BILINGUAL PUBLISHING GROUP

Forum for Linguistic Studies

https://journals.bilpubgroup.com/index.php/fls

ARTICLE

A Study of Bilingual Development of Subject Realization of a Mandarin-English Bilingual Preschool Child from China to Australia

Qiang Guo* *, *Ruying Qi*, *Dacheng Zhao

Bilingualism Research Lab@ WSU-JNU, School of Humanities and Communication Arts, Western Sydney University, Rydalmere, New South Wales 2116, Australia

ABSTRACT

This article traces the developmental trajectory of bilingual subject realization of a Mandarin-English bilingual child from China to Australia from age 3;04 to 5;05. There is an assumption that age 3 is the dividing line between Bilingual First Language Acquisition (BFLA) and Early Second Language Acquisition (ESLA). Determining similarities and differences between them is of great theoretical and methodological significance. While BFLA studies show consistent results under the condition of adequate input and meaningful interaction, ESLA studies indicate that these children proceed their early English differently from BFLA. Previous studies mainly focused on young children's English development in English-speaking countries without prior English input. However, an increasing number of children migrate to English-speaking countries after age 1 with limited English input. This study examines whether there is qualitative difference between BFLA and ESLA children's bilingual subject realization. Drawing upon the naturalistic data before and after the child's migration from China to Australia and CLAN analysis, the 25-month longitudinal case study indicates that the ESLA child's bilingual subject realization developmental trajectories are qualitatively similar but quantitatively different from Mandarin-English BFLA peers. This study could be the first of its kind by investigating a bilingual child who acquires two languages with changed environmental language (Lε), contributing theoretically and practically to early childhood bilingualism.

Keywords: Bilingual Development; Subject Realization; Age; Input; The Environmental Language (Lε)

*CORRESPONDING AUTHOR:

Qiang Guo, Bilingualism Research Lab@ WSU-JNU, School of Humanities and Communication Arts, Western Sydney University, Rydalmere, New South Wales 2116, Australia; Email: Q.Guo@westernsydney.edu.au

ARTICLE INFO

Received: 24 July 2024 | Revised: 6 August 2024 | Accepted: 19 August 2024 | Published Online: 13 November 2024
DOI: https://doi.org/10.30564/fls.v6i5.6941

CITATION

Guo, Q., Qi, R., Zhao, D., 2024. A Study of Bilingual Development of Subject Realization of a Mandarin-English Bilingual Preschool Child from China to Australia. Forum for Linguistic Studies. 6(5): 494–505. DOI: https://doi.org/10.30564/fls.v6i5.6941

1. Introduction

Bilingual First language acquisition (BFLA) refers to children who are exposed to two languages regularly since birth [1, 2], The term BFLA could also be used interchangeably as simultaneous acquisition. Quite obviously, there is no difference regarding age of onset between the two languages. Early Second Language Acquisition (ESLA) is defined as children who receive L1 since birth and L2 after age 2–3 [3, 4]. In ESLA, the age of onset to L2 is different from L1 [5], and whether the age of exposure difference might cause developmental differences deserves academic endeavour.

In order to attest whether developmental differences exist between BFLA and ESLA children, we select subject realization as our focus, as the chosen area is contrastive in structure but performs the same semantic function in the two typological distant languages [6, 7].

The grammatical category-subject, especially personal pronouns, functions as a meeting point for semantic, syntactic and pragmatic aspect of language [8], as cited in [9, 10]. This implicates that the subject system could fulfil multiple functions where meaning generation, grammar configuration and language in context conjoin.

Over many years, scholarly endeavour on child's subject development has continued unabated. Qi [9, 10] has claimed that the acquisition of the constraints on subject pronouns is in connection with children's convergence towards their target grammar. Other scholars, such as Berman and Weissenborn [11], have stressed the importance of investigating subject development pattern, as it is a key and ideal testing ground for inter-linguistic comparison in bilingualism.

The study is also motivated by demographic factors. It is estimated that 10.7 million Chinese are living overseas [12] and the number is still increasing in the global migration trend. One noticeable phenomenon is that an increasing number of young children move with their working parents to English speaking countries, with UK, USA, Canada, Australia and New Zealand as the main receiving end [5]. Although it is difficult to obtain the exact number of these young children, media coverage has led us to believe that many have started to receive L2 English exposure even in their home country, China, at very young age, aiming for better education and integration in the host country.

Previous studies show that the bilingual development of subject realization in Mandarin-English BFLA children appears to proceed in a language-specific way, without noticeable cross-linguistic interaction [9, 10]. So, are these migrant children fundamentally different from their BFLA peers in terms of subject realization? Is there any cross linguistic interaction between their L1 and L2? These questions have been rarely broached to date.

In order to answer these questions, we select an ESLA Mandarin-English bilingual child aged 3;04 to 5;05, acquiring the typologically dissimilar language constellation from China to Australia, as she typically represented the increasing number of migrating children at this age range.

Mandarin Chinese is a pro-drop (null-subject) language [13] in which certain pronouns can be omitted in contextually inferable contexts [9, 10]. In other words, the use of null subject depends on context or discourse. Under the shared contextual constraints, Mandarin clauses could be concise yet still comprehensible [14]. Mandarin realises its subjects in three ways: full NP, overt pronoun and null subjects [13]. An example is

(1) A: Ø chi1 le ma? (common greetings)
Ø eat ASP?
'Do [you] eat?'

B: Ø chi1 le
Ø eat ASP
'[I] eat.'

