reyes 2004), their teachers (Azlan and Narasuman 2013; see also Thomas and Roberts 2011) and parents (Davidiak 2010; Lanvers 2001). Findings from these studies indicate that bilingual children can accommodate to the socio-linguistic context. Since conversational participants vary across various contexts, activities and physical settings, these may affect the language choices of a bilingual child (Ervin-Tripp and Reyes 2005; Paradis and Nicoladis 2007). Taken together, earlier studies have shown that bilingual children are highly sensitive to the language choices of both known and unknown participants in their immediate environment. Specifically, bilingual children are aware of the language preferences and code-switching rates of their addressee and take these into consideration when it comes to their own language choice and degree of code-switching.

Other factors have also been found to play a role in children's motivations to code-switch, such as metalinguistic factors. Gort (2012) examined conversations of six English-Spanish school children aged six to seven years old who participated in a writing workshop, analyzing field notes and audio recordings of classroom activities as well as the written works. One of the factors that motivated children's code-switches was metalinguistic insight, in particular, their attempts to translate, define, and discuss words or word forms in both languages. One child produced the following sentence in a writing-related conversation: "Secret agent . . . como un detective. (Secret agent . . . like a detective.)" (Gort 2012, p. 63). Through his switch, according to the author, the child attempted to enrich her writing concepts, decide on vocabulary and investigate reasonings.

Cheng (2003) also found that literal translation, as a code-switching motivation of metalinguistic insight, was a motivation for children to code-switch (see also Lanvers 2001). This author studied 60 children aged four to six years old who were asked to retell three elements: a given rhyme, a given story as well as their own favorite story. In their retellings, the children translated words literally from one language to the other. To explain these switches, Cheng proposed that children applied literal translation as an interlanguage, which is an "innovative strategy that confirms the creativity of children in the area of meaning-making" (Cheng 2003, p. 74). Taken together, studies by Gort (2012) and Cheng (2003) have shown that children may make metalinguistic comments, translate words or use sentence structures from one language to the other, which may explain part of their code-switches. Children's comments on the relation between their two languages indicates a developing awareness of their two languages and may help the children in their academic journey, as seen in Gort (2012) above.

Finally, a last category of code-switching motivations found in the literature on bilingual children's code-switching involves conversational aspects, or discourse characteristics. For example, this category may involve switches that can be explained by a shift in topic, person or conversational form. Reyes (2004) investigated children's code-switching from academic talk to a casual conversation. In her study, she evaluated 20 friend pairs of either seven or ten years of age who were both learning Spanish and English. All children were audio recorded during waiting time and a science activity, resulting in 10 h of conversation. In addition, she took reports from teachers, parents and children into account. In her study

children code-switched due to reasons related to discourse characteristics, such as turn accommodation, emphasis and clarification.

By taking a comprehensive perspective on the variety of factors that could lead to a code-switch, a more nuanced picture of children's motivations to code-switch can be ensured that also includes children who are in the process of acquiring a second or third language. In addition to syntactic or structural constraints that may regulate the particular form of code-switch (Bernardini and Schlyter 2004; Foroodi-Nejad and Paradis 2009; Paradis et al. 2000; Yip and Matthews 2000), factors surrounding the social, metalinguistic and discourse-related factors are gaining more importance. By taking into account these factors, we can contribute to viewing bilingual children as an individual with a bilingual identity, that includes the knowledge of their first and second language, the sum of their knowledge and experiences, as well as the manners in which they communicate and make meaning, and emphasize their bilingual and bicultural identities (Manyak 2000; Moll and Dworin 1996; Pérez 2004). As shown in the above review of studies, multiple factors have been proposed to account for code-switching in bilingual children. An overview of these is given in Table 1 below. As can be seen in this table, these factors can be categorized into four broader categories: social, meta-linguistic, lexical, and conversational motivations. Social motivations here refer to motivations that take the addressee and the social surrounding into account: they could be to adapt to the linguistic knowledge and desires of the addressee, to do what is socially common with the addressee or when privacy is needed to purposely exclude the addressee. With lexical motivation we refer to cases where a certain word is only available in one language or a speaker only knows a word in one language. Conversational motivations refer to switches that have a discourse effect such as emphasis. Metalinguistic motivations are aimed at connecting forms, meanings or structures across the two languages.

What is noteworthy is that, in many studies, code-switches were collected that did not fit any predefined category above but were termed 'other'. Specifically, various studies acknowledge that not all code-switches can be placed in one of these categories and that the motivation for switching cannot always be identified (Davidiak 2010; Redinger 2010; Reyes 2004). Lanvers (2001) also pointed to code-switching to incognizable or neutral items, such as switching to a variation of yes (i.e., German "Ja" answering a question from English).

1.5. Current Study

Since most work on very young children has focused on language proficiency as the major factor, it remains to be investigated which types of switches are found in very young children and how these can be explained in terms of children's motivations for switching. As for conversationally motivated code-switching in particular, it is currently unclear which types occur in very young children, since most studies studying types of switches in this category looked at children aged six years or older, presumably because many pragmatic language skills develop relatively late.

This study investigates which types of code-switches occur in multilingual two- and three-year-old children from linguistically diverse backgrounds who attended Dutch-English bilingual daycare. Specifically, our aim was to examine which types of code-switches occur and categorize these in terms of children's motivations for code-switching. In so doing, we took an exploratory approach, analyzing the data on the basis of previously established code-switching types and their motivations (as presented in Table 1), to see which types and motivations do and do not occur at this young age.

2. Materials and Methods

2.1. Data

The data formed a subset of the data that was collected for a study on the effects of Dutch-English bilingual exposure at daycare on bilingual children's language development (project MIND, cf. Keydeniers et al. 2022; Verhagen and Andringa 2021). Project MIND is a longitudinal project initiated by the Dutch Ministry of Social Affairs and Employment in

which 10 English-Dutch bilingual daycares across the Netherlands participated. Video and audio observations were performed at six different daycare locations, henceforth referred to as daycares A, B, C, D, E and F.

All six daycares were Dutch-English bilingual daycares that offer daycare to children up to 4 years of age and were similar with regard to daily routines. These daycares routines included free play, snack and lunch breaks as well as circle times. During every routine, two teachers were present with the children. The teachers of all daycares except those of daycare B adopted a one teacher-one language strategy. This meant that one teacher spoke exclusively English, whereas the other teacher spoke Dutch. At daycare B one teacher spoke both English and Dutch, whereas the other teacher spoke Dutch only.

A total of 93 recordings were made, 43 of which were recorded at an English-centered daycares with English as the base language of instruction, and 50 of which were recorded at a Dutch-centered daycare with Dutch as the base language of instruction. The recordings added up to 900 min of transcribed speech, of which each daycare's recording resulted in 150 min of transcribed material. The recordings were administered in the morning time, where video and audio recordings were carried out and included the interaction between teachers and children. All recordings were comparable with regard to context (fruit/snack time, circle time, free play, lunch break) as well as one semi-structured activity. This semi-structured activity included the reading from the book *Hier woon ik* ('This is where I live'). Due to the limited amount of text, teachers were stimulated to construct a story themselves as well as encourage children to actively participate in storytelling.

The data was collected in two measurement rounds. Some of the data was collected in three daycares with a teacher who spoke English to the children as their main language, henceforth considered English observations. These were recorded in the first measurement round at daycare A, B, and C. The remaining data was collected in three daycares with a teacher who spoke Dutch to the children as their main language, henceforth considered Dutch observations. The latter were recorded about six months later during the second measurement round at daycare D, E, and F. No instructions were given to the daycare teachers that would have altered the spontaneous interactions between teachers and children, in order to capture the natural conversations between children and between children and staff as they occurred.

2.2. Participants

In total, 70 children participated in the observations of all Dutch-English bilingual daycares. 35 of these children visited the three daycares in which the Dutch observations were obtained, of which 18 children (51%) were boys. Mean age of the children in the Dutch observations was 2 years and 9 months ($SD = 5$ months; min-max = 2;1–3;11). The remaining 35 children visited the three daycares in which the English observations were obtained, of which 15 children were boys (43%). Mean age of the children in the English observations was 2 years and 9 months ($SD = 10$ months; min-max = 1;2–3;11).

An overview of the children's home languages, as assessed with a caregiver questionnaire, can be found below in Table 2.

As can be seen in this table, about one third of the children in the Dutch observations and about half of the children in the English observations came from Dutch-only homes. Only 3 children in each observation came from English-only homes. Another third of the children in the Dutch observations and only 2 children from the English observations heard English and another language in the home. Most of the remaining children (5 children from the Dutch observation and 6 children from the English observation) were exposed to a language other than Dutch or English in their home environment. As for the language backgrounds of the children (besides English and Dutch), various other languages were reported, as can be seen in Table 2.

Table 2. Children’s home languages across the Dutch and English observations.

