Journal of Theoretical Educational Science, 16(3), 674-699, July 2023
Kuramsal Eğitimbilim Dergisi, 16(3), 674-699, Temmuz 2023
[Online]: http://dergipark.org.tr/akukeg
DOI number: http://doi.org/10.30831/akukeg.1199657

Development of Multilingual Preservice Classroom Teachers' Turkish Language Skills: Mind and Intelligence Games

Çok Dilli Sınıf Öğretmeni Adaylarının Türkçe Dil Becerilerinin Geliştirilmesi: Akıl ve Zekâ Oyunları

Fatma Gül UZUNER* **Meral GÖZÜKÜÇÜK****

Received: 4 November 2022 **Research Article** **Accepted:** 11 July 2023

ABSTRACT: The aim of this study was to examine the effect of mind and intelligence games on the development of multilingual preservice classroom teachers' Turkish language skills. In the study, an embedded mixed methods design, which is included in the scope of mixed research designs, was adopted. A single group pretest-posttest design within the scope of the pre-experimental designs was taken as the basis in the quantitative dimension of the research; while in the qualitative dimension, a design related to the effects of the program in the context of a special case study was taken as the basis. The study group of the research consisted of multilingual preservice classroom teachers (n=10). Videos, semi-structured interviews, a questionnaire, diaries, metaphor form, and the Foreign Language Learning Practices Scale (FLLPS) were used as data collection tools. According to the results obtained from the data collection tools, at the end of this game process, the participants' Turkish language skills, cognitive skills (memory, attention, perception, etc.), and affective skills (socialising, feeling happy, having fun, etc.) improved. It was also observed that this development process took place on the basis of cultural interaction. In light of the findings, it was concluded that the mind and intelligence games had positive effects on the development of the multilingual preservice teachers' language skills.

Keywords: Turkish language teaching, language skills, multilingualism, mind and intelligence games.

ÖZ: Bu çalışmada, çok dilli sınıf öğretmeni adaylarının Türkçe dil becerilerinin geliştirilmesinde akıl ve zekâ oyunlarının etkisinin incelenmesi amaçlanmıştır. Araştırmada karma araştırma desenleri kapsamında yer alan iç içe karma yöntem deseni benimsenmiştir. Bu bağlamda, araştırmanın nicel boyutunda deney öncesi desenler kapsamında yer alan tek grup öntest-sontest deseni; nitel boyutunda ise özel durum kapsamında programın etkisi deseni esas alınmıştır. Araştırmanın çalışma grubunu yabancı uyruklu çok dilli (n=10) sınıf öğretmeni adayları oluşturmaktadır. Veri toplama aracı olarak video, yarı yapılandırılmış mülakat, anket, günlük, metafor formu ve Yabancı Dil Öğrenme Uygulamaları Ölçeği (YDÖUÖ) kullanılmıştır. Bu oyun sürecinin sonunda veri toplama araçlarından elde edilen sonuçlar doğrultusunda katılımcıların Türkçe dil becerilerinin (dinleme/izleme, konuşma, okuma, yazma), bilişsel becerilerinin (hafıza, dikkat, algı, vb.) ve duyuşsal becerilerinin (sosyalleşme, mutlu hissetme, eğlenme, vb.) geliştiği sonucuna ulaşılmıştır. Bu gelişim sürecinin kültürel bir etkileşim zemininde gerçekleştiği de görülmüştür. Bu gelişim sürecinin (dilsel, bilişsel, duyuşsal ve kültürel) ise deneyimsel öğrenme bağlamında gerçekleştiği sonucuna da ulaşılmıştır. Elde edilen bulgular ışığında, akıl ve zekâ oyunlarının çok dilli öğretmen adaylarının dil becerilerinin geliştirilmesi noktasında olumlu etkileri olduğu sonucuna ulaşılmıştır.

Anahtar Kelimeler: Türkçe dil öğretimi, dil becerileri, çok dillilik, akıl ve zekâ oyunları.

* *Corresponding Author*: Asst. Prof. Dr., Kafkas University, Kars, Türkiye, fgu61@hotmail.com, https://orcid.org/0000-0001-8483-6021
** Asst. Prof. Dr., Manisa Celal Bayar University, Manisa, Türkiye, meralyaprak@gmail.com, https://orcid.org/0000-0002-1620-5073

Citation Information
Uzuner, F. G., & Gözüküçük, M. (2023). Development of multilingual preservice classroom teachers' Turkish language skills: Mind and intelligence games. *Kuramsal Eğitimbilim Dergisi [Journal of Theoretical Educational Science]*, *16*(3), 674-699.

ISSN: 1308-1659

Play is an important tool in the development of a child's linguistic, social, cognitive, and self-regulation skills (National Association for the Education of Young Children [NAEYC], 2021). Play enables students to develop their language skills and helps in building the vocabulary and grammar that support these skills (Kara, 2010). Intelligence games can be utilized in the process of developing language skills through play. Intelligence games can be defined as activities offered for individuals realize their potential, to make quick and correct decisions, produce their own specific solutions to problems, and renew themselves (Devecioğlu & Karadağ, 2014). In this sense, mind and intelligence games can contribute to the development of individuals' language skills.

It is known that intelligence games develop many skills in students. From this point of view, the significance of this research lies in students playing intelligence games in the classroom environment together with their friends and learning while having fun. Within this scope, this study can enable students to like school more and to be more successful academically. It can be stated that the research is important in terms of contributing linguistically, cognitively, affectively, socially, and culturally to multilingual preservice teachers in the Turkish teaching process. The number of studies aimed at teaching Turkish through games to multilinguals is limited.

Literature Review

Schools are strong literacy providers and help to determine what ranks as the appropriate language to be conveyed through literacy practices (Baker, 2011). Since all language processes, namely reading, writing, listening, and speaking processes, are interrelated and support each other, they should be developed holistically (Garcia, 2009). Language skills are developed holistically both while learning the first language and in the process of learning a second or foreign language. An individual's native language can also be expressed as their first language. Knowing only one's mother tongue throughout one's life may not be enough to sustain one's life. Individuals may have to learn languages different from their mother tongue due to various reasons such as business life and education. People may wish to learn different languages in order to travel to other countries. Expressing language as a first language, second language, or foreign language varies according to usage situations. Furthermore, there are cases of bilingualism and multilingualism. According to Butler (2014), multilingualism defines the use of more than two languages.

The coexistence of different languages in a community or an individual requires three things: the existence of different languages, the opportunity for different languages to communicate with each other, and the ability of people to learn and use more than one language (Wei, 2014). Second language acquisition is a process in which most of the world's population actively takes part for many reasons. A few situations that lead to the need or desire to learn another language include immigration to a new country, work demands, the desire to have the skills to converse with people from another culture or ethnicity or fulfilling academic program requirements. Such situations will continue to encourage individuals from all walks of life to engage in language learning (Hummel, 2014). Many studies on bilingualism involve immigrants, and if the participants in these studies feel that they do not receive any feedback about the results of the study, they may become discouraged from taking part in the study (Lanza, 2010). The self-esteem and identity of language-minority children may be affected by the

literacies that are legitimized and those that are ignored or scorned by the school (Baker, 2011).

Comparisons between the best performances of individuals in the first language and in the second language have shown that the performance in one language, even if that language is the dominant language, is not an accurate reflection of the child's semantic development level, and in the evaluation of bilingual individuals, it is most accurate if the individuals combine their best performance in both languages (Marian, 2013). In bilingual schools, individuals can develop their studies in areas like art, science, social science, mathematics, etc., not only in their mother tongue but also in the international language, but these individuals understand the international language as the one used in educational contexts that give instruction in more than one language, and this differs from the languages officially accepted in the country; that is, this language has a cognitive, social and cultural value (Liberali, 2013). Children who speak two languages are exposed to both cultures. These cultures, like languages, can be relatively similar or different from each other (Paradis et al., 2011). Children who learn the languages of two very different cultures have a double learning task: they must learn not only both languages but also how to use each language in culturally appropriate ways (Paradis et al., 2011). In multilinguals, this involves learning more than two languages and interacting with more than two cultures. In addition, there are a number of variables that show the extent to which either the first language or the second language will affect the acquisition of the third language (Gass et al., 2013), such as proficiency in the known languages, user age, and linguistic proximity of these languages.

