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Bozena Dubiel
Technological University Dublin

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**Minority language maintenance in bilingual speakers:
from primary school to higher education**

Dr Bozena Dubiel

Institute of Technology Blanchardstown, Ireland

1. INTRODUCTION

Bilinguals have options as to which language they can use. However, the options are not truly theirs but depend on multiple factors such as the country of residence, profession, business relations, and family circumstances. Therefore, bilinguals have to choose which language they use more and which less, and as language proficiency correlates with the frequency of its use, they often have sacrifices to make.

Previous studies have shown that language acquisition in bilinguals can be uneven as the development of each system relies on the amount of language exposure and use, which in bilinguals is divided between two languages (de Houwer, Bornstain & Putnick, 2014, Marchman et al., 2016, de Houwer, 2018). Due to sociolinguistic and environmental factors, such as, for example, schooling, motivation and language attitude, the exposure to one language, usually to the majority language, is greater and more varied than to the other, in most cases the minority language. As a result of this imbalance in input, the acquisition of the minority language might be hampered (Meisel, 2006; Treffers-Daller, Özsoy & van Hout, 2007; Montrul, 2015). Starting in early childhood, the exposure to the minority, heritage language becomes reduced and limited to the context of home¹, while the majority language becomes the language of schooling and often socializing. These circumstances lead to a growing disparity between the amount of input the children receive in the minority and majority languages, and this has been shown to affect the language development. The initially stronger minority language becomes less dominant within a few years of the onset of schooling, while the majority language becomes the dominant one. Studies examining various language domains have shown that this switch in relative language dominance occurs in middle childhood, usually between 8 and 11 years of age (Jia, Kohnert, Collado & Aquino-Garcia, 2006; Jia, Aaronson & Wu, 2002; Eilers & Oller, 2002), and that the weakening of the minority language continues into adulthood (Portocarrero, Burright & Donovanick, 2007).

¹ In this paper, we use the term heritage language to refer to a minority language that is acquired and spoken in the context of home in a country where another language is official and dominant (Valdes, 2001).

In fact, as per Brecht and Ingold (1998, in Polinsky & Kagan, 2007), 30% of first year college students in the USA cannot communicate or have a very limited proficiency in their heritage language, the language that they learnt from birth in the context of home. The consequences not only have a profound effect on many aspects of their lives, like identity formation, cultural affiliation and an ability to communicate with their extended families, but also impact negatively the economy and culture of the country of their residence.

2. AIMS

The aim of this paper is to discuss the development of both languages in bilingual speakers, the majority and the heritage language, in light of the phenomenon of language dominance and its direct link with the factors of language exposure and use. We will present studies that traced the interplay of the bilingual language development from primary school to university level. The results of the studies will point to the effect of the imbalance in language use on the maintenance of the heritage, minority language and its consequent weakening as compared with the majority language.

We start by discussing the phenomenon of language dominance in bilingual speakers and the correlation between language use and its relative strength. Then, we present evidence from two studies that investigated relative language strength in two bilingual cohorts: primary school children (Dubiel, 2015) and third level students (O'Grady & Schafer et al., 2009). The results show that primary school children become less dominant in their heritage language after only mean 6;8 years (years; months) of exposure to the majority language through schooling, and that the disparity between fluency in the two languages continues into adulthood. The results will be discussed in light of the emerging new field of heritage language pedagogy that is currently being researched and practised at universities in North America.

3. THEORETICAL BACKGROUND

3.1. Language dominance

In the field of bilingual language acquisition, the phenomenon of language dominance is usually defined as 'a situation where one of a child's languages is more advanced or developing faster than the other' (Yip & Matthews, 2006). We view language dominance as a direct link between language access measured by the speed with which speakers can retrieve words from their mental lexicon and produce them, and the factors of language exposure and use. According to de Bot (2001), the sociolinguistic factor of language exposure determines

the amount of language use which in turn affects language access. Köpke (2007) and O'Grady & Schafer et al. (2009) support this view and claim that frequency of language use contributes most directly and significantly to the maintenance of a language and its relative strength. O'Grady and Schafer outline this view by further stating that the more often the lexical items and phrases of a particular language are activated, the more accessible they are, and consequently speakers feel more comfortable using them. In other words, the language that bilinguals are exposed to and use more frequently becomes their stronger and more dominant language.

