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Translanguaging in digital play: a Chinese–English bilingual child’s multimodal practices with touchscreen

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ABSTRACT

This study applies a New Materialism lens to explore how translanguaging practices emerge from the partnership between bilingual children and touchscreen technology at home. Drawing on the concept of thing-power, this research examines a bilingual girl’s translanguaging space within a Chinese heritage family in England, to understand how touchscreen mediates her language use. Using family interviews, parent-recorded videos, and mediagrams, the findings of this study indicate that the translanguaging space is not a pre-existing context but is flexible and co-created by a three-way partnership. It is initiated by the relationship between the children’s agency and her interaction with the touchscreen. Parental inputs then enter this dynamic to strengthen these practices. The study shows that the monolingual design of an app or a touchscreen does not necessarily restrict a child’s language output; instead, its limitations can prompt creative translanguaging practices. This research contributes to the understanding of digital literacy in bilingual families by identifying the affordance of monolingual touchscreen technology in bilingual development. It suggests that parents and practitioners should see monolingual apps as opportunities when heritage language resources are limited, embracing them as partners that help create unique spaces where children’s language skills can develop.

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Introduction

After the COVID-19 pandemic, scholars have observed a significant increase in bilingual children’s use of touchscreens to develop digital literacy and languages (Soyoo et al. 2024; Sun et al. 2022). Studies suggest that the multimodality features of touchscreen devices and apps facilitate children’s digital literacy and language development through various modes (Al Salmi and Gelir 2024; Dowdall 2019). It is vital to investigate how touchscreens facilitate bilingual children’s language practices, especially for families with specific heritage language (HL) backgrounds (Al Salmi and Gelir 2024).

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In Britain, the Chinese ethnic group constitutes around 7% of the total population (Office for National Statistics 2021). While acknowledging the importance of the multiple varieties of Chinese language, in this article, Mandarin Chinese is the HL spoken in the participating family. Since Chinese ethnicity is a minority in English-dominant society and the home environment is the primary space for children to maintain their HL, it is vital to understand their language practices at home.

Bilingual children's language practices are not restricted to oral or written language expressions, but incorporate multiple modes, such as image, sound and gestures (Pahl 2023). Since language use in bilingual families is always dynamic, children may creatively use languages or switch between them (Karpava, Ringblom, and Zabrodskaia 2021). Therefore, traditional concepts like 'code-switching' are insufficient to fully understand the flexible nature of these practices (Pahl 2023). Instead, the term 'translanguaging' acknowledges the creative and fluid nature of bilingual children's language use and blurs the boundaries of named languages (Wei 2018). It is a useful lens to understand bilingual children's natural language use.

However, while several studies have investigated bilingual children's translanguaging practices within their home environments (e.g. Karpava, Ringblom, and Zabrodskaia 2021; Lee, Pang, and Park 2024), limited research has specifically explored their family touchscreen activities through a translanguaging lens, nor how various modes embedded in touchscreen devices support their translanguaging practices. As touchscreen devices actively reshape how bilingual resources are accessed and used at home, it is vital to study this intersection between children's touchscreen use and translanguaging practices. This study bridges this gap by investigating a four-year-old Chinese-English bilingual girl (Tutu)'s translanguaging practices during her family touchscreen activities.

Drawing on New Materialism (Pahl 2023) and the concept of thing-power (Bennett 2010), this article re-examines translanguaging not just as a human practice, but as an act that is co-created through the dynamic partnership between humans and their interaction with the non-human touchscreen technology. While translanguaging is a vital concept for understanding bilingual children's flexible language use (Wei 2018), this study shifts the focus from what happens on the screen to what happens with the screen. Specifically, the study investigates how Tutu interacts with her touchscreen, and shapes a unique translanguaging space. The research questions are as follows:

1. How does a four-year-old bilingual girl of Chinese heritage and her interaction with touchscreen apps shape a translanguaging space, and what specific practices are involved?
2. Within this co-created space, what specific roles do the thing-power of the touchscreen's multimodal elements and parental input play in initiating and shaping translanguaging?

To summarise, this study contributes to the field of heritage language studies and provides insights on the intersectionality between multilingualism and digital literacy to the field of early childhood education.

New materialism, thing-power and children's agency

Different from traditional approaches that view language as human-centric, New Materialism highlights the role of the material world in language and communication (Canagarajah 2021; Pahl 2023). From the New Materialism perspective, meaning is created through a shared effort of humans, social networks, and material ecologies, rather than being just an expression of individual thoughts (Canagarajah 2021). Similarly, Pahl (2023) brought up the concept of 'artifactual literacies (200)', which indicates that domestic objects, such as toys and prayer beads, actively contribute to a child's meaning-making process, functioning as influential participants instead of passive things (Pahl 2023). This theoretical perspective aligns with Jane Bennett's theory on thing-power (Bennett 2010), referring to the ability of non-living objects to act and produce noticeable and crucial changes to the surrounding environment (Bennett 2010). Other researchers have explored the notion of thing-power both within the realm of tangible objects (see e.g. Skreland and Steen-Johnsen's 2022) analysis of the thing-power of a laminator in early childhood contexts, and the more intangible, such as Lupton and Southerton's (2021) analysis of the thing-power of Facebook assemblages. Bennett's work challenges us to cast away the simplistic duality of subject/object or human/non-human, and instead allows us to focus on the interplay between the two, imbuing the digital tools children use in their multilingual development and meaning making with affordances and power that interacts with other interlocutors, i.e. family members.