The Turkish language can be taught in the form of:

• Teaching Turkish as the native language, that is, as the first language,

• Teaching Turkish to those living in Turkey whose mother tongue is not Turkish, that is, as a second language,

• Teaching Turkish to foreigners, or

• Teaching Turkish to Turkic peoples.

Since the nationalities of the participants in this study are Turkmen and Uzbek, the participants consist of students of Turkic origin. Normally, this study should be considered as teaching Turkish to Turkic people. However, since the participants stated that they knew more than two languages, it is considered as teaching Turkish to multilinguals.

The greater the number of sensory organs involved in the learning process, the more activities and games that activate all stimulants should be included in teaching Turkish to foreigners so that learning will be more accurate and permanent (Gürsoy & Arslan, 2011). It has been determined that the use of games in foreign language teaching not only facilitates and accelerates language learning but also enables students to have fun, participate lovingly and willingly in classes, be active, and retain what they have learnt (Kara, 2010).

One of the methods and techniques used in the development of language skills is educational games (Alver, 2019). In fact, playing contributes to the development of language skills (Güneş, 2015). Play is exciting; it is an experience (Winnicott, 2017). According to Huizinga (2006), play is a voluntary activity that requires order, has a

purpose, and differs from routine life. Play is liberating, and exhilarating is defined more as a verb than a noun. In this sense, the act of playing is something that an individual experiences and creates (Scarlett et al., 2005). Furthermore, play is enjoyable and, at the same time, a learning experience (Cohen, 1993). Thus, many types of this experience can be identified (Sheridan, 2011). According to Roberts and Sutton-Smith (1962), games can be classified into three groups as physical games, strategy games, and games of chance. Among these, strategy games consist of games that involve only strategy (chess, draughts, Go, etc.) and games that require a combination of strategy and luck (bridge, cribbage, etc.). Accordingly, mind and intelligence games can be considered within the scope of strategy games.

Intelligence involves the use of many skills, such as verbal comprehension and fluency, numerical ability, memory, and perceptual speed (Turkish Intelligence Foundation, 2021). The mind, on the other hand, is "the part of a person that makes it possible for him or her to think, feel emotions, and understand things" (Cambridge Dictionary, 2021). According to Descartes' philosophy, the mind is the element that enables us to be aware of other things (Smith & Jones, 1997). Thus, intelligence games enable students to get to know themselves, form a systematic mindset, generate creative solutions, make quick and accurate decisions, develop their perception and evaluation skills, improve their ability to work together or individually and compete, and realize their own hidden strengths (Ministry of National Education [MNE], 2013). In fact, playing is one of the oldest learning approaches (Coleman, 1976), and educational games fall within the scope of active learning (Güneş, 2015). While students are actively learning, they are lively, cheerful, willing, and constructors of knowledge (O'Neill, 2016), and playing games requires using language and intellect (Güneş, 2015). Since students undergo an active and passive experience process (Dewey, 2004), playing games is related to learning by doing and experiencing. Silberman (2016) states that skills can be developed through learning by experiencing, Avedon and Sutton-Smith (1971) also state that students learn while playing games. Games can be used as a strategy in language education and to develop students' language skills in an entertaining way without age restrictions (Birova, 2013). Based on this, mind and intelligence games can be utilized to improve the Turkish language skills of multilingual students. There are many types of mind and intelligence games, and the Mangala, Look Look, Pentago, Equlibrio and Qbitz games are some examples of these.

First of all, this study, which was conducted to improve the language skills of multilingual individuals, will contribute to the international language, culture, and games literature. As a matter of fact, in the globalising world, language problems experienced by multilingual individuals are a universal problem, cultural interaction is inevitable, and games are a universal way of learning and teaching. On the other hand, the number of experimental and mixed studies on teaching Turkish to foreigners is low (Biçer, 2017), and there are very few studies (Aşuluk, 2020; Güneş, 2021; Şen, 2020) in which mind and intelligence games are used for this purpose, the research may also contribute to the literature in this sense. It was stated that the studies on mind and intelligence games were mostly studied with primary and secondary school students (Özdevecioğlu & Hark Söylemez, 2021). Therefore, the present research is valuable in both these aspects. The aim of this research is to examine the effect of mind and intelligence games on the development of multilingual preservice classroom teachers'

Turkish language skills. Within the scope of this aim, an answer is sought to the question, "What is the effect of mind and intelligence games on the development of multilingual classroom teacher candidates' language skills?". Turkish language skills of the participants were evaluated in the context of the pretest and posttest, their views on teaching Turkish were obtained through mind and intelligence games. The diaries they kept during the implementation process were evaluated, and the questionnaire and metaphor forms were also used.

Method

This study utilized a nested mixed method design (Creswell & Plano-Clark, 2011), which is within the scope of the mixed research designs since a qualitative process was included in an experimental research process. Within the scope of quantitative designs, a single group pretest-posttest design (Creswell, 2014), which is one of the pre-experimental designs, was used. A case study design (Datta, 1990) related to the effects of the program was taken as the basis to provide stronger explanations for the effect of the experimental process. The pre-experimental part of the research was supported by the case study process. In other words, the qualitative process was used to support and deepen the quantitative process. For this reason, the effect of mind and intelligence games on language skills has been tried to be seen in an inclusive way.

Criterion sampling (Patton, 2002) and convenience sampling (McMillan & Schumacher, 2014) techniques were used as the basis for the creation of the study group of this research. Preservice classroom teachers who were foreign nationals and multilingual were contacted. In the context of convenience sampling, volunteers from among the contacted preservice teachers were included in the research, and the study group of the research was formed. Information about the study group is given in Table 1.

Table 1
Information Related to the Study Group

Participants	Gender	Age	Nationality	Mother tongue/Language of instruction	Other languages known	Level of languages known	Time spent learning Turkish (years)
P1	Female	20	Uzbek	Turkmen Turkmen	Uzbek Turkish Kazakh Russian English	Intermediate Intermediate Advanced Elementary Elementary	2 years
P2	Female	19	Uzbek	Turkmen Turkish	Turkish Uzbek Russian English	Intermediate Advanced Intermediate Intermediate	1 year
P3	Female	23	Uzbek	Turkmen Turkmen	Uzbek Turkish Russian Kazakh	Advanced Intermediate Advanced Intermediate	3 years
P4	Female	19	Turkmen	Turkmen Turkmen	Turkish Russian	Intermediate Intermediate	2 years

P5	Female	21	Turkmen	Turkmen	Russian	Intermediate	1 year
				Turkmen	Turkish	Elementary	
P6	Male	27	Uzbek	Uzbek	Turkish	Intermediate	5 years
				Turkmen	Turkmen	Intermediate	
					Russian	Elementary	
					Kazakh	Elementary	
P7	Male	25	Turkmen	Turkmen	Turkish	Intermediate	4 years
				Turkmen	Uzbek	Intermediate	
					Russian	Elementary	
					English	Elementary	
P8	Male	24	Turkmen	Turkmen	Turkish	Intermediate	4 years
				Turkmen	Russian	Elementary	
					German	Elementary	
P9	Female	26	Turkmen	Turkmen	Turkish	Intermediate	4 years
				Russian	Russian	Intermediate	
P10	Female	19	Turkmen	Turkmen	Russian	Advanced	1 year
				Turkmen	Turkish	Advanced	
					English	Intermediate	
					Uzbek	Intermediate	

Table 1 shows the participants' gender, age, and mother tongue, the other languages that they know, the level of these languages, and the duration of learning Turkish. All of the participants live in Turkey and are in their first year of studying at the university. They had previously lived in Turkmenistan. Languages spoken by the participants other than their mother tongue were Uzbek, Turkish, Kazakh, Russian, English, Turkmen, and German. The participants stated that they learned Turkish through university, the social environment, and social media.

