



Review of studies focused on bilingualism

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APA Citation:

Sönmez, H. (2019). Review of studies focused on bilingualism. *Journal of Language and Linguistic Studies*, 15(3), 1045-1068. Doi: 10.17263/jlls.631548

Submission Date: 07/03/2019

Acceptance Date:13/08/2019

Abstract

The purpose of this study is to determine the purpose, scope, research model, data collection tool, data analysis method and sample size of the studies on bilingualism. According to the general screening model, the documents collected were analyzed. In the first step, in order to determine the focus and scope, the objectives of the sample studies were examined based on the descriptive analysis. In the second step; research model, data collection tools, data analysis methods, and the number of participants of the studies were examined. Thus, the scope of the studies was determined. For this purpose; research models, data collection tools, data analysis methods and the number of participants were examined. Based on the conclusions of this part, it was determined that the experimental and descriptive models were frequently used in sample the studies.

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Keywords: Bilingualism; purpose; scope; education

1. Introduction

1.1. Literature review / Theoretical background

From the 19th century to the 1960s, believed that bilingualism had a detrimental effect on cognition (Laurie, 1890; Darcy, 1953; Náñez et al., 1992, Narrated by Baker, 2001, p.136). However, after the 1960s, it has been determined that some aspects of bilingualism (mental flexibility, balanced bilingual, cognitive advantages) have positive effects on cognition such as intelligence (Peal and Lambert, 1962, Narrated by Baker, 2001, p.136). Nowadays, other factors that are effective in the spread of bilingualism are education and professional development. Because it is an important factor to communicate with people who are different countries in a common language. Therefore bilingualism is being an important phenomenon.

Bilingualism, which is more important depending on the communication needs, is a phenomenon considered as a necessity in many aspects. Because of economic, social, political, geographical, etc. factors, people have to live in a new country. The main requirement of these migrants is to learn the language of the country in which they live. And governments focus on bilingual education to ensure immigrants' integration in the country. In response to these needs, bilingual education is an important

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educational policy. To evaluate the bilingual education curriculum in Europe functionality of bilingual education is examined. According to the findings, it was determined that there is a need for bilingual schools, which also include instruction in the mother tongue of minority children. At the same time, further studies on bilingual education in Europe are needed (Reljić, Ferring and Martin, 2016). In another meta-analysis study conducted curriculum-oriented, was done on bilingual education in Arizona. Bilingualism has positive effects on all criteria in English according to the results of experimental studies conducted on bilingual education. In addition, bilingualism is also influential on students' academic achievement in their mother tongue. It was determined that bilingualism developed students' academic skills in both languages (Rolstad, Mahoney, and Glass, 2005, p. 61).

Another domain in which meta-analysis studies focused on is functional neuroimaging studies of bilingualism. The aim of the studies was to quantify the results of a series of neuroimaging studies on bilingualism. Despite several experimental tasks in the meta-analysis study, it was seen that bilingualism has effective in the creation of a similar neural representation of the regions that play a role on the nerve basis on two languages. At the same time, there are several differences in the use of first and second languages in low-level bilingual individuals (Sebastian, Laird, and Kiran, 2011). The effects of early-exposed and later-exposed factors on bilinguals were found to be different in the study. The results showed that early exposure to bilingualism does not alter the brain regions that manage high cognitive executive functions. Instead, it provides basic changes in classical language skills. At the same time, the prefrontal cortex is more effective on later-exposed bilinguals (Jasinska and Petitto, 2013).

Another domain of the studies that focus on meta-analysis research is the relation between bilingualism and cognitive. In these studies, the effects of bilingualism on cognitive were evaluated with different aspects. The analyzes in this context indicate that bilingualism is associated with cognitive outcomes such as increased attentional control, working memory, metalinguistic awareness, and abstract and symbolic representation skills (Adesope, Lavin, Thompson and Ungerleider, 2010, p. 219). However, in some studies, it was emphasized that bilingualism had no positive or negative effect on intelligence development such as metalinguistic awareness and cognitive development (Barac and Bialystok, 2016, p. 36). On the other hand, in some studies, it has been observed that bilingualism has a retarding effect on the process of acquiring some formal aspects such as vocabulary (Bialystok, 2010, Narrated by Barac and Bialystok, 2016, p. 36). Because bilingualism is thought to cause problems such as burden on the brain, mental confusion, inhibition of the acquisition of the majority language, identity conflicts, split loyalties, even schizophrenia on cognitive. Therefore, warnings such as "*Don't raise your child bilingually or problems will result*" are given for this situation (Baker, 2001). In another comprehensive meta-analysis study, the effect of bilinguals and monolinguals factor on working memory capacity of cognitive processes such as cognitive flexibility, conflict monitoring, and task-switching abilities was investigated. In the study, it has been determined that the bilingual factor has more executive function advantages on working memory capacity than monolingual factor (Grundy and Timmer, 2017, p. 133-p. 136). Therefore, the effect of bilingualism on language development and speech has been examined from various aspects. The results show that there is no significant difference between the development of a bilingual child's language and the development of a monolingual child's language in a particular language (De Houwer, 2005).

Germany needs bilingual education and bilingual programs. Because although there are some bilingual classes in secondary school there are no more than two dozens of these experimental projects which have immigrant-minority languages as the partner language. Only a minority of bilingual schools or classes deal with the problem of immigrant minorities. Because of these issues, it is seen that experimental studies (strategy development, curriculum design, material preparation, etc.) related to bilingual education are needed in Europe (Gogoli, 2005, p.137-p.138). The curriculum and the measurement and evaluation process had been prepared for students who are monolingual.

Unfortunately, this problem continues in many countries for so many years and unfortunately this factor affects them in many ways, primarily the cognitive development of bilingual learners (Akıncı, 2006). Due to these problems, only a very small number of bilingual students are able to complete their education after an intensive study period (Vallet and Caille, 2000). And some students lost most of their skills on the mother tongue over time as they are very focused on the second language. As a matter of fact, this is one of the main risks that bilinguals will experience (Schmit, Köpke, Keijzer, and Weilemar, 2012). At the same time, immersion programs in which children are taught only in the school language appear to be associated with low-level second language proficiency, scholastic insufficiency, and psychosocial disorders (Hakuta and Mostafapour, 1996). Because the content of the programs includes the characteristics of learning another language from the mother tongue (García, 2009). Therefore, it facilitates a conceptual language transfer between home and school language (Cummins, 2000). In this context, the program should promote minority children's academic achievement (Baetens-Beardsmore, 2009). At the same time, bilingual education should be beneficial to language cummins minority children as it makes learning to school content understandable and provides access to their mother tongue (MacSwan and Rolstad, 2010). Because target culture is an important factor during language education and it was stressed that “students would enjoy in language classrooms, at which level they would like to do them their attitudes towards the target culture, the level of importance students attach to the target culture and their understanding of ‘culture’” (Sarıçoban and Çalışkan, 2011, p.7). Submersion programs have a high drop-out rate for language minority pupils who need to learn both school languages and a weak language at the same time (Bialystok, 2001). Because submersion programs disrupt the academic performance and the development of the new language as the students cannot use their own language in the process of understanding the academic material (Cummins, 2000; García, 2009). On the other hand, bilingual programs that teach school materials in both home and school languages also support language minority children's academic achievement and language development (Kimbrough Oller and Eilers, 2002; Lindholm-Leary, 2001).

Bilingual program is a controversial issue, depending on nationalism, migration and multilingualism policies (Petrovic, 1997). Rolstad, Mahoney, Glass stress this issue as “a properly conducted meta-analysis will help provide a true definition of program effects in a wide range of current studies” (2005, p.573-p.274). In this context, one of the problems frequently encountered by meta-analysis in bilingual education is the description and labeling of bilingual program types. European countries receiving a large number of immigrants address bilingual education in many aspects in order to meet the educational needs of both themselves and bilinguals. For example Netherlands the bilingual reception models, which have been applied only in a few schools and Mother Tongue Instruction (MTI), was more widespread and took up as much as 10% of the time, spent at school (Driessen, 2005, p.75). Sweden, has been trying to establish mother tongue education for children of immigrant background in public schools since the mid-1970s. Therefore, 14 percent of all preschool and school children have a different language other than Swedish (Axelsson, M. 2005, p.108).

Objections and evidence supporting two different views on the advantages and disadvantages of bilingualism have been evaluated. In this context, the number of studies reporting negative outcomes (disadvantages) was found to be more than the number of studies indicating positive results (advantage). These studies are criticized due to reaching the results by small samples, lack of matching variables, and measurement and analysis problems (Alshahrani, 2017). In this research, are focused on these criticisms stressed by Alshahrani. In this context; model, data collection tools, data analysis, and sample size of the research related to bilingualism were investigated. The research process is structured on these topics. Thus, negative and positive criticisms related to bilingualism were investigated by examining the researches. Because the refusal or acceptance of thought about bilingualism must be dependent on the

validity of the research conducted in this domain (Alshahrani, 2017). By this way, it is aimed to clarify these criticisms. In this context, the following research questions were examined.

1.2. Research questions

1. How are the focal point and scope of the studies on bilingualism?
2. How are model, data collection tools, data analysis methods and the number of participants of studies on bilingualism?

2. Method

In order to reach general conclusions about the characteristics of studies related to bilingualism, general screening model based on examination of sample data taken from the whole or part of the universe has been applied (Karasar, 2013). At the same time, descriptive analysis based on the examination of documents related to a bilingualism subject was used in the research (Yıldırım and Şimşek, 2013, p.256-p.258). According to the descriptive analysis, the characteristics (focal point, scope, research model, data collection tools, data analysis method, the samples) of the studies on bilingualism were determined.

