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## COGNITIVE ADVANTAGES OF INFANT BI- AND MULTILINGUALISM

### *A gyermekkori két- és többnyelvűség kognitív előnyei*

The evaluation of bilingualism was not always positive. By now, it has been clarified that bilingualism does not create an extra burden in the development if the acquisition of the languages goes on at a normal pace, under natural circumstances and without any protests of the bilingual-to-be. Language learning, management and maintenance skills contribute to 'language awareness' or 'metalinguistic awareness', which has been identified as one of the cognitive advantages bilinguals develop due to contact with two or more languages and cultures. Recently, experiments with neuroimaging procedures have resulted in findings that confirm that grey matter density in bilinguals is bigger than in monolinguals, and this has its cognitive advantages. The acquisition of different linguistic forms and structures requires greater cognitive effort, but children can overcome the difficulties. The command of two or more languages gives a deeper insight into other cultures as well, and increases cultural tolerance.

*Keywords:* infant multilingualism, metalinguistic awareness, cross-linguistic influences, cognitive advantages, multilingual development, linguistic levels

### 1. THE NECESSITY OF BILINGUALISM RESEARCH

Studies on language acquisition have always been in the focus of interest among linguists and psychologists. The amount of research into bilingual language acquisition has recently increased and now there is a boom in publications on infant or childhood bilingualism as well as on the psycholinguistic, sociolinguistic and language political aspects of bilingualism. The reason why bilingualism has gained so much popularity is of a political, social and economic character.

In order to be bilingual one needs motivation. One of the strongest motivations is when one moves to another country where one wants to communicate and get integrated. With the moving of the borders in Europe in the first part of the 20<sup>th</sup> century, many people became citizens of a different country, and they

formed linguistic minorities in their new homeland. The economic inequality of states between 1910 and 1930, as well as the cold war between 1950 and 1960, contributed to the migration and emigration of people all through the 20<sup>th</sup> century. Recently, with accession to the European Union, the opportunity to move to another country in the hope of a better life, job opportunities, higher living standards, the opportunities are given for people to make a new start in a linguistically different community. However, this change in the present day situation involves not only changes in living places, and finding new job opportunities. It also involves a linguistic challenge as it is obvious that only people with a decent knowledge of languages can function as fully entitled citizens in the new linguistic environment. With this new situation, the once acknowledged ‘one country – one nation – one culture – one language’ conception characteristic of the European viewpoint needs to be reconsidered. Nowadays there are no countries in the world without linguistic minorities in their territories pushing their populations into the state of bilingualism. In this way the number of individual bilinguals has increased, which demands thorough investigation into bilingualism not only from the points of view of sociolinguistics or language policy but also from psycholinguistic and educational perspectives.

The evaluation of bilingualism was not always positive. In fact, it was very ambiguous at the turn of the 19<sup>th</sup> and 20<sup>th</sup> centuries. Bilingualism was not a research field in its own right; it was mainly psychologists that dealt with it. Psychologists were afraid that infant bilingualism could be an obstacle in the cognitive development of a child; it could be such a cognitive and mental burden that it might slow down the natural linguistic development, and, consequently, lead to a lower level of IQ. They also questioned the possibility of the acquisition of two or more languages at the same time. In addition, at the beginning of the century there were experiments whose results showed lower IQs in bilinguals. However, as it turned out later, these experiments were methodologically misconceived as they mirrored the fractional view, against which Grosjean has raised his voice many times. The subjects of the experiments were English–Welsh bilingual children coming from miners’ families (lower-class) with a very disadvantaged social background, living under poor conditions. The tests that were used were designed for middle-class monolingual English children. It was inevitable that the results would be misleading.

Up to now there have been a number of methodologically more sound experiments carried out among bilinguals. It has been clarified that bilingualism does not create an extra burden in the development if the acquisition of the languages goes on at a normal pace, under natural circumstances and without any protests of the bilingual-to-be. In an ideal situation we can speak about additive bilingualism, which means the person gains from being bilingual both

linguistically and mentally. Language learning, management and maintenance skills contribute to ‘language awareness’ or ‘metalinguistic awareness’, which has been identified as one of the cognitive advantages bilinguals develop due to contact with two or more languages and cultures.

