

Language Development and Special Educational Needs of Hearing Children of Deaf Parents

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Abstract

The results of our own research indicate the heterogeneity of hearing children of deaf parents (koda) in the development of language in context of special educational needs. Koda acquire language and speech in an unusual communication environment. The aim of the research is to analyse the linguistic development of koda in terms of active and passive vocabulary, comprehension and use of grammatical forms, and comprehension of a longer text. The results of children obtained in the normalised Linguistic Development Test were analysed. Koda may have difficulty in mastering speech in its various planes and aspects, develop language competences and skills discordantly.

Key words: *Language development, Kid/Kids of Deaf Adults (koda)*

It is assumed that special educational needs are those of any pupil experiencing some kind of learning difficulties, regardless of their cause and scope. A pupil with special needs is characterised through the prism of their particular developmental and educational needs, psychophysical abilities, and not only in the context of their deficits or disabilities. This article focuses on the special educational needs of pupils who are brought up in a non-standard language environment of Deaf people.

The presence of deafness in a family has an impact on many aspects of life, including interactions and resources in the family, parenting, the need for social

support (Hintermair, 2000; Wood Jackson & Turnbull, 2004). It is estimated that over 90% of children born to deaf parents can hear (Mitchell & Karchmer, 2004). These children are most often bilingual (Davidson et al., 2014; Hofmann & Chilla, 2015), bimodal (Emmorey et al., 2005; Hofmann & Chilla, 2015) and bicultural (Toohey, 2010). Deaf parents are most often members of the Deaf community, which is characterised by a common culture and language, a common history and a shared awareness of their cultural identity (Hofmann & Chilla, 2015) that is passed down from generation to generation (Grosjean, 2010; Preston, 1995). Wherever Deaf communities exist, there are also coda (Children Of Deaf Adults) and koda (Kid/Kids of Deaf Adults /0-17 y.o/). Koda are brought up in families where sign language is the most common means of communication, they acquire sign language in a natural way, going through the stages of language development analogous to those of hearing children of hearing parents acquiring phonic language (Bellugi, 1988; Morgan et al., 2002). Apart from sign language, they also acquire phonic language – during contacts of deaf parents with hearing people, relatives, through the media, on the street (Brackenbury et al., 2005).

The analysis of the results of the research conducted so far shows that koda are not a homogeneous group. Some children have special developmental and educational needs due to difficulties in speech communication. Some children acquire phonic language without great difficulty, while others require early intervention and support in learning spoken language.

Methodology of Research

Conducting research into the language acquisition of koda is challenging, because of the heterogeneity of the group of koda and their deaf parents. The differences relate to functioning in the areas of communication, cognitive and emotional issues, as well as access to psychological and pedagogical support and speech therapy. We do not know the exact number of deaf people in Poland who identify themselves with the Deaf community (identifying themselves with Deaf culture and sign language), nor the number of koda. For these reasons, research is carried out on small groups of people with specific characteristics, most often by the method of studying individual cases. In Poland, only Zaorska (1996) has studied language proficiency of koda. The analysis of results indicated that in most cases koda obtained results indicating low language proficiency, additionally they were accompanied by unclear pronunciation. The distribution of results indicates delayed and discordant development of the language skills of koda.

The research was carried out as part of the research project *'Deaf' parenthood. Selected psychopedagogical aspects of the functioning of people with hearing impairment as parents*. The aim of the research was to determine language competences and skills of koda.

The research question is: what is the koda's level of language development (in the majority language) in terms of active and passive vocabulary, comprehension and use of grammatical forms, and listening comprehension?

Linguistic development was established using the only language development test standardised and normalised in Poland. The language competences of koda were determined in individual studies using the Language Development Test (LDT).

LDT is diagnostic tool that measures the language competence of children aged 4.0–8.11 years old. LDT consists of six sub-tests, allowing the assessment of the child's competences in the field of active and passive vocabulary (two sub-tests), comprehension and use of grammatical structures (three sub-tests) and comprehension of a text heard (one sub-test). The individual examination of a child using the entire test takes about 40 minutes. The research was conducted by the author of the work (a speech therapist and special educator). When developing the test results, the raw results of individual subtests for the koda subjects were calculated, and then the stanines for individual subtests, summary measures and overall results were converted, in accordance with the table of general standards. Average results in the population correspond to stanine 5, denoting average results, and the neighbouring stanines – 4 (lower average) and 6 (higher average). Stanine results lower than 4 are considered low, and higher than 6 – as high. The overall results were also compared to the percentile measures (Smoczyńska et al., 2015).

