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Logopedics – The Science of Biological Determinants of Language and Language Behaviors

SUMMARY

Logopedics is the science of biological determinants of language and language behaviors. It describes and evaluates cognitive, language and communication competences, and assesses performance in implementing these competences, as well as it explains the biological causes that determine this state. It therefore investigates the participation of language in developing individuals' minds (in their diversified biological condition) and in building interactions. Since it is an applied science it also builds logopedic management strategies that change the undesirable states of language and the possibilities of language behaviors. The discipline thus understood permits us to distinguish two fields of its research activities: logopedic prevention (prophylaxis) and speech disorders.

Logopedic prevention forms the knowledge of diagnosing language and communication skills, as well as that of developing and maintaining these skills in persons within the biological and mental norms. Three areas of activities in the prevention space can be distinguished: "early logopedic intervention", "diagnostication of the condition of hearing and speech in children", and "artistic logopedics".

Speech disorders require that a logopedist/speech therapist be able to diagnose disorders, devise therapy programs and carry out therapies.

Through diagnosis, the logopedist can identify a disorder and gain insight into the cognitive, language and communication skills, which is necessary for programming and carrying out treatment. He accesses the speaker's cognitive functions (through vocabulary, semantic skills and narrative skills) and the speaker's ability to build a message (by analyzing the intentions and the ways of realizing them, by analyzing the activity of speaking, dialogic skills, and the social language skill).

Two prognostic procedures: programming and conducting a therapy provide knowledge of the following management strategies: a) building cognitive, language and communication competences (in deafness, alalia, oligophasia, autism, and in epilepsy incidents), b) improvement of speaking functions (in dysglossia, stuttering and dysarthria) c) stabilizing of language disintegration (in aphasia, pragnosia, schizophasia and in dementia).

Key words: logopedics, logopedic prevention, speech disorders, logopedic prognostication procedures, typology of speech disorders, logopedics prognostication, logopedic management procedures, diagnostic speech functions.

Logopedics still requires discussion on the subject of research, methodological independence and its due position among other sciences because, as the science of human behavior develops, the problems previously attributed to logopedics have proliferated and become immensely complicated.

In the context of the formula of the 17th Convention of the Polish Logopedic Society – “two hundred years of logopedics in Poland” – my belief is that these issues should be brought to the fore, highlighted, and re-formulated. This conviction stems from the fact that in recent years entirely new opportunities of perceiving this problem in a different way have appeared, and necessary needs have emerged. They are related to an almost unprecedented change in the forms of training logopedists in Poland.

Years ago, when I formed a post-structuralist system of propositions which defined the new subject of logopedics as compared with Leon Kaczmarek’s approach, I adopted his faith and arguments justifying its scientific independence.¹ It is a fact that before L. Kaczmarek no one posed the problem of logopedics’ autonomy so resolutely,² although the arguments which he adopted and promoted 50 years ago were not entirely lucid.

I have reasons to believe that the process of achieving autonomy/independence by logopedics ended with the establishment of full-time BA and MA programs in logopedics at Maria Curie Skłodowska University in Lublin and at University of Gdansk.³ This took place four years ago after the Ministry of Science and Higher Education issued the appropriate decree. In a year, we are going to have first MA logopedics graduates who have completed such an extensive training program as has never been known in the history of development of Polish logopedics.⁴

¹ S. Grabias, *Logopedia – jej przedmiot i stopień zaawansowania refleksji metanaukowej*, [in:] *Przedmiot logopedii*, (ed.) S. Grabias, series: “Komunikacja językowa i jej zaburzenia”, Lublin 1991, vol. I: 26–47; see also *Perspektywy opisu zaburzeń mowy*, [in:] *Zaburzenia mowy*, (ed.) S. Grabias, series: “Mowa, teoria, praktyka”, Lublin 2001, vol. I: 11–43.

² L. Kaczmarek, *O polskiej logopedii*, [in:] *Przedmiot logopedii*, (ed.) S. Grabias, series: “Komunikacja językowa i jej zaburzenia”, Lublin 1991, vol. I: 5–25.

³ At UMCS the name of the program is “logopedics audiology”. Responsibility for the audiology training was taken over by the Institute of Physiology and pathology of Hearing in Warsaw, headed by Prof. Dr Habil. Henryk Skarzyński.

⁴ In Poland, the most important form of awarding professional qualifications is post-graduate four-semester studies (with a minimum training program of least six hundred hours) and post-graduate two-term studies with a specialization in neurologopedics or surdologopedics. Despite the gen-

Study courses are certainly an important organizational argument – the effect of the recent intense development of logopedic research.⁵ However, I have to look at the problem of independence of logopedics from the perspective which L. Kaczmarek, the author of this postulate, could not have. This perspective is associated with an unprecedented development of linguistics, neurobiology, audiology, psycholinguistics and sociolinguistics – the disciplines which create reflection on human behavior with great thoroughness. The scientific method has many instruments which permit us to formulate satisfactory judgments on the level of development of a discipline and its position within other sciences. The most convincing are the theses that come from the neopositivist model of science, posing at least the following three requirements before an autonomous discipline:

- a sharply defined subject of research and the corresponding level of meta-scientific reflection,
- a hierarchy of goal implementation: each science first of all implements diagnostic goals; diagnosing of phenomena is also served by the accumulation of the existing knowledge in the range of a particular science – agnostic goals; applied sciences also formulate prognostic goals – they create the theory and practice of repair measures,
- appropriate research procedures and tools that verify their efficacy.⁶

Below is a selective - of necessity - overview of theoretical problems of Polish logopedics presented in the order followed in the model in question. I focus in it on the ideas rather than their application in devising the methods of therapeutic management.

eral requirements defined many years ago, the present post-graduate studies offered at many centers give their graduates mutually incompatible training on the national scale. For that reason the possibilities of programming and conducting logopedic treatment turn out to be mutually incompatible. We hope that full-time logopedic studies conforming to the curricular and professional requirements imposed by a proper scientific policy will bring order to the teaching process and the level corresponding to the achievements of knowledge on man, language and speech disorders.

⁵ There are three leading research centers in Poland in this field: UMCS in Lublin, which boasts the longest traditions, University of Gdansk and Pedagogical University in Krakow.

Lublin is the seat the Polish Logopedic Society and publishes “Logopedia” (an annual series, vol. 38 appeared recently. This is a point-awarding journal on the European Union list). The UMCS Department of Logopedics and Applied Linguistics has carried out many types of logopedic studies for 40 years. It also publishes the monographic series “Komunikacja językowa i jej zaburzenia” [Language Communication and Its Disorders] (ed.). S. Grabias – vol. 34 having been published recently) and the series “Mowa, teoria, praktyka [Speech, Theory, Practice]” (ed.). S. Grabias.