Children’s Home Languages	Dutch Observations (<i>n</i> = 35)	English Observations (<i>n</i> = 35)	Sum (<i>n</i> = 70)
English only	3	3	6
Dutch only	11	18	29
English + Dutch	2	2	4
English + Other language	10	2	12 Chinese (<i>n</i> = 2), French (<i>n</i> = 2), Russian (<i>n</i> = 2), Greek (<i>n</i> = 1), Polish (<i>n</i> = 1), Swedish (<i>n</i> = 1), Amharic (<i>n</i> = 1), Telugu (<i>n</i> = 1), Spanish (<i>n</i> = 1)
Dutch + Other language	1	2	3 Greek (<i>n</i> = 2), French (<i>n</i> = 1)
Other language only	5	6	11 Greek (<i>n</i> = 2), Slovakian (<i>n</i> = 2), French (<i>n</i> = 1), Japanese (<i>n</i> = 1), Romanian (<i>n</i> = 1), Chinese (<i>n</i> = 1), Hebrew (<i>n</i> = 1), Moroccan (<i>n</i> = 1), Turkish (<i>n</i> = 1)
Two other languages	3	1	4 French and German (<i>n</i> = 3), Russian and French (<i>n</i> = 1)
Not known	0	1	1

Table 2 shows, furthermore, that the majority of children across observations (*n* = 54; 77.1%) acquired at least one of the languages spoken in daycare also in the home environment. Only 4 children (5.7%) acquired both target languages also in the home environment and were thus acquiring neither of the daycare languages as a second language. Children could see the camera recorders, but we cannot be certain they realized they were being recorded because of their very young ages. No specific instructions were given to the children, and daycare staff was instructed to act as they normally would, enabling us to record natural interactions. Written consent was obtained for all children in the current sample from their caregivers prior to the recordings. Children were given a small gift for their participation.

2.3. Analyses

Caregivers’ proficiency and children’s home language input situations were assessed using the MIND parental questionnaire, an electronic questionnaire that is based on a set of existing questionnaires (ALDeQ, [Paradis et al. 2010](#); Bilingual Language Experience Calculator, BiLEC, [Unsworth 2013](#); Language Mixing Scale, [Byers-Heinlein 2013](#)). In addition to information on the language development of the child and demographic information, parents reported, amongst others, on the languages they spoke to their children and how often they spoke each language.

Research assistants with (near-)native language skills of Dutch and English transcribed the audio recordings and video recordings of the free-play sessions at the bilingual daycares. The sessions were transcribed in CLAN (Computerized Language Analysis, [MacWhinney 2000](#)) using the CHAT-transcription format. Both the children’s and teachers’ utterances were coded for language of the utterance as well as other aspects, such as the educational goal of the utterance (e.g., modeling, eliciting). However, we here report only on the code-switches of the children.

The first author coded the code-switches according to motivation (social, metalinguistic, lexical, conversational) and then categorized each switch as one of the types presented in

the Introduction (see Table 1). After she had coded all code-switches, a second coder coded part of the data, to establish interrater reliability. This second coder was trained on other code-switching data within the same project that were not used for the present study and then independently coded a randomly chosen subset of the utterances for code-switching types ($n = 72$; 43.9% of the data). Inter-rater agreement was very high (93%). In case of disagreement, the coders discussed the utterance until agreement was reached.

The teachers' and the children's utterances were coded for which language was used (i.e., Dutch-only, English-only, mixed, uncodable), following previous studies and guidelines (e.g., Genesee et al. 1995; Jisa 2000; Nicoladis and Secco 2000). Specifically, utterances were considered as being English if all the lexical items in it were English and an utterance was considered as being Dutch if all the lexical items in the utterance were Dutch. If an utterance contained morphological or lexical elements from both English and Dutch it was considered a mixed utterance.

Some utterances required different judgment. Specifically, single-word items such as kinship terms and proper nouns (*Mama, Papa, Jumbo*), interjections (*Okay, Yeah*) and onomatopoeic words (*wau, meow*) can be attributed to both languages. If these items occurred in isolation, these items were excluded from the analysis. Some of these onomatopoeic words could be identified as Dutch or English, for example the onomatopoeic terms *wuff* in English or *woef* in Dutch. If these types of items were found in a multi-word utterance, they were coded in the language of the rest of the utterance. Kinship terms and interjections in multi-word utterances were counted as the language of the utterance. If utterances could not be identified as belonging to one of the two languages, e.g., stand-alone morphemes, they were assigned the label 'uncodable'. Repetitions of utterances either by the same child or by other speakers were not coded. Both intersentential code-switching (across utterances) and intrasentential code-switching (within utterances) were taken into consideration.

When classifying the code-switches in observations with group interactions (with at least two children and one teacher present), we considered the last 5 utterances in conversation to determine a code-switch. In group interactions the discourse is more dynamic and thus engaging. The group interactions have a higher number of speakers with both peer-to-peer interactions and peer-to-teacher interactions. Therefore the child has a higher probability to speak, in comparison to the one-on-one interactions with only a child and a teacher present.

When analyzing code-switches in observations with individual peer-to-teacher interactions, we considered the last 10 utterances in conversation to determine a code-switch. This was due to the high number of utterances that the teacher continuously presented towards the child. In addition to the fewer number of speakers and high amount of speech from the teacher this discourse can also be considered less dynamic than the discourse in a group interaction. Altogether we recognized peer-to-teacher interaction as a type of interaction with lower probability for the child to speak than the group interactions. This way we could ensure that even if other participants were present and engaging in the conversation, a potential code-switch would be recorded. That is, by taking into account the last 10 utterances and not 5 utterances in the peer-to-teacher interactions, we could ensure that a longer stretch of conversation on the teachers' end would not inhibit recording the last children's utterance. Code-switches from or to another language other than Dutch and English were excluded from the analysis.

3. Results

In the following, we will describe which types of switches occurred in our data, and then group them in terms of the motivations underlying code-switching in multilingual children's interactions at bilingual daycare. Before we present the results for the code-switching types, we provide a general description of the data. Specifically, we briefly address how many codeswitches were found in the respective observations, how many could be analyzed, amongst others, to provide some context to our more qualitative analysis of the types of code-switches that were attested.

3.1. General Description of the Data

Of the total number of code-switches found ($n = 332$), 164 could be coded and analyzed (49.4%). Of the 168 excluded switches (50.6%), 58 were from the Dutch observations and 110 from the English observations. These switches were excluded because they did not meet the inclusion criteria. Specifically, they involved variants of ‘okay’ and ‘yes’ in one-word-utterances for which it was not possible to determine whether they were English or Dutch ($n = 14$ in Dutch observations; $n = 43$ in English observations), repetitions of the child’s own or someone else’s utterance ($n = 43$ in Dutch observations; $n = 62$ in English observations), or unintelligible speech ($n = 0$ in Dutch observations; $n = 2$ in English observations). Finally, code-switches to kinship terms such as ‘mama’ were also excluded ($n = 1$ in Dutch observations; $n = 3$ in English observations). Out of the 164 code-switches that could be analyzed, 59 occurred in the Dutch observations (36%) and 105 (64%) occurred in the English observations.

We analyzed the frequency of code-switches per child in order to investigate if code-switching was distributed evenly across children or limited to only a few children. Of the total number of children across both types of observations ($n = 70$), we found that code-switches were produced by 31 children (44%; NL observation $n = 14$). As shown in Table 3, the majority of children produced five or fewer code-switches ($n = 23$; 74%), and only around one third of the participants showed six or more code-switches ($n = 8$; 26%).

Table 3. Number of code-switches in the Dutch and English observations.

Frequency of Code-Switches	None	1–5 Switches	6–10 Switches	11–15 Switches	>15 Switches
English observations	18	12	1	3	1
Dutch observations	21	11	2	1	0
Total ($n = 70$)	39	23	3	4	1

As can be seen from this table, there was a substantial number of children who did not even code-switch once during the observations ($n = 39$, 56%). A slightly lower number switched between 1 and 15 times ($n = 30$, 43%). Only one child code-switched in over 15 utterances, producing no less than 33 switches. No clear differences are found between the Dutch and English observations, except that the number of children who switched 1 to 5 times was somewhat higher in the English observations ($n = 12$, 17%) than Dutch observations ($n = 11$, 16%). Overall, however, the distribution of code-switching frequency was relatively balanced across the two types of observation, suggesting that code-switching in children attending English-Dutch bilingual daycare is not specific to one of the two base languages, Dutch or English.

3.2. Types of Code-Switches

With regard to the types of code-switches, seven types of code-switches were found in the data. These could be categorized as belonging to one of four larger categories signaling the motivation for a child to produce a code-switch: social motivations, metalinguistic motivations, lexical motivations, and conversational motivations. Below, we present each of the categories and the corresponding types of switches in turn, giving examples for each. In our description, we relate the code-switch to any contextual or background information known, such as information about the setting, the utterances of the child’s interlocutor, or a child’s home language situation, so as to pinpoint the type of switch as much as possible.

Three columns are presented per example, of which the first row identifies the speaker. Teacher’s individual code is represented by a T in their name code, e.g., BT1, whereas children have a code without a T (e.g., B1). Translations from Dutch to English are presented underneath the utterance. In addition, several comments may be given in brackets about the speech. These comments include the following: repetition, unintelligible items, interjections,

incomplete utterances, false start/self-correction, as well as explanatory comments (e.g., shows banana).

For privacy reasons names mentioned by children or teachers were made anonymous or marked as *name@x*.

We first present an overview of the types of switches that were found in the data (see below), with an example for each type. Note that Dutch elements are marked in bold while English elements are in regular font.

For definitions of the types, see Table 1 above.

