Turkish Language Teacher Candidates' Multimodal Literacy Levels and Their Attitudes Towards Information and Communication Technologies

Mustafa Serdar YAŞAR[a]   Gökhan ARI[b]

a: 0000-0002-9061-1221   Bursa Uludağ University, Turkiye   serdaryasar@uludag.edu.tr
b: 0000-0001-7054-2209   Bursa Uludağ University, Turkiye   gokhanari@uludag.edu.tr

Abstract

As the digital technologies develop, the multi-modal structures in which multiple modes such as text, sound and image are used concurrently are frequently encountered in daily life. In this sense, the literacy levels of Turkish language teacher candidates who will work on improving their native language skills towards multimodal structures and their pre-disposition towards information and communication technologies they will use in order to use these structures are regarded as significant. The present study aimed to examine Turkish language teacher candidates' multimodal literacy levels and their attitudes towards information and communication technologies in terms of various variables and reveal the relationship between these two variables. The study was a quantitative study and was conducted in accordance with the relational screening model. The data was obtained from a total of 156 students studying at different levels in the Turkish language teaching undergraduate program at a state university. Data were collected with the Multimodal Literacy Scale, developed by Bulut, Ulu and Kan (2015), whose validity and reliability studies were conducted, and were also collected through the Information and Communication Technology Attitude Scale, which was developed by Günbatar (2014) and whose validity and reliability studies were conducted. In an attempt to reveal the relationship between variables, the simple linear relationship coefficient was calculated in the IBM SPSS 21 program. The significance of the scores obtained from the scales by gender and class was examined using the t-test, one of the parametric tests, and the Kruskal Wallis H test, one of the non-parametric tests, based on the normality of the distribution. As far as the results of the study are concerned, it was found that there was a medium-level relationship between Turkish language teacher candidates' attitudes towards information and communication technologies and their levels of multi-modal literacy (.350), and when the relationships between the sub-dimensions of the scales were examined, the two dimensions with the highest correlation coefficient were software use and Expressing oneself using multimodal structures (.541). It was concluded that the ICT attitudes did not differ significantly by the class and gender variables. It was also concluded that the multimodal literacy level demonstrated a significant difference in favor of the female students by gender, and between 2nd, 3rd and 4th year students in favor of 4th year students by the grade variable. The results obtained were considered and various suggestions were made.

Keywords

Multimodal literacy level, information and communication technologies attitude, Turkish language teacher candidates

INTRODUCTION

The rapid changes in digital communication have existentially enabled reading and writing to be combined with different modes such as image, music, sound, graphics and photography (Walsh, 2010). This particular state of affairs necessitates us to have the skill to correctly interpret the messages conveyed through multimodal texts. The fact that reading now involves watching and listening, and writing involves designing and producing, means that we need a literacy that is non-linear and requires simultaneous analysis (Walsh, 2009). The multimodal literacy we come to encounter momentarily defines a perception of literacy that goes beyond the traditional reading and writing (Huang, 2017). According to Kress (2010), multimodal literacy was a type of literacy that required the use and interpretation of two or more texts, visuals, videos, graphics, animations, sounds, music, gestures and facial expressions together in establishing or generating meaning. In the perception of literacy of the age we live in, it has become all the more important to improve the literacy levels of individuals in terms of being able to make sense of the multimodal text structures in which these three modes exist together, rather than just giving priority to words, verbal forms of communication or visuals (Tüzel, 2013).

In this day and age, oral, written, audio-visual communication methods available through the internet and web technologies have evolved into screen-based, multi-dimensional and multimodal hypertexts (Uzun and Çelik, 2020). Every tool that we can call information and communication technologies today enables us to experience multimodal structures and create various contents in multimodal structures. Therefore, our skills in using information and communication technologies that we frequently utilize in daily life have commenced to gain a central position in literacy in parallel with the changing perception of literacy (Walsh, 2009; Destebaşı, 2016; Tobin, 2018). Furthermore, possession of affective characteristics such as a positive attitude towards information and communication technologies can enable individuals to develop literacy skills related to information and communication technologies and utilize these technologies effectively in daily life (Günbatar, 2014).

