The Psychology of Multilingualism

The Psychology of Multilingualism:

Concepts, Theories and Application

By

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TABLE OF CONTENTS

PREFACE

Forty-five years ago the author of this book examined the worldviews of children entering school. He noticed that some of them considered words to be an invisible property of the objects they denoted. Because they were guided by the properties of objects when judging the length of words, they thought that the word *ox* was longer than the word *mosquito* or *ladybug*. After the author asked them to explain why they think so, some children answered: *It is because an ox is big, a mosquito is small*. At the same time, however, he noticed that this phenomenon, known as nominal realism in the context of Piaget's theory of cognitive development, was beginning to decay earlier in children who had experience with two or more languages. This random observation directed the author's interest in multilingualism and related phenomena, and he has been investigating their impact on individuals and groups ever since. Here are some interesting questions that aroused his interest: How does someone become bilingual or multilingual? What relationships are built up between the language systems of multilinguals, and what are the impacts of these systems on each other? What are the consequences of long-term linguistic contact between different languages, and when or how much can one language modify the typological features of another language that is intensely related to it? What are the mechanisms that allow bilinguals and multilinguals to use their languages alternately in different life situations? How does the personality of children educated in linguistically, ethnically, culturally and religiously heterogeneous communities develop, and what are the psychological effects of bilingualism or multilingualism in these, more or less additive or subtractive situations? What problems occur in the pedagogical practice of such communities? Since many bilinguals and multilinguals are in a dominated or minority position, and the functions of their first language (mother tongue) are limited, how can they best be provided with human linguistic rights? These are just some of the intriguing questions that have attracted the author's attention over the past four decades devoted to studying the phenomenon of multilingualism.

Parallel to his interest, public interest in multilingualism has also grown. Namely, multilingualism (including bilingualism) has become an internationally important issue not only for the reason that more than half

of the world's population lives in some form of a bilingual or multilingual linguistic environment, but also because of the increasing interdependence between countries, regions and continents, and, more recently, because of increasing concern about preserving linguistic and cultural diversity. Investigations in many sciences concerning different aspects of multilingualism and discussions in the public arena on issues related to multilingualism are constantly increasing.

This book is a comprehensive introduction to the research on multilingualism, and attempts to define the psychology of multilingualism as a distinct field of study. Although psychological aspects prevail, it provides a multidisciplinary perspective on individual and societal multilingualism, including insights from linguistics, pedagogy, cognitive neuroscience, sociolinguistics and psycholinguistics. Similar to Beatens Beardsmore's (1986) book, "it underlines the normality of speaking and using more than one language and aims to dispel many myths and fears". The book approaches multilingualism as a cognitively challenging experience. Besides theoretical issues, practical recommendations are also abundant on how to promote multilingualism in children from dominant language groups, and especially on how to maintain both/all languages of children from ethnic communities through education as well. It is primarily based on the results of investigations conducted by the author and his associates over the past four and a half decades in heterogeneous regions in Central and Eastern Europe, but these results are placed into the context of worldwide research on the topic.

The content of every book can be structured in many ways. This book contains six chapters, followed by references, and an index of authors and subjects. Chapter I is devoted to general questions of the psychology of multilingualism (tasks, subject matter, development, methods of research, and domains). Chapter II contains the basic concepts of the psychology of multilingualism and scientific knowledge related to these concepts. They are derived from the psychology of language, from the sciences of bilingualism and multilingualism, and other sources, mostly from developmental and educational psychology, cognitive neurosciences, and sociolinguistics. The psychology of multilingualism utilises psychology of language definitions and basic knowledge concerning speech, language, the psychophysiology of speech, language acquisition, theories of language development, and views about the relationship between language or speech and thought. The sciences of bilingualism and multilingualism have enriched the psychology of multilingualism with the definitions and knowledge related to the mother tongue, to bilingualism/multilingualism, and the types of

bilingualism/multilingualism. Definitions and related knowledge on linguistic minorities/majorities; linguicism; assimilation/integration; concepts related to the speech and intellectual development of bilinguals and multilinguals (like semilingualism, or the relation between language systems in simultaneous language acquisition, surface and cognitive language competence, Cummins' threshold hypothesis, and the hypothesis of the interdependence of language proficiency); concepts related to social psychological connections of bilingualism and multilingualism, like diglossia, or functions of speech and language; or concepts related to such pedagogical questions as the optimal age to start with the institutional teaching of a second language, were taken mostly from developmental and educational psychology, cognitive neurosciences, and sociolinguistics. The third chapter of the book deals with a psychological analysis of the balance-dominant and coordinate-compound types of bilingualism, integrated with research on associations and meaning, and models of bilingual and multilingual functioning. Chapter IV discusses multilingualism from the perspective of developmental psychology and personality psychology and is devoted to the relation of multilingualism and intellectual development, multilingualism and memory research from a developmental perspective (storing, retaining and recalling information), and to multilingualism and metalinguistic development. Chapter V is about the social psychology of multilingualism. Issues of biculturalism and multiculturalism, multiple acculturation, contact variants of bilinguals' and multilinguals' languages, and the decrease of linguistic and cultural diversity and their consequences are discussed in this section. The sixth and final chapter is devoted to the educational aspects of the psychology of multilingualism. It contains knowledge about glottodidactics and theories of transfer, and about models (typologies) of bilingual/multilingual education. This portion ends with dilemmas on choosing and changing the language of instruction in the education of (indigenous) minority and majority students.