Recently, experiments with neuroimaging procedures have resulted in findings that confirm that grey matter density in bilinguals is bigger than in monolinguals, and this has its cognitive advantages. Being bilingual, as it turns out, makes the person smarter. It can have a profound effect on the brain, improving cognitive skills not related to language and even shielding against dementia in old age.

## 2. THE WAYS OF BECOMING BILINGUAL

The first to study a child’s bilingual language acquisition was Ronjat (1913). In his work on his son’s French–German bilingualism, Ronjat supplies the reader with a wealth of data, which are carefully analysed and compared to data of monolingual French and German children. According to Ronjat’s ‘one parent – one language’ principle, parents in the family should speak to the child in their own mother tongue (first language), in a separate fashion, and in this way the child is exposed to two languages from birth. The language use and input are bound to a person, which will result in more or less balanced bilingualism. This principle has been followed by many researchers of early bilingualism.

Another way of becoming bilingual in the family is described in Quay and Deuchar (2000). Here, the language use is determined by the situation. A Spanish–English couple living in the UK uses Spanish (the father’s language) at home and English (the mother’s language) in all other places in the society. Thus the children are exposed to both languages, and can easily differentiate between the languages in the appropriate context.

Leopold (1939–49) gave the first unique description of infant bilingualism when he analyzed and gave a thorough and systematic account of how his three daughters acquired two languages (English and German) from birth. He described the whole acquisition process at the phonetic, phonological, lexical and syntactic levels.

There have been a great number of infant bilingualism studies in the past 20 years or so. However, according to De Houwer (1990), many of these longitudinal studies do not meet the requirements from a methodological point of view. Here is a list of criteria (DE HOUWER 1990: 12–13) of a valid investigation: (a) to gather data that most probably represent (a slice of) reality as it occurs when it is not being studied, (b) to describe these data in a comprehensive and knowledgeable manner so that other researchers may obtain a clear idea of what that data are, (c) to analyse the data using generally agreed upon methods of tran-

scription and analysis, and (d) to interpret the results obtained by the analyses in as general a fashion as these logically permit in order to contribute towards a better understanding of the observed phenomena. Other criteria are: (e) truthfulness, i.e. the data should be what they are said to be, (f) objectivity, i.e. value judgements should be avoided unless it is made clear to the reader that indeed these are made as added comments to what otherwise are objective statements, (g) clarity of presentation of data and methods so that there is a chance for (h) comparison by other researchers. The investigation must in addition be (i) reproducible to as great an extent as possible.... Obviously, all the criteria mentioned are related to one another... .

### 3. THE DEFINITIONS OF BILINGUALISM

In the past 50 years, several definitions of bilingualism have emerged from the strictest to the most liberal views. One of the most sharply criticized (at the same time having even now quite a few proponents) is the one given by Bloomfield (1933: 56), who declared that a person is bilingual if he/she has a near-native control of two or more languages. This is also known as the maximalist view, since there is hardly anyone among bilinguals or monolinguals who could be labelled as the perfect speaker of his/her L1.

On the other hand, Haugen (1987) and Diebolt (1961) worded the minimalist view. In Haugen's opinion, when the L1 speaker is able to produce meaningful sentences in L2, he/she can be considered bilingual. According to Diebolt, the person is bilingual even if he/she is a competent speaker–hearer only in L1, and in L2 he/she is just a hearer (receptive bilingualism).

A new, 'wholistic' approach to bilingualism at present is that of Grosjean. Grosjean in a number of his articles raises his voice for bilinguals. He declares in his 'wholistic' view that

„the bilingual is a fully competent specific speaker–hearer who has developed competencies (in the two languages and possibly in a third system that is a combination of the first two) to the extent required by his or her needs and those of the environment. The bilingual uses the two languages – separately or together – for different purposes, in different domains of life, with different people. Because the needs and uses of the two languages are usually quite different, the bilingual is rarely equally or completely fluent in the two languages” (GROSJEAN, 1992: 55).

He also fights for the 'wholistic' as opposed to monolingual or fractional view of bilingualism, and claims that the bilingual cannot be compared with the monolingual. He warns that the bilingual is not the sum of two monolinguals in one, and brings an analogy from the domain of track and field.