Adapting the theoretical lens of New Materialism and the thing-power, in this paper, objects in bilingual children's homes, such as touchscreen devices, function as actants to influence a child's language expressions and facilitate related meaning-making processes. However, the idea of thing-power needs to be distinguished from the concept of children's agency.

In general, agency is the capacity to act with intention; intentionality is associated with both a person's internal beliefs and the external sociocultural influences (Varpanen 2019). When doing research with children, it is vital to acknowledge the key role of children's agency. Children enact their agency based on their beliefs or motivations and also their interactions with the surrounding environment (Abebe 2019). When engaging with touchscreens, children's agency can be enacted when they get immediate feedback from turn-taking touchscreen gaming designs (Peebles et al. 2018). For HL-speaking children, their agency is characterised as multivocal, multilingual, and multimodal (Xu and Evaldsson 2025).

Embedding children's agency within the New Materialism framework, objects are empowered because children interact with them and assign power to them. In this study, rather than treating the touchscreen device as an agentic partner, we acknowledge that Tutu transforms her interaction with the monolingual touchscreen into a co-created translanguaging space. In other words, Tutu and her interaction with the touchscreen are viewed as a unit, encouraging flexible meaning-making and language practices.

Introducing translanguaging practices

The term translanguaging was first introduced by Cen Williams as an educational practice in Welsh bilingual classrooms (Stroupe, Moon, and Michaels 2019). From the linguistic

perspective, translanguaging can be defined as ‘the deployment of a speaker’s full linguistic repertoire without regard for watchful adherence to the socially and politically defined boundaries of named (and usually national and state) languages (Otheguy, García, and Reid 2015, 283)’. Viewing a bilingual child’s linguistic repertoire as whole and unique, translanguaging practices blur the boundaries of named language systems to fulfil the communicative and meaning-making needs more creatively and effectively (Wei 2018).

The concept of translanguaging is differentiated from code-switching; while translanguaging emphasises on blurring the boundaries among named languages, code-switching focuses on each named language with its own language structure and studies how these named languages switch among each other (Sczypurek, Aalberse, and Verhagen 2022). Through the code-switching lens, the creativity of flexible language mixing and practice seems not to be fully explored (Wei 2018).

Moreover, when studying translanguaging in the family context, since translanguaging practices deploy bilingual children’s full linguistic repertoire, children’s agency is demonstrated through creative and unique translanguaging practices (Choi 2026; Karpava, Ringblom, and Zabrodskaia 2021). For example, in a study exploring a second-grade Korean-English boy’s diary in the United States (Choi 2026), he demonstrated his agency by frequently applying translanguaging skills during his diary writing to express his thoughts, emotions and bicultural identity.

The types of translanguaging practices vary; a bilingual can either fully duplicate information across two languages for monolingual audiences, selectively translate only certain parts, or blend words and phrases of different languages to enrich the message at the sentence or broader meaning level (Kim, Dorner, and Song 2021). For example, in a study with 30 Russian-heritage families in Sweden, Greece and Estonia, the families frequently use translanguaging strategies, such as mixing and switching among multiple languages in daily communication, in order to achieve effective comprehension and demonstrate their cultural identity (Karpava, Ringblom, and Zabrodskaia 2021). In the study reported in this paper, translanguaging practices include various strategies, such as the flexible switch between Chinese and English during conversations or within a sentence between family members, and between the bilingual girl and her touchscreen. Importantly, the study also delves into multimodality, as further outlined below.

Multimodality and the translanguaging space

Translanguaging space is a space for translanguaging activities to happen and also a space that is created through translanguaging practices; this space is continuously changing, creating new identities, values and practices (Wei 2018). Instead of just switching between languages, the translanguaging space brings together a person’s experiences, beliefs, and abilities to communicate in a meaningful and creative way (Wei 2018). As language is beyond written or spoken languages and multimodal in nature (Pahl 2023), translanguaging practices should be studied by considering both multimodality and different contexts. In other words, the meaning-making processes of translanguaging practices are supported by multimodal texts (Kress 2010), such as images and symbols. The multimodality of languages adds another layer of creativity and flexibility to the translanguaging space (Kim, Dorner, and Song 2021).

For children with a heritage language background, a translanguaging space is where they can creatively and freely mix and adjust their language use, especially their heritage languages, based on their language ideologies, strategies and evaluations (Lee, Pang, and Park 2024). In our study, adapting the theoretical lens of New Materialism, the bilingual girl Tutu and her interaction with the touchscreen are viewed as a unit. This unit enriches Tutu's multimodal translanguaging space in creative ways.