Participants

6 koda participated in the research presented. The sample selection was intentional. The following criteria were adopted: children between 4.0 – 8.11 years of age, with deaf parents communicating in (PSL). Four girls and two boys, aged 5.2 to 8.6 years old (average age of subjects – 7.1) participated in the study. All of the children were healthy and within intellectual norms. Demographic variables are presented in Table 1.

The parents of the children studied are deaf people with profound hearing loss, they prefer Polish Sign Language in everyday communication, and most often

Table 1. Participants and demographic variables

	Kacper	Ola	Michał	Weronika	Madzia	King
Age during study	5.2	5.9	7.1	7.11	8.5	8.6
Gender	m	f	m	f	f	f
Number of siblings (gender, age)	1 (m, 7.1)	1 (f, 10.9)	1 (m, 5.2)	1 (m, 2.4)	0	1 (m, 3.4)
Hearing status of siblings	hearing	hearing	hearing	hearing	--	hearing
Communication with parents	PSL&PPL	PSL	PSL	PPL&PSL	PSL&PPL	PSL
Communication with siblings	PPL	PPL	PPL	PPL	--	PPL

Note: m – male, f – female; PSL – Polish Sign Language, PPL – Polish Phonic Language (spoken)

have secondary or professional education. Only one mother (Michał and Kacper's) has higher education (Bachelor's Degree).

The brothers Kacper and Michał are being brought up by their deaf mother, the deaf father is present with the children on certain days of the week, in the presence of their mother (the boys' parents are not married and are not currently a cohabiting couple). The family lives in a house with hard-of-hearing, signing grandparents (the parents of Michał and Kacper's mother). Weronika is also being brought up only by a deaf mother, the hard-of-hearing father does not take part in raising his children, he has sporadic contact with them. Weronika lives with her mother and younger brother in her mother's family home, where her hearing aunt (Weronika's mother's sister) also lives with her own family. The remaining three children are being brought up in complete families, living separately from their closest relatives (hearing grandparents). All of the children studied are recipients of institutional care: in a kindergarten or school (1st stage of education). The children do not take part in additional psychological and pedagogical assistance classes in the educational institutions they attend.

Results of Research

The analysis of the results of our own research was carried out in accordance with the sequence in which the LDT study was conducted and the procedure for calculating the results of individual tests.

Vocabulary – word comprehension

This subtest checks the comprehension of single words (verbs and nouns), the result is the number of correct answers (maximum 28 points).

Three out of the 6 koda obtained results showing very good comprehension of verbs and nouns: high (Madzia, Kinga – stanine 7) and higher average (Kacper – stanine 6). One obtained an average result (Ola – stanine 5). Two children obtained low results (Michał, stanine 3; Weronika – lower average result, stanine 4).

Grammar – repeating sentences

The aim of this test is to establish the morphosyntactic development of the child studied, to test their ability to form sentences by repeating them. The task consists in the child repeating faithfully 38 sentences with different grammatical structures, of which the first 4 sentences are test sentences. The maximum possible score is 34 points. The authors of LDT emphasise that sentence repetition strongly correlates with other measures of children's grammar skills. Additionally, during the repetition of sentences, the examining speech therapist may determine the child's articulation of particular speech sounds – qualitative analysis, going beyond the LDT examination itself. In our own research, the manner of articulation of particular sounds of the speech of the koda was noted.

Two of the koda subjects obtained fully satisfactory results: high (Weronika – stanine 7) and higher average (Michał – stanine 6). One had an average result (Ola – stanine 5). Three children obtained low results: lower average (Madzia and Kinga – stanine 4) and very low (Kacper – stanine 2).