„The high hurdler blends two types of competencies, that of high jumping and that of sprinting. When compared individually with the sprinter or the high jumper, the hurdler meets neither level of competence, and yet when taken as a whole the hurdler is an athlete in his or her own right. [...] A high hurdler is an integrated whole, a unique and specific athlete, who can attain the highest levels of world competition in the same way the sprinter or the high jumper can” (GROSJEAN, 1992: 55).

Grosjean also emphasizes that the language mode the bilingual is in should be taken into consideration as well when the examination of bilingual speech is in focus (GROSJEAN 1998). His Language Mode model shows that the linguistic behaviour of bilinguals is dependent on the linguistic configuration of the communicating partners. If a bilingual is in the monolingual mode, i.e. he/she speaks to a monolingual person, the control over the language use is much stronger than when the same person speaks to a bilingual with whom he/she shares the same two languages. In this case, the tension is low, no special monitoring is needed since the occasional (or frequent) code-switches do not lead to break down in the conversation, and do not make the partners embarrassed.

Bilingual speech is different from monolingual speech. As seen in the analogy with the hurdler above, the bilingual person is a specific linguistic configuration whose languages show signs of cross-linguistic influences which may come to the surface in their everyday verbal behaviour. Their mental lexicon contains elements of two (or more) languages, and neither of them can be switched off in any circumstances. In addition, the bilingual has no demand to be able to speak about all possible topics in both languages. Following Grosjean’s definition, he/she uses the languages in different contexts, and if one language is used only in one context, there is no need to know the register of the same context in the other language simply because the person does not need it in his / her everyday life. This is the essence of the Complementarity Principle (GROSJEAN 2008).

However, all these ‘strange things’ in bilingual speech, i.e. the lack of vocabulary in certain domains, cross-linguistic influences, code-switches, etc. make monolinguals wonder whether bilinguals are really competent hearers–speakers of either of their languages. This standpoint leads to a dangerous stigma, which is reflected in terms like ‘semilingualism’ or ‘alingualism’. These terms and this conception are still the residues of the fractional view of bilingualism.

This is what we should fight against. This is why it is important to examine bilinguals, their mental lexicons, the bilingual brain, and biculturalism, which often goes together with bilingualism, to make sure that bilingualism is understood as a normal and quite frequent phenomenon and that monolingual people should have a different attitude towards bilingualism, which has a lot of advantages from both the individual’s and society’s point of view.

#### 4. THE BILINGUAL BRAIN AND THE STORAGE HYPOTHESES

In language/speech processes it is the cerebral hemispheres, the subcerebral structures including especially the cerebellum that are mostly concerned (LAMB 1999; GÓSY 2005). The temporal, parietal regions of the cortex are responsible for the declarative memory, i.e. the mental lexicon. The mental lexicon stores semantic (facts) and episodic (events) knowledge. The procedural memory is an implicit memory that stores learning skills and enables us to learn new skills, to create sequences and to use grammar. The procedural memory stems from the frontal/ basal ganglia structures of the subcortical white matter. Ganglia structures, which are responsible for learning rules and serve grammatical processing, morphological and syntactic structuring, are connected to the frontal region through the thalamus and thus they have an extraordinarily significant role in the unbelievably complex processes of speech production and perception (ULLMANN 2001). This memory is especially important in the creation and acquisition of sequential and hierarchical structures. The sequences having been learnt may depend on the temporal-parietal regions, which then may be the points of convergence of declarative and procedural memories.

The same memories serve the language processes of bilinguals. The question arises: how can the brain cope with more than one language, or rather: is the memory store common or is it separated for each language the bilingual speaks?

There has been no consensus concerning the presumed storage theories so far. Attempts have been made to clarify whether bilinguals store information about a word and its associations separately for each language, i.e. they establish distinct types of system, or whether they process words in terms of their semantic meanings and represent them in one memory store, i.e. they can function as monolinguals in some aspects.

