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Multilingualism in People with Aphasia-Spectrum Disorders. An Overview.

SUMMARY

One of the most interesting problems concerning human speech is the complicated two-way correlation between language and the brain. The present article attempts to answer the question how multilingualism is represented in people suffering from aphasia-spectrum disorders. What are the results of a brain stroke on speech centres? It should be noted that monitoring patients with aphasic speech disorders plays a significant role in understanding brain dysfunctions and is a source in creating models of learning processes and brain functions. The latest research into aphasia constitutes one of the few possibilities of getting answers to the question concerning the representation of language activity occurring in the brain. Does the theory postulating separate representation of various languages in different regions of the brain in a polyglot still find its supporters? The article explains the terms of multilingualism and aphasia, together with its causes. The remaining part of the article analyses the factors that play a significant role in the process of language restitution.

Key words: language, aphasia, multilingualism, brain, location

1. THE CONCEPT OF MULTILINGUALISM

It should be noted that the subject of the present article is not a thorough analysis of such concepts as bilingualism or multilingualism. The latter is not easy to define. Multilingualism characterises a person who is able to express their thoughts directly in a language other than their mother tongue, understands that language and think in that language (Leischner 1987, 158). Bilingualism is the ability of an individual to use two language codes and their correlates. The term “bilingualism” may refer to a person as well as to a speech community. It describes a situation when two languages co-exist within one speech community

or in one person (Duverger 2005, after Panasiuk 2013, 635). Albert and Obler (1978) provide the following classification of bilingual persons:

- *balanced bilingual*: has mother tongue proficiency in two languages;
- *dominant bilingual*: is more fluent in one language;
- *second language learners*: aim at improving their language competence in their second language;
- *compound bilingual*: an assumption that a bilingual person uses a single system to represent both languages;
- *coordinate bilingual*: the two languages of the bilingual person are represented as two distinct systems.

According to Grucza (2004), bilingualism is manifested within an individual when the choice between the two languages depends solely on a communication event: depending on the communicative need, the person switches smoothly from one language to the other.

Fabbro (1996) in turn, identifies multilingualism with the situation of a person who speaks and understands two languages or dialects, or one language and one dialect. A similar view is presented by Paradis (1987), who emphasises the significance of not mixing the two language systems while writing or speaking.

2. THE CONCEPT OF APHASIA

Aphasia should not be identified with any particular illness. Such a disorder results from a damage to the central nervous system (cranial-cerebral injury, stroke, expansive process or neurodegenerative process which leads to dementia).

Aphasia is first and foremost a restriction in the actualisation of the code, and not – as it has been previously described – a disintegration of a language system and the knowledge about the reality acquired via language. This view is supported by the ability of the patients, even those with severe speech disorders, to interact with their environment, as well as their capability to use alternative (to natural language) systems of signs in order to communicate. (Panasiuk 2013, 109)

Aphasia is a consequence of a structural destabilisation, i.e. serious changes in the physical substance and systems of the brain associated with speech and language. In other words, aphasia results from physical damage to the brain tissue” (Pąchalska 2011, 153–157). According to Maruszewski, aphasia is “a partial or complete disturbance to the mechanisms of speech programming in an human who had previously mastered those activities; it is caused by organic damage” (Maruszewski 1996, 98). It should be noted that he understands those “activities” both as speech production and speech perception.

Aphasia is, thus, an acquired speech disorder in all modalities which manifests itself after an individual had learnt to speak (Wallesch 1986).