A short notice concerning the structure of the book chapters might be of interest to the readers. In this book, I tried not to break the basic flow of the main text with digressions. However, since this field of research is very fragmented and diverse, and the readers may also have an unequal level of earlier information from certain fields, at the end of each chapter, notes are given—sometimes even in more detail than the main text. These notes are especially important for those who already have basic knowledge in this field but are interested in putting it in a broader theoretical context. So, the notes are primarily for readers who intend to deal more thoroughly with the psychology of multilingualism. References are also included at

the end of each chapter. In addition, across the whole text, the term *multilingual* (meaning *more than one language*) is used, except in cases where the source cited explicitly refers to the number of languages. The book ends with three things: a selection of sources which were used in its composition but which were not cited in the References; an author index; and a subject index.

The work may be of interest to researchers and university students in psychology, linguistics (theoretical and applied) and education, at all levels of study. It may be useful for professionals, language teachers, translators and interpreters, school leaders, programme designers, policymakers, and also for parents, because more and more children grow up multilingually in our globalised world.

Also, as a psychologist by training, in the preface I wish to emphasise the following: the psychology of multilingualism is, in my view, today one of the sciences of psychology, which can be defined as the study of one's inner life, experiences and behaviour in different multilingual settings—be they familial, neighbourly, educational, professional, regional or national. My approach investigates the processes of transforming messages into thoughts and thoughts into messages, receiving and sending messages, and all the related phenomena (associated with a myriad of internal and external determinants), but in situations when more than one language is at stake. As Marian and Shook (2012, p. 1) state: "We are surrounded by language in nearly every waking moment of our lives. We use language to communicate our thoughts and feelings, to connect with others and identify with our culture, and to understand the world around us. And for many people, this rich linguistic environment involves not just one language but two or more. In fact, the majority of the world's population is bilingual or multilingual". All this is reason enough for this intriguing segment of reality to become the subject of study of a particular psychological field.

Novi Sad, December 2019
The author

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CHAPTER I

PSYCHOLOGY OF MULTILINGUALISM AS A FIELD OF RESEARCH: ITS TOPIC(S), TASKS, PLACE IN THE SYSTEM OF SCIENCES, DEVELOPMENT, METHODS OF RESEARCH, CHARACTERISTICS, AND DOMAINS[*]

The view that monolingualism is the basic field of research was dominant for a long time, considered by many scientists to be the natural linguistic arrangement. But nowadays in literature on multilingualism (including bilingualism), multilingualism is viewed as the usual state and monolingualism is treated as a peculiar, uncommon phenomenon, given that half of the world's population lives in some form of a bi- or multilingual linguistic environment[1] and uses more than one language. A very informative illustration concerning the use of more than one language in the European Union and some of its member states, and using other languages besides English at home in the USA can be found in Marian and Shook (2012). They refer to a survey conducted by the European Commission in 2006: fifty-six percent of respondents reported being able to speak in a language other than their mother tongue. In some European countries that percentage is even higher—for instance, ninety-nine percent of Luxembourgers and ninety-five percent of Latvians speak more than one language. The same authors state, that "Even in the United States, which is widely considered to be monolingual, one-fifth of those over the age of five reported speaking a language other than English at home in 2007, which is an increase of 140 percent since 1980. Millions of Americans use a language other than English in their everyday lives outside of the home, at work, or in the classroom. Europe and the United States are not alone, either. The

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Associated Press reports that up to sixty-six percent of the world's children are raised bilingual" (Marian & Shook, 2012, p. 1).

Multilingual communities are not only linguistically but usually also ethnically, culturally and religiously heterogeneous. The members of these communities face, on a daily basis, the phenomena—that is, the most usual manifestations—of multilingualism and multiculturalism, bilingualism and biculturalism: in other words, they face the alternate use of two languages and the problem of adjustment to the different system of values and norms often existing between the cultures in question. The study of such situations presents a serious challenge for a large number of sciences (linguistics, psychology, pedagogy, sociology, history, demography, and neurology; as well as the hybrid sciences, like cognitive neuroscience, sociolinguistics, psycholinguistics, etc., which were created on the boundaries between some of these sciences). Although a vast amount of information has been gathered on the most diverse aspects of the abovementioned phenomena, within what is proven by the extent of literature on bilingualism and multilingualism[2] today we can only speak of an integral science that studies multilingualism and the related phenomena hypothetically. The reason for this is that it is a broad field of research which is much divided: it is comprised of different disciplines and fields of research, from which the science of multilingualism as an independent and integrating discipline is slowly emerging. There are some palpable signs of this synthesis: some fields of research devoted to multilingualism can use findings from other fields with similar interests more and more frequently for expanding or checking their findings.