Some neurolinguists presuppose that all the languages of a bilingual or a polyglot subject are localized in common language areas (cf. PARADIS 1989, 2001; FABBRO 1999). They also claim that differences in age and manner of learning a language may influence the way languages are stored in the brain. If a second language is learnt in an instructed way at school, it is represented in the cerebral cortex more widely than the first language, but if it is acquired informally, it is more likely to involve subcortical structures (basal ganglia and cerebellum) as is the case with the first language (FABBRO and PARADIS 1995; FABBRO 2000). ERPs (event-related potentials) reveal possible differences in the cerebral cortical organization of languages according to the age of acquisition and learning strategies: whereas there is a difference between the cerebral representation of closed-class and open-class words in L1, this difference cannot be observed in L2 if the

second language was acquired after the critical age (about 7 years of age) (WEBER-FOX and NEVILLE 1997). However, Chee et al. (1999) found that cortical representation of words in bilinguals involved the same cortical areas regardless of the age of acquisition of L2 and that cerebral asymmetries were the same for both languages and identical to those of monolinguals. PET (positron emission tomography) and fMRI (functional magnetic resonance imaging) studies find no difference in the activation of the two languages in the basal ganglia (FABBRO 2001). Illes et al. (1999) and Hernandez et al. (2000) used fMRI to investigate brain activation during a naming task and found no evidence that each language was represented in different macroanatomical areas of the brain. In contrast, Kim et al. (1997) reported differential activation of left frontal regions for L1 and L2 for subjects with varying native languages who acquired the second language at a later age ( $M = 11.2$  years) but not for childhood learners of various L1 and L2 combinations. However, there were no differences for either group in the left temporal areas. There have been findings concerning different cortical activation depending on word classes (GÓSY 2005).

In summary, neuroimaging studies on differences of activation between first and second language production have so far led to controversial results (cf. DE BLESER et al. 2003, LI 2013a). Evidence both supporting and contradicting the role of age and manner of language acquisition has been found so far.

In the psycholinguistic approach to the study of bilingual speech processing, language fluency has also been taken into account when considering the question of storage. According to Kroll and Stewart's hierarchical model of bilingual memory representation (KROLL and STEWART 1994), less fluent bilinguals appear to have a dual-store, and the more fluent ones a single-store conceptual representation. This model proposes that the conceptual store is connected to both L1 and L2 lexicons. However, the connections between the L1 lexicon and the conceptual store are strong and direct, whereas the connections between the L2 lexicon and the conceptual store are weak. Thus, the subject's L1 is more likely to access the conceptual store directly rather than the subject's L2. Heredia (1996) in his Second Revision (R-2) Hierarchical Model ('date') suggests using the terms MDL (more dominant language) and LDL (less dominant language) instead of L1 and L2, based on the simple fact that in many cases L2 becomes more dominant than the earlier acquired L1. In this way, MDL has a stronger and more direct connection to the conceptual store regardless of whether it is L1 or L2.

As language proficiency increases the connection between the word and its meaning becomes more direct, relying less on a mediating connection through the L1 lexicon. The degree of meaning similarity between the words within a translation pair may ultimately determine the bilingual representational form. The more similar the meanings of the translations, the more likely they are to

be stored compoundly in the mental lexicon. For many words in one language a truly equivalent term does not exist in the other language (DE GROOT 1993). Singleton (1999) claims that the relationship between a given L2 word and a given L1 word in the mental lexicon will vary from individual to individual, depending on how the words have been acquired and how well they are known, and also on the degree to which formal and/or semantic similarity is perceived between the L2 word and the L1 word in question.

Models of speech production distinguishing thought from verbal formulation carry two immediate implications for models of bilingual performance: (i) there must be a mapping between the conceptual representation and the specification of word meanings; (ii) such a mapping might differ between languages because languages differ in terms of how concepts are lexicalized. Macroplanning is language-independent, microplanning is language-specific (GREEN 1993).

## 5. CROSS-LINGUISTIC INFLUENCES IN INFANT MULTILINGUALISM

Becoming bilingual has a tremendously positive effect on cognitive development (BIALYSTOK 2001, 2012). Children exposed to two or more languages in early childhood must acquire and apply different strategies while acquiring their languages, and this improves brain activity, and impacts not only on the acquisition of a new language but also on any sort of learning (MARIAN and SHOOK, 2012) and mental activity.

In the acquisition process, there is a dynamic interaction between the languages of the bilingual. (LI 2013b). In what follows, I will give examples of cross-linguistic influences from data gathered from a pair of trilingual siblings whose third language acquisition started at ages two and three (for further data see NAVRACSICS 1999). They were English–Persian bilinguals when they started the acquisition of Hungarian in a monolingual Hungarian nursery school. Some findings of other research are also presented.