1. Accommodation of addressees' preferences
 Example from A6: AT1: That's also green.
 A6: Yes.
 A6: Eh dit blue!
 'Uh this blue!'
2. Teacher insistence
 Example from B5: B5: Weg was.
 'Gone was.'
 BT1: Weg was.
 'Gone was.'
 BT1: Ho.
 'Huh.'
 B6: Komkommer is weg.
 'Cucumber is gone.'
 BT1: Oh and how do we call it in English?
 B5: Cumcummer.
3. Metalinguistic insights
 Example from B5: B5: A chield.
 BT1: Yes there's a child.
 B5: Uh een mens.
 'Uh a human.'
4. Lack of translation—word does not exist in the other language
 Example from A9: A9: I do have a pepernootje.
 'I do have a pepper nut. (small speculaas cookie)'
5. Emphasis
 Example from C1: C1: Daar is papa!
 'There is dad!'
 CT1: Hier nog een keer J.
 'Here one more time, J.'
 C1: Look!
6. Shift in topic
 Example from B4: B4: Daar (unintelligible) heel goed
 'There (unintelligible) very good.'
 BT1: Goed zo.
 'Well done.'
 BT1: Daar is de haan.
 'There is the rooster.'
 BT1: En de haan die zegt ... ?
 'And the rooster says ... ?'
 B4: Wake wake.
7. Discourse marker
 Example from C11: C11: That's wel jacket.
 'That is indeed jacket.'

In total we identified 164 code-switches that fit our inclusion criteria across both the English-centered and Dutch-centered daycares. For an overview of the code-switching types and motivations found in the data see Table 4 below.

Table 4. Overview of the factors underlying code-switching in bilingual children.

Motivation	Type	Number of Code-Switches Found in the Data
Social	Teacher/parental insistence (Lanvers 2001)	7
	Accommodation of addressees' preferences (Davidiak 2010; Ervin-Tripp and Reyes 2005; Genesee et al. 1996; Lanvers 2001; Lanza 1997; Paradis and Nicoladis 2007)	52
Metalinguistic	Metalinguistic insights (Gort 2012)	14
Lexical	Lack of translation-word does not exist in the other language (Cheng 2003; Davidiak 2010; Dolitsky 2000; Ervin-Tripp and Reyes 2005; Gort 2012)	7
	Emphasis (Cheng 2003; Gort 2012)	8
Conversational	Shift in topic, person or conversational form (Cheng 2003; Davidiak 2010; Gort 2012; Halmari and Smith 1994; Kyratzis 2010; Lanvers 2001; Paugh 2005; Reyes 2004)	12
	Discourse marker (Ervin-Tripp and Reyes 2005; Gort 2012; Moodley 2007; Reyes 2004)	9

To summarize Table 4 above, the following code-switching types were found: teacher insistence and accommodation of addressees' preferences (social motivation), metalinguistic insight (metalinguistic motivation), lack of translation and emphasis (lexical motivation), shift in topic, and discourse marker (conversational motivation). In addition, there were also unidentified code-switches.

3.2.1. Social Motivation

Socially-motivated types of code-switches relate to the speakers' own preferences, reflections and relations, or relate to the speakers' addressee or group preferences, reflections and relations (see Cheng 2003; Davidiak 2010; Genesee et al. 1996; Lanza 1997). They are considered 'social' in the sense that they are driven by the immediate social context. Two types belonging to this category were found in our data: accommodation of the addressee's preferences and teacher insistence.

Accommodation of the Addressee's Preferences

The type of code-switch accommodation of addressee's preferences can be defined as accommodating the language preferences of the addressee, in this case another child or teacher. This code-switching type is without any insistence from the addressee, thus without direct elicitation from the part of the addressee. It is the type with the second most code-switches ($n = 52$, 31.7%) in our data. An example is given in (1). Note that grammar in this example, as well as the remaining examples, may deviate from the target grammars of Dutch and English.

1. A6: Is dat voor baby's.
'Is this for baby's?'
- A4: Zelfde! (*shows banana*)
'Same!' (*shows banana*)
- AT1: Same.
- AT1: Hmm.
- AT1: Same banana.
- A6: We all the same.

Child A6 learns Russian and French in the home environment. She and another child A4 are talking to the teacher about bananas. In the first utterance child A6 speaks Dutch to the teacher and the child. When the teacher AT1 continues in English, A6 eventually switches to English to accommodate the language preference from A6. The fact that the final English utterance by A6 does not contain a verb further supports the notion that

English is not a language she is very proficient in, but the language in use to continue the conversational flow with teacher AT1.

Similarly, in the second example below, child A10 accommodates her language choice in the final utterance to the addressee, another child in this case:

2. A10: Me house.
 AT3: Dat misschien bedoel je.
 'Maybe that's what you mean.'
 A3: Opa en oma wonen op (*unintelligible*).
 'Grandpa and grandma live on (*unintelligible*).'
 AT3: Oma en opa wonen wel in Amsterdam.
 'Grandma and grandpa do live in Amsterdam.'
 AT3: Maar niet in dezelfde huis als jouw huis he?
 'But not in the same house as yours, right?'
 AT2: Ja S.
 'Yes S.'
 A10: I ga[at] deze woon in the house.
 'I go[es] this into living in the house.'

Child A10 learns Hebrew in the home environment. Whereas we find two intrasentential code-switches in the last utterance of this fragment, we will be focusing on the first code-switch from the last sentence, where A10 switches from the English word "I" to Dutch.

Prior to this switch both teachers AT2 and AT3 spoke Dutch, except that A10 in the beginning produced a short utterance in English. Therefore, it is to be assumed that the addressees' preferred language is Dutch, which is the language teacher A10 is engaging in conversation with. Since the child started in English, yet both teachers converse in English, A10 switches to Dutch to show her intention to talk to both of her teachers in their preferred languages. The perceived reluctance of A10 in this example to speak Dutch (as she starts and finishes in English) further supports the notion that A10 is accommodating AT2 and AT3 with his language choice to speak Dutch.

Teacher Insistence

Teacher insistence is the second type that belongs to the socially motivated code-switches. This type is defined as a reaction to the teacher's attitude towards the children's language choice, similar to parental insistence towards their children in other studies, see [Lanvers \(2001\)](#) or peer insistence towards other children, see [Reyes \(2004\)](#). This code-switching type involves a direct command from the teacher directed at the child and thus is different from the code-switching type of accommodation of addressee's preferences, where no such command was at stake.

It is a code-switching type with a small number of code-switches ($n = 7$, 4.3%). This undoubtedly relates to the fact that many instances of teacher insistence resulted in a repetition of utterances that the teacher provided and were therefore excluded from analysis. A third example is given below:

3. B5: Weet ik niet.
 'I don't know.'
 BT1: What do we have here?
 BT1: Wat hebben we hier?
 'What do we have here?'
 BT1: Hoe noemen we dit?
 'How do we call this?'
 BT1: How do we (*direct speech*)
 B6: Appel.
 'Apple.'
 BT1: An a (*false start/self correction*) can you say it in English
 please?
 B6: Apple.

Child B6 learns Dutch in the home environment. It is therefore very likely that her Dutch proficiency is at a more advanced level than her English proficiency. From this conversational extract we can see that the teacher is presenting an item and asking for the particular lexeme that describes the item both in English and Dutch. Child B6 gives the teacher the Dutch translation for ‘apple’, whereupon the teacher asks for the translational equivalent, thus the translation in English. Child B6 then presents the English translation and thus code-switches inter-sententially from Dutch to English. Since B6 code-switches after a direct question from the teacher and not, in comparison to the type of accommodation of the addressees’ preference, because she wanted to adjust her language choice with the preferred language choice from the addressee. Teachers have in daycare and schools also an authoritative figure, that may have played a role in the dynamics of code-switching due to a teachers’ command. We will further explore these hierarchical dynamics in the Discussion section.

Another example is presented in 4. below. Here, instead of asking for a direct translation, the teacher is asking directly to repeat the question in the other language:

4. B9: Mag ik nog een boterham?
 ‘Can I have another sandwich?’
 BT1: Ja.
 ‘Yes.’
 BT1: Kan je ‘t ook in het Engels vragen?
 ‘Can you also ask this in English?’
 B9: Mag ik ook een (*unintelligible*).
 ‘Can I also a (*unintelligible*).’
 BT1: Wat zeg je?
 ‘What are you saying?’
 B9: Mag ik nog een sandwich?
 ‘Can I have another sandwich?’

Child B9 wants to have another sandwich and asks for it in Dutch. Teacher BT1 then wants him to ask this particular question in English instead without giving a reason. Child B9 thus starts his question in Dutch, but then switches from Dutch to English within their utterance’. Here, too, the child does not switch because he wants to adjust his language choice to the addressees’ preferred language choice but in response to a direct and commanding question by the teacher.

3.2.2. Metalinguistic Motivation

Metalinguistically motivated types of code-switches relate to the “learner[’s] interest in and knowledge about the relationship between their two languages” (Gort 2012, p. 57). This code-switching category indicates the child’s awareness of the interconnection between the child’s languages and the resulting reflection on it. In our data, we found just one type of switch falling under this category: metalinguistic insight.

Metalinguistic Insight

The code-switch type metalinguistic insight relates to the child’s own awareness of his bilingual competence, which includes making use of translational equivalents when they code-switch. Metalinguistic comments can be defined as the child’s awareness of linguistic processes (see also Cheng 2003; Gort 2012).

This type of code-switching is the third largest identified code-switching type ($n = 14$, 8.5%). Consider the fifth example:

5. BT1: Heel goed.
'Really good.'
- BT1: Openhaard heet dat.
'It's called fireplace.'
- B99: Openhaard
'Fireplace'
- BT1: Openhaard
'Fireplace'
- BT1: Ja.
'Yes.'
- B4: Ook fire.
'Also fire.'

In this example, the teacher is engaging with two children, B99 and the target child B4. The teacher is naming the Dutch word for fireplace ('openhaard'), child B99 repeats it and the teacher confirms it. Next, B4 engages and mentions the English word 'fire'-a semantically close word or perhaps, the child's word for a rough translation for fireplace. She starts her sentence with "ook" ('also') and then names the English word. B4 thus seems aware of the English (approximate) equivalent of this lexeme and through this translation she expresses her metalinguistic knowledge of the two languages.