⁶ This model was exemplarily used by F. Grucza in assessing the development of applied linguistics in Poland, cf. F. Grucza, *Zagadnienia metalingwistyki*, Warszawa 1983. This book has always been and continues to be inspiring both to me and to young scholars trying to interpret the phenomenon of development and disappearance of language competences and skills in different cases of human existence.

1. The Subject of Logopedics. Difficulties in Defining It

The present state of Polish scientific reflection on the subject of logopedic research is as follows:

Logopedics is a science of speech disorders:

– its subject is part of other sciences: medical sciences, pedagogy and linguistics,

– it is an independent and autonomous discipline.

2. Logopedics deals with speech, with “all its aspects”. It is a multidisciplinary but independent science.

3. Logopedics is the science of biological determinants of language and language behaviors. Therapeutic and research procedures give it the status of an autonomous discipline.

The convention of this paper permits only a brief comment on the presented picture.

LOGOPEDICS – THE SCIENCE OF SPEECH DISORDERS

As late as the early 20th century the scope of the concept of logopedics overlapped with the content of the following formula: speech disorders and their elimination. This understanding of logopedics stemmed from the tradition of research that has developed in medical sciences for centuries. It was physicians who had the competence in explaining causes of speech disorders. Interestingly enough, despite their competences, they interpreted symptoms rather than causes.

The first known typology of disorders attributed to the eighteenth-century doctor Francois Boissier Sauvages distinguishes the following: voice disorders, muteness and mumbling speech. Adolf Kussmaul’s late 18th-century typology, essential for symptomatic interpretations of speech disorders, contains the disorder division resulting from the perception of language phenomena: articulatory disorders, speech disorders (i.e. language disorders without doubt), and content disorders. This universal division by Kussmaul has survived two hundred years and is only modified in diverse ways in present-day descriptions.⁷

Among the Polish descriptions of speech disorders, the first place should be granted to Władysław Ołtuszewski⁸, the doctor who practiced on the turn of the 19th century. Ołtuszewski distinguishes two groups of disorders:

⁷ See for example L. Kaczmarek’s classification (1. content disorders, 2. language disorders – disorders of language form, 3. substance disorders). I have included the full discussion of speech disorders typology in my study “Perspektywy opisu zaburzeń mowy”, cf. S. Grabias, [in:] *Zaburzenia mowy*, (ed.) S. Grabias, series: “Mowa, teoria, praktyka”, Lublin 2001, vol. I: 7–43.

⁸ W. Ołtuszewski, *Szkieł nauki o mowie i jej zloczeniach*, Warszawa 1905.

1. central disorders:

- aphasias: they arise from disorders of any perception: apart from perception aphasia, Ołtuszewski includes here disorders related to deafness, mental retardation, and “mumbling”,
- dysarthrias, which arise from motor disorders related to palsy, stuttering, and paralysis-related rhinolalia.

2. Peripheral disorders:

- dysarthrias: disorders related to clefts, deformations of speech organs, and other “mumblings”.

W. Ołtuszewski's idea was to introduce some order into the conceptual confusion which was always present in interpretations of speech disorders. He suggested that we treat the phenomena resulting from disturbed perception of the world (aphasias) in a different way from the phenomena resulting from impossibilities of realization (dysarthrias). W. Ołtuszewski's conception derived from the nineteenth-century interpretations of human behavior meets those linguistic theories that appeared sixty years later and founded their assumptions on the concepts of competence (knowledge acquired in many ways) and performance, realization of the knowledge in accordance with intentions.⁹

W. Ołtuszewski's approach appears to be justified although his conception gave way to the developing parallel idea of associating central speech disorders with the location theory which sought centers in the brain responsible for human functions. Regrettably, such a high level of scientific consideration never appeared again in later medical publications. No one was able to follow Ołtuszewski's vision and combine medical, philosophical and linguistic knowledge into a harmonious whole.¹⁰

The tradition of looking at logopedics through pedagogy (etymologically: logopedics = education in word; from Greek *logos* and *paideia*) came to Poland from the neighboring countries, especially from the Soviet Union. This is the way it is perceived in the popular consciousness: extensive sociologopedic studies conducted by the UMCS Students' Circle of Logopedists show that the logopedist is usually regarded precisely as a teacher/pedagogue. The idea of combining logopedics with special pedagogy, probably because of identical therapeutic goals of restoring a person's chances to live a full life, has appeared in Polish pedagogy

⁹ Cf. N. Chomsky, *Syntactic Structures*, Mouton, The Hague 1957, D. Hymes, *Socjolingwistyka i etnografia mówienia* [in:] *Język i społeczeństwo*, (ed.) M. Głowiński, Warszawa 1980: 41–82, cf. also S. Grabias, *Język w zachowaniach społecznych*, Lublin 1997, chapter *Socjolingwistyka czy socjologia języka?*, : 13–62.

¹⁰ This also applies to the eminent followers of his ideas H. Mitynowicz-Modrzejewska (*Fizjologia i patologia głosu, słuchu i mowy*, Warszawa 1963) and A. Pruszewicz (*Foniatria kliniczna*, (ed.) A. Pruszewicz, Warszawa 1992).

many times; recently, for example, in the studies by Jan Pańczyk, a special pedagogy theorist.¹¹

There is an area of logopedic operation which is defined by the concept of “growing language skills and competences”, which combines several disciplines in the research process: at least psycholinguistics, applied linguistics and educational linguistics.

The last two subdisciplines of linguistics also formulate their assumptions in relation to the subject of logopedics. Franciszek Grucza, a man of profound theoretical reflection, the founder of applied linguistics in Poland, directly included logopedics in the scope of the discipline he developed¹² – by making the growth of language and communication competence as well as the development of language skills and habits the subject of this discipline. Similarly, in her theoretically attractive conception of “educational linguistics” put forward years ago, Teodozja Rittel is ready to divide the space defined by the formula of “growing language competence in children” between logopedics and educational linguistics, reserving the problem of “disturbed competence” for logopedics¹³.

All the foregoing theoretical conceptions treated or still treat logopedics as a partial component of independent disciplines with clearly defined research subjects: medical sciences, pedagogy, or linguistics. At the end of the previous century, university centers in Poland witnessed the spread of the view recognizing logopedics as an autonomous science which deals with speech disorders. In this conception the task of logopedics is “to diagnose speech disorders, prepare treatment programs and conduct therapy”¹⁴. I have advanced this approach for over twenty years and today I still think that it is lucid and crystal clear in its structure. But there are reasons why I have to change my previous view and broaden the subject of logopedic research by introducing the formula of “biological determinants of speech”.

LOGOPEDICS – THE SCIENCE OF SPEECH

Before I begin to interpret this formula, however, I have to make brief reference to the conception of L. Kaczmarek, who, in the 1960s, recognized logopedics

¹¹ J. Pańczyk, *Logopedia akademicka i jej powiązania z pedagogiką specjalną*, [in:] *Forum pedagogiki specjalnej XXI wieku*, (ed.) J. Pańczyk, vol. IV, Łódź 2003.