2.1. Sample / Instruments

The aim of this study is to determine the focal point, scope, research model, data collection tool, data analysis method and sample size of the studies related to bilingualism. Depending on this purpose, the research consists of articles and theses prepared between 2001 and 2019. In order to focus on the studies on bilingualism in the last 20 years this sample studies was selected. The studies have been reviewed by the author and three domain experts in accordance with the criteria. These criteria are given in Table 1.

Table 1. The criteria to review the sample studies.

Subject of study	Explanation
Aim of the study	The purposes of the studies are examined.
Research model	Research models used in the process are examined.
Data collection tools	The data collection tools used to identify bilingual/bilingualism are examined.
Data analysis method	Data analysis methods used to analyze collected data are examined.
The sample	The numbers of participants are examined.

2.2. Data collection procedures

The data were collected from the following databases: ERIC Muş Alparslan University library database and Google Academic databases [Wiley Online Library, Web of Knowledge (ISI), Proquest, PsycNet (APA)], the general network address of YÖK National Thesis Center (<https://tez.yok.gov.tr/UlusalTezMerkezi/>), ULAKBİM Social Sciences Database and Google Scholar. In order to collect the data, the following keywords were written on the relevant search engine: monolingual, monolingualism, bilingual, bilingualism, bilingual teaching, bilingual training, bilingual education assessment, bilingual learning, and bilingual education. 80 studies collected in these databases were examined according to the determined criteria. As a result, it was determined that 21 of them are not suitable for the aim of the research. In the examination, it was found that one or more sections such

as research model, data analysis method, data collection tools sample group and research purpose were not mentioned. These studies were not suitable because of these shortcomings. As a result of the elimination of these studies, 58 studies were examined.

2.3. Data analysis

The sample studies have been reviewed by the author and three domain experts. Criteria in the sample studied were determined by the checklist. The following criteria were established in *the checklist*.

*The sample study should be done on the bilingualism, bilingual teaching, bilingual training, bilingual education assessment, bilingual learning, and bilingual education

*The sample study should include aims/objectives, methods, data collection tools, data analysis method, and the number of participants

*The sample study should be published in as an article, book, and thesis

*The scope of the sample study should be clear and accessible

*The sample study should be done between 2001 and 2019.

The collected data according to the stages of the descriptive analysis were analyzed by these following steps: Within the scope of these criteria (question) and in accordance with descriptive data analysis stages, a framework for the sample studies has been established. According to the criteria, the themes were determined within the scope of "focal point, scope, research model, data collection tools, data analysis method, the samples". Findings were defined according to the analysis of these themes. In the next step, findings related to the bilingual education were interpreted.

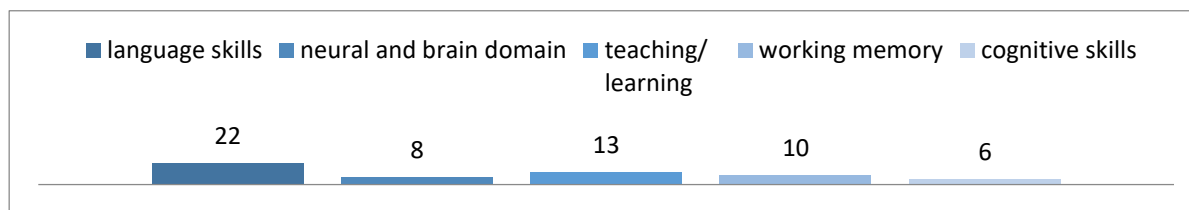
3. Results

3.1. Results of the First Research Question

In this section, the focal point and scope of the studies related to bilingualism are determined. To determine the focal point and scope, the dependent and independent variables of the sample studies were examined. In this context, the independent variable is a variable assumed to have an effect on another variable (*dependent variable*). Because of this function, bilingualism and monolingualism factors are determined as an independent variable in the sample studies. The independent variable is linked to the dependent variable in some aspects. Because of this function, the effect of bilingualism and monolingualism on the dimensions (aspects affected by bilingualism and monolingualism) discussed in the sample studies is determined as the dependent variable (Flannelly, Flannelly, and Jankowski, 2014, p. 162-p.163).

Thus, the independent variables of studies on bilingualism and monolingualism factors are coded as *the focal point*. Accordingly, dependent variables (topics), which are thought to be influenced by bilingualism and monolingualism factors, are coded as *the scope*. After this association, descriptive analysis was conducted on the sample studies to determine the independent variable (the focal point) and the dependent variable (the scope). The independent variables identified by coding are focal points of the studies. Similarly, the dependent variable determined as a result of the coding indicates the scope of the studies. Thus, the focal point and scope of the studies were determined. The focal points of the studies, which are determined by dependent variables, are grouped as *bilingualism, bilingualism and monolingualism, second language (bilingualism)*. The scope of the studies is listed as language skills (reading, speaking, listening), neural/brain, teaching/learning, working memory, cognitive skills

according to the independent variables covering similar aspects (see Table 2). Graph 1 presents the frequency of use of the identified scopes in sample studies.



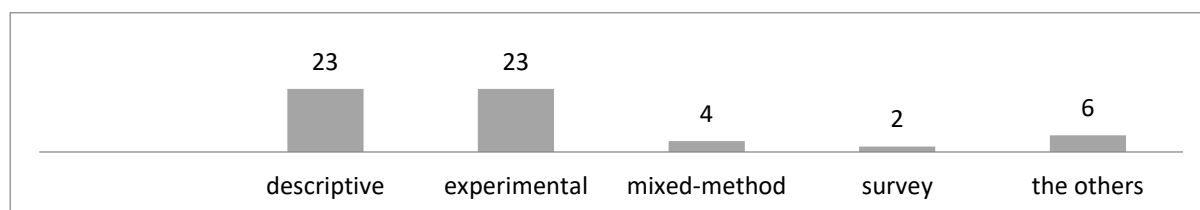
Graph 1. The scope of sample studies related to bilingualism

When Graph 1 is examined, it is seen that most of the studies are done on *language skills* (N: 21). In this context, researchers examined the relation between bilingualism and reading/speaking/listening skills in terms of these aspects: vocabulary, phonological and morphological awareness, word reading, learning to read, different approaches to literacy, understand optimal contexts for reading success, the comprehension of active and passive English sentences, redundant and reliable speech cues, reading difficulties, linguistic abilities and the later development of reading abilities, orthography and phonology in reading aloud, producing words, the comprehension of syntactically simple, receptive vocabulary scores, vocabulary performance, short-term memory skills, reading skills across the languages, multiple measures of executive function, unconscious access to the sound, syntax production, metacognitive awareness, particular patterns of communicative interactions, the development of phonological awareness, the reading, language, memory skills and phonological, reading, spelling, syntactic, working memory tasks and language proficiency and usage. The second scope on which researchers frequently (N: 13) focus on is *the relation between bilingualism and teaching/learning*. According to Table 2, the researchers examine the relation between bilingualism and learning/teaching with these aspects: opinions of the first term, satisfying of programs, different test types, ability vocabulary test, digital learning program, successes of learning, the perception of tonal contrasts, function advantages, lexical growth, general creativity and mathematical creativity, creativity in nonmathematical and mathematical problem solving, in executive functioning, grammar learning strategies, proficiency in the foreign language.

The third scope on which researchers frequently focus on is *the working memory*. The researchers examine the relation between bilingualism and working memory with these aspects: The possible differences, visuospatial and verbal working memory tests, socio-economic status and conflict inhibition and/or working memory underpin the advantage, the organizational structure of working memory and latent mean differences, the architectures of working memory, different levels of working memory, working memory performance, lexical retrieval tasks and executive control tasks, working memory (WM) capacity, influences of task demands and experience on cognitive control and working memory. Although neural / brain and cognitive skills were not studied as frequently as other scopes these scopes were also investigated with different aspects. In particular, *the relation between neural / brain and bilingualism* is examined with these aspects: neural adaptation, children's neural circuitry, recruiting brain areas, brain structure cortical thickness, brain areas during sentence processing, brain potential, theory of mind (ToM) development, neural activity (single word reading). And *the relation between cognitive skills and bilingualism* is examined with the following aspects: an array of cognitive skills, the cognitive advantage, cognitive flexibility, cognitive performance in early childhood, influences of task demands and experience on cognitive control and working memory, several possible versions of the inhibition hypothesis. See Table 2 for more details on these results.

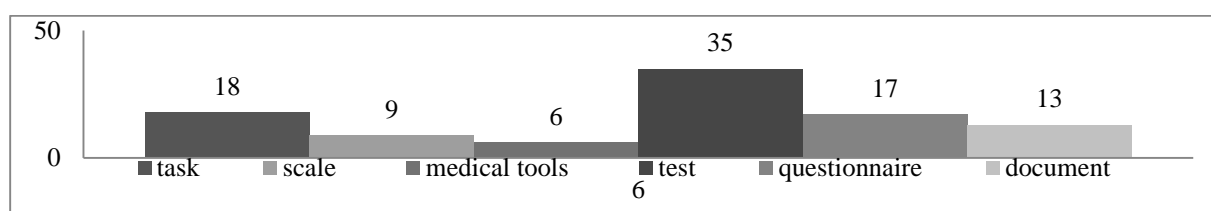
3.2. Results of the Second Research Question

In this section; the research model, data collection tool, data analysis method and sample size of the studies related to bilingualism were examined. For this reason, sample studies were examined in four categories and their relationships with each other were examined. The first of these categories is *the research model* that researchers use to collect data about bilingualism. In this context, the model of each study was determined and shown chronologically in Table 3. Then the models used in the studies were categorized according to their similarities. Depending on this grouping, the research model used in the sample studies and the frequency of using these models are given in Graph 2.



