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Sign-spoken bilingualism in hearing individuals with D/deaf parents (a questionnaire-based study on the contact between Polish Sign Language and spoken Polish)^{1,2}

ABSTRACT

Presented research concerned sign-spoken bilingualism in hearing individuals with D/deaf parents (CODA, *Child of Deaf Adult*). When Polish Sign Language (*polski język migowy*, PJM) and spoken Polish are in contact, the following phenomena can be observed: code-switching, code-blending and simultaneous communication. The study aimed to investigate if CODAs observe the occurrence of the mentioned phenomena in their language experience and if they can clarify the reasons why those phenomena appear in their utterances. 32 participants described their languages' experience in the *Language Questionnaire for CODA*. The findings showed that the majority of participants consider that they used code-blending, whereas the occurrence of other two phenomena was declared with more diversity within the group. Four main causes of these phenomena were reported: automatic process/habit, lack of words in a given language, adaptation to the interlocutor's needs and comfortable communication.

¹ The project was implemented at the Institute of Psychology of the Jagiellonian University and financed from the FOCUS subsidy No. F4 / 09 / P / 2013 FNP granted to Zofia Wodniecka.

² Many thanks to: D. Asanowicz, M. Schromova, K. Motal, members of the Langusta Laboratory at the Institute of Psychology of the Jagiellonian University (in particular P. Ciuraszkiewicz), the Section of Sign Linguistics (in particular J. Filipczak, P. Rutkowski, P. Mostowski, B Kinowa), the Coda Polska Association (in particular, M. Czajkowska-Kisil). We would also like to express our gratitude to the participants who took part in the project and who supported the Polish CODA community.

Keywords: Polish Sign Language, child of deaf adult (CODA), sign-spoken bilingualism, language contact

INTRODUCTION

Previous studies on the neural basis of language processing (e. g. Marian and Spivey 2003) indicate that both languages are active in the mind of a bilingual person and it influences the linguistic activity, even in a situation where the use of only one language is required (Kroll, Bobb and Wodniecka 2006). This bilingual co-activation is not limited to spoken languages, but also applies to sign-spoken bilingualism (Kovelman et al. 2009), defined as a usage of a sign language¹ and a spoken language (Grosjean 2013). The simultaneous activation of sign and spoken languages has been observed during language reception (Giezen et al. 2015; Shook and Marian 2012) and language production (Pyers and Emmorey 2008). These phenomena was showed e. g. in the studies on communication of hearing individuals whose parents are D/deaf² (CODA, children of D/deaf adults), who were immersed from birth in two languages: sign language (used in the immediate family) and spoken (used in communication with the hearing community, e. g. extended family or peers) (Lillo-Martin et al. 2014; Petitto et al. 2001; Pyers and Emmorey 2008; Singleton and Tittle 2000). In a study managed in the USA (Pyers and Emmorey 2008), it has been observed that CODAs who have conversation in spoken language³ with a person unfamiliar with sign language add

¹ Sign languages are natural languages of the D/deaf communities, allowing for full communication and the creation of mental representations (Świdziński and Gałkowski 2003). Currently, there is an increased interest in sign linguistics, which deals, among others, with phonological, semantic, syntactic and pragmatic analysis of sign languages (Kuder 2021; Łozińska 2012). Linguistic research on sign languages, on the one hand, emphasizes the existence of many features common to sign and spoken languages, and on the other, indicates the specificity of sign languages, which is expressed in the more frequent occurrence of phenomena that in spoken languages are either not observable or relatively rare, e.g. iconic motivation of lexical units, grammatical facial expression or a space that performs grammatical functions (Łozińska 2012).

² The wording of the term *deaf* in a lower case indicates a medical perspective, in which deafness is understood as a certain disability, and hearing people become a synonym of the norm and model that deaf people should attain thanks to rehabilitation (Podgórska-Jachnik 2013). On the other hand, the term *Deaf* written with a capital letter indicates a linguistic and cultural perspective in which Deaf people are perceived as members of a linguistic minority, using sign language, and as people immersed in the culture of the Deaf (Tomaszewski and Krzysztofiak 2017). It is an emancipatory position that does not emphasize deficits but highlights the values of deafness. The spelling D/deaf allows for freedom of interpretation (Podgórska-Jachnik 2013), since each D/deaf person should be able to choose the term that best describes her/his/their own perceptions of deafness and of themselves.