Example (1) shows that the dropped subject Ø (refers to ni3 [you]), which refers to the listener, could be omitted as it is contextually encoded. Although ni3 (you), denoted by Ø, is not phonetically and lexically realized, it is still semantically sufficient and comprehensible. This is called null subject.

In comparison with Mandarin, English is a non-pro-drop language, in which subject must be overtly realised [15]. English realises its subject in two ways: full NP and overt pronouns. An example is

(2) A: Does the dog bite? [16]
B: Yes, it does.

The phonetically encoded *dog* in (2) A and *it* in (2) B serve as subjects, conveying the action initiator or the agent

in an unambiguous way. If the two subjects are absent, the meaning may be unclear regarding the origin of action. In other words, English requires the overt realization of subjects to ensure both semantic precision and grammatical fulfilment.

Despite their differences in encoding subjects, Mandarin and English still share the canonical word order (SVO), and both languages have overlapping features in subject realization, such as the use of NP and pronominal to express subjects; the differences are that Chinese also permits null subject (zero anaphora) to refer to a thing or a topic in the preceding clauses, whereas English requires compulsory subjects in all syntactic conditions except for imperatives [17].

In the next section, we review the relevant studies on bilingual subject realization.

2. Literature Review

Most previous research on bilingual subject realization focuses on two genealogically similar language constellations in BFLA [18–21].

Serratrice [20] examined the subject development of an BFLA Italian-English bilingual child aged 1;10 to 3;01 (year; month). It was found the emergence of subjects in both Italian (a pro-drop language) and English (a non-pro-drop language) followed a language specific way, supporting the separate language development hypothesis [1, 6, 22–25]. This finding is corroborated by another study by Juan-Garau and Pérez-Vidal [18], who examined a Catalan-English BFLA bilingual child (1;03–4;02). It was found that the bilingual Catalan-English child Andru operationalized 74% of null subjects in Catalan, whereas he utilized around 95% of English over subjects. The child's subject use clearly indicated a separate developmental pattern without noticeable bilingual interaction.

However, the two studies are not echoed by Silva-Corvalán [21], who investigated two BFLA Spanish-English bilingual children's subject use from age 1;06 to 5;11. The two children showed an increasing rate in Spanish subjects, which was semantically redundant and pragmatically infelicitous. Silva-Corvalá postulates that this could be due to the increasing cross linguistic influence from English. As their English was in place and to be established, the pressure from L2 English was transferred onto their L1 Spanish. In other words, the zero anaphora slots in Spanish were inclined to be filled by English overt subject due to their highly activated English mode [26]. This research suggests that language internal factors may play a role in the bilingual subject realization, which is contrary to Paradis and Navarro [19].

Paradis and Navarro [19] looked at one Spanish-English BFLA child aged from 1;09 to 2;06 and two monolingual Spanish peers. Data show that the BFLA child exhibited a significantly higher rate of overt subject in Spanish compared with monolinguals. By analysing parental exposure, the researcher concluded that language internal factor might operate in tandem with parent input pattern in accounting for the quantitative difference.

The above studies focused on typologically close language constellations. It would be worthwhile to examine other language pairs from genealogically distant language pairs.

Hacohen and Schaeffer [27] have investigated a BFLA Hebrew-English bilingual child aged 2;10 to 3;04, with the environmental language Lε [7] Hebrew. Hebrew is a mixed null subject language [28], whereas English is a non-null subject language. Data show that the bilingual child displayed an overall 4.5 times higher rate of overt subject than monolingual in pragmatically infelicitous contexts (33% versus 7%); however, longitudinally, the bilingual child showed a declining rate of subject use in Hebrew, being similar to monolinguals at the end of data collection. This result is contrary to Paradis and Navarro [19]. The parental input in Paradis and Navarro [19] showed a higher rate of overt subjects in their Cuban Spanish, whereas Hacohen and Schaeffer's [27] study indicated that parental input was native Hebrew, thus justifying that parental input might play a positive role in early childhood bilingualism.

In another longitudinal case study, Zwanziger et al. [29] analysed subject use of six BFLA English-Inuktitut children aged from 1;08 to 3;09. It was found that 86% of Inuktitut subjects were zero anaphora and English exhibited constant presence of subjects, and this resembled monolingual development pathway, suggesting no cross linguistic interaction. This study indicates that Hulk and Müller's [30] overlapping hypothesis may not be a necessary condition for the emergence of cross linguistic influence. However, this monolingual development pattern in bilingual mode is not borne out in the following typologically dissimilar language combina-

tions.

A study by Haznedar[31] focuses on a BFLA Turkish-English bilingual child aged 2;04–4;03. Turkish is a null subject language[32, 33], whereas English is a non-null subject language. Results indicate that the bilingual child exhibited a near-twice rate (63%) of overt subjects in his Turkish compared with monolingual Turkish peers (33%). This is especially the case in the domain of Low Information (LINF), replicating the results of Paradis and Navarro[19]. However, it is still not clear whether parental input also exerts certain influence upon the bilingual subject choices, thus Haznedar's claim that the excessive use of subject in the child's Turkish could be accounted for by language internal factor appears to be insufficient, thus inconclusive.