Graph 2. The research models of sample studies

As shown in Graph 2, four models were used in the studies. These are *the descriptive, experimental, mixed-method, and survey*. Different models than these are grouped as *the others*. The frequency of use of these models in the sample studies is given in Graph 2. Among them, descriptive and experimental model-based research seems to be more. Mixed-method was less used than the descriptive and experimental model. Other than these, the survey and the other models were used very less. In the descriptive model (N: 23), researchers focused on the relation between bilingualism and monolingualism or on the analysis of existing situations related to bilingualism. This finding shows that researchers are more interested in the detection of unclear but effective aspects related to bilingualism and monolingualism. Because there are many ambiguous aspects that need to be solved regarding bilingualism and monolingualism. A similar result is also observed in studies based on the experimental model (N: 23). In this model, the researchers examined the research process related to bilingualism and monolingualism in experiments. Therefore, in order to examine the independent variables in these studies, experimental observation and evaluation of them are in the foreground. The researchers examined the dependent variables related to bilingualism and monolingualism by using mixed-methods according to both qualitative and quantitative data. But this research model is used less (N: 4). According to this finding, the researchers used either quantitative or qualitative data in the data collection process. In two sample studies, the survey model was used. In these studies, the researchers did a survey about bilingualism and monolingualism. In the others, these models were used with these models: a longitudinal study, demographic information, an event-related method, stratified simple random sampling method, structural equation modeling. Graph 2 shows that these are not frequently used in the sample studies (N: 6).

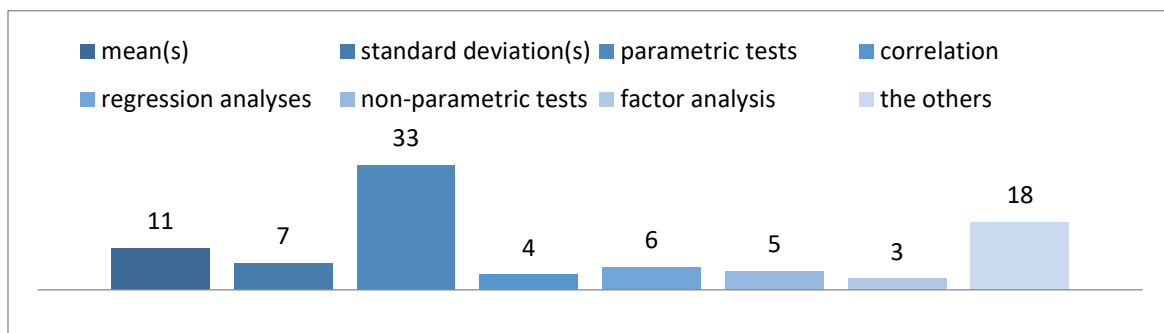


Graph 3. The data collecting tools of sample studies

When *the data collection tools* used in the studies is examined, it is seen that different tools are generally used. The reason why data collection tools differ from research models by number is because of the combined use of multiple different data collection tools in some researches. It is seen more clearly data collection tools are used in different numbers in Graph 3. In particular, tests are the most widely used data collection tool in the data collection process. The reason for this is closely related to the model of research. Because in the descriptive, experimental model-based research, achievement test or experimental tests were frequently used as data collection tools (N: 35). These tests, which were used in the studies, are mostly pre-test, post-test, and subtest. Apart from these tests, the following tests were used: comprehensive test, vocabulary test, reading tests, digit span, word repetition test, maze memory test, the Torrance tests, verbal ability tests, the working memory test, the verbal (semantic) fluency tests, standardized tests, picture vocabulary test and brief intelligence test, visuospatial tests.

In accordance with the descriptive and experimental models, different tools such as *task* were used frequently in the data collection process (N: 18). These tasks are listed as WM span tasks, digit-span task, standard operation span tasks, non-verbal symmetry span task, EF tasks, picture identification task and picture naming task, the pictorial multiple solution task, mixed conditions on the DCCS task, the pictorial multiple solution task, the creating equal number task, semantic task, theory of mind tasks, the semantic-relatedness tasks, the forward digit span task, memory tasks, working memory tasks. Another data collection tool commonly used in sample studies is the questionnaire (17). Questionnaires were used frequently in researches based on descriptive, mixed-method and survey model. These questionnaires are listed as questionnaire, a language background questionnaire, parental questionnaire, published questionnaire. The data collection tools used in the scope of the document is differentiated according to the purpose and model of the studies. These tools are listed as interview (document), document survey, the toets tweetaligheid, automated working memory assessment, letter identification (decoding), cognitive constructs, abstract reasoning, selective attention and interference suppression, red / blue box crayon box /sticker or change of content, lexical retrieval, verbal ability control measure, internally naming pictures of objects, Videotaped MacArthur CDI data (document).

Scale and medical tools were also used as data collection tools. The frequency of use of these tools is less than the test; task, document, and questionnaire (see Graph 3). This result is closely related to the models of research. The data collection tools used within the scale is specified as picture vocabulary scale, point scale, drawing complexity scale, the Wechsler intelligence scale. In particular, in accordance with the experimental research model, medical tools were used as a data collection tool. These medical tools are listed as infrared spectroscopy neuroimaging, electroencephalography (EEG), Magnetic Resonance (er-fMRI).



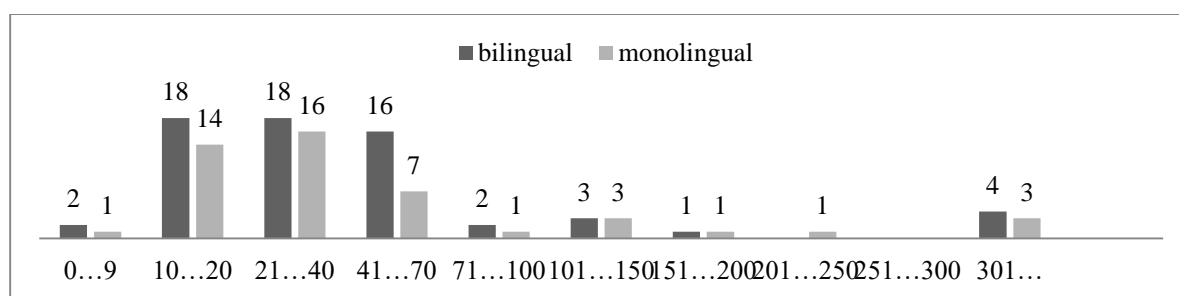
Graph 4. Data analysis methods of sample studies

Another topic discussed in this section is *the analysis methods* used to analyze data in the research process related to bilingualism and monolingualism. According to Graph 4, different analysis methods

were used in the studies depending on the data collection tools. In order to analyze the data, the researchers benefited from the mean, correlation, factor analysis, standard deviation, regression analysis, parametric test, non-parametric test, and the others. When the frequency of their use is considered, it is seen that *parametric tests* are the most used analyzes (N: 33). In this category, ANOVA analysis was used more (N: 16). And t-tests are the second most frequently used parametric tests (N: 9). These are referred to as ad-hoc t-tests, independent samples t-tests, two-tailed t-test, independent samples t-test. In addition, Pearson, factor and other parametric tests are among the other analyzes used by the researchers. In comparison with the wide use of parametric tests, it is observed that researchers used non-parametric tests less (N: 5). Mann-Whitney U-test, Skew, and Kurtosis, Spearman, separate chi-square analysis are of the analyzes used in this scope. At the same time, it was determined that the mean (N: 11) and standard deviation (N: 7) analyzes were used generally. In addition, some of the data in the sample studies were analyzed by regression analysis (N: 6).

In comparison with their frequency of use, it is seen that the correlation (4) and factor analysis (3) are less used in the data analysis process. Apart from these analyzes, different analyzes have been used in the sample studies. The following analyzes, which were named as the others, were also frequently used. These are listed as assembled phonology analyses, content analysis, principal component analysis, conjunction analysis, multivariate analysis, percent, meta-analysis, sensitivity analysis, moderator analyses (meta-analysis, sensitivity analysis), the multi-group confirmatory factor analysis, general, the linear model, Matlab-based NIRS-SPM, median reaction, the reanalyzed (the vertical), transcription and coding.

Depending on the findings obtained in this section, a general conclusion can be reached. Research model, data collection tool, and the data analysis method of the sample studies were found to be compatible with each other. Therefore, according to the findings in Graph 2, Graph 3 and Graph 4; the models, data collection tools, and data analysis methods of sample studies related to bilingualism are similar in terms of their characteristics. Their effectiveness, competence, and functionality in the research process related to bilingualism and monolingualism have been evaluated in the discussion section.



Graph 5. The number of participants of sample studies

In this section, *the number of participants* in the sample studies was examined to determine the sample characteristics of the studies related to bilingualism and monolingualism. Thus, the number of participants was determined according to *descriptive analysis*. The results are given in Graph 5. The number of participants in the research was classified according to 9 ranges. The sample sizes were determined as 9-0, 10-20, 21-40, 41-70, 71-100, 101-150, 151-200, 201-250, 251-300 and 301 and above. The number of bilingual and monolingual participants in each range is given separately. Thus, the number of bilingual and monolingual was examined in terms of different or similar aspects. Graph 5 shows that the frequency of the studies in the sample selection ranges mostly consists of 21-40 persons. In this range, the number of bilingual (N: 18) and monolingual (N: 16) did not differ so much. The

sample selection frequency was found to be more in the range of 10-20. In this range, the number of bilingual (N: 18) and monolingual (N: 14) did not differ so much too. The third range that is 41-70, with a high number of participants, has a different result. Because, in this range, the number of bilinguals (N: 16) and the monolinguals (N: 7) are different from each other. This is due to the fact that this range is mostly studied on bilingual individuals. In addition, there are very few participants in the 0-9, 71-100, 101-150, 151-200, 201-250 ranges. It was determined that no research was conducted in the range of 251-300 participants. Few studies have been conducted in the last range of *301 and above*.