³ The non-manual mark of WH-questions in American Sign Language (ASL) is furrowed eyebrows that are combined with a manual sign (Baker and Padden 1978). In spoken English, such

American Sign Language (ASL) grammatical facial expression. In other words, the researchers pointed that sign language influences CODAs speech. However, it is worth noting that these studies only concerned the CODA community in the USA, and very few analyzes of the CODA language have appeared in Poland so far (e. g. Zaborniak-Sobczak and Perenc 2017; Zaborniak-Sobczak 2021; Zaorska 1996). The aim of this article is to fill the existing gap in the research on sign-spoken bilingualism⁴ regarding whether CODA declares the presence of selected linguistic phenomena related to the contact between Polish Sign Language (*pol. polski język migowy*, PJM) and spoken Polish in their communication.

CODE-SWITCHING

Code-switching⁵ is defined as the alternating use of two languages in one linguistic discourse, sentence or utterance (Clyne 1987; Genesee 1989; Poplack 2004). Initially, it was viewed negatively – as a result of the incompetence of bilinguals who, not knowing words or grammatical structures in one language, used the other language. It is now believed (Poplack 1980; Yow Tan and Flynn 2018) that code-switching may be an indicator of high bilingual competence. Alternative use of two codes is often observed in bilingual communities that are fluent in two spoken languages (Poplack 2004).

Code-switching occurs in both spoken and sign-spoken bilinguals. However, in the latter, its prevalence seems to be lower: previous analyzes indicate that the alternating use of spoken language and sign language relatively rarely occurs in CODA utterances, both in childhood (Petitto et al. 2001) and in adulthood (Emmorey, Borinstein and Thompson 2005). Emmorey, Borinstein, Thompson and Gollan (2008) conducted a study of code-switching among the American CODA adult community who used ASL and English in their daily communication. In

facial expressions manifests negative feelings (Ekman 1979). According to Pyers and Emmorey (2008), CODAs frown as they ask WH-questions in English, even though an interlocutor unfamiliar with ASL may interpret this as an expression of negative emotions and not as a grammatical component of the question.

⁴ It is worth mentioning that in addition to spoken and sign-spoken bilingualism, there is also bilingualism that includes two sign languages (Kotowicz 2019), which is a separate way of using two languages from the bilingualisms which are discussed in this article.

⁵ This article introduces a broad definition of code switching (proposed, among others, by: Głuszkowski 2013; Northeast 2018). On the other hand, Muysken (2000) additionally points to the existence of two separate phenomena: code-switching, i.e. the alternate use of two languages in an utterance, and code-mixing, which consists in the appearance of both languages (lexemes or grammatical features) in one sentence (similarly adopted by e.g. Brice and Anderson (1999) and Meisel (1989)).

the analyzed data, only 6% of utterances produced by CODA included switching between languages. It is worth mentioning that this study used elicitation tasks in which the subject talked to another hearing child of D/deaf parents.

CODE-BLENDING

Code-blending is the spontaneous, natural, and simultaneous use of sign language and spoken language at the same time. It should be emphasized that this is a phenomenon unique to sign-spoken bilingualism, as in the case of spoken bilingualism there is no physical possibility of simultaneously producing words in two languages at the same time (Lillo-Martin et al. 2014).

According to the existing literature (Lillo-Martin et al. 2014) CODAs relatively often produce sign language and spoken language in parallel. In childhood, CODA combines codes spontaneously. In the research by Van den Bogaerde i Baker (2005) over 75% of children's sign language utterances contained simultaneous elements of spoken language. According to data collected by Emmorey et al. (2008) 36% of CODA adults' utterances included code-blending if the conversation was with the other CODA. Elements of sign language also appeared in spoken CODA utterances during conversations with people who do not know sign language (Casey and Emmorey 2008).