In her ground-breaking academic endeavour, Qi[9, 10] has investigated subject realization in a BFLA Mandarin-English bilingual child aged 1:07–4:05. It was found that her bilingual child proceeded Mandarin and English subject development in a language dependent manner, without cross language interaction. The child's mandarin shows a rate of 55% of overt subjects and 100% of subject provision in English finite clauses. Qi further justified this finding by proposing the theory of environmental language (Lε)[7], which is defined as the language in the predominant extra-domestic environment[7]. If Lε coincides with the weaker language, English, in the bilingual repertoire, then the latter gains support, and could offset the influence from the dominant language Mandarin, thus being conducive to keeping the developmental template distinct. This theory accounts for the absence of cross linguistic interaction between two languages. However, Qi's[9, 10] study focused on BFLA children in one language environment. Besides, the literature on a changed Lε is scant, thus deserving another academic deliberation.

In summary, some studies indicate that structural overlap could explain the emergence of cross linguistic influence[21, 27, 31] regarding bilingual subject choice, whereas others hold the view that overlapping might not be the sufficient condition for the excessive subject use[18, 19, 29]. Besides, some studies explore the combined role of structural overlap and parental input style[19], while others investigate overlapping theory and dominance[9, 10]. It appears that the role of Lε and parental input in the current bilingual studies has been rarely broached, calling for further investigation.

It was found that children in all the afore-cited studies were BFLA, who acquired both languages since birth. So far, little has been known with respect to the developmental trajectory of such cohort as ESLA children, who are exposed to two languages at different ages of onset. Specifically, whether the earlier acquired L1 exerts influences upon the incoming L2 or vice versa remains largely understudied.

As global migration continues to surge in recent years[12], so does the number of bilingual children moving with their parents. This may trigger a change in parental exposure due to migration.

The present study aims to examine an ESLA bilingual child's (codenamed GG) subject choice pattern over a two-year period span. The bilingual child GG underwent a changed environmental language from China to Australia. Accordingly, the child's parental input also fluctuated due to migration. The linguistic profile of this bilingual informant typically represents the underage children across the globe, thus it would be worthwhile both theoretically and practically to probe her bilingual development of subject realization over time.

Our research questions are therefore formulated upon the research gap identified in the literature review. We endeavour to investigate the following three research questions.

RQ 1: Does the Mandarin-English bilingual child GG show similar developmental patterns of Mandarin and English subject use in comparison with BFLA peers?

RQ 2: What is the role of parental input?

RQ 3: What is the role of the changed environmental language?

3. Materials and Methods

This is a longitudinal single case study on an ESLA Mandarin-English bilingual child with respect to her bilingual subject realization. A qualitative method was utilized to describe the developmental pattern and a quantitative approach was adopted to measure the extent of possible cross linguistic interaction. All spontaneous speech data were collected by audio recording in non-intruding and naturalistic settings.

3.1. The Informant

Table 1 shows the bilingual child's linguistic profile. The bilingual child (codenamed GG) was born in China and

received L1 Mandarin input since birth. Since 1;02, the child started to receive L1 Mandarin input for 5 hours and L2 English exposure for 0.5 hour per day in China. At 3;07, the child moved with her parents to Sydney, Australia. However, the child did not attend preschool immediately after arriving in Australia. At this stage, GG's L1 Mandarin input reduced to 4.5 hours and L2 English increased to 2.5 hours per day. At age 4;10, the child GG started to attend preschool. At this stage, GG's L1 Mandarin input significantly reduced to 2 hours and L2 English dramatically increased to 6.85 hours per day.

Table 1. The bilingual child GG's linguistic profile.

Age	Settings	Context	Interlocutors	Input Language	Input Quantity (Hours/Day)
1;02–3;06	China	Daily routine	Father	English	0.25
				Chinese	1
		TV (cartoons, etc.)	Mother	Chinese	3
		Outside activities		British/American English	0.25
				Chinese	
					1
3;06–4;10	Australia	Daily routine	Father	Chinese	1
		TV (cartoons, etc.)	Mother	Chinese	3
		Outside activities	Audio	Australian English	2.25
		Church,		Chinese	
		Playgroups	Mother	Australian English	0.5
			peers		0.25
4;11–5;06	Australia	Daily routine	Father	Chinese	0.5–1
			Mother	Chinese	1–2
		TV (cartoons, etc.)		Australian English	0.1
		Outside activities		Australian English	
		Church	Teachers, peers	Australian English	0.5
		Playgroups		Australian English	0.25
					Kindi 6

Note. Adopted and adapted from Qi[9].

3.2. The Interlocutors

The parent researcher is a native L1 Mandarin speaker who can speak L2 English fluently, with intermediate level of L3 French and beginner level of L4 German. The father is a University Lecturer and holds a master degree in English. The child's mother is also a native Mandarin speaker who holds a bachelor degree and can speak limited English. The parents spoke Mandarin to each other at home and addressed the child in Mandarin except for the English storytelling time. After arriving in Australia, the father and the child spoke English outside home, such as in church, kindergarten, library, playgroup and shopping centre.

3.3. Dataset Description

The dataset contains two major types of data: (1) audio recordings and (2) diary entries. The method we follow here is to collect natural linguistic data, that is primary linguistic data[34] by audio-recordings at regular intervals over time, supplemented by diary entries and three video recordings (birthdays).

The dataset consists of 89 recordings totalling 2632 minutes starting from the age when the child was 3;04 (year; month) in China until she was 5;05 in Australia. The first five recordings were obtained in Xi'an, Northwest China's Shaanxi Province to establish the research baseline, from which the researcher can trace her bilingual development path over time. All the other recordings were derived in Sydney, Australia. The recordings lasted about 29.57 minutes on average, with first five China-based mixed recordings averaging 47 minutes. It is essential to point out that the child was verbally expressive; therefore, her speech data were abundant.