One of these fields of research is the psychology of multilingualism. Its task is to answer the following questions: Who and under what kind of circumstances will become multilingual? How do the different types of multilingualism come into being? What are the psychological aspects of multilingualism and multiculturalism? How do early multilingualism and other developing psychological functions relate to each other? Why do the various types of multilingualism cause the personality to develop in different ways, and for certain dispositions to emerge in different extents and directions? Beyond these general questions, some more specific ones are also present, for example, what are anomie, double semilingualism, surface and cognitive linguistic competence, bilingual and multilingual education/instruction in two or more languages, and what are their psychological effects? How does the chosen language of instruction affect students' development of personality in culturally and linguistically heterogeneous communities? Why does the exchange of language used at

home when a different language is used at school have unequal consequences for students belonging to the linguistic majority and the linguistic minority, respectively? Why do students with a low cognitive linguistic preparedness underachieve in school? It becomes evident from the questions that the topic of the psychology of multilingualism[3] is the study of the psychological regularities of multilingualism and the related phenomena, especially their effects on one's inner life, experiences, and behaviour. If we emphasise in the given definition these psychological aspects, then we separate the psychology of multilingualism from the disciplines which also deal with these phenomena, but which do not deal with their psychological components. At the same time, we separate it from other psychological disciplines if we determine as its emphasis the study of multilingualism, given the distinct interests of other psychological disciplines.

From the perspective of the system of sciences, the psychology of multilingualism is bivalent, as it closely relates to the sciences of multilingualism as well as psychology. Its development underlines this claim. Even before the advent of the psychology of bilingualism and multilingualism, numerous psychological disciplines were faced with the phenomena specific to heterogeneous communities. However, because of their subject, their focus was not on bilingualism or multilingualism, they rather studied it along their way towards seeking the answers to other psychological problems which were of greater importance to them. (One of these problems is the relationship between thought and speech; another is the influence on development of a more diverse multilingual and multicultural social environment, which is different from a monolingual and monocultural one. For the study of these issues, bi- and multilingual individuals are very convenient subjects, because possible changes occurring in their thinking when they switch from one language to another—which they may speak at a different level of proficiency—can be scrutinized. This is something that monolingual individuals are not, or are less, suitable for.)

Among the psychological disciplines, both developmental psychology and developmental psycholinguistics have studied the effects of early multilingualism, mostly bilingualism, on the development of personality (especially cognitive development, i.e. speech development and the development of general intelligence), while social psychology has dealt with the types of bilingual and multilingual situations and their influence on socialization. Educational psychology has been concerned with the curricula of heterogeneous communities and their consequences, experimental

psycholinguistics has focused on verbal behaviour occurring in bilingual and multilingual situations and the relationship between linguistic systems, and both psychophysiology and neuropsychology have studied the physiological and neurological basis of bi- and multilingualism. The psychology of multilingualism systematized and synthesized the knowledge of these disciplines, concentrating its research on multilingualism and its related phenomena, and taking into account what other non-psychological disciplines—primarily linguistics and, more recently, sciences—claim about multilingualism.

In this sense, the psychology of multilingualism can be characterised as an interdisciplinary field of research situated at the intersection of the domains of several sciences; it is a field in which the psychological viewpoint dominates, and it uses in its research methods applied in psychology. Its essential method is observation, from accidental observation through systematic observation to natural and laboratory experiments. The psychology of multilingualism also applies transversal and longitudinal research, but experiments using control groups are especially frequent. In these experiments, monolingual groups that have been equalized in terms of the relevant factors with bilingual or multilingual groups, or equalized groups that belong to different bi- or multilingual levels are compared to reveal the possible differences attributable to multilingualism that exist between them (Hornberger et al., 1997; Sanz & Lado, 2008).

Thus, the psychology of multilingualism does not deal with a new subject that has not been looked into by other sciences, but facilitates the more detailed understanding of a group of phenomena that is also dealt with in other sciences by analyzing the mutual subject of their interest from the psychological point of view. Since its subject is defined, it uses a relatively structured body of knowledge and has an appropriate methodology and terminology; it deals with solvable problems; and it possesses all the characteristics which are usually typical of empirical scientific disciplines or fields of research.

Apart from the aforementioned general questions (topics, tasks, development, methods and tools of research, and the *terminology* [which is presented in the next chapter of this book devoted to the concepts used in the psychology of multilingualism]), the following *domains* belong to the system of the psychology of multilingualism:

1. The psychological analysis of the types of bilingualism and multilingualism, focusing on the relationship between the languages spoken by multilingual individuals and on the connections between the language systems. This field of the psychology of multilingualism has developed from research in experimental psychology and experimental psycholinguistics, and it studies multilingualism from the point of view of these two disciplines.
2. The investigation of multilingualism from the perspective of developmental psychology and the psychology of personality. These perspectives study the manifold aspects of personality development in heterogeneous environments and have many common features with developmental psycholinguistics.
3. The social psychology of multilingualism, which looks into multiculturalism and also addresses the psychological aspects of contact linguistics.
4. The educational psychology of multilingualism. This domain analyses the pedagogical questions in heterogeneous communities, i.e. it mainly concerns the issue of bilingual and multilingual education.

This book, after two introductory chapters, follows the domains of the psychology of multilingualism in the order listed here.