Based on the semantic analysis, American researchers (Emmorey et al. 2008) distinguished the following phenomena: 1. semantic equivalent code-blends and 2. semantic non-equivalent code-blends. In the former case, words in both languages can be considered as translational equivalents (e.g. the word "bird" in spoken language and the sign BIRD), while in the latter case they cannot be seen as synonyms, and as a result it contains two different pieces of information (e.g. the word "Twitty" in spoken language and the sign BIRD) (Emmorey et al. 2008). Most words produced simultaneously in spoken and sign language are semantical equivalents (Emmorey i in. 2008); these observations was supported by the study of Petitto et al. (2001), in which it was shown that code-blending is 89% semantically consistent in CODA utterances. And in the analysis of utterances made by adult CODA (Emmorey et al. 2008) semantic equivalents accounted for 82% of all observed code combining phenomena.

In studies on code-blending, researchers (Emmorey et al. 2008) use the matrix language frame (MLF)(Myers-Scotton 1993), which refers to code-switching

in spoken bilingualism⁶. MLF points to the unequal presence of languages in the utterance and suggests the use of the terms: matrix language and embedded language. This division was also introduced into code-blending analysis by Emmorey et al. (2008) and thus code-blending sentences were divided into: 1. sentences with sign language as the matrix language (with the dominant sign language and complementary spoken language) and 2. sentences with spoken language as the matrix language and sign language as the embedded language. The described adaptation of the language frame model will be used in the presented analyzes of combining the codes: PJM and spoken Polish in CODAs living in Poland, although while Emmorey et al. (2008) applied MLF to sentences, in this study it will be expanded to include the entire utterance.

SIMULTANEOUS COMMUNICATION

Simultaneous communication (SimCom) is a method of communication in which the spoken language is dominant, and its grammar is the basis of the entire utterance, while manual signs are performed in parallel (Maxwell 1990; Newell et al. 1990). The speech produced during SimCom is slower than speech in the spoken language, which is explained by the fact that the pace of speech is adjusted to signing (Whitehead et al. 2004). Manual elements may to some extent be related to sign language, however, usually a message produced manually is similar to the signed version of spoken language (pol. *system językowo-migowy*, SJM), an artificially created manual subcode of a spoken language (Pyers and Emmorey 2008). Simultaneous communication can therefore take very different forms, in which it is possible to use elements of sign language or to be closer to the signed version of spoken language. The latter phenomenon is usually observed in the situation of long-term parallel use of manual communication and spoken language (Maxwell 1990). SimCom also appears in CODAs speeches, especially in situations where some of the interlocutors are D/deaf and others are unfamiliar with sign language. It is then considered to be a form of adjusting the utterances to the different communication needs of interlocutors (Pyers and Emmorey 2008).

RESEARCH QUESTIONS AND AIM

The purpose of the presented analyzes was to investigate if according to CODAs, selected linguistic phenomena related to the contact between PJM and

⁶ In earlier publications (e.g. Myers-Scotton 1993) Myers-Scotton referred MLF only to code switching, but later Myers-Scotton (2002) applied MLF also to other phenomena arising from linguistic contacts between languages, e.g. attrition, interference.

the spoken Polish occur in their communication and also to identify possible causes of these phenomena. The focus was on three phenomena: code-switching, code-blending (in two possible ways: utterance with sign language as the matrix language and utterance with spoken language as the matrix language) and simultaneous communication.

PARTICIPANTS

The participants were recruited by CODAs organizations (e.g. the CODA Polska Association) and sign language laboratories (e.g. the Section for Sign Linguistics at the University of Warsaw). The participants were asked to complete a language questionnaire for hearing child of D/deaf adults: providing basic information about themselves (e.g. age, gender, education, hearing loss in family members), and then answering questions about their language use. All participants were informed about the purpose of the study and details about data collection, and their participation was conscious and voluntary.

32 CODA participants (number, $N = 32$) were examined: 25 women and 7 men ($\text{♀} = 25$, $\text{♂} = 7$), aged 18 to 55 (mean, $M = 32$, standard deviation, $SD = 9$), with different levels of education (primary education ($N = 1$), secondary education ($N = 13$), higher education ($N = 18$)). The fathers of all participants were D/deaf ($N = 32$), of which 26 fathers used PJM in everyday communication (the other fathers used mixed methods of communication, e.g. PJM and lip reading). Most of the mothers were D/deaf ($N = 29$), and in two cases hard of hearing ($N = 2$). All D/deaf mothers used manual means of communication: 20 mothers only PJM, and the rest additionally other forms of communication, e.g. spoken Polish. One mother was a hearing person and was the only parent communicating with her hearing child only in spoken language.