The equipment to make these audio recordings included

a high fidelity HUAWEI recorder and three recordings were made by Canon Camera, such as the child's birthday party.

A wide range of activities were included in the recording sessions, such as Chinese and English book reading, toy playing, drawing, painting, free talk, outings and playing with other children.

3.4. Data Treatment

Only finite clauses containing a subject and a verb were assessed. The following grammatical structures were not calculated: false start, repetition of the preceding clause and imperatives. We abandoned these data as these structures can inflate or deflate the number of subject use in both Mandarin and English, reducing the calculation precision.

Note that Liu's[35] study excluded the subjects mentioned first in the informants' data due to the cross-sectional and experimental approach. However, since this study is longitudinal in nature, excluding the first mentioned subjects would place the research in the position to lose sight of the whole developmental trajectory. It is therefore plausible to take the first mentioned subjects into account.

This longitudinal study allows the researchers to segment the whole dataset into three different stages: Stage 1: In China; Stage 2: In Australia without pre-schooling and Stage 3: In Australia with pre-schooling. This division reflects the migration process of GG's family from China to Australia, which also mirrors the change of input pattern and language environment.

3.5. Data Analysis Instrument

All speech data were manually transcribed using CHAT (Codes for the Human Analysis of Transcripts) format to facilitate analysis in CLAN (Computerized Language ANalysis)[36].

Regarding Mandarin and English bilingual subject realization, we use two programs in CLAN to analyse the dataset. 1. FREQ: to calculate the frequency of words. In this study, we compute the token of null subject and overt subject in both Mandarin and English, manifested by percentage. 2. KWAL: to retrieve the required words in context.

4. Results

4.1. General Pattern of Bilingual Subject Use over Time

Figure 1 displays GG's Mandarin-English bilingual subject use at three stages.

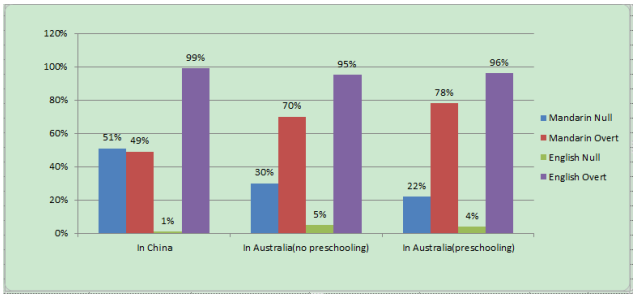

Figure 1. GG's Mandarin-English bilingual subject use at three stages.

As indicated in **Figure 1**, on the one hand, the bilingual child GG's Mandarin null subject rate displayed a decreasing trajectory over the three stages in two years, from 51% at stage 1 (in China), down to 30% at stage 2 (in Australia without pre-schooling) and further declined to 22% at stage 3 (in Australia after attending pre-school). On the other hand, GG's English null subject use exhibited a stable trend, with English null subject choice standing at 5% over the three stages.

In other words, the child used an increasing rate in Mandarin overt subjects, whereas her English subject use remained target-like throughout the three stages (cf. Wang et al.[37]).

4.2. Results from Naturalistic Data

This section presents the analysis of bilingual child GG's overall naturalistic data. In order to precisely describe GG's subject use pattern in her bilingual repertoire, we adopted Liu et al.'s[35] method, which divided the child's syntactic production into three categories: single clause sentence, linked construction, and sentences with embedded object clause. These syntactic structures allowed us to derive a holistic picture of the child's subject development.

Table 2 shows GG's Mandarin subject use in three different syntactic conditions. It was found that the child's subject use in Mandarin showed an increasing pattern in single clause sentence, from around 49.9% in China to around 66.1% in Australia after attending preschool. The most striking result was found in the child's linked construction, with

both overt subject supply rising from 10.5% in China to 66.4% in Australia after attending preschool. With respect to sentences with embedded object clause, a generally rising trajectory is corroborated.

Table 2. GG's Mandarin subject use in three syntactic conditions.

Single clause sentence

Period \ Subject Type	In China	In Australia (No Pre-Schooling)	In Australia (Pre-Schooling)
Nominal Subjects	37 (27.4%)	112 (19.5%)	93 (23.8%)
Pronominal Subjects	31 (22.5%)	251 (43.8%)	164 (42.3%)
Null Subjects	69 (50.1%)	209 (36.7%)	132 (33.9%)
Total	137	572	389

Linked construction

Period \ Subject Type	In China	In Australia (No Pre-Schooling)	In Australia (Pre-Schooling)
Both Overt	4 (10.5%)	52 (50.9%)	53 (66.4%)
Both Null	11 (29.0%)	17 (16.7%)	10 (10.5%)
Either Null	23 (60.5%)	34 (33.3%)	21 (22.1%)
Total	38	102	95

Sentences with embedded object clause

Period \ Subject Type	In China	In Australia (No Pre-Schooling)	In Australia (Pre-Schooling)
Nominal Subjects	2 (16.7%)	13 (31.0%)	3 (21.4%)
Pronominal Subjects	2 (16.7%)	17 (41.0%)	6 (42.8%)
Null Subjects	7 (67.6%)	12 (28.0%)	5 (35.8%)
Total	12	42	14

An example (Age: 5;02. Stage 3: after attending preschool) is presented as follows:

Wo3 yi2 dao4 xue2xiao4,wo3 jiu4 he2 tong2xue2 wan2.

I arrive school I with classmates play.