A second example with several intersentential and intrasentential code-switches is found in Example 6 below, in which child B5, who learns Dutch in the home environment, recognizes her ability to connect several translational equivalents during freeplay:

6. BT5: Do you watch Thomas on television?
BT5: On TV when you're at home?
BT5: Kijk je thuis ook naar Thomas?
'Do you also watch Thomas at home?'
- B4: 'k heb nog meer zus.
'I have even more sister.'
- BT5: Op TV?
'On TV?'
- B5: Een cat.
'A cat.'
- B5: Een kat is een cat.
'A cat is a cat.'
- B5: En een en een hond is een dog.
'And a and a dog is a dog.'
- B5: En Engels is een kat in z'n nek.
'And English is a cat in his neck.'

In this fragment, the teacher is engaging in a conversation with B4 when B5 interrupts them to present them with their knowledge of translational equivalents of various animals. She rightfully points out the translations for cat (Dutch 'kat') and dog (Dutch 'hond') and further comments on these translations. What we find is six intrasentential and intersentential code-switches and a child showing the ability to connect her two languages through translational equivalents, indicating the child's awareness of this metalinguistic knowledge.

3.2.3. Lexical Motivation

The second category of motivations found in our data relates to code-switching due to lexical constraints. This may include lexical constraints within the speakers' sphere of influence, such as a lexical preference or lack of certain lexemes in the speakers' vocabulary, or broader lexical constraints out of the speakers' sphere of influence. These may include situations where some concepts are represented better in one language than the other or a family, group or community uses specific (loan)words in their repertoire. In our data, two types belonging to this category were found: lack of translation and emphasis.

Lack of Translation—Word Does Not Exist in the Other Language

The code-switching type of lack of translation (word does not exist in the other language) belongs to the lexically-motivated code-switches. This code-switching type is used for switches involving conventionalized lexemes, or loanwords, that either do not have a suitable translation in the other language or convey a concept uniquely associated to one language (Cheng 2003; Gort 2012; Lanvers 2001). In total, 7 items were counted for this code-switching type (4.3%). See Example 7 for an illustration. In this example, child A6 switches from English to Dutch, using the name Sinterklaas ('Saint Nicolas'). Sinterklaas refers to a Dutch holiday period from mid-November until December 5th and ends with Dutch festivities on December 5th, where children typically receive their gifts. Sinterklaas is not to be confused with Santa Claus, who brings presents over Christmas. Since the role of the saint and the festive period are specific to the Dutch situation, there is no suitable translation in English:

7. AT1: Juice.
 AT1: Name@x?
 AT1: Would you like juice or water?
 A4: Juice.
 AT1: Juice.
 A6: This van Sinterklaas!
 'This from Sinterklaas (*the Dutch Saint Nicolas*)!'

Child A6 learns Russian and French in the home environment. On that basis it would be fair to assume that the language proficiency level in both English and Dutch—both spoken only at the daycare—should be somewhat equal. Teacher AT1 is having a conversation with A4 when A6 interrupts them to show them something received during Sinterklaas. The child A6 thus switches to Dutch, including a preposition prior to naming the term *Sinterklaas*, in order to rightfully express this concept to their peers and teachers.

In Example 8 below, child C11 references a character from a children's animation series. He therefore switches to Dutch:

8. CT1: There's fruit here.
 CT1: You finished name@x?
 C11: No.
 CT1: No.
 CT3: **Drinken?**
 'Drink?'
 C11: That is my Bob de **Bouwer**.
 'That is my Bob the Builder.'

In contrast to Example 7, in Example 8 above we find child C11 engaging in a conversation with two teachers (among others), teachers CT1 and CT3. From the example it does not become clear if the teachers are talking to C11 or to (an)other child(ren). Nevertheless, at some point, C11, who learns only Dutch at home, presents his 'Bob de Bouwer' ('Bob The Builder') to the teachers. Within that phrase, he switches to Dutch, an intrasentential code-switch.

In addition to the fact that C11 learns Dutch at home, the phrase *Bob de Bouwer* is a proper Dutch noun that does have an English equivalent ('Bob the Builder') that the child might not know, as with proper names of people or cities. The context this child watches 'Bob de Bouwer' in Dutch or plays with these toys in may play a role here, and we cannot exclude the possibility that the children are not aware of the translational equivalent, as with 'Sinterklaas' in the example above, which truly did not have translational equivalent. Thus, with this phrase he expresses a concept unique to his experience, a concept that he can only express with a code-switch.

Emphasis

The type emphasis is used for cases where a child code-switches in order to highlight a message, for example with the use of translational equivalents as we will see below. Bilingual

children may use emphasis to attract attention from teachers or peers. With 8 instances of this type (4.9%) it is one of the smaller code-switching types. Consider Example 9:

9. AT3: Jouw mama papa ook.
'Your mom and dad, too.'
- AT3: En wat is dit nou?
'And what is it now?'
- A14: Groot.
'Big.'
- AT3: Wij blijven wel zitten.
'We will be sitting for a while.'
- AT3: Want dan kunnen de anderen kinderen het ook zien.
'Because then the other children can see it, too.'
- A10: Kijk look there is a bath.
'Look, look, there is a bath.'

In Example 9, teacher AT3 is reading a book out loud to some children. A14 and A10 are engaging with teacher AT3 about the book. In the very last utterance, A10 uses an intrasentential code-switch and switches from Dutch to English. A10's home language is Hebrew, so we can assume a rather equal level of language proficiency in Dutch and English, given that the daycare center she visits has a 50/50 distribution of Dutch and English input. Nevertheless, AT10 starts her utterance with 'kijk' ("look") and then uses the translational equivalent in English right away. As she knows the translational equivalent of the word, we can exclude any lexical constraints. To attract the attention of the teacher, she uses the code-switch with the translational equivalent of 'kijk' ("look") and then continues in English. Since we can exclude any lexical constraints as well as any social motivation as none of the teachers or peers are engaging in a conversation in English at this moment, this code-switching example seems to be produced to put emphasis on the child's utterance, to draw the teacher's attention.

For another example, consider Example 10, in which a child tries to acquire the attention of another child:

10. CT1: Blik!
'Look!'
- CT2: Blik?
'Look?'
- CT1: En de?
'And the?'
- C3: L.
- CT2: Stoffer en blik!
'Dustpan and look.'
- C3: L, look.
- CT2: Alsjeblieft.
'Please.'
- C3: Kijk!
'Look!'

In Example 10, C3 is trying to acquire the attention of L. C3, who is only exposed to Dutch in the home environment, wants to acquire the attention of CT1, which is why he keeps saying L. For privacy reasons the name of CT1, which starts with an L, is not written down here. While C3 is asking for CT1's attention, he tries many different ways to acquire her attention. First, he uses her name. After only CT2 replies, he uses her name and the English word *look*. As everyone around him speaks Dutch, he hopes to receive her attention right away with the language switch, but again, only CT2 answers. This is interesting because CT1's mother tongue is also Dutch. For this reason, it seems unlikely that C3 is code-switching to accommodate CT1's language preferences and even, if he did, the main function still seems to attract attention. After even the language switch does not have the intended result, he exclaims *kijk* ('look') and switches again to Dutch. The language switch here involves an attention-seeking element and seems therefore used to create emphasis on the message C3 is trying to convey.

3.2.4. Conversational Motivation

The final category of motivations for code-switching involves conversationally-motivated types. This category relates to discourse characteristics of children's code-switching, and involves factors at the level of discourse and syntax and, in some circumstances also on other functions, such as socio-pragmatic or socio-linguistic circumstances, which thus may overlap with other code-switch motivations. In our data, two types of switches were found for which a conversational motivation seemed at play: topic shift and discourse marker.

Topic Shift

The code-switching type of topic shift is defined as choosing a language due to a shift in topic in conversation (Gort 2012; Lanvers 2001; Reyes 2004). This code-switching type has also been labeled as 'quotational or topical switches' by Lanvers (2001). Our data showed 12 instances of topic shift (7.3%).

In the example below, a shift in topic motivates the child to switch from Dutch to English.

11. BT1: Hm ok.
'Mh ok.
B6: Wie wie?
'Who who?'
B5: Loekie.
BT1: Loekie.
B5: Dus dan mag ze bij ons in de slaapkamer liggen.
'Then she may lay with us in the bedroom.'
B5: Als ze wil.
'If she wants.'
BT1: Ah ok.
BT1: What a terrible sight.
BT1: T. yells with all his myth.
BT1: There's a (*incomplete utterance*)?
B5: Shark in the park!

Teacher BT1, child B5 and other children are participating in the morning circle time activity. The first utterances by the teacher BT1 are directed towards the children B6 and B5. From the utterance *what a terrible sight* onwards the utterances are directed towards the group. They are about to start with their morning rituals which includes the singing of a song called *shark in the park*. The teacher prompts the song by saying *There's a . . . ?* and waits for an answer. Child B5 is quick and immediately exclaims the suggested answer and beginning of the morning song. We thus find an intersentential switch, from her very first utterance directed to BT1 to switching to English in order to participate in the morning ritual. She therefore switches because of a shift in topic and thus to avoid a breakdown in communication.

In the second example child B6 refers to his toys at home in English, while then switching back to Dutch, the base language of the conversation:

12. B6: Ja
'Yes'
BT1: Echt waar?
'That's really true?'
B6: Baby heb ik ook.
'I also have baby.'
BT1: Wauw.
'Wow.'
BT1: Bof jij even!
'Lucky you!'
B6: Baby horse playmo heb ik.
'I have a baby horse playmo.'