Vocabulary – word production

This subtest checks the child's active vocabulary, and their task is to name objects, people, animals and activities presented in a sequence of pictures. Answers complying with the key are considered correct, as well as forms with suffixes (for verbs), diminutive, plural and extended answers (for nouns); articulation abnormalities (resulting from speech impediments) and sound substitutions are allowed. The child can score a maximum possible of 25 points.

One child had a higher average result (Weronika – stanine 6), one – average (Madzia – stanine 5). Four of the children studied had low results: lower average (Kacper, Michał – stanine 4) and low (Ola, Kinga – stanine 3).

Grammar – sentence comprehension

This sub-test is used to assess the comprehension of syntactic structures, and the child's task is to indicate which of the four pictures from a board (from 32

four-picture boards) corresponds to the content of a declarative sentence of various length heard (from 3 to 8 words). In this sub-test, the participant may receive a maximum of 32 points.

In the Grammar – sentence comprehension subtest, two girls obtained fully satisfactory results at a very high level (Weronika – stanine 8) and a higher average level (Madzia – stanine 6). The remaining four koda obtained results that were at the level of lower average results (Kacper, Ola, Michał, Kinga – stanine 4).

Grammar – inflection of words

The subtest checks the children's ability to inflect nouns, i.e. use declension forms. In this task, the participant may receive a maximum of 14 points.

In the Grammar – inflection of words subtest, one child obtained an average result (Weronika – stanine 5), the remaining 5 koda scored low: four at lower average (Ola, Michał, Madzia, Kinga – stanine 4), one child obtained a very low result (Kacper – stanine 2).

The summary results are presented in Figure 1.

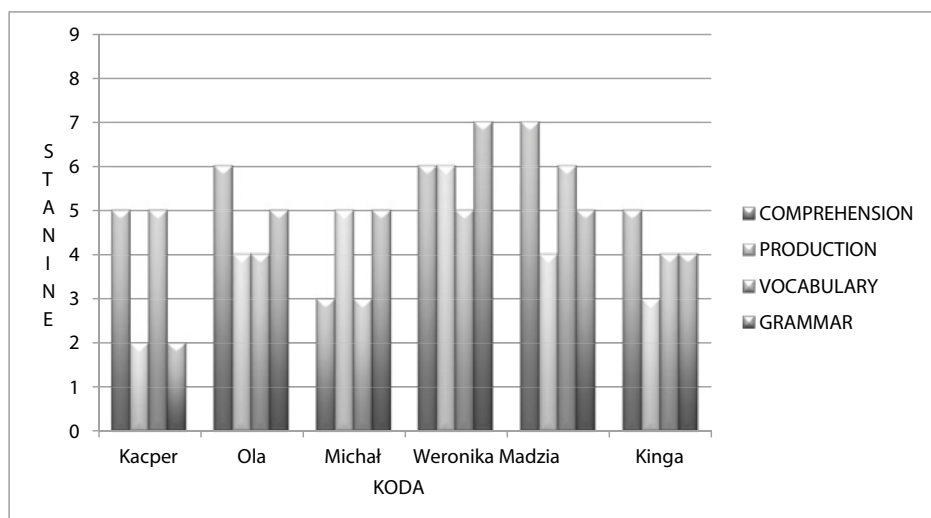


Figure 1. Summary of results of the koda subjects in the area of comprehension, production, vocabulary and grammar, converted into stanines

The score for comprehension is the sum of the points obtained in the two subtests: word comprehension and sentence comprehension. Three koda recorded results that were satisfactory at the higher average level (Ola, Weronika – stanine

6) and high (Madzia – stanine 7) results. Two of the subjects understand words and sentences at an average level (Kacper, Kinga – stanine 5). One child's comprehension was low (Michał – stanine 3).

Production is related to the production of words, sentence repetition and word inflection (summary results from these three subtests). One koda obtained a higher average result (Weronika – stanine 6), one average (Michał – stanine 5), three koda results were not very satisfactory: lower average (Ola, Madzia – stanine 4) or very low (Kacper – stanine 2).

Vocabulary was determined on the basis of the sum scores of two subtests: word comprehension and word production. One child obtained a higher average result (Madzia – stanine 6), two children – an average result at the level of stanine 5 (Kacper, Weronika), three children had low results: lower average (Ola, Kinga – stanine 4) or low (Michał – stanine 3).

