

A Case Study of a Turkish-English Bilingual Child: Focus on the Advantages of Phonological Processing

Bora DEMİR¹

¹Ph.D., Çanakkale Onsekiz Mart University, Çanakkale, TURKEY

borademir@comu.edu.tr

ORCID:0000-0001-8187-3206

Article information

Submission	31/03/2021	Revision received	18/09/2021
Acceptance	27/09/2021	Publication date	19/10/2021

Keywords:

Phonological awareness, phonemic awareness, Turkish-English, bilingualism, case study

Abstract: This study investigates the phonological awareness of a Turkish monolingual and a Turkish-English bilingual child in Turkish. As a case study, the main focus of this study is to explore whether a bilingual advantage exists in phonological processing. Theories of bilingualism and empirical data led to the prediction that the bilingual participant would perform better than the monolingual participant in tasks involving the segmentation of phonemes. With regard to current literature, four phonemic awareness tasks, namely, final phoneme deletion, initial phoneme deletion, phoneme detection, and phoneme substitution tasks were used to find out the levels of phonological awareness of the participants. The tasks were administered individually to each child and correct answers were calculated by percentages. The analysis of the data showed that bilingual child performed better in final phoneme deletion, initial phoneme deletion, phoneme detection tasks, while both children scored the same in the phoneme substitution task. To conclude, this study provided evidence for the positive effect of bilingualism for phonological language processing.

Anahtar Sözcükler:

Fonolojik farkındalık, sesbirim farkındalığı, Türkçe-İngilizce, ikidillilik, vaka analizi

Türkçe-İngilizce İkidilli Bir Çocuğun Sesbirim İşlemi Avantajı Üzerine Bir Vaka Analizi

Özet: Bu çalışmanın amacı, anadili Türkçe olan tek dilli bir çocuk ile bir İngilizce-Türkçe iki dilli çocuğun fonolojik farkındalıklarını Türkçe’de araştırmaktır. Bir vaka çalışması olarak bu çalışmanın ana odağı fonolojik farkındalık konusunda iki dillilik avantajının olup olmadığını araştırmaktır. İki dillilik ile ilgili kuramsal ve deneysel veriler iki dilli çocuğun sesbirim bölütleme içeren testlerde tek dilli çocuktan daha iyi bir performans göstereceği öngörüsünü ortaya çıkarmıştır. Katılımcıların fonolojik farkındalık seviyelerini belirlemek amacıyla, alandaki mevcut yazın dikkate alınarak, son sesbirimi silme, ilk sesbirim silme, son sesbirim tespiti ve sesbirim değiştirme şeklindeki dört sesbirim farkındalık testi kullanılmıştır. Testler her bir çocuk için bireysel olarak uygulanmış ve doğru cevaplar yüzdelere göre hesaplanmıştır. Verilerin analizi, iki dilli çocuğun, son sesbirimi silme, ilk sesbirim silme, son sesbirim tespiti testlerinde daha iyi bir skor elde ettiği ancak sesbirim değiştirme testinde katılımcılar arasında bir fark olmadığını göstermiştir. Sonuç olarak bu çalışma, ikidilliliğin fonolojik dil işleme üzerindeki olumlu etkisine işaret eden bulgular sunmaktadır.

To Cite This Article: Demir, B. (2021). A case study of a Turkish-English bilingual child: Focus on the advantages of phonological processing. *Novitas-ROYAL (Research on Youth and Language)*, 15(2), 66-80.

1. Introduction

Bilingualism is often described as a term used for people who speak two languages. It is surprising that the number of bilingual people in the world is more than the number of monolinguals. Considering 2000 or more different languages are spoken in the world, the interaction between people in different circumstances might be helpful in understanding the reasons for bilingualism today. As a result of this linguistic diversity, bilingualism is a natural outcome of socio-political issues, religious reasons, geographical distance, and migration of people due to various reasons. Moreover, bilingualism is closer to be a norm for today's modern world owing to various outcomes of globalization. The interaction of people as a result of intercultural communication today appears to be the initial reason for people to speak more than one language. According to Bialystok (2021, p. 363), "bilingualism is the glue that connects people to each other - individuals to strangers across global boundaries and children to their families and ancestors from far away countries."

Bilinguals can be classified with reference to the acquisition age of the speakers, the order of acquisition of the two languages and the speakers' proficiency levels in both languages. The first classification addresses the acquisition time of the two languages. When a bilingual acquires both languages simultaneously, they are named as simultaneous bilinguals. On the other hand, if one language is acquired following the other, the bilinguals are classified as sequential bilinguals (Döpke, 1996). Also, bilinguals can be categorized as early and late bilinguals with reference to the age of acquisition of both languages. Early bilingualism can be defined as the exposure to both languages before adolescence, while late bilinguals are considered as those who acquire one language after puberty (Bruck & Genesee, 1995). Bilinguals are distinguished based on their fluency in both languages as well. When bilinguals have similar degree of proficiency in both languages, they are called balanced bilinguals. However, when bilinguals are highly proficient in one of the two languages, they are called unbalanced (dominant in one of the languages) bilinguals. Considering the abovementioned classifications, the bilingual participant of the present study can be categorized as an early, sequential, and a balanced bilingual.