Multimodal touchscreen resources and translanguaging

Apart from the multimodal nature of language mentioned above, it is vital to acknowledge the multimodality of digital resources. Different modes (such as pictures, music, spoken words, sounds and gestures) can be combined to convey messages during the meaning-making processes through touchscreen engagement (Dowdall 2019). In a study investigating the co-reading of digital books by Maltese-English families (children aged 4–7), Mifsud, Georgieva, and Kucirkova (2021) found that e-books, with their interactive features like sound, animations, and responsive touchscreen settings, enhanced children's bilingual digital literacy experience, and practices as a supplement to traditional print books. These engaging designs encouraged repeated reading in both languages (involving translanguaging practices), as children enjoyed the multimodal and interactive contents (Mifsud, Georgieva, and Kucirkova 2021).

From the perspective of thing-power (Bennett 2010), multimodal digital resources also foster digital role play, actively enhancing traditional imaginative play and storytelling through interactive screen content (Fleer 2017). For instance, preschool children, using open-ended touchscreen apps, can take on the role of teachers or photographers, and engage in communication and storytelling with multimedia tools (McGlynn-Stewart et al. 2018). In addition, scholars argue that multimodal and responsive touchscreen designs should empower children's agency during their digital play (Colvert, Pothong, and Livingstone 2024; Kucirkova 2019). More open-ended and free play during app design should be encouraged, giving children more freedom to engage with multiple modes and co-create personalised contents with these apps independently (Kucirkova 2019).

Family language policy, parental mediation, and translanguaging space

In this article, the translanguaging space being explored is situated within Tutu's home environment, while viewing Tutu and her interaction with her touchscreen as a unit, her family language policy (FLP) (Curdts-Christiansen and Morgia 2018) and parental mediation (PM) are also active factors that influence the actual translanguaging space.

In heritage language families, FLP shapes the family language environment, as it greatly influences how languages are organised and practised at home (Karpava, Ringblom, and Zabrodskaia 2021; Lee, Pang, and Park 2024). In recent FLP research, scholars believe that more attention should be given to valuing children's voices and understanding their roles in FLP (Little 2023; Roberts 2023). Children and parents may hold different opinions towards their language choices at home, which sometimes leads to the presence of conflicting FLP strategies and actual language practices within a family (Shen and Jiang 2023).

For children with a heritage language background, the beginning of formal education in the institutional language (IL) can have a significant influence on their bilingual development. Formal school education brings pressure to children's HL maintenance; children may spend more time meeting educational goals in the IL and less time practising their HL (Shen and Jiang 2023), possibly resulting in the language shift from home-based literacy to school-based literacy (Little 2023).

While FLP influences the multimodal translanguaging space in Tutu's family language-wise, the PM strategies on her touchscreen engagement directly influence the core unit of Tutu and her interaction with the touchscreen in the space. PM strategies on their children's touchscreen use are influenced by several factors, such as parents' beliefs on touchscreen technology, their socioeconomic and cultural backgrounds and digital skills (Soyoo et al. 2024). PM strategies also vary, such as restrictive mediation, active mediation, co-use, and distant mediation (Zaman et al. 2016); these strategies may be applied together during their children's touchscreen use (Soyoo 2024).

To summarise, while previous studies have explored bilingual children's touchscreen use and their translanguaging practices at home, limited research has been done to investigate bilingual children's translanguaging practices during their touchscreen engagement, especially through the lens of New Materialism and the thing-power. This article is written to fulfil this research gap.

Methods

Participants

The girl Tutu, her touchscreen and her family involved, are part of a larger qualitative multi-case study that includes six Chinese heritage families with 3–7-year-old children in England. Tutu's family was recruited through the snowball method (Noy 2008), word of mouth. Tutu was a three-year-old girl who was born and raised in southern England; her parents were first-generation immigrants to the UK. Both of her parents were Chinese, and she lived with her parents and her little brother, who was one year old. Tutu started going to nursery by the time of the second interview and she later turned into four years old before having the third interview. Both Chinese and English were spoken in Tutu's daily life. At this transitional age, Tutu is actively developing her HL while simultaneously navigating mainstream English inputs through school and digital media. Furthermore, her specific family daily routines with touchscreen provide a rich context to explore how apps and parental communication mediate early translanguaging practices. Therefore, the selection of this focal child, a 4-year-old of Chinese heritage, is central to answering the research questions.

Through the New Materialism lens, we focus both on Tutu individually, and on the thing-power attached to Tutu's touchscreen, an individual iPad prepared by her parents. Although all her touchscreen resources were downloaded in English, through a thing-power lens, the unit of Tutu and her interaction with the touchscreen allows us to highlight her HL (Chinese) development as part of this relationship.

Researcher's reflexivity

Both Kexin and Sabine functioned as insider/outside within this context. Kexin, born and raised in China studying Chinese heritage families in the UK, felt that her bilingual background and personal experiences with technology and language learning influenced her research design and interpretation, whereas Sabine's dual role as mother to a bilingual child and researcher of heritage language families was comparable to the parents in the study, despite different linguistic backgrounds. Our positionality meant we aimed to balance insider empathy with outsider objectivity, constantly reflecting on our assumptions and biases to ensure the validity and credibility of the findings (Yip 2024).