Data Collection

Video: One of the qualitative data collection approaches used within the scope of audio-visual materials is videos (Creswell, 2013). In this research, the video recordings were made using cameras in every implementation, and the video recordings were stored appropriately.

Diary: The diary is a type of document (Robson, 2011). A participant's keeping a diary as part of the research is also one of the qualitative data collection approaches within the scope of documents (Creswell, 2013). In fact, although individual documents are written with a subjective approach, they can provide reliable information about individuals on certain issues (Merriam, 2009). In this study, the participants kept a diary at the end of each application. The diaries written by the participants were examined by the researchers.

Semi-structured interview: In this research, the semi-structured interview technique was used, which involved asking interview questions (Merriam, 2009). The interview questions consisted of three parts in this study. In the first part, the participants were asked about their education and Turkish learning processes in Turkey. In the second part, their views were sought on the implementation process designed based on mind and intelligence games. In the third part, their opinions on the development of the implementation process were collected. While preparing the semi-structured interview questions, opinions were received from a total of three experts working in the field of language, game, and mixed research. The interview questions were prepared within the framework of the feedback given by the experts. A pilot study of the semi-structured interview questions was conducted with three foreign students

who participants in the main study were not. As a result of this, the semi-structured interview questions were given their final form.

Metaphor form: The participants were asked to fill in the blanks in the sentence, "Teaching Turkish with mind and intelligence games is like/similar to…, because…". In fact, metaphors can be used in order to add meaning to experiences (Miles & Huberman, 1994). The metaphor form was used to support other qualitative data.

Questionnaire: The questionnaire is one of the frequently used data collection tools to learn people's opinions about the level of their satisfaction with a new service, product, or program (Fink & Kosecoff, 1985). In this research, the questionnaire consisted of a total of 15 questions, of which six were open-ended, and nine were closed-ended. For the closed-ended questions, grading-type questions were used. The questions were graded as 1 ("I am not competent"), 2 ("I am somewhat competent"), 3 ("I am moderately competent"), 4 ("I am competent"), and 5 ("I am very competent"). The content of these questions was related to the participants' Turkish language skills and game-playing skills. In this regard, support was received from an expert who had published studies on questionnaires. The survey questions were organized within the framework of the feedback given by the expert. A pilot study of the semi-structured interview questions was conducted with three foreign students who participants in the main study were not. As a result of this, the survey questions were finalized.

Foreign Language Learning Practices Scale (FLLPS): This scale was developed by Yeşil (2018). The research was carried out with 653 students who received Turkish language preparatory instruction at the Kyrgyz-Turkish Manas University (KTMU). Validity (exploratory factor analysis, discriminant analysis) and reliability (internal consistency, stability) analyses of the scale were performed. The scale has six factors, which are "General Learning Practices (GLP), Speaking Learning Practices (SLS), Reading Learning Practices (RLP), Writing Learning Practices (WLP), Grammar Learning Practices (GrLP), and Listening Learning Practices (LLP)" (Yeşil, 2018). The scale is graded on the basis of 0 (Never), 1 (Rarely), 2 (Sometimes), 3 (Often), and 4 (Always). The KMO value of the FLLPS was 0.881; the Bartlett test values were $x2=3949.698$; $sd=435$; $p<0.000$. The items in the scale explained 49.65% of the total variance, and the Cronbach alpha reliability coefficient of the overall scale was 0.880 (Yeşil, 2018).

The data collection process of the research was as follows:

1. Within the scope of the pretests, the questionnaire and FLLPS were applied to the participants.

2. Following the pretests, 10 implementations were made over a total of five weeks, for 2-3 hours per week.

3. Within the scope of the implementations, one mind and intelligence game was determined for each week. While determining the mind and intelligence game, the skills to be developed by the selected game, the skills desired to be developed, and the age range of the target group of the relevant game were taken into consideration. The rules, visuals, and materials of the determined game were prepared before the implementation. The selected game was processed like a Turkish text during the implementation process. In the first stage, listening,

speaking, and reading activities were carried out, and immediately afterwards, the participants were required to play the relevant game. The participants wrote down their feelings and thoughts about the game process in their diaries. Finally, the researchers read the participants' diaries together with them and gave them feedback (on language, expression, spelling, etc.). The implementation process was recorded with a camera.

4. The names of the games used in the application are as follows: Mangala, Look Look, Pentago, Equlibrio, and Qbitz.

5. Within the scope of the posttests, the questionnaire and FLLPS were applied to the participants, and semi-structured interviews were conducted with the participants. In this way, the research process was concluded.

6. One of the researchers is an expert in language education for multilingual students, while the other is an expert in mind and intelligence games.

Data Analysis

The data obtained from the diaries, videos, and semi-structured interviews, which are the qualitative data collection tools, were subjected to the thematic coding approach. The thematic coding approach can be used as a constructivist method of investigating the experiences of participants (Robson, 2011). Based on the stages of this method (Robson, 2011), the data were first transcribed and read repeatedly, draft codes were created, and all the data were coded in the same way. Following the coding, the themes were determined, and the relationships between the themes were revealed. Finally, the data were integrated, and interpretation was conducted. The researchers worked simultaneously in the analysis process of the qualitative data. Since the data obtained from the FLLPS, which is the quantitative data collection tool, did not fully meet the parametric test assumptions, they were subjected to the Wilcoxon signed-ranks test, which is one of the non-parametric tests (Salkind, 2011). In terms of the quality of the research, the support of experts as external auditors was sought (Creswell, 2014). Furthermore, metaphors and counting processes (such as frequency) were utilized, comparisons were made, pieces of data were organized into a whole, an attempt was made to establish conceptual consistency and to control possible researcher effect, triangulation was made, and standards related to the quality of the results were taken into consideration (Miles & Huberman, 1994).

Results

The Turkish Teaching Process with Mind and Intelligence Games

In this section, the findings obtained as a result of the analysis of the data obtained from the videos and diaries are included. The order of discussing the findings is in the form of videos and diaries, respectively. The findings related to the process before the texts and games are given in Table 2.

Table 2

Findings Related to the Process Before the Texts and Games

Process		Before the Game					
Mind and Intelligence Games Theme and codes		Mangala	Look Look	Pentago	Equlibrio	Qbitz	Frequency
Theme: Before the Text: Process Focused on Listening and Speaking Skills	Attention-getting and motivation activities were conducted.	✓	✓	✓	✓	✓	5
	Participants were made aware of the target.	✓	✓	✓	✓	✓	5
	Participants' preliminary information about the game was checked.	✓	✓	✓	✓	✓	5
	The materials were introduced to the participants.		✓	✓		✓	3
	A sample implementation was shown to the participants.		✓	✓		✓	3
	The participants examined the concrete materials of the game.	✓		✓	✓		3
	The participants did visual reading.	✓	✓	✓	✓	✓	5
	The participants used a digital dictionary.	✓					1
	Exercises on keywords were done with the participants.	✓					1
	The participants were asked to guess the content of the game.	✓	✓				2
	The participants were given hints about the content.	✓	✓	✓	✓	✓	5

Note: The codes are listed in order of implementation.

Table 2 shows the general outlines of the participants' process before the texts and games. Accordingly, activities related to listening and speaking skills were conducted with the participants before the texts and games.

Following the process before the texts and games, the findings related to the process are given in Table 3.