Nevertheless, regardless of the order of acquisition of both languages, bilingualism has been reported as advantageous in cognitive processing (Bialystok, 2017). These cognitive tasks include academic achievement in general (Lindholm-Leary, 2001), foreign language achievement and development (Maluch & Kempert, 2017), vocabulary development (Leseman, 2000; Lonigan, 2007), and cognitive development (Bialystok, 2017; Grosjean, 2010). These advantages reported by empirical studies can be explained both by cognitive and metalinguistic factors. Since bilinguals rely on several linguistic resources of another language, they become more capable of processing linguistic elements in another language. These cognitive cross-language transfers help the bilinguals to process various diverse linguistic elements in a more effective way. In other words, the phonological and grammatical awareness in two languages help bilinguals to process the language better than monolinguals (Hopp et al., 2019).

As for metalinguistic advantage, a large body of research has indicated a certain relationship between bilingualism and phonological processing (Ben-Zeev, 1977; Bialystok, 1986, 1988, 1999; Cummins, 1979; Hakuta & Diaz, 1985; Verhoeven, 2007). Gillon (2004) defines phonological awareness as the ability to identify and operate the sound structure of speech by noticing and distinguishing phonemic units in speech. In this sense, phonological awareness appears to be a unique metalinguistic skill that helps people perceive the sound

units that construct words. Although empirical studies have presented a link between metalinguistic awareness and early acquisition of reading (Phillips et al., 2008; Quinn et al., 2015; Wagner et al., 1997), there is need for more studies that will focus specifically on the development of phonological awareness in early bilingual children (Bialystok, 2017).

As a term that defines an individual's consciousness, phonological structure of a vocal utterance refers to the awareness of children to reflect upon phonological segments of oral utterances by depending deeply on individual's speech perceptions (Mann, 1991). Verhoeven (1994) defines the terms as the ability referring to the division of words into phonemes and syllables, the discrimination of rimes, by the omission, addition, or replacement of phonemes within words. According to Gillon (2004), the skill of breaking down words into smaller units and to discriminate and manipulate onsets and rimes within a spoken word is the predictor of phonological awareness of an individual. The present study aims to find out phonemic awareness of the children by using phonemic tasks by defining phonemic awareness as the ability to differentiate and operate individual sounds. (i.e., the word *top* is made up of three phonemes: /t/ /o/ /p/.

The terms phonological awareness and phonemic awareness are often confused. According to Hulme (2002), as a broader concept, phonological awareness is the ability to recognize and manipulate larger units of sound (onsets, rimes, and syllables), while phonemic awareness basically depends on the ability of the individual to manipulate only single phonemes in a word. Gillon (2004) defines phonemes as the smallest units of sounds that influence the meaning of a word and calls phonemes as an abstract concept. According to Gillon, when words are spoken, the listeners do not hear the separated phonemes in words. Hence, individuals who are more capable of distinguishing sounds in words are supposed to be possessing superior language skills (Smith et al., 2021). A number of assessment tools and procedures are used to evaluate phonological awareness, which vary in difficulty (Adams, 1990). Commonly used phonological awareness tests include tasks at the phoneme level that aim phoneme deletion and phoneme segmentation tasks (Schatschneider et al., 1999).

1.1. Is there a bilingual advantage?

The positive effect of the acquisition of more than one language before puberty on the development of metalinguistic awareness has been a matter of debate for a few decades (Hakuta & Diaz, 1985). Numerous studies have presented evidence in favor of bilingual children who outperformed their monolingual counterparts in a variety of cognitive and linguistic tasks (Bialystok, 1986, 1988, 1999; Hakuta & Diaz, 1985). Bilingual children who are exposed to two different languages are also exposed to two sets of linguistic input, which in turn help them attain relatively high levels of phonological awareness (Verhoeven, 2007).

By postulating the Theory of Language Interdependence, Cummins' (1979) stated that "to the extent that instruction in a certain language is effective in promoting proficiency in that language, transfer of this proficiency to another language will occur, provided there is adequate exposure to that other language." (p. 29). Hence, as a consequence of the exposure of two languages, bilinguals gain the ability to explore language structures in more complex means than monolingual children. According to Cummins (1989), by gaining control over two language systems, bilingual children are exposed to more language input than the monolinguals that in contrast have access to only one linguistic system. This enables bilingual children to significantly have more practice in analyzing the sound structure of the two languages.

By providing cognitive evidence for the interactions between bilingualism and cognitive and brain processes, Bialystok (2017) asserts that having access to two languages enables the bilinguals a more intentional approach to language and superior metalinguistic abilities. However, bilingualism does not always possess an advantage on metalinguistic skills. It is found to be advantageous on other factors affecting the metalinguistic competencies such as the similarity of the sound structure of the two languages. (Bialystok et al., 2003; Goetz, 2003).

Bialystok (2017) postulated that the role of bilingualism in aspects of language acquisition, metalinguistic awareness, or cognitive ability is important in explaining the bilingual advantage in childhood. However, the main focus of the present study is to find out bilingual advantage in phonological processing only, and cognitive factors are not controlled along with other physiological differences between the participants.

In line with the present study, Incecay and Soruç (2013) investigated the link between the level of oral language development and that of phonological awareness of two Turkish-English bilingual children and one monolingual child with an average age of 3.5. For data collection, the participants were given a picture description or storytelling task to measure the phonological awareness. The study concluded oral proficiency level as a poor predictor of the development of phonological awareness in bilingual children.