In this section, we investigated the number of participants in the studies related to bilingualism and monolingualism. According to the obtained data, the number of participants is usually stacked in certain number ranges (21-40 and 10-20). At some ranges, the number of participants was found to be quite low. Although the sampling frequency was stacked at some ranges, it was determined that the number of bilingual and monolingual participants in each range was generally close to each other. For more detail see Table 3 about these findings.

4. Discussion, Conclusion, and Recommendations

In this research, focal points and the scope of the studies on bilingualism and monolingualism are examined. In order to examine the relations between these two factors, the relations between the dependent and independent variables of the studies was examined. In the sample studies, bilingualism and monolingualism have been identified as the focal points of the independent variables. In this context, the dependent variables, which are affected by bilingualism and monolingualism, are examined as *the scope*. In the sample studies, it was concluded that the dependent variable was mainly *language skills*. Therefore, researchers' review scopes about bilingualism and monolingualism are generally on reading, speaking, listening skills. In these studies, the relation between bilingualism and language skills has been examined in many ways (Shih-Ju Hsu, Ip, Arredondo, Tardif and Kovelman, 2019; Patricia, Kuhl, Stevenso, Corrigan, Jasper, Bosch, Deniz Can and Richards, 2016; Jalali-Moghadam and Kormi-Nouri, 2015; Pons, Bosch and Lewkowicz, 2015; Kovelman, Maha Salah-Ud-Din Melody, Beren and Petitto, 2015; Filippi, Morris, Richardson, Bright, Thomas, Karmiloff-Smith and Marian, 2015; Aguilar-Mediavilla, Buil-Legaz, Pérez-Castelló, Rigo-Carratalà and Adrover-Roig, 2014; Kaushanskaya, Blumenfeld and Marian 2011; Carlson, and Meltzoff, 2008; Ransdell, Barbier and Niit, 2006; Berguno and Bowler, 2004; Bialystok, Majumder and Martin, 2003). This result is closely related to the learning and teaching factors. Because the second scope of research that the researcher frequently mentions in sample studies is the relation between bilingualism and teaching/learning. In these studies, it was investigated how an effective teaching/learning process should be realized in bilingualism environments. The main issue in these studies that evaluated the relationship between language skills and education and training is the lack of studies related to the curriculum. In order to improve bilingual learners' language skills, course content, instructional models, course material, measurement, and evaluation processes are required to be prepared in accordance with the bilinguals' learning characteristics and needs. As a matter of fact, this important deficiency was not taken care of in the sample studies. For this reason, in future studies, it is necessary to focus on teaching-learning processes and curriculum development which will support bilinguals' language skills.

The relation between bilingualism and working memory is handled in some aspects cognitively. These scopes, listed as verbal working memory tests, socio-economic status, and conflict inhibition, etc. seem to represent the working memory and cognitive domain sufficiently (Asadollahpour, Baghban, Mirbalochzahi, Naderifar and Tahmasebi, 2015; Nguyen and Astington, 2014; Macnamara and Conway, 2014; Engel de Abreu 2011; Bialystok, Craik and Luk, 2008). The main deficiency in these results is

that the relations between dependent variables, language skills, teaching/learning, and working memory are not examined together. In future studies, researchers need to study the effect of bilingualism on the associative dependent variables by the multivariate research model. Thus, firstly, bilingual individuals' needs related to language skills, teaching/learning and working memory will be determined. Then the learning and teaching process should be planned according to these needs. There is a need for a lot of experimental studies to be carried out with this perspective.

Depending on the results of the second research question, the model, data collection tools, data analysis methods and the number of participants of the studies were examined. As a result of the study, it is seen that the sample studies generally focus on four models. Among them, descriptive and experimental model-based research is more common; but mixed-method, survey, and the other research models are determined to be less. This is due to the fact that the studies focused on the relations between bilingualism and monolingualism or on the analysis of existing situations related to bilingualism (Hsu, et al. 2019; Jalali-Moghadam and Kormi-Nouri, 2015; Zinszer, Chen, Wu, Shu and Li, 2015; Zhang, Xia and Peng, 2015; Sasisekaran and Weisberg, 2013). In the studies, dependent variables which are within the scope of language skills, teaching/learning, working memory, neural/brain, and cognitive skills have been examined and evaluated experimentally (Hsu, et al. 2016; Ip, Shih-Ju Hsu, Arredondo, Maria, Tardif and Kovelman, 2016; Kaushanskaya and Buac, 2014; Morales, Calvo and Bialystok, 2013; Kaushanskaya, et al. 2011; Proctor, August, Snow and Barr, 2010; Kemp, 2007; Yang, Yang, Ceci, Wang, 2005; Meschyan and Hernandez, 2005). The main deficiency in these studies is the use of methods in which descriptive and experimental studies are generally used for qualitative or quantitative data. But in the first section, seen that bilingualism is a multifaceted phenomenon where many interrelated factors are effective. Because it has many variables as dependent and independent and consists of different aspects. In order to reach more accurate and comprehensive results related to this phenomenon, research should be carried out in which both quantitative and qualitative methods are used together. But it has been determined that the mixed-method, in which these two methods are used together, is less used in sample studies. Therefore, researchers are required to apply more to mixed-method studies in their future studies. Bilingualism can be examined in a broader context by examining the qualitative and quantitative aspects of dependent variables such as language skills, teaching/learning, working memory, neural/brain, and cognitive skills. Because bilingualism is not a phenomenon with a restricted aspect as stressed before (Moradi, 2014).

Qualitative or quantitative research models also affected the types of data collection tools of the studies. For this reason, tests were used mostly in the data collection process of bilingualism and monolingualism (Jasińska, Berens, Kovelma and Petitto, 2017; Ru-Whui Lee, Chun-Hsien Hsu, Sheng-Kai Lin, Hsien Wu and Jyh-Lang Tzeng 2017; Leikin and Tovli 2014; Sheng, 2014). In accordance with the descriptive and experimental models, tasks were used during the data collection process. Another data collection tool used frequently in sample studies is questionnaire. These results show that quantitative data collection tools are used more widely in the studies. Because researchers have often used quantitative data to study the effects of bilingualism and monolingualism on dependent variables such as language skills, teaching/learning, working memory, neural/brain, and cognitive skills (Kovelman, et al. 2015; Blom, Kuntay, Messer, Verhagen and Leseman, 2014; Macnamara and Conway, 2014).

In the research process related to bilingualism and monolingualism, analysis methods used to analyze the data were examined. ANOVA and t-tests were frequently used in parametric tests. The reason why these two analyzes are more involved in research is related to the research model and data collection tools. Because to examine the effects of bilingualism and monolingualism on dependent variables such as language skills, teaching/learning, working memory, neural/brain, and cognitive skills quantitative

data were used. Less quantitative analysis and frequent use of quantitative analyses indicate that researchers focus on specific analyzes in the data analysis process.

In this section, the results of the research process can be concluded as follows: Model, data collection tools, and data analysis methods of the sample studies were found to be compatible with each other in terms of quality and quantity. The following conclusions were reached about their effectiveness, competence, and functionality in the research process related to bilingualism and monolingualism. In the studies, dependent variables such as language skills, teaching/learning, working memory, neural/brain, and cognitive skills, which are influenced by the bilingualism and monolingualism, were determined by the qualitative or quantitative way. In future studies, researchers should examine the issue of bilingualism by considering these deficiencies. They should use mixed-method, qualitative and quantitative data collection tools, and multiple data analysis methods together in order to achieve more effective results.

In order to determine the characteristics of the studies related to bilingualism and monolingualism, the number of participants in the sample studies was examined. Thus, it was determined that in which sample group the studies mainly accumulate their participants. Through these findings, it was determined how the number of bilinguals and monolinguals participants is and how close they are to each other quantitatively. The results show that the sample size of the participants of the studies on bilingualism and monolingualism is usually between 10-20 and 21-40. At the same time, it was determined that the number of bilingual and monolingual participants in each range was generally close to each other. In the sample studies, the bilingual and monolingual participant in the control and experimental group should be close to each other quantitatively. Because this feature is the desired and expected result in the sample selection (Özen and Gül, 2007). There is a remarkable point in these results. This point is the difference between the research model/data/collection tools/data analysis method and the number of participants. Specifically, it was seen that there was no correlation between model, data collection tools, data analysis method and the number of participants in sample studies quantitatively (Jasińska, et al. 2017; Rose Ru-Whui Lee, Chun-Hsien Hsu, Sheng-Kai Lin, Hsien Wu and Jyh-Lang Tzeng 2017; Ip, et al. 2016; Patricia, et al. 2016; Filippi, et al. 2015; Leikin and Tovli, 2014; Jasińska and Petitto, 2013; Kaushanskaya, et al. 2011; Golestani, Alario, Meriaux, Le Bihan, Dehaene and Pallier, 2006). The main reason for this is that the number of participants in the research process was not changed much. But a large number of participants should be needed to reach more effective results (Özen, and Gül, 2007, p. 415- p. 416). Because, in order to further examine the characteristics of bilingualism, which is a multifaceted phenomenon, and to further generalize the results achieved, it is necessary to conduct research with larger sample groups. As a matter of fact, this result justifies the criticisms made before on this topic. Because in the previous research this problem situation has been criticized as reaching general conclusions based on small samples, insufficiency of matching variables determined in sample studies and frequent use of similar measurements and analyzes (Alshahrani, 2017).