Grammar is related to: comprehension of sentences, repeating sentences and inflecting words. One child obtained a high result (Weronika – stanine 7), three children – an average result, two koda – a low result: lower average (Kinga – stanine 4) and very low (Kacper – stanine 2).

In summary:

- only one child (Weronika) has developed the best speech and language – he did not receive a low result in any of the tests;
- the development of the speech and language of the other 5 koda is discordant and requires support;
- most of the koda subjects have no difficulties in word comprehension, but turn out to be weaker at sentence comprehension. It is difficult for koda to cope with the production of words (active vocabulary), sentence repetition (which is related to the concentration of attention and auditory and phonological memory), and the inflection of words. The results are within the limits of lower average results.

The overall results of the koda are confirmation of the above. The development of Weronika's speech and language had reached a higher average level – stanine 6, Ola – an average result – stanine 5. The overall results of the remaining four koda subjects were ranked at lower average (Michał, Madzia and Kinga – stanine 4) or low (Kacper – stanine 1) levels. The overall results are shown in Figure 2.

The koda scores – mostly lower averages, are not unusual results. However, due to their unique linguistic environment, these children should receive assistance in developing speech and language.

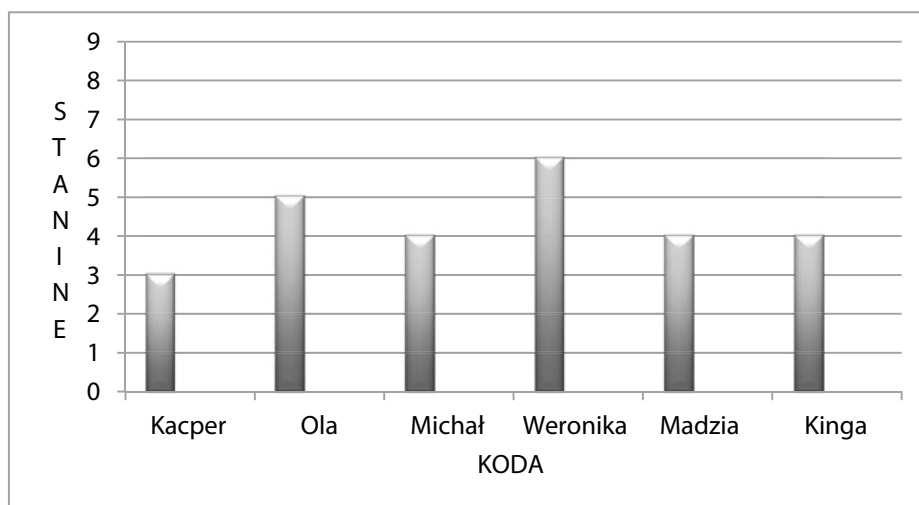


Figure 2. Overall results in the study of LDT of the koda subjects

The subtest Discourse – Text Comprehension requires separate/distinct analyses. As mentioned above, the results of the Discourse subtest are not included in the total and overall scores.

Discourse – text comprehension

The texts from the Discourse subtest were divided into narrative and informative texts. The stories read to the child contain elements relating to the mental states of the characters: their knowledge, intentions and emotions. For younger children (up to 5.11) 2 texts were prepared, for older children – 3. There are 5 questions for each text. The tasks test the child's comprehension of a longer narrative text (and informational in the case of the older children). Each task consists in the child listening to the text read by the examiner (from 100 to 200 words), and then answering questions related to the content heard. Only in this sub-test may the examiner slightly change the examination procedure, independently selecting the number of texts read to the child (depending on the child's age, level of fatigue and the quality of the task completion).

One child obtained a satisfactory result at the higher average level (Ola – stanine 6), the remaining five koda had low results: lower average (Kacper, Michał – stanine 4), low (Weronika, Kinga – stanine 3) and the lowest (Madzia – stanine 1).

In the case of Madzia's test, poor concentration of auditory attention on a longer, linked text was noted, as a consequence of which fatigue and decreased motivation were observed.

