

Development of Teacher Candidates' Text-Making Skills in Multimodal Literacy Framework

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Abstract

The aim of this research is to improve multimodal literacy skills of Turkish language teacher candidates. For this purpose, first of all ; the existing conditions of teacher candidates about multimodal literacy have been determined. An implementation process is designed based upon the identified shortcomings. In this study, which is designed with mixed method, semi- structured interview form, semi- structured observation form, diary and teacher candidates' products are collecting data collection tools. Participants have been constituted among Turkish language teacher candidates. Descriptive analysis and content analysis techniques were utilized in the analysis of the data. At the beginning of the research period, multimodal literacy skills of teacher candidates were found low degree. Teacher candidates are determined to have significant deficiencies in integrating technological, pedagogical and field knowledge. On the other hand, as a result of the research, it has been seen that the Turkish language teacher candidates show the development which can produce multimodal texts.

Keywords: Turkish language teaching, multimodal literacy, web 2.0 tools, teacher education, 21st century literacy.

1. Introduction

It is a known fact that the concept of literacy is shaped by the needs and living conditions of the societies. Even literacy can correspond to different skills in the same society and living conditions (Abendroth, 2009; Barone, 2006; Beth, 2011; Cassidy, Garrett, Texas ve Univ, 2002; Essential Readings on Early Literacy, 2010; Improving Financial Literacy, 2005; Kress, 2004; Liu, Varma, & Roehrig, 2014; Mary, 2011; Pence, 2007; Potter, 2005; Tammy, 2013; Watts-Taffe ve Gwinn, 2007; Weaver, 2010). It can be said that literacy corresponding to different skills leads to many changes in this direction. One of them is the text structure. The texts have been only known as stone, parchment or paper in the previous centuries have taken on a different structure in particular over the centuries. Multimodal texts have emerged with the possibilities of technology (Domingo, 2013'den akt., Dunkerly-Bean ve Bean, 2015; Lenters, 2016).

These texts; consists of at least two of the linguistic, visual, auditory, moving and spatial components (Beavis, 2002; Danielsson ve Selander, 2016; Kalantzis and Cope, 2001; Kress & van Leeuwen, 2001; McLaughlin, 2013; Robins, 2011; Shanahan, 2013; The New London Group, 2000; Unsworth, 2001). Multimodal texts; movies, ignorance, comics, photographs, illustrations, books (McLaughlin, 2013), e-portfolio (Bourelle, Bourelle, Sponge and Hendrickson, 2017), graffiti (Alshreif, 2016), podcasts, videos, news texts, social media contents may be in such different ways.

This type of text that exists in the life of the students and which is housed in different components reveals multimodal literacy to make the teaching process more effective (Loerts ve Heydon, 2017). Different definitions and explanations of multimodal literacy have been made. Some of these can be shown as follows:

- Multimodal literacy demands that students create texts that consist of multiple components, such as sound, painting, animation, in addition to text based on traditional alphabets (Takayoshi ve Selfe, 2007'den akt., Bourelle, Bourelle, Spong ve Hendrickson, 2017; Omerbašić, 2015).
- Multimodal literacy is a skill that be awareness of the teaching process contribution of linguistic, visual, symbolic resources (O'Halloran, 2015).
- Students read digital texts, display, understand, respond and produce digital texts with these texts (Jackson-Howard, 2015).
- Multimodal literacy, visual rhetoric at the same time (McNabb, 2014).

As can be seen from the explanations, it can be said that multimodal literacy is a skill that should be given to students for use in both in-school and out-of-school life. This skill is expected to have more information on the meaning of the multimodal texts surrounding the worlds of students. Moreover, thanks to multimodal literacy, they will not only gain a critical perspective on these texts; they may be the producers of these texts.

2. Statement of the Problem

The place of technology has become indisputable in public life. Technology, which has an important function in the life of people from all walks of society, has also taken its place as a development indicator. The Global Information Technology Report, which the World Economic Forum (2016) has published, describes this situation as the best way. In this report has enumerated different areas in terms of the use of technology in 139 countries. In this order, Turkey's situation is shown as follows:

Tablo 1. Technology Report of Turkey

Research area	World ranking
State tender to advanced technology products	39
Number of households with Internet access	51
Access to the latest technologies	55
Number of households with personal computer	59
Internet access on school	62
Internet users	67
The future vision of the governments of computer and communication Technologies	73
Success of management in promoting computer and communication technologies	73
Innovation capacity	83
The quality of the education system	92

Looking at Table 1, Turkey ranked first in terms of the provision of technological equipment in this order where 139 countries took place. Finally, it can be said that the quantitative distribution of state-supported technology products is partly realized. This is reflected in the number of people with personal computers and the number of people with internet access. However, looking at Table 1, it can be said that the main problem is that computer and communication technologies are not used effectively. The ranking in the innovation capacity and the quality of the education system is indicative of this situation.

These deficiencies in computer and communication technologies are thought to directly affect the literacy skills of the society. The Economist Intelligence Unit (2017) produced a report containing 75 countries. In this report, countries have been able to utilize the possibilities offered by the internet. Turkey is ranked 48th in terms of digital literacy skills. On the other hand, significant investments are being made in the field of technology in Turkey and they are still being carried out. In 2016, the budget allocation of investment in information and communication technology in public education is divided into a maximum rate of 45.59% (Kalkınma Bakanlığı, 2016). This ratio is predicted to be 28.93% in 2017 (Kalkınma Bakanlığı, 2017).