Table 3

Findings Related to the Process During the Texts and Games

Process		During the Game					
Mind and Intelligence Games Theme and Codes		Mangala	Look Look	Pentago	Equlibrio	Qbitz	Frequency
Theme: During the Text: Process Focused on Listening, Speaking and Reading	The participants were asked to silently read the informative text about the game.	✓	✓	✓	✓	✓	5
	The participants were asked to identify words whose meanings they did not know during reading.	✓	✓	✓	✓	✓	5
	A sample reading was made aloud by the researchers.	✓	✓	✓	✓	✓	5
	The participants were allowed to engage in shared reading aloud.	✓	✓	✓	✓	✓	5
	The participants were asked to demonstrate what they read	✓			✓		2

in practice.						
Practical information was given by the researchers about the parts of the text read.		✓	✓		✓	3
Vocabulary development exercises were carried out.	✓	✓	✓		✓	4
Explanations were made regarding the use of spelling and punctuation marks.	✓		✓			2
The participants were asked to summarise the game text that they read.	✓		✓			
The participants were asked reading comprehension questions about the game text.	✓	✓	✓	✓	✓	4
A game was played with a student in order to demonstrate the game rules.	✓		✓	✓		3
The participants were divided into groups and played games among themselves.	✓	✓	✓	✓		4
While playing the game, issues related to daily life were discussed with the participants.	✓	✓	✓			3
While playing the game, the participants talked among themselves about the game and daily life.	✓	✓	✓			3
It was observed that the participants were cheerful and had fun while playing the game.	✓	✓	✓	✓	✓	5
It was observed that the participants joked with each other and the researchers while playing the game.	✓	✓	✓	✓		4
The participants' game process was observed by the researchers, the participants were guided where necessary, and relevant feedback was given.	✓	✓	✓		✓	4
The participants were asked questions by the researchers about the strategies they developed in the game and hints were given in a way that would not break the equality.	✓	✓	✓			3
After the games were fully understood by the participants, mini tournaments were held for the relevant game.	✓	✓	✓	✓	✓	5
Regarding the tournaments, it was observed that the participants were a little more tense compared to the learning process but still cheerful.	✓			✓		2
Most of the participants verbally stated that they liked the game and had fun.	✓	✓	✓			3
It was observed that the participants played carefully by thinking, developing strategies and reasoning during the game process.	✓					1
It was observed that the game had interdisciplinary benefits.	✓	✓		✓	✓	4
The participants tried to play the game by using their visual perception skills.		✓		✓	✓	3
It was observed that there was cultural interaction between the researchers and participants.	✓	✓	✓			3

Note: The codes are listed in order of implementation.

Examining Table 3, the general outlines of the participants' process during the texts and games can be seen. Within the scope of the process during the texts and games, activities were conducted with the participants related to listening, speaking, and reading skills.

Finally, the findings related to the participants' process after the texts and games are given in Table 4.

Table 4

Findings Related to the Process After the Texts and Games

Process		After the Game					
	Mind and Intelligence Games Theme and Codes	Mangala	Look Look	Pentago	Equlibrio	Qbitz	Frequency
Theme: After the Text: Process Focused on Listening, Speaking, Reading and Writing Skills	The participants were asked to write an article describing the rules of the game and their feelings and thoughts about the process.	✓	✓	✓	✓	✓	5
	The participants' articles were simultaneously examined by the researchers and feedback was given to the students.	✓	✓	✓	✓	✓	5
	The researchers worked one-on-one with students.	✓	✓	✓	✓	✓	5
	The researchers' feedback was concerned with rules related to spelling and the use of punctuation marks, and vocabulary.	✓	✓	✓	✓	✓	5
	The researchers used plain language as much as possible while giving feedback to the students.	✓	✓	✓	✓	✓	5
	Communication between the researchers and students took place in a way that included listening, speaking, reading and writing skills.	✓	✓	✓	✓	✓	5
	The students rewrote their articles within the scope of the feedback they received from the researchers.	✓	✓	✓	✓	✓	5
	The articles revised by the students were examined by the researchers for the last time, and the writing process was completed.	✓	✓	✓	✓	✓	5
	It was observed that the participants had more difficulties in the writing process than while listening, speaking and reading.	✓	✓	✓	✓	✓	5
	It was observed that the participants were more anxious in the writing process than while listening, speaking and reading.	✓	✓	✓	✓	✓	5
	It was observed that the participants wrote more willingly when writing articles about their favourite games.	✓	✓	✓	✓	✓	5
	It was observed that the feedback given to the participants about their articles increased their desire to write.	✓	✓	✓	✓	✓	5

Note 1: The codes are listed in order of implementation.
Note 2: In this section, the same stages are used for all games.

Table 4 presents the general outlines of the participants' process after the texts and games. Within the scope of the process after the texts and games, activities related to listening, speaking, reading, and writing skills were conducted with the students. During this process, it was observed that the participants utilized all of their language skills.

In addition to the process after the texts and games, the findings obtained by examining the participants' diaries are given in Table 5.

Table 5

Reflections on the Process from the Participants' Diaries Written after the Texts and Games

Process			Reflections from the Participants' Diaries Written after the Games					
Mind and Intelligence Games			Mangala[1] Frequency(f)	Look Look[2] Frequency(f)	Pentago[2] Frequency(f)	Equlibrio[2] Frequency(f)	Qbitz[3] Frequency(f)	Total
Theme, Subthemes and Codes								
Theme: Reflections from the Participants' Diaries Written after the Texts	Participants' views on the game and their personal development	The game was great fun.	P1, P3, P4, P6, P7, P8, P9 f(7)	P1, P2, P3, P4, P5, P7, P8 f(7)	P1, P3, P5, P6, P7, P8, P9, P10 f(8)	P1, P2, P3, P4, P5, P6, P7, P10 f(8)	P1, P5, P7, P6 f(4)	34
		I played the game cheerfully with my friends.	P2, P3, P4, P7, P8, P9, P10 f(7)	P2, P3, P4 P5, f(4)	P3, P5, P7, P8, P9, P10 f(6)	P3, P2, P4, P5 f(4)	P3, P7, P8, P10 f(4)	25
		I loved the game.	P1, P4, P6 P10 f(4)	P1, P4, P8 f(3)	P1, P6, P7, P8, P9, P10 f(6)	P1, P3, P4, P5, P8, P10 f(6)	P1, P5, f(2)	21
		I lost the game.	P7 f(1)	P2, P4 f(2)	P5, P7, P8 f(3)	P7, P2, P4 f(3)	P2, P4, P5 P7 P10 f(5)	14
		I won the game.	P2, P4, P7 f(3)	P2, P4 f(2)	P5, P7, P10 f(3)	P2, P4 f(2)	P4, P5, P10 f(3)	13
		The game was difficult at first.				P10, P7, P6, P5, P3 f(5)	P8, P7, P6, P6, P3, P4 f(6)	11
		I used my time efficiently.	P3, P6, P10 f(3)	P1, P3, P5 f(3)	P1, P5 f(2)	P3 f(1)	P1 f(1)	10
		I learned a new game.	P2, P4, P7, P8, P9, P10 f(6)		P10 f(1)		P1 f(1)	8
		The game was exciting.	P3, P7 f(2)	P1 f(1)				3
	Participants' views on the contribution of the game to their Turkish language skills	The information given about the rules of the game was written correctly in terms of spelling and meaning to a large extent.		P1, P2, P4, P5, P6, P7, P8, P9, P10 f(9)	P3, P4, P5, P6, P7, P8, P9, P10 f(8)	P1, P2, P3, P4, P5, P6, P7, P8, P9 f(9)	P1, P2, P3, P5, P6, P7, P8, P9, P10 f(9)	35
		My writing skills improved with the feedback			P10, P5 f(2)	P3, P4, P5, P2, P8 f(5)		7

	It helped me to learn Turkish.		P6, P8, P7 f(3)	P6, P5, P3, P2 f(4)		7
	It benefited my speaking skills.	P5 f(1)	P5, P10 f(2)	P3, P4 f(2)		5
Participants' views on the contribution of the games to their cognitive skills	The games improved our cognitive skills (memory, attention, intelligence, mathematical skills, visual perception, reasoning, etc.).	P1, P2, P4, P5, P7, P8 f(6)	P1, P5, P6, P7, P8, P9, P10 f(7)	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10 f(10)	P1, P2, P3, P4, P5, P7, P8, P9, P10 f(9)	32

1. The participants only wrote their opinions about the relevant game.
2. The participants only wrote their opinions about the relevant game or wrote the rules of the game.
3. The participants wrote their opinions about the relevant game and wrote the rules of the game.