¹² Cf. F. Grucza, *Lingwistyka stosowana. Historia – zadania – osiągnięcia*, series: “Języki, kultury, teksty, wiedza [Languages, Cultures, Texts, Knowledge]”, (eds.) F. Grucza, J. Lukszyn, vol. I, Warszawa 2007, see also: *Zagadnienia ontologii lingwistycznej: O językach ludzkich i ich (rzeczywistym) istnieniu*, [in:] *Opuscula logopaedica in honorem Leonis Kaczmarek*, Lublin 1993: 25–47.

¹³ T. Rittel, *Logopedia w systemie pojęciowym lingwistyki edukacyjnej*, [in:] *Opuscula logopaedica in honorem Leonis Kaczmarek*, Lublin 1993: 72–81.

¹⁴ Cf. S. Grabias *Postępowanie logopedyczne: diagnoza, programowanie terapii, terapia*, “*Logopedia*” 2008, vol. 37: 13–27.

as “the independent science of speech in all its aspects”¹⁵. In the research field so outlined he distinguished the following eight departments of this discipline:

1. Speech theory.
2. Development of speech in children.
3. Development of speech in hearing-impaired children.
4. Communication of the deaf-blind.
5. Perceptions of verbal utterances (auditory, visual and sensory perceptions).
6. Articulatory and acoustic phonetics.
7. Language communication disorders.
8. Theory of the culture of modern language (or the culture of living word).

L. Kaczmarek’s proposal can be explained only by means of the structuralist model of description of language and speech advanced by F. de Saussure and his followers. According to this conception, adjusted by Kaczmarek to his thesis, speech is a system of the following components: communication (speaking, writing, signaling), text (the substantialist product of communication – spoken, written, signaled), reception (understanding of an utterance), and language (the structure of signs built by a social group and acquired by an individual in the socialization process). This model tells us to treat language as an “instrument of communication”¹⁶, which an individual gains with difficulty by participating in social life.

The attempt to reconstruct L. Kaczmarek’s intention leads us to the conviction that the most important research field of logopedics is articulation/pronunciation (the phonetically correct, model realization of text, and pronunciation disorders) and agrammatisms. The scholar as well as the logopedic practitioner has to be equipped, therefore, in the ways of describing the phenomena of interest provided by articulatory, acoustic, auditory and visual phonetics and the linguistic knowledge about morphology and semantics. All these research tools first developed by phonetics and then by structuralism are sufficient for the interpretation of the process of speech development in the child who is biologically and mentally normal, but also in one deprived of hearing or hearing and sight simultaneously.

I presented a detailed criticism of L. Kaczmarek’s conception in the article *Logopedyczna klasyfikacja zaburzeń mowy* [Logopedic Classification of Speech

¹⁵ L. Kaczmarek, O polskiej logopedii, [in:] *Przedmiot logopedii*, (ed.) S. Grabias, series: “Komunikacja językowa i jej zaburzenia {language Communication and Its Disorders}”, vol. I: 5–25.

¹⁶ L. Kaczmarek, op.cit.: 6: “speech is an act in the process of language communication ...”. In L. Kaczmarek’s interpretation the least explained component of the presented system is “understanding of text”. It consists in arriving at the speaker’s mind, which, having no substance, may nevertheless be a lingualized being.

Disorders]¹⁷. Today, I only want to draw attention to the fact that while building the concept of “Logopedics as the science of speech” (i.e. language, communication (=sending/text production), reception, and text), Kaczmarek incorporated in its scope at least linguistics, psycholinguistics, applied linguistics and text theory. These are disciplines with huge, often far longer research traditions than logopedics. It takes considerable courage to classify them as departments of logopedics. We should, however, give Leon Kaczmarek his due: he gave Polish logopedics the form of science, put forward a thesis about its autonomy, treating logopedics as an independent discipline albeit heterogeneous, humanistic and at the same time biological¹⁸. And, although time proved Kaczmarek right in this respect, this fact does not excuse us from the duty to seek new approaches compatible with the current knowledge of man and his behavior. From the present-day perspective the methodological shortcomings of Kaczmarek’s proposition stem from the unprecedented changes in the perception of language and its role in the process of forming the human mind. In the 1960s, when Kaczmarek’s theory was formulated, the mainstream of European linguistics was entirely dominated by de Saussure’s structuralism whereas Noam Chomsky’s generative grammar was only emerging. Linguistic reflection focused on phonemes, words and sentences. And it did not go beyond the sentence¹⁹. Since then, almost everything has changed in linguistics. Language is understood in a different way than in structuralist theories while the concept of language behavior has assumed the form of many, hardly comparable theoretical conceptions.

LOGOPEDICS – THE SCIENCE OF BIOLOGICAL DETERMINANTS OF SPEECH

My position on this issue is as follows: I assume, and I have the right suggested by tradition to do so, that logopedics is a science of biological determinants of language and language behaviors. Consequently, it has to have a conceptual system as well as research tools and procedures allowing one

1. to assess and explain relationships between the states of language and language behaviors, and the course of central and peripheral processes that determine language behaviors.. Because logopedics is an applied science it should also

¹⁷ Cf. S. Grabias, “Audiofonologia” VI, 1994: 7 – 22.

¹⁸L. Kaczmarek’s organizational work cannot be overestimated: he brought about the establishment of the Polish Logopedic Society, was the founder and longtime editor in chief of the “Logopedia” yearly journal, and he organized Poland’s first postgraduate studies which trained logopedists. .

¹⁹ Cf. S. Grabias, *Język w zachowaniach społecznych*, Lublin 1997, chapter *Od lingwistyki strukturalnej do socjolingwistyki*.

2. build the practice and theory of management (procedures) leading to the change of undesirable states or to maintenance or perfection of states consistent with the biological norm.

This approach shows the dualism of the logopedic theory. One part – diagnostic – is the theory of growing or disordered competences and language communication skills. It reveals those possibilities of man's existence in the world that are determined by the presence or deficiency of language in his mind and behaviors. The other, prognostic part, i.e. the methodology of logopedic management, develops as the theory of building these competences and skills. Its subjects are programs of logopedic treatment and the organization of the course of therapies.²⁰ Further on, I will examine the two theoretical perspectives of logopedics in more detail.

In the process of investigating relationships between an utterance (in its full, verbal and gestural-mimic form) and the speaker's biological capacities, the researcher can assess:

– cognitive competence (the state of knowledge of the world and of oneself: its store, structure and possibilities of using knowledge segments); skills in using this competence in the process of utterance building (the organization of context, the way of verbal and non-verbal presentation); and he can explain biological causes determining the state of the competence and skill being assessed,

– language competence (unconscious knowledge on grammatical rules of sentence construction); skills in spoken or written realization of sentences; and he can explain biological causes determining the state of the competence and skill being assessed,

– communication competence (knowledge of language behavior patterns used in societal life); skill in utterance realization; and he can explain biological causes determining the state of competences and skills being assessed.