To address the issue of bilingualism from a wider perspective, and to reach general conclusions based on both qualitative and quantitative data, researchers need to focus on research with a larger number of participants. Because research with larger samples may reveal other dependent variables that cannot be determined until now. At the same time, the results will provide the researcher with a more generalized evaluation of the findings. Thus, a large number of the sample will allow the researcher to examine an idea about bilingualism more objectively. This factor will make clear the highlighted criticisms related to rejecting the idea (the negative effect of bilingualism) or accepting the idea (the positive effect of bilingualism).

References

- Adesope, O. O., Lavin, T., Thompson, T., & Ungerleider, C. (2010). A systematic review and meta-analysis of the cognitive correlates of bilingualism. *Review of Educational Research*, 80, 207-245.
- Akıncı, M. A. (2006). Du bilinguisme à la bilittéracie. Comparaison entre élèves bilingues turcs-français et élèves monolingues français. *Langage et société*, 2006/2 (n° 116).
- Alshahrani, A. (2017). Effect of bilingualism on the development of cognitive processes among children. *Arab World English Journal (AWEJ)*, 8 (4), 451-466.
- Axelsson, M. (2005). Mother Tongue Teaching and Programs for Bilingual Children in Sweden. The Effectiveness of Bilingual School Programs for Immigrant Children. Wissenschaftszentrum Berlin für Sozialforschung (WZB), Veröffentlichung der Arbeitsstelle Interkulturelle Konflikte und gesellschaftliche Integration (AKI) p.108-122.
- Baetens-Beardsmore, H. (2009). Bilingual education: Factors and variables. In O. García (Ed.), *Bilingual education in the 21st century: A global perspective* (pp. 137–159). Malden, MA: Wiley-Blackwell.
- Baker, C. (2001). *Foundations of bilingual education and bilingualism, bilingual education and bilingualism* (Baker, C. 3rd edition). Multilingual Matters Ltd. Clevedon, Buffalo, Toronto, Sydney, 134-162.
- Barac, R. & Bialystok, E. (2016). Cognitive development of bilingual children. *Language Teaching*, 44 (01), 36 -54.
- Bialystok, E. (2001). *Bilingualism in development. Language, literacy and cognition*. New York, NY: Cambridge University Press.
- De Houwer, A. (2005). *Early bilingual acquisition: focus on morphosyntax and the separate development hypothesis*. Communication Department, Universiteit Antwerpen, Antwerpen, Belgium.
- Driessen, G. 2005. From cure to curse: the rise and fall of bilingual education programs in the Netherlands. the effectiveness of bilingual school programs for immigrant children. Wissenschaftszentrum Berlin für Sozialforschung (WZB), Veröffentlichung der Arbeitsstelle Interkulturelle Konflikte und gesellschaftliche Integration (AKI) p.76-107.
- Flannelly, L. T., Flannelly, K. J. & Jankowski, K. R. B. (2014). Independent, dependent, and other variables in healthcare and chaplaincy research. independent, dependent, and other variables in healthcare and chaplaincy research. *Journal of Health Care Chaplaincy*, (20)4, 161-170.
- García, O. (2009). *Bilingual education in the 21st century: A global perspective*. Oxford, England: Wiley-Blackwell.
- Gogoli, I. (2005). Bilingual education - the German experience and debate. the effectiveness of bilingual school programs for immigrant children. Wissenschaftszentrum Berlin für Sozialforschung (WZB), Veröffentlichung der Arbeitsstelle Interkulturelle Konflikte und gesellschaftliche Integration (AKI) p.133-145.
- Grundy, G. J. & Timmer, K. (2017). Bilingualism and working memory capacity: A comprehensive meta-analysis. *Second Language Research*, 33(3), 325-340.
- Hakuta, K., & Mostafapour, E. F. (1996). Perspectives from the history and politics of bilingualism and bilingual education in the United States. In I. Parasnis (Ed.)

- Jasinska, K.K. & Petitto, L.A. (2013). How the age of bilingual exposure can change the neural systems for language in the developing brain: A functional near-infrared spectroscopy investigation of syntactic processing in monolingual and bilingual children. *Developmental Cognitive Neuroscience*, 6, 87-101.
- Karasar, N. (2002). *Bilimsel araştırma yöntemi*. Ankara: Nobel Yayın Dağıtım.
- Kimbrough Oller, D, & Eilers, R. E. (Eds.). (2002). *Language and literacy in bilingual children*. Clevedon, England: Multilingual Matters.
- Lindholm-Leary, K. L. (2001). *Dual language education*. Clevedon, England: Multilingual Matters.
- MacSwan, J., & Rolstad, K. (2010). The role of language in theories of academic failure for linguistic minorities. In J. Petrovic (Ed.), *International perspectives on bilingual education: Policy, practice, and controversy* (pp. 173–193). Charlotte, NC: Information Age.
- Moradi, H. (2014). An investigation through different types of bilinguals and bilingualism. *International Journal of Humanities & Social Science Studies (IJHSSS)*. I (II), 107-112.
- Özen, Y. & Gül, A. (2007). Population-sampling issue on social and educational research studies. *[KKEFDI]OKKEF*, 1, 394-422.
- Petrovic, J. (1997). Balkanization, bilingualism, and comparisons of language situations at home and abroad. *Bilingual Research Journal*, 2, 233–254.
- Reljić, G., Ferring, D. & Martin, R. (2016). A meta-analysis on the effectiveness of bilingual programs in Europe. *Review of Educational Research Month*, 201(XX, X), 1-.37.
- Rolstad, K., Mahoney, K. S. & Glass, G. V. (2005). Weighing the evidence: a meta-analysis of bilingual education in Arizona. *Bilingual Research Journal*, 29(1), 43-p67.
- Rolstad, K., Mahoney, K., & Glass, G. (2005). The big picture: A meta-analysis of program effectiveness research on English language learners. *Educational Policy*, 19, 572–594.
- Sarıçoban, A. & Çalışkan, G. (2011). The influence of target culture on language learners. *Journal of Language and Linguistic Studies*. 7(1), 7-17.
- Schmit, M. Köpke, B., Keijzer, M. & Weilemar, L. (2012). First language attrition: Interdisciplinary perspectives on methodological issues. Proceedings of the 1 st International Conference on First Language Attrition, Amsterdam, Aug. 2002.
- Sebastian, R., Laird, A. & Kiran, S. (2011). Meta-analysis of the neural representation of first language and second language. *Applied Psycholinguistics*, 32(4), 799-819.
- Vallet, L.-A., & Caille, J.-P. (2000). - "La scolarité des enfants d'immigrés" in VAN ZANTEN A. (dir.), *L'école : l'état des savoirs*, Paris, *La Découverte*, pp. 293-301.
- Yıldırım, A. & Şimşek, H. (2013). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin, Ankara.

References of the Data Collection

- Abu-Rabia, S. & Siegel, L. S. (2002). Reading, syntactic, orthographic, and working memory skills of bilingual Arabic-English speaking Canadian children. *Journal of Psycholinguistic Research*, 31, 661-678.
- Abutalebi, J., Della Rosa, P.A., Gonzaga, A.K.C., Keim, R., Costa, A., & Perani, D. (2013). The role of the left putamen in multilingual language production. *Brain Lang.*, 125 (3), 307-315.

- Adi-Japha, E., Berberich-Artzi, J. & Libnawi, A. (2010). Cognitive flexibility in drawings of bilingual children. *Child Development* 81, 1356-66.
- Aguilar-Mediavilla, E., Buil-Legaz, L., Perez-Castello, J. A., Rigo-Carratala, E., & Adrove Roig, D. (2014). Early preschool processing abilities predict subsequent reading outcomes in bilingual Spanish-Catalan children with specific language impairment (SLI). *Journal of Communication Disorders*, 50, 19-35.
- Asadollahpour, F., Baghban, K., Mirbalochzahi, P., Naderifar, E. & Tahmasebi, B. (2015). The performance of bilingual and monolingual children on working memory tasks. *Iranian Rehabilitation Journal*, 13 (3), 53-57.
- Berguno, G. & M. Bowler, D. (2004). Communicative interactions, knowledge of a second language, and theory of mind in young children. *The Journal of Genetic Psychology*, 165(3), 293-309.
- Bialystok, E. & Luk, G. (2012). Receptive vocabulary differences in monolingual and bilingual adults. *Bilingualism, Language and Cognition*, 15, 397-401.
- Bialystok, E., Craik, F. & Luk, G. (2008). Cognitive control and lexical access in younger and older bilinguals. *Journal of Experimental Psychology: Learning, memory, and cognition*, 34, 859.
- Bialystok, E., Majumder, S. & Martin, M. M. (2003). Developing phonological awareness: Is there a bilingual advantage? *Applied Psycholinguistics*, 24, 27-44.
- Blom, E., Kuntay, A.C., Messer, M., Verhagen, J. & Leseman, P. (2014). The benefits of being bilingual: Working memory in bilingual Turkish–Dutch children. *Journal of Experimental Child Psychology*, 128, 105-19.
- Carlson, S.M. & Meltzoff, A.N. (2008). Bilingual experience and executive functioning in young children. *Developmental Science*, 11(2), 282-298.
- Colzato, L. S., Bajo, M. T., van den Wildenberg, W., Paolieri, D., Nieuwenhuis, S., La Heij, W. & Hommel, B. (2008). How does bilingualism improve executive control? A comparison of active and reactive inhibition mechanisms. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 34, 302-312.
- D'Angiulli, A., Siegel, L.S. & Serra, E. (2001). The development of reading in English and Italian in bilingual children. *Appl. Psycholinguist*, 22 (4), 479-507.
- De Bleser, R., Dupont, P., Postler, J., Bormans, G., Speelman, D., Mortelmans, L. & Debrock, M. (2003). The organization of the bilingual lexicon: a PET study. *Journal of Neurolinguistics*, 16, 439-456.
- Demie, F. & Strand, S. (2006). English language acquisition and educational attainment at the end of secondary school. *Educational Studies*, 32, 215-231.
- Demirdöven, G. H. & Okur, A. (2017). İki dilli Türkçe öğretmen adaylarının iki dillilik olgusuna yönelik görüşleri (Duisburg/Essen Üniversitesi örneği). *Ana Dili Eğitimi Dergisi*, 5(4), 774-805.
- Engel de Abreu, P.M. (2011). Working memory in multilingual children: Is there a bilingual effect? *Memory*, 19, 529-37.
- Engel de Abreu, P.M.E., Cruz-Santos, A., Tourinho, C. J., Martin, R., & Bialystok, E. (2012). Bilingualism enriches the poor: Enhanced cognitive control in low-income minority children. *Psychological Science*, 23, 1364-71.