Data collection

The data mentioned in this article were collected online in 2022 during the pandemic, over a period of 4 months. Working with families holistically can facilitate more in-depth data collection, since family members may encourage each other to recall relevant memories, share insights, and express emotions (Little and Cheng 2024). Three semi-structured family interviews were conducted with the family. The interval between interviews was about one month based on the family's preference; and all interviews were conducted online via Google Meet due to COVID-19 (Foley 2021). The interviews were conducted in both Chinese and English (mainly in Chinese), as the participants found it most comfortable to maintain the natural conversation flow. The interview data originally in Chinese were translated into English for accessibility.

Following the first and the second family interviews, Tutu's parents recorded and sent a series of parent-recorded videos (Wilkinson et al. 2020) of Tutu's home touchscreen activities separately to the first author. The total length of these videos was about six and a half minutes. While these parent-recorded videos contain a wide variety of multimodal details, such as facial expressions and gestures, it is necessary to study these videos with other data, as these videos may reflect a parental intervention and selection and tell a partial story (Wilkinson et al. 2020). All the videos were reviewed and discussed with their family during the following interview, and the data referred to in this paper draws on both the video vignettes themselves, and the accompanying interview data.

Data analysis

The main data analysed in this article are the parent-recorded video clips capturing the complicated and moment-by-moment interplay between Tutu's translanguaging practices and her touchscreen engagements. Multimodal analysis (Tao, Zhao, and Dong 2024) was used to better demonstrate the multiple modes that Tutu engaged during her touchscreen use and translanguaging practices. Following an initial multimodal transcript that served to reflect the authenticity of family language practices and Tutu's home touchscreen activities, videos were viewed repeatedly, finally resulting in a detailed multimodal transcript of those clips that clearly demonstrated her translanguaging practices during touchscreen use. In the discussion section, selected multimodal video data are

analysed through the combined focus of multimodality (Kress 2010) and bilingualism (mostly translanguaging practices), and supported by relevant family interview data. All data that were collected in Chinese were translated into English by the first author and member-checked by the family.

Ethics

This study was conducted following the ethical approval from the university; specific attention was paid to ethical issues concerning research with young children. Parents' consent was gained before the fieldwork, and children's assent (Dockett and Perry 2011) was gained orally each time before and during the interviews with them. Children's assent and parental consent were regarded as a continuous and changing process, acknowledging their rights to withdraw from the study at any time. Meanwhile, the integrity and trustworthiness of the data were achieved through data triangulation (Little and Little 2022) among family interviews, parent-recorded videos and mediagrams. The data collected from the three methods were interrelated and were analysed in a holistic way. All names reported in this paper are pseudonyms.

Findings

Tutu had several touchscreen activities at home, such as taking pictures and checking photos, making video calls with remote families; her most frequent touchscreen activity was playing games on her iPad (e.g. *Baby Panda World – BabyBus*). As mentioned above, the following multimodal excerpts are extracted from Tutu's parent-recorded videos. In each excerpt, transcripts of multiple modes and language practices that are demonstrated in Tutu's touchscreen activities were listed and different modes are identified with relevant screenshots. These excerpts will be analysed and discussed with the interview data.

Excerpt 1

This excerpt is from one of the parent-recorded videos that Tutu's mother sent to the first author between the first and the second interview. In this excerpt, Tutu is playing a game from the app *Baby Panda World-Baby Bus* on her iPad. This app was downloaded in English and involved multiple games with different themes (see Figure 1). This excerpt is chosen because it demonstrates how Tutu engages with touchscreen while playing one of her most frequently used apps, how her mother mediates her touchscreen use with language and gestures, and it shows how different translanguaging practices are facilitated through parent-child interactions and the thing-power (i.e. the animation and other modes embedded in this game).

In this excerpt, the conversation between Tutu and her mother is mainly in Chinese and her mother said 'eggbeater' in English after replying to Tutu in Chinese (see Figure 1, 0:40–0:50). This example indicates the translanguaging practice of blending two languages into one sentence, which is a similar translanguaging strategy mentioned in Kim et al.'s study (2021). From 0:38 to 0:40, Tutu's mother showed active mediation strategies (touching Tutu's shoulder and giving verbal instruction) to her gesture of

