THE MULTILINGUAL INNER DISCOURSE OF VIETNAMESE-HUNGARIAN BILINGUALS IN SOLVING AN L3 PROBLEM-SOLUTION TASK: AN EXPLORATORY STUDY

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Abstract: This small scale exploratory study looks at the ways in which individuals who know and use more than two languages in their daily communication employ these languages in their inner discourse when they solve a linguistic task in their third language. Research into monolingual and bilingual inner discourse has revealed that societal speech is the prime mover of inner discourse and that the languages we use in social interactions are found in our inner discourse too (Barber, 1980; Bedford, 1985; Chapman Parr & Krashen, 1986; Honeycutt, 2010; Krashen, 1983). However, we know little about how this works in the case of those who organize more than two languages in their linguistic repertoire. Ten proficient bilingual Vietnamese-Hungarian secondary school students were therefore invited to provide a story in English to a series of wordless pictures. All ten participants were learning English as a first foreign language in an academic environment where the medium of instruction was Hungarian. The study used the concurrent think-aloud method to gather data. Transcribed verbal data were processed using the standards of private speech coding and analysis. The participants employed with great flexibility the languages at their disposal; however Vietnamese, the participants' first language, had a meagre presence in the whole of the gathered data. This seems to indicate that language reliance in non-native languages is largely guided by efficiency: languages are relied on depending on their contribution to the successful completion of the task. Insertion and language alternance were the main patterns identified of L2-L3 coupling. Although the study provides data about a small group of multiple language users, it may be informative to educators engaged in the teaching multilingual learners. Further investigations are needed to reveal how the bilingual hierarchical model of language storage and processing may be extended to map the storage and processing of three languages.

Keywords: multilingualism, inner discourse, picture-based L3 story, L2-L3 language coupling

1 Introduction

In the last few years there has been a significant growth of interest in how users of multiple languages employ these languages in their inner speech and whether using a number of languages in daily contacts leads to a multilingual inner voice too (e.g., Cook, 2014; Guerrero, 2005). Traditionally, language has been conceived of as the main means of interpersonal communication, however, recent empirical evidence has revealed that the amount of language used in inner speech exceeds the amount of language used for communication (Kinsbourne, 2000). This finding suggests that our internal language plays a more significant role in shaping our mental activities than we have traditionally thought (Cook, 2014). However, contemporary research on language use tends to be limited to the study of the external use of language as directly observable behaviour. Researchers are often eager to distance themselves from acknowledging inner speech as a researchable issue for the reason that it is not directly observable: information about it can be collected mainly through self-report and think-aloud

methods, i.e., research methods criticized on the grounds that they can only capture the internal language which is manipulated in the working memory (Crutcher, 1994; Yoshida, 2008) and thus offer only a partial view of the whole internal use of language. Despite these hindrances, the status of research into inner speech has improved considerably during the last decade, as evidenced by the growing number of studies investigating how the internal use of language contributes to our various mental activities (e.g., Alarcon-Rubio, Sánchez-Medina, & Winsler, 2013; Lupyan, 2012; Lupyan & Bergen, 2015; Winsler, Fernyhough, & Montero, 2009). Multiple language use within the broader topic of internal language has also captured researchers' attention lately (e.g., Guerrero, 2005) and is emerging as a valuable inquiry into how languages are learnt and used (Guerrero, 2005; Stapa & Majid, 2012; Tomlinson, 2001).

The present project study seeks to contribute to this line of research and supplement information about internalized language of young multilingual individuals who use a number of languages in their everyday communication. There are relatively few studies published about the internalized language of multilinguals. Educators involved in teaching this special target group have little or no information about how learning and meaning-making takes place in their case. Thus, even small case studies exploring this issue may contribute important knowledge and broaden our understanding of how languages interplay to enhance (or to hinder) the cognition of multiple language users. The aim of the present small scale investigation is to explore how the several languages known and used by multiple language users in their daily communication appear in their inner voice in the process of solving a linguistic problem in English – one of their non-native languages. There are several challenging questions to answer in connection with the verbal inner speech which collates a number of languages beyond the native language. Arguably, some of the most exciting questions are: How are several languages accommodated to the condensed form of the inner verbal speech? If such accommodation occurs, what are the patterns of language coupling? Is there a language which has primary importance in the verbal inner speech? Based on these initial questions, the present project aims at finding answers to the following research questions:

(1) Which of their languages do Vietnamese-Hungarian bilingual secondary students rely on in the process of tackling a problem-solution language task in English as their L3?
(2) What patterns of code switching can be identified in the inner discourse of Vietnamese-Hungarian bilingual secondary students in the process of tackling a problem-solution language task in English as their L3?

To explore the phenomena connected to these questions the present project investigates the verbal inner speech of ten Vietnamese-Hungarian proficient bilinguals, all learners of English as a foreign language at the same time. The section that follows, outlines the theories on which the research presented in this paper is based. The section starts with a review of previous research and existing theories connected to inner speech, then continues with the outline of the terms inner speech, inner discourse, multilingualism, and code-mixing. The section ends with the outline of Hoey's (2001) problem-solution pattern employed in the research.

2 Theoretical background

The language we speak to ourselves – our verbal thinking or inner discourse – is acknowledged to be firmly rooted in all the speech acts of the environments in which we dwell in our everyday life (Bakhtin, 1981; Fernyhough, 2009; Maturana & Varela, 1992; Vygotsky, 1934/2012). Starting from this assumption, it would follow that those individuals, who are exposed to and use two or more than two languages in their everyday speech acts, will also draw on these languages in their inner discourse. Reliance on two languages in conversation, known broadly as language alternation, has received considerable attention across several branches of the linguistic field (e.g., Hô-Đac, 2003; Legendre & Schindler, 2010 inter alia). The personal inner discourse, verbal thought and the relationship between thought and language have also been in the focus of psychologists, philosophers and cognitive researchers for a long time (e.g., Montero & De Dios, 2006; Plato, 360 B.C.E./1892; Vygotsky, 1934/2012; Winsler, Fernyhough, & Montero, 2009 inter alia). A considerable body of research has attested that inner discourse serves cognitive functions (Lupyan, 2014; Winsler & Naglieri, 2003; Winsler, Manfra, & Diaz, 2007), that language shapes our thoughts and influences the way we approach reality (Lupyan & Bergen, *in press*), that our inner dialogue accompanies us throughout our existence (Alarcón-Rubio, Sánchez-Medina, & Winsler, 2013; Larrain, 2007), and that those who use their inner speech for rehearsal of imagined interactions are more fluent and consistent in their outer speech (Choi, Honeycutt, & Bodie, 2014). Recently, assumptions have been advanced regarding the influence each language of the multilingual lexicon has on the individual's reasoning and thoughts (Linguistic Society of America, n.d.). However, little is known about the inner discourse of learners of a second language (Guerrero, 2005; Lantolf & Yáñez, 2003; Ohta, 2001/2009), and even less is known about the inner discourse processes of those who know and use more than two languages. The study on which this paper reports aimed to explore the phenomenon of flexible reliance and use of multiple languages, recently coined as *translanguaging* (García & Wei, 2014) in the inner discourse of Vietnamese-Hungarian fluent bilinguals EFL learners in the process of completing a problem-solution L3 linguistic task. Despite the small pool of data gathered in the study, the researcher hopes that the outcomes, besides offering useful insights into how this particular group of multilinguals employ their languages in their inner discourse, will be a source of inspiration for further research. Educators involved in teaching multilinguals in various classroom contexts may find the outcomes of this study relevant in their teaching practice.