Child B6 hears both Dutch and English in the home environment. In her first utterance she talks about a baby in Dutch, after she receives praise from BT1 (*Bof jij even*, 'lucky you') she switches to English and talks about her toy. After naming her toy she switches back to Dutch. This example demonstrates the experience B6 had in the home environment in English with her toy, before switching back to Dutch. Since she hears both Dutch and English in both the home and daycare environment, it is to be expected that there is a high likelihood she is able to translate it if she wants to. However, the language that she connects to her play at home is very likely the English language, which might explain why she switches to English. However, it is important to point out that this example has a degree of overlap with the lexical category lack of translation. In fact, in the absence of detailed information about the current children's lexical knowledge, we cannot exclude the possibility that the child is unaware of the potential translational equivalent and therefore uses the English variant.

Discourse Marker

Discourse markers are defined as "linguistic elements that do not necessarily add to the content of the utterance but act as markers of the context in which the utterance is taking place" (qtd. in Reyes 2004, p. 85). The code-switching type of discourse marker encompasses switches that involve such a marker from another language. In our data, we attested 9 instances of this type (5.5%).

In the example 13 below we can find the Dutch discourse marker *zo* (loosely translatable as 'in that manner') that motivates the child to switch from English to Dutch. *Zo* is a focus particle to assert that an act is finished. It is often used in isolation when the speaker asserts that some act is carried out, as a marker of completeness (Lensink et al. 2018), as in the example in 13.

13. AT3: That's yours.
 ACS: (*unintelligible*)
 A13: (*unintelligible*)
 AT3: Can you put on your coat please name@x?
 A13: Can you put it on?
 A13: *Zo!* (*throws coat on the floor*)
 'Like this!' (*throws coat on the floor*)

The Dutch word *zo* is used by A13 to describe how she wants the coat to be put on. Instead of describing it in English or saying that he wants the coat to be put on in this particular way, he uses Dutch *zo*.

In Example 14 below, child C11 incorporates the particle *wel* ('indeed') into her otherwise English utterance. *Wel* is one of the most frequently used particles in Dutch (Hogeweg 2009; Turco et al. 2014). It marks polarity, and is used as a counterpart to the negator *niet* 'not', to assert that something WAS the case (Turco et al. 2014):

14. C11: Mine
 C11: Dat van mij.
 'That's mine.'
 C11: That's mine.
 CT1: Can I have the jacket please? (*The other child hands CT1 the jacket.*)
 C11: That's *wel* jacket.
 'That is indeed jacket.'

The teacher and C11 are in a group setting and planning to go outside. The teacher CT1 asks to have a jacket, whereupon the child C11 uses the Dutch discourse particle *wel* to emphasize that it is indeed a/his jacket. Since no English translation seems to capture the exact same meaning, this type is very similar to the lack of translation type above. Actually, one might argue that they are a subset of this earlier type. However, as they involve a clearly demarcated category of particles that operate on the discourse level, we here treated code-switches involving discourse markers as a separate type, falling within the broader category of conversationally motivated switches.

Finally, our data contained switches with the Dutch focus particle *ook* ‘also’ for which a partly overlapping English counterpart is available. In comparison to English, the Dutch word *ook* may not only have an additive meaning only but can also have other functions such as neutralizing a contrast (Schmitz et al. 2018) or mark politeness (Vismans 1994, p. 65; Elffers 1992, p. 73). For an illustration, see Example 15 below.

15. A10: Me ook.
 ‘Me, too.’
 AT3: Jij ook S.
 ‘You also, S.’
 A10: Wij ook.
 ‘We also.’
 AT3: Ja.
 ‘Yes.’
 A10: Ik ook.
 ‘Me, too.’
 A10: Ook.
 ‘Also.’
 A10: Also bed.

In Example 15, child A10 is expressing that she also wants to go to bed. The Dutch particle is polysemous (see Elffers 1992; Schmitz et al. 2018; Vismans 1994 among others) and very frequent (see Lensink et al. 2018) in Dutch. It is possible that this high frequency in Dutch stimulates the use of Dutch in this case.

3.2.5. Other

A relatively large number of code-switches ($n = 55$, 33.5%) could not be classified into one of the types presented in previous studies and literature (see Table 1 in the Introduction). We present some examples here in order to illustrate the difficulty with categorizing code-switches into strict categories and to show the vast diversity and originality that comes with the range of types and functions of children’s code-switching. See, for example, the fragment in Example 16.

16. AT1: What do you see?
 AT1: Name@x you also want to see?
 AT1: Ok come.
 AT1: Name@x is gonna read with us.
 AT1: One here and one here.
 A6: A twee, we twee.
 A two, we two.

Child A6 learns Russian and French in the home environment. He is engaging with AT1 about a common topic and a book they are all going to read. The message from A6 herself remains unclear.

Another switch we could not classify is provided in Example 17:

17. BT1: Slaap je samen met de zus op je kamer?
 ‘Do you sleep in your room with the sister?’
 BT1: Dat is gezellig.
 ‘That is cosy.’
 BT1: En L.
 ‘And L.’
 BT1: Slaap jij alleen op de kamer?
 ‘Do you sleep alone in a room?’
 BT1: Of met je broer?
 ‘Or with your brother?’
 B9: Only met mijn mijn (*repetition*) only zusje.
 ‘Only with my my (*repetition*) only sister.’

Child B9 is exposed to German and French in the home environment. His constant switching between languages in the last utterance might be his way of trying to accommodate BT1's language preferences; thus, to speak Dutch. Alternatively, he might not know the English words or be exposed to a higher frequency of certain words in English such that these words are retrieved more easily.

3.3. Data Summary

The majority of code-switches were socially motivated. One could argue that children even as young as two to three years of age have already gained an understanding of the social situation around them and especially the interlocutor they are engaging with, since both code-switching types include an interlocutor interacting with the child. However, Lanvers (2001) who investigated bilingual children in a similar age range of the children in our study (two to three years of age) also found exactly the same code-switching types with a social motivation. This might suggest that the other socially-motivated code-switching types develop at a later stage.

Metalinguistic insight was present in the children as well, suggesting that some bilingual children of this age already are beginning to or are becoming aware of the connection between their two languages. Literal translation as a metalinguistic motivation was not found in the data, which may be due to the fact that children are still acquiring their multiple languages and thus may not have the vocabulary to do so.

Regarding lexical motivations, we found the code-switching types lack of translation and emphasis in the data. The former code-switching type describes the use of code-switching to express a concept uniquely associated with one language. Since we did not have a direct lexical measure, such as receptive or productive vocabulary test outcomes of the children in both languages, identifying potential dominance or gap-filling strategies, or lexical preferences, was difficult. We address this issue more in the Discussion section. In addition, we found the code-switching type emphasis, which was used by the children in a very precise manner to receive attention, often from a teacher. In the code-switching examples that fell under this category, children often knew the translational equivalent, but decided to switch, nonetheless.

Finally, two different code-switching types of conversational motivations were found. We did not expect to find multiple conversationally-oriented code-switching types as the children were between two and three years of age and considerably young in comparison to studies with older bilingual children, which found a broader range of conversationally-oriented code-switching types, presumably due to better-developed pragmatic abilities (see Cheng 2003; Cromdal 2004; Davidiak 2010; Gort 2012; Moodley 2007; Reyes 2004; see also Ervin-Tripp and Reyes 2005), but see Lanvers (2001) and Paugh (2005) for work with younger children.

All code-switching utterances can be found in Appendix B.

4. Discussion

In this study, we presented a qualitative analysis of the code-switches produced by a relatively large and heterogeneous group of bilingual preschoolers who attended Dutch and English daycare. We investigated the types of code-switches that these children produced, and categorized these code-switches in terms of children's motivations for code-switching. By taking social, metalinguistic, lexical and conversational motivations into account, we aimed to see which factors play a role in early bilinguals' code-switching. Earlier studies did not consider so many different types of switches as included here for young children. Apart from classifying specific types of switching we also grouped them into different broader categories based on the literature, yielding a taxonomy of switches that does not yet exist for very young children's code-switching patterns in bilingual group settings.

Our aim was to examine which types of code-switches occurred and categorize these in terms of children's motivations for code-switching. We took previously found code-switching types and their motivations (as presented in Table 1) and analyzed our data on

this basis. The code-switching types we found included the code-switching types found in the Data Summary, and more specifically in Table 4 above.

Socially motivated types of code-switches were most frequent, especially the code-switching type of accommodation of addressees' preferences. If a child accommodates his language choice towards the addressee, they show "awareness of the choice and the level of control" (Lanvers 2001, p. 452). Through this behavior, children show two important abilities. First, by tailoring their language choices, they show metalinguistic awareness to at least some degree, that is, awareness of the language systems they are using. Second, by adapting their language choice to the addressee, they show that they are able to take the perspective of the addressee.

The metalinguistic code-switching type metalinguistic insight as well as the social motivation accommodation of the addressee have one thing in common: both demonstrate that the child has reached a certain level of curiosity and knowledge about the relationship of the two languages (Gort 2012; Lanvers 2001; see also Cheng 2003). Previous studies have suggested a certain level of sensitivity to the interlocutor either with code-switching frequency (Comeau et al. 2003) or with regard to language choice (Genesee et al. 1996; Lanvers 2001; Paradis and Nicoladis 2007). Despite children's potential lesser proficiency in one language and their young age they were highly sensitive to their immediate social context around them and adapted their language choices to another participant in conversation either through command (teacher insistence) or without command (accommodation of language preferences).