1.2. The assessment of phonological awareness

The assessment of phonological awareness of children basically aims to decide whether children have the ability to hear, understand, and manipulate sound units in specific languages (Sodoro et al., 2002). Children are capable of processing certain elements of languages parallel with their cognitive and linguistic development. Hence using appropriate assessment tasks and methods is crucial in understanding the children's ability to manipulate linguistic structures. According to McBride and Chang (1995), the aim of the assessment of phonological awareness should focus on children's ability to fulfill mental manipulations on speech segments such as deleting the onset or initial sound of a word or detecting similarities between words. Similarly, Perfetti (1991) presented that seven years old children are usually capable of blending phonemes to form words, segmenting phonemes within words, and deleting phonemes from words.

According to Schatschneider et al. (1999), although a variety of assessment tools and procedures are used to assess phonological awareness of children, researchers should be attentive about the participants' ability level to be able to process the language at the phonemic level, including phoneme deletion and phoneme segmentation tasks. Phonological processing tasks that require children to manipulate phonemes by phoneme deletion tasks are acceptable instruments for measuring phonological awareness ability in the 5-8 year age group (Goldsworthy, 2001). Phonological awareness tasks vary in difficulty. According to Adams (1990), there are five levels of tasks. The first level as having an ear for sounds, the second level refers to as oddity tasks, and involves the ability to detect the different sounds, the third level is the ability to blend individual phonemes into a word, the manipulation of phonemes is the type of task included in the fourth level of phonemic awareness involves the ability to isolate individual phonemes and then delete, reorder, or add extra phonemes, which is the focus of the present study, the fifth level includes phoneme segmentation tasks (Adams, 1990; Sodoro et al., 2002).

Considering the age of the participants and the skills suggested by the literature, three levels of phonological awareness- onset-rime, syllable, and phoneme- proposed by Liberman et al. (1974) and Goswami and Bryant (1990), the tasks were designed to measure phonological awareness of the participants only at the phonemic level. Since the participants for the present study were first graders, they have already possessed a considerably high level of oral organization and have already started to learn alphabetic principles and become literate, the syllable or onset-rime level of phonological awareness tasks were considered to be too simplistic. Also, phonemes were considered to be suitable phonemic awareness measures for seven-years-old school children, as it is easily measured.

It is important to note that the tasks included both words and non-words of Turkish language. There are several reasons for using an instrument involving both words and non-words in this study. According to Stuart (1990), non-word items are used to lower orthographic strategies and encourage purer phonological processing. Non-words are considered helpful stimuli for bilingual studies because they could be adapted for language objectivity. Metsala (1999b) reports that young children's performances on phonological awareness task items that involved highly familiar words are better than task items involving less familiar words or non-words. According to Elbro (1996), the reason is that once a child's ability to recognize spoken words develops, phonological representations of spoken words stored in memory become more and more segmental as whole word representations move to phoneme size units.

Since the present study considers phonological awareness as a general language-unspecific cognitive ability rather than a language-dependent skill that differs for both languages, the non-words used in the instrument were developed and adapted for both Turkish and English to be free of meaning for each language. This process aims to minimize the advantages or disadvantages for either group (Durgunoğlu et al., 1993; Verhoeven, 1994).

1.3. Phonological aspects of Turkish

Since the present study aims to explore phonological processing performances between a bilingual and a monolingual child in Turkish, it is necessary to give brief information on Turkish phonological process since the tasks were designed according to the phonemic structure of Turkish language.

Owing to its unique phonetic structure, Turkish is a particularly remarkable language for phonological processing studies. As an agglutinating language, Turkish words are made by adding strings of suffixes before or after a root. Also, vowel harmony is one of the most distinguishing characteristics of Turkish language. There are eight vowels in Turkish, which are either all back (a, ı, o, u) or all front (e, i, ö, ü) vowels. Besides, all the letters correspond to a phoneme. The most common syllable types in Turkish language are V, VC, CV, and CVC. According to Öney and Durgunoğlu (1997), identifying individual phonemes in Turkish is generally easy since the common syllable types are those without consonant clusters (Arikan & Yılmaz, 2019).

Due to its agglutinating structure, speakers of Turkish constantly manipulate the root words by adding or subtracting affixes to create new words. Hence, speakers of Turkish have to attend to the phonological characteristics of suffixes, choosing between alternate surface forms of the suffix based on phonological criteria. As a result of these phonological characteristics, the development of spoken Turkish is supposed to facilitate phonological

awareness development earlier when compared to spoken English (Durgunoğlu & Öney, 1999).

Since phonemic awareness is an essential constituent of phonological awareness and Turkish promotes phonological awareness abilities in young children (Durgunoğlu & Öney, 1999), it was estimated that Turkish-English bilingual child would have a bilingual advantage on phonological processing tasks compared to the monolingual Turkish participant.

1.4. Aim of the study

As already have been explained in the previous sections, as an early stage of language processing, phonological awareness can be an indicator of later language development in children. However, how language processing takes place for bilinguals is not clearly explained. So, the main focus of this study is to explore whether a bilingual advantage exists in phonological processing or not, so that we could provide evidence about the way new readers learn and the way the language instruction works for bilingual children.