- Filippi, R., Leech, R., Thomas, M.S., Green, D.W. & Dick, F. A. (2012). Bilingual advantage in controlling language interference during sentence comprehension. *Bilingualism: Language and Cognition*, (15), 858-872.
- Filippi, R., Morris, J., Richardson, F. M., Bright, P., Thomas, M. S., Karmiloff-Smith, A., & Marian, V. (2015). Bilingual children show an advantage in controlling verbal interference during spoken language comprehension. *Bilingualism: Language and Cognition*, 18(3), 490-501.
- Golestani, N., Alario, F., Meriaux, S., Le Bihan, D., Dehaene, S., & Pallier, C. (2006). Syntax production in bilinguals. *Neuropsychologia*, 44, 1029-1040.
- Hsu, S.-J. L., Ip, Ka I. Arredondo, M. M., Tardif, T., & Kovelman, I. (2019). Simultaneous acquisition of English and Chinese impacts children's reliance on vocabulary, morphological and phonological awareness for reading in English. *International Journal of Bilingual Education and Bilingualism*, 22 (2), 207-223.
- Ip, K. I., Hsu, L. S.-J., Arredondo, M. M., Tardif, T., & Kovelman, I. (2016). Brain bases of morphological processing in Chinese-English bilingual children. *Developmental Science*, 1-17.
- Jalali-Moghadam, N., & Kormi-Nouri, R. (2015). The role of executive functions in bilingual children with reading difficulties. *Scandinavian Journal of Psychology*, 56(3), 297-305.
- Jasińska, K.K., & Petitto, L.A. (2013). How age of bilingual exposure can change the neural systems for language in the developing brain: a functional near-infrared spectroscopy investigation of syntactic processing in monolingual and bilingual children. *Dev. Cogn. Neurosci.*, 6, 87-101.
- Jasińska, K.K., Berens, M.S., Kovelma, I., & Petitto, L.A. (2017). Bilingualism yields language-specific plasticity in left hemisphere's circuitry for learning to read in young children. *Neuropsychologia*, 98 (2017) 34–45.
- Kaushanskaya, M., Blumenfeld, H.K., & Marian, V. (2011). The relationship between vocabulary and short-term memory measures in monolingual and bilingual speakers. *International Journal of Bilingualism*, 15, 408-425.
- Kaushanskaya, M., Gross, M., & Buac, M. (2014). Effects of classroom bilingualism on task-shifting, verbal memory, and word learning in children. *Developmental Science*, 17, 564-83.
- Kemp, C. (2007). Strategic processing in grammar learning: Do multilingual use more strategies? *International Journal of Bilingualism*, 4, 241-261.
- Keshavarz, M. H., & Astaneh, H. (2004). The impact of bilinguality on the learning of English vocabulary as a foreign language (L3). *International Journal of Bilingual Education and Bilingualism*, 7, 295-302.
- Klein, D., Mok, K., Chen, J.-K. & Watkins, K. E. (2013). Age of language learning shapes brain structure: A cortical thickness study of bilingual and monolingual individuals. *Brain & Language*, 131, 20-24.
- Kovelman, I., Salah-Ud-Din M., S. Beren, M. & Petitto, L.-A. (2015). “One glove does not fit all” in bilingual reading acquisition: Using the age of first bilingual language exposure to understand optimal contexts for reading success. *Cogent Education*, (2015), 2.
- Kremin, L. V., Arredondo, M. M., Hsu, L. S.-J., Satterfield, T. & Kovelman, I. (2016). The effects of Spanish heritage language literacy on English reading for Spanish–English bilingual children in the US. *International Journal of Bilingual Education and Bilingualism*, 22 (2), 192-206.

- Kuhl, P. K., Stevens, J., Corrigan, N. M., van den Bosch, J. J.F., Deniz Can, D., & Richards, T. (2016). Neuroimaging of the bilingual brain: Structural brain correlates of listening and speaking in a second language. *Brain & Language*, 162, 1–9.
- Leikin, M., & Tovli, E. (2014). Bilingualism and creativity in early childhood. *Creativity Research Journal*, 26: 411-17.
- Luk, G., & Bialystok, E. (2013). Bilingualism is not a categorical variable: Interaction between language proficiency and usage. *Journal of Cognitive Psychology*, 25, 605-21.
- Macnamara, B. N., & Conway, A. R. (2014). Novel evidence in support of the bilingual advantage: Influences of task demands and experience on cognitive control and working memory. *Psychonomic Bulletin & Review*, 21(2), 520-525.
- Meschyan, G., & Hernandez, A. E. (2005). Impact of language proficiency and orthographic transparency on bilingual word reading: An fMRI investigation. *NeuroImage*, 29, 1135 - 1140.
- Morales, J., Calvo, A. & Bialystok, E. (2013). Working memory development in monolingual and bilingual children. *Journal of Experimental Child Psychology*, 114, 187-202.
- Nguyen, T.K., & Astington, J.W. (2014). Reassessing the bilingual advantage in the theory of mind and its cognitive underpinnings. *Bilingualism: Language and Cognition*, 17, 396-409.
- Oller, D. K., Pearson, B. Z. & Cobo-Lewis, A. B. (2007). Profile effects in early bilingual language and literacy. *Applied Psycholinguistics*, 28, 191-230.
- Paap, K. R. & Sawi, O. (2014). Bilingual advantages in executive functioning: problems in convergent validity, discriminant validity, and the identification of the theoretical constructs. *Front. Psychol.*, 2014 | <https://doi.org/10.3389/fpsyg.2014.00962>.
- Patrick Proctor, C., August, D., Snow, C., & Barr, C. D. (2010). The interdependence continuum: a perspective on the nature of Spanish–English bilingual reading comprehension. *Bilingual Research Journal*, 33 (1), 5-20.
- Petitto, L. A. (2001). Bilingual signed and spoken language acquisition from birth: implications for the mechanisms underlying early bilingual language acquisition. *J. Child Lang.*, 28, 453-496.
- Pons F, Bosch, L. & Lewkowicz, D.J. (2015). Bilingualism modulates infants' selective attention to the mouth of a talking face. *Psychological Science*, 26, 490-98.
- Ransdell, S., Barbier, M., & Niit, T. (2006). Metacognitions about language skill and working memory among monolingual and bilingual college students: When does multilingualism matter? *International Journal of Bilingual Education and Bilingualism*, 9, 728-741.
- Ratiu, I., & Azuma, T. (2015). Working memory capacity: Is there a bilingual advantage? *Journal of Cognitive Psychology*, 27: 1-11.
- Ru-Whui Lee, R., Hsu, C.-H., Lin, S.-K., Wu, D. H., & Tzeng, O. J.-L. (2017). Learning transforms functional organization for Mandarin lexical tone discrimination in the brain: Evidence from a MEG experiment on second language learning. *Journal of Neurolinguistics* 42, 124-139.
- Sasisekaran, J., & Weisberg, S. (2013). The effects of cognitive: Linguistic variables and language experience on behavioral and kinematic performances in nonword learning. *Journal of Psycholinguistic Research*, 42, 175-90.
- Şen, Ü. (2016). The problem of teacher education in teaching Turkish to bilingual Turkish children and an evaluation of the current situation in universities. *Ana Dili Eğitimi Dergisi*, 4(4), 518-529.

- Sheng, L. (2014). Lexical-semantic skills in bilingual children who are becoming English-dominant: A longitudinal study. *Bilingualism: Language and Cognition*, 17 (3), 556-571.
- Smithson, L., & Nicoladis E. (2013). Verbal memory resources predict iconic gesture use among monolinguals and bilinguals. *Bilingualism: Language and Cognition*, 16, 934-44.
- Soliman, A.M. (2014). Bilingual advantages of working memory revisited: A latent variable examination. *Learning and Individual Differences*, 32,168-77.
- Sung, K.-Y. (2013). L2 motivation in foreign language learning. *Journal of Language and Linguistic Studies*, 9(2), 19-30.
- Timmer, K., Ganushchak, L.Y., Ceusters, I., & Schiller, N.O. (2014). Second language phonology influences first language word naming. *Brain and Language*, 133, 14-25.
- Wu, Y.J., & Thierry, G. (2010). Chinese–English bilinguals reading English hear Chinese. *The Journal of Neuroscience*, 30, 7646-51.
- Yang, H., Yang, S., Ceci, S., & Wang, Q. (2005). Effects of bilinguals' controlled attention on working memory and recognition. In J. Cohen, K. McAlister, K. Rolstad, & J. MacSwan (Eds.). *Proceedings of the 4th international symposium on bilingualism*, Somerville, MA: Cascadia Press.
- Zinszer, B. D., Chen, P., Wu, H., Shu, H., & Li, P. (2015). Second language experience modulates neural specialization for first language lexical tones. *Journal of Neurolinguistics*, 33, 50-66.