In the curricula prepared by the Ministry of National Education (MNE), digital competencies are deemed as an outcome of education life, and in this sense, the applications to be made specifically for mother tongue education should be capable of addressing the literacy skills required by the current age (Günay and Özden, 2022). In many studies, it was revealed that the use of information and communication technologies in lessons makes the lesson dynamic, enjoyable and useful (Yaşar-Sağlık, Yıldız, 2021), develops a positive attitude towards the lesson and impacts the students' success positively (Ovalı, 2011; Akçay and Şahin, 2012; Çetin, 2013; Sevim, 2013; Baki and Feyzioğlu, 2017; Kamar, İnce, 2023; Karaoğlu, 2021, Yaşar-Sağlık, Yıldız, 2021). Teachers' attitude and predisposition to information and communication technologies were an important factor in the emergence of these results (Akkoyunlu, 2002; Horzum, 2010, Uçar Sarımanoğlu, 2019).

In this sense, the Turkish language teacher candidates who will make practices in order to improve their language skills are expected to develop positive attitudes towards information and communication technologies and use the technological tools efficiently. It is simply because both understanding and ensuring the perception of the multimodal texts and producing multimodal texts require being inclined to the information and communication technologies and converting them into skills. Therefore, this state of affairs is intrinsically related to the adequacy of teacher candidates' multimodal literacy levels. The teacher candidates are expected to have a positive attitude towards

information and communication technologies, which they will utilize in attempt to use multimodal texts effectively in the classroom and generate and present multimodal content.

The repercussion of information and communication technologies in the educational environment is inherently related to the technopedagogical content knowledge levels of teachers. The effective use of information and communication technologies in learning-teaching processes was also emphasized in the General Competencies for the Teaching Profession prepared by the MNE (Millî Eğitim Bakanlığı [MEB], 2017). Similarly, within the Turkish Language Teaching Special Field Competencies prepared by the Ministry of Education, the competencies of "being able to use materials and resources suitable for the Turkish language teaching process" and "being able to use technological resources in Turkish teaching" were included, and emphasis was placed on multimodalness and the effective use of teaching technologies at the lower levels of these competencies. (MEB, 2008). Therefore, affective characteristics and multimodal literacy levels towards information and communication technologies have become significant for Turkish language teacher candidates in order to achieve these competencies.

Various studies were encountered in the relevant literature regarding the multimodal structures, information and communication technologies and instructional technologies, implemented with teacher candidates and within the scope of Turkish language lessons. In his qualitative study on Turkish language teacher candidates, Tüzel (2013) revealed that almost all of the interviewed teacher candidates were not aware of multimodal literacy. In his study, Koparan (2022) found that some of the objectives targeted in the MNE Turkish Course Curriculum were related to multimodal literacy.

Ulu and Avşar Tuncay (2017) investigated the multimodal literacy levels of Turkish language and classroom teachers in terms of various variables. Bourelle et al. (2017) emphasized the need to include multimodal pedagogy in the distance education process. Ulu, Avşar Tuncay and Baş (2017) established that the multimodal literacy levels of teacher candidates from different branches strongly predicted their critical reading self-efficacy perception. Yi and Angay-Crowder (2016) talked about the ways and challenges of integrating multimodal pedagogy into the English teacher training process. Ekşi and Yılmaz Yakışık (2015) investigated the multimodal literacy levels of English language teacher candidates in terms of various variables.

In their study where Şimşek, Direkci and Koparan (2021) examined the views of Turkish language teachers about technology integration in education and the teacher training process, they stated that the courses combining field and pedagogy knowledge with technology should be included in Turkish language teaching undergraduate programs. Bakırcı and Günbatar (2017) revealed that there was a positive and significant relationship between the attitudes of prospective teachers from different branches towards information and communication technologies and their information literacy levels. Albayrak Sarı et al. (2016) found that there was a positive significant relationship between the attitudes of teachers teaching in different branches towards information and communication technologies and their technopedagogical content knowledge.