The concepts of assessment and explanation used in the model require the following comment: the assessment procedure consists in describing the state of specific competences or skills and in comparing the state described with the states observable in biologically and mentally normal persons. In contrast, the explana-

²⁰ In Polish logopedics the dualism of both theories is especially severe. It echoes the situation in the early 20th century, when the knowledge of language and human cognitive processes went a separate way from logopedic practice to such an extent that therapeutic management assumed the form of rather intuitive measures. They came down (which sometimes also happens now) to the unreflective application of most general procedures, especially those pertaining to pronunciation/articulation. This state of affairs was largely the result of influence of medical sciences which began to identify speech with pronunciation/articulation. Obviously, in such an approach there is no room for language, a mental being, subtly connected with speaking. W. Ołtuszewski's deep reflection was lost somewhere on the way, without a trace thereof in Polish medical papers. After all, in the most general and everyday sense, the logopedist is still treated as a specialist in pronunciation improvement.

tion procedure requires reference to the biological knowledge of the processes occurring in the brain and peripheral organs that determine language and language behaviors.

The scientist as well as the experienced logopedist has to, without doubt, take into consideration at least the following system of biological perceptual and realization skills:

- physical hearing (its dysfunction leads to deafness or hearing loss),
- phonematic hearing (dysfunction consisting in inability to distinguish between speech sounds; it appears in many disorders, e.g. in dyslalia)
- prosodic hearing (this dysfunction leads to aprosodia and inability to understand text),
- brain mobility and memory efficiency (mechanical brain injuries lead to aphasia, damage to metabolic processes, to dementia, mental diseases and retardation in speech development),
- functioning of the peripheral nervous system, the working of the muscular and bone systems of the speech organs (disorders in the functioning of these systems manifest themselves in dysarthria or dysglossia).

It should be strongly emphasized at this point that the assessed competences and skills, which constitute the sphere of human mental life, result entirely from man's central and peripheral biological capacities but are also directly manifested in the social sphere because language and language behaviors organize social life and their deficiencies place the individuals on the fringes of this life.

Those familiar with the theory of language find obvious the dichotomies underlying the present proposition. An indisputably important achievement of twentieth-century linguistics is the sharp division between the knowledge in human minds (cognitive competence, language competence, and communication competence) and the possibility of using this knowledge in particular language behaviors (performance, realization, execution). It has been assumed that competence is the result of cognitive abilities specific to man as representative of the species, and that it stems from socially established interactional behavioral patterns acquired in the process of socialization, whereas realization concerns creation - the creative way of using knowledge acquired earlier by the individual.

Logopedic, the science of biological determinants of language and language behaviors, must recognize as significant the finding that both competence and realization are formed first of all according to the individual's biological possibilities and express his/her brain mobility and the state of peripheral processes that take part in the realization of utterance. The discipline thus understood opposes the social determinants of language behaviors (these are described by e.g. sociolinguistics) and permits distinction of two principal fields of practical and research activities within its domain: the theory and practice of growing and disordered language competences and skills.

2. Theory and Practice of Growing Language and Communication Competences and Skills - Logopedic Prevention

There are at least three areas of activities where logopedics diagnoses language and communication competences and skills in order to:

- prevent predictable undesirable conditions: these goals are implemented in the type of management commonly known as early logopedic intervention,
- sustain the development of competences and skills: this management applies to children of different ages who are intellectually and biologically normal: school logopedics (e.g. B. Rocławski's logopedic glottodidactics), educational linguistics, preventive examination of hearing and speech in kindergartens and schools,
- build a theory of model competence and improve skills in realizing it: this is the name for the activities that were described as rhetoric some time ago and at present they have become part of the culture of the living word (modern language) and are turning into artistic logopedics.

3. Theory and Practice of Disordered Language and Communication Competences – Speech Disorders.

These are the most important areas of research and practical activities in logopedics because the logopedist diagnoses speech disorders, builds treatment programs for persons suffering from these disorders, and conducts therapy. .

Speech disorders and prognostic procedures.

I leave diagnostic management aside for a while: it requires the knowledge of symptoms of disorders and their causes; I will now deal with prognostic knowledge. This is the knowledge of effective alleviation of disorder symptoms. In logopedic practice it manifests itself through management procedures which I utilized many years ago to build a typology of speech disorders²¹

Because this typology indicates the way of therapeutic management, I called it logopedic classification. Here is the system of prognostic procedures:

1. Building competences in the minds of individuals: cognitive (cultural) competence or knowledge of the world; language and communication competence. These needs are produced by:

- deafness and hearing loss (impaired hearing) : competences do not develop because of improperly functioning physical hearing ;
- alalia and dyslalia: competences do not develop because of improperly functioning phonematic hearing (alalia applies to all types of competences; dyslalia is only a disorder in the realization of incomplete phonological structure);

²¹ Cf. S. Grabias, Logopedyczna klasyfikacja zaburzeń mowy, „Audiofonologia” VI, 1994: 7 – 22.

- oligophasia: competences do not develop because of mental retardation;
- autism: competences do not develop because of brain dysfunction;
- numerous forms of children’s epilepsy: because of brain dysfunction, competences do not develop fully or those developed earlier undergo degradation.

Obviously, in each individual case we deal with different degrees of competences but it is always insufficient for the correct realization of an utterance.

2. Improvement of speaking functions with the competences acquired:

- dysglоссия: disordered realization of phonemes stems from anomalies in the structure of speech organs (cleft palate and upper lip, occlusion defects, tongue immobilized by the frenum, laryngeal excision);
- stuttering and cluttering: disordered speech fluency produced by multiple organic causes and reinforced by logophobia;
- dysarthria: associated with cerebral palsies (disordered articulatory clarity in the realization of phonemes and consonant clusters; distorted prosodic sequences).²²

All the disorders in this group lead to the incomplete or sometimes only substitutive use of the competences acquired.

3. Stabilizing of the breakdown and sometimes restoration of speaking functions and the functioning of the brain:

- aphasia: it stems from mechanical injuries of the left brain hemisphere, its symptoms being the breakdown of language competence, communication competence disorders, and sometimes realization difficulties;
- pragnosia: it is the result of damage to the right brain hemisphere, its symptoms being the breakdown of semantic competence;
- schizophasia: it results from schizophrenia, its specificity manifests itself in narrative and in the unstable coherence of dialogic utterances;
- dementia: it is the result of the decay of neurons and synaptic systems; it is most clearly manifested in Alzheimer’s disease and leads to the loss of narrative, reduction of dialogic skills, disintegration of the knowledge of social relations and thereby to the breakdown of the “social language skill”, and finally, to the obliteration of interpretation of any events.

Each of these procedures, which I call strategies of logopedic management, requires different diagnostic measures and tools, and different characteristic therapeutic management.

²² Polish logopedics has a sufficiently standardized tool to study dysarthria, cf. U. Mirecka, K. Gustaw, *Skala dyzartrii. Wersja dla dzieci*, Wrocław 2006.