This raises the question to what extent multilingual children's utterances are being determined by agency (willful behavior) as opposed to conventionalized use of switching patterns. Agentivity implies that the speaker is able to choose between options, whereas conventionalization implies that certain situations or concepts require a certain language choice (see Section 3.2 in Bhatt and Bolonyai 2011 for an overview). With regard to our findings, different code-switching types seem related to different degrees of agentivity: whereas the code-switching type of accommodation of addressees' preferences is clearly agentive, other code-switches such as the type lack of translation suggests to be driven by habit, and are therefore non-agentive. Notwithstanding these differences in degree of agentivity across types, the main finding of our paper is that code-switches of very young children in dynamic, multilingual settings are agentive, supporting earlier work on parent-child interactions showing that children's code-switching reflects controlled, willful behavior (Comeau et al. 2003; Lanvers 2001; Lanza 1997).

Previous research has shown that the development of metalinguistic awareness starts with the acquisition of the two languages and continues past childhood (Bialystok et al. 2014; Edwards and Kirkpatrick 1999). In our data young multilingual children used the metalinguistic insight to expand their vocabulary by commenting on translational equivalents. The current results suggest that bilingual children as young as two years of age can monitor the language choice(s) in conversation and comment on vocabulary across their languages, which suggests a certain level of meta-linguistic awareness.

Several limitations of this study should be considered. First of all a large number of unidentified code-switches were found. One might wonder what the added value of our approach is if many code-switches cannot be categorized. A certain degree of uncodable utterances is normal given the young age of the children, and the complexities in young children's speech. Furthermore, many switches may be motivated by proficiency or lexical preferences of the children-factors we did not have information about. Yet, earlier work on code-switching in young children also had considerable numbers of switches that could not be categorized (Davidiak 2010; Redinger 2010; Reyes 2004). In addition, Gardner-Chloros (2009) indicates that some code-switches may not necessarily have a motivation and thus may appear rather random.

Secondly, previous research on various bilingual language skills has shown that differences in bilingual proficiency are associated with the frequency and use of code-switching (see Reyes 2004). In our study, such differences were not taken into account.

Future work should further investigate types of code-switching and motivations in natural settings in bilingual children, considering how proficient children are in their two languages and how much exposure they receive in each.

Thirdly, our participant group was very heterogeneous with respect to the individual language backgrounds. All children spoke Dutch and English at daycare, but home language varied, with some but not all children speaking either Dutch or English or both Dutch and English at home. Taking into account children's individual language background, as well as possible differences in language prestige, would have provided a more complete picture of young children's code-switching.

Finally, our data were taken from observations of a relatively large group of children, yielding relatively little data per child. While this certainly has advantages in terms of generalizability, the interpretation of our data was sometimes difficult. Future work could consider collecting more dense data or investigate children's code-switching over time.

Nevertheless, we found evidence for the role of social, lexical, meta-linguistic and conversational motivations for code-switching, nuancing the picture that children code-switch out of lack of proficiency only. While detecting these categories required a qualitative analysis, we think our qualitative analysis could be the prelude to a larger quantitative analysis of different types of code switching in young children.

Our findings are qualitative in nature. The question now is in what way these qualitative data may be relevant to computational linguistics and in what ways a further analysis could benefit from a computational analysis.

[Rijhwani et al. \(2017\)](#) have shown that automatic computational language detection is possible in code switching analysis. Detecting the languages involved is also the first step in our analysis. Apart from language detection we coded for motivation at three levels: social, lexical and conversational motivations. Could we (partially) automatize our analysis?

Social motivations could be detected by coding for speaker profiles and combining time measures of a switch to switches in the speaker profiles: if we observe that a code switch is correlated with the presence of a speaker who only has limited knowledge of the target language, this may indicate the switch is social. Teacher insistence might be detected by default formulations such as "can you say this in language X". The naming of languages might hint at metalinguistic comments. Lexical motivations could be detected by using translational equivalence lists. Words that appear in only one language in an individual, might only be known in that language by that individual and hence motivate a switch. Words that do not have a common translational equivalent such as 'pepernoten' (Dutch sweets) and 'bakfiets' (cargo bike intended as a means to transport small children, very common in Dutch households) most likely occur only in that language in all participants and hence motivate a switch. Under the assumption that certain topics have recognizable frames, semantic frames similar to metaphor frames discussed in [David and Matlock \(2018\)](#) could aid in detecting conversational motivations in switches computationally.

Being able to automatize our data would mean we could analyze a larger dataset and make more grounded generalizations. Computational linguists would benefit from a qualitative layer, by making quantitative data more meaningful. If we could automatically detect motivation for switches this might be put to use in educational contexts. For example, [Cornips \(2020\)](#) shows that if one language is used in affective contexts only and not for more educational purposes, this lowers the motivation for children to use this language. Computational analysis could provide feedback for the teachers in daycares about the spread and use of the languages spoken. Computational analysis could also create individual language profiles. Specifically, it could help to identify which children switch, as well as whether they switch for social reasons or whether there are certain domains that they discuss in one language only. This information could inform teachers on the language domains where a child might need support in a particular language.

5. Conclusions

Our study showed that two- to three-year-old multilingual children at Dutch-English bilingual daycare code-switch between Dutch and English. While there are differences in frequency of switching between children, the majority produced one or more switches. A qualitative analysis of these switches showed that seven types of switches could be identified, which could be categorized as being socially, meta-linguistically, lexically or conversationally motivated. Taken together, these results show that young children already have a certain level of perspective taking as they can accommodate the addressee’s language preferences as well as meta-linguistic awareness, allowing them to draw from their other language for communicative purposes.

Author Contributions: Conceptualization, N.-S.S. and J.V.; methodology, N.-S.S., J.V., and S.P.A.; software, not applicable; validation, not applicable; formal analysis, N.-S.S.; resources, J.V. and S.P.A.; writing—original draft preparation, N.-S.S.; writing—review and editing, J.V. and S.P.A.; visualization, N.-S.S.; supervision, J.V. and S.P.A. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Dutch Ministry of Social Affairs and Employment, grant number 201700273.510.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of the Faculty of Humanities at the University of Amsterdam (protocol code 2017-61 and 18 December 2017).

Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

Data Availability Statement: All of the identified code-switches can be found in Appendix B.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Distribution of code-switching types across the English observations.

Daycare	Motivation	Code-Switching Types
A	Social	Accommodation of addressees’ language preferences (<i>n</i> = 28) Teacher insistence (<i>n</i> = 1)
	Metalinguistic	Metalinguistic insight (<i>n</i> = 0)
	Lexical	Lack of translation (<i>n</i> = 6) Emphasis (<i>n</i> = 1)
	Conversational	Shift in topic (<i>n</i> = 0) Discourse marker (<i>n</i> = 4)
	Unidentified code-switches (<i>n</i> = 16) Sum: code-switches (<i>n</i> = 56)	
B	Social	Accommodation of addressees’ language preferences (<i>n</i> = 3) Teacher insistence (<i>n</i> = 6)
	Metalinguistic	Metalinguistic insight (<i>n</i> = 9)
	Lexical	Lack of translation (<i>n</i> = 0) Emphasis (<i>n</i> = 1)
	Conversational	Shift in topic (<i>n</i> = 1) Discourse marker (<i>n</i> = 2)
	Unidentified code-switches (<i>n</i> = 7) Sum: code-switches (<i>n</i> = 29)	

Table A1. *Cont.*

Daycare	Motivation	Code-Switching Types
C	Social	Accommodation of addressees' language preferences (<i>n</i> = 8) Teacher insistence (<i>n</i> = 0)
	Metalinguistic	Metalinguistic insight (<i>n</i> = 4)
	Lexical	Lack of translation (<i>n</i> = 1) Emphasis (<i>n</i> = 0)
	Conversational	Shift in topic (<i>n</i> = 0) Discourse marker (<i>n</i> = 2)
		Unidentified code-switches (<i>n</i> = 5) Sum: code-switches (<i>n</i> = 20)

Table A2. Distribution of code-switching types across the Dutch observations.

Daycare	Motivation	Code-Switching Types
D	Social	Accommodation of addressees' language preferences (<i>n</i> = 8) Teacher insistence (<i>n</i> = 0)
	Metalinguistic	Metalinguistic insight (<i>n</i> = 0)
	Lexical	Lack of translation (<i>n</i> = 0) Emphasis (<i>n</i> = 2)
	Conversational	Shift in topic (<i>n</i> = 0) Discourse marker (<i>n</i> = 1)
		Unidentified code-switches (<i>n</i> = 14) Sum: code-switches (<i>n</i> = 25)
E	Social	Accommodation of addressees' language preferences (<i>n</i> = 4) Teacher insistence (<i>n</i> = 0)
	Metalinguistic	Metalinguistic insight (<i>n</i> = 1)
	Lexical	Lack of translation (<i>n</i> = 0) Emphasis (<i>n</i> = 0)
	Conversational	Shift in topic (<i>n</i> = 6) Discourse marker (<i>n</i> = 0)
		Unidentified code-switches (<i>n</i> = 12) Sum: code-switches (<i>n</i> = 23)
F	Social	Accommodation of addressees' language preferences (<i>n</i> = 1) Teacher insistence (<i>n</i> = 0)
	Metalinguistic	Metalinguistic insight (<i>n</i> = 0)
	Lexical	Lack of translation (<i>n</i> = 0) Emphasis (<i>n</i> = 4)
	Conversational	Shift in topic (<i>n</i> = 5) Discourse marker (<i>n</i> = 0)
		Unidentified code-switches (<i>n</i> = 1) Sum: code-switches (<i>n</i> = 11)

Appendix B

All identified code-switches by the children can be found under: https://osf.io/fqnpd/?view_only=fca3a22d728545258fae349c825e8fc6 (accessed on 22 May 2022).