As soon as I arrived at school, I played with my classmates.

The second '*wo*' (*I*) should have been omitted, thus a zero anaphora ought to be applied; however, the child GG supplied the same overt subject again. This is still grammatically correct, but pragmatically redundant, rendering her Mandarin utterance increasingly verbose.

In summary, the child's naturalistic data indicated an obviously rising trend in overt subject use, whereas null subject projected an ever-decreasing route.

4.3. Analysis of Parental Input

In this section, we proceeded to examine GG's parental input, as we wish to ascertain whether the parental utterances could influence GG's subject use over time. Adult language acquisition is firmly established[5]; thus a minimum of one recording could be adequate to generate a typical pattern of parental input. Due to the stability of adult subject use[37], we administered one recording session for the data collection of GG's mother. The consented data collection was set in an international phone call with GG's maternal grandmother on November 6, 2020.

A total number of 267 finite clauses were gleaned from the phone call. **Table 2** shows GG's mother's subject choice in the same three syntactic categories as previously adopted.

Table 3 shows the preferences of Mandarin subject use in GG's mother's input. It has indicated that her mother supplied 67.1% overt subject in single clause sentence pattern; 54.3% in both overt structure, and 65% in sentences with embedded objects clause.

Table 3. GG's maternal use of Mandarin subject in three syntactic categories.

Single clause sentence

Nominal subjects	32 (23.3%)
Pronominal subjects	60 (43.8%)
Null subjects	45 (32.8%)
Total	137

Linked construction

Both Overt	44 (54.3%)
Either Null	23 (28.4%)
Both Null	14 (17.3%)
Total	81

Sentence with embedded objects clause

Nominal subjects	13 (26.5%)
Pronominal subjects	19 (38.8%)
Null subjects	17 (34.5%)
Total	49

In comparison with the bilingual child GG's data in the Section 5.2, it was found that at Stage 1 (in China), GG's subject use seemed not to be similar to mother's, whereas at Stage 2 and Stage 3, the child started to show a converging trend in terms of the subject use pattern with her mother. Please note that GG's subject pattern in Both Overt structure exhibited a much higher rate than that of her mother after this family migrated to Australia (stage 2 and stage 3).

4.4. Analysis of the Environmental Language (Lε)

In this section, we proceed with the analysis of the environmental language (Lε) to see whether the language

environment at the macro level could exert influence upon GG's subject choice. **Figure 2** shows the rate of null and overt subject in different age groups among Mandarin and English monolinguals (Wang et al.[37], as cited in Kim[38]).

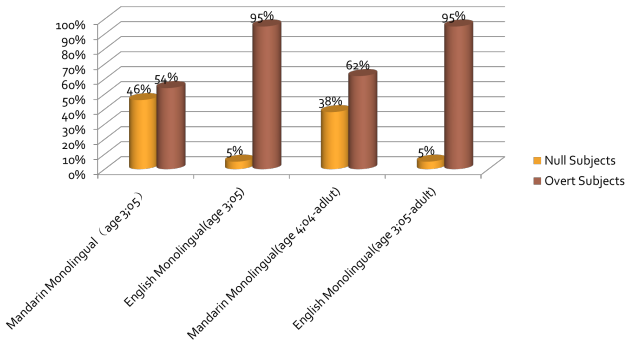

Figure 2. Mandarin and English monolinguals' subject rates in different age groups.

In comparison with Mandarin speaking monolingual peers, GG showed a different subject use pattern: the use of Mandarin subject was similar to monolingual peers (54% of overt subject) when GG was in China (stage 1, 49% of overt subject), but exceeded monolingual Chinese children (62% of overt subject) after she moved to Australia (stage 2: 70% of overt subject and stage 3: 78% of overt subject). With regard to the English subject, GG displayed a target-like pattern (95% of overt subject) throughout the entire research period compared with monolingual English speaking peers (95% of overt subject).

Intriguingly, the child's rate in Mandarin subject use was similar to monolingual Chinese peers at stage 1 in China, despite that her mother produced much higher rate of subject in Mandarin (see **Table 2**); however, after her migration to Australia, the child displayed an ever-increasing overt subject in Mandarin, converging with parental input pattern.

In summary, this section shows that GG's rate of Mandarin overt subject pattern resembled the Mandarin environmental language (Lε) at stage 1 before migration, but exhibited a rising trajectory than Mandarin Lε after moving to Australia.

4.5. Analysis of BFLA Data

So far, only one study on Mandarin-English BFLA child has been available, which is in Qi's[9, 10] study. Her study indicated that the Mandarin-English BFLA child James showed an overall pattern of 55% overt subjects and 45% null subjects. Qi's study mentioned that the rates remain stable over the entire period of study. Due to the unavailability of further data, it would only be feasible to examine the overall rate of null and overt subjects rather than other syntactic structures as investigated in Section 5.

5. Discussion

This longitudinal single case study focuses on the subject developmental pattern of an ESLA Mandarin-English bilingual child from China and Australia aged 3;04–5;05.

Our data show that the ESLA bilingual child GG displayed a similar rate of Mandarin overt subject at stage 1 in comparison with Qi's[9, 10] BFLA child James in terms of overall Mandarin overt and null subject rate. Thereafter, the ESLA child GG's subject use exhibited a steadily increasing trend. This is especially the case in the syntactic categories of single clause sentence, both overt construction and embedded object clause, where rising rate of pronounced subjects were supplied, rendering the child's utterance pragmatically infelicitous albeit syntactically operational. This finding suggests that the ESLA child GG's Mandarin subject use is qualitatively similar to, but quantitatively different from BFLA. In other words, the ESLA child's Mandarin subject use is still grammatically correct despite the increasing verboseness.