This study aims to investigate the bilingual language processing advantage of a seven years old early bilingual by comparing her phonological processing capacity with a seven years old monolingual child, assuming that there would be a bilingual advantage in achieving certain phonological processing tasks. The present study addresses the following research question:

Is there a bilingual advantage for phonological processing of a Turkish-English bilingual child over a monolingual Turkish child?

2. Method

2.1. Research Design

As a case study, this study is based on the comparison of the phonological processing performances of a bilingual and a monolingual child. As a research methodology, case studies aim to generalize the findings of intensive and systematic investigations about a person, a group of people. The researchers examine in-depth data gathered from various sources such as interviews, observations, and test scores (Duff, 2014). Case studies offer advantages when researchers need detailed understanding of a single phenomenon in order to make assumptions for other similar cases (Merriam, 2001). More specifically, case studies of individual language learners are reported as valuable owing to their potential to illustrate issues related with learning and using languages (Duff, 2008). Although generally associated with qualitative research, case studies can be used in quantitative studies by observing the natural changes in the learner's behavior or knowledge rather than providing experimental treatments or interventions (Duff, 2014).

2.2. Participants and their language backgrounds

Participants of this study are a seven years old Turkish-English bilingual child and a seven years old Turkish monolingual child. The bilingual participant was born to Turkish parents who were researchers and doing Ph.D. in Florida, the USA. Her exposure to English started right after her birth through media (television, radio etc.) and by the nursing staff at the hospital. Additionally, her native speaker babysitter took care of her during the weekdays for three years. She was also exposed to Turkish language as her parents used Turkish to communicate with each other and with other Turkish people. After 5-years of exposure to both English and Turkish in the USA, the family turned back to Turkey. The data was

collected after three years of residence in Turkey, and the participant was a first-grade student in a state primary school receiving English classes from private courses only.

The Turkish-monolingual participant is a seven years old Turkish child of bilingual Turkish native speakers. She had no formal exposure to English, as reported by her parents. Also, she had never been abroad or never lived in a setting where another language is spoken. Upon the information provided by the parents, this participant was considered as bilingual.

2.3. The Instrument

Phonological awareness can be measured by using a variety of tests and activities (Bialystok, 2003; Lafrance & Gottardo, 2005). Although there are numerous standardized tests of phonological awareness tasks at the phoneme level, there is no standardized test for the Turkish context. So, the present study utilized a test including tasks developed by the researcher himself.

When developing the items for each task, the variety of vowels and consonants was taken into consideration in order to measure as many phonemes as possible in Turkish. Repetitions were avoided. Moreover, consonant clusters and phonemes which are not common in Turkish were removed (Öney & Durgunoğlu, 1997).

To ensure construct validity, an item pool of non-words for each task was developed and sent to two experts holding Ph.D. in applied linguistics. Upon the feedback and suggestions received from the experts, the items were revised and the test was finalized.

Table 1.

The tasks used to assess phonemic awareness

Tasks	Examples	Studies
Initial and Final Phoneme deletion	-Say <i>coat</i> . -Now pronounce it without /k/	Durgunoğlu & Öney, 1999; Hulme et al., 2002; Schatschneider et al., 1999; Carlisle et al., 1999.
Phoneme detection	-Which of the following word sounds different? bed-bus-chair-ball	Torgesen & Bryant, 1994; Stahl & Murray, 1994; Lafrance & Gottardo, 2005.
Phoneme substitution	-Say <i>bat</i> . Now say it again but instead of /æ/ use /ɪ/	Rosner, 1999; Stanovich et al., 1984; Bialystok, 2003.

The instrument included four different tasks; final phoneme deletion task, initial phoneme deletion task, phoneme detection task, and phoneme substitution task. There were fifteen items for each section. Each activity consisted of eight words and seven non-words for the participants to manipulate. The dictionary of the Turkish Language Association (TLA) was used to specify the words. Moreover, TLA and the Thesaurus dictionaries were used to make sure the non-words have no meanings in either language.

For final phoneme deletion, initial phoneme deletion, phoneme detection, item structures followed a consonant-vowel-consonant (CVC) sequence. Exceptionally, a CVCV sequence

was used for the phoneme substitution task in order to make the activity appropriate for the participants' age level.

2.4. Procedures for Data Collection

The tasks were administered individually to each child in a meeting room in their school by the participants' class teacher. During the sessions, the researcher controlled and observed the procedures. All the tests were given orally. The instructions were in Turkish. After the description of the task and three practice trials for each category, the children were given 15 items for each task. Each session lasted about 15 minutes and was audio recorded for further analysis.

The first task required deleting final phonemes. The teacher asked the participants to repeat the given item without using the final phoneme.

E.g., **Teacher:** Can you say me **cep** without using /p/ (The participants are supposed to say /ce/)

The next task required deleting the initial phoneme of the items.

E.g., **Teacher:** Can you say me **kar** without using /k/? (The participants are supposed to say /ar/)

In the third task, the participants were asked to point out which of the three words sounded differently.

E.g., **Teacher:** I will read you three words. Which one sounds different?

top-tas-kil (The participants are supposed to choose *kil*)

And for the last task, the participants were asked to substitute the initial phoneme of the items with the given phoneme.