References

- Auer, Peter. 2005. A postscript: Code-switching and social identity. *Journal of Pragmatics* 37: 403–10. [\[CrossRef\]](#)
- Azlan, Nik Mastura Nik Ismail, and Suthagar Narasuman. 2013. The Role of Code-Switching as a Communicative Tool in an ESL Teacher Education Classroom. *Procedia-Social and Behavioral Sciences* 90: 458–67. [\[CrossRef\]](#)
- Bernardini, Petra, and Suzanne Schlyter. 2004. Growing syntactic structure and code-mixing in the weaker language: The Ivy Hypothesis. *Bilingualism: Language and Cognition* 7: 49–69. [\[CrossRef\]](#)
- Bhatt, Rakesh M., and Agnes Bolonyai. 2011. Code-switching and the optimal grammar of bilingual language use. *Bilingualism: Language and Cognition* 14: 522–46. [\[CrossRef\]](#)
- Bialystok, Ellen, Kathleen F. Peets, and Sylvain Moreno. 2014. Producing bilinguals through immersion education: Development of metalinguistic awareness. *Applied Psycholinguistics* 35: 177–91. [\[CrossRef\]](#) [\[PubMed\]](#)
- Birdsong, David, and Jan Vanhove. 2016. Age of second language acquisition: Critical periods and social concerns. In *Bilingualism across the lifespan: Factors moderating language proficiency*. Edited by Elena Nicoladis and Simona Montanari. Washington, DC: American Psychological Association, pp. 163–81. [\[CrossRef\]](#)
- Bosma, Evelyn, and Elma Blom. 2019. A code-switching asymmetry in bilingual children: Code-switching from Dutch to Frisian requires more cognitive control than code-switching from Frisian to Dutch. *International Journal of Bilingualism* 23: 1431–47. [\[CrossRef\]](#)
- Byers-Heinlein, Krista. 2013. Parental language mixing: Its measurement and the relation of mixed input to young bilingual children's vocabulary size. *Bilingualism: Language and Cognition* 16: 32–48. [\[CrossRef\]](#)
- Cheng, Karen Kow Yip. 2003. Code-switching for a purpose: Focus on pre-school Malaysian children. *Multilingua* 22: 59–77. [\[CrossRef\]](#)
- Comeau, Liane, Fred Genesee, and Lindsay Lapaquette. 2003. The Modeling Hypothesis and child bilingual codemixing. *International Journal of Bilingualism* 7: 113–26. [\[CrossRef\]](#)
- Cornips, Leonie. 2020. The impact of preschool attendance on children's bidialectism in The Netherlands: Why toddlers may stop speaking a regional language (Limburgish) at home. *Language in Society* 49: 333–55. [\[CrossRef\]](#)
- Cromdal, Jakob. 2004. Building bilingual oppositions: Code-switching in children's disputes. *Language in Society* 33: 33–58. [\[CrossRef\]](#)
- David, Maya Khemlani. 2003. Role and functions of code-switching in Malaysian courtrooms. *Multilingua-Journal of Cross-Cultural and Interlanguage Communication* 22: 5–20. [\[CrossRef\]](#)
- David, Oana, and Teenie Matlock. 2018. Cross-linguistic automated detection of metaphors for poverty and cancer. *Language and Cognition* 10: 467–93. [\[CrossRef\]](#)
- Davidiak, Elena. 2010. One? ¿Dos? Drei! A study of code switching in child trilingualism. Ph.D. dissertation/thesis, University of Iowa, Iowa City, IA, USA, May.
- De Fina, Anna. 2007. Code-switching and the construction of ethnic identity in a community of practice. *Language in Society* 36: 371–92. [\[CrossRef\]](#)
- Doğruöz, A. Seza, Sunayana Sitaram, Barbara E. Bullock, and Almeida Jacqueline Toribio. 2021. A survey of code-switching: Linguistic and social perspectives for language technologies. In *Joint Conference of 59th Annual Meeting of the Association-for-Computational-Linguistics (ACL)/11th International Joint Conference on Natural Language Processing (IJCNLP)/6th Workshop on Representation Learning for NLP (Repl4NLP)*, Online, 1–6 August 2021. Stroudsburg: Association for Computational Linguistics. [\[CrossRef\]](#)
- Dolitsky, Marlene. 2000. Codeswitching in a child's monologues. *Journal of Pragmatics* 32: 1387–403. [\[CrossRef\]](#)
- Duñabeitia, Jon Andoni, Manuel Perea, and Manuel Carreiras. 2010a. Masked translation priming effects with highly proficient simultaneous bilinguals. *Experimental Psychology* 57: 98–107. [\[CrossRef\]](#) [\[PubMed\]](#)
- Duñabeitia, Jon Andoni, Maria Dimitropoulou, Oxel Uribe-Etxebarria, Itziar Laka, and Manuel Carreiras. 2010b. Electrophysiological correlates of the masked translation priming effect with highly proficient bilinguals. *Brain Research* 1359: 142–54. [\[CrossRef\]](#) [\[PubMed\]](#)
- Du-Re, Kim. 2012. Functions of code-switching in Korean EFL Learners' Conversation. *Language Research* 48: 297–318.
- Edwards, Harold T., and Anita G. Kirkpatrick. 1999. Metalinguistic awareness in children: A developmental progression. *Journal of Psycholinguistic Research* 28: 313–29. [\[CrossRef\]](#)
- Elffers, Els. 1992. Wat betekent toch toch. In *De kunst van de grammatica: Artikelen aangeboden aan Frida Balk-Smit Duyzentkunst*. Edited by Everdina Cornelia Schermer-Vermeer, Wim Klooster and Arjen Florijn. Amsterdam: Vakgroep Nederlandse Taalkunde Universiteit van Amsterdam, pp. 63–80.
- Ervin-Tripp, Susan, and Claudia Mitchell-Kernan. 1977. *Child Discourse*. New York: Academic Press, pp. xii–266.
- Ervin-Tripp, Susan, and Iliana Reyes. 2005. Child codeswitching and adult content contrasts. *International Journal of Bilingualism* 9: 85–102. [\[CrossRef\]](#)
- Foroodi-Nejad, Farzaneh, and Johanne Paradis. 2009. Crosslinguistic transfer in the acquisition of compound words in Persian–English bilinguals. *Bilingualism: Language and Cognition* 12: 411–27. [\[CrossRef\]](#)
- Gardner-Chloros, Penelope. 2009. *Code-Switching*. Cambridge: Cambridge University Press.
- Gardner-Chloros, Penelope, Reeva Charles, and Jenny Cheshire. 2000. Parallel patterns? A comparison of monolingual speech and bilingual codeswitching discourse. *Journal of Pragmatics* 32: 1305–41. [\[CrossRef\]](#)
- Genesee, Fred, Elena Nicoladis, and Johanne Paradis. 1995. Language differentiation in early bilingual development. *Journal of Child Language* 22: 611–31. [\[CrossRef\]](#) [\[PubMed\]](#)