All CODAs currently use PJM: 29 subjects daily, 2 - once a week and 1 person once a month. The participants defined their competences on a seven-point scale, where 1 meant poor knowledge of PJM, and 7 - excellent. On the basis of this self-assessment, the subjects obtained high results: the mean and the median were 6 ($M = 6.19$, $SD = 0.931$ and $Med = 6$).

Table 1. Basic data on the participants

	Criterion	Number of people
Gender	Male	<i>N</i> = 7
	Female	<i>N</i> = 25
Education	Primary	<i>N</i> = 1
	Secondary	<i>N</i> = 13
	Higher	<i>N</i> = 18
Mother	D/deaf	<i>N</i> = 29
	Hard of hearing	<i>N</i> = 2
	Hearing	<i>N</i> = 1
Father	D/deaf	<i>N</i> = 32
	Hard of hearing	<i>N</i> = 0
	Hearing	<i>N</i> = 0
Communication with Mother	PJM	<i>N</i> = 20
	Polish	<i>N</i> = 1 (hearing mother)
	PJM and Polish	<i>N</i> = 7
	Polish with manual elements	<i>N</i> = 2
	PJM and SJM	<i>N</i> = 1
	PJM and lip Reading	<i>N</i> = 1
Communication with Father	PJM	<i>N</i> = 26
	Polish	<i>N</i> = 0
	PJM and Polish	<i>N</i> = 3
	Polish with manual elements	<i>N</i> = 0
	PJM and SJM	<i>N</i> = 2
	PJM and lip Reading	<i>N</i> = 1
Current rate of PJM usage	Every day	<i>N</i> = 29
	Once a week	<i>N</i> = 2
	Once a month	<i>N</i> = 1

RESEARCH TOOL

The presented data were collected using the *Language Questionnaire for CODA*, which was prepared on the basis of the previously existing tools: *the Language Questionnaire for Bilinguals* created by the Laboratory of Psychology of Language and Bilingualism “LangUsta” (Institute of Psychology, Jagiellonian University) and *Background Questionnaire CODA* created by Hall and Bavelier (Hall and Bavelier 2011). The questionnaire was created to collect information about CODA’s linguistic experience, taking into account the specificity of the communicative functioning of this group of bilinguals. Questions related to the following topics were listed: 1. current language skills, 2. previous linguistic

experience, 3. experience in translation/language brokering and 4. phenomena resulting from the contact of the languages: PJM and spoken Polish. The presented analysis focuses mainly on the results from the last part of the questionnaire⁷, which consists of 9 questions: 8 closed-ended questions and one open-ended question. Closed questions contained 2 questions for each of the 4 selected linguistic phenomena: 1. Code-switching, 2. Code-blending: 2.1. Utterances with sign language as the matrix language, 2.2. Utterances with spoken language as the matrix language and 3. Simultaneous communication. Each time the participant was asked if she/he/they ever communicated in a given way (possible answers: yes/no). In the case of a positive answer, the participants was asked to choose the interlocutor with whom she/he/they did it (possibility to select one or more options from the list: D/deaf person, CODA, hearing person who knows PJM, hearing person who does not know PJM, irrespective of the person). The last open question asked for the reasons of the phenomenon (the question was: “*Why do you mix the languages?*”).

RESULTS

In this study, we analyzed the data based on a questionnaire in which the participants described their language experiences. The occurrence of key linguistic phenomena (measured by the number of people reporting the occurrence of a given phenomenon) was taken into account and the statistical significance of the reported differences was calculated between people who observed given phenomena in themselves and those who did not notice such phenomena in their language experience (calculations were made on the basis of chi-square test). This allowed to determine whether these linguistic phenomena occur in the vast majority of participants, in other words, whether they are reported by a statistically significant majority of the CODA participants. Then, the analysis was focused on the type of interlocutors with whom the given linguistic phenomena occur and the reasons which, according to the participants, made these phenomena appear in their linguistic experience.