4. Logopedic Diagnosis

The research field of our discipline is always associated with the possibilities of diagnosing problems. Kaczmarek's logopedics, as has been said above, never went beyond the communication of knowledge because in structuralism language is only "a tool of communication". In view of the achievements of present-day neurobiology, the conceptions of A. Korzybski and constructivists that determine the thinking of human behavior, and finally, taking into account the achievements of psychology and cognitive linguistics²³, the definition of speech has to be as follows: speech is a system of actions that man performs with the use of tongue when getting to know the world and imparting the knowledge of the world and himself to other participants in social life.

I have presented this definition with complete argumentation in almost all my recent studies. I believe therefore that

1. Language is a path that leads to man's cognitive activities: his store of knowledge of himself and the world, the structure of this knowledge in the mind and the way it is used in interaction.

2. Language is a path that leads to human emotions and wants. By studying communication of the knowledge of ourselves and the world, we are able to express our judgment about the individual's intentions, their structuring in the mind, and about the ways of verbal and non-verbal expression of this communication.

3. Language behaviors determine and present the possibilities of man's existence in a social group. By studying these behaviors we can assess the degree of the individual's socialization.

This is the model of diagnostic activities. When presenting it, I strongly demand that we distinguish the logopedists' competences because they are continually confused from the competences of physicians, psychologists and teachers:

I. Diagnosis:

Description:

1. Examination of Interaction Skills:

- motor activity,
- articulation
- language,
- conceptual structures,
- dialogue realization,
- realization of narrative utterances.

Interpretation:

2. Analysis of Results of Specialist Examinations

3. Family History.

²³ I write extensively on the subject in the article: *Język, poznanie, interakcja*. [in:] *Język, interakcja, zaburzenia mowy*, (ed.) T. Woźniak, A. Domagała. Lublin 2007, s. 355–377.

4. Differential Diagnosis.

5. Diagnosis of a Case (opinion on the kind of disorder, capacities of the person being examined, and language and communication deficiencies).

In accordance with the positivist postulates of scientific research I assume that diagnosis requires two kinds of research techniques. One is ‘description’ or recording and describing the states and behaviors of the person examined, and the other – interpretation consisting in the inclusion of the recorded states and behaviors in the perspective of knowledge which explains their essence.²⁴

For the logopedist, the sphere of description is language behaviors. S/he should record and describe them. The field of interpretation permits the logopedist to explain the earlier described behaviors on the basis of the general knowledge of man, the knowledge constructed by specialized disciplines (e.g. medical, psychological or pedagogical knowledge) and on the basis of information provided by the (child’s or adult’s) guardians. This information usually verifies the recorded descriptive knowledge and helps with interpretation. The two procedures, description and interpretation, lead to a preliminary diagnosis, which allows us to assert about the condition of the mind of the person examined, and about the possible injuries of the brain and executive systems associated with speech and social life.

DIAGNOSING OF COGNITIVE FUNCTIONS

In identifying man’s cognitive capacities, especially useful is the analysis of vocabulary, the form of conceptual structures in the human mind, and the way of constructing narrative utterances.

1. Lexical Skills

Language, as we know, includes the cultural segmentation of the world. Words refer to referents and determine relationships between them. In forming mental relations, it is derivational constructions that are characterized by exceptional discreteness. We can certainly say that the individual’s lexical store is an index of his/her knowledge of the world and a sign of understanding relations between phenomena.

A doubtless symptom of disorder is the minimization of the lexical store observable in almost all cases of speech development retardation and in the breakdown of the mind (Alzheimer’s disease, aphasia), the lexicon’s specific orientation in the mind towards some sphere of reality (fixation in the Asperger syndrome) or reduction of the semantic structure of a word to the relation: word – referent. The word then becomes a mere label of things. This is the system – the image of

²⁴ Cf. S. Grabias, *Logopedia – jej przedmiot i stopień zaawansowania refleksji metanaukowej* [in:] *Przedmiot logopedii*, (ed.). S. Grabias, series: *Komunikacja językowa i jej zaburzenia* 1, Lublin 1991.

sound by lip movement referring to things - which deafness constructs in the human mind. It deprives a person of the relations between referents that are defined in language by means of derivational categories.²⁵

2. Semantic Skills

All human experiences are organized into concepts by the brain. Studies on the structure of concepts show that the healthy brain organizes experiences according to the socialized pattern while the sick brain structures knowledge in its own, highly subjective way. The cognitive definition of a phenomenon obtained from the utterance on its subject shows how the person investigated organizes knowledge. It also appears that the developmental norm of organizing experiences becomes established by the age of ten.

Here are two separate structures of concepts interpreted from a child's utterance. One concerns the way of organizing knowledge about persons - the concept of dragon (the structure developed on the basis of utterances of six-year-old children), the other is about an abstract being - the concept of fear (based on the utterances of ten-year-old children). The material in the presented examples is only a selection of utterances illustrating the structure:

Dragon (*Smok*)

1. Who is the dragon? : a definitional formula ("monster from a fairy story, a wild animal from a fairy story, a giant reptile, an imaginary creature" [dzikie zwierzę z bajki, wielki gad, stworzenie zmyślane]),

2. What does it/he look like? ("it is large, has bulging eyes, has a large tail and three heads, it has scales, looks horrible" [jest duży, ma wyłupiaste oczy", duży ogon i trzy głowy, ma taką łuskę, wygląda okropnie]),

3. What is it/he like ("evil and horrible, not useful because it devours sheep, dangerous to man" [zły i okropny, nie jest pożyteczny, bo pożera owce, groźny dla człowieka]),

4. What does it do? ("it belches fire, eats sheep, and finally bursts, drinks up rivers [bucha ogniem, zjada owce, a na końcu pęka, wypija rzeki]),

5. Where does it/he live? ("in the fairy story, in the dragon's lair in the Wawel hill, in a cave, in books" [w bajce, w smoczej jamie na Wawelu, w jaskini, w książkach]).