2.1 Location of the cerebral speech centres in polyglots

It is necessary to mention that due to a diversity of the types of bilingualism distinguished, research results are not homogeneous. In the light of neurobiology, human brain, in response to the contact with L_2 , L_3 , $L_n \dots$, “undergoes the stage of cortex adaptation in order to assimilate the new language material. Neurological adaptation consists in making use of the existing regions responsible for L_1 acquisition and/or creating new cortex networks” (Panasiuk 2013, 637). In the contemporary literature on the subject, there has been an animated discussion concerning the location of the speech centres in polyglots: on the one hand, the left hemisphere is pointed to as the centre of bilingualism and multilingualism; on the other, it is emphasised that while the phenomena of bilingualism and multilingualism are located in the left hemisphere, they are nonetheless characterised by variability and extensiveness (after Sadownik 2010, 332). There is a hypothesis assuming that the second language or other languages might be represented in “slightly more distant areas” of the left part of the cerebral cortex than is the case with the mother tongue. The fewer rules of the L_2 are mastered, the stronger must be the involvement into that process of the non-dominating hemisphere. This happens particularly in the case of people who learn a foreign language (L_2) from the beginning or have a basic knowledge of it (*ibid.*). However, the research into aphasic disorders among bilinguals and multilinguals leads to the conclusion that the location of the speech centres in monolinguals and multilinguals is the same (cf. Penfield, Roberts 1959).

3. LINGUISTIC RESTITUTION IN MULTILINGUALS WITH APHASIC DISORDERS

Pitres (after Peuser 1978, 317), on the basis of his research, reached the conclusion that having regained consciousness, the patient begins to understand the language that was most important for them;¹ they are not yet able, however, to use it in speech. The following stage is the returning ability to speak that language. Next, the patient begins to understand other languages. Finally, they regain the ability to communicate in those other languages. It should be noted that multilingual patients have their linguistic abilities affected by aphasia to different degrees. As a result, the process of linguistic restitution may follow a different course and each such case must be treated individually. The holistic approach to the above-mentioned problem assumes that there is no separate location in the brain for different languages.

¹ In the light of Pitres' hypothesis, it concerns the language which is used more often, whose restitution is more complete, no matter whether it is the mother tongue (L_1) or some other language (L_2), which is more important for the patient in emotional and/or socio-cultural terms.

The research conducted by Paradis shows that in polyglots with aphasia-type disorders, the dominating and best retained language is the system that was emotionally most important (after Dobek 2014, 46). Typically, it is the mother tongue, and in people whose parents spoke different languages, it is the language spoken by the mother (Paradis 1977; 1983, after Panasiuk 2013, 639). Minkowski (1928), whose research concerned aphasic disorders in polyglots, is also of the opinion that in the process of linguistic restitution it is not always the mother tongue that is regained first, but the language to which the patient is most attached emotionally. Pitres (1895, after Dobek 2014, 121) thinks that the language of the aphasic patients does not so much undergo distortions but certain mechanisms of inhibition illustrated by various examples of language restitution. According to him, linguistic restitution concerns in the first place the language that is used the most frequently, which can also be the patient's mother tongue. Pötzl (*ibid.*) is of the opinion that the linguistic restitution in aphasic patients concerns first of all the language which the patient had used just before the onset of illness. Some researchers claim, in turn, that after cerebral damage the best retained language is not the mother tongue but that which was used the least often and mastered to a lesser degree (after Panasiuk 2013, 638).

Yvan Lebrun described, however, a case of a patient which shows that positive or negative emotions associated with using a given language result first and foremost from the patient's experience. Emotions associated with a language acquired later and poorly assimilated may influence its retention or faster restitution after cerebral damage. There have been cases of patients with aphasia who communicated more effectively using classical Greek or Latin than their mother tongue (Lebrun 1976; Kaczmarek 1995) (Panasiuk 2013, 639).

There exist a number of hypotheses concerning the location of multiple languages in human brain. Contemporary researchers on this subject are of the opinion that languages are represented in one cerebral centre and are inhibited in various ways after cerebral damage. Panasiuk (*ibid.*) rightly points out that there is no unequivocality in the search for neurobiological correlates of bilingualism or in determining the mechanisms of aphasic speech disorders.