⁷ More data collected by the *Language Questionnaire for CODA* were presented in the publication on the CODAs linguistic experience, with particular emphasis on PJM as the language of CODAs’ heritage (Kotowicz et al. 2021). Earlier analyzes (Kotowicz et al. 2021) did not include the topic of contact between PJM and spoken Polish, in order to devote the entire article to linguistic phenomena that seem to be important for sign-spoken bilingualism.

ANALYSIS OF THE OCCURRENCE OF THE FOLLOWING LINGUISTIC PHENOMENA CODE-SWITCHING

Code-switching was defined as switching between PJM and spoken Polish in a single utterance. It was not declared by significant majority of participants ($\chi^2(1, N = 32) = 1.125, p = .289$). Nineteen people (59%) reported switching between codes, and thirteen (41%) reported that they did not. These results are presented in Figure 1. Additionally, Table 1 contains information about the interlocutor with whom CODAs switch from one language to another in the same utterance: when analyzing the extreme results, it should be stressed that the most people indicated another hearing person who knows sign language ($N = 13$, i.e. 41%), the least - another hearing person who did not know sign language ($N = 2$, i.e. 6%), and ten people declared that they occasionally switch between languages in conversations with other CODAs.

Code-blending

Code-blending was understood as the simultaneous use of PJM and spoken Polish at the same time. Referring to the MLF, two possible ways of combining codes have been distinguished, which are analyzed below.

Utterance with the sign language as the matrix language

This type of utterance is understood here as an utterance in PJM with inserted words in spoken Polish. This phenomenon is popular among CODAs ($\chi^2(1, N = 32) = 6.12, p = .013$), who in the majority ($N = 23$, i.e. 72%) declared that they occasionally interject Polish words while signing while only nine CODA (28%) said they had no such experience. The results were presented in Figure 1. The participants declared that interjection of words in spoken language occurs most often in a conversation with a D/deaf person ($N = 17$, i.e. 53%) or with a hearing person who knows sign language ($N = 15$, i.e. 47%). %, less frequently with other CODA ($N = 8$, i.e. 25%), and least frequently with a hearing person who does not know sign language ($N = 2$, i.e. 6%). These results can be found in Table 1.

UTTERANCE WITH THE SPOKEN LANGUAGE AS THE MATRIX LANGUAGE

This utterance was defined as an utterance in spoken Polish with some signs. According to the self-reports, this phenomenon occurs in the vast majority of CODAs, and this difference is statistically significant ($\chi^2(1, N = 32) = 10.125, p = .001$). Twenty-five participants (78%) reported that they experience such

a phenomenon, and only seven (22%) people did not have such experiences. Figure 1 illustrates these results. Table 1 shows that it most often occurs in contacts with a hearing person who knows sign language ($N = 19$, i.e. 59%), and the least frequently with people who can hear and does not know sign language ($N = 3$, i.e. 9%). Thirteen participants (41%) declared that in their utterances such a phenomenon appears in contacts with another CODA.

Simultaneous communications

Simultaneous communication was defined as the parallel use of manual communication and spoken Polish. This phenomenon was not found to be commonly reported by CODAs ($\chi^2(1, N = 32) = 3.12, p = .077$). The number of people declaring that they use simultaneous communication ($N = 21$, i.e. 66%) does not differ statistically from the number of people who say that they do not use this form of communication ($N = 11$, i.e. 34%). These results are presented in Figure 1. Simultaneous communication occurs in contacts with a hearing person who knows sign language ($N = 13$, i.e. 34%), and only 2 participants declared that it occurs with a hearing person who does not know sign language (Table 1).

REASONS FOR THE APPEARANCE OF SELECTED LINGUISTIC PHENOMENA RELATED TO THE CONTACT BETWEEN PJM AND SPOKEN POLISH

The participants independently determined why they sometimes mix PJM and spoken Polish, answering an open question in the questionnaire. On the basis of the obtained results, 4 categories of the reasons for mixing languages were distinguished, with an addition of one category containing cases that were difficult to classify (the so-called other reasons). Thus, 4 causes of language mixing were identified: 1. automatic action / habituation ($N = 8$, i.e. 25%), 2. lack of words in a given language ($N = 7$, or 22%), 3. adaptation to the needs of the interlocutor ($N = 6$, i.e. 19%), 4. comfortable communication ($N = 5$, i.e. 16%) and 5. other reasons ($N = 4$, or 13%). As an example of giving another reason, it is worth citing the answer of one CODA, which expresses its cultural distinctiveness by mixing languages: *“I treat it as a supplementation, willingness to express, accentuate, and sometimes in the form of humor, for jokes”*.