Our data also indicate that the ESLA child's English subject use is invariably constant, with around 95% of finite clauses supplied with overt subject, converging with BFLA child James. This finding suggests that GG's English subject development is both qualitatively and quantitatively similar to BFLA child James. More intriguingly, from the emergence of the ESLA child's English, subject has been present in a constant rate. This is probably due to the fact that the child GG pays attention to the formal features of the English language.

As such, our first research question can be answered as qualitatively similar to, but quantitatively different from the BFLA child James for Mandarin subject use and qualitatively and quantitatively similar to James for English subject choice.

Our data suggest that the child's mother displayed a higher rate of overt subject in Mandarin, particularly in both overt construction and embedded object clause. The over-

presence of the pronounced subject in the corresponding child GG's production could be attributed to the similar pattern of mother's input the child was exposed to, corroborating that of Navarro and Paradis [19], where it was also found that parental overuse of Cuban Spanish subject could impact the child's subject choice.

In terms of English subject, the child received English exposure since 1;02. Her father's constant supply of English subject could shape GG's target-like English subject contour from the emergence of her English. Thus, the second research question could be resolved in the affirmative.

With respect to the role of the environmental language (Lε), the most striking finding is that the ESLA child GG used Mandarin subject in a similar rate to BFLA at stage one (in China), even if her mother had a higher proportion of subject presence. After migrating to Australia, the child's subject supply in Mandarin started to rise steadily. This aroused our attention: why was the subject use in China target-like despite mother's overuse? Our data suggest that this could be the juxtaposition, competition and interaction of both parental input and environmental language (Lε). Specifically, when parental input is not consistent with Lε, the child may shape their language contour based upon Lε as this predominant extra-domestic societal language may exert normative pressure on children. This pressure, not only from peers, but also from the wider community members, could converge the child's specific language use pattern towards the typical features and norms of the speech community. In this sense, the child could operationalize her Mandarin subject in Mandarin way (pro-drop), keeping the developmental template distinguishable with English (non-pro-drop).

After migration, the Lε changed to English, where the subject is constantly used. This could operate in tandem with the subject overuse in Mandarin parental input, exerting cross linguistic interaction at the syntactic and pragmatic interface. In other words, both parental input and Lε work in conjunction with each other to raise the rate of the child's overt subject in Mandarin to a higher level.

Our results do not align with those from Brehmer et al. [39] where the 32 Polish-German bilingual children did not significantly overproduce the overt subject in narrative, rather than dialogic Polish. It was accounted for that their bilingual children exhibited sensitivity towards the cross linguistic differences and syntactic/pragmatic constraints. However, the experimental approach of this study might not capture the trend of bilingual subject choice in an extended period of time. Another reason might be that fact that the experimental method may place those Polish-German bilinguals in a highly activated monitoring situation, thus sensitivity to the syntactic differences and pragmatic constraints tend to be applied.

Our data show that the ESLA Mandarin-English bilingual child GG exhibited quantitative difference (higher rate) in L1 Mandarin overt subject use compared with BFLA from the same language pair. This may be accounted for by the combined role of maternal input and the English environmental language (Lε). In contrast, the ESLA Greek-English bilingual children reported by Faitaki and Murphy [40] displayed qualitative difference (lower rate) in L2 English overt subject, which could be justified by the language dominance in L1 Greek. If Faitaki and Murphy's [40] explanation of language dominance could be applied to the current ESLA study, then the Mandarin null subject feature should be projected to English; however, this was not borne out. Instead, our research subject GG seemed to display the increasingly anglicised L1 overt subject pattern over time.

Finally, the ESLA child's qualitatively and quantitatively similar subject realization choice in L2 English compared with the BFLA child James might be due to the prior English exposure before migration. In other words, her pre-existing limited English input at the critical age (around age 3) in China might still initiate the L2 English acquisition process. This might further explain why Hakuta's [41] and Li's [5] studies (without prior L2 English input) exhibit systematic transfer, whereas our case only shows slight bilingual interaction.

6. Conclusion

This article investigates the subject use pattern of an ESLA Mandarin-English bilingual child from China to Australia between age 3;04–5;05. Our results show that the child exhibits a qualitative and quantitatively similar developmental pathway to BFLA child in English subject use. Her Mandarin subject use conforms to BFLA or monolingual norm before migration at stage 1. However, this started to exhibit qualitatively similar but quantitatively different pattern to BFLA after migration at stage 2 and stage 3, suggesting that

parental input could shape the child's language profile in the long term. In connection with parental input is the environmental language (Lε), our results suggests an intriguing finding, that is, when the parental input is consistent with Lε, then the child's language development could be shaped by both, whereas when parental input is not consistent with Lε, the latter would function as a normative pressure onto the child, converging her specific language predisposition towards the Lε.

This research could be the first of its kind to examine the bilingual subject development at a critical age range, a changed environmental language (Lε) and non-typical parental input. It could add empirical evidence that no fundamental differences exist in terms of bilingual development. Our findings could also shed light on the early second language acquisition in migrant context, setting parents and educators' mind at rest and inspiring parents and communities to make concerted effort to maintain the heritage language in non-favourable L2 environment.