Time	Transcripts	Modes	Screenshots
0:35-0:38	(Tutu holds the iPad closely to her and gazes at the animation of an eggbeater on the touchscreen.)	Animation Music	
0:38-0:40	M (Tutu's mother touches Tutu's shoulder): 你头拿稍微远一点，不要离这么近。眼睛离远一点 [Move your head back slightly, not so close. Keep your eyes at a more comfortable distance.]。	Animation Music Body gesture Spoken Chinese	
0:40-0:45	T (Tutu moves the iPad further on the desk and uses her right index finger to make circles in the air when gazing at the eggbeater on the screen. Then she turns her head to look at her mother and asks) 可以是这样吗 [Is this how it should be]? M: 可以 [Yes]。Eggbeater !	Animation Music Hand gesture Body gesture Spoken Chinese Spoken English	
0:45-0:50	T (Tutu turns her head back to gaze at the eggbeater and presses the screen with her right index finger, to move the eggbeater and mix the batter on the screen. Then she turns her head to look at her mother again and says) See, eggbeater! M: 对 [Correct]。Eggbeater!	Animation Music Tapping and moving Body gesture Spoken English Spoken Chinese	
0:50-0:52	(Tutu turns her head to gaze at the screen. The batter is ready, and the eggbeater disappears from the screen with music.)	Animation Music Body gesture	
0:52-0:55	B (With sound and music, the screen layout changes to another interface with four muffin cups on the left and the mixed batter on the right.) Now, pour them into the molds!	Animation music English sound	
0:55-0:58	T (Tutu turns her head to look at her mother and then looks back to the screen. Then she says): Pour them into mold! M: Uh-huh.	Animation music Spoken English Body gesture	
0:58-1:09	(Tutu turns her head to gaze at the screen, uses her right index finger to press the bowl and pours the batter into each mold. Background sound and animation indicate that she pours the batter into the molds. Tutu gazes at the scree): 好了 [All done] !	Animation music Tapping and moving Body gesture	
1:09-1:15	B (The screen layout changes to an oven with music, and the four molds with batter is on the bottom right of the screen.) Oh yeah! Now you'll be putting in the oven!	Animation music English sound	
1:16-1:18	T (Tutu gazes at the screen, uses her right index finger to move the plate into the oven.) You can...in oven.	Animation music Spoken English Body gesture	

Figure 1. Tutu playing a game from the *Baby Panda World-Baby Bus* app.

using the touchscreen (Zaman et al. 2016). Also, throughout the three excerpts, the interaction between Tutu and her mother demonstrates the co-use element of parental mediation strategies (Soyoo 2024).

Meanwhile, the English-monolingual app facilitates their translanguaging practices as the design of touchscreen apps always combines multiple modes and is interactive in nature (Dowdall 2019). These modes use their own force to prompt and guide Tutu's engagement. For instance, as seen in Figure 1 from 0:52 to 0:58, Tutu listened to the English background instructions of 'making muffins' and imitated how the background spoke in complete English. From 0:58 to 1:09 (see Figure 1), as responding to the previous instruction (changing animation and background sound), Tutu used her fingers to tap and move animation on the screen; the game animation in turn responded with new animation. And this interaction leads to her Chinese utterance, '好了 [all done]'. In this example, these multimodal elements are agential, initiating Tutu's actions, contributing to the whole meaning-making process, and interacting with Tutu's translanguaging practices (Mifsud, Georgieva, and Kucirkova 2021).

While acknowledging the affordance of the monolingual touchscreen to translanguaging practices, Tutu practised both her language and digital literacy skills (Kucirkova 2019) within this multimodal translanguaging space. For example, she operates the touchscreen with her fingers independently (i.e. tapping and moving) while giving translanguaging oral feedback to the responsive touchscreen. This dynamic between the child and her touchscreen creates a space where parents can then step in to strengthen and expand their translanguaging experience.

Excerpt 2

This excerpt is from one of the parent-recorded videos that Tutu's mother sent to the first author between the first and the second interview. In this excerpt, Tutu is playing another game from the app *Baby Panda World-Baby Bus* on her iPad (see Figure 2). This excerpt is chosen because it involves both parent-child interactions and Tutu's imaginary conversation with the virtual character Qiqi, supported by the multimodal and interactive design of the app. Tutu's agency towards language use and touchscreen engagement is also demonstrated; a diverse and creative translanguaging space can be found in this excerpt.

In this excerpt, the conversation between Tutu and her mother demonstrates different language strategies that are similar to Kim et al.'s study (2021). For instance, while they sometimes discuss content of the app in complete Chinese (see 0:17–0:23 in Figure 2); they also have a translanguaging habit of using English vocabularies in a Chinese grammar sentence. For example, both Tutu and her mother use the English word 'noodle' when all the other utterances in that conversation were in Chinese (see Figure 2, 0:23–0:30).

As her mother mentioned in the first interview, *She (Tutu) speaks mostly Chinese when communicating with us, but she knows many English words*. This may explain the reason behind their translanguaging habit when interacting with the app.