### *5.1. Phonetic, phonological influences*

Watson (1991) believes that bilinguals, like monolinguals, simplify their phonological processes, but do so cross-linguistically in each language separately. „Any attempt to define patterns or rules in what they do is inevitably hampered by the problem of dominance – the condition of the child being more capable in one language than in the other” (WATSON 1991: 34)

According to Fantini (1985), the developing bilingual has to learn processing skills which are unnecessary for the monolingual. Bilinguals have to recognize



that a sound system is entirely arbitrary, in that it is possible to use more than one to communicate. They must therefore learn to assign similar physical events to different systems of oppositions according to the linguistic context. However, each phonological system is not necessarily acquired in a way analogous to monolingual acquisition. Fantini also finds that one system will dominate the other, so that the child fails to make some oppositions in one language, or at least produces some sounds in a foreign way, due to interference.

From among the allophones of the phonemes /p/, /t/, /k/ it was the aspirated ones that occurred most frequently in the children's Hungarian speech despite the fact that Hungarian has no such aspirations, except for emotional and emphatic expressions. On the other hand, there is aspiration word initially in English and in all positions in Persian.

Aspiration, therefore, must have a cross-linguistic character, and is not limited to the language in which it is appropriate but is also extended to another language or languages.

Studying vowel sound development and considering the results of phoneme discrimination tests we can map some Persian influence since the children tend to pronounce the sound /e:/ as /i:/, which is characteristic of colloquial Persian. This tendency can be observed in their English, too, and they utter words like *Teddy bear* and *get up* as [ti:di beð], [git ʌp]. They also have problems with the quantitative features of the Hungarian sounds. This phenomenon is entirely new for them, since it does not exist in their other two languages. However, these phenomena are observable only for a short period of time until the children become (more or less) stable trilinguals.

## 5.2. Morphophonology

The biggest typological differences between Hungarian and English are observed at the level of morphology. As a result, morphophonology is exhibited to a greater degree in Hungarian than in English. In English it is mostly exhibited by irregular forms of Past Tense such as *go* – \**go* + *ed* – *went*. In Hungarian it plays a greater role since, owing to the agglutinative character of Hungarian, phonetic changes which may not happen within the lexical morpheme might occur at the border of the root morpheme and the grammatical morpheme (e.g. *olyanval*). The main concern here is to show evidence of how linguistic awareness is represented in the children's speech, how they realize the morphophonological questions at the morphophonetic level.

They repeat at the age of four and five the developmental characteristics of hypercorrect forms found among three and four year old Hungarian monolingual children. (for details see Navracscics 1999). This shows that they go through

the same developmental processes as do monolinguals, but a bit later. However, this period lasts for a very short time and there is no evidence of the recurrence of these features later.

Vowel harmony is typical of the Hungarian language but does not exist either in English or in Persian. This means that the vowel sound of the root morpheme determines the vowel sound of the suffix. There were cases when the children could not find the right vowel variant (e.g. *ilyetval*). Another example for their deeper analysis is the following:

|                 |          |  |   |
|-----------------|----------|--|---|
| <i>hallgas</i>  | <i>j</i> | <i>atok</i>                              | <i>meg</i> (correct: <i>hallgassatok meg</i> ), |
| listen          | Imp.     | 2nd Pers. Plural                         | prefix (perfective)                             |
| <i>megmutas</i> | <i>j</i> | <i>am</i> (correct: <i>megmutassam</i> ) |   |
| show            | Imp.     | 1st Pers. Sing.                          |   |

The roots are modified according to the morphophonological rules i.e. in *hallgat* ‘listen’ and *mutat* ‘show’ the final *-t* is replaced correctly by a *-s* before the suffix of the Imperative *-j*. This, most probably, comes from the more frequently heard Second Person Singular Imperative *hallgass*, *mutass*. It also means that the most frequently heard form is treated by the children as the base form. The initial phoneme of the suffix should also assimilate with the root-ending *-s*, however, this rule is not employed by the children. Since due to the agglutination, there are more suffixes coming up, the phonological changes should concern them, too. This is what the children ignore, and no matter how perfect whatever they said is, it sounds strange. As for English, it should be mentioned that the girl was 3;5,22 when her mother started to complain about the very same phenomena in the child’s English. She started using *falled* instead of *fell*, *catched* instead of *caught*. Her brother’s example:

\*NAB: The, the *sündisznó* (= hedgehog) went in house, the mouse, mouse runned and the tractor came to cut the grass.