It is a reality of our current era that the multimodal texts are generated and presented through the information and communication technologies and that the new literacy skills that emerge accordingly are in relationship with the information and communication technologies (Tobin, 2018; Huang, 2017; Walsh, 2009; Coiro et al., 2008; Destebaşı, 2015). Nevertheless, the studies examining this relationship in terms of multimodal literacy and attitudes towards information and communication technologies have not been encountered in the relevant literature.

The multiple literacies that reflect the changing and evolving nature of producing and sharing texts with technological tools also include understanding and using the multimodal texts (Lankshear and Knobel, 2011). Considering that "communication", one of the 21st century skills, will be maintained with the digital texts today and in the near future, it is not hard to predict that, beyond developing positive attitudes towards information and communication technologies, both students and teachers will benefit from them and generate and utilize the multimodal texts in native language education.

Therefore, it is predicted that the Turkish language teachers' affective perceptions and cognitive skills should be at a good level in order for their multimodal literacy levels to be developed and for them to utilize the technological tools effectively. As far as these predictions concerned, the multimodal literacy level of Turkish language teacher candidates and their attitudes towards information and communication technologies and the relationships between these situations are crucially significant. The present study aimed to reveal the relationship between Turkish language teacher candidates' multimodal literacy levels and their attitudes towards information and communication technologies and analyze these two elements by various variables. For this purpose, answers were sought to the following questions:

Is there a relationship between the Turkish language teacher candidates' multimodal literacy levels and their attitudes towards information and communication technologies?

Do Turkish teacher candidates' multimodal literacy levels and their attitudes towards information and communication technologies demonstrate a significant difference by the class variable?

Do Turkish teacher candidates' multimodal literacy levels and their attitudes towards information and communication technologies demonstrate a significant difference by the gender variable?

METHOD

The present study, which aimed to examine the relationship between Turkish language teacher candidates' multimodal literacy (MML) levels and their attitudes towards information and communication technologies (ICT), was designed with the relational scanning model, one of the quantitative methods. The relational screening model is research in which the relationship between two or more variables is investigated without intervening in the variables (Büyüköztürk et al., 2018). In this study, the Turkish language teacher candidates' MML levels and their attitudes towards ICT were investigated without any intervention, and the relationship between these two variables was attempted to be revealed. Hypothesis tests were used in the process of analyzing the significance of the scores obtained from the measurement tools by the gender and class variables.

Sample

The study group was generated by the convenient sampling method. The sample group consisted of a total of 156 Turkish language teacher candidates in the Turkish language teaching undergraduate program studying at various year levels at a state university. Relevant information about the study participants is illustrated in Table 1.

Table 1

Relevant information about the sample group

	Gender		
Year	Female	Male	Total
1. Year	32	13	45
2. Year	26	24	50
3. Year	22	12	34
4. Year	21	6	27
Total	101	55	156

Data Collection Tools

The Attitude Scale related to Information and Communication Technologies and Multimodal Literacy Scale were used to collect data. Essential permissions were obtained from the relevant researchers for the use of both scales. Information about the validity and reliability of the scales is presented below.

The Attitude Scale related to Information and Communication Technologies

The Attitude Scale related to Information and Communication Technologies is a 23-item, 5-point Likert type scale developed by Günbatar (2014). As a result of the factor analysis, it was established that the scale consisted of 5 factors. For the reliability of the scale, Cronbach's Alpha reliability coefficient was calculated separately for the entire scale and each sub-dimension. While all Cronbach's Alpha coefficients for the sub-factors of the scale were above 0.70, the Cronbach's Alpha coefficient for the entire scale was 0.919. The highest score that could be obtained from the scale was 115 and the lowest score was 23.

As far as the analysis of this study is concerned, the Cronbach's Alpha coefficient for the entire scale was calculated as 0.837.