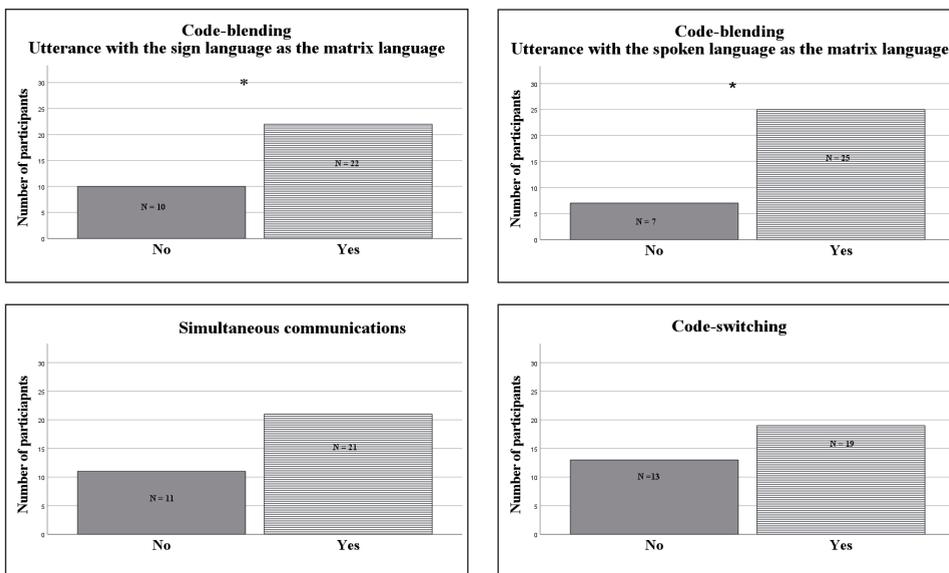


Figure 1. Number of people declaring the use of particular types of language mixing: PJM and Polish.

Table 2. Data on who CODAs talk to when certain linguistic phenomena occur.

Who are CODAs talking to?	Number of people							
	Code switching		Code blending				Simultaneous communications	
			Utterance with the sign language as the matrix language		Utterance with the spoken language as the matrix language			
	YES	NO	YES	NO	YES	NO	YES	NO
D/deaf	N = 11	N = 8	N = 17	N = 6	N = 13	N = 12	N = 11	N = 8
CODA	N = 10	N = 9	N = 8	N = 15	N = 13	N = 12	N = 10	N = 9
Hearing person who knows sign language	N = 13	N = 6	N = 15	N = 8	N = 19	N = 6	N = 13	N = 6
Hearing person who doesn't know sign language	N = 2	N = 17	N = 2	N = 21	N = 8	N = 17	N = 2	N = 17
Irrelevant	N = 2	N = 17	N = 1	N = 22	N = 3	N = 22	N = 2	N = 17

CONCLUSIONS AND DISCUSSION

This article describes the first Polish research on whether CODA adults declare that their communication involves linguistic phenomena arising from the contact between PJM and the spoken Polish. The analyzes show that the majority of participants believe that they blend codes both in a situation where the language of the matrix is PJM, and also when the dominant language is the spoken language. On the other hand, language-switching and simultaneous communication are not commonly declared as part of the communicative experience, although, according to some CODAs, they do occur in their linguistic repertoire.

The obtained results of the research conducted in Poland are consistent with the data on linguistic practices observed in other CODA communities, e.g. in the USA (Emmorey et al. 2005) or the Netherlands (Van den Bogaerde and Baker 2005). Foreign studies (e.g. Lillo-Martin et al. 2014) indicate that code-blending is a common phenomenon, regardless of whether the matrix language is sign language or spoken language. However, code-switching or simultaneous communication are rarely observed. The self reports of CODAs presented in this article and the pattern of linguistic behavior described in previous foreign publications differ from the pattern observed in spoken bilingualism, in which switching between languages is a relatively popular linguistic practice, although to some extent it depends on cultures and countries (Poplack 1980, 2004). Based on the collected data and previous literature, it can therefore be concluded that there are certain specific features of sign-spoken bilingualism that distinguish it from spoken bilingualism.