The study is a single longitudinal case study, thus the findings might not be applicable to other ESLA children. The discrepancy among studies may warrant further studies in the future, especially with large number of ESLA children beyond age 5, from different language pairs, and in the similar migrating situation. It would also be worthwhile to examine the impact of sustained L1 Mandarin input in L2 English environment, especially the maintenance of L1 in L2 environment by conscious and constant parental and community effort. Also, it would be interesting to examine whether L1 Mandarin subject use pattern could be reversed towards the less overt subject mode or continue to show increasing overt subject if L1 parental input is target-like in L2 environment.

Author Contribution

Conceptualization: Q.G. and R.Q.; Methodology: Q.G.; software: Q.G.; validation: R.Q.; formal analysis: Q.G.; investigation: Q.G. and R.Q., resources: Q.G. and R.Q.; data curation: Q.G.; writing—original draft preparation: Q.G.; writing—review and editing: R.Q. and D.Z.; visualization: Q.G.; supervision: R.Q. and D.Z.; Project Administration: R.Q. All authors have read and agreed to the published version of the manuscript.

Funding

The project received no external funding.

Institutional Review Board Statement

This study has satisfied the requirements of the Australia National Statement on Ethical Conduct in Human Research 2007 (Updated 2018), with the Western Sydney University Human Research Ethics Committee Approval Number: H14035.

Informed Consent Statement

Informed consent was obtained from all subjects in the study.

Data Availability Statement

First, the data of the study are private; these data have yet been publically accessible. Second, upon Western Sydney University Ethics Committee's request, ongoing consent should be obtained from the target child whenever accessing and using the data.

Acknowledgement

We wish to thank A/Professor Shengfu Fan for his meticulous feedback on the manuscript.

Conflict of Interest

The authors declare no conflicts of interest.

References

[1] DeHouwer, A., 1995. Bilingual language acquisition. In Fletcher, P., MacWhinney, B. (Eds.) The handbook of child language. Blackwell: Oxford, UK. pp. 219–250. DOI: https://doi.org/10.1111/b.9780631203124.1996.00009.x

[2] DeHouwer, A., 2021. Bilingual development in childhood. Cambridge University Press. DOI: https://doi.org/10.1017/9781108866002

[3] Li, W., Zhu, H., 2006. The development of code-switching in early second language acquisition. BISAL. 1, 68–81. Birkbeck. Available from: https://www.academia.edu/65216948/The_Development_of_Code_

Switching_in_Early_Second_Language_Acquisition
[4] McLaughlin, B., 1984. Second-language acquisition in childhood: Preschool children, 2nd ed. Lawrence Erlbaum Associates, Inc. Available from: https://psycnet.apa.org/record/1985-98113-000
[5] Li, W., 2011. The early acquisition of English as a second language: The case of young Chinese learners of English in Britain. In DeHouwer, A., Wilton, A. (Eds.) English in Europe today: Sociocultural and educational perspectives. John Benjamins. pp. 95–112. DOI: https://doi.org/10.1177/1367006909356647
[6] DeHouwer, A., 1990. The acquisition of two languages: A case study. Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511519789
[7] Qi, R., DiBiase, B., 2020. The influence of the environmental language (Lε) in Mandarin-English bilingual development: The case of transfer in wh-questions. International Journal of Bilingualism. 24(4), 691–714. DOI: https://doi.org/10.1177/1367006919876716
[8] Chiat, S., 1986. Personal pronouns. In Fletcher, P., Garman, M. (Eds.), Language acquisition. Cambridge University Press: London, UK. pp. 339–355. DOI: https://doi.org/10.1017/CBO9780511620683.020
[9] Qi, R., 2011. The bilingual acquisition of English and Mandarin: Chinese children in Australia. Cambria Press: New York, NY, USA.
[10] Qi, R., 2020. The bilingual acquisition of English and Mandarin: Chinese children in Australia. Commercial Press: Beijing.
[11] Berman, R.A., Weissenborn, J., 1991. Acquisition of word order: A crosslinguistic study. Final Report. German-Israel Foundation for Research and Development (GIF).
[12] United Nations, 2024. World migration report. International Organization for Migration. Available from: https://reliefweb.int/report/world/world-migration-report-2024?gad_source=1&gclid=CjwKCAjwk8e1BhALEiwAc8MHiIf1fwyRZIqhlnYqLm8FRUF094x9_eEfJAsEUJFHWmyogl7NUtPxwxoC1DQQAvD_BwE
[13] Li, C.N., Thompson, S.A., 1981. Mandarin Chinese: A functional reference grammar. University of California: Berkeley.
[14] Wang, Y., Crooks, S.M., Borst, S., 2017. Chinese language learners' anxiety toward chat partners in computer-mediated communication. Chinese as a Second Language. 52(2), 127–147. DOI: https://doi.org/10.1075/csl.52.2.02wan
[15] Kroeger, P., 2005. Analyzing Grammar: An Introduction. Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511801679
[16] Nordquist, J., Kitto, S., Peller, J., et al., 2011. Focusing on future learning environments: Exploring the role of space and place for interprofessional education. Journal of Interprofessional Care. 25(6), 391–393. DOI: https://doi.org/10.3109/13561820.2011.624809
[17] Huang, J.C.T., 1984. On the distribution and reference of empty pronouns. Linguistics Inquiry. 531–574.
[18] Juan-Garau, M., Pérez-Vidal, C., 2000. Subject realization in the syntactic development of a bilingual child. Bilingualism: Language and Cognition. 3(3), 173–191. DOI: https://doi.org/10.1017/S1366728900000328
[19] Paradis, J., Navarro, S., 2003. Subject realization and crosslinguistic interference in the bilingual acquisition of Spanish and English: What is the role of the input? Journal of Child Language. 30(2), 371–393. DOI: https://doi.org/10.1017/S0305000903005609
[20] Serratrice, L., 2002. Language acquisition: The growth of grammar. Maria Teresa Guasti. Applied Psycholinguistics. 23(3), 482–486. DOI: https://doi.org/10.1017/S0142716402233081
[21] Silva-Corvalán, C., 2014. Bilingual Language Acquisition: Spanish and English in the First Six Years. Cambridge University Press.
[22] DeHouwer, A., 2005. Bilingualism: An Interview with Annick DeHouwer. Revista Virtual de Estudos Da Linguagem, 3(5). Available from: http://www.revel.inf.br/files/entrevistas/revel_5_interview_de_houwer.pdf
[23] Genesee, F., 1989. Early bilingual development: One language or two? Journal of Child Language. 16(1), 161–179. DOI: https://doi.org/10.1017/S0305000900013490
[24] Genesee, F., 2000. Introduction. Bilingualism. 3(3), 167–172. DOI: https://doi.org/10.1017/S1366728900000316
[25] Lanza, E., 1997. Language contact in bilingual two-year-olds and code-switching: Language encounters of a different kind? International Journal of Bilingualism. 1(2), 135–162. DOI: https://doi.org/10.1177/136700699700100203
[26] Grosjean, F., 1989. Neurolinguists, beware! The bilingual is not two monolinguals in one person. Brain and Language. 36(1), 3–15. DOI: https://doi.org/10.1016/0093-934X(89)90048-5
[27] Hacohen, A., Schaeffer, J., 2007. Subject realization in early Hebrew/English bilingual acquisition: The role of crosslinguistic influence. Bilingualism: Language and Cognition. 10(3), 333–344. DOI: https://doi.org/10.1017/S1366728907003100
[28] Horesh, U., 2003. A centering analysis of subject pro-drop in Israeli Hebrew. Presented at NWAVE 32, Philadelphia, University of Pennsylvania, October 2003.
[29] Zwanziger, E.E., Shanley, S.E.M., Genesee, F., 2005. Crosslinguistic influence in bilingual acquisition: subject omission in learners of Inuktitut and English. Journal of Child Language. 32(4), 893–909. DOI: https://doi.org/10.1017/S0305000905007129
[30] Müller, N., Hulk, A., 2001. Crosslinguistic influence in bilingual language acquisition: Italian and French as recipient languages. Bilingual-