Multimodal Literacy Scale

The Multimodal Literacy Scale is a 5-point Likert type scale consisting of 17 items developed by Bulut, Ulu and Kan (2015). Expert opinion was sought for the content validity of the scale. As far as the result of the factor analyzes performed during the development phase of the scale are concerned, it was established that the scale consisted of 3 factors. While all the Cronbach's Alpha coefficients for the sub-factors of the scale were above 0.70, the Cronbach's Alpha coefficient for the entire scale was 0.875. The highest score that could be obtained from the scale was 85 and the lowest score was 17.

As far as the analysis of this study is concerned, Cronbach's Alpha coefficient for the entire scale was calculated as 0.868.

Data Analysis

In order to test the normality of the distribution, the Kolmogorov-Smirnov test was used since the sample was more than 50. Furthermore, histogram graphs, skewness and kurtosis were analyzed as well.

It was found that the p-values obtained from the Kolmogorov-Smirnov test were not significant at the 0.05 level in terms of the MML level and attitude scores towards the ICT (p = .055 for the ICT level; p = .200 for the attitude towards ICT). Based on this result, the distribution was accepted to be normal and the Pearson correlation coefficient was used to calculate the relationship between the ICT level and attitude towards ICT.

It was found that the p values obtained from the Kolmogorov-Smirnov test for the sub-dimensions of the MML level scale and the attitude towards ICT scale were significant at the 0.05 level (p = .001 for expressing oneself using multimodal structures; p = .001 for making sense of the content presented in the multimodal structure). .001; p= .000 for preferring the multimodal structure; p= .000 for General tendency of ICT; p= .000 for accessing information in virtual environment; p= .000 for computer hardware; p= .003 for using software; virtual p= .000 for communication in the environment). Based on these results, it was accepted that the distribution was not normal and the Spearman correlation coefficient was used to calculate the relationship between the sub-dimensions of the attitude towards MML and ICT.

The ranges specified by Büyüköztürk (2019) were accepted in the interpretation of the correlation coefficient. Based on this interpretation, 0.7-1.0 indicated a high level; 0.3-0.7 moderate; 0.0-0.3 indicated a low level relationship.

When the normal distribution of the MML level by the grade level was examined, it was found that the p value obtained from the Kolmogorov-Smirnov test of the data of 4th grade students was significant at the 0.05 level (p = .019). It was accepted that the distribution was not normal, and the Kruskal Wallis-H test, one of the non-parametric tests, was used to calculate the significance of the MML scores by the class variable, and the Mann Whitney U test was used for pairwise comparisons of the groups.

When the normal distribution of attitudes towards ICT by the grade level was analyzed, it was found that the p value obtained from the Kolmogorov-Smirnov test of the data of first grade students was significant at the 0.05 level (p = .043). It was accepted that the distribution was not normal and the Kruskal Wallis-H test, one of the non-parametric tests, was used to calculate the significance of the attitude scores towards ICT by the class variable.

When the normal distribution of the MML level by the gender variable was considered, it was found that the p value obtained from the Kolmogorov-Smirnov test of the data of the two groups was not significant at the 0.05 level (p = .143 for female students; p = .200 for male students). The distribution was accepted to be normal, and the t-test for independent samples was used to calculate whether the average scores obtained from the MML level differed significantly by the gender variable.

When the normal distribution of attitude towards ICT by the gender variable was examined, it was found that the p value obtained from the Kolmogorov-Smirnov test of the data of the two groups was not significant at the 0.05 level (p = .200 for female students; p = .200 for male students). The distribution was accepted to be normal and the t-test for independent samples was used to calculate the significance of the attitude towards ICT by the gender variable.

Ethical Principles

The ethics committee approval for this study was granted by Bursa Uludağ University Social and Human Sciences Research and Publication Ethics Board with decision number 23 on 25.03.2022.

RESULTS

The descriptive statistics regarding the scores obtained from the MML level and attitude scales towards ICT are illustrated in Table 2.