Table 5 shows the opinions reflected by the participants in their diaries, in which they expressed their opinions after the games and the texts. In this context, the participants stated in their diaries that the games benefited themselves, their Turkish language skills, and their cognitive skills. Participants mostly stated that they found the games fun and loved them, that the games helped them to have a good time with their friends, that they contributed to the development of Turkish language skills in general, and that they were beneficial for the development of their cognitive skills such as memory, attention, and visual perception.

The Results of The Turkish Teaching Process with Mind and Intelligence Games

In this section, the findings obtained as a result of the analysis of the data obtained from the semi-structured interviews, questionnaires, and FLLPS are included. The order in which the findings are discussed is semi-structured interviews, questionnaires, and FLLPS, respectively. Accordingly, the findings related to participants' views on the implementation process are given in Table 6.

Table 6

Findings Related to the Participants' Views on the Implementation Process

Theme, subthemes, and codes*			Participants	Frequency	Total
Theme: Participants' Views on the Implementation Process	Problems faced by participants in another country (Turkey)	There may be problems related to language (speaking, reading comprehension, listening, writing, lack of vocabulary, etc.).	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10	10	20
		There may be problems outside of school (financial needs, accommodation, etc.).	P4, P6, P8, P9	4	
		In the beginning, there may be problems regarding agreement in communication.	P2, P9	2	
		The content of the lessons may be difficult.	P2, P3	2	

		There may be fear of making mistakes in speaking Turkish.	P2, P10	2	
		It contributed to the development of my social skills.	P1, P2, P3, P5, P6, P8, P9	7	
		It contributed to the development of my visual perception skills.	P1, P4, P5, P7, P8	5	
	Benefits of the implementation process in terms of personal development	It contributed to the development of my attention skills.	P1, P8, P9, P10	4	25
		It contributed to the development of my cognitive skills.	P2, P8, P9, P10	4	
		The new games contributed to my learning.	P2, P6, P7	3	
		It contributed to the development of my mathematical skills.	P4	1	
		I realised that I had quick dexterity.	P5	1	
	Benefits of the implementation process in terms of language skills	It contributed to the development of my speaking skills.	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10	10	64
		It contributed to the development of my reading skills.	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10	10	
		It contributed to the development of my listening skills.	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10	10	
		It contributed to the development of my writing skills.	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10	10	
		It contributed to the development of my Turkish language skills.	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10	10	
		It contributed to the development of my vocabulary.	P1, P3, P4, P5, P7, P8, P9	7	
	Suggestions for improving the implementation process	The feedback contributed to the development of skills.	P3, P8, P9, P10	4	7
		It helped me to speak more confidently.	P1, P9, P10	3	
		Longer-term implementations can be made.	P2, P7, P9	3	
		Such implementations can be made for multilingual participants in universities.	P6, P7, P8	3	
		The implementation process can be supported by different activities (such as reading stories and books).	P1	1	

*The flow in the table was arranged according to the interview process and discussed in the context of causality.

Table 6 shows the findings related to the participants' views on the implementation process. The participants stated that the process of teaching Turkish with mind and intelligence games contributed primarily to their language skills as well as to their personal development in different dimensions.

Finally, in order to determine how the implementation process was perceived by the participants, they were asked about their metaphorical perceptions by using the

phrase, "Teaching Turkish with mind and intelligence games is like/similar to…, because…". The participants' opinions in this regard are as follows:

> "Teaching Turkish with mind and intelligence games is like a happy environment because I loved coming to university. You know, when we didn't understand the lesson, we used to say, 'humph!', but now we say, 'we are coming to this event, let's go to the lesson as well'" (P1).
>
> "I would compare the development of our Turkish language skills with mind and intelligence games to our better deciphering of Turkish because I come to play games, it's such fun" (P2).
>
> "I can compare the development of Turkish language skills with mind and intelligence games to being happy because I want to come here. So, the game has been something other than the lessons for us. You did this lesson, and there were friends as well, we spent time with you, something like that. It was fun" (P3).
>
> "I can compare the development of Turkish language skills with mind and intelligence games to a good day because I was never bored, and all the practices were good" (P4).
>
> "I can compare the development of Turkish language skills with mind and intelligence games to being in a group with friends because we spend time together, it is good to socialise and get along by talking; we learn more easily because we talk" (P5).
>
> "I can compare the development of Turkish language skills with mind and intelligence games to going to kindergarten. It teaches both language and literacy in an entertaining way" (P6).
>
> "I would compare the development of Turkish language skills with mind and intelligence games to a child who is a part of my life. So I think, let's say I have a child. First, you communicate with the child by speaking, and you talk about games. Then you talk about mind games. That is, I made it a part of my life" (F7).
>
> "I likened the development of Turkish language skills with mind and intelligence games to the game Equilibrio. This is how we build in this game. In this practice, our language skills also improved like that. We start to learn Turkish from the basics, and we go up to the top" (F8).
>
> "I can compare the development of Turkish language skills with mind and intelligence games to my life song, as whenever I'm in it, I find myself happy and in something I love, because I always sing when I'm happy" (P9).
>
> "I would compare the development of Turkish language skills with mind and intelligence games to something different. There were no such games in Turkmenistan. I played them after I came here, and I had never done it before, so it felt very different" (P10).

Considering the findings regarding the metaphorical perceptions obtained, the participants perceived teaching Turkish with mind and intelligence games as a different process that enabled them to be happy, socialise, have fun, and improve their language skills.

In order to reveal how effective the process of teaching Turkish with mind and intelligence games was in the development of the participants' Turkish language skills, the questionnaire and FLLPS were used. The findings obtained from the questionnaire before and after the implementation are presented in Table 7.

Table 7

Questionnaire Findings of the Participants Before and After the Implementation

Participants	P1		P2		P3		P4		P5		P6		P7		P8		P9		P10	
Process	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Which language	R	L	L	W	L	W	L	L	S	S	S	W	L	L	S	W	L	W	L	W

skill do you have the most difficulty in developing?																					
Which is the easiest language skill for you to develop?	L	S	S	S	S	S	S	W	L	R	L	L	L	W	W	L	S	S	R	L	
What is your level of enjoyment in playing games?	3	3	5	5	1	5	5	3	3	5	5	1	1	4	3	3	5	5	3	3	
To what extent does playing games improve your Turkish language skills?	2	4	1	4	2	5	5	4	3	4	3	2	2	4	4	4	4	5	3	3	
What is your general level of Turkish language skills?	2	3	3	4	3	3	2	3	3	3	3	2	2	3	3	3	2	3	1	4	
At what level can you understand Turkish while listening?	3	3	3	4	2	2	2	3	3	4	4	1	1	3	2	2	2	3	2	4	
At what level can you speak Turkish?	3	4	4	4	2	2	3	3	3	3	4	2	3	3	2	3	3	3	3	4	
At what level can you read Turkish?	2	4	4	4	3	3	3	3	2	4	4	1	2	4	3	4	2	3	3	4	
At what level can you write Turkish?	2	3	3	4	4	4	1	3	2	4	4	2	5	5	5	2	2	3	3	4	
What is your level in terms of Turkish grammar, spelling, and punctuation?	2	3	2	4	3	3	1	2	3	3	3	2	4	3	1	3	2	3	2	3	
Total score	19	27	25	33	20	27	22	24	22	30	30	13	20	29	23	24	22	28	20	29	

Explanation of abbreviations and figures in table: L: Listening, S: Speaking, R: Reading, W: Writing
1: I am not competent, 2: I am somewhat competent, 3: I am moderately competent, 4: I am competent, 5: I am very competent

Table 7 shows the questionnaire findings of the participants. The language skills that the participants had the most difficulty in developing and the skills they developed the most easily differed according to the results of the preliminary and final questionnaires. Furthermore, based on the final questionnaire results of the participants, they generally thought that playing games improved their Turkish language skills.

The implementation made regarding teaching Turkish with mind and intelligence games made positive contributions to the participants' language skills. In addition, the Wilcoxon signed-ranks test was used in order to reveal the statistical results between the pretest and posttest implementation of the FLLPS. The findings obtained in this regard are given in Table 8.