Notes

[1] It was one of the pioneers of sociolinguistics (Mackey, 1967) who greatly contributed to the prevalence of this view. He divided the number of languages in the world (about 7000) with the number of countries (about 200). The result convincingly proved that bi- and multilingualism, by its scope alone, deserves the due attention of science. Ever since then many researchers have referred to the fact that the number of languages spoken in the world (according to different estimations this number has varied over time between 2,800 and 10,000) is thirty, perhaps even forty times greater than the number of countries, which unanimously indicates that there are a great number of bilingual or (more often) multilingual and very few monolingual states or regions. Today's situation is very similar: the number of states is over 200, but it is estimated that there are about 7000 languages, and their exact number is still impossible to determine because of the lack of precise linguistic criteria for distinguishing between languages and dialects. (Besides the linguistic criteria, some other criteria are also used, but they are equally very problematic. One of these is the possibility of mutual communication: if the mutual communication between speakers is successful, according to some researchers they speak variants of the same language. However, this criterion

cannot always be applied. For example, Danish and Norwegian are nowadays considered to be different languages, although speakers of these languages can understand each other's language fairly well [the Norwegians especially claim that they understand the speech of the Danish]. However, today it is widely accepted that these are different languages, with the explanation that behind them there is a different cultural heritage. For the distinction between language and dialect, the name of the language has also been proposed, but with a similar lack of success. It is considered that there are about 40,000 names for different languages, but for some languages, there are several names. The same language is called something different by its speakers and their neighbours. A good example for this is India: in 1961 it was registered 1652 different languages or different languages names [Mallikarjun, 2002], although, according to the Central Institute of Indian Languages—an Indian research and teaching institute based in Mysore, founded in 1969—there are 'only' about 400.)

Today the most useful source on languages of the world can be found on the Ethnologue website (http://www.ethnologue.com, see also Skutnabb-Kangas, 2004, and Phillipson & Skutnabb-Kangas, 2013). This catalogue holds different statistical data on world languages, even though it also contains many insufficiently verified pieces of information, some of which are not questioned by most researchers. So, there is a consensus on the estimate that there are, as mentioned, around seven thousand *spoken* languages. (Due to lack of sources, the number of *sign* languages is not possible even to estimate. Skutnabb-Kangas [2002] believed their number to probably be the same as the number of spoken languages.) Also, there is an agreement on the following facts: most languages are spoken by only five to six thousand people (estimation made by Posey, 1999); the number of languages spoken by over ten million speakers is not higher than 80; most languages (over 80%) are spoken within one country; around 95% of languages are spoken by fewer than a million speakers; around five thousand languages are used by fewer than 100 thousand people; and three thousand languages have fewer than ten thousand speakers. As many as 500 languages are used by fewer than 100 people (Phillipson & Skuttnab-Kangas, 2013; Skuttnab-Kangas, 2004). If we group languages according to the number of mother tongue speakers, then the number of languages with more than one million speakers (these are the so-called "big" and "medium" sized languages) is about 310, and they are spoken by more than 95% of the world's population. The remaining several thousand languages are shared by only 5% of the world's population (Göncz, 2016). When it comes to the geographical distribution of languages, the following indicators are accepted: Europe 3% (around 230 languages); America 15%; Pacific Ocean area 19%; Africa 30%; and Asia 32% (Göncz, 2014; Skutnabb-Kangas, 2002).

The most diverse area in the number of languages is Papua New Guinea with over 850 languages (11 extinct), followed by Indonesia with 670. More than 200 languages are spoken in Nigeria, India, Cameroon, Australia, Mexico, Zair, and Brazil, while another 13 countries use over 100 languages (Skuttnab-Kangas,

2004). Europe is, linguistically, as well as in its animal and plant diversity, quite poor compared to other parts of the world (Göncz, 2014).

[2] In recent decades, few topics have become so internationally important as bi- and multilingualism and their related phenomena. Proof for this is the numerous journals dealing with bi- and multilingualism from very different perspectives and with multifarious approaches. Some of these printed in English are: *Journal of Multilingual and Multicultural Development, Bilingualism: Language and Cognition, International Journal of Bilingualism, International Journal of Multilingualism, The Japan Journal of Bilingualism, International Journal of Bilingual Education and Bilingualism, International Journal of the Sociology of Language, Plurilingua, Multilingua, Bilingual Family Newsletter, Cultural Diversity and Ethnic Minority Psychology, Journal of Multicultural Discourse,* and *Bilingual Research Journal*. There is also the *Bilingualism Database*, compiled at the School of Education at The University of Birmingham (as well as many other databases with thousands of bibliographic units). In this database there is a huge list of references concerning bilingualism/multilingualism and:

- identity
- family
- language rights
- age groups
- neurolinguistics
- speech disorders
- health
- acquisition and development
- education/special education
- sociolinguistics
- multiculturalism
- professional issues
- and assessment and descriptions of languages.

There is also a substantial list concerning linguistic minority communities and the teaching of English as a second foreign language.