Table 2

Descriptive statistics regarding Turkish language teacher candidates' MML level and their attitudes towards ICT

	n	Min.	Max.	x̄	sd
MML Level	156	46,00	85.00	67,91	9,55
Expressing oneself using multimodal structures	156	6,00	25,00	18,52	4,63
Interpretation of the contents presented in multimodal structure	156	17,00	35,00	28,96	4,09
Preferring multimodal structure	156	5,00	25,00	20,42	3,96
ICT Attitude	156	54,00	108,00	82,91	11,23
General tendency of ICT	156	12,00	30,00	24,81	3,65
Access to information in virtual environments	156	13,00	25,00	21,62	2,85
Computer hardware	156	4,00	20,00	7,96	4,56
Use of software	156	5,00	25,00	17,29	4,01
Communication in Virtual Environments	156	3,00	15,00	11,22	2,45

As far as Table 2 is concerned, the lowest score of the Turkish language teacher candidates on the MML level scale was 46 and the highest score was 85; it was seen that they got the lowest score of 54 and the highest score of 108 from the attitude scale towards ICT. The arithmetic average of the scores was identified as 67.91 for the MML level and 82.91 for the attitude towards ICT.

A simple correlation was applied in order to examine the relationship between Turkish language teacher candidates' attitudes towards ICT and their MML levels. The Pearson correlation coefficient between the variables as a result of the correlation analysis is presented in Table 3.

Table 3

Pearson correlation coefficient between Turkish language teacher candidates' MML levels and their attitudes towards ICT

	Pearson Correlation Coefficient	p	n
Multimodal Literacy Level – Information and Communication Technologies Attitude	,350**	,000	156

** Significant at 0.01 level

Considering Table 3, it is clear that there was a positive, medium-level significant relationship between Turkish language teacher candidates' attitudes towards information and communication technologies and their multimodal literacy levels. It was also observed that the calculated coefficient determination was $r2 = 0.122$. Based on this, it is possible to say that the explained variance was 12%.

Simple correlation was applied to analyze the relationships between the subscales of the ICT and MML scales. The Spearman correlation coefficients between the sub-dimensions of the scales are illustrated in Table 4.

Table 4

Spearman correlation coefficient between the scores of Turkish language teacher candidates obtained from the sub-dimensions of the attitude scales towards MML and ICT

	Spearman Correlation Coefficient	p	n
General tendency of ICT – Expressing oneself using multimodal structures	,356**	,000	156
General tendency of ICT – Interpretation of the contents presented in multimodal structure	,263**	,001	156
General tendency of ICT – Preferring the multimodal structure	,321**	,000	156
Access to information in virtual environments – Expressing oneself using multimodal structures	,281**	,000	156
Access to information in virtual environments – Interpretation of the contents presented in multimodal structure	,238**	,003	156

Access to information in virtual environments – Preferring the multimodal structure	,168*	,036	156
Computer hardware – Expressing oneself using multimodal structures	,005	,951	156
Computer hardware – Interpretation of the contents presented in multimodal structure	-,098	,222	156
Computer hardware – Preferring the multimodal structure	-,225**	,005	156
Use of software – Expressing oneself using multimodal structures	,541**	,000	156
Use of software – Interpretation of the contents presented in multimodal structure	,362**	,000	156
Use of software – Preferring the multimodal structure	,092	,255	156
Communication in Virtual Environments – Expressing oneself using multimodal structures	,213**	,008	156
Communication in Virtual Environments – Interpretation of the contents presented in multimodal structure	,240**	,003	156
Communication in Virtual Environments – Preferring the multimodal structure	,096	,233	156

As far as Table 4 is concerned, it is clear that the highest relationship was between the dimensions of software use and expressing oneself using multimodal structures. It was found that the computer hardware dimension was negatively related to the dimensions of making sense of the content presented in the multimodal structure and preferring the multimodal structure.

The Kruskal Wallis H test results illustrating the significance of attitudes towards information and communication technologies and multimodal literacy levels by the class variable are presented in Table 5.