The appearance of analysing skills in a new language may have an influence on the other languages, too. All this implies that both multilingual and monolingual children acquire their languages consciously, i.e. there are a lot of learning elements in the acquisition processes. They discover certain regularities in their languages, build hypotheses, and try to check them, i.e. apply the acquired rules in different contexts. The advantage of multilingual children in this respect is in the duration of time, since the more languages they acquire the better skills they develop in drawing inferences about the languages themselves.

Hungarian monolingual children face this phenomenon at age around three, the trilingual children in the study struggle with it in terms of English at age 4;6 and 3;6, and in terms of Hungarian having spent about two years in Hungary. The whole process is accelerated by their having already had some experience in this respect in their first language(s).

### 5.3. Syntax

In what follows, we will see how, first, English syntax influenced Hungarian syntax, and vice versa as the Hungarian language command improved.

Pronominal expression of the subject in first person singular is very rare in Hungarian and in Persian, and restricted only to situations where a special emphasis is given to the agent of the action. Otherwise, the subject is expressed by the verbal suffix as shown in the morphological part. The children kept this rule in the majority of cases. However, there are some cases when they cannot judge whether the emphasis should be put on the subject or not. Due to this uncertainty, minor interference of English may be observed in some of their sentences and the personal pronoun 'I' is used incorrectly (*Én most rajzolok naposka*).

Another example of Indo-European influence is the unnecessary use of the copula:

|       |                            |               |                         |
|-------|----------------------------|---------------|-------------------------|
| *NAS: | <i>A képek</i>             | <i>vannak</i> | <i>szépek.</i> (4;8,29) |
|       | THE PICTURES               | <u>ARE</u>    | NICE.                   |
|       | (correct: A képek szépek.) |               |                         |

The unnecessary use of the article in Hungarian:

|       |                                  |
|-------|----------------------------------|
| *NAS: | <i>Egy lány egy lánnyal van.</i> |
|       | A GIRL A GIRL + INSTR. IS.       |
|       | (correct: Lány lánnyal van.)     |

The influence of Hungarian on English (zero article):

|       |                           |
|-------|---------------------------|
| *NAS: | <i>The lion was girl.</i> |
|       | AZ OROSZLÁN VOLT LÁNY.    |

The following sentences give evidence of the incorrect use of the plurals or singulars in English due to Hungarian or Persian influence. In Hungarian and Persian the nouns are always in the singular if they are preceded by a definite or an indefinite quantifier (LAMBTON 1967).

*There is lots of animal in the, in the állatkert.*

*All of the tiger is dangerous.*

*Two, two giraffe is the kony-, in the - (he cannot recall it in English)*

*Five tiger, tig-tigris? (uncertain) tiger is in the, in the school.*

*All of the animals was in the (silence).*

*Two, two ducks is in the udvar.*

*When the pig was sleepy, lots of babies was born.*

#### 5.4. Narratives. Discourse level

The following is a narrative both in English and Hungarian made up by the child:

| Clauses                           | 1 <sup>st</sup>       | 2 <sup>nd</sup>           | 3 <sup>rd</sup>  | 4 <sup>th</sup>                        | 5 <sup>th</sup>                   | 6 <sup>th</sup>                              |
|-----------------------------------|-----------------------|---------------------------|------------------|--|-----------------------------------|--|
| <b>English version</b>            | A pig came            | and broke everything      | even the paints. | And even the the the eating.           | And also when they make something | they al- also broked.                        |
| <b>Hungarian version</b>          | Azután jött egy malac | és mindent szétrombolt.   | Az az amit       | azután meg szétrombolta a festéket is, | az ennivalókat is                 | meg még amit csináltak is.                   |
| <b>Translation of the H. text</b> | Then a pig came       | and destroyed everything. | That that which  | and then he also destroyed the paint,  | the food, too                     | and all the other things that had been made. |

The Hungarian text is better formulated. The word usage is more appropriate e.g. *eating* vs. *food*, *broke* vs. *destroyed*. In the English text there is a faulty pronominal referent *they* in the sixth clause; and the listeners do not know who this pronoun refers to, whereas from the Hungarian text it is obvious that all the other things were destroyed by the pig himself. So both from a lexical and a syntactic or rather discourse point of view the Hungarian text is better than the English one perhaps because of the child's greater experiences in story-telling in this language.