It was interesting to find out the interlocutor with whom CODAs communicate when the analyzed linguistic phenomena appear: the participants most often declared that this takes place in conversations with a hearing person who knows sign language (in the case of three out of four examined phenomena: code-switching, code-blending with a spoken language as a matrix language and simultaneous communication) or with a D/deaf person (in the case of code-blending with a sign language as a matrix language). Interestingly, other CODA were mentioned as interlocutors in contacts with whom the studied phenomena took place, but they were never the most frequently reported. The result obtained is surprising, especially in the context of the literature that characterizes the CODA community, among others through the occurrence of the so-called *CODA-talk* - a specific method of communication between CODAs, consisting in the creation of an interlanguage (most often a spoken language changed under the influence of sign language) and based on the knowledge of sign language and spoken language, as well as the culture of D/deaf people and the specificity of their communication

(Preston 1994). For example, Bishop and Hicks (2005) investigated CODA's written utterances in which a significant influence of ASL on English written texts was observed. However, no research has been conducted so far that would indicate the existence of CODA-talk in the Polish CODA community. It would be extremely interesting to verify whether this phenomenon actually occurs, how popular it is and whether it is native to Poland, or whether it was inspired by how the CODA communities function in other countries.

The participants mentioned the following reasons for the occurrences of selected linguistic phenomena: 1. automatic process / habit, 2. lack of words in a given language, 3. adaptation to the needs of the interlocutor, 4. comfortable communication and 5. other reasons. It should be emphasized that the reasons mentioned by the participants have their source in the current knowledge about the functioning of bilinguals. Emmorey et al. (2008) also cites automatic process / habit as one of the explanations for the occurrence of the phenomena of simultaneous communication, code-switching and code-blending. Researchers associate them with the patterns presented to CODAs by their D/deaf parents, who largely combine the two languages, sometimes switch between them, but rarely use isolated monolingual utterances (Van den Bogaerde and Baker 2005). Switching between codes may be caused by the lack of a vocabulary adequate to the situation in one of the languages, which is related to two facts: first, bilinguals may have a lower vocabulary in each of their languages than monolinguals (Bialystok et al. 2010) and slower lexical access (Gollan et al. 2005), and secondly, they may more frequently experience the tip-of-the-tongue (TOT) phenomenon, where there is a problem with retrieving a given word from memory (Gollan et al. 2014; Gollan and Silverberg 2001). Another reason given by the participants seems to be equally justifiable: adapting to the needs of the interlocutor (Preston 1994). The participants also point out that communication using both languages is convenient, which is consistent with the results of research using neuroimaging methods (Blanco-Elorrieta, Emmorey and Pylkkänen 2018), which indicate that code-blending is not more cognitively demanding than the production of one language⁸ (does not cause additional activity in anterior cingulate cortex, ACC).

It should also be emphasized that the presented data was collected using a language questionnaire specially created for this purpose, and therefore the collected material was of a self-report nature. The obtained data suggest that the participants have a self-awareness of sign-spoken bilingualism, which was

⁸ This is a kind of simplification, because switching on a second language and simultaneous production did not cause additional activity in the brain but switching off the second language and returning to the first language did. This is a topic that requires a deeper discussion.

visible, among others, in the responses to the open-ended question, which included reflections on the functioning of the bilingual mind. At the same time, it should be mentioned that the questionnaire data should be enriched in the future and verified by the linguistic analysis of CODA's utterances.

Finally, it is worth emphasizing that the presented analyzes are not only of linguistic significance, but are also very important for the CODA community itself, which fights for its identity with increasing awareness and wants to create a picture of shared experiences regarding also unique linguistic phenomena occurring in the case of sign-spoken bilingualism. (Czajkowska-Kisil and Laskowska-Klimczewska 2014; Singleton and Tittle 2000).

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