2.1 Inner speech and inner discourse

The current study focuses on the inner discourse of multiple-language users, as this discourse became captured during a concurrent think-aloud activity. It is suggested that such an exploration, even if it examines only a fragment of the whole inner discourse, filtered through the processes of vocalizing, can offer valuable insights as to how multilingual language storage and use work. The paper distinguishes between the terms *inner speech* and *inner discourse*. Inner speech is taken to mean the "intrapersonal language behaviour" (Korba, 1989, p. 219), the "speech mechanism of thinking" (Sokolov, 1972, p. 1) which uses socially rooted linguistic elements (Vygotsky, 1978/1980) in a more or less structured form. Inner speech is also understood here as a more general concept, incorporating the nonverbal – auditory and visual – elements which are parts of human thinking (Changizi, 2009), but which are even more difficult to observe experimentally than internalized speech.

Inner discourse is defined in this paper as verbal inner speech, speech which bears the characteristics of discourse proposed by Bakhtin (1981). In the Bakhtinian sense, the discursive nature of inner speech resides in the fact that these inner verbalisations are situated. That is, inner thought takes linguistic form as a response to certain external or internal demands, on particular occasions. These inner linguistic forms, or verbal inner speech, have two main characteristics: they incorporate elements from the language employed in the daily social communication and they carry highly personal meaning. This way, inner discourse is dialogical, it is tailored to our "own semantic and expressive intention" (Bakhtin, 1981, p. 293) and enables us to perform our own selves (Bertau, 2014).

Inner verbal speech is thus positioned because it is usually part of the reasoning processes in which we traverse the argument-counterargument-response path (Leitao, 2007) and adopt different viewpoints to arrive at a solution or decision deemed adequate. Positioning is inherent to the human thinking processes and gives birth to mental dialogue in which "we think to ourselves as if addressing someone else" (Billig, 1987, p. 142). In this sense our inner reasoning is "dialogal" (Grossen & Salazar-Orvig, 2006) because it can be conceived as turn-taking between the self and a "virtual interlocutor" (Larrain & Haye, 2012, p. 4). Bakhtin (1981) conceived of this turn-taking between the self and a second-self as a conversation, and highlighted the discursiveness of inner verbal speech. Connected to the dialogal and discursive qualities of verbal inner speech, stands its highly condensed form. Among the first who theorised on the nature of verbal speech and highlighted its predicative form and telegraphic style was Vygotsky (1934/2012). Expanding on the Vygotskian theory, Frawley and Lantolf (1985) pointed out that, because verbal inner speech is the crystallised form of social speech, it has a complex condensed form with elliptical constructions, repetitions, and abbreviations. Vocate (1994), and more recently Archer (2003) argued that the unfinished sentences and condensed meaning which distinguish inner verbal speech from outer vocalized speech are the result of the perpetual idea-exchange between an *I*, the entity who adopts stances and choices and a *ME*, the entity who comments, criticizes, evaluates, and revises these choices. Ushakova (1994) used the term "economy" (p. 138) to characterize the essential trait of verbal inner speech.

To recapitulate the above characteristics, the information we have now about verbal inner speech is that it is:

- composed of outer speech linguistic elements,
- imbued with highly personal meaning,
- positioned,
- discursive,
- dialogal,
- dialogical, and
- condensed to predicative forms of language.

Research has revealed that our internalised speech fulfils essential roles in the process of learning a foreign language. Ushakova (1994) in her influential work seminal study advanced the view that the L1 inner speech acts as a scaffold for the L2 inner speech in the case of second language learners. This is the case at least in the incipient phases of L2-learning when the L2 develops links to the conceptual store through the L1. Ushakova's (1994) reasoning is in line with Kroll and Stewart's (1994) Revised Hierarchical Model which stated that in the early phases of L2-learning the lexical forms of the L2 are mapped to meaning (i.e., to the conceptual store) through the lexical forms of the L1 of the language learner.

Distinguishing between the L1 inner speech and L2 inner speech of adult language learners, Pavlenko and Lantolf (2000) pointed out that the L2 inner speech develops its own links to the conceptual store in the case of an intense L2–cultural immersion. According to Pavlenko and Lantolf (2000), proficient bilinguals are able to use either their L1 or their L2 in the processes of inner verbal thinking.

While our knowledge about L1 and L2 inner speech and the possible links between them is fairly sound, the information about inner speech that may employ more than two languages is scarce. The study on which this paper reports approached inner discourse through the concurrent verbalisations of the participants and looked at the transcribed data with the scope of identifying the patterns in which the languages from the participants' multilingual repertoire were brought to tackling an L3 linguistic problem-solution task.

2.2 Multilinguals and inner discourse

The defining characteristics of individual multilingualism are still under active discussion in the research literature. Most generally, the terms *multilingual* and *multilingualism* have been interpreted rather narrowly by their relation to *bilingual* and *bilingualism* (De Angelis, 2007; Herdina & Jessner, 2002). Space does not allow for thorough treatment of the terminological debate surrounding the terms *multilingual* and *multilingualism*, neither does it allow the presentation of a detailed comparative and contrastive analysis of *bilingualism* and *multilingualism*. Thus, the discussion of *multilingualism* and its related term *multilingual* is confined here to the issues most relevant for the present project. This study adopted the view that language is an abstract cultural artefact (Cole, 1998; Wertsch, 1991, 1998), namely, it is the outcome "of the interaction between a particular group of individuals in a particular setting and physical environment" (Block, 2003, p. 100).

One of the earliest and most comprehensive definitions of the term *multilingualism* was given by McArthur (1998) who identified multilingualism with

> the ability to use three or more languages, either separately or in various degrees of code-mixing. There is no general agreement as to the degree of competence in each language necessary before someone can be considered multilingual; according to some, a native like fluency is necessary in at least three languages, according to others, different languages are used for different purposes, competence in each varying according to such factors as register, occupation, and education. (p. 387)

The strengths of McArthur's (1998) definition are that it includes both psycholinguistic views of multilingualism – in terms of the various degrees of language mastery which characterize languages included in the multiple language-users' repertoire – and sociolinguistic views of multilingualism, by enumerating the social factors which influence multiple language use. Following closely McArthur's (1998) definition, De Angelis (2007) stated that a "multilingual person is an individual familiar with three or more languages to some degree of fluency" (p. 8). In a more recent work on clarifying terminology relevant to the field of multilingualism, Kemp (2009) quoted McArthur's (1998) definition of multilingualism verbatim and concluded with the recommendation that researchers give a "detailed definition of multilingualism as part of each study" (p. 24).

Notwithstanding the seemingly general tendency to make multilingualism dependent on the use of at least three languages, the present project adopted a broader approach considering multilinguals to be individuals who know and can use more than two languages with fluctuating linguistic and communicative competence, either separately or combined in different code-mixing forms**.** The construct of multilingualism thus defined is in line with the complex and dynamic nature of multiple language knowledge and use (Herdina & Jessner, 2002). It is suggested that the use of the phrase *more than two languages* instead of "three or more languages" (De Angelis, 2007, p. 8; McArthur, 1998, p. 387) would be more felicitous as the meaning of "more than two" includes "three or more" and the definition thus reformulated can still differentiate between those who use two languages (i.e., bilinguals) and those who use more than two languages (i.e., multilinguals). In addition, a broader definition of multilingualism would also accommodate emergent trilinguals, who are either bilinguals learning an additional language or monolingual language learners learning two additional languages.

The dichotomy of knowing a language and using a language is used in the definition with the intention to include those situations in which some languages are learnt, they often act as active components in one's linguistic repertoire, however they are seldom used in social interaction. For instance, this is the case of Latin and Classical Greek taught in several schools across the western and north-western parts of the world. In connection to Latin, research shows that learning Latin provides a wide range of benefits, among which the most notable are the enhanced verbal abilities in one's native language and improved abilities to learn an additional language (Sparks, Ganschow, Fluharty, & Little, 1995). The learning and use of Latin may be confined to a great extent to educational contexts, but the linguistic competence developed in this language acts as a support for subsequent learning of additional languages by giving rise to new understanding of how languages work (Fantini, 2009; Tappe, 2009; Wildsmith-Cromarty, 2009), an enhanced mastery of vocabulary both in English and Romance languages (Todeva, 2009), and a greater flexibility to move across languages (Freedman, 2009).