It has been widely acknowledged that bilingual speakers tend to be dominant in one of their languages. However, they can also be dominant in either language depending on the language context and environment, e.g., bilingual speakers might be dominant in one language in the context of their profession or school, and dominant in the other language in casual conversations with family members or friends (Caldas & Caron-Caldas, 2000). The non-static characteristic of language dominance is a result of shifts in input circumstances (e.g. Yip & Matthews, 2006; Gathercole & Thomas, 2009). This lack of balance in the quantity and quality of input may impact the rate and level of acquisition in both languages, and cause a situation where one language develops faster and shows a more complex advancement at any given time. These shifts in language dominance over time are characteristic of heritage speakers who might not have fully acquired their first language due to an early exposure to the majority language, in most cases in a school environment (Montrul, 2015).

4. THE STUDIES

The results of the two studies presented below will show how language dominance shifts from the initially stronger minority, heritage language in early childhood to the majority language from middle childhood into adulthood. The first study that traced shifts in relative language strength in bilingual children was conducted by Bozena Dubiel, the author of this paper, in 2015. In the second study, O'Grady, Shaffer and their team (2009) discuss the same phenomenon in a university student population. The implications of the heritage language weakening will be then discussed in light of the newly emerging field of heritage language pedagogy.

4.1 Bilingual primary school children

The aim of this study was to trace shifts in relative language strength in bilingual Polish-English children across the primary school years.

The Participants:

The heritage speakers who participated in this project were 38 children divided into four age groups. To be included in the study, the children had to meet the following criteria. All children:

- 1) were primary school pupils aged between 4;6 (years; months) and 13;
- 2) were born in Ireland or immigrated to Ireland before the age of 5;
- 3) had both parents of Polish nationality who spoke Polish at home;
- 4) acquired Polish as their first language in the context of home (the minority, heritage language);
- 5) their first consistent contact with English (the majority language) could not have occurred before the age of 3;6 – 4;6, and their exposure to English was through schooling.

The first age group, Group A (mean age: 4;10) were in the first year of primary school and were tested in October/November after 1-2 months of education in English.

The second age group, Group B (mean age: 5;10), had completed one full year of primary education. They were tested either in June, the last month of their first year in school, or in the following September.

The third age group, Group C (mean age: 8), consists of children attending 1st, 2nd and 3rd grades (class), while the oldest children, pupils of between 4th and 6th grades (class), formed group D (mean age: 11;5).

All the families that participated in this study live in the Dublin suburbs with a high population of first-generation immigrants from Poland. These are close-knit communities that maintain strong links with Poland and its heritage culture and language. The language of the family and community is Polish.

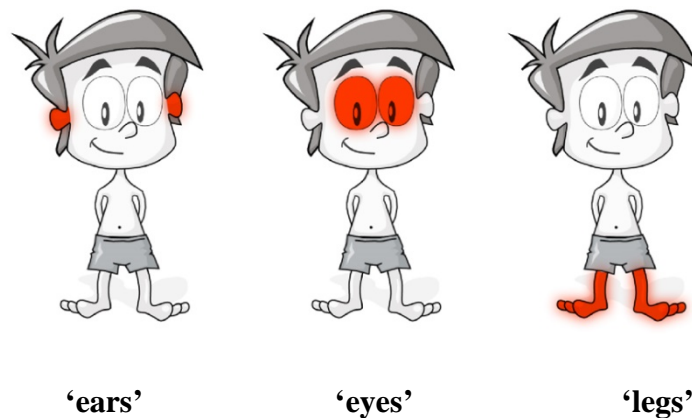
The Method

In order to evaluate the children's relative language strength and shifts in language dominance, we employed the Child HALA test (Dubiel, 2015; Dubiel & Guilfoyle, 2017). It is a computer-based, picture-naming task that compares levels of lexical accuracy and response time (RT)² in one language relative to a speaker's other language(s). The Child HALA test is a version of the HALA psycholinguistic tool (O'Grady & Schafer et al., 2009) that was designed specifically for the use with bilingual child speakers.

² Response time (RT) is measured by calculating the speed with which a speaker can name/produce words. It is a measure of language access.