Table 5

Attitudes of Turkish language teacher candidates towards ICT and MML levels by the class variable

	Year	n	x̄	sd	Rank Avg.	Kruskal Wallis H	
						X^2	p
ICT Attitude	1	45	82,0000	10,79562	73,99		
	2	50	81,1800	12,13309	72,89		
	3	34	82,7647	10,14757	76,65	6,703	,082
	4	27	87,8519	10,67601	98,74		
	Total	156	82,9167	11,23069			

MML	1	45	68,2444	10,28935	80,68		
Level	2	50	64,1800	9,13323	60,39		
	3	34	69,1176	8,35125	83,71	15,828	,001
	4	27	72,7407	8,15990	101,85		
	Total	156	67,9103	9,55755			

When the Kruskal Wallis H test results given in Table 5 are analyzed, it is evident that there was no significant difference between the ICT attitudes of the teacher candidates by the class level (p>0.05), and there was a significant difference between the ICT levels by the class level (p<0.05). As a result of the pairwise comparisons made with the Mann Whitney U test, it was found that the CQ scores of the 2nd, 3rd and 4th year teacher candidates demonstrated a significant difference in favor of the 4th year students.

The results of the t-test for independent samples conducted to evaluate the ICT attitude and MML level by the gender variable are illustrated in Table 6.

Table 6

Attitudes of Turkish language teacher candidates towards ICT and MML levels by the gender variable

	Gender	n	x̄	sd	t-Test		
					t	sd	p
ICT	Female	101	81,79	11,24	-1,705	154	,090
Attitude	Level	55	84,98	11,01			
MML	Female	101	69,33	9,40	2,571	154	,011
Level	Male	55	65,29	9,35			

As far as Table 6 is concerned, it was concluded that the ICT attitude did not demonstrate a significant difference by the gender (p>0.05), while the MML level illustrated a significant difference in favor of the female teacher candidates by gender (p<0.05).

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The present study aimed to investigate the relationship between Turkish language teacher candidates' multimodal literacy (MML) levels and their attitudes towards information and communication technologies (ICT) and to analyze these two elements by the class and gender variables. In line with this study, no studies were encountered that investigated the relationship between the level of MML and ICT attitude, which was an affective dimension. Therefore, the discussion of the relationship between the MML level and attitude towards ICT was limited to the relationship coefficient.

Turkish language teacher candidates' MML level and their attitude scores towards ICT are above the average score that can be obtained from the scale. In general, it was clear that Turkish teacher candidates' MML levels and their attitudes towards ICT were above the average score that could be obtained from the scales. Contrary to the results of this study, it was stated that most of the Turkish language teacher candidates interviewed in Tüzel's (2013) qualitative study failed to develop an

awareness of multimodal literacy. Dargut and Çelik (2014) concluded that Turkish language teacher candidates' attitudes towards the use of technology in education are generally positive. It was evident that the attitude scores of Turkish language teacher candidates towards information and communication technologies were above the average score that could be obtained from the scale. It is possible to say that this result overlapped with the result obtained by Dargut and Çelik (2014).

As far as the results obtained in the study are concerned, it was found that there was a positive, medium-level relationship between the Turkish language teacher candidates' MML levels and their attitudes towards ICT. Furthermore, it was concluded that the two factors explained 12% of one another. Based on this result, it is possible to say that the multimodal literacy level and the attitude towards information and communication technologies would jointly increase and decrease. When the Turkish language teacher candidates start their careers, they should be supported in obtaining the digital competencies specified in the Turkish Language Teaching Program (2019). Therefore, it is crucially important to have improved the levels of understanding the content presented in multimodal structures and using the multimodal structures. Similarly, they are expected to develop a positive attitude towards the technological tools, where they will encounter a multimodal structure and generate texts in this structure. In this sense, the positive relationship emerging in the study results is an expected outcome.