By acknowledging the fluctuating linguistic competence of the language users and their ability to use language in a wide variety of linguistic registers, the above definition subscribes to the acquisition metaphor formulated by Sfard (1998) which states that an individual's competences and abilities are never finite and constant, they are rather in permanent ebb and flow affected by the surrounding context. A similar view was expressed earlier by Grosjean (1985) who studied bilingual language fluctuation in terms of acquisition, learning and language loss. More recently, Herdina and Jessner (2002) have taken a dynamic approach to multilingual proficiency in their seminal Dynamic Model of Multilingualism (DMM) according to which the languages acquired and/or learnt by a person are acknowledged to be in perpetual motion in an open-ended process, in which linguistic systems overlap and interact in a flexible way (Herdina & Jessner, 2002). Support for the idea of fluctuating linguistic and communicative competence originates not only from theoretical endeavours. Empirical research comes to supplement and illustrate how the wax and wane of language mastery takes place in everyday life. Evidence regarding the dynamic and reshaping character of language competence and use are found in language acquisition studies exploring native language change in second-language immersion contexts (De Bot & Clyne, 1994), native language maintenance in second-language learning contexts (Dorian, 1982), the interdependence of learnt foreign languages in the mental lexicon (Fouser, 2001), and the simultaneous acquisition of three languages (Montanari, 2013).

The perpetual motion of a multilingual's languages identified by Grosjean (1998) and modelled by Herdina and Jessner (2002) in their DMM is characteristic not only to the macro level of the individual user's linguistic abilities and competences. We can often observe it working at the micro level of daily language use of those who use a number of languages. The author of the present study suggests that one aspect of the perpetual motion of languages integrated in the multilingual mental lexicon is code-mixing discussed in detail in the following section.

2.3 Code-mixing and inner discourse

Using languages in combination and alternating between two or more languages in the same discourse are abilities proper to individuals who regularly use several languages. The phenomena of language combination and alternation have been widely studied in the contexts of bilingual speech and second-language acquisition and have been identified as instances of code-mixing, code-switching, language alternation, insertion, and congruent lexicalization (Bullock & Toribio, 2009; Muysken, 2000). It is important to note here that traditionally research on using languages in combination viewed languages as independent entities interferencing with each other. Reliance on two or more languages in communication was perceived as incomplete language acquisition or as "diluted language" (Gafaranga, 2007, p. 279). Within this paradigm language purists still tend to consider alternating between languages the results of imperfect language acquisition and partial mastery (Bullock & Toribio, 2009). A more recent approach to the ability to use several languages either alternatively or in combination perceives languages employed in these processes as placed on a continuum, and part of the same multilayered linguistic repertoire from which the user selects "features that are socioculturally appropriate for the academic (or communicative) task at hand" (Velasco & García, 2014, p. 8, parentheses in the original). The ability to rely simultaneously on several languages and creatively use them to solve different tasks is known nowadays as "translanguaging" (García, 2009) and acknowledged as "bilingual praxis" (Kleeman, 2012, p. 59). The present project uses the more traditional term *code-mixing* for the phenomenon of employing several languages in the same discourse. At the same time it acknowledges the manifold interfaces between languages in the multi-layered linguistic repertoire and the malleability of multiple language use defined by the translanguaging metaphor.

Code-switching, code-mixing, language alternation, insertion, and congruent lexicalization (Bullock & Toribio, 2009; Muysken, 2000) have been long researched as special bilingual language contact phenomena. While most research focused on language alternation in the bilingual conversational and communicative social discourse in general, we have not much data about the language alternation processes at the cognitive linguistic level. Research which looks at the inner verbal thought engaging more than two languages is even scarcer. To my knowledge, only few studies have addressed the issue of multilingual inner discourse, one of them being Cohen's (2011) small scale study centred on multilingual verbal inner speech in the process of foreign language acquisition and maintenance. Much that we know about the languages involved in the process of thinking comes from research performed in bilingual and second-language learning or acquiring contexts (e.g., Guerrero, 2005). As a result, at present the definitions which have been formulated to identify and describe language alternation phenomena limit themselves to mentioning the alternation between two languages, namely the alternation between the native language and a language acquired or learnt beyond the native language.

The present undertaking adopted Muysken's (2000) typology of code-mixing (TCM) as the theoretical background against which the concurrent verbal think-aloud protocols of the participants were examined. Muysken's (2000) categorization of language-alternation patterns is useful because of its clarity of formulation, comprehensiveness and because it draws its conclusions from a significant body of research data. Muysken (2000) distinguished between three main types of mixed language patters: insertion, alternation and congruent lexicalization. Despite the fact that the TCM was developed based on data collected from second language learners and bilinguals, it is suggested that it is a valuable categorisation in the investigation of coupling of more than two languages.

According to Muysken (2000), the term *code-mixing* denotes the "cases where lexical items and grammatical features from two languages appear in one sentence" (p. 2). He uses this term as a general one which integrates special types of language coupling: insertion and congruent lexicalization.

Insertion in Muysken's (2000) formulation involves nested language coupling structures whereby in one language (usually the native language) which provides the frame for the utterance, a word or phrase from a second language is placed. The current study, because it looked at users of three languages, considered insertions the following forms of language coupling:

L1 + L2 word/phrase + L1
L1 + L3 word/phrase + L1
L2 + L1 word/phrase + L2
L2 + L3 word/phrase + L2
L3 + L1 word/phrase + L3
L3 + L2 word/phrase + L3

An example of L2 + L3 word/phrase + L2 insertion is the following request made by a 14-year old Hungarian L1 who was learning simultaneously English L2 and German L3 as foreign languages. In example (1) English L2 is set in regular font while the German L3 word is set in italics.

(1) Lemonade for *alle*, please!
"Lemonade for *everybody*, please!"[1]

(personal field notes, October 21, 2014)

Cognitive linguistics research often categorizes this type of inclusion as being an instance of crosslinguistic influence (Sanchez, 2011) where languages are seen as *crossing* each other; that is, they are considered to be impeding the language user to stick with one language in his discourse. However, such instances of mixed utterances are considered insertions when they are produced deliberately. They often act as elements of jocularity, for instance with the purpose of teasing the language teacher or people who are overly concerned about keeping languages apart (Boksay Pap, 2015b)

Example (2) illustrates another possible insertion pattern, namely that in which an L2 phrase is included in an L1 frame. Backus (2003) in one of his studies collected data from

[1] Throughout the paper, idiomatic translations appear between quotation marks, word for word translations in green and in square brackets, and instances of English L3 in bold. Other indications are explained where they appear.

Turkish L1 immigrants using Dutch as an L2 in the Netherlands. In example (2) Turkish L1 words are set in regular font while the Dutch L2 inclusion appears in italics.

(2) burdaki insalar *ik weet niet*, daha yani gerigörüşlü insanlar gibi görünüyor bana
"people here, *I don't know*, it seems to me like they're more conservative people"

(Backus, 2003, p. 247)

A second main type of language coupling in Muysken's (2000) TCM is *language alternation*, which he defines as the instances of utterance in which "the two languages present in the clause remain separate" (p. 45). It can be noticed that Muysken (2000) restricted language alternation to the sentences level. In this project, however, the construct of language alternation was extended to also account for the presence of two or more than two languages in successive sentences or utterances. This approach is in line with Kleeman's (2012) view on language alternation at the discourse level. In the study the term intra-sentential language alternation is employed to designate the language alternation within an utterance or sentence. The term inter-sentential language alternation is employed to designate the alternation from one language to another between utterances or sentences.

Intra-sentential language alternation means that a word or string of words from a language are followed or preceded by a word or strings of words from another language within the same utterance. The possible intra-sentential language alternations in the case of individuals who use three languages can be represented as follows:

L1 words + L2 words
L1 words + L3 words
L2 words + L1 words
L2 words + L3 words
L3 words + L1 words
L3 words + L2 words

An example of an L2 words + L1 words alternation within one utterance is given in (3) in which an English L1 – Hungarian L2 young speaker was complaining about his Hungarian friend's mischiefs. In example (3) the Hungarian L2 word is set in italics and the English L1 words appear in regular font.