- Genesee, Fred, Isabelle Boivin, and Elena Nicoladis. 1996. Talking with strangers: A study of bilingual children's communicative competence. *Applied Psycholinguistics* 17: 427–42. [\[CrossRef\]](#)
- Gort, Mileidis. 2012. Code-switching patterns in the writing-related talk of young emergent bilinguals. *Journal of Literacy Research* 44: 45–75. [\[CrossRef\]](#)
- Gumperz, John J. 1982. *Discourse Strategies*. Cambridge: Cambridge University Press.
- Halmari, Helena, and Wendy Smith. 1994. Code-switching and register shift: Evidence from Finnish-English child bilingual conversation. *Journal of Pragmatics* 21: 427–45. [\[CrossRef\]](#)
- Hogeweg, Lotte. 2009. The meaning and interpretation of the Dutch particle *wel*. *Journal of Pragmatics* 41: 519–39. [\[CrossRef\]](#)
- Jisa, Harriet. 2000. Language mixing in the weak language: Evidence from two children. *Journal of Pragmatics* 32: 1363–86. [\[CrossRef\]](#)
- Jørgensen, J. Normann. 1998. Children's acquisition of codeswitching for power yielding. In *Codeswitching in Conversation: Language, Interaction and Identity*. Edited by Peter Auer. London and New York: Routledge, pp. 237–58.
- Keydeniers, Darlene, Suzanne Aalberse, Sible Andringa, and Folkert Kuiken. 2022. Bilingual daycares in the Netherlands: An analysis of the implementation of bilingual input and underlying ideologies. *Current issues in Language Planning* 23: 157–75. [\[CrossRef\]](#)
- Koch, Lisa M., Alan M. Gross, and Russell Kolts. 2001. Attitudes toward Black English and Code switching. *Journal of Black Psychology* 27: 29–42. [\[CrossRef\]](#)
- Kootstra, Gerrit Jan, Janet G. van Hell, and Ton Dijkstra. 2010. Syntactic alignment and shared word order in code-switched sentence production: Evidence from bilingual monologue and dialogue. *Journal of Memory and Language* 63: 210–31. [\[CrossRef\]](#)
- Köppe, Regina, and Jürgen Meisel. 1995. Code-switching in bilingual first language acquisition. In *One Speaker, Two Languages: Cross-Disciplinary Perspectives on Code-Switching*. Edited by Lesley Milroy and Pieter Muysken. Cambridge: Cambridge University Press, pp. 276–301. [\[CrossRef\]](#)
- Kuzyk, Olivia, Margaret Friend, Vivianne Severdija, Pascal Zesiger, and Diane Poulin-Dubois. 2019. Are there cognitive benefits of code-switching in bilingual children? A longitudinal study. *Bilingualism: Language and Cognition* 23: 542–53. [\[CrossRef\]](#) [\[PubMed\]](#)
- Kwan-Terry, Anna. 1992. Code-switching and code-mixing: The case of a child learning English and Chinese simultaneously. *Journal of Multilingual and Multicultural Development* 13: 243–59. [\[CrossRef\]](#)
- Kyratzis, Anna. 2010. Latina girls' peer play interactions in a bilingual Spanish-English U.S. preschool: Heteroglossia, frame-shifting, and language ideology. *Pragmatics* 20: 557–86. [\[CrossRef\]](#)
- Lanvers, Ursula. 2001. Language alternation in infant bilinguals: A developmental approach to codeswitching. *International Journal of Bilingualism* 5: 437–64. [\[CrossRef\]](#)
- Lanza, Elizabeth. 1997. Language contact in bilingual two-year-olds and code-switching: Language encounters of a different kind? *International Journal of Bilingualism* 1: 135–62. [\[CrossRef\]](#)
- Lensink, Saskia, Ton van der Wouden, and Karina van Dalen-Oskam. 2018. Hidden indicators. Modal particles in modern Dutch fiction and fiction translated from English: A quantitative approach. Paper presented at DH Benelux 2018, Amsterdam, The Netherlands, June 26.
- Liu, Hong. 2019. Attitudes toward different types of Chinese-English code-switching. *SAGE Open* 9: 1–19. [\[CrossRef\]](#)
- MacWhinney, Brian. 2000. *The CHILDES Project: Tools for Analyzing Talk*. Mahwah: Lawrence Erlbaum Associates.
- Manyak, Patrick. 2000. Borderlands literacy in a primary-grade immersion class. In *Forty-Ninth Yearbook of the National Reading Conference*. Edited by Timothy Shanahan and Flora V. Rodriguez-Brown. Chicago: National Reading Conference, pp. 91–108.
- McClure, Erica. 1981. Formal and functional aspects of the code switched discourse of bilingual children. In *Latino Language and Communicative Behavior*. Edited by Richard Duran. Norwood: Ablex, pp. 69–84.
- Moll, Luis C., and Joel E. Dworin. 1996. Biliteracy development in classrooms: Social dynamics and cultural possibilities. In *Discourse, Learning and Schooling*. Edited by Deborah Hicks. New York: Cambridge University Press, pp. 221–46.
- Moodley, Visvaganthie. 2007. Codeswitching in the Multilingual English First Language Classroom. *International Journal of Bilingual Education and Bilingualism* 10: 707–22. [\[CrossRef\]](#)
- Muñoz Barredo, Immaculada. 1997. Pragmatic functions of code-switching among Basque-Spanish bilinguals. Paper presented at the Actas do i Simposio Internacional sobre o Bilinguismo, Vigo, Spain, 21–25 October.
- Muysken, Pieter. 2000. *Bilingual Speech: A Typology of Code Mixing*. Cambridge: Cambridge University Press.
- Nicoladis, Elena, and Giovanni Secco. 2000. The role of a child's productive vocabulary in the language choice of a bilingual family. *First Language* 20: 3–28. [\[CrossRef\]](#)
- Ortega, Lourdes. 2009. *Understanding Second Language Acquisition*. London: Taylor & Francis Ltd.
- Paradis, Johanne, and Elena Nicoladis. 2007. The influence of dominance and sociolinguistic context on bilingual preschoolers' language choice. *International Journal of Bilingual Education and Bilingualism* 10: 277–97. [\[CrossRef\]](#)
- Paradis, Johanne, Elena Nicoladis, and Fred Genesee. 2000. Early emergence of structural constraints on code-mixing: Evidence from French-English bilingual children. *Bilingualism: Language and Cognition* 3: 245–61. [\[CrossRef\]](#)
- Paradis, Johanne, Kristyn Emmerzael, and Tamara Sorenson Duncan. 2010. Assessment of English language learners: Using parent report on first language development. *Journal of Communication Disorders* 43: 474–97. [\[CrossRef\]](#) [\[PubMed\]](#)
- Parafita Couto, Maria del Carmen, Miriam Greidanus Romeli, and Kate Bellamy. 2021. Code-switching at the interface between language, culture, and cognition. *Lapurdum: Basque Studies Review*, 1–25.
- Paugh, Amy L. 2005. Multilingual play: Children's code-switching, role play, and agency in Dominica, West Indies. *Language in Society* 43: 63–86. [\[CrossRef\]](#)

- Perea, Manuel, Jon Andoni Duñabeitia, and Manuel Carreiras. 2008. Masked associative/ semantic priming effects across languages with highly proficient bilinguals. *Journal of Memory and Language* 58: 916–30. [CrossRef]
- Pérez, Bertha. 2004. *Becoming Biliterate: A Study of Two-Way Bilingual Immersion Education*. Mahwah: Lawrence Erlbaum.
- Poplack, Shana. 1980. Sometimes I'll start a sentence in Spanish Y TERMINO EN ESPAÑOL: Toward a typology of code-switching. *Linguistics* 18: 581–618. [CrossRef]
- Poplack, Shana. 2001. Code-switching (Linguistic). In *International Encyclopedia of the Social and Behavioral Sciences*. Edited by Neil J. Smelser and Paul B. Baltes. Amsterdam: Elsevier Science, pp. 2062–65. [CrossRef]
- Quick Endesfelder, Antje, Elena Lieven, Ad Backus, and Michael Tomasello. 2018. Constructively combining languages: The use of code-mixing in German-English bilingual child language acquisition. *Linguistic Approaches to Bilingualism* 8: 393–409. [CrossRef]
- Redinger, Daniel. 2010. Language attitudes and code-switching behaviour in a multilingual educational context: The case of Luxembourg. Ph.D. dissertation, University of York, York, UK.
- Reyes, Iliana. 2004. Functions of code switching in schoolchildren's conversations. *Bilingual Research Journal* 28: 77–98. [CrossRef]
- Ribot, Krystal M, and Erika Hoff. 2014. "¿Como estas?" "I'm good." Conversational code-switching is related to profiles of expressive and receptive proficiency in Spanish-English bilingual toddlers. *International Journal of Behavioral Development* 38: 333–41. [CrossRef]
- Rijhwani, Shruti, Royal Sequiera, Monojit Choudhury, Kalika Bali, and Chandra Shekhar Maddila. 2017. Estimating Code-Switching on Twitter with a Novel Generalized Word-Level Language Detection Technique. Paper presented at the 55th Annual Meeting of the Association for Computational Linguistics, Vancouver, BC, Canada, July 30–August 4; Stroudsburg: Association for Computational Linguistics.
- Schau, Hope Jensen, Stephanie Dellande, and Mary C. Gilly. 2007. The impact of code switching on service encounters. *Journal of Retailing* 83: 65–78. [CrossRef]
- Schmitz, Tijn, Lotte Hogeweg, and Helen de Hoop. 2018. The use of the Dutch additive particle ook 'too' to avoid contrast. *Journal of Dutch Linguistics and Literature* 134: 197–219.
- Song, Kwangok. 2016. "Okay, I will say in Korean and then in American": Translanguaging practices in bilingual homes. *Journal of Early Childhood Literacy* 16: 84–106. [CrossRef]
- Thomas, Enlli Môn, and Dylan Bryn Roberts. 2011. Exploring bilinguals' social use of language inside and out of the minority language classroom. *Language and Education* 25: 89–108. [CrossRef]
- Turco, Giuseppina, Bettina Braun, and Christine Dimroth. 2014. When contrasting polarity, the Dutch use particles, Germans intonation. *Journal of Pragmatics* 62: 94–106. [CrossRef]
- Unsworth, Sharon. 2013. Assessing the role of current and cumulative exposure in simultaneous bilingual acquisition: The case of Dutch gender. *Bilingualism* 16: 86–110. [CrossRef]
- Unsworth, Sharon, Vicky Chondrogianni, and Barbora Skarabela. 2018. Experiential measures can be used as a proxy for language dominance in bilingual language acquisition research. *Frontiers in Psychology* 9: 1–15. [CrossRef]
- Verhagen, Josje, and Sible Andringa. 2021. The role of existing language knowledge in bilingual and multilingual toddlers' repetition of cross-linguistic and language-specific nonwords. *Linguistic Approaches to Bilingualism*. [CrossRef]
- Vismans, Romualdus Maria. 1994. Modal Particles in Dutch Directives: A Study in Functional Grammar. Ph.D. dissertation, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands.
- Yim, Odilia, and Richard Clément. 2019. "You're a Juksing": Examining Cantonese-English code-switching as an index of identity. *Journal of Language and Social Psychology* 38: 479–95. [CrossRef]
- Yip, Virginia, and Stephen Matthews. 2000. Syntactic transfer in a Cantonese-English bilingual child. *Bilingualism: Language and Cognition* 3: 193–208. [CrossRef]
- Yow, W. Quin, Jessica S. H. Tan, and Suzanne Flynn. 2017. Code-switching as a marker of linguistic competence in bilingual children. *Bilingualism: Language and Cognition* 21: 1075–90. [CrossRef]
- Zentella, Ana Celia. 1982. Code-switching and interactions among Puerto Rican children. In *Spanish in the United States: Sociolinguistic aspects*. Edited by Jon Amastae and Lucía Elías-Olivares. Cambridge: Cambridge University Press.
- Zentella, Ana Celia. 1997. *Growing up Bilingual: Puerto Rican Children in New York*. New York: Blackwell.