Table 8

Results of Students' FLLPS Scores Within the Scope of the Pretest and Posttest According to Wilcoxon Signed-Ranks Test

FLLPS Total Pretest-Posttest	*n*	Mean rank	Rank sum	*z*	*p*
Negative rank	1	1.00	1.00	2.703	.007
Positive rank	9	6.00	54.00		
Equal	0				
General Learning Practices (GLP) Subdimension Pretest-Posttest	*n*	Mean rank	Rank sum	*z*	*p*
Negative rank	1	1	1	2.710	.007
Positive rank	9	6	54		
Equal	0				
Speaking Learning Practices (SLP) Subdimension Pretest-Posttest	*n*	Mean rank	Rank sum	*z*	*p*
Negative rank	2	9.25	18.50	.919	.358
Positive rank	8	4.56	36.50		
Equal	0				
Reading Learning Practices (RLP) Subdimension Pretest-Posttest	*n*	Mean rank	Rank sum	*z*	*p*
Negative rank	2	3.75	7.50	1.103	.270
Positive rank	5	4.10	20.50		
Equal	3				
Writing Learning Practices (WLP) Subdimension Pretest-Posttest	*n*	Mean rank	Rank sum	*z*	*p*
Negative rank	1	1.00	1.00	2.552	.011
Positive rank	8	5.50	44.00		
Equal	1				

Grammar Learning Practices (GrLP)					
Subdimension Pretest-Posttest	*n*	Mean rank	Rank sum	*z*	*p*
Negative rank	0	.00	.00	2.825	.005
Positive rank	10	5.50	55.00		
Equal	0				
Listening Learning Practices (LLP)					
Subdimension Pretest-Posttest	*n*	Mean rank	Rank sum	*z*	*p*
Negative rank	1	3.00	3.00	1.930	.054
Positive rank	6	4.17	25.00		
Equal	3				

*Based on Negative Ranks p<.05

When Table 8 is taken into consideration, there is a significant difference (z=-2.703*, p<.05) between the scores obtained by the students from the FLLPS in the pretest and posttest. Considering the mean ranks and rank sums of the difference scores, this observed difference is in favour of the posttest. In addition, when the scores obtained from the subdimensions of the relevant scale are examined within the scope of the pretest and posttest, the subdimensions with significant differences are GLP (z=-2.710*, p<.05); WLP (z=-2.552*, p<.05) and GrLP (z=-2.825*, p<.05), while the subdimensions in which there is no significant difference are SLP (z=-.919, p>.05), RLP (z=-1.103, p>.05) and LLP (z=-1.930, p>.05). Accordingly, the students generally improved in their language skills and they improved more specifically in general, writing and grammar learning practices.

Ethical Procedures

In this study, attention was paid to scientific ethical rules. In this regard, ethics committee approval dated 14.07.2020 and numbered 12 was obtained from the Social and Human Sciences Ethics Committee of Kafkas University.

Discussion, Conclusion and Implications

In this study, the effect of mind and intelligence games on the development of multilingual preservice classroom teachers' Turkish language skills was examined. An interdisciplinary approach (Jones, 2010), which primarily supports more than one discipline, enriches the learning process and is a challenging but important technique in modern curricula, was adopted. Based on this approach, the Turkish teaching process and the game process were combined. In fact, playing games is one of the oldest and most common forms of learning, and is more than an educational tool (Coleman, 1976). Accordingly, mind and intelligence game activities were conducted in the text-teaching process. Before the texts, activities aimed at listening and speaking skills, such as examining the game images and materials, doing exercises on keywords related to the games, and guessing how the game is played, were carried out. During the texts, exercises aimed at reading skills were carried out on informative texts about the games, and the participants were allowed to play the games individually or in groups. In the last process, the participants were asked to write about the implementation process, and

activities were carried out to improve their writing skills. There is a relationship between the basic language skills, namely listening, speaking, reading, and writing skills, and these skills are developed by supporting each other (Garcia, 2009; Maden, 2013). In this study, activities aimed at improving the participants' language skills were considered together. Along with their language skills (listening, speaking, reading, and writing), the participants also used their intellectual skills (problem-solving, visual attention, reasoning, etc.) by playing mind and intelligence games. People label objects by using language, and in this case, the mind produces language, and through play, the mind navigates between the item and what is thought about (Huizinga, 2006). Moreover, the play process includes the affective and psychomotor processes. Therefore, the participants underwent intense cognitive, affective, and psychomotor experiences based on language and play. Silberman (2016) supports this idea and states that learning should occur by doing and experimenting and that learning in this way paves the way for the development of skills. Experiential learning can come to mind as the source of this judgement. As a justification for this, it can be argued that the participants underwent an active and passive experience (Dewey, 2004) and learned through their experiences (Dewey, 2013). At this point, Kolb (2015) states that experiential learning is process-oriented, is based on experience, includes a holistic process of adaptation to the world, involves transactions between the person and his/her environment, and is a knowledge-creation process. There are similarities between the characteristics of experiential learning expressed by Kolb (2015) and the implementation that was made. The results to be obtained from this research concerning the development of skills primarily emerge on the basis of experiential learning.

When the participants' views reflected in their diaries regarding the implementation processes are taken into consideration, the outputs of experiential learning are observed. Accordingly, the participants indicated that the mind and intelligence games benefited them, their Turkish language skills (listening, speaking, reading, and writing), their cognitive skills (memory, attention, perception, etc.), and their affective skills (socialising, feeling happy, having fun, etc.). This contribution can be a result of the fact that playing games requires the use of both linguistic and intellectual skills together (Güneş, 2015). These views expressed by the participants can be considered as a positive result of the intense experiences in the program that was implemented. In support of this result, it was observed that the participants also had positive metaphorical perceptions about the development of their Turkish language skills through mind and intelligence games. Accordingly, the participants stated that they perceived the implementation related to developing Turkish language skills with mind and intelligence games as a different process that enabled them to socialise, have fun and improve their Turkish language skills. This different process can be associated with the use of educational games within the scope of active learning recommended by today's educational approaches (Güneş, 2015; Kara, 2010). In fact, while actively learning, the student is determined, cheerful, willing, empathetic, collaborative, and a reconstructor of knowledge (O'Neill, 2016). Kalfa (2014) stated that educational games that enable learning while having fun should be used in teaching Turkish to foreigners and reinforcing what is taught. Similarly, Kara (2010) stated that the use of games in teaching languages to foreigners improves a number of skills, from language skills to social skills, and enables active learning. Furthermore, when the results obtained from

the questionnaires are examined, they support both the interview and metaphor results and the related literature (Kalfa, 2014; Kara, 2010; O'Neill, 2016). Based on the scores of most of the participants in the preliminary and final closed-ended questionnaire questions, there is a positive difference in favour of the final questionnaire. Accordingly, most of the participants stated that playing mind and intelligence games had positive effects on the development of their Turkish language skills. In addition, the participants also stated that language skills should be developed through a learning process supported by materials and accompanied by an instructor, in which all language skills are used. In fact, these views expressed by the participants are also consistent with the basic principles of teaching Turkish to foreigners (Barın, 2004). For example, within the scope of the research, going from the concrete to the abstract, dealing with the four basic language skills together, enabling students to learn actively, and the fact that this implementation is practical can be considered in the context of the basic principles (Barın, 2004). In this direction, Lüle Mert (2014) stated the necessity of practical activities in Turkish teaching. Based on this point of view, it can be said that in line with the context in which the participants expressed themselves, the process of improving the Turkish language skills of multilingual students through mind and intelligence games had positive effects on the participants' language skills. In order to examine this statement from a quantitative perspective, it was observed that there was a significant difference in favour of the posttest between the total scores obtained by the participants in the pretest and posttest from the FLLPS, as well as the total scores they obtained from the GLP, WLP, and GrLP subdimensions. Accordingly, the students generally made progress in their Turkish language skills and that within this scope, they developed specifically in general learning practices and the subjects of writing and grammar. Based on all these results, it was concluded that the mind and intelligence games had a positive effect on the development of multilingual students' language skills.