The reason why the relationship reached was at a medium level can indicate the fact that the Attitude Scale Towards Information and Communication Technologies only established the attitudes. Since attitude is an emotional and cognitive predisposition, it should not be considered as a sufficient factor separately in evaluating the use of information and communication technologies and multimodal literacy level. In order to explicate the tendencies towards both multimodal literacy and information and communication technologies, the cognitive as well as affective features should also be taken into account. Even though the explained variance of 12% seems low, it is deemed significant to obtain this result when examining an element that varies according to personal characteristics, emotions and opinions such as attitude.

Considering the relationships between the sub-dimensions, it was evident that the highest level of relationship was between the software use and expressing oneself using multimodal structures dimensions (.541). It is considered that this level of relationship was natural since various software and programs in technological tools would be required to generate multimodal structures.

It was concluded that the sub-dimensions of multimodal literacy, making sense of the content presented in the multimodal structure and preferring the multimodal structure, were negatively related to the computer hardware dimension. Computer hardware commonly requires technical interest, knowledge and skills. Therefore, it was deemed normal that there was a negative relationship between the multimodal text structures and computer hardware.

Generating and encountering multimodal text structures can be associated with the interest in using these technologies rather than the pre-disposition towards the hardware features of information and communication technologies. In fact, the multimodal text structures appear in various applications and software that we encounter when using the information and communication technologies in daily life. In order to be able to use these applications and software, it is believed that being able to use these tools at a basic level is sufficient rather than having interest and detailed knowledge about the parts of technological tools.

In this study, it became evident that the attitudes towards information and communication technologies did not demonstrate a significant difference by the grade level. This result clearly contradicts the results of Bakırcı and Günbatar's (2017) study on Science and Mathematics teacher candidates. It is possible to conclude that this particular situation stemmed from the difference between the dates when the studies were carried out. The fact that today's teacher candidates are more likely to use ICT and have easier access to digital tools may be the reasons for this particular result. Moreover, knowledge, experience and perceptual attitudes towards information and communication technologies may vary depending on the undergraduate subject branch and individual differences.

In the present study, the multimodal literacy levels, depending on the grade variable, exhibited a significant difference between the 2nd, 3rd and 4th year in favor of the 4th year students. The reasons for this result might be that the senior (4th year) teacher candidates approached the end of their student life and that they experienced a teaching environment with the multimodal texts in their practices. In a study conducted by Ulu and Avşar Tuncay (2017) on Turkish language and elementary school teaching students, it was found that there was a significant difference in favor of the senior students only regarding the dimension of preferring the multimodal structure.

In this study, no significant difference was found in teacher candidates' attitudes towards the information and communication technologies by the gender variable. Similarly, in a study conducted by Bakırcı and Günbatar (2017), no significant difference was found based on gender in total scores. In this day and age, when almost everyone is related to technology in one way or another, it is possible to consider it as normal that the attitudes towards information and communication technologies have not varied by gender.

In the present study, it was found that there was a significant difference in the multimodal literacy levels in favor of the female teacher candidates by the gender variable. In a study implemented by Ulu and Avşar Tuncay (2017) study, a significant difference was found in favor of the female teacher candidates only in the dimension of expressing oneself using multimodal structures. These results clearly demonstrate that the female teacher candidates were more careful in using and preferring the multimodal structure and interpreting the content presented in the multimodal structure.

Consequently, taking into account the fact that Turkish language teacher candidates will help their students to improve their digital skills as well as their basic language skills, the importance of developing a positive attitude towards the information and communication technologies in order to use the multimodal structures they will need in the teaching process should not be ignored. Based on all the results obtained, it is possible to make the following suggestions:

- Applied courses in which Turkish language teacher candidates can display their multimodal literacy skills should be included in the Turkish language teaching undergraduate programs.

- In order for the Turkish language teacher candidates to master both technological tools and multimodal text structures, it is crucially significant to support them in developing positive attitudes towards the technological tools and carry out academic studies in an attempt to improve their knowledge level about the multimodal text structures.

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