Fear

1. What is fear?: a definitional formula ("this is a kind of anxiety which is in a person, a feeling of apprehension that something bad is going to happen, a ter-

²⁵ On the role of word-formation constructions in cognitive processes not only in deafness see the book by E. Muzyki, *Konstrukcje słowotwórcze w świadomości językowej dzieci niesłyszących*, series "Komunikacja językowa i jej zaburzenia", (ed.) S. Grabias, vol. 24, Lublin 2010.

rible feeling in the heart which causes some uncertainty” [to taki lęk, który siedzi w człowieku; uczucie takiego niepokoju, że coś się stanie złego; straszne uczucie w sercu, które wzbudza jakąś niepewność]),

2. One who fears (“children are afraid/fear, all people are afraid because they have vivid imagination, everyone is afraid/fears, they fear most that they may be bitten by a dog [dzieci się boją; boją się wszyscy ludzie, bo mają bujną wyobraźnię; każdy się boi, najbardziej chyba tego, że może go ugryźć pies])

3. Characteristics of one who fears (“they go pale in the face and their eyes are very restless, sweat drips from their foreheads, their mouths grimace as if they were to start crying, they look like jelly, shaking all over” [robi się błądy na twarzy i oczy szybko mu biegają; pot mu kapie z czoła; usta mu się krzywią jakby miał płakać; wygląda jak galareta, wszystko się na nim trzęsie]),

4. Actions by one who fears (“they squeak and shriek loudly, don’t go out, - just staying in, locked up or under the bed, running like hell, that is very far away [piszczy i krzyczy bardzo głośno; nie wychodzi z domu, tylko siedzi zamknięty na klucz, albo pod łóżkiem; ucieka, gdzie pieprz rośnie, to jest bardzo daleko]),

5. Causes of fear (“someone may fear because they are not brave, one fears when they have strange anxieties, or because no one wants to help them and they are left alone” [ktoś może się bać, bo nie jest odważny; boi się jak ma dziwne lęki; bo nikt nie chce mu pomóc i zostaje sam]),

6. Circumstances of fear (“when someone is afraid, they have to be supported and comforted, or even hugged; they should be told that this is only their imagination; they should be taken care of and must not be left alone” [jak ktoś się boi, to trzeba go wspierać i pocieszać, a nawet przytulić; trzeba mu wytłumaczyć, że to tylko taka jego wyobraźnia; należy się nim zaopiekować i nie wolno zostawiać samego]).

The structures of the presented concepts of ‘dragon’ and ‘fear’ are universal. They can be easily obtained from the utterance of every developmentally normal child. The utterances of children with brain injury or brain dysfunction reflect only certain categories of the presented structures. They are also always characterized by the poverty of linguistic means and the absence of definitional formulas²⁶

3. Narrative Skills

Narrative, its structure and the way of organizing knowledge is a testimony of a person’s full mental capacity. It provides information on the ways of intellectualizing sensations (construction of references in the text to the reality perceived), on the logical or non-logical organization of events (creating the narrative line),

²⁶ I quote the structures of the concepts of dragon and fear on the basis of MA theses written for my seminars. The standardized concept of the dwarf (*krasnoludek*) was used in the Logopedic Screening Test for School-Age Children (*Logopedyczny test przesiewowy dla dzieci w wieku szkolnym*), cf. S. Grabias, M. Kurkowski, T. Woźniak, Lublin 2002.

on the arrangement of events into a structural whole (narrative must begin and end somehow while chains of events should produce a culmination event, which usually complicates the narrative line). Finally, narrative shows the creative or passive attitude of the person examined towards events and their participants (this component of interpretation of the narrative, called “psychological landscape”, shows the ability to enliven characters in the text).²⁷

Narrative is the most difficult form of human language activity because it is characterized by the closed structure with an extremely elaborate composition. For diagnostic purposes, guided by the studies by B. Bokus, I proposed the following systems of components of a narrative in the “Logopedic Screening Test”²⁸:

- initiation (start): the formula that starts the narrative (Once..., One day...) [Było tak..., Pewnego razu...],
- expositions: utterances that present a situation (The pond is frozen. Children play on ice [Jest zamrożony staw. Dzieci bawią się na lodzie.]),
- complication: the high-point event of the narrative (The ice broke and Jack fell into the water and started drowning [Lód się załamał i Jasio wpadł do wody i zaczął się topić.]),
- denouement: the way out of the complication (A man lay down [on his stomach] and passed a stick to Jack [Pan się położył i podał Jasiowi kij]),
- coda: the formula that ends the narrative (And children will never step onto ice anymore [I dzieci już nie będą wchodziły na lód]).

The narrative skills require that we should be aware of the full structure of utterances and the interactive technique of realizing them: a competent synchronization of verbal and non-verbal means. For most people suffering from speech disorders a satisfactory narrative utterance is beyond their capabilities. For example, the breakdown of the mind in aphasia or Alzheimer’s disease totally disintegrates the narrative. It will be inaccessible to deaf persons, autistic children, and mentally handicapped persons. It poses an insurmountable difficulty for children with speech development retardation.

Consequently, the diagnosis of language skills based on the examples of narratives stimulated by a picture story or descriptions stimulated by a picture, must

²⁷ Cf. See the exhaustive studies on the subject by B. Bokus and their results published especially in the books: *Tworzenie opowiadań przez dzieci: o linii i polu narracji*, Kielce 1991; *Świat fabuły w narracji dziecięcej* Warszawa 2000. A somewhat different way of interpreting narrative utterances was presented by T. Woźniak, see *Narracja w schizofrenii* Lublin 2005. This is in fact the only study on the subject in Polish. Professor T. Woźniak is also associated with the most in-depth studies on language and language behaviors in schizophrenia, see. T. Woźniak, *Zaburzenia języka w schizofrenii*, series “Komunikacja językowa i jej zaburzenia”, (ed.). S. Grabias, vol. 16, Lublin 2007.

²⁸ S. Grabias, M. Kurkowski, T. Woźniak, *Logopedyczny test przesiewowy dla dzieci w wieku szkolnym*, Lublin 2002.

result in a lower assessment grade of these skills. The ability to narrate in intellectually normal children appears, admittedly, already at the age of six but the ability to describe only at the age of ten.

The information that arises from the analysis of the three components of language behaviors (vocabulary, structure of concepts and narrative capability) shows the picture of reality in the human mind. It allows us to determine whether a person examined remains in the socialized world explainable by means of popular notions or whether s/he remains in the subjectively closed world constructed within the capacities of the damaged brain (which is most clearly observable in schizophrenia, in Alzheimer's disease, and in autism).

The explication of the patient's picture of the world, obtained from his language behaviors by the logopedist, directly leads to the assessment of the individual's capacity for socialization. It allows us to ask the question: to what extent is this person able to cope in social life?

DIAGNOSIS OF COMMUNICATION. REALIZATION OF INTENTIONS

The act of communication is the transmission of information about oneself and the world to other participants in social life. It is always an act of revealed intentions.²⁹ The analysis of communication behaviors permits the logopedist to get to both intentions themselves and the ways of how they are realized.

1. Intentions and Their Realizations.

The problem of intention is extremely complicated in scientific reflection. In my proposal I start from the assumption that all wants that a person realizes through his/her behaviors can be reduced to the following four types: intentions to inform (I want you to know that...; it is realized in speech acts that describe the reality: "This is a car", "the dog is nice"); intentions to act (I want to change a given state of affairs; it is realized in executory acts of the type: "We are going [let's go] to the cinema", "make some tea"); modality intentions (realized in acts showing the reality of a phenomenon: "I am sure...", "I doubt that...", "It seems to me that..."), and emotion intentions (the speaker's emotional states are always present in the utterance; we read them on the basis: "I feel anger", "I feel joy", "I feel despair").³⁰

²⁹ I assume that every language behavior is an intentional act and the intention of an utterance is overt or hidden in a special way but accessible to the receiver in effective acts. Non-intentional behaviors, which are the effect of biological compulsion as in autism (e.g. multiple repetitions of the same phrase) are echolalic behaviors.