(3) *És megrúgta* in the you-know-what. Then he tried to get away.
"*And he kicked him* in the you-know-what. Then he tried to get away."

(personal field notes, August 23, 2013)

Inter-sentential language alternation means that an utterance or a sentence in one language is followed by an utterance or sentence in another language within the same train of thought or within a larger chunk of inner discourse. In the case of individuals who use three languages, these alternations can be represented as follows:

L1 utterance/sentence + L2 utterance/sentence
L1 utterance/sentence + L3 utterance/sentence
L2 utterance/sentence + L1 utterance/sentence
L2 utterance/sentence + L3 utterance/sentence
L3 utterance/sentence + L1 utterance/sentence
L3 utterance/sentence + L2 utterance/sentence

As an instance of an inter-sentential language alternation example (4) illustrates a train of thought captured during a concurrent think-aloud task when Hungarian L1 secondary school students speakers of Romanian as L2 were solving a narrative task in English, their L3. In excerpt (4) below, the speaker's thoughts were vocalized in English L3 at first, then he switched to Hungarian L1, then he turned to Romanian L2, and then he switched back to Hungarian L1. In example (4) Hungarian L1 words are set in regular font, the Romanian L2 words appear in italics.

(4) **she goes to the cow and takes some milk**
for her recipe
then she ...
azt akarom mondani hogy visszatér a konyhába [I want to say that she returns to the kitchen]
nem azt hogy visszamegy [not that she goes back]
apoi se întoarce in bucătărie [then she returns to the kitchen]
se întoarce.... [she returns...]
she goes back to
she ...
kikeresem a szótárban [I look it up in the dictionary]

(Boksay Pap, 2015a, pp. 10-11)

The last main type of language coupling defined by Muysken (2000) in his TCM is *congruent lexicalization,* a structure of code-mixing which is conditioned by the grammatical convergence existent in the case of two languages. In other words, for congruent lexicalization to occur, the two (or more) languages coupled have to share identical or very similar grammatical structures. In the case of shared grammatical structure, the words or lexical items originating from the two languages are aligned according to the shared grammatical structure (Muysken, 2000). As an instance of congruent lexicalization consider the following example, an utterance produced by a 5-year old English-Hungarian bilingual addressing his mother to buy him a fluffy toy-monkey:

(5) *Mom*, mondtam már neked *that I really want that* fekete majom.
[Mom*, I told already you* that I really want that *black monkey.*]
"Mom, I already told you that I really want that black monkey."

(personal field notes, August 20, 2013)

Despite the fact that Hungarian and English are not typologically close languages, they share some grammatical structures, and one example of such a structure is the sequence TRANSITIVE VERB + DIRECT OBJECT. In example (5) the noun-phrase "fekete majom" [black monkey] follows the transitive verb "want". In Hungarian the same utterance would have sounded as "akarom azt a fekete *majmot*." with the *-t* ending attached to the noun *majom* to signal its role of direct object in the sentence.

In congruent lexicalization the lexical items can come from either of the languages engaged in the utterance (Bullock & Toribio, 2009; Muysken, 2000) and the lexical items from one language follow the grammatical prescriptions of the language in which the lexical item is placed. In the case of Hungarian and English, where only parts of the grammar are shared, it is often the case that when an English lexical item becomes congruently lexicalized in a Hungarian structure, then the English lexical item appears bearing the mark of the Hungarian inflection. Several examples could be quoted here especially from the Hungarian teenagers' communicative discourse involved in socializing on the net, but there are also plenty of

examples in Hungarian literary works, as in example (2) taken from a well-known 19th century writer.

(6) (...) Magyarországon kétféle zsiványok vannak: regényes, demokrata hajlamúak, mint voltak a highwaymanek (...)
"(…) in Hungary, there are two types of outcasts: those who have an inclination for romance and democracy, and these were the *highwaymen* (…)"
(Jókai, *Névtelen vár*, p. 289)

In example (6), the writer used the English noun *highwayman* aligned in a Hungarian predicative structure be (past tense) + definite article + noun (plural) and applied the Hungarian –k sign to the English noun to mark the plural form. The narrator, telling about the two types of Hungarian outlaws, chose the English noun highwayman with the purpose to give the readers a romanticized or exotic picture of the outlaws who demonstrated gallantry.

As the above example suggests, using a number of languages is not a new phenomenon typical to modern and post-modern multilingual communication. Code-mixing language patterns were common in the past too. For example, Luther's (1566/1854) *Table-talks* abound in German L1-Latin L2 intra-sentential language alternations. Example (7) illustrates a congruent lexicalization:

(7) Und Derdolmetscher oder Translatores sollen nicht allein sein, denn einem einigen Mann fallen nicht allezeit gute et propria verba zu.
(Luther, 1566/1854, p. 4)
"Interpreters and translators should not work alone; for good et propria verba do not occur to one mind."

In the current project, in order to distinguish between intra-sentential insertion and congruent lexicalization, an intra-sentential insertion was considered to be the inclusion of a lexical unit, usually one word, from one language into a longer utterance of another language with no grammatical inflection. Congruent lexicalization was taken to be that language coupling where the lexical unit from one language which was incorporated in the larger structure of another language was subjected to a grammatical rule of the language into the structure of which become incorporated.

In the examination of the inner discourse of multilinguals engaged in solving an L3 linguistic problem-solution task, Muysken's (2000) TCM constituted the starting point acting as the general background against which the transcribed concurrent think-aloud verbal protocols were examined.

2.4 Problem-solution type tasks and inner discourse

Problem-solution tasks, if well-crafted, are deemed to be valuable instruments to elicit verbal inner speech. Well-crafted problem-solution tasks are cognitively challenging assignments in a "semantically rich domain" (Jansweijer as cited in Van Someren, Barnard, & Sandberg, 1988, p. 141), that is, they are tasks which in order to be solved require "a diversity of knowledge" (Van Someren et al., 1994, p. 141). The phenomenon of verbal inner speech has been widely investigated by using tasks which involved problems to which the participants had to find the solutions while verbalizing their thoughts (e.g., Celedón-Pattichis, 2003; Centeno-Cortés & Jiménez, 2004).

Hoey (2001) proposed a particular problem-solution task in which the textual organization pattern builds on three main elements: there is an initial *situation* which presents a *problem* that requires a *response*, or more generally, a *solution*. The central element of the pattern is the problem-element, which Hoey (2001) defined as the "aspect of the Situation requiring a Response" (p. 123; emphasis in the original). The response is some kind of reaction to the problem. If the response solves the problem, the pattern is considered completed. If the response is not an appropriate one, or it does not result in solving the problem, the step "problem asking for a solution" is retaken until there is a response capable to resolve the problem. An alternative step included in Hoey's (2001) problem-solution pattern is the instance when the inappropriate result or negative evaluation of the problem is beyond retrieval and leads to the termination of the pattern. In Figure 1, the problem-solution text-organisational pattern is represented with its possible alternatives.