E.g., **Teacher:** I will read you a word. Can you change the initial phoneme of it with the one I will tell you? **kaya** /m/ (The participants are supposed to say *maya*)

3. Findings

Table 2 exhibits the performance scores and the percentages of each child from each task. If the number of participants for each group was higher, some more detailed statistical processes could have been carried out. However, as a case study, the present study presents two children's performances by counting each correct answer as one point and calculates the percentages, respectively.

Table 2.

Scores and percentage distribution of the tasks

		Words Score	Words %	Non- words Score	Non- words %	Total Score	Total %
Final phoneme deletion	Monolingual	7/8	87	7/7	100	14/15	93
	Bilingual	8/8	100	7/7	100	15/15	100
Initial phoneme deletion	Monolingual	5/8	62	5/7	71	10/15	66
	Bilingual	7/8	87	5/7	71	12/15	80
Phoneme detection	Monolingual	6/8	75	4/7	57	10/15	66
	Bilingual	7/8	87	6/7	85	13/15	86
Phoneme substitution	Monolingual	6/8	75	5/7	71	11/15	73
	Bilingual	6/8	75	5/7	71	11/15	73

The analysis of data revealed a number of findings. Considering the overall results, the bilingual child scored higher than the monolingual child in final phoneme deletion (100%, 93%), initial phoneme deletion (80%, 66%), and phoneme detection (86%, 66%) tasks. On the other hand, both monolingual and bilingual child performed the same in phoneme substitution task (73%, 73%). So, the overall analysis presents a bilingual advantage for three tasks. Apparently, for initial phoneme deletion (80%, 66%) and phoneme detection (86%, 66%) tasks, the bilingual participant's performance was considerably higher than her monolingual counterpart.

Considering the results of words and non-words comparison, the bilingual participant's score is 25% higher than the monolingual participant for words in the initial phoneme deletion task (87%, 62%). Also, Table 2 reveals a meaningful difference for non-word scores of the participants. Bilingual participant's score is 28% higher than the monolingual participant for non-words in phoneme detection task (85%, 57%).

4. Discussion and Conclusion

The debate on bilingual advantage on linguistic processing has been supported by evidence in terms of both advantages and disadvantages by a large body of research. However, considering the results of the present study, it is possible to say that the bilingual participant performed better than the monolingual participant in phonemic tasks. This finding is supported by some studies which were carried out with Turkish bilinguals. In a study carried out with the participation of Turkish-Dutch early bilinguals, Verhoeven (2007) reported Turkish bilinguals as better performers on phonological measures. Parallel to the findings of the present study, Limbird (2006) also reported bilingual advantage on phonological awareness tasks in a study on phonological processing among bilingual Turkish children born and grew up in Germany. Additionally, Durgunoğlu and Öney (1999) concluded their study by stating that the Turkish bilingual participants revealed considerably better performance in manipulating both syllables and final phonemes, thus reflecting the salient aspects of the Turkish language. Hopp et al. (2019) found positive effects of bilingualism for early foreign language learning and reported proficiency in the majority language as a significant predictor of English vocabulary suggesting a bilingual advantage.

On the other hand, some other studies reported no specific bilingual effect for phonological processing. Bialystok et al. (2003) reported no advantage for a phoneme substitution task for French-English bilinguals. Likewise, Dodd et al. (2008) provided evidence for equivalent

performance for Cantonese-English bilinguals on phonological awareness tasks. More interestingly, in the same study, Dodd et al. also reported a monolingual advantage for Putonghua-speaking bilinguals for the phoneme detection task. Hence, as Barac et al. (2014) suggested, the factors contributing to mixed results might be explained by multiple variables related to the bilinguals' development of phonological awareness skills such as cross-linguistic transfer, children's brain development, memory development, and other neuropsychological aspects shaping their cognitive development (Incera, 2018).

With reference to the arguments considering the possible effects of multiple variables, much of the research postulated similar concerns for explaining the mixed results for bilingual language processing. According to Bialystok (2007), although there is some advantage to bilingual children in learning about the sound structure of spoken language, the advantage diminishes as the child gets older, different tasks are used, and the different language pairs are compared. Similarly, as to Elbro et al. (1998), phonological awareness is likely to emerge from more than one source. Basic language development, quality of phonological representations that underline spoken language experiences, reading and spelling instruction may help a children's ability to manipulate linguistic units of a spoken language.

As discussed above, the inconsistent findings of the studies focusing on the bilingual advantage in phonological awareness suggest that although extensively studied, more research is needed to generalize a bilingual advantage on monolinguals concerning different language combinations (Barac et al., 2014). Owing to the reason that early phonological processing capacity might be a predictor of further academic and cognitive abilities such as early reading development and early literacy skills (Ibrahim et al., 2007; Dixon, 2010, Quinn et al., 2015), listening comprehension performance (Sebastián-Gallés & Bosch, 2005), school readiness and further academic achievement (Kang, 2012), the need for further research is crucial to be able to make clear explanations about early phonological awareness.

It is necessary to underline that besides having access to the phonological structure of two languages, other factors such as the similarity of the sound structure of the two languages might be another factor to change the results. Also, the language used during implementation of the tasks and language proficiency of the participants in each language can be considered among other factors that affect success in phonological awareness tasks (Bialystok et al., 2003). Besides, as suggested by Ulum (2020), bilingualism facilitates the acquisition of a third language since the already possessed languages provide an advantage in acquiring a new language.