It may be possible to say that the positive results obtained from the research are not only consistent with each other but are also compatible with the outcomes of experiential learning. In a process where there are numerous stimuli, cultural interaction is also experienced intensely. This statement can basically be grounded on Huizinga's (2006) idea that culture is born in the form of play. In fact, individuals who learn two or more languages learn not only those languages but also the cultures belonging to those languages (Paradis et al., 2011). One of the general principles in teaching Turkish to foreigners is to teach the culture together with the language (Barın, 2004). Since language skills are learned by experience (Çelebi, 2006), the implementation process also includes cultural interaction in the context of experiential learning. In this regard, Gün and Şimsek (2020) state that teaching Turkish as a foreign language is not only language teaching but also has international dimensions, and one of these dimensions is culture. Therefore, the implementation that was made had cognitive, affective, psychomotor, and socio-cultural dimensions. In support of this, the fact that the multilingual students learned Turkish games in the process, gave examples of games similar to these games from their own culture, communicated in Turkish with the instructors during the game process, and provided explanations from their own culture within the context of the implementation process, can be considered within the socio-cultural dimensions of the implementation process. Therefore, in this implementation,

the multilingual students' language skills developed on a cognitive, affective, psychomotor, and socio-cultural structure.

In this study, the effect of mind and intelligence games on the development of multilingual preservice classroom teachers' language skills was examined. The process of developing multilingual preservice classroom teachers' language skills was designed by considering an interdisciplinary context. Accordingly, basically, the Turkish teaching process and the game-playing process, and specifically, the Turkish language skills (listening, speaking, reading, and writing) and the process of playing mind and intelligence games, were combined. A rich and entertaining learning environment in cognitive, affective, and psychomotor terms was created, and the participants actively participated in the learning process. Games are one of the most effective ways of active learning. According to the results obtained from the data collection tools, at the end of this game process, the participants' Turkish language skills (listening, speaking, reading, and writing), cognitive skills (memory, attention, perception, etc.), and affective skills (socialising, feeling happy, having fun, etc.) improved. It was also observed that this development process took place on the basis of cultural interaction, while this development process (linguistic, cognitive, affective, and cultural) took place in the context of experiential learning. The fact that the multilingual preservice classroom teachers were in interaction with concrete materials by doing and experiencing improved their Turkish language skills. This process designed with mind and intelligence games can also be considered as a step towards a better understanding of the relationship between language, mind, and culture. In addition, this research will contribute to the literature in terms of experimentally addressing the subjects of mind and intelligence games, multilingual students, and the development of language skills.

In this research, the development of Turkish language skills has been taken into account, and the process of developing language skills in multilingual students through mind and intelligence games has been examined from different perspectives. An attempt has been made to investigate the reasons for the emerging development of the key elements. However, in order to better understand and analyse these results, the limitations of the research should also be emphasised. Clarifying these limitations can lead to better recommendations for future studies. Accordingly, the lack of a control group in the study can be regarded as one of the main limitations. First of all, the main reason for working with a single group in this study is that the problems experienced by the multilingual students regarding their language skills were noticed by the researchers, and that these problems were emphasised. For this reason, most of the multilingual students in the relevant department were included in the research process, and the research was conducted with a single group. In addition, there were insufficient multilingual students to form a control group in the relevant department and under the same conditions. However, in order to reduce this limitation to some extent, different data collection tools were utilized. These limitations may contribute to strengthening future studies in the fields of games and language skills. Furthermore, in future studies in the relevant field, scientific research can be conducted on the development of language skills using different games and research methods with different multilingual student groups. In addition, mind and intelligence games can also be used to improve the basic skills (linguistic, cognitive, social, etc.) of students (typically developing, special needs, multilingual, foreign national, immigrant, etc.) studying at all levels of

education, especially preschool and primary school, and different scientific studies can also be conducted for this purpose.

Statement of Responsibility

The authors contributed together to literature review, conception and design, acquisition of data, analysis, and interpretation of data.

Conflicts of Interest

Authors declare that there is no conflict of interest.

Author Bios:

Fatma Gül Uzuner is an assistant professor in the Faculty of Education at Kafkas University in Turkey. She completed her PhD in Primary Education at *Karadeniz Teknik University* in Turkey. Her research interests include game-based learning, orienteering and mathematics teaching.

Meral Gözüküçük is an assistant professor in the Faculty of Education at Manisa Celal Bayar University in Turkey. She completed her PhD in Primary Education at *Pamukkale University* in Turkey. Her research interests include literacy, bilingual education, primary reading and writing, and Turkish language education.

References

Alver, M. (2019). Türkçenin yabancı dil olarak öğretilmesinde esas alınan ilkeler ile kullanılan yöntem ve teknikler [Principles and methods and techniques used in teaching Turkish as a foreign language]. In İ. Erdem, B. Doğan & H. Altunkaya (Eds.), *Türkçenin yabancı dil olarak retimed [Teaching Turkish as a foreign language]* (pp. 13-42). Pegem Akademi.

Aşuluk, Y. (2020). Zekâ oyunlarının ilkokul 3. sınıf öğrencilerinin Türkçe dersinde okuduğunu anlama becerisine etkisi [The effect of mind games on the reading comprehension skill of primary education third grade students in Turkish course] [Unpublished master's thesis]. Hacettepe University.

Avedon, E. M., & Sutton-Smith, B. (1971). *The study of game*. John Wiley & Sons, Inc.

Baker, C. (2011). *Foundations of bilingual education and bilingualism*. Multilingual Matters.

Barın, E. (2004). Yabancılara Türkçe öğretiminde ilkeler. *Hacettepe Üniversitesi Türkiyat Araştırmaları (HÜTAD)*, *1*, 19-30. Retrieved from https://dergipark.org.tr/en/pub/turkiyat/issue/16660/329608

Biçer, N. (2017). Yabancılara Türkçe öğretimi alanında yayınlanan makaleler üzerine bir analiz çalışması [An analysis study on the published articles relating to the field of teaching Turkish to foreigners]. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi 27*, 236-247. Retrieved from https://dergipark.org.tr/en/pub/pausbed/issue/34758/384478

Birova, I. L. (2013). Game as a main strategy in language education. *American Journal of Educational Research*, *1*(1), 7-11. http://doi.org/10.12691/education-1-1-2

Butler, Y. G. (2014). Bilingualism/multilingualism and second-language acquisition. In T. K. Bhatia & W. C. Ritchie (Eds.), *The handbook of bilingualism and multilingualism*. Wiley-Blackwell.

Cambridge Dictionary. (2021). Retrieved from https://dictionary.cambridge.org/tr/s%C3%B6zl%C3%BCk/ingilizce/mind

Çelebi, M. D. (2006). Türkiye'de anadili eğitimi ve yabancı dil öğretimi [Education of mother tongue and teaching foreign language in Turkey]. *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *1*(21), 285-307. Retrieved from https://dergipark.org.tr/en/pub/erusosbilder/issue/23754/253119

Cohen, D. (1993). *The development of play*. Routledge.

Coleman, J. S. (1976). Learning through games. In J. S. Bruner, A. Jolly & K. Sylva (Eds.), *Play: Its role in development and evolution*, (pp. 460-463). Penguin Books.

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches (3rd ed.)*. Sage Publications.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed methods approaches (4th ed.)*. Sage Publications.

Creswell, J. W., & Plano-Clark, V. L. (2011). *Designing and conducting mixed methods research (2nd edition)*. Sage Publications.

Datta, L. (1990). *Case study evaluations.* U.S. General Accounting Office.

Devecioğlu, Y., & Karadağ, Z. (2014). Amaç, beklenti ve öneriler bağlamında zekâ oyunları dersinin değerlendirilmesi [Evaluation of mind puzzle course at the context of goals, expectations and recommendations]. *Bayburt Eğitim Fakültesi Dergisi*, *9*(1), 41-61. Retrieved from https://dergipark.org.tr/en/pub/befdergi/issue/23139/247172

Dewey, J. (2004). *Demokrasi ve eğitim* [Democracy and education]. (Transl. T. Göbekçin). Yeryüzü Publisher.