In the past thirty-five years, in order of appearance, *interdisciplinary works of comprehensive character* on bilingualism were written (or edited) by: Baetens Beardsmore (1982), Grosjean (1982), Skutnabb-Kangas (1984), Göncz (1985), Baker (1988), Hamers & Blanc (1989), Hoffmann (1991), Hoffmann (1992), Edwards (1995), Romaine (1995), Baker (1998), Baker & Prys Jones (1998), Cenoz (1998), Bartha (1999), Bialystok (2001), Pavlenko (2005), Wei (2007, 2010), Auer & Wei (2009), Baker (2011), Field (2011), Aronin & Singleton (2012), Bhatia & Ritchie (2012), Edwards (2012), Stavans & Hoffmann (2015), Martin-Jones, Blackledge & Creese (2015), Smidt (2016), Maher (2017), Martin-Jones & Martin (2017), Wright (2017), and Horner & Weber (2018), to cite just some. However, there were before and after this period countless books or monograph-length works (or near monograph-length articles) that summed up knowledge

related to problems of bilingualism or multilingualism *from the perspective of a particular science* (linguistics, psychology, pedagogy, and sociolinguistics) *or in connection with certain other topics*. Here is a list of such publications, without aiming at completeness, published over the past forty-five years: Lambert & Tucker (1972), Genc [Göncz] (1976, 1981), Clyne (1982), Göncz (1982), Taeschner (1983), Cummins (1984), Göncz (1984, 1985), Cummins & Swain (1986), Harding & Riley (1986), Homel, Palij & Aronson (1987), De Houwer (1990), Jacob & Jordan (1993), Mohanty (1995), Hornberger et al., (1997), Skutnabb-Kangas (1997), Lanstyák & Szabómihály (1998), Navracsics (1999), Deuchar & Quay (2000), Lanza (2004), Fenyvesi (2005), Brisk (2006), Garcia & Baker (2007), Heller (2007), Yip & Matthews (2007), Garcia (2008), Sanz & Lado (2008), Wei (2008), Cenoz (2009), Kroll & DeGroot (2009), Pavlenko (2009), Cook & Bassetti (2010), Pavlenko (2011), Fabbro (2013), Grosjean (2013), Hernandez (2013), Mueller-Gathercole (2013), Shin (2013), Gorter, Zenotz, & Cenoz (2014), Marschark, Tang & Knoors (2014), Weber (2014), Andrews (2015), Armon-Lotem, De Jong & Meir (2015), Gabryś-Barker (2016), Nicoladis & Montanari (2016), Pauwells (2016), Vaid (2016), Cenoz, Gorter, & May (2017), Gabryś-Barker, Gałajda, Wojtaszek, & Zakrajewski (2017), de Zarobe & de Zarobe (2017), May & Lin (2017), Balls Organista, Marín & Chun (2018), Altarriba & Heredia (2018), and Aronin, Hornsby & Kiliańska-Przybyło (2018).

[3] Determining the topic of a scientific discipline, or a research field is an issue of fundamental importance. This step has at least three functions: first, it determines the segment of reality that will be researched, and second, the appropriate research methods. (There are, of course, some exceptions as well. For example, the behaviouristic approach in psychology has reversed this order: the advocates of behaviourism drop first the introspective method as invalid for researching psychological reality, taking objective observation as, according to them, the valid research method, thereby defining as the subject of psychology the phenomena which manifest themselves in a way accessible for everyone, i.e. they defined the topic of psychology as the science of behaviour.) The third function of the precise determination of the topic is that it allows for the delimitation of the discipline from other sciences, that is, it places the discipline in the scientific system. This is especially important with regards to the so-called interdisciplinary sciences, which have the same or a similar subject of investigation. Therefore, when dealing with science, the first step is to determine its topic.

Together with the definition of the topic of an empirical discipline, it is also necessary to determine its tasks. The psychology of multilingualism, like every empirical science or field of research, has theoretical and practical (applicative) tasks. The theoretical tasks of every science, based on experience, are to find answers to three basic questions: what, how, and why. To the question of 'what' the sciences offer an answer with a description. The results of the answers to this question are the definitions of the phenomena researched by a science and the classification of these phenomena. Applying this to the field of the psychology of multilingualism, the question of 'what' can be concretized in the following ways:

What is multilingualism? What is multiculturalism? What are their most common manifestations? What do we mean by concepts like mother tongue, second language, double semilingualism, diglossia, anomie, surface and cognitive linguistic competence, multilingual education, etc.? To the question of 'how' the sciences formulate their answers we can also offer a description. The question can refer to two things. First, it can refer to how the phenomena develop and change, and second to how they are connected. In formulating answers to these questions the results give us scientific laws. These are universal attitudes and should have unlimited validity in space and time. Concretized on the field of the psychology of multilingualism, the question of 'how' can be formulated as follows: How, or under what circumstances does someone become a multilingual person? How do different types of multilingualism come into being? How can we define the relation between early multilingualism and other developing functions and processes? How does the language of instruction affect the personality development of students with different home languages? To the question of 'why' we can say that the sciences formulate their answers through explanations. These answers refer to causal relations, i.e., what are the necessary conditions for a phenomenon to occur? With such answers, we are making predictions. Knowing the conditions, they can be intentionally created provoking the phenomenon we want; in other words, we manage phenomena. That is, in fact, the final goal of every science. (Such efficacy raises many moral dilemmas regarding the possibility of misusing scientific knowledge, which is more often an issue in more developed sciences. The danger of manipulation of scientific knowledge and of its misuse is particularly present in the sciences dealing with people.) Some of the 'why' questions in the psychology of multilingualism are: Why are some types of multilingualism connected with undesirable personality development, and why may some other types cause a more complete realisation of human potential? Why does the change of the language of instruction, concerning the family–school relation, have a different impact on students from the dominant language group (who belong to the majority language community), in comparison to students from the dominated language group (who belong to the minority language group)? Why does surface linguistic competence cause lower school achievement than student ability warrants?