This study has a number of limitations. First, this study revealed the findings of one bilingual and one monolingual child comparison. However, including more number of participants from both groups might reveal detailed findings. The second limitation of the study is to do with the contextual variability of the participants. In other words, in order to investigate the bilingual effect on phonological awareness, further studies should focus on controlling various factors other than just utilizing data collection tasks. Further studies should define the individual experiences in detail for more accurate comparisons, including the participants' age, gender, language level and type of bilingualism, and other variables related to their bilingual experiences (Kuo et al., 2016). Also, to overcome methodological weaknesses and get more detailed and accurate results, other measures of onset-rime, such as rhyme identity and syllable awareness tasks, could be administered to more number of participants (Barac et al., 2014).

To conclude, by comparing phonological processing performances of one bilingual and one monolingual child, this study provided evidence for the effect of bilingualism. However, some studies revealed equivalent performances for some phonemic processing tasks, a large body of research points out a bilingual advantage in phonological awareness performance when variables such as socio-cultural and cognitive background are controlled. Further research comparing bilingual and monolingual language processing should explain the cognitive mechanisms actively involved during language processing to better understand the facts that underlie the bilingual advantage.

Note on Ethical Issues

The author confirms that the study does not need ethics committee approval since the data was collected before 2018.

References

- Adams, M. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Anderson, J. A. E., Hawrylewicz, K., & Bialystok, E. (2018a). Who is bilingual? Snapshots across the lifespan. *Bilingualism: Language and Cognition*, 23(5), 929-937.
- Arikan, A., & Yılmaz, A. (2019). Pre-service English language teachers' problematic sounds. *International e-Journal of Educational Studies*, 4(7), 1-26.
- Barac, R., Bialystok, E., Castro, D. C., & Sanchez, M. (2014). The cognitive development of young dual language learners: A critical review. *Early Childhood Research Quarterly*, 29, 699-714.
- Ben-Zeev, S. (1977). The influence of bilingualism on cognitive strategy and cognitive development. *Child Development*, 48, 1009-1018.
- Bhatia, T. K., & Ritchie, W. C. (2012). *The handbook of bilingualism and multilingualism*. Oxford: Wiley-Blackwell.
- Bialystok, E. (2021). Bilingualism: Pathway to cognitive reserve. *Trends in Cognitive Science*, 25(5), 355-364.
- Bialystok, E. (2001). *Language, literacy, and cognition*. Cambridge: Cambridge University Press.
- Bialystok, E. (1986). Factors in the growth of linguistic awareness. *Child Development*, 57, 3-22.
- Bialystok, E. (1988). Levels of bilingualism and levels of linguistic awareness. *Developmental Psychology*, 24, 560-567.
- Bialystok, E. (1991). Letters, sounds, and symbols: Changes in children's understanding of written language. *Applied Psycholinguistics*, 12, 75-89.
- Bialystok, E. (1995). Making concepts of print symbolic: Understanding how writing represents language. *First Language*, 15, 317-338.
- Bialystok, E. (1997). Effects of bilingualism and biliteracy on children's emerging concepts of print. *Developmental Psychology*, 33, 429-440.
- Bialystok, E. (1999). Cognitive complexity and attentional control in the bilingual mind. *Child Development*, 70, 636-644.
- Bialystok, E. (2001). *Bilingualism in development: Language, literacy, and cognition*. Cambridge: Cambridge University Press.
- Bialystok, E. (2007). *Acquisition of literacy in bilingual children: A framework for research*. *Language Learning*, 57, 45-77.
- Bialystok, E. (2017). The bilingual adaptation: How minds accommodate experience. *Psychological Bulletin*, 143, 233-262.