Dewey, J. (2013). *Deneyim ve eğitim* [Experience and education]. (Transl. S. Akıllı). ODTÜ Publisher.

Fink, A., & Kosecoff, J. (1985). *How to conduct surveys: A step-by-step guide.* Sage Publications.

Garcia, O. (2009). *Bilingual education in the 21st century: A global perspective*. Wiley-Blackwell.

Gass, S. M., Behney, J., & Plonsky, L. (2013). *Second language acquisition: An introductory course.* Routledge Taylor & Francis Group.

Gün, M., & Şimşek, R. (2020). Yabancı dil olarak Türkçe öğretiminde sosyo-kültürel yansımalar [Socio-cultural reflections in teaching Turkish as a foreign language]. *Turkish Journal of Primary Education*, *5*(1), 46-58. Retrieved from https://dergipark.org.tr/en/pub/tujped/issue/55035/738428

Güneş, D. (2021). Sınıf öğretmenlerinin akıl ve zekâ oyunlarının ilkokulda kullanımına yönelik değerlendirmeleri [Assessments of classroom teachers on the use of mind and intelligence games in primary school] [Unpublished master's thesis]. Balıkesir University.

Güneş, F. (2015). Oyunla öğrenme yaklaşımı [Game-based learning approach]. *Turkish Studies - International Periodical for The Languages, Literature and History of Turkish or Turkic, 10*(11), 773-786. Retrieved from http://dx.doi.org/10.7827/TurkishStudies.8499

Gürsoy, A., & Arslan, M. (2011). Eğitsel oyunlar ve etkinliklerle yabancılara Türkçe öğretim yöntemi. *In 1st International Conference on Foreign Language Teaching and Applied Linguistics, Mayıs* (pp. 5-7), Sarajevo.

Huizinga, J. (2006). *Homo Ludens: Oyunun toplumsal işlevi üzerine bir deneme* [Homo ludens: Essai sur la fonction sociale du jeu] (Transl. M. A. Kılıçbay). Ayrıntı Publishing.

Hummel, K. M. (2014). *Introducing second language acquisition perspectives and practices.* Wiley-Blackwell.

Jones, C. (2010). Interdisciplinary approach-advantages, disadvantages, and the future benefits of interdisciplinary studies. *Essai, 7*(1). Retrieved from http://dc.cod.edu/essai/vol7/iss1/26

Kalfa, M. (2014). Yabancılara Türkçe öğretiminde temel düzeydeki öğrencilerin eğitsel oyunlarla yazma becerilerinin geliştirilmesi [Developing the writing skills of basic level students through educative games in teaching Turkish to foreign learners]. *Hacettepe Üniversitesi Türkiyat Araştırmaları Dergisi*, *20*, 85-102.

Kara, M. (2010). Oyunlarla yabancılara Türkçe öğretimi [Teaching Turkish to foreigners through games]. *Türklük Bilimi Araştırmaları*, *27*, 407-421. Retrieved from https://dergipark.org.tr/en/pub/tubar/issue/16968/177241

Kolb, D. (2015). *Experiential learning: Experience as the source of learning and development*. Pearson Education, Inc.

Lanza, E. (2010). Selecting individuals, groups, and sites. L. Wei & M. G. Moyer, (Eds.), In *Research methods in bilingualism and multilingualism*. Blackwell Publishing.

Liberali, F. (2013). Students-teachers and teacher-educators experience new roles in pre-service bilingual teacher education in Brazil. In C. Abello-Contesse, P. M. Chandler, M. D. Lopez-Jimenez & R. Chacon-Beltran (Eds.), *Bilingual and multilingual education in the 21st century building on experience*. Multilingual Matters.

Lüle Mert, E. (2014). Türkçenin eğitimi ve öğretiminde dört temel dil becerisinin geliştirilmesi sürecinde kullanılabilecek etkinlik örnekleri [The activity examples that can be used in the development process of basic language skills in education and teaching of Turkish]. *Ana Dili Eğitimi Dergisi, 2*(1), 23-48. Retrieved from https://doi.org/10.16916/aded.47575

Maden, S. (2013). Instructional work and tactics in active learning used on basic language arts. *Journal of Mother Tongue Education, 1*(2), 20-35.

Marian, V. (2013). Bilingual research methods. In J. Altarriba & R. R. Heredia (Eds.), *An introduction to bilingualism principles and processes*. Psychology Press.

McMillan, J. H., & Schumacher, S. (2014). *Research in education: Evidence-Based inquiry (7th ed.)*. Pearson.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation.* John Wiley & Sons.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook.* Sage Publications.

National Association for the Education of Young Children (NAEYC). (2021). 12 Principles of child development and learning. Retrieved from https://www..org/resources/topics/12-principles-of-child-development

O'Neill, H. (2016). *Başarının yol haritası ile aktif öğrenme (Etkili Öğrenci)* [Active learning with the roadmap to success (Effective Student)]. Siyah Beyaz Publishing.

Özdevecioğlu, B. & Hark Söylemez, N. (2021). Akıl ve zekâ oyunları ile ilgili olarak yapılan lisansüstü çalışmaların değerlendirilmesi [Evaluation of Graduate Studies on Mind and Intelligence Games]. *Iğdır Üniversitesi Sosyal Bilimler Dergisi, 28*, 17-53.

Paradis, J., Genesee, F., & Crago, M. B. (2011). *Dual language development & disorders: A handbook on bilingualism & second language learning*. Paul H. Brookes Publishing.

Patton, M. Q. (2002). *Qualitative evaluation & research methods (3rd ed.).* Sage Publications.

Roberts, J. M., & Sutton-Smith, B. (1962). Child training and game involvement. *Ethnology, 1*(2), 166-185. Retrieved from https://www.jstor.org/stable/3772873

Robson, C. (2011). *Real world research.* John Wiley & Sons Limited.

Salkind, N. (2011). *Statistics for people who (think they) hate statistics (4th ed.)*. Sage Publications.

Scarlett, W., Naudeau, S., Salonius-Pasternak, D., & Ponte, I. (2005). *Children's play*. Sage Publications.

Şen, M. (2020). Akıl ve zeka oyunlarının 60-72 aylık çocuklarda erken okuryazarlık becerilerine etkisinin incelenmesi [Investigation of the impact of the mind and intelligence games on the early literacy skills of 60-72 months of children] [Unpublished master's thesis]. Üsküdar University, İstanbul.

Sheridan, M. D. (2011). *Play in early childhood: From birth to six years*. Taylor & Francis.

Silberman, M. (2016). *Aktif öğretim: Sınıflarda öğrenmeyi harekete geçirecek sekiz adım ve 32 strateji* [Teaching Actively: Eight steps and 32 strategies to spark learning in any classroom] (Transl. Ed. N. Kalaycı). Pegem Academy.

Smith, P., & Jones, O. J. (1997). *The philosophy of mind: An introduction*. Cambridge University Press.

The Ministry of National Education (MNE). (2013). Ortaokul ve imam hatip ortaokulu zekâ oyunları dersi (5, 6, 7 ve 8. sınıflar) öğretim programı [Middle school and imam hatip secondary school intelligence games course (5, 6, 7 and 8th grades) educational program].

Turkish Intelligence Foundation. (2021). Retrieved from https://www.tzv.org.tr/#/zekâ/zekâ_nedir

Wei, L. (2014). Conceptual and methodological issues in bilingualism and multilingualism research. In T. K. Bhatia & W. C. Ritchie (Eds.), *The handbook of bilingualism and multilingualism.* Blackwell Publishing.

Winnicott, D. W. (2017). *Oyun ve gerçeklik* [Playing and reality]. (Transl. T. Birkan,). Metis Publications.

Yeşil, R. (2018). Yabancı dil olarak Türkçeyi öğrenme uygulamaları ölçeğinin geçerlik ve güvenirlik çalışması. *Electronic Turkish Studies, 13*(19), 1969-1987. Retrieved from http://dx.doi.org/10.7827/TurkishStudies.13892