ism: Language and Cognition. 4(1), 1–21. DOI: https://doi.org/10.1017/S1366728901000116

[31] Haznedar, B., 2010. Transfer at the syntax-pragmatics interface: Pronominal subjects in bilingual Turkish. Second Language Research. 26(3), 355–378. DOI: https://doi.org/10.1177/0267658310365780

[32] Kornfilt, J., 1984. Case marking, agreement and empty categories in Turkish (binding, syntax) [Ph.D. Thesis]. Harvard University. ProQuest Dissertations & Theses A&I. (303373692).

[33] Özsoy, S., 1987. Null subject parameter and Turkish: Studies on modern Turkish. In Boeschoten, H., Verhoeven, L.T. (Eds.) Proceedings of the 3rd Conference on Turkish Linguistics. Tilburg University Press. pp. 82–90. Available from: https://linguistics.bogazici.edu.tr/sites/linguistics.boun.edu.tr_2023/files/uploads/Ozsoy.1987b.pdf

[34] Meisel, J.M., 2007. The weaker language in early child bilingualism: Acquiring a first language as a second language? Applied Psycholinguistics. 28(3), 495–514. DOI: https://doi.org/10.1017/S0142716407070270

[35] Liu, Y., Qi, R., DiBiase, B., 2021. Cross-linguistic influence of L2 on L1 in late Chinese-English bilinguals: The case of subject realization. Journal of Second Language Studies. 3(2), 292–317. DOI: https://doi.org/10.1075/jsls.00014.liu

[36] MacWhinney, B., 2000. The CHILDES project: Tools for analyzing talk, Volume 1: Transcription format and programs, 3rd ed. Lawrence Erlbaum Associates. Available from: https://psycnet.apa.org/record/2000-03630-000

[37] Wang, Q., Lillo-Martin, D., Best, C.T., Levitt, A., 1992. Null subject versus null object: Some evidence from the acquisition of Chinese and English. Language Acquisition. 2(3), 221–254. DOI: https://doi.org/10.1207/s15327817la0203_2

[38] Kim, Y.J., 2000. Subject/object drop in the acquisition of Korean: A cross-linguistic comparison. Journal of East Asian Linguistics. 9, 325–351. Available from: https://link.springer.com/article/10.1023/A:1008304903779

[39] Brehmer, B., Sopata, A., Canzi, M., 2023. Same or different? Subject realization in the majority and the heritage language of Polish-German bilingual children. Linguistics Vanguard. 9(s2), 179–189. DOI: https://doi.org/10.1515/lingvan-2022-0061

[40] Faitaki, F., Murphy, V.A., 2023. Subject realization in Greek preschool learners of English. Second Language Research. DOI: https://doi.org/10.1177/02676583231195308

[41] Hakuta, K., 1976. A case study of a Japanese child learning English as a second language. Language Learning. 26(2), 321–351. DOI: https://doi.org/10.1111/j.1467-1770.1976.tb00280.x