As an example, Dobek (2014, 46) discusses the case of the patient, a Swiss from the German-speaking region, who as a child, spoke the Swiss dialect of German.²

² At school he learnt standard German. At the age of 19, he went to France for six years, where he was perfecting his command of the French language, as a result of which he spoke French fluently. At the age of 25, he returned to Switzerland. He used the Swiss dialect with his family and friends, and he used French talking to his family during the holidays in the French-speaking part of Switzerland. After the stroke, he could understand all the three languages. Six months later, the patient started to speak French first, then the standard German, later he regained the ability to communicate in the Swiss dialect, which he had used rarely. The patient associated the French language with beautiful memories.

4. THE PHENOMENON OF INTERFERENCE

In multilingual persons relatively frequently there is an interference between languages in phonetics, semantics or grammar. The mother tongue (L_1) influences the second language (L_2) that the person does not use as fluently as the mother tongue. Peuser (1978, 323) described the case of a 68-year-old patient who suffered a brain injury as a result of a military action, which led to a sensory-amnesiac aphasia. Born in England, with an English mother and a German father, he spoke English only until he was 16. Then he moved to Germany, where he learnt to become a craftsman and married a German. With his wife he communicated in German only. After the examination, it turned out that the patient speaks English fluently. Interference could be witnessed when he was switching from language to language: it concerned English to a greater degree, where it affected the lexical and syntactic planes. In German the influence of the English language could be noticed in intonation and lexis. It was decided that the therapy would be conducted in one language (English). After a three-month therapy, there was an improvement in the use of English, but also in the use of German, which the therapy did not concern, although the phenomenon of interference was witnessed and this time it concerned the German language.³ The phenomenon of interference is most significantly manifested in the process of fast switching between language systems. This problem can be noticed even clearer during the conversation in German with the patient described.⁴

³ A: I'm born in Manchester /yes/and there I have gone to school/that was nineteen hundred eleven // and then / of course / my father was / äh äh äh / was war / come the war / you know / and my father was in the / mang /of course / and then he must go over to Germany / and we of course / we were all in Manchester / you know / and then / from then / nineteenthundred twenty one / my father had come / and take me / of course / my mother and the other children stayed in England before / bis all the things is over // and then they also came to Germany // when I came over I had an inglese Pass / because I was born in England /// when I came over to Germany it was not very nice //

B: Why?/

A: Because it was here / this / and that was nothing for me //

B: When did you come over to Germany?

A: I was sixteen/

B: And you couldn't speak German?/

A: Not one word / nothing /

B: Where did you learn it? /

A: Oh yes / I learned it in Hannover //

B: In England / your father and your mother didn't speak German /did they ?/

A: Yes / they speak English together // (cf. Peuser 1978, 325–326).

⁴ A: Ja/ich bin geboren in/äh äh/ in Manchester and to nineteenthundred null fünf/ js/ und dann neunzehnhundertundelf/bin ich in die Schule bis zu nineteenthundredand/äh äh /ein/äh/undzwanzig/ ja/und von da aus /äh/bin ich dann to /äh äh/ Deutschland gegangen/ja//

B: Und Ihr Vater war Deutscher?/

The phenomenon of interference was witnessed in the bilingual patient with sensory aphasia. It is worth noting that in the provoked spontaneous text, there occurred switching between the two language systems. The patient also experienced difficulty in finding appropriate words. Some researchers are of the opinion that after cerebral damage, the language best retained is not the mother tongue, but that language which was used less often. The claim that “there is no separate cerebral location for different languages” was justified with the holistic functioning of the brain (cf. Panasiuk 2013, 638). Paradis’ research shows that the dominating language system in polyglots with aphasic disorders is the one that is most important emotionally for the patient. In the case of the patient with sensory aphasia described by the author, the dominating language is English. Mastering a foreign language, apart from the mother tongue, is not an obvious acquired ability. It is the ability to express one’s thoughts in two different languages. Multilingualism contributes to the differentiation in thinking, in expressing feelings, in various activities. It significantly influences the whole personality. Thanks to it, the world of a multilingual person can be interpreted in a more diverse way. Also the research conducted on a bilingual person by the author of the present paper supports the thesis that each person should be treated individually in this aspect, there is no equivalence in the case of language system disintegration. This problem concerns also multilingual persons who in consequence of a cerebral damage suffer from aphasic disorders. The process of linguistic restitution may follow a different route depending on the type of bilingualism, the severity of the cerebral damage, the emotions that accompany the process. The holistic approach to the problem discussed makes it possible to understand the brain functioning better, while