The implementation is simple. Speakers are seated in front of a computer screen. They need to name body parts of a cartoon-image of a boy that are highlighted in red one after another (see: fig.1). First, the responses are assessed for accuracy, and then the response times of the accurately named nouns are calculated in milliseconds from the onset of the body part being highlighted to the onset of the response. Afterwards, these scores are compared for the two languages of interest

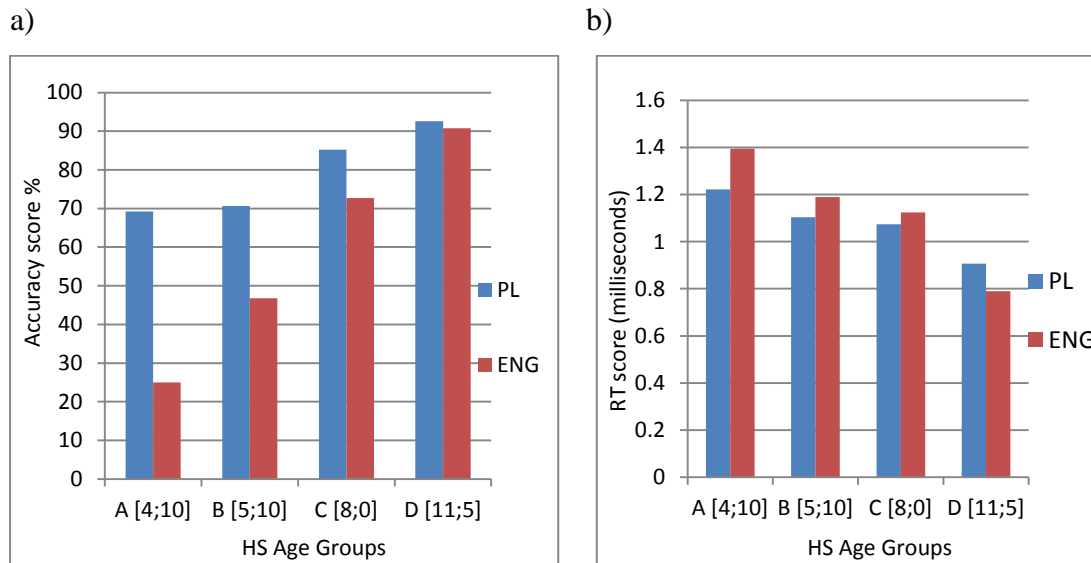
Figure 1. Sample images from the Child HALA test.



The Results

The results of the Child HALA test reveal that at the start, the younger children are more accurate and have faster response time in Polish than in English which is evident of the heritage Polish being their dominant language. By the time they are 11;5, they are as accurate in Polish as in English, however, they can name the body parts faster in English than in Polish. This shift in language access is an evidence of a switch in relative language strength, and occurs between the mean age of 8 and 11;5. Figure 2 a) and b) below illustrate the comparison of the accuracy and RT scores across the age groups in both languages. We can observe the significant improvement in English accuracy and response time, and the slower progress in Polish as a function of age that eventually lead to a gradual switch in language dominance.

Figure 2. Comparison of overall a) accuracy and b) RT scores between Polish and English in bilingual children



This comparison demonstrates that although the children are fluent users of the heritage language, their linguistic dominance shifts towards the majority language English by the end of primary school, after approximately mean 6;8 years of exposure to the majority language.

4.2 Bilingual university students

The aim of this study was to evaluate relative language strength in bilingual Korean-English university students by comparing their level of accuracy in both languages and the speed of response time.

The Participants:

All eleven subjects were undergraduate or graduate students at the University of Hawai'i at Mānoa aged between 19 and 27. They were born in the United States and were exposed to English and Korean from birth.

The Method

O'Grady & Schafer et al used the HALA psycholinguistic tool they developed to compare the number of accurately named body parts in both languages, and then the speed with which the speakers can name the words. As in the previous study, the participants were seated in front of a computer screen that displays a black and white image of a man. They were required to name circled body parts as accurately and quickly as possible. After the test, the responses were assessed for accuracy, and then the response times of the accurately named nouns were

calculated in milliseconds from the onset of the body part being highlighted to the onset of the response. Afterwards, these scores were compared for the two languages of interest.