At the discourse level, cognition and maturity determines the abilities. Although very little influence can be shown at this level across the languages, some things are in common in all the narratives told in the two languages: the

concepts, the number of clauses. What the child had in mind was similarly expressed in both languages and the difference between the languages did not intrude upon the construction of the tale.

## 6. METALINGUISTIC AWARENESS

The importance of conceptual meaning for multilinguals is proved by the following situation: the boy and the interlocutor were talking about animals' names in different languages when the girl entered the room and started teasing the others, putting the emphasis on the concept rather than on the lexemes in different languages.

- \*NAS: Miről beszéltek, nem meséltek?  
WHAT ARE YOU TALKING ABOUT? AREN'T YOU TELL-  
ING TALES?
- \*Int.: Hogy hogy vannak az állatok perzsául, azon gondolkodunk,  
például a kutya, az hogy van, Nasim, nem tudod?  
WE WANT TO FIND OUT WHAT THESE ANIMALS ARE  
CALLED IN PERSIAN. FOR EXAMPLE, WHAT IS 'DOG'  
CALLED, DO YOU KNOW?
- \*NAB: *Dog.*
- \*Int.: Igen?  
REALLY?
- \*NAS: Kutya az kutya.  
DOG IS DOG.
- \*NAB: Pherzsául?  
IN PERSIAN?
- \*Int.: És a macska?  
AND THE CAT?
- \*NAS: A macska is macska, most mondtad, hogy macska.  
THE CAT IS 'CAT' YOU HAVE JUST SAID 'CAT'.

At the lexical level it is quite easy for the children to hop across the languages; they enjoy that kind of a game. Their mother introduced this game when they started acquiring Hungarian so that it would be easier for them to maintain the previously learned languages.

They can tell what they know in the different languages:

- \*Int.: Perzsául tudsz valamit mondani, Nabil?  
CAN YOU SAY SOMETHING IN PERSIAN?

- \*NAB: Perzsául csak számolni.  
I CAN ONLY COUNT.
- %act: Nabil counts to 10 in Persian.
- \*Int.: Lefordítod nekem, angolul hogy van?  
CAN YOU TRANSLATE IT INTO ENGLISH?
- \*NAB: *One, two, three, four, five, six, seven, eight, nine, ten.*
- \*Int.: Hogy köszönünk perzsául?  
AND HOW DO WE GREET EACH OTHER IN PERSIAN?
- \*NAB: Köszöntheni? Anya nem mondta ezt.  
GREET? MUMMY DIDN'T SAY THAT.

## 7. CONCLUSIONS

The children's multilingual competence has changed tremendously since the onset of becoming trilingual<sup>1</sup>. What we could see in the examples shows how much effort is needed in order to maintain and develop all the three languages in early childhood. It is mainly the responsibility of the parents to develop and maintain the languages. Once they start neglecting one of the languages, the children will lose it.

It should be admitted that in spite of the relatively little exposure to Persian, this language is considered to be as important for them as either of the other two. This is the language of emotions, prayers; this is the means of subconscious nurturing. The languages are distributed according to their functions. English is the family language, Persian is for the emotions and Hungarian is for the friends and social ties.

This tremendous change can be manifested in the way they treat their languages, their multilingual awareness. It is absolutely natural for them that the world abounds in languages and they want to know as many of them as they have heard of so far (in addition to their three languages they are also interested in Russian and German). They love playing with their languages. They love

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<sup>1</sup> Now they are 21 and 20 years old. They studied in a Hungarian-English dual language school where they learnt German as well. Now the girl is a psychology student at the University of Alberta, Canada where she has learnt Spanish with such success that she was offered to pick up Spanish language and culture as a major. She does not remember any difficulties with learning additional languages, what is more, she could feel the advantage compared to her monolingual peers. She also experiences much greater cultural flexibility and tolerance towards other cultures and nations. She claims this is due to her having a different cultural and religious background in the society where she grew up from her early childhood. They are both fluent in all skills both in oral and written forms of their languages.

vocabulary games and they are not against telling the same things in different languages, if they are asked to.