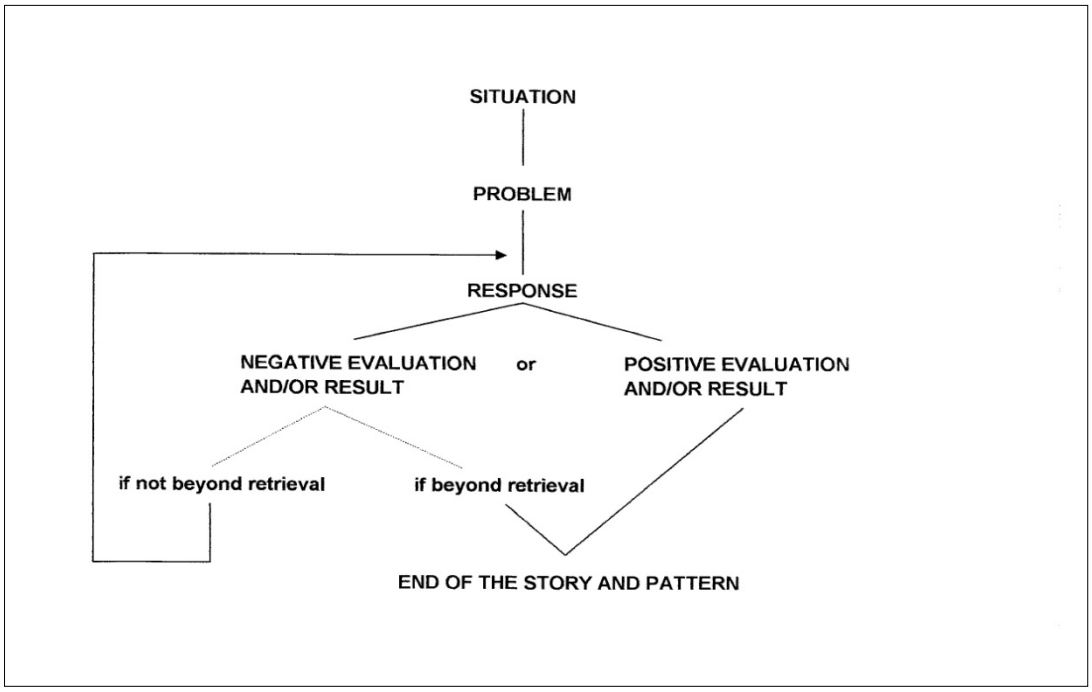

Figure 1. The Problem-solution Text-organizing Pattern (Hoey, 2001, p. 133)
(permission for reproduction granted by M. Hoey)

The present study employed a problem-solution pattern task to be used within the concurrent think-aloud activity due to the universality of the pattern (Hoey, 2001), a universality which assures that people from a wide variety of cultures are familiar with it (Galán & Pérez, 2005). Taking into consideration the participants' cultural background and age, it was important to develop a research tool which was age-relevant and accommodated cultural issues. The research tool will be described in detail in the *Research methods* section.

2.5 Research questions

The main purpose of the study is to explore the internalised speech of young multilinguals as it becomes verbalized in the process of solving an L3 linguistic task and to answer the research questions formulated in the introductory part of this paper, namely:

(1) Which of their languages do Vietnamese-Hungarian bilingual secondary students rely on in the process of tackling a problem-solution language task in English as their L3?
(2) What patterns of code switching can be identified in the inner discourse of Vietnamese-Hungarian bilingual secondary students in the process of tackling a problem-solution language task in English as their L3?

The approach taken by the investigation was a discourse analytical one, because it did not centre on the process of solving the L3 linguistic problem-solution task but focused on the transcribed verbal think-aloud protocols in their "frozen state" (Berman & Slobin, 1994, p. 24) that is, these protocols were considered texts and analysed with the help of the tools offered by the theories on inner speech and code-switching.

3 Research methods

Ten secondary school students and six English language teachers took part in the study. To gather data, the study used a questionnaire, interviews and the concurrent think-aloud method. The students answered the questionnaire, participated in interview sessions and carried out a concurrent think-aloud task. The students' teachers participated in interview sessions. The questionnaire focused on the students' language learning history, on the languages used in different situations and environments, on their preferences of language learning and use, and on their literacy-acquiring history and literacy skills. The interviews conducted with the students before the concurrent think-aloud task had a similar focus: there were several questions which tapped into the interviewees' experience of learning languages, using languages, their self-perceived strengths and weaknesses connected to language learning and use, the self-perceived importance of being able to use a number of languages, and the ways in which the respondents acquired the skills of listening, reading, speaking and writing. The post-task interviews centred on the students' opinions about the difficulty of the task, the decisions they had to make regarding the solutions they adopted while they were tackling the task. The interviews conducted with the students' English teachers explored the ways in which the teachers acknowledged (or not) their students' special abilities regarding language learning and use, the problems that might arise from being able to juggle several languages, and the methods adopted by the teachers to assist their learners when they encountered difficulties connected to understanding and meaning-making. The data originating from these three sources were analysed first separately and then, in a second analysis session, the data gathered from each participant were compared across data sources. Thus each participant's answers given to the questionnaire questions were compared to the answers and comments given during the interview sessions and her data originating from the concurrent think-aloud activity. Common threads were identified during this analysis phase and were grouped in categories. This study focuses on the verbal data gathered during the concurrent think-aloud protocols, with occasional reference to verbal data from the interviews conducted with the participants. The analysis of data originating from the interviews conducted with the participants' teachers and the participants and the outcomes based on this analysis are to be disseminated in a forthcoming publication (Boksay Pap, 2015b).

3.1 Participants

The participants in the project were ten Vietnamese-Hungarian proficient bilinguals learning English as their L3, who had been purposefully selected from a larger population of 28 Vietnamese-Hungarian bilingual secondary school students. Purposive sampling was performed based on a questionnaire and an English language proficiency test. At the time of the research the participants were 10th and 11th graders at a secondary grammar school in Budapest where subjects were taught in Hungarian. The school offers intensive and extensive foreign language education in English, French and German. The average age of the participants was 15.7. Ages ranged from 15 to 16. Three male students and seven female students took part in the study. Before the beginning of the study parental permission was obtained.

The participants' parents were first-generation immigrants to Hungary who were born, raised and educated in Vietnam, and moved to Hungary either to attend tertiary education or to work. The 28 respondents to the questionnaire were born in Hungary and they acquired Vietnamese as their L1 and Hungarian as their L2.

Based on the answers given to the questions and based on the results obtained after completing an English language proficiency test, ten participants met the criteria set in the study. The three criteria the participants had to meet in order to be chosen for the project were: Vietnamese spoken as the language of home, Hungarian and Vietnamese used in daily interactions, and an intermediate proficiency in English, their L3. The first two criteria were set because it was considered critical for the aim of the investigation that the participants use actively the languages they know. The L3 intermediate language proficiency of the participants was one of the selection criteria for two reasons. First, according to Cohen (2011) a non-native language has chances to show up as a language of thought in an individual's mental dialogue repertoire if the individual has a fluent command of that particular language in a certain discourse domain. Second, the successful completion of the L3 linguistic problem-solution task called for an intermediate L3 competence as described by the Common European Framework for Languages (European Commission, 2009).

The 28 participants' proficiency of English, their L3, was evaluated using the *Online MM Placement Test®.* The Online MM Placement Test® is a useful tool in the evaluation of English language learners' mastery of language. It offers several advantages to both test takers and teachers. The test is easily accessible after a short registration phase and it is free of charge. It covers the main seven levels of the Common European Reference levels: beginner (pre-A1), elementary (A1), pre-intermediate (A2), intermediate (B1), upper-intermediate (B2), and advanced (C1). The test tasks are divided into three sections. In each section the test takers solve listening, reading, communication, grammar, and vocabulary tasks. Based on the scores they get in each section, they are placed at a particular language level. The first two sections of the test offer the possibility to be taken either in British or American English. The third part of the test contains both British and American English features. Based on the Online MM Placement Test® results, ten participants' English language proficiency was deemed to fit within the parameters of the intermediate B1 level set by the Common European Reference. Additionally, the ten participants, whose level of English language proficiency was intermediate B1, described their overall language learning history with the help of Block's (2003) diagram of language learning context scenarios (p. 34) (see Figure 2). Block's (2003) diagram is a versatile tool in the description of how, in what particular conditions the languages one knows have been acquired and to what extent the language user feels her languages as

serviceable. Block's diagram of language scenarios contains four quadrants arranged along a horizontal and a vertical axis. The presence of a particular language in a community is represented on the horizontal axis, the two ends of the axis being: – *Language in community* and + *Language in community.* The vertical axis represents the degrees at which that particular language is taught in classroom conditions. The two ends of the vertical axis are + *Classroom* when the language is being taught in classroom environments, and – *Classroom* when the language is not present in educational contexts. The main idea that emerged from the students' self-evaluation was that English for them was both a foreign language learnt in the classroom, a self-instructed language often learnt on their own, and also a language learnt in naturalistic environments, such as the internet and countries where English is spoken as an official language. In addition, regarding the serviceability of their learnt English, the participants referred to English as "an indispensable and continuously improved tool."