In the psychology of multilingualism, the question of 'what' dominates, although there are trials to give answers to the other two questions as well. Thanks to these trials, scientific knowledge is structured in a similar way to in other empirical sciences. The structure of scientific knowledge in empirical sciences can be represented by a hierarchical model. At the lowest, first level, are the observed phenomena, which are nearest to experience. When we observe what is common amongst them, we get scientific concepts (the second level), as answers to the question of 'what'. They can have the status of an intervening variable (operationally and unambiguously defined, with a certain stimulus and with the response to this stimulus), or they can have the status of hypothetical constructs, which we refer to on a hypothetical, mostly physiological basis. For example, the construct of compound bilingualism (see Chapter II) has the status of an intervening variable if it is operationally defined as the matching of the semantic

systems of two languages (because they were acquired from the same sources), and can be determined through the overlap of profiles on the semantic differential scales in the connotative meaning for equivalent words in the two languages.

However, if we additionally explain how the connotative meaning of words is acquired (through the association of the same experience to the verbal signs in the same contexts), and we hypothesize the existence of the same representational mediational processes in the two languages as equivalents for the concept of meaning then this concept has the status of a hypothetical construct. On the third level are the scientific laws and the narrower theories, reached through generalizing concepts. They can be more or less empirically grounded. In the less empirically grounded laws or narrower theories, there is a lot of guessing, they seek to replace the verified, tested knowledge. The same goes for the wider theories, which constitute the fourth component (or level) of the scientific knowledge. On the fifth level are the scientific systems which are always hypothetical, often they only replace and do not synthesize tested knowledge.

The answers to the question of 'what', and especially to the questions of 'how' and 'why' in the psychology of multilingualism are far from being satisfactory and complete. The concepts are poorly defined, operationally speaking. As for the question of 'how', the answers are not in the real sense scientific laws, but more empirical generalizations that do not have a universal character; they tend only to be regularities which are valid under certain conditions, and only in certain cultures or historical periods. For example, the observed regularity in the psychology of multilingualism that in a subtractive multilingual situation (meaning unequal evaluation of languages) there is a gradual replacement of one language with another, and that this process is connected to the so-called balance effect or double semilingualism (unsatisfactory knowledge of both of the languages). Because it does not state under which conditions this association is valid, it is more of an empirical generalisation than a scientific law. The same goes for the Cummins' threshold hypothesis, a kind of narrower theory, in which it is claimed that it is necessary to overcome the beginning stages of bilingualism to endure the negative effects of bilingualism on cognitive functioning, i.e. that it is necessary to develop a high degree of bilingual competence before the potential advantage comes to the fore. Regarding theories, they, as in all less developed fields, more replace than integrate tested knowledge. Theories are rare, they are of an inductive and functional type, and give explanations only for narrow domains.

They can explain, for example, the connections between the language systems of bi- or multilingual individuals and the conditions which determine them, or the effects of multilingualism. For example, besides the previously mentioned compound bilingualism, there is a coordinate type of bilingualism as well. This division is the result of a theory regarding the relationship between the language systems of bilinguals on the semantic level. Namely, according to the view of Ervin & Osgood (1954), individuals who acquire languages from separate sources associate different experiences with them, so on the level of connotative or

affective meaning their language systems will stay relatively separated, and a coordinate type of bilingualism is developed. (Acquiring languages from the same sources leads to compound bilingualism.) Elements of wider theories can be discerned in the models of multilingual education, but it is not justifiable to speak about scientific systems in this field for now.

Based on what has been said so far, it can be concluded that one characteristic of the recent psychology of multilingualism is that there are only a few well-defined concepts; instead of scientific laws there are empirical generalizations, the number of theories is small, and they are also of a narrow scale, with a lot of hypothetical claims. It is a field of knowledge that is poorly integrated, there are many theoretical contradictions in it, and the possibilities of its application are modest.

There are also many difficulties in the application of knowledge, and thus the fulfilment of the practical tasks of science. First, the knowledge itself, which is often gathered in controlled conditions is not fully compatible with real-life situations. Second, its application most often refers to specific population groups, and in such cases, stakeholders take into account many other circumstances, and not only the knowledge offered by science. Despite these restrictions, today it is already acceptable to say that the psychology of multilingualism offers certain guidelines, which can indicate what conditions are needed to create those forms of multilingualism that contribute to the fuller realisation of human potential.