They have acquired metalinguistic awareness and treat their languages with a deeper analysis than their monolingual peers do. This can be proved through their internalisations of grammatical rules and lexical items. Although there is some evidence of cross-linguistic influences in their speech, they may have advantages over monolinguals by possessing more than one language. Once they need to communicate with two or more languages and make constant decisions on what and where and how to say certain things, they become more tolerant, more flexible people with the ability of making inferences, and coming to conclusions more easily than monolinguals can. Infant bilingualism results in the acceleration of metalinguistic development and in better analytical skills. These skills have a crucial importance in the processes of the acquisition of writing and reading (conceptualization, decoding, concentration, etc.).

In summary, the acquisition of two or more languages in early childhood does not have a negative effect on the development of the person if the appropriate conditions are ensured (BIALYSTOK 2007). The acquisition of different linguistic forms and structures requires greater cognitive effort, but children can overcome the difficulties. The command of two or more languages gives a deeper insight into other cultures as well, and increases cultural tolerance. However, in subtractive bilingual situations the self-confidence of the child might decrease, the socio-emotional development might decline, which may result in poorer verbal abilities, too.

It is our common responsibility to provide for children ideal situations to successfully become bilingual.

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### *A gyermekkori két- és többnyelvűség kognitív előnyei*

A gyermekkori kétnyelvűséget egy évszázaddal ezelőtt még károsnak tartották. Attól tartottak, hogy a két nyelv egyidejű elsajátítása hátráltatja a gyermek mentális fejlődését, megzavarja személyiségének kialakulását, nyelvileg hátrányos helyzetet alakít ki. Mindez annak az eredménye, hogy az egynyelvűségből mint normából indultak ki, és a kétnyelvűeket folyamatosan az egynyelvűekkel hasonlították össze. Az elmúlt száz, de különösen húsz év kutatási eredményei alaposan megváltoztatták a gyermekkori kétnyelvűséggel kapcsolatos nézeteket. Mára már tudjuk, hogy a második nyelv elsajátítás megváltoztatja a szűrkeállomány sűrűségét, és minél előbb kezdődik, annál több előnnyel jár.

Ha az egyén gyermekkorában több nyelvnek van kitéve, a nyelv elsajátítási folyamata lényegesen bonyolultabb, mint az egynyelvű gyermeké. A gyermek metanyelvi és többnyelvű tudatosságának egészen korai kialakulását és fejlődését elősegíti az, hogy nemcsak egy nyelv rendszerében kell eligazodnia, hanem két vagy több rendszer szabályait kell elsajátítania, és azokat a megfelelő helyzetben a megfelelő emberekkel való kommunikációban alkalmaznia.

A kétnyelvű mentális lexikon kialakulásakor különböző tárolási és működési mechanizmusokat feltételeztünk, egy azonban biztos: a gyermek agyában két vagy több nyelv van jelen, és ezek közül egy sem szorítható akaratlagosan küszöb alá.

Így a két (vagy több) nyelv állandóan hat egymásra, ami sokszor – az egynyelvűek megítélése szerint – furcsaságot eredményezhet kommunikációjukban.

Egy longitudinális vizsgálat eredményeinek bemutatásával igazoljuk, mennyire bonyolult a gyermekkori többnyelvűség kialakulása, mekkora mentális erőfeszítéseket kell tenni, hogy minden nyelvben, minden nyelvi szinten, a nyelvnek megfelelően a helyére kerüljenek a szabályok, a szavak, a hangok. Egy kétnyelvű testvérpár magyar mint harmadik nyelvelsajátítását elemezzük a különböző nyelvi szinteken, azonban a vizsgálat számos esetben ráébresztett minket arra, hogy a nyelvek egymásra hatását nem hagyhatjuk figyelmen kívül.

Az eredmények ismertetése és a példák sora talán elég bizonyíték arra, hogy a gyermekkori többnyelvűségben a gyermeknek lényegesen több és bonyolultabb folyamatokat kell feldolgoznia és kontrollálnia, ami nem hagy kétséget afelől, hogy az agyi struktúrák másként alakulnak, mint az egynyelvűeknél. Ennek óriási jelentősége van bármilyen későbbi (és nem csak nyelv-) tanulási folyamatban.

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