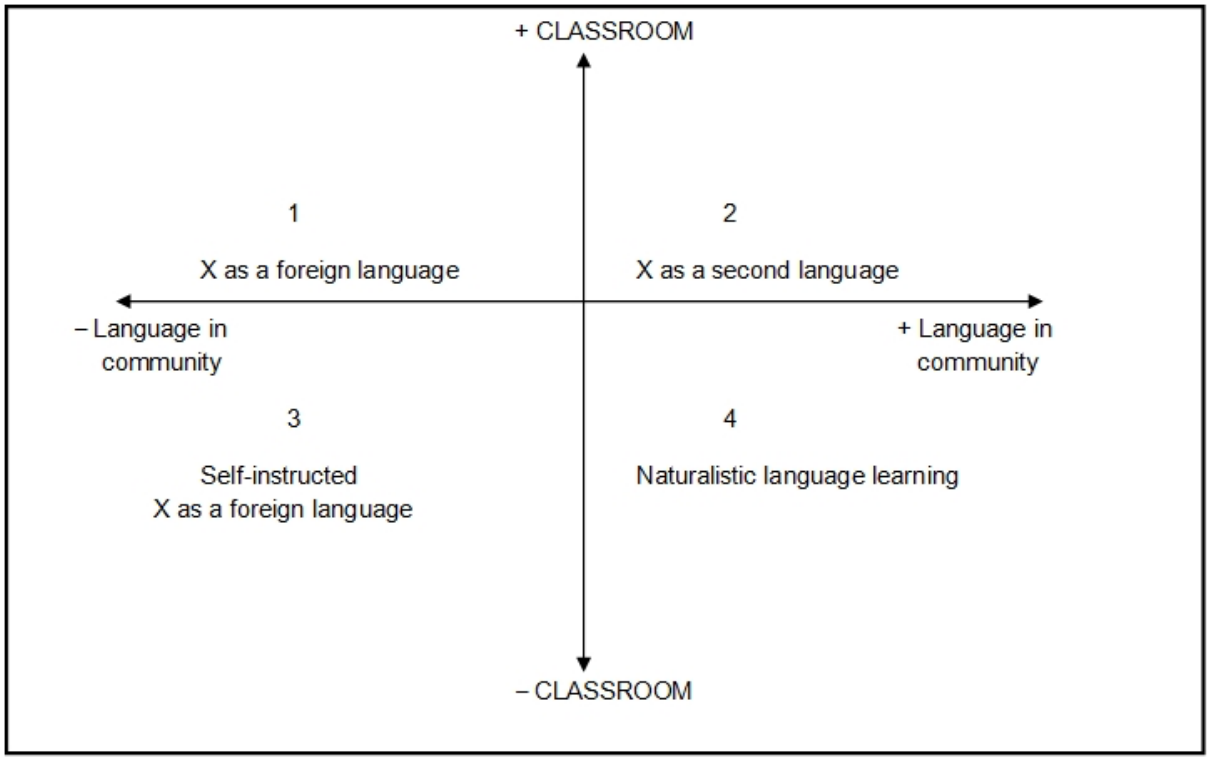

Figure 2. 'Second' context scenarios (Block, 2003, p. 34)
(permission for reproduction granted by D. Block)

To supplement the information gained about the participants' English language proficiency and the contexts in which they acquired languages, three teachers who taught English as a foreign language to the participants were asked to evaluate their students' command of English based on their in-lesson activity**.** The teachers' account of the participants' activity in the English lessons focused on the frequency with which each participant contributed actively during the lessons and used English as a procedural language. The teachers were also asked to evaluate the participants' language abilities across the listening, reading, speaking and writing abilities. The common ideas emerging from the teachers' accounts were connected to the students' lopsided English abilities across the four main skills, with the reading and writing skills more developed than the listening and oral skills. Connected to the oral skills, every

teacher pointed out that their students were very familiar with the "glasshouse English nurtured within the walls of the school" (TEACHER 3, personal communication, December, 2013) and the English linguistic repertoire deployed by textbooks.

The participants' proficiency in Hungarian, their L2, was taken to be native-like. Each participant reported to have started acquiring Hungarian at around the age of three at kindergarten. The participants considered Hungarian, as one of the participants pointed out, their "second mother-tongue" and the language in which "friendship can be established". A common trait among participants was to consider spoken modern Hungarian "easier to understand" than the Hungarian used in literary works.

Regarding competence in Vietnamese, the participants' L1, the ten participants reported that they were able to speak and read in Vietnamese, but their writing skills in Vietnamese were partial, restricted to basic knowledge. All ten participants spoke Vietnamese on a daily basis with their family members and Vietnamese acquaintances and they were in touch with their relatives in Vietnam. In the families of each participant there was at least one member who spoke only Vietnamese at home and required support from Vietnamese-Hungarian speakers in his or her social contacts outside the home and Vietnamese community. The participants reported that they were familiar with the variety of Vietnamese used by newspapers and virtual media.

Besides language proficiency, the participants were asked to report about their familiarity with pictorial representations, wordless picture stories and graphic novels, because the L3 linguistic task of the concurrent think-aloud activity employed a series of wordless pictures. Based on their self-reported data, the participants were familiar with the genre of stories told with the help of pictures; however graphic novels and picture stories were not a usual part of their literary diet.

3.2 Procedures

The ten students who were purposefully selected based on their answers to the questionnaire and the results obtained on the Online MM Placement Test® were invited to provide a text in English, their L3, to Shaun Tan's (2006) *The Arrival* wordless picture novel and to verbalize their thoughts in whatever language these thoughts occurred. Thus recording during the concurrent think-aloud process captured the planning process of the L3 text-composition process.

So as not to induce or suggest behaviour which the participants would not have displayed otherwise, the short think-aloud training session preceding the actual concurrent think-aloud activity used two arithmetic word problems to familiarize the participants with the essence of the concurrent think-aloud process. The students engaged in the actual concurrent think-aloud task in a familiar environment, in a room at their school. Completing the task did not have a set time limit the students could work as long as they wanted. At one time there was only one student in the room and the researcher, who started the voice-recorder, then let the student work alone without interruptions. The students' verbalizations were recorded.

For the concurrent think-aloud activity Tan's (2006) *The Arrival* wordless graphic novel was employed because of its problem-solution pattern and because it creates a " semantically rich domain" (Jansweijer as cited in Van Someren et al., 1994) which invites the readers to mobilize their cognitive abilities and linguistic knowledge in interpreting the pictorial representations. Tan's (2006) wordless graphic novel has a typical recycled problem-solution pattern (Hoey, 2001) with a hero (a father who leaves his wife and daughter to emigrate into another country), a problem (the father who has to accommodate with his new surroundings and find a job), a series of reactions and responses to solve the problem (the father looks for ways to earn his living, and he faces unexpected problems), and an ending (the family finally reunites, the wife and the daughter follow the man into the new world). The series of pictures present a complex series of events which invite the reader to use his or her linguistic knowledge to the full in order to provide the storyline. Sections from the book can be retrieved from the following websites:
http://www.youtube.com/watch?v=AtPz4SPwHkw and
http://www.youtube.com/watch?v=1nJKse-UCFM .

The pictures of the wordless novel were placed on a board in front of the participants so as to allow them to view the whole story from the beginning to the end. Each participant was allowed to look closely at the pictures before the actual concurrent think-aloud activity began. The concurrent think-aloud activity did not have a time limit and the participants were allowed to use dictionaries in the process of building the L3 text. The following bilingual dictionaries were accessible to the participants: Hungarian-English, English-Hungarian, Vietnamese-English and English-Vietnamese. Before the recording started, the participants could use the recorder to record and then listen to their own voice. These measures were taken in order to reduce the participants' anxiety and cognitive load during the concurrent think-aloud activity.