Appendix

Table 2. The focal point and scope of studies on bilingualism according to independent and dependent variables

Independent variable/focal point	Dependent variable/scope	The scope of studies
bilinguals and monolinguals (S ^b 1)	language skills (reading/speaking/listening)	*on their English language and reading skills including vocabulary, phonological and morphological awareness, and word reading.
bilingual and monolingual children (S5)		*phonological and orthographic representations during English reading.
bilingual and monolingual (S6)		*on their English language and reading skills including vocabulary, phonological and morphological awareness, and word reading.
bilingual (S7)		
bilingual (S8)		
bilinguals (S10)		* children's neural circuitry for learning to read
monolinguals (S12)		*relationships between white matter structure and naturalistic immersive experience in listening to and speaking English
bilinguals and monolinguals (S15)		*children's age of first bilingual exposure can interact with different approaches to literacy (understand optimal contexts for reading success)
bilingualism (S17)		*the comprehension of active and passive English sentences
second language (L2) (S24)		
multilingual (S27)		
bilinguals and monolingual (S35)		
monolingual and bilingual (S36)		
bilingual and monolingual (S37)		
bilingual (S40)		

^bS: Study

<p>bilinguals (S44) bilinguals (S45) monolinguals (S47) (L1) and second (L2) (S52) monolingual and bilingual (S53) second language (S56) monolingual and bilingual (S58) bilingual (S33)</p>	<ul style="list-style-type: none"> * to keep languages apart increases their attention to the mouth as a source of <i>redundant and reliable speech cues</i> * the joint effect of <i>reading difficulties (RD)</i> and bilingualism on executive functions *the relationship between preschool cognitive and <i>linguistic abilities and the later development of reading abilities.</i> *phonology is active during L1 reading and the contributions of <i>orthography and phonology in reading aloud</i> * engaged when <i>producing words</i> in the less proficient language. * <i>the comprehension of syntactically simple</i> with more complex sentences * English <i>receptive vocabulary scores</i> * on their native-language <i>vocabulary performance, and short-term memory skills</i> and vocabulary performance * reading skills across the languages (interdependence, falling along a continuum mediated by the commonalities between Spanish and English.) * unconscious access to the sound form of Chinese words (read or listen to English words) * <i>multiple measures of executive function</i> by administering a battery of tasks * the functional correlates of syntactical processing (<i>syntax production</i>) * <i>metacognitive awareness</i>, as measured by self-ratings of reading, writing, speaking and listening skills *the effect that <i>particular patterns of communicative interactions</i> * <i>the development of phonological awareness</i> * the factors that realistic representation (<i>language proficiency and usage</i>)
<p>bilingual (S2) bilingual (S7) bilingual and monolingual (S29) monolinguals and bilinguals (S32) bilingual and monolingual (S34) bilingual (S41) bilingual and monolingual (S43) bilingual (S54)</p>	<p>neural and brain domain</p> <ul style="list-style-type: none"> * <i>neural adaptation</i> may vary as a function of structural and orthographic characteristics of bilinguals' two languages * <i>children's neural circuitry</i> for learning to read * <i>recruiting brain areas</i> during sentence processing *on <i>brain structure cortical thickness</i> *<i>brain areas during sentence processing</i> * functional magnetic resonance imaging (fMRI) and event-related <i>brain potential</i> * <i>theory of mind (ToM) development</i> * how language proficiency and orthographic transparency (letter sound mapping consistency) modulate <i>neural activity (single word reading)</i>
<p>bilingual (S9) monolingual and bilingual (S49) bilingual and monolingual (S57) second language (S4) second language learners (S13) second language learners (S14) bilinguals, monolinguals (S16) <i>bilingual (S18)</i> bilingualism (S19) bilingualism (S23)</p>	<p>teaching and learning</p> <ul style="list-style-type: none"> * in terms of <i>the programs' satisfying</i> the demand and the relevance of their content * <i>different test types</i> (provided a clear demonstration of "profile effects,") * on a controlled productive <i>ability vocabulary test</i> * a short term <i>digital learning program</i>, and were found to have improved sensitivity in discrimination for lexical tones by developing a left-lateralized dominance * identifying differences in brain changes that reflect <i>successes of learning</i> *pattern of activation in <i>the perception of tonal contrasts.</i> * having certain executive <i>function advantages</i> * how age and initial language proficiency are related to <i>lexical growth</i>

<p>bilingual and monolingual (S28) multilingual (S51) bilingualism (S59)</p>		<p>*on the development of <i>general creativity and mathematical creativity</i>. * on <i>creativity in nonmathematical and mathematical problem solving</i> * <i>in executive functioning (EF)</i>: antisaccade, attentional network test, Simon, and color-shape switching *the use of <i>grammar learning strategies</i> * <i>proficiency in the foreign language</i> such that cognate items are a measure of higher mastery than non-cognate ones</p>
<p>monolingual and bilingual (S11) bilingual, monolingual (S20) the bilingual (S22) bilinguals and monolinguals (S25) monolinguals and bilinguals (S30) monolingual and bilingual (S31) bilingualism (S39) monolinguals and bilinguals (S46) bilinguals (S55) bilingualism (S26)</p>	<p>working memory (WM)</p>	<p>*the possible differences in the working memory * on <i>visuospatial and verbal working memory tests</i> * considering <i>socioeconomic status and conflict inhibition and/or working memory underpin the advantage</i> * <i>the organizational structure of working memory (WM) and latent mean differences</i> in WM components *whether <i>the architectures of working memory</i> differ whether individual differences in working memory predict gesture use. * on tasks requiring <i>different levels of working memory</i> * <i>working memory performance</i> * on working memory tasks, <i>on lexical retrieval tasks, and on executive control tasks</i> * <i>working memory (WM) capacity</i> by controlling their attention well on an attention-impaired Stroop-span task while undergoing constant interference *the interplay between (a) the magnitude of bilingual management demands and (b) the amount of experience managing those demands. (<i>Influences of task demands and experience on cognitive control and working memory</i>)</p>
<p>bilingual (21) bilingualism (S38) bilingual and monolingual (S42) second language (L2) (S50) bilingualism (S26) monolinguals and bilinguals (S48)</p>	<p>cognitive skills</p>	<p>* on an <i>array of cognitive skills</i>. * <i>the cognitive advantage</i> (poverty and, if it does, which specific processes are most affected) *<i>cognitive flexibility</i> (draw a flower and a house that do not exist) *cognitive performance in early childhood (the ideas of proponents and opponents) *the interplay between (a) the magnitude of bilingual management demands and (b) the amount of experience managing those demands. (<i>influences of task demands and experience on cognitive control and working memory</i>) *<i>several possible versions of the inhibition hypothesis</i> (stop the signal performance, inhibition of return, and the attentional blink)</p>

Table 3. The method, data analysis model, data collection tools and the participants of the sample studies.

Researcher, year	Study model	Data collection tools	Data analysis methods	The number of participants
Hsu Shih-Ju et al. (2019)	descriptive	questionnaire	means and standard deviations, ad-hoc t-tests	77 English monolinguals and 57 Chinese-English bilinguals
Jasińska et al. (2017)	experimental	functional Near Infrared Spectroscopy neuroimaging	Phonological analyses and hypoactivation in left frontal regions associated with assembled phonology	26 Spanish-English and French-English bilinguals and monolingual
Demirdöven et al. (2017)	descriptive	interview (document)	content analysis	12 were acquired German and 1 student Turkish
Ru-Whui Lee, et al. (2017)	experimental	the pre- and post-test	principle component analysis	18 foreign students

Kremin et al. (2016)	descriptive	the questionnaire, Elision subtest from the Comprehensive Test Verbal Knowledge subtest from KBIT-2, Receptive One-Word Picture Vocabulary Test	independent samples t-tests, partial correlations, separate stepwise regression analyses	70 children 33 English monolinguals and 37 Spanish-English bilinguals
Ip et al. (2016)	experimental	single-word reading tests in English (Word ID subtest, Woodcock Reading Mastery Tests-Revised [WRMT-R])	conjunction analysis	22 bilingual Chinese-English and monolingual English children
Patricia et al. (2016)	descriptive	questionnaire	Mann-Whitney and two-tailed t-test	31 adults, 16 Spanish-English bilinguals and 15 English monolinguals
Şen, (2016)	survey	document survey	content analysis	Bilingual Turkish children
Kovelman et al. 2015	experimental (phonics approach)	two 30-min videotaped testing sessions in each of their languages	MANOVA	56 Spanish-English bilingual children
Asadollahpour et al. (2015)	descriptive	questionnaire Forward Digit Span Test, Backward Digit Span Test, Non-Word Repetition Test, Maze Memory Test	factor analysis ANOVA	70 monolinguals and 70 bilinguals
Filippi et al. (2015)	descriptive	The British Picture Vocabulary Scale; BPVS-II, Digit Span forward and backward and Raven's Coloured Progressive Matrices	Mean raw scores and standard deviations the ANOVA, t-tests, regression analyses	20 monolingual English and 20 bilingual children
Zinszer et al. (2015)	experimental and imaging methods	scale and questionnaire	mean rating	24 native Mandarin Chinese speakers and 24 speakers English as a second language
Pons et al. (2015)	descriptive	questionnaire	analysis of variance (ANOVA)	60 monolingual and bilingual infants
Ratiu et al. (2015)	experimental	simple- complex WM span tasks, digit-span task, standard operation span tasks, a non-verbal symmetry span task	multivariate analysis	52 bilingual and 53 monolingual speakers
Jalali Moghadam, et al. (2015)	descriptive	three EF tasks	analyses of variance (ANOVAs)	190 children (41 bilinguals, 45 monolinguals, 45 bilinguals and 59 monolinguals without RD)
Sheng (2014)	longitudinal study	picture identification task and picture naming task	mean (sd), percent	27 Mandarin-English bilingual children
Leikin et al. (2014)	mixed-method	the figurative form a from the torrance tests, the pictorial multiple solution tasks	means and standard deviations	15 Russian/Hebrew balanced bilinguals and 15 native Hebrew-speaking monolinguals.
Blom et al. (2014)	mixed-method	interviews (document), the toets tweetaligheid, automated working memory assessment	mean scores (and standard deviations), MANCOVAs	68 bilingual Turkish-Dutch children
Kaushanskaya et al. (2014)	mixed-method	pre-switch, post-switch, and mixed conditions on the DCCS task	means and standard deviations, ANOVAs	38 children enrolled in Kindergarten