Meanwhile, when playing this touchscreen game, an imaginary translanguaging conversation takes place between Tutu and the virtual character Qiqi. Although the language input from the screen is limited in this excerpt, Tutu responds to the changing animation

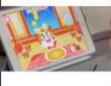
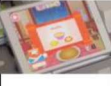
Time	Transcripts	Modes	Screenshots
0:01-0:08	(Tutu is playing a game on her iPad. She is gazing at the screen and using her right index finger to press and drag the animations of a pair of chopsticks and a bowl of food to feed the virtual panda character on the screen several times.) B (Background sound) (With music and animation of the virtual panda opening its mouth and eating): Ah, mm-hmm, Ah, mm-hmm...	Animation Music Tapping and moving	
0:09-0:13	T (Tutu keeps feeding the panda on the screen by gazing at the screen, pressing and dragging the animations of a pair of chopsticks and a bowl of food with her right-index finger. While doing this, she says): 你要吃, 可以 [You want to eat, ok] !	Animation Music Tapping and moving Spoken Chinese	
0:13-0:17	B: (With music, animation of several stars shows on the screen and the virtual panda claps its hands and shows a happy face.): Oh, that's what I want! T (Tutu gazes at the screen and then turns her head to look at her mother and says): 真好吃 [Very tasty] !	Animation Music Spoken Chinese English sound Body gesture	
0:17-0:23	M: 这是谁啊 [Who is this]? 这是奇奇吗 [Is this Qiqi]? T (Tutu looks at her mother and says): 奇奇要吃饭和肉肉 [Qiqi wants to eat rice and meat]。 B (with sound and animation): Noodle is a China... (The background sound was too low and vague while Tutu and her mother speak. Tutu turns her head back to gazes at the screen.)	Animation Music Spoken Chinese English sound Body gesture	
0:23-0:30	M: Noodle啊, noodle和肉肉啊 [Ah, noodles, noodles and meat, ah!]。 T (Tutu turns her head to look at her mother and says): Noodle和肉肉 [Noodles and meat]。 M: 好 [Great]。	Animation Music Spoken Chinese Spoken English English sound Body gesture	
0:30-0:35	T (Tutu looks at the screen and says): Noodle和肉肉喜欢, 奇奇都可以 [Qiqi likes noodles and meat, she is happy with either]。Yummy!	Animation Music Spoken Chinese Spoken English English sound	

Figure 2. Tutu playing another game from the *Baby Panda World-Baby Bus* app.

of Qiqi ‘eating noodles’ in complete Chinese sentences: ‘你要吃，可以 [You want to eat, ok]!’ ‘真好吃 [Very tasty]!’ (see Figure 2, 0:09–0:17). Children’s agency can be enacted when they get in-time and turn-taking responses from the multimodal touchscreen designs (Peebles et al. 2018). This example highlights Tutu’s agency of flexibly and creatively interacting with the multimodal feedback from the screen. With the turning-taking response from the screen, she employs both her language repertoire and her digital skills to complete the action of ‘feeding food’.

In addition, as shown in both Figures 1 and 2, Tutu frequently turns her head between gazing at the screen or looking at her mother. This body gesture indicates that Tutu’s attention shifts between communicating with her mother and engaging with the screen content. Translanguaging practices take place during both her interaction with her mother and the touchscreen.

Excerpt 3

This excerpt is from one of the parent-recorded videos that Tutu’s mother sent to the first author between the second and the third interview. In this excerpt, Tutu is playing a game in the app *Paw Patrol Rescue World* on her iPad (see Figure 3). This app is also downloaded in English, and it is one of Tutu’s favourite apps during that time. This excerpt is chosen because it involves multiple translanguaging practices and demonstrates a rich translanguaging space. It also shows how Tutu incorporates the multiple modes of this game design, especially how the background English input actively boosts Tutu’s oral English practices when playing the game.

Like the examples and Tutu’s translanguaging habit illustrated from excerpt 2 above, in this excerpt, Tutu uses the English word ‘cat’ in several sentences when she spoke the rest of these sentences in Chinese and the whole sentences in Chinese grammar (see Figure 3). This language habit is closely related to Tutu’s FLP. At Tutu’s home, their FLP tends to be flexible, as Tutu’s mother reflected in the third interview on their language use, *(If I) just feel that she may understand this word in English, I would speak English, just very casually*. For the words that Tutu already knew and understood in English, the parents would stick to the English vocabulary instead of translating them into Chinese when talking to Tutu.

Acknowledging how FLP is greatly influenced by parents’ language ideologies and beliefs (Lee, Pang, and Park 2024), it is worth highlighting that language management rules in Tutu’s family were not strict. Like the findings in Karpava et al.’s study (2021), while mainly communicating in Chinese, Tutu’s family usually used both languages interchangeably and flexibly to make their communication more effective.

From a New Materialism perspective, their FLP supports Tutu’s translanguaging practices, even when she is interacting with an English-monolingual touchscreen. She transforms the interaction with a monolingual app to a translanguaging space where she creatively and flexibly employs her translanguaging skills and bilingual repertoire. With parental input, her creative use of both Chinese and English is a direct response to the mismatch between her own fluid linguistic repertoire (Wei 2018) and the technology’s current inability to cope with translanguaging.