human linguistic activities manifest themselves as the process in which the multidimensional interferences of biological, psychological and sociological variables are actualised. One

A: My father Deutscher /ja/my mother was an Engländer/yes/

B: Und welche Sprache haben Sie zu Hause gesprochen?/

A: Yes/erstens I had been/meine Frau/meistens Englisch (gemeint ist die Mutter)/aber später/wie die Kinder/die sind alle etwas jünger wie wir (meint: Geschwister) five/fünf Kinder/da habe ich /äh äh/haben wir manchmal Deutsch/die Kinder durch die Schule und so weiter//

B: Mit Ihrer Frau haben Sie auch Englisch gesprochen?/

A: Nein/nein/die kann kein Englisch / die kann nur einzelne Worte/

B: Dann gingen Sie nach Deutschland/

A: Ja/zum Lernen bin ich drei Jahre nach Hannover/ja/da habe ich nur Deutsch/leider konnte ich niemand finden// my father hat gesagt/ „is garnich schlimm/du musst Deutsch lernen“/nicht?/ und dann bin ich natürlich nach Krefeld gewesen/damals/nich?/äh/zwei Jahr/

B: Das war eine Färbereischule?/

A: Ja/nein/da wurde richtig /vier Semester/das war richtig mit alle Untersuchungen/mit chemische Farben/von weiß bis blau/bis zum Schwarz/you know//

should also take into consideration the fact that the development of bilingual aphasia initiates additional disintegration as well as compensational factors associated with a specific cerebral organisation of speech in bilingual persons. (Panasiuk 2011, after Panasiuk 2013, 642–643)

BIBLIOGRAPHY

- Alber, M.L., Obler, L.K., 1978, *The Bilingual Brain*, New York.
- Dobek, N., 2014, *Bilinguale Aphasie: Sprache und Gedächtnis bei bilingualen Aphasikern*, Saarbrücken.
- Grucza, F., 2004, *Bilingwizm*, [in:] *Encyklopedia Pedagogiczna XXI wieku*, red. Różycka E., t. 1, Warszawa.
- Leischner, A., 1987, *Aphasien und Sprachentwicklungsstörungen*, Stuttgart.
- Maruszewski, S., 1996, *Afazja – zagadnienia teorii i terapii*, Warszawa.
- Panasiuk, J., 2013, *Afazja a interakcja. TEKST – metaTEKST – konTEKST*, Lublin.
- Pačalska, M., 2012, *Afazjologia*, Warszawa.
- Penfield, W., Roberts, 1959, *Speech and Brain Mechanisms*, Princeton NJ.
- Poeck, K., Stachowiak, F.J., 1975, *Farbbenennungsstörungen bei aphasischen und nichtaphasischen Hirnkranken*, "Journal of Neurology", 209, 95–102.
- Peuser, G., 1978, *Aphasie. Eine Einführung in die Patholinguistik*, München.
- Rölleke, I., 2002, *Auswirkungen eines apoplektischen Insults auf die erste erlernte Fremdsprache, Drei Fallstudien*, Köln.
- Wallesch, C.W., Papagno, C., 1988, *Subcortical Aphasia*, [in:] *Aphasia*, R.F. Clafford, R. Whurr, M.A. Wyke (eds.), London, 49–78.