Articulation abnormalities were also noted in the koda group. In the case of Ola, it was the substitution of [r] for [l], palatal (softened) pronunciation of dento-alveolar sounds, and selective de-voicing of the bilabials, which can be considered a delayed development of pronunciation, requiring speech therapy. In the case of Weronika, the interdental character was noticeable, which is a speech impediment that requires speech therapy. Kinga, on the other hand, had difficulties with the correct realisation of nasal sounds in the word-final position – she requires support in the form of prophylactic, orthophonic interventions.

Discussion

Koda constitute a very diverse group of children in terms of speech and language development, which proves that some language skills are mastered by koda at an average level, others at a lower level, and still others are very well developed in particular children (Hofmann & Chilla, 2015). The LDT made it possible to determine the competences (comprehension – production) and language skills (lexical – grammatical) in which koda require special support. For the most part, the general development of koda speech and language is within the range of typical results but lower than in the group of their peers, there is also discordance in the shaping of language competences and skills, which determines special developmental needs (in the group of children younger than 7 years of age) and educational needs (in the group of school-age children) (see: Zaorska, 1996). Koda perform relatively better in comprehension sub-tests, and weakest in production sub-tests. In terms of word comprehension, most of the subjects (4 out of the 6 koda) obtained fully satisfactory results – average, higher-average and high. In the remaining subtests: sentence repetition, word production, sentence comprehension and word intonation – the tested children obtained results showing developmental deficits in terms of speech and language. Therefore, it can be assumed, as is the norm in the development of speech and language of an average child, that comprehension precedes production, including that related to discourse, and that passive knowledge of the language is better than its active use (Smoczyńska et al., 2015). Koda require specialist intervention, psychological and pedagogical support to harmonise their linguistic development in all its planes and aspects (Murphy & Slorach, 1983; Sachs et al., 1981). They need support mainly in

the area of production – lexical exercises, building active vocabulary and grammar – sentence comprehension, repeating sentences and inflection of words. Delays in language development also occur on the phonological plane. In this regard, koda need speech therapy support.

Interesting results were obtained in the Discourse subtest. Based on the analysis of the results from the 5 subtests, it would seem that the speech and language skills of the koda are sufficiently mastered for them to be able to freely conduct a conversation. And yet the children studied show a poor ability to combine facts into a logical whole, they miss details essential for the content of the entire story or text. Zaorska (1996) obtained similar results. Discourse is understood in various ways in the literature of the subject, most often as a discussion, a statement in which a topic is discussed in an orderly, logical, and argued manner (humanistic definitions). Linguists understand discourse as a communication event, a communication act, a sequence of linguistic behaviours dependent on the competences of the interlocutors: communication, linguistic, cultural and skills, including pragmatic ones. Discourse research is the study of language in use (along with the entire speaking situation), so in its entire pragmatic aspect. Discourse understood in this way may be difficult for koda, as they grow up in two only seemingly similar worlds. Koda interact with two diametrically different languages, they grow up in two cultures, determined by language, so it is natural that they have a perception of reality of people who speak and hear slightly differently .

This problem may also appear in the metalinguistic skills of koda. As indicated by our own research, koda are able to master a spoken language. Koda can achieve average vocabulary levels, despite receiving only 20% of language input in spoken (Brackenbury et al., 2005), but they can have problems with verbalising their own thoughts and experiences.

Conclusion

The obtained results are a valuable extension of research into issues related to special educational needs.

In the Polish educational system, teachers rarely understand the linguistic problems of koda, which develop in the specific linguistic environment. They do not provide adequate educational support for koda. The development of the speech and language of koda typically follows a slightly lower level and discordant course. In the case of koda, despite them having mastered the basics of language on the lexical (semantic), grammatical (syntactic) and phonological planes, we

can observe reductions in discourse, which is associated with the practical use of language in social situations, using language according to the context. Language deficits may translate into learning difficulties and determine special educational needs. For this reason, koda need moore conversations, discussions on familiar topics, pretexts for creative conclusions based on hearing longer and shorter narrative and informational texts.

The results of the study indicate the direction of the coda's psychological and pedagogical support and opportunities for further research using the Language Development Test.

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