The psychology of multilingualism has certain characteristics which are common to all sciences, but also some specific features connected to its special subject of study. The common feature with other sciences is the tendency to apply the scientific method to solvable problems. (Arts are also devoted to solvable problems but they do not apply the scientific method, whereas metaphysic disciplines raise issues that are not solvable with normal human capacities and do not apply the scientific method, instead using a set of formalized procedures which allow for answers). One of the special features of the field under discussion here is its interdisciplinarity, but with a different meaning than this notion has in certain natural sciences, like in biochemistry or geophysics. These interdisciplinary hard sciences have a previously unproven, new subject of interest, which has remained unexamined between the mother-sciences. The psychology of multilingualism is not a new subject of investigation, because multilingualism has been researched earlier in some psychological disciplines and other sciences. This means that its subject is not new, but that it is approached from a wider perspective, taking over and systemizing knowledge about multilingualism from other psychological disciplines. It also takes into account what other sciences have discovered about multilingualism, and tries to contribute to new knowledge concerning this intriguing phenomenon.

Chapter summary

The psychology of multilingualism investigates the psychological regularities of multilingualism and its related phenomena. As an empirical discipline it deals with the psychological aspects of different multilingual situations and with the effects of such situations on individuals' behaviour and experience as well. First and foremost, though, it has directed its interest to interactions between these two groups of phenomena. Its task is to answer the questions of *what*, *how*, and *why*. Description should be used to define and classify the mentioned phenomena and to determine basic concepts (answering the question of **what**). To answer the question of **how**, we should describe how the phenomena happen and are specified, using scientific laws, and determine what kind of relationship exists among the phenomena. Concerning the question of **why** means investigating causal relationships. Although the answers to these questions are still far away from being satisfactory, the psychology of multilingualism has arrived, through generalising **observed facts**, to **scientific concepts,** to **scientific laws,** and some **theories of a narrow volume**. **Broader theories** and the **scientific system** are the missing components from the structure of scientific knowledge which is characteristic for all empirical sciences. Since the psychology of multilingualism has a defined area of investigation and structured knowledge and holds possession of appropriate procedures for collecting new knowledge, it has, like every empirical science, as its main characteristic the application of the scientific method to solvable problems. In this area of research, there is thus far a huge number of weakly connected facts with little possibilities for application.

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CHAPTER II

THE CONCEPTS OF THE PSYCHOLOGY OF MULTILINGUALISM[*]

2.1. Basic concepts and concept-related knowledge derived from the psychology of language

The psychology of multilingualism deals with the application of systems of signs and rules belonging to two or more languages in various speech situations, and the consequences from these applications. This is why for the interpretation of observed phenomena and the results of empirical research on multilingualism, the use of the knowledge acquired on speech and language by psychology and the related interdisciplinary fields of research (psycholinguistics, sociolinguistics, psychophysiology, neuropsychology, and cognitive neuroscience) is necessary. Therefore, let us start by presenting some of this knowledge.

Speech as a *system of habits* is made possible through the formation of sounds and meaningful sequences of sounds using our speech organs. Pavlov considers speech the second signal system (Windholz, 1990), in which words replace external signs (i.e. the first signalling system), become the signal of signals. The first signal system (sounds, smells) is common in humans and animals. Animals can learn the meaning of various natural signals, but cannot learn signals that represent other signals. According to Pavlov, speech is a specific human characteristic, an important evolutionary attainment. While speech is related to individuals, *language* is a communal phenomenon, a *system of signs and rules*, which is turned into speech through the process of actualization. In terms of Chomsky's theory of generative grammar (Nordquist, 2019), this means

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[*] Some parts of this chapter rely significantly on the monograph-length article of the author entitled "Psychology of bilingualism", published in Lanstyák, I., & Vančoné Kremmer, I. (Eds.). (2005). *Nyelvészetről - Változatosan. Segédkönyv egyetemisták és a nyelvészet iránt érdeklődők számára* [Multi-faceted linguistics. Selected papers for university students and everyone interested in linguistics] (pp. 32-76). Dunaszerdahely, Slovakia: Gramma Nyelvi Iroda.

that during the application of language (while speaking) we operate a system of rules which enables us to utter and understand a theoretically infinite number of grammatical sentences which have been created using a finite number of units—that is, the vocabulary and the grammatical rules of a language. All of the several thousand languages existing today are comprised of *linguistic strata* (Daneš, 1991): each has its sound system (mostly 20 to 37 sounds), its syntax, semantics, pragmatics, and so forth. (Some experts describe the structure of languages as models consisting of two strata, vocabulary and grammar, while others define more, but not more than six levels.) For being able to define speech and language more accurately, it is also important to distinguish *linguistic competence* from *linguistic performance* (Nordquist, 2018). Linguistic competence is the grasp of grammatical rules, that is the speaker's knowledge of the language, which enables them to recognise grammatical mistakes. Some refer to it as the "realm of perfection", in opposition to linguistic performance, which is referred to as the "linguistic fall". Linguistic performance refers to the actual, real use of language. During linguistic performance, we sometimes use ungrammatical sentences, because our memory is limited, our attention fluctuates, we make changes to our intended sentences as we speak and, in bi- and multilingual situations the linguistic systems of the two/or more languages may interfere with each other (Bernáth & Révész, 1994).