Nguyen et al. (2014)	descriptive	verbal tests, questionnaire	ability parental	-	24 English monolinguals and 24 French monolinguals
Aguilar-Mediavilla et al. (2014)	descriptive	letter identification (decoding), and the semantic task (comprehension)		regression analyses	17 bilingual Spanish-Catalan children
Soliman (2014)	mixed-method	WM tests		the multi-group confirmatory factor analysis	309 monolinguals and 306 bilinguals
Macnamara et al. (2014)	demographic information	cognitive constructs		means	21 ASL–English simultaneous interpreting students
Timmer et al. (2014)	case study	L2 electroencephalography (EEG)	words,	phonological but not orthographic overlap facilitated RTs	25 Dutch–English bilinguals
Paap et al. (2014)	descriptive	point scale		regression analyses, t-tests	58 bilinguals and 62 monolinguals
Jasińska et al. (2013)	an event-related method	previously validated and published the questionnaire		statistical parametric mapping and multilevel modeling of changes in HbO concentrations (behavioral analysis)	20 bilingual and 20 English, monolingual children 10 bilingual adults
Smithson et al. (2013)	experimental	-		Automated Working Memory Assessment (Alloway, 2007)	monolinguals and bilinguals
Sasisekaran et al. (2013)	experimental	standardized tests		a logistic mixed model analysis, linear regression analysis	20 adults who spoke English monolinguals and 7 participants bilinguals
Morales et al. (2013)	descriptive	the Peabody Picture Vocabulary Test (PPVT-III, Kaufman Brief Intelligence Test		two-way analyses of variance (ANOVA), mean scores and standard deviation	56 children bilingual 125 children monolingual
Sung, 2013	descriptive	Questionnaire		SPSS statistical MANOVA	130 bilingual
Klein et al. (2013)	experimental phonics approach	MRI data sets		the general linear model, chi-squared test	22 monolinguals and 66 bilinguals
Luk et al. (2013)	descriptive	questionnaire		factor analysis	110 bilingual young adults
Abutalebi et al. (2013)	experimental	Magnetic Resonance (er-fMRI)		Matlab-based NIRS-SPM	14 multilingual and 14 monolinguals
Filippi et al. (2012)	descriptive	the questionnaire, standardized test, the bilingual verbal ability tests		initial analysis of mean accuracy and individual median reaction	60 adults Italian-English bilinguals
Bialystok et al. (2012)	descriptive	peabody picture vocabulary test		one-way ANOVA	797 monolinguals and 808 bilinguals
Engel de Abreu et al. (2012)	descriptive	visuospatial tests, abstract reasoning, selective attention, and interference suppression		principal component analysis	40 Portuguese-Luxembourgish bilingual children and 40 monolingual children
Engel de Abreu (2011)	descriptive	the questionnaire, expressive one-word picture vocabulary test		Skew and Kurtosis, descriptive statistics, mixed analysis of variance (ANOVAs)	44 bilingual monolingual children
Kaushanskaya et al. (2011)	experimental	the peabody picture vocabulary test-iii		t-tests, Pearson correlation analyses	24 English–Spanish bilinguals and 30 English-speaking monolinguals

Adi-Japha et al. (2010)	experimental	peabody picture vocabulary test-iii, the visual reception test, the drawing complexity scale	analysis of variance	15 monolingual and 15 bilingual children
Farhadian et al. (2010)	stratified simple random sampling method	theory of mind tasks, red/blue box crayon box /sticker or change of content, McCarthy scales	mean and standard deviation	163 bilingual and monolingual
Proctor et al. (2010)	structural equation modeling	reading data	one-way ANOVAs with Tukey's post-hoc testing	91 Spanish-English bilingual students
Wu et al. (2010)	experimental	the semantic-relatedness tasks	ANOVA	30 native English speakers, 30 native Chinese speakers, and 30 Chinese-English bilinguals
Bialystok et al. (2008)	experimental	tasks assessing working memory, lexical retrieval	ANOVA	24 young monolinguals, 24 young bilinguals, 24 older monolinguals, and 24 older bilinguals
Carlson et al. (2008)	experimental	the questionnaire, verbal ability control measure	ANOVA	33 <i>Bilingual group</i> , 17 English monolingual children
Colzato et al. (2008)	experimental	Questionnaire	analysis of variance (ANOVA)	32 healthy young adults two language groups: monolingual and bilingual
Oller et al. (2007)	experimental	Questionnaire	the reanalyzed (the vertical)	952 children (704 bilinguals, 248 monolinguals)
Kemp, (2007)	experimental	Likert scale	Correlation (Spearman, Mann-Whitney U-test)	144 participants who knew between 2 and 12 languages
Golestani et al. (2006)	experimental	structure subtest (TOEFL)	generating a linear model, three-way ANOVA	12 English bilingual native French speakers
Demie et al. (2006)	experimental case study local authority	scales	statistical regression analysis	2279 pupils in the 10 secondary schools in the Local Authority
Ransdell et al. (2006)	descriptive	reading comprehension subtest	descriptive statistics	58 participants were primarily monolingual and 48 participants were bilingual students
Meschyan et al. (2005)	descriptive	questionnaire	statistical parametric mapping	20 Spanish-English bilingual college students
Yang et al. (2005)	survey	three WM-span tests and set size (3 vs. 6)	correlation	17 balanced English-Korean bilinguals and 10 English monolinguals
Berguno et al. (2004)	experimental	scales and the deceptive objects	separate chi-square analyses	140 single language users and 57 dual language users
Keshavarz et al. (2004)	descriptive	controlled productive ability test	multiple t-test, descriptive statistics	30 Turkish-Persian bilinguals, 30 Armenian-Persian bilinguals, and 30 Persian monolinguals
Bialystok et al. (2003)	experimental	the forward digit span task from the Wechsler intelligence scale	two-way analysis of variance (ANOVA)	72 children in the study, 36 English– French bilinguals
De Bleser et al. (2003)	positron emission tomography experiment	internally naming pictures of objects and fMRI	-	11 Belgian subjects who were native speakers of Flemish/Dutch and had good proficiency in French.

Abu-Rabia et al. (2002)	descriptive	language and memory tasks	statistical analysis	56 bilingual Arab-Canadian children
Petitto (2001)	experimental	videotaped CDI data	MacArthur transcription and coding	3 children Signes Quebecoise and French, and 3 children acquiring French and English
D'Angiulli (2001)	descriptive	phonological, spelling, syntactic, and working memory tasks	reading, analysis of variance	81 Canadian children who spoke both English and Italian

İki dillilik odaklı çalışmalar üzerine bir inceleme

Öz

Bu çalışmanın amacı iki dillilikle ilgili araştırmaların odak noktası, kapsamı, araştırma modeli, veri toplama aracı, veri analiz yöntemi ve örneklem büyüklüğünün nasıl olduğunu belirlemektir. Genel tarama modeline göre toplanan dokümanlar, betimsel analiz tekniğine göre çözümlenmiştir. Araştırma sorularına göre veriler, iki aşamada çözümlenmiştir. Birinci aşamada odak noktası ve kapsamı belirlemek için örnek çalışmaların amaçları, betimsel analize göre incelenmiştir. Araştırmaların odak noktası ve kapsamını belirlemek için araştırmaların amaç bölümünde verilen bağımlı ve bağımsız değişkenler kullanılmıştır. İkinci aşamada ise örnek çalışmaların araştırma modeli, veri toplama araçları, veri çözümlenme yöntemleri ve katılımcılarla ilgili özellikler incelenmiştir. Bu kapsamda örnek araştırmalar dört kategoride incelenmiştir. Bu kategorilerin birbiri ile olan ilişkilerine bakılmıştır. Çözümleme sonucundaki bulgular iki bölümde ele alınmıştır. Birinci bölümde araştırmaların bağımsız değişkeni olan iki dillilik, iki dillilik/tek dillilik ve tek dillilik ile ilgili odak noktaları saptanmıştır. Bu üç bağımsız değişkenden (odak noktası) hareketle bağımlı değişkenler olan dil becerileri, beyin, öğrenme-öğretme, işleyen bellek, bilişsel beceriler belirlenmiştir. İkinci bölümde ise örnek araştırmalardaki araştırma modelleri, veri toplama araçları, veri analiz yöntemleri ve katılımcı sayısı incelenmiştir. Bu bölümdeki bulgulara göre araştırmalarda betimleyici ve deneysel modellerin sıklıkla kullanıldığı, veri toplama aracı olarak ise çoğunlukla testlere başvurulduğu ve verilerin çoğunlukla parametrik testlerle analiz edildiği belirlenmiştir. Bunlara ek olarak araştırmaların genellikle 21-40 katılımcının olduğu örneklem grubuyla yapıldığı belirlenmiştir. Ulaşılan bulguların sonuçları, tartışma bölümünde iki dilli eğitimin ihtiyaçları ve araştırma yöntemlerine bağlı olarak değerlendirilmiştir.

Anahtar sözcükler: iki dillilik; amaç; kapsam; eğitim.

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