**Figure 3. Sample images from the HALA body part naming task
(O’Grady & Schafer et al., 2009)**



The Results

The study found that the accuracy levels failed to determine which language was the dominant one for the participants as they produced similar scores in both languages. The cross-language effects could, however, be noted when the response time scores were taken into consideration, as the subjects were significantly slower in naming the body parts in Korean than in English. Such results showed that despite the fact that the speakers claimed to use both language from birth, they needed more time to produce words in the heritage Korean than in the majority English. Consequently, Korean, due to its lower accessibility became their weaker language, while English was the language they were more fluent in and thus more comfortable using. The cause of this imbalance may stem from the daily percentage of use in each of the languages. The results of the sociolinguistic interviews with the participants prior to the testing revealed that Korean consisted of between 10% - 50% of their daily language use (mean= 35%).

5. DISCUSSION

The results of the studies show that within a short time frame the minority, heritage language becomes weaker as compared with the majority language. After only mean 6;8 years of schooling through English, the children can name words quicker in English than in Polish, despite having limited knowledge and skills in the language at the start of school. Such

outcome is in line with results of other studies that investigated changes in lexical accuracy and access in various languages in bilingual children, all pointing to a great susceptibility of both languages to shifts in the pattern of input (Mägiste, 1992; Jia, Kohnert, Collado & Aquino-Garcia, 2006; Jia, Aaronson & Wu, 2002; Eilers & Oller, 2002). The university students feel more comfortable using English than Korean producing words quicker in English, despite the heritage language being spoken in the context of home and family. These results are supported by the outcome of research by Tang (2011) who investigated the state of language decline in adult speakers of heritage Truku and majority Mandarin. They also relate to outcomes of a study by Bates et al. (2003) that suggest positive cross-language correlations indicating that frequency of language use and its consequent accessibility is shared at the conceptual level across languages from various families. The above shows that, despite the fact that in this paper we present results of only two studies that relate to different age groups and languages, they represent a more universal trend of changes in language strength in bilingual speakers over time.

The subjects of both studies grew up in homes where the heritage language was the main language of communication. It was also the means of keeping in touch with relatives in the home countries of their parents, a way to maintain cultural traditions and a sense of identity and belonging. However, the notion of the heritage language maintenance is not only important for the speakers but should resonate with the wider society speaking the majority, official language. There is an increasing interest and research relating to bilingual speakers around the world that is a result of growing mobility among people. More and more people emigrate and start families away from the home country which has a fundamental effect on their and their children's linguistic abilities, as well as their cultural affiliation and identity formation. For the past years, we have been experiencing a growing influx of immigrants who bring a wealth of linguistic opportunities that could enhance the economy and culture in the near future. According to Polinsky and Kagan (2007, p. 389), heritage speakers pose challenges for linguists and educators, among others, however, more importantly, they constitute an 'untapped national resource'. The above researchers further state that the benefits of supporting the maintenance of heritage languages are especially relevant in the current times of globalization and political unrest. Second language learners hardly ever achieve the same language proficiency as heritage speakers if the latter are given opportunities for language development and maintenance.

Research into the maintenance of heritage languages and a growing interest in re-learning the languages of ancestors have led to the emergence of a new field of heritage language

pedagogy, especially in the North American context (Polinsky & Kagan, 2007; Beaudrie, Ducar & Potowski, 2014; Montrul, 2015; Carreira & Kagan, 2018). University courses in heritage languages are becoming more and more popular among bilingual university students in the United States. They pose challenges that relate to design and implementation because heritage speakers differ significantly from regular learners of a language in terms of pre-existing syntactic and phonological knowledge that was acquired in a naturalistic setting of home from birth. Heritage language learners cannot be therefore treated as second language learners and placed on the same course using the same second language teaching methodology. In order for them to regain proficiency in their heritage language they need to be treated as a unique group of language students with a learner-centred approach and a syllabus aiming to increase their vocabulary, widen their language registers, and most importantly, develop the literacy skills (Polinsky & Kagan, 2007). Despite the challenges, the field of heritage pedagogy is growing in significance among researchers and in popularity among educators and students, and we can assume, after O'Grady and Schafer et al. (2009, p. 100), that this is a direct result of our innate resistance 'to abandon one's native language'. The matter of courses in heritage languages for bilingual third level students may seem hypothetical as the pressure is generally on facilitating their integration with the mainstream body which is seen as feasible only through the use of the majority language. However, the results of the O'Grady and Schafer et al.'s study show that the concern should not be around the students' competence in the majority language, in our case English, however around the weakening of the heritage language. In addition, students' interest in the issue and a growing popularity and demand for such courses in American universities could pose food for thought for third level authorities in Europe.

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