The *psychophysiology of speech* (Saltzman & Ersner, 1951) studies the peripheral and central organs, which control speech and their functions. The peripheral functions that play a role in speech production and speech perception are connected to the speech organs and the organ of hearing, while the central control functions are ascribed to the cerebral cortex and the sub-cortical sections. Among the speech organs, the *vocal cords* are the most important. These are two very elastic bundles of muscle. Sound production takes place when a stream of air leaves the lungs. According to the place of their production, sounds are divided into vowels and consonants. We produce vowel sounds when air steam comes from the lungs unimpeded and makes the vocal cords vibrate, while for consonant sounds other speech organs create an obstacle in the way of the air stream. The central control of speech is performed by numerous *speech centres* (Howard, 1997). The best known are the *Broca motor* and the *Wernicke sensory* centres. If these centres are damaged, motor or sensory *aphasia* will occur, that is the partial or complete loss of speech production or speech perception (Lesser, 1978). These centres are in most cases situated in the left cerebral hemisphere and are closely related to one's handedness. In the case of right-handed people, these centres are almost without

exception in the left cerebral hemisphere. In 70% of left-handed people it is also there, while in 15% of them it is in the right hemisphere, and in 15% of them, the centres are dispersed in both hemispheres. This phenomenon, known as *cortical speech localization*, is the result of lateralization. *Speech lateralization* (the formation of speech centres, the specialization of the cerebral spheres for controlling speech) takes place in childhood and is closely related to the *sensitive period*.[1] The sensitive (or critical) period is the period of development when a function has to be practised (even if it is strongly hereditary) so that it is retained and developed. The sensitive period for speech development is from the age of one and a half to the age of eight. If a child is exposed to human speech for the first time only after this period, they will not be able to acquire it. (For more information see Note 1 in this chapter.) Nowadays, our knowledge about the physiological mechanisms of speech is still relatively modest. It is dominated by the *dynamic speech localization theory*, according to which complex psychological processes (one of which is speech) cannot be localized in a specific part of the cortex, but instead always depend on the combination of completely cortical zones. Their control necessitates the synchronized functioning of these zones. The subcortical parts also play a role in this, and all the components contribute to the functioning of the system. While the speech specialization of the (usually left) cerebral sphere is still in progress, the transfer of centres to the non-dominant cerebral hemisphere is possible, if the dominant hemisphere is damaged, which shows the flexibility ("plasticity") of the cortex.[2]

Through *language acquisition* children acquire the rules of the language to which they are exposed. Just like the development of every function, language acquisition develops through stages; that is, the development always goes through the same stages (periods, phases) in the same order. This can refer to the development of the whole function or just some elements of it (for example the whole of speech development or only sentence development). Environmental factors can accelerate or slow down these processes. There are two big stages in the process of speech development taken as a whole: the pre-linguistic and the linguistic one. The *pre-linguistic stage* lasts until the utterance of the first meaningful word (between the 10th and 15th month). It can be divided into vocalization (until 5th the month) and babbling. *Vocalization* is an endogenous process that is universal to all children. Deaf children go through it, just as hearing ones do. Vocalization is characterised by *sound expansion*, that is the number of utterable sounds increases in the beginning and may reach two hundred in total. Under the influence of the language a child is exposed to, the number of sounds it utters decreases

(*sound contraction*), and only those are retained which belong to the sound system of the language spoken in the child's environment. During babbling, a child uses sound combinations. It understands language before it can speak it. The first meaningful words, *holophrases*, though single word utterances, bear the meaning of a whole sentence. The number of words is expanded quickly (by about 700 annually), thus the active vocabulary (the number of words used actively) of a child starting school counts 4-5,000 words, with great individual differences. By the age of 15, this number will have increased to 10,000 (the passive vocabulary at this age is at about 30,000), while the vocabulary of an educated adult contains between 25,000 and 250,000 words. (The lexicon of different languages is estimated to contain 800,000 to 1,250,000 words).

A child first uses nouns and verbs, later the other parts of speech appear, and by the time they start school, children use every existing part of speech. In the process of sentence formation, there are also linguistic universals (universal rules): one-word sentences are followed by two-word ones, which are followed by the phase of short and full sentences. One of the characteristics of small children's speech is that its utterances are full of emotions (it does not express the importance of its messages using linguistic means, but it rejoices and shouts), it is not familiar with the notion of unknown words (it interprets every word following its experience) and is characterised by *nominal realism*[3].

The *pace of speech development* depends on the child's sex, intelligence, health, and family situation. Girls usually have a significant advantage. According to some experts, this is because they are urged to speak more by their environment since this is seen as one of the desirable female features in our culture. According to others, the boys' disadvantage stems from the fact that fathers are frequently away from home, and thus they cannot serve as models for language acquisition, while the higher number of speech impediments among boys can be attributed to their anxiety because they are punished more strictly and thus frustrated more often. Another reason may be that men's brains are more asymmetric, which can lead to a greater degree of deviation in their behaviour. If a child starts speaking early, it is certain that they have at least an average IQ, but a few months' delay does not necessarily point to mental deficiency. Prolonged illnesses or hearing problems may slow down language acquisition. Spoiling a child may lead to anxiety and speech impediments; according to some authors only children who are spoken to more have an advantage, while twins often isolate themselves in their relationship and, since they are not good speech models for each other, then lag in speech development—a