3.3 Data analysis

In the first phase of the verbal data analysis the recorded think-alouds of the participants were listened to and transcribed. The transcription process followed the procedures proposed by Winsler, Fernyhough, McLaren, and Way (2005) in their seminal work on coding private speech. The participants' verbal protocols were divided into *utterances* according to the definition given by Winsler et al. (2005, p. 6). Thus, an utterance was taken to delimit "a complete sentence, a sentence fragment, a clause with *intentional marks of termination*, a conversational turn, or any string of speech which is temporally separated from another by at least 2s" (Winsler et al., 2005, p. 6; emphasis added). Intentional marks of termination were considered to be silence gaps of at least 2 seconds length and changes of focus in the utterance. In example (8a) two utterances were counted because a silent period of three seconds intervened:

(8a) When he got there he had to //
He had to ... go to the doctor's and stand in a queue

In the transcribed verbal protocols silent periods of at least 2 seconds were marked by double slashes. In example (8b) two separate utterances were counted because of a change in the focus of the thinking process:

(8b) Nem tudom itt mi történik [HUN; I don't know what's happening here] \\
They were waiting for somethin' to happen

In the transcribed verbal protocols, double backslashes were used as a conventional sign for changes in focus. Translations from Hungarian into English and Vietnamese into English are given in square brackets at the end of the line.

The patterns of language coupling were identified in the body of the transcribed think-aloud protocols. Insertions were marked as INS, and language alternations or language shifts were marked as LAAN. As it will be seen in the *Outcomes and discussion* section no congruent lexicalizations were found.

The codes on the type of code-mixing appear at the beginning of the lines for practical purposes. Analysis of the transcribed verbal protocols followed Muysken's (2000) typology of code-mixing as presented earlier in section 2.3 of this paper on Code-mixing and inner discourse.

4 Outcomes and discussion

The study explores the multilingual inner discourse of 10 young Vietnamese-Hungarian fluent bilinguals who learned English as a third language in an L2 educational environment. The small-scale exploratory investigation conducted to examine the phenomenon of inner discourse of multilinguals led to the outcomes presented in the following two subsections.

4.1 Languages relied on in the process of tackling an L3 problem-solution linguistic task

To answer the first research question, it was found that in the participants' verbalisations the L2 and L3 utterances were dominant, with rare L1 insertions.

Table 1 displays each participant's total number of utterances, the number of English L3 and Hungarian L2 utterances and the number of Vietnamese insertions.

Participants	Number of total utterances	Number of English L3 utterances	Number of Hungarian L2 utterances	Number of Vietnamese insertions (words)
STUDENT 1	864	411	453	2
STUDENT 2	799	397	402	-
STUDENT 3	931	532	399	4
STUDENT 4	906	461	445	3
STUDENT 5	802	373	429	-
STUDENT 6	674	280	394	1
STUDENT 7	689	312	377	-
STUDENT 8	710	406	304	3
STUDENT 9	835	391	444	-
STUDENT 10	798	312	486	-

Table 1. Number of utterances in English L3 and Hungarian L2 and Vietnamese insertions

In the case of English insertions in Hungarian utterances, the utterance was coded and counted as *Hungarian* because it was considered that the reasoning process was supported dominantly by the Hungarian language with occasional turns to English. In the case of Hungarian insertions into English utterances, the utterance was coded and counted as *English*

because it was considered that the reasoning process was supported basically by the English language with occasional turns to Hungarian.

It can be noticed that while the number of Hungarian and English utterances is fairly balanced, Vietnamese, the participants' native language, is present only as inserted words. The finding is in line with Cohen's (2011) observation that bilinguals can deliberately use one of their languages for thinking and that the language in which the discourse of education takes places can determine the language(s) employed in verbal thinking (Chapter 5, Research on strategy instruction). It is suggested that the limited presence of the participants' native language in the process of tackling the L3 linguistic task is not a sign of language loss or atrophy, but the sign of a well-developed L2 (Hungarian) on which they could rely confidently while they were constructing the English L3 task. Moreover, the outcomes related to the reduced use of the L1 in the process of reasoning suggests that the roles played by the L1 in the metacognitive and cognitive processes involved in the resolution of an L3 linguistic problem-solution task can be taken over by the L2 in the case of a well-developed L2.

4.2 Patterns of code mixing in the inner discourse of multilinguals solving an L3 problem-solution linguistic task

The analysis of the transcribed verbalisations of participants revealed two language coupling patterns: insertions and language alternations. In example (9) line 117 contains an insertion of a Hungarian word into an English utterance (INS HUN/ENG) and line 119 a language shift from English to Hungarian.

(9)

117	INS HUN/ENG	**he looked at the** reklámok in the street [he looked at the *advertisements* in the streets][2]
118		**at the** //
119	LAAN	mi a reklám angolul // [what's *advertisement* in English]
120		tudom, hogy (xxx) [I know that (xxx)]

Line 117 shows an instance when the participant produced the Hungarian word instead of the English word and she was searching for the English word. First she formulated the utterance in English and she placed the Hungarian word within the English structure. Line 119 was identified as a language shift because the participant was conducting her thinking in English, then she resorted to Hungarian because she could not retrieve the word *reklám* [advertisement] in English.

Insertions of Hungarian words into larger stretches of English utterances were quite common practice during the concurrent think-aloud sessions. These insertions were identified

[2] The inserted word is written in italics to mark its being in another language than the structure into which it was placed. The code (xxx) was used to mark unintelligible utterances such as murmuring to oneself.

as L3 + L2 words/phrases + L3 nested language couplings. The presence of these language coupling types are suggestive of the fact that individuals who reach an intermediate level of mastery of an L3 are able to rely on this language in their thought processes if the L3 is the target language of the task. Simultaneously, the presence of the Hungarian insertions make it visible that in certain contexts the participants' second language can play the role of the 'helper' when target-language word retrieval failures occur. The implications derived from these observations are presented in the Conclusions section. Insertions of English words into larger chunks of Hungarian verbalisations identified as L2 + L3 words/phrases + L2 language couplings were also present. However, the prevalent tendency was to try to formulate the text in L3 and resort to the L2, and very rarely to L1, only when the L3 target word could not be retrieved without delay.

The excerpt in example (10) presents an instance when the participant employed Hungarian as the language of metacognitive thinking and two English words were inserted (INS ENG/HUN) as an attempt "to begin to think in English" (STUDENT 2, personal communication, December, 2013). Data gathered from the participants in the post-task interview sessions revealed that the attempt to think in English, the language of the task, was a constant endeavour throughout the completion of the task. The answers to the question "How does the language of the task influence your thinking?" showed that all the participants adopted the language of the task as "the language in which to think in" (STUDENT 5, personal communication, December, 2013), and considered using the language of the task for their thinking processes "a good opportunity to practise [the language] in silence" (STUDENT 5, personal communication, December, 2013; parentheses added) and "a speedy way to do the job" (STUDENT 10, personal communication, December, 2013).

(10)

31		nem értem sokszor hogy mi van a képen [I often don't understand what's in the picture]
32		vagyis több képet kell megnézzek hogy tudjam mi történik [that is I have to look at more pictures to know what happens]
33		mert itt egy állat van [because there is an animal]
34	INS ENG/HUN	egy **snake** [a *snake*]
35		az árnyéka [its shadow]
35		de mit akar [but what does it want]
36	INS ENG/HUN	nem is **snake** hanem egy **dragon** [it's not a snake really it's a dragon]

The excerpt in example (11) shows a case of shuttling between three languages and illustrates the complexness of multilingual inner discourse. There are several instances of insertions of English words in Hungarian utterances, an example of a Vietnamese insertion into a Hungarian utterance, and one language alternance from English to Hungarian.