- Bialystok, E., Majumder, S., & Martin, M. M. (2003). Developing phonological awareness: Is there a bilingual advantage? *Applied Psycholinguistics*, 24, 27-44.
- Bowey, J., Cain, M., & Ryan, S. (1992). A reading-level design study of phonological skills underlying fourth-grade children's word reading difficulties. *Child Development*, 63, 999-1011.
- Bright, P., & Filippi, R. (2019). Editorial: perspectives on the "bilingual advantage": Challenges and opportunities. *Frontiers in Psychology*, 10, 1346.
- Bruck, M., & Genesee, F. (1995). Phonological awareness in young second-language learners. *Journal of Child Language*, 22, 307-324.
- Campbell, R., & Sais, E. (1995). Accelerated metalinguistic (phonological) awareness in bilingual children. *British Journal of Developmental Psychology*, 13, 61-68.
- Carlisle, J. F., Beeman, M., Davis, L. H., & Spharim, G. (1999). Relationship of metalinguistic capabilities and reading achievement for children who are becoming bilingual. *Applied Psycholinguistics*, 20, 459-478.
- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, 49, 222-251.
- Cummins, J. (1989). Language and literacy acquisition in bilingual contexts. *Journal of Multilingual and Multicultural Development*, 10, 17-31.
- Diaz, R. M., & Klinger, C. (1991). Towards an explanatory model of the interaction between bilingualism and cognitive development. In E. Bialystok (Ed.), *Language processing in bilingual children* (pp. 135-145). Cambridge: Cambridge University Press.
- Dixon, L. Q. (2010). The importance of phonological awareness for the development of early English reading skills among bilingual Singaporean kindergartners. *International Journal of Bilingual Education and Bilingualism*, 13(6), 723-738.
- Dodd, B. J., So, L. K. H., & Lam, K. K. C. (2008). Bilingualism and learning: The effect of language pair on phonological awareness abilities. *Australian Journal of Learning Difficulties*, 13(2), 99-113.
- Döpke, S. (1996). The weaker language in simultaneous bilingualism: Why it is not like L2. Unpublished manuscript. Melbourne: Monash University.
- Duff, P. (2008). *Case study research in applied linguistics*. New York: Lawrence Erlbaum/Taylor & Francis.
- Duff, P. (2014). Case study research on language learning and use. *Annual Review of Applied Linguistics*, 34, 233-255.
- Durgunoğlu, A. Y. & Öney, B. (1999). A crosslinguistic comparison of phonological awareness and word recognition, *Reading and Writing: An Interdisciplinary Journal*, 11, 281-299.
- Durgunoğlu, A. Y., & Öney, B. (1995). Cross-linguistic transfer in literacy development and implications for language learners. *Annals of Dyslexia*, 52, 281-299.
- Durgunoğlu, A. Y., Nagy, W. E., & Hancin-Bhatt, B. (1993). Cross language transfer of phonological awareness. *Journal of Educational Psychology*, 85, 453-465.
- Edele, A., Kempert, S., & Schotte, K. (2018). Does competent bilingualism entail advantages for the third language learning of immigrant students? *Learning and Instruction*, 58, 232-244.
- Elbro, C. (1996). Early linguistic abilities and reading development: A review and a hypothesis. *Reading and Writing: An Interdisciplinary Journal*, 8, 453-485.
- Elbro, C., Borstrom, I., & Petersen, D. K. (1998). Predicting dyslexia from kindergarten: The importance of distinctness of phonological representations of lexical items. *Reading Research Quarterly*, 33, 36-60.
- Gillon, G. T. (2004). *Phonological awareness: From research to practice*. New York: Guilford Press.

- Goldsworthy, C. (2001). *Sourcebook of phonological awareness training: Children's core literature*. San Diego, CA: Singular.
- Goetz, P. J. (2003). The effects of bilingualism on theory of mind development. *Bilingualism: Language and Cognition*, 6(1), 1-15
- Goswami, U., & Bryant, P. E. (1990). *Phonological skills and learning to read*. Hillsdale, NJ: Erlbaum.
- Grosjean, F. (1998). Studying bilinguals: methodological and conceptual issues. *Bilingual Language Cognition*, 1, 131-149.
- Grosjean, F. (2010). *Bilingual: Life and reality*. Cambridge, Mass: Harvard University Press.
- Hakuta, K., & Diaz, R. (1985). The relationship between degree of bilingualism and cognitive ability: a critical discussion and some new longitudinal data. In K. E. Nelson (Ed.), *Children's language, Volume 5* (pp. 319-344). Hillsdale, N. J.: Lawrence Erlbaum Associates.
- Hopp, H., Vogelbacher, M., Kieseier, T., & Thoma, D. (2019). Bilingual advantages in early foreign language learning: effects of the minority and the majority language. *Learning Instruction*, 61, 9-110.
- Hulme, C. (2002). Phonemes, rimes and the mechanisms of early reading. *Journal of Experimental Child Psychology*, 82, 58-64.
- Hulme, C., Hatcher, P. J., Nation, K., Brown, A., Adams, J., & Stuart, G. (2002). Phoneme awareness is a better predictor of early reading skill than onset-rime awareness. *Journal of Experimental Child Psychology*, 82, 2-28.
- Ibrahim, R., Eviatar, Z., & Aharon-Peretz, J. (2007). Metalinguistic awareness and reading performance: A cross language comparison. *Journal of Psycholinguistic Research*, 36(4), 297-317.
- Inceçay, G. & Soruç, A. (2013). The role of oral language proficiency in phonological awareness of early bilinguals. *Novitas-ROYAL (Research on Youth and Language)*, 7(2), 106-116.
- Incera, S. (2018). Measuring the timing of the bilingual advantage. *Frontiers in Psychology*, 1-9, 1983. doi: 10.3389/fpsyg.2018.01983
- Kang, J. Y. (2012). Do bilingual children possess better phonological awareness? Investigation of Korean monolingual and Korean-English bilingual children. *Reading and Writing*, 25, 411-431.
- Kuo, L. J., Uchikoshi, Y., Kim, T. J., & Yang, X. (2016). Bilingualism and phonological awareness: Re-examining theories of cross-language transfer and structural sensitivity. *Contemporary Educational Psychology*, 46, 1-9.
- Lafrance, A., & Gottardo, A. (2005). Longitudinal study of phonological processing skills and reading in bilingual children. *Applied Psycholinguistics*, 26(4), 559-578.
- Leseman, P. P. M. (2000). Bilingual vocabulary development of Turkish preschoolers in the Netherlands. *Journal of Multilingual and Multicultural Development*, 21(2), 93-112.
- Lieberman, I., Shankweiler, D., Fischer, W., & Carter, B. (1974). Explicit syllable and phoneme segmentation in the young child. *Journal of Experimental Child Psychology*, 18, 201-212.
- Limbird, C. (2006). *Phonological processing, verbal abilities, and second language literacy development among bilingual Turkish children in Germany*. Dissertation, Freie Universität Berlin.
- Lindholm-Leary, K. J. (2001). *Dual language education*. Avon, England: Multilingual Matters.
- Lonigan, C. J. (2007). Vocabulary development and the development of phonological awareness skills in preschool children. In R. K. Wagner, A. E. Muse, & K. R. Tannenbaum (Eds.), *Vocabulary acquisition: Implications for reading comprehension* (pp. 15-31). New York: Guilford Press.