Apart from the parent–child interaction, similar to the example discussed in excerpt 2, translanguaging practices take place when Tutu interacts with the touchscreen here as

Time	Transcripts	Modes	Screenshots
0:26-0:29	B (Background sound) (With the sound and animation, a virtual character of a dog sheriff shows on the screen, and it says): Find the little cat shown on the portrait.	Animation Music English sound	
0:29-0:35	B (Change of screen layout and music, and the virtual dog sheriff with three stars animations on the right side of the screen says): Three stars, you are as awesome as Sheriff Labrador!	Animation Music English sound Spoken English	
0:35-0:41	T (Tutu continuously gazing at the screen and says): Wow.		
0:35-0:41	B (Change of screen layout and music, and the virtual cat sheriff with three stars animations on the right side of the screen says): Two stars, you are as awesome as Officer Dobermann!	Animation Music English sound Spoken English	
0:41-0:46	T (Tutu gazes at the screen and says): Oh.		
0:41-0:46	B (Change of screen layout and music, and the virtual fox sheriff with three stars animations on the right side of the screen says): One star, you are as awesome as Officer Papillon!	Animation Music English sound Spoken English	
0:46-0:55	T (Tutu gazes at the screen carefully and whispers): You are...as...		
0:46-0:55	B (Change of screen layout, and with music, the animation of a playground with a carousel in the middle shown on the screen): Can you find the little cat shown on the portrait?	Animation Music English sound	
0:55-0:58	T (Tutu gazes at the screen and presses the red button on the middle of the screen.): En?	Animation Music Tapping English sound	
0:58-1:02	B (Change of screen layout after Tutu's action, the animation of a playground with a bumper car in the middle shown on the screen.): Bumper car!	Animation Music Spoken Chinese	
0:58-1:02	M: 这是什么啊 [What is this]? Bumper car?		
1:02-1:04	(Change of background sound and animation effects, with a hint of pressing the yellow button shows on the screen.)	Animation Music	
1:04-1:07	(Tutu continuously gazes at the screen and presses the yellow button with her right index finger.)	Animation Music Tapping English sound	
1:04-1:07	B(Change of screen layout after Tutu's action, the animation of a pirate ship in the middle.): Pirate ship!		

Figure 3. Tutu playing the *Paw Patrol Rescue World* app.

Time	Transcripts (Continued)	Modes	Screenshots
1:07-1:10	T (Tutu gazes at the screen and says): 这没有, 这也没有cat的 [There is no (cat), also no cat here]. M: 哦这是海盗船啊 [Oh, this is a pirate ship]. 哇好厉害 [Wow, so impressive].	Animation Music Spoken Chinese Spoken English	
1:10-1:12	B (Tutu gazes at the screen and presses the blue button on the screen and the animation changed into a ferris wheel in the middle. The cat animation appears on the left of the ferris wheel.): Ferris wheel! M: 哇, 这是 [Wow, what is this]?	Animation Music Tapping English sound Spoken Chinese	
1:12-1:15	T (Tutu gazes at the screen, and points at the cat on the screen, and she taps on the cat animation with her right index finger.): 这又有cat [There is (the) cat again]! M: Hmm. B (After Tutu's action, with music, the animation of a red circle around the cat animation appears.): You got victory!	Animation Music Tapping English sound Spoken Chinese Spoken English	
1:15-1:21	T (Tutu gets excited and waves her hands. She looks at her mother and says): 我找到cat在这里 [I found the cat, it's here] !	Animation Music Body gestures Spoken Chinese Spoken English	
1:21-1:23	B (Change of animation and sound effects, a medal with three stars and the dog sheriff shows on the screen.): Three stars, you are as awesome as Sheriff Labrador! M: 哦, 是找一找的游戏啊 [Oh, it's a seek-and-find game!]. 你好厉害啊你 [You're so good at this!]. (Tutu turns her head back to gaze at the screen.) T (Tutu continues gazing at the screen and says): 我有找到cat [I did found the cat] ! M: 真棒 [Brilliant] !	Animation Music English sound Spoken Chinese Spoken English Body gesture	

Figure 3. *Continued*

well. From 0:26 to 0:46 (see [Figure 3](#)), Tutu listens carefully to the English instructions while looking into the changing animations on the screen, she gives some brief spoken English responses while listening and tries to imitate one sentence in English. Then, from 1:04 to 1:23 (see [Figure 3](#)), when Tutu focused on the task of finding ‘a hidden cat’, she speaks mainly Chinese sentences while gazing at and operating the touchscreen, although the background sound of this app is still in English. The examples demonstrate

how Tutu employs her agency (Peebles et al. 2018) to creatively interact with the monolingual touchscreen. She adjusts her language use based on her language strategies and evaluations (Lee, Pang, and Park 2024), creating the Chinese-English translanguaging space. In addition, as discussed in excerpt 1, how monolingual touchscreen mediates Tutu's translanguaging practices should not be neglected. From 0:41 to 0:46 (see Figure 3), while gazing at and listening to the English input from the screen, Tutu practises oral English by imitating the background sounds instead of using her dominant oral language Chinese.

Discussion

Based on the above data analysis, we will address the research questions through the theoretical lens of New Materialism (Pahl 2023) and the thing-power (Bennett 2010).

RQ1: How do a four-year-old bilingual girl of Chinese heritage and her interaction with touchscreen apps shape a translanguaging space, and what specific practices are involved?