³⁰ On exactly the same subject see S. Grabias, *Język w zachowaniach społecznych*, Lublin 2003, Chapter: Cel wypowiedzi, p. 289 et seq.

It is certain that intentions constitute a structure: the qualitative and quantitative system of wants manifested in a person's behavior, and that an intellectually and sensorily normal person is determined in his/her behaviors by this very system. The damaged brain changes the structure of intentions and generates human wants in its own way.

Diagnosis of the communication involves first the assessment of the intentions system of the person examined, and then the assessment of the verbal and non-verbal means of realizing them. For example, the structure of intentions of an autistic child definitely differs from the intention system of a child with Down's syndrome. Studies show that the main difference concerns the need to inform and the need to communicate emotions.³¹ There is also a definite difference between the ways of realizing intentions both in the sphere of verbal and nonverbal behaviors.

In the behaviors of autistic children and children with Down's syndrome we can observe relative harmony in the use of words and nonverbal means. In the behaviors of children with cerebral palsy the two types of communication, verbal and gestural-mimetic, turn into independent, often contradictory systems, which definitely impedes the process of reading intentions, thereby thwarting the efficacy of the speech act.

Modality in schizophrenia is characterized as a rule by total confidence of judgment expressed by the schizophrenic person, whereas modality in aphasia results from a different, opposing attitude and manifests itself as continual doubt.

The system of intentions manifested in the child's behaviors shows the degree of harmonious mental development. The structure of intentions in the breakdown of the mind is the picture of the mind's disintegration (in Alzheimer's disease, as it progresses, all needs disappear).

2. Speech Functions

The traditional diagnosis of communication was limited to assessing speech functions and seeking instances of agrammatisms in the texts produced by the person examined. It is still significant in logopedic diagnosis if we take at least the following components into consideration:

- motor activity of the speech organs: its reduced efficiency shows paralyzes or anomalies in the structure of these organs,
- articulation/pronunciation: the state of articulation follows from the system of several actions: phonematic hearing (which shows the complete or incomplete

³¹ Emotions can, as we know, be communicated intentionally (in utterances of the type: "I am extremely sorry", "What an idiot!") or can manifest themselves in a person's behaviors without his/her consciousness, e.g. in intensified gestures, uncontrolled cries. See S. Grabias, *Język w zachowaniach społecznych*, Ibid. An utterance by the child with Down's syndrome is usually fully emotional with a visible desire to communicate positive emotions.

phonemic structure in the mind), the manner of realization of the full phonemic inventory (realization of phonemes in the basic position permits us to establish a set of phonological variants and interpret them as normative sounds, deformations or substitutions), and from the process of co-articulation occurring in consonant groups³² (co-articulation disorders are evidence of dysglossia, dyslalia, dysarthria, or impaired hearing).

– speech prosody: anomalous realizations of intonation, speech pace, and of making pauses, are evidence of brain damage, impaired hearing or dysarthria, and they are a constant element of stuttering.

The theory of communication, especially sociolinguistics, has provided the logopedist with one more tool for the assessment of communication capacities. This is the testing of dialogue skills.

3. Dialogue Skills

Dialogue, the most important form of human language activity, is the fabric of socialization process. It is through dialogue that the child gets to know the world and learns the language. From the earliest moments of his life, he enters into social interactions through dialogue, first by nonverbal means and with time by means of words as well. Therefore, the structure and realization of dialogue can provide knowledge on the individual's mental and social development and on the degree to which s/he has mastered the language.

A dialogue utterance is thematically open-ended. The dialogue participants can easily switch from one theme to others in their conversation. The utterance is unpredictable both in its content and in duration. It usually requires only the unconscious knowledge of the existence of a minimal interaction structure and the ability to fill this structure with the verbal and gestural-mimetic fabric. This structure can be presented in the following model: initiation - reaction - coda³³ (“Shall we go for a walk” [Idziemy na spacer]? “Let’s go on the swings” [Na huśtawki]! “Let’s go then” [No to idziemy]). Each of the components of this structure may take its specific formal shape (e.g. absence of the coda, incomplete reaction) and, depending on the interaction possibilities of the person examined, it is conventionally or creatively filled with words, gestures, and mimetic behaviors.

In conversations with children who are normal in intellectual and sensory terms, the realization of dialogue in action (e.g. while painting) considerably dif-

³² A complete description of consonant groups in Polish is contained in the book by S. Milewski, *Lingwistyczne i dydaktyczne aspekty analizy fonemowej*, series: *Komunikacja językowa i jej zaburzenia*, vol. 17, (ed.). S. Grabias, Lublin 1999.

³³ On the methodology of describing dialogue see J. Warchała, *Dialog potoczny a tekst Kato-wice 1991*; B. Boniecka, *Struktura i funkcje pytań w języku polskim*, series: *Komunikacja językowa i jej zaburzenia*, vol. 18, (ed.). S. Grabias, Lublin 2000; A. Domagała, *Zachowania językowe w demencji*, series: *Komunikacja językowa i jej zaburzenia*, vol. 20, (ed.). S. Grabias, Lublin 2007.

fers from the realization of intellectualized dialogue (e.g. while telling a fairy story) both by the structure itself and the length of themes, and by the nonequivalent share of words in relation to gestural-mimetic means. Dialogue utterances in speech disorders take specific forms depending on the kind of dysfunction (different, for example, in deafness, different in Alzheimer's disease and entirely different in schizophrenia). In children with speech development retardation they are structurally simplified and have the impoverished interaction fabric.

4. Social Language Skills

In language interaction there are vast possibilities for subtle diagnosis of sociolinguistic language competence, which is a significant component of the social adjustment process. Sociolinguistics introduced into the description of interaction the concept of social and linguistic roles which require that interaction participants know interaction patterns and are able to choose language means depending on to whom the communication is addressed (talking to children is different from talking to adults, talking to the latter depends on whether they are the speaker's family and friends or unknown to him; in official social interactions – talking to one's subordinates is different from talking to one's superiors).³⁴

The breakdown of the mind in Alzheimer's disease entirely destroys the ability to realize social and linguistic roles.³⁵ In all types of speech development retardation (in mental disabilities, in deafness, alalia, and in autism) the knowledge of social communication patterns develops with difficulty and usually remains at the level of substitute knowledge.