(11)

56		they prepare for the **trip** //
57	LAAN+INS ENG/HUN	ez nem egy ***trip***, hanem egy utazás
		[this is not a trip, it is a journey]
58	INS ENG/HUN	az utazás az ***travel***?
		[the journey is travel?]
59	INS ENG/HUN	az utazás chặng đường đi vietnámiul
		[the journey is chặng đường đi in Vietnamese]
60		így nem fogom megtalálni
		[this way I won't find it]

In line 57 the participant turned from English to Hungarian to comment on the appropriateness of the word he was going to use. The same line 57 contains an English insertion into the Hungarian utterance as the participant was looking for the right English word to match with the meaning he intended to use (i.e., trip vs. journey). Similarly, line 58 contains an insertion of an English word in a Hungarian utterance. Then, in line 59 there is a Vietnamese word inserted in a Hungarian utterance as the participant was still searching for the appropriate word to render the intended meaning and he resorted to Vietnamese in the hope that accessing his Vietnamese mental lexicon would make the search for the English word easier.

Another example of language coupling can be found in example (12), where in line 710 the utterance starts in English and ends in Hungarian:

(12)

709		**he went and** //
710	LAAN	**he fight in a war** és elveszítette az egyik lábát
		[he fight in a war and he lost one of his legs]

Language couplings of the kind exemplified in (12) were frequent in the transcribed verbal protocols and they seem to have occurred when the participants' text-planning process went on but was not supported by the English lexical background. The language couplings exemplified in (11) and (12) illustrate multilinguals' great flexibility in relying on several languages and the promptness with which they perform the consecutive switches between languages. Connected to the phenomenon of alternating between languages, the post-task interview question "What happens when you want to think in English but the English words do not come?" prompted some insightful answers from the participants suggesting that shuttling between languages (Canagarajah, 2006) in their inner discourse is a common practice. Table 2 displays the most relevant comments the participants made when they answered the above question.

Participants	Verbatim transcriptions from interview protocols
STUDENT 1	sometimes I have to give myself more time to remember; when I'm pressed by time, I use the dictionary on my phone
STUDENT 2	I never give up, I try to get the English word; it slows me down; I translate
STUDENT 3	this is a big problem; I have to turn to my Hungarian words; sometimes Vietnamese helps too
STUDENT 4	it happens to all of us I think; when I don't find the English word I translate the Hungarian one into English
STUDENT 5	this is typical for me; I sometimes try really hard to remember the word, but eventually I have to translate from Hngarian into English
STUDENT 6	it often happens ; I just turn to Hungarian or to Vietnamese
STUDENT 7	I usually wait a bit for the English word to show up and if it doesn't then I get the Hungarian word and translate it
STUDENT 8	it happens often but I usually have the Hungarian word for it and then I turn the word into English
STUDENT 9	it is frustrating; I *know* that I know the English word; sometimes I try to get an English synonym
STUDENT 10	words come sometimes in Hungarian and sometimes in Vietnamese and I have to translate

Table 2. Answers to "What happens when you want to think in English but the words do not come?"

Language couplings identified by Muysken's (2000) as congruent lexicalization were not identified in the analysed verbal protocols. The absence of congruent lexicalizations may suggest that this type of code-mixing is more specific to the communicative social discourse of bilinguals and multilinguals, being "associated with values and identities assumed by the individuals within communities and social groups" (Gafaranga, 2007, p. 285). In the study, the participants were involved in an L3 problem-solution pattern task which required the use of their linguistic resources to complete the task as efficiently as they could, and was not as linked to the participants' identity and position in their social groups. The presence of insertions and language alternations and the absence of congruent lexicalizations might indicate that while the use of insertions and language alternations actively participated at the solving of the task, congruent lexicalizations were deemed unnecessary for the task. This assumption is supported by the participants' reports from the interviews stating that they used both Vietnamese-Hungarian and Hungarian-English congruent lexicalizations in their daily communications with friends and family.

5 Conclusions and suggestions for future research

This paper investigated the inner discourse of ten Vietnamese-Hungarian proficient bilinguals, learners of English as an L3 engaged in the composition of an L3 text based on a series of wordless pictures. The outcomes from this study support the idea that the languages used by multiple language users in their everyday communication are also present in their inner speech. The phenomenon of switching between two languages has already been researched and observed in the area of bilingual language learning, use and maintenance (e.g., Centeno-Cortés & Jiménez, 2004; Gafaranga, 2007; Guerrero, 2005; Poplack, 1980), but has received little attention in the area of multilingualism. The current project clearly has the limitation of being

a small-scale investigation; nevertheless, it is hoped that it can be the starting point for more extensive research in the future.

This study also revealed that bilinguals who are fluent in both their L1 and L2 are able to use the L2 as a firm support for the acquisition and use of an L3. Based on this somewhat unanticipated outcome we can hypothesize that lexical representations for L3 words develop connections with the existing lexical representations for L2 and L1 words. However, these connections are apparently stronger between the lexical representations of L3 words and the lexical representations for the L2 words.

Until now, the relationship between lexical representations belonging to different languages within the mental lexicon network has been studied in the context of two languages: a native language L1 and a second or foreign language L2 (Kroll, 1993; Kroll & Curley, 1988; Kroll & Tokowicz, 2001; Potter, So, Von Eckardt, & Feldman, 1984). The findings from these studies constituted the basis for the word association theory (Potter et al., 1984), the concept mediation theory (Potter et al., 1984) and the Revised Hierarchical Model (Kroll & Stewart, 1994), all attempting to describe the organisation and cognitive mechanisms of the bilingual mental lexicon. A worthwhile direction for future research would be testing the strength of the connections that establish within the network of the lexical representations belonging to multiple languages and the nature of the connections that establish between these lexical representations and the conceptual store.

Additionally, the finding that the participants relied more on the L2 than on the L1 in the production of the L3 seems to be in line with Thomson and Tulving's (1973) encoding specificity principle according to which encoded information is better retrieved if the context present in the phase of encoding is present in the phase of retrieval. Thomson and Tulving's (1973) encoding specificity principle could be one of the explanations why users of an L3 that was encoded via an L2 (the learners' second language and language of instruction as well) resort primarily to the L2 as a primary helper when they encounter L3 breakdowns. Future research on multilinguals' reliance on multiple languages will have to investigate the L2-L3 relationship from the viewpoint of Thomson and Tulving's (1973) encoding specificity principle.

The outcomes related to the presence of the participants' languages in their inner discourse are of special interest. Vietnamese, the participants' L1, was rarely employed in their inner discourse triggered by the L3 composition task. Conversely, Hungarian, the participants' L2, played an important role in the task performance. One of the limitations of the present undertaking is that it looked at the L3 inner discourse of multilingual participants in an L2 academic environment. To offer a more complete view of how multilinguals rely on their languages in their inner discourse future research will have to examine the L3 inner discourse of participants in an L1 environment. Such an exploration would offer additional information about multilingual inner speech and would probably lead to a more subtle understanding of this issue.

With respect to the patterns of code-mixing detected in the participants' inner discourse, the outcomes support Muysken's (2000) typology of code-mixings identified in bilingual communicative speech. The participants' inner discourse involved in the L3 problem solving task contained insertions of English words into longer Hungarian chunks of discourse, insertions of Hungarian words into longer English chunks of discourse and occasional Vietnamese insertions. Language alternations were also detected both from English to

Hungarian and from Hungarian to English. Nevertheless, Muysken's (2000) third type of code-mixings, congruent lexicalizations were not present in the participants' inner discourse. This was the case apparently because congruent lexicalizations were considered by the participants not to assist the process of composing the L3 target text. This latter finding may also suggest that the employment of various types of code-mixing by multiple language users might be to some extent a conscious activity and also a task-dependent one.

In sum, the present outcomes highlight the great flexibility and ingenuity of multilinguals in employing and choosing between their linguistic resources. The outcomes of this study could be useful for educators engaged in teaching multilingual students and for researchers involved in the cognitive and psycholinguistic research of multiple language users' inner speech.

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