- Maluch, J. T., & Kempert, S. (2017). Bilingual profiles and third language learning: The effects of the manner of learning, sequence of bilingual acquisition, and language use practices. *International Journal of Bilingual Education and Bilingualism*, 35(2), 1-13.
- Mann V.A. (1991). Phonological awareness and early reading ability: One perspective. In D. J. Sawyer & B. J. Fox (Eds.), *Phonological awareness in reading. The evolution of current perspectives* (pp. 191-215). New York: Springer-Verlag.
- McBride-Chang, C., & Chang, L. (1995). Memory, print exposure, and metacognition: Components of reading in Chinese children. *International Journal of Psychology*, 30, 607-616.
- Metsala, J. L. (1999b). Young children's phonological awareness and non-word repetition as a function of vocabulary development. *Journal of Educational Psychology*, 91, 3-19.
- Öney, B., & Durgunoglu, A. (1997). Beginning to read in Turkish: A phonologically transparent orthography. *Applied Psycholinguistics*, 18, 1-15.
- Perfetti, C. A. (1991). Representations and awareness in the acquisition of reading competence. In L. Rieben & C. A. Perfetti (Eds.), *Learning to read: Basic research and its implications* (pp. 33-44). Hillsdale, NJ: Lawrence Erlbaum.
- Phillips, B. M., Clancy-Menchetti, J., & Lonigan, C. J. (2008). Successful phonological awareness instruction with preschool children: Lessons from the classroom. *Topics in Early Childhood Special Education*, 28, 3-17.
- Quinn, J.M., Spencer, M., & Wagner, R. (2015). Individual differences in phonological awareness and their role in learning to read. In P. Afflerbach (Ed.), *Handbook of individual differences in reading: Reader, text, and context* (pp. 821-848). New York, NY: Routledge.
- Rubin, D. L., & Turner, L. J. (1989). Linguistic awareness skills in grade one children in a French immersion setting. *Reading and Writing*, 1, 73-86.
- Sebastián-Gallés, N., & Bosch, L. (2005). *Phonology and bilingualism*. In J. F. Kroll & A. M. B. de Groot (Eds.), *Handbook of bilingualism: Psycholinguistic approaches* (pp. 68-87). Oxford: Oxford University Press.
- Smith, S., Leon Guerrero, S., Surrain, S., & Luk, G. (2021). Phonetic discrimination, phonological awareness, and pre-literacy skills in Spanish-English dual language preschoolers. *Journal of Child Language*, 1-34. doi: 10.1017/S0305000920000768
- Stanovich, K. E., Cunningham, A. E., & Cramer, B. B. (1984). Assessing phonological awareness in kindergarten children: Issues of task comparability. *Journal of Experimental Child Psychology*, 38, 175-190.
- Schatschneider, C., Francis D. J., Foorman, B. R., Fletcher J. M., & Mehta P. (1999). The dimensionality of phonological awareness: An application of item response theory. *Journal of Educational Psychology*, 91, 439-449.
- Sodoro, J., Allinder, R. M., & Rankin-Erickson, J. L. (2002). Assessment of phonological awareness: Review of methods and tools. *Educational Psychology Review*, 14(3), 223-260.
- Stahl, S. A., & Murray, B. A. (1994). Defining phonological awareness and its relationship to early reading. *Journal of Educational Psychology*, 86, 221-234.
- Stuart, M. (1990). Processing strategies in a phoneme deletion task. *The Quarterly Journal of Experimental Psychology Section A*, 42(2), 305-327.
- Torgesen, J. K., & Bryant, B. R. (1994). *Phonological awareness training for reading kit*. Austin, TX: Pro-Ed.
- Ulum, Ö. G. (2020). The role of bilingualism in acquiring a foreign language. *Uluslararası Türkçe Edebiyat Kültür Eğitim Dergisi*, 9(3), 1209-1215.
- Verhoeven, L. (1994). Transfer in bilingual development: The linguistic interdependence hypothesis revisited. *Language Learning*, 44, 381-415.

- Verhoeven, L. (2007). Early bilingualism, language transfer, and phonological awareness. *Applied Psycholinguistics*, 28, 425-439.
- Wagner, R. K., & Torgesen, J. K. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin*, 101, 192-212.
- Wagner, R., Torgesen, J., Laughon, P., Simmons, K., & Rashotte, C. (1993). Development of young readers' phonological processing abilities. *Journal of Educational Psychology*, 85, 83-103.
- Wagner, R. K., Torgesen, J. K., Rashotte, C. A., Hecht, S. A., Barker, T. A., Burgess, S. R., Donahue, J., & Garon, T. (1997). Changing relations between phonological processing abilities and word-level reading as children develop from beginning to skilled readers: A 5-year longitudinal study. *Developmental Psychology*, 33, 468-479.
- Yopp, H. K. (1988). The validity and reliability of phonemics awareness tests. *Reading Research Quarterly*, 23(2), 159-177.