The translanguaging space is co-shaped by Tutu's agency, the affordance of this multimodal touchscreen, and parental input. In terms of the specific practices, as mentioned in the findings, various and flexible translanguaging strategies are shown during the parent-child communication and Tutu's interaction with the touchscreen. Tutu's translanguaging practices meet her communicational need (Karpava, Ringblom, and Zabrodska 2021), and demonstrate her agency to creatively engage with her linguistic repertoire in this translanguaging space (Choi 2026; Wei 2018).

Similar to the findings of another study investigating bilingual children's language practices when engaging with the responsive touchscreen settings (Mifsud, Georgieva, and Kucirkova 2021), imaginary conversation between Tutu and the virtual character Qiqi is facilitated by the responsive touchscreen and the multimodal (mostly sound and animation) design of the game (Dowdall 2019). Furthermore, Tutu's engagement of the English-monolingual touchscreen and is not a single case for Chinese heritage families in England; this adds another layer to the difficulty of maintaining Chinese as a HL in the English-dominated society. This translanguaging space is vital for children to maintain their HL with limited resources.

RQ2: Within this co-created space, what specific roles do the thing-power of the touchscreen's multimodal elements and parental input play in initiating and shaping translanguaging?

This multimodal touchscreen demonstrates its thing-power (Skreland and Steen-Johnsen 2022) and mediates Tutu's translanguaging practices by providing in-time feedback and attention-attracting screen layouts, quickly changing prompting sounds and animations. Scholars believe that these features of the touchscreen design encourage children's agency during their digital play (Colvert, Pothong, and Livingstone 2024; Kucirkova 2019). In Tutu's case, the multimodal design of this device supports her expression of agency and practise of her translanguaging strategies. Considering the role of parental input, both parental influence in forming and practising their FLP (Lee, Pang, and Park 2024) and PM strategies (Zaman et al. 2016) during their touchscreen activities are vital. Looking through all three excerpts, the PM strategies (active and co-use) are

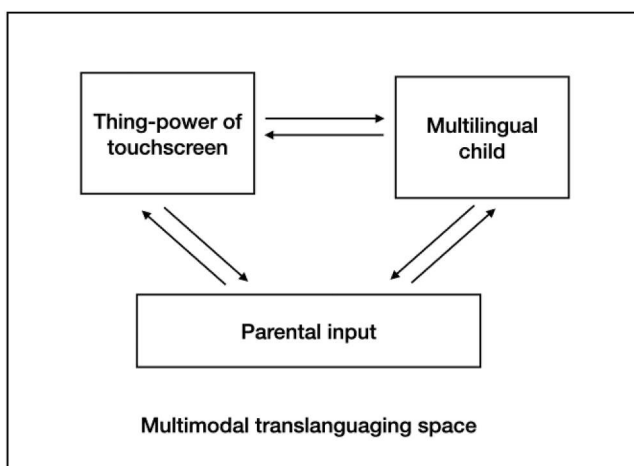


Figure 4. The constitution of a multimodal translanguaging space.

crucial to support how Tutu shapes her translanguaging practices when engaging with English-monolingual apps (Soyoof et al. 2024). Moreover, it is crucial to emphasise how children's agency influences both their FLP and her interaction with the touchscreen (Little 2023). Tutu's agency is influenced by her internal beliefs and previous experiences (related to her FLP), and the context in which she applies her agency (i.e. her translanguaging interaction with the multimodal touchscreen) in this translanguaging space (Abebe 2019).

From the New Materialism perspective, Tutu's translanguaging practices emerge from the changing dynamics within the human-technology unit (Skreland and Steen-Johnsen 2022). Combining the above discussion, we argue that Tutu's translanguaging space is a dynamic environment created by a three-way partnership (see Figure 4). It begins with the foundational relationship between two key elements: the creative agency of the multilingual child and the affordance of the monolingual touchscreen. Parental input, such as FLP and PM on children's touchscreen use, then joins this assemblage, strengthening and expanding the space they co-created.

This partnership model provides a crucial understanding that a device's language input does not control or limit a child's language output. As we have seen, with the mediation of the multiple modes and timely feedback from the touchscreen, bilingual children like Tutu demonstrate her agency and create opportunities for translanguaging practices, even when interacting alone with English-only content.

Conclusion

This study investigates a four-year-old girl's translanguaging practices and her interaction with a touchscreen in depth. Methodological-wise, the multimodal moment-by-moment analysis explicitly zooms in to see how the child interacts with the touchscreen through both language and gestures. It offers an opportunity to investigate the specific modes and elements that influence her translanguaging practices, such as parental input and various touchscreen modes.

Looking through the New Materialism lens, we proposed a model to illustrate the three-way partnership among the child, parental input, and the thing-power of touchscreen, in the co-creation of a translanguaging space. Considering the prevalence of English-monolingual apps in England, we believe that researchers and parents should see monolingual apps not as a limitation, but as an opportunity for maintaining HL. Instead of promoting FLP that strictly separates languages, by embracing the affordance of these multimodal devices and necessary parental input, children are encouraged to demonstrate their agency and build a unique translanguaging space where their linguistic creativity can flourish in partnership with the device. Further study should be done to investigate how to better support children's HL maintenance in this co-created translanguaging space.

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