Description and Interpretation in Logopedic Diagnosis

To finish this necessarily simplified presentation of description we have to assert that description is the most important component of logopedic diagnosis. It is the logopedist's exclusive area of activity because it is only the logopedist who has appropriate competencies to assess disordered communication behaviors and the tools for recording and describing various manifestations of these behaviors

Nobody is an equal partner for the logopedist in this respect since his competence stems from the subject of logopedic research. It is especially speech disorders that remain outside the research scope of related disciplines such as linguistics, psycholinguistics, or sociolinguistics. Within the scope of medical sciences is man in his biological entanglement. Logopedics, on the other hand, observes

³⁴ I described the system of social and linguistic roles in detail in the book: *Język w zachowaniach społecznych*, Lublin 2003, Chapter: *Spoleczna pozycja odbiorcy*, : 268 et seq..

³⁵ An exhaustive interpretation of communication behaviors in Alzheimer's disease was presented by A. Domagała, *Zachowania językowe w demencji*, op. cit.

the participation of language in the development of individuals' minds (in their diverse biological condition) and in building social relationships.

Description in logopedic treatment permits us to realize two goals: a) it provides the necessary grounds for the final diagnosis, which is the identification of a disorder type; b) it shows the systems of language skills and skill disturbances in interaction courses, which is necessary for programming therapy and then for conducting it.³⁶

The other diagnostic procedure is interpretation. The logopedist, equipped with the descriptive knowledge of language behaviors, must identify the type of disorder on the basis of analysis of the results of specialist examinations (medical, audiological, or psychological) and on the basis of the patient's family history. Only the family history can provide plausible knowledge of genetic predispositions in the family, including the period of the individual's life, in which biological damage took place. The procedure called "differential diagnosis" in the model of logopedic treatment is based on the knowledge and experience of the logopedist, who often has to distinguish between disorders that have similar symptoms.

5. Treatment

The logopedist also has to have knowledge of the other procedures of logopedic management. Apart from diagnosis, these are: programming of therapy and therapeutic management.

I. Programming of Therapy. The Program Framework:

1. Aims of logopedic management.
2. Strategies and methods of management
3. Organization of management

I. Therapeutic Management:

1. Organization of therapy stages and their assessments. The Choice of measures and aids
2. Keeping documentation
3. Verification of diagnostic hypotheses
4. Modification of the program.

Programming of therapy requires the logopedist's greatest intellectual effort: the ability to combine into a synthesized whole a general knowledge of human behavior, of language and its disorders, and of the possibilities and methods of

³⁶ For an expert scholar, and the more so for an experienced practitioner it is fairly simple to identify a disorder. Even disorders related to brain injuries do not pose major diagnostic problems. The genuine problem in logopedic diagnosis consists in the ability to detect deficiencies in the systems of language and communication skills. It is this skill of the logopedist, consisting in identification of man's actual possibilities, that determines the efficacy of the programming and course of therapy.

management in a disorder. It also requires consideration on the order of importance of therapeutic steps.

These procedures are clear and do not require special comment. It is the logopedist's duty to formulate the goals of therapy, management methods, and, most importantly, to determine its measurable stages. All the procedures of therapeutic management have to be documented and constantly adjusted for the capabilities of the patient undergoing these procedures.

The theoretical keystone of the foregoing discussion should be the following reflection on the nature of language. For centuries, the debate on its essence has gone on between two extreme standpoints. The first one stems from the belief that "language is a social phenomenon", because it is this group (society) that has created language motivated by needs for interaction, and that an individual can learn language, which s/he acquires in the process of socialization (structuralism, sociolinguistics). The second standpoint treats language as an immanently human feature. It assumes that language is "innate to man" because it is only man who can learn language while language behaviors are the only ones that distinguish man from among living beings.

The thesis that language is a constitutive feature of man, an exclusively human phenomenon, is confirmed by neurobiological studies. The question why this is so can be answered at the beginning of this 21st century like this: because the human brain is the most organized structure in the world and only the brain can cope with language, which is also an immensely complicated entity.

Another question, fundamental for the process of language interiorization, why does one person learn a language faster and another more slowly?, leads to the following answer – the biological structure determines the limits to capabilities on this basis: for a species this is impossible in any way. However, biology creates different realizations of capabilities for individuals within a species, depending on individual properties. For centuries, the continually prevalent belief was that it is socialization that fully determines the process of language acquisition. The most recent studies on the brain and human behaviors will probably change views on the subject. We will have to admit the following thesis for consideration: if language is "innate" to man, then man cannot simply *not* have language.³⁷ It seems that this is indeed the case. Logopedics confirms that there

³⁷ It is still easier to answer the question about what language is not. It certainly is neither the instrument of communication nor cognition. It manifests itself in every act of human consciousness, in any interpretation of phenomena, and it cannot be excluded from this act. For man cannot stand in front of the world in some languageless state.

Nor is language a structure of signs created outside of the individual's mind and introduced into the brain through behavioral stimulation. Indeed, the second language can be programmed to some extent, just as there are efforts to program the first language in cases requiring logopedic intervention. However, the logopedists' efforts will also be the less satisfactory the less the individual's brain and his/her cognitive experience are able to participate in the process of language program-

is no speech disorder whatsoever that could entirely deprive a person of language contact with other people.³⁸

Therefore, we need a new discussion on the role of socialization in the process of language acquisition, so that the logopedist could also reasonably answer the question whether, while building the language, s/he will have to program each element of the system in the patient's mind? Today we can only state for sure that the logopedist should utilize in therapy everything that is available in a situation.

Encouraged by Alfred Korzybski's theory regarding the role of language in cognition of the world, which subject has been discussed for years, I present the problem as follows: a single individual, equipped with senses, faces the world alone because the senses of each of us project impressions in their own way because sensory cognition is itself highly subjective. But man has the language which presents these subjective sensations in the form of rational and intersubjective beings. An intellectually and biologically normal individual receives language as a gift: s/he acquires it imperceptibly, without effort, as well as gaining rationalized intersubjective cognitive structures that go with it.³⁹

It is also believed that cognitive structures not only objectivize experiences but also filter the flow of stimuli to the brain because the brain perceives only the stimuli that it is able to interpret, which it does through cognitive structures. Therefore, there is no other picture of the world than the linguistic one; there can at best be pictures of the world constructed by different languages.

ming. Logopedics also provides a negative verification of the thesis of generative grammar that language is an ideal construct, equally characteristic of all individuals as an innate entity.

Language is without doubt a part of the human mind, built according to the brain's biological capacities and man's motor experience. Depending on these capabilities man interiorizes both language and programs of language behaviors to a different extent.

³⁸ An extremely disadvantageous situation for the interiorization of language and communication competence is deaf-blindness. It turns out, however, that even prelingually deaf-blind persons have language foundations and interpret the world in language terms, cf. E. Niestorowicz, *Świat w umyśle i rzeźbie osób głuchoniewidomych*, series "Komunikacja językowa i jej zaburzenia", (ed.), S. Grabias, vol. 21, Lublin 2007.

³⁹ For more, see S. Grabias, *Język, poznanie, interakcja*, [in:] *Język, interakcja, zaburzenia mowy*, (ed.) T. Woźniak, A. Domagała, Lublin 2007: 355-377.