When the information and communication technologies are ranked in the order of public institutions in 2016, the Ministry of National Education is the first with the "FATİH Project" (Kalkınma Bakanlığı, 2016). Up to that time, 432.288 interactive boards, 6904 school network infrastructure, 5276 school have got fiber internet access and 1,437,800 tablet computer services were presented to FATİH Project. The tender process of 10.600.000 tablet computers is continuing with them (Milli Eğitim Bakanlığı, 2017).

Despite these possibilities and technological equipment, it is also known that the project has important problems. These problems are usually due to the fact that the project does not progress as intended, the use of smartboards and tablets in teaching lessons, teachers' inability to use ICTs, and restrictions on internet access (Altın and Kalelioğlu, 2015). However, it can be shown that the biggest problem related to the FATİH project is that the teachers are not active in the teaching process (Ayvacı, Bakırcı and Başak, 2014, Baz, 2016, Ekici and Yılmaz, 2013, Karabacak, 2015, Karatekin, Elvan and Öztürk, 2015; Koçak, 2013, Kurt, Kuzu, Dursun, Güllepınar and Gültekin, 2013, Kurtdede Fidan, Erbasan and Kolsuz, 2016, Özdemir, 2014, Türker and Güven, 2016). The ineffectiveness of teachers is based on in-service training problems (İzci and Eroğlu, 2016). Because in-service training does not contribute to the professional development of teachers due to the intensity of the content and the lack of time (Yıldız, Sarıtepeci ve Seferoğlu, 2013, Özkan ve Deniz, 2014). However, this negative situation should not be solely based on in-service training. As a matter of fact, teachers can not have the necessary knowledge and competence during their undergraduate education (Türker ve Güven, 2016). Therefore, it is considered that teacher education should be given the necessary training during undergraduate education.

On the other hand, judging from the course content of the Turkish language education undergraduate program, it will be seen that there are not enough courses to provide adequate provision to this subject. There is a compulsory computer course for all programs only regarding the use of ICT. It is known that this course does not go beyond just acquiring basic skills. On the other hand, Turkish language teachers can be equipped with the

necessary equipment with a course content that integrates technological, pedagogical and field knowledge during undergraduate education. Because of the requirements of the times and the investments made in technology, multimodal literacy have made a necessity. This requirement in the Renewed Turkish Language Curriculum (1-8th grade) (MEB, 2017) is regarded as a basic skill as "digital competence". Even in the program, multimodal texts such as blogs, brochures, advertisements, news texts, social media messages, comic strips have taken place as a text type. However, it is not possible to reach the goals set by the teachers of the program unless they are proficient in it (Bulut, Ulu and Kan, 2015). Teachers can fulfill these goals if they are qualified to use technology as much as students (O'Brien and Bauer, 2005).

Therefore, the training of the teacher candidates should be carried out by considering the reading and writing experiences of future generations (Karchmer-Klein and Shinas, 2012). As a result of these trainings, teacher candidates should be able to produce texts using technology (Melanie and Teri, 2013). This skill can be achieved by giving multimodal literacy skills to Turkish language teacher candidates (Meadow Sherrill and Sheila, 2010, Melanie and Teri, 2013, Yi and Angay-Crowder, 2016). When considering the frame of Turkey, point out the lack of applied studies made in this subject. Therefore, it is thought that this study which is aimed to give multimodal literacy skills to Turkish language teacher candidates is important.

The aim of the study is to determine and improve the multimodal literacy skills of the Turkish language teacher candidates. This study was carried out with quantitative data embedded within the qualitative data that constitute the basic data. Thanks to this quantitative data, it has been tried to determine the multimodal literacy skills of the Turkish language teacher candidates. Then, an intervention program was implemented to make up for these deficiencies in literacy skills. As a result of this intervention process consisting of completely qualitative data, it has been tried to determine the problems and developments that teacher candidates have experienced about multimodal literacy skills. For this purpose, the answers to the following questions were sought:

- What is the level of multimodal literacy skills of Turkish language teacher candidates?
- How was the implementation process realized to improve the multimodal literacy skills of Turkish language teacher candidates?
- How was the multimodal literacy skills of Turkish language teacher candidates changed after the implementation process?

3. Method

3.1. Research Design

The study was designed by a mixed method of combination of qualitative and quantitative paradigms (Creswell, 2009; Gail, 2013; Linda ve Peter, 2010; Lund, 2012; Makrakis ve Kostoulas-Makrakis, 2016; Parylo, 2012). Embedded design was also chosen as the mixed method. The reason for the selection of this mixed method is that an intervention process is carried out and that the results of this process are evaluated (Creswell, 2009). The situation of interfered is the multimodal literacy skills of the teacher candidates. Another reason for choosing an embedded design is to combine the power of quantitative and qualitative data collection tools to seek answers to different research questions (Creswell and Plano Clark, 2011).

In this design, quantitative and quantitative datas are used to support each other. According to the content of the study, one of these data plays a supporting role for the other (Creswell, 2009; Creswell and Plano Clark, 2011). In this study, qualitative data are primary; and quantitative data supportive role. The reason for the primary role of qualitative data is to explore in depth the process of implementation to develop multimodal literacy skills.

3.2. Study Group

The group of this study, which is designed by the mixed method, is determined separately for the quantitative and qualitative dimension. The study group was identified by sequential mixed sampling technique used for the mixed method. The reason for choosing this technique is to determine the qualitative dimension of the study group, moving from the quantitative dimension of data (Teddlie and Yu, 2007).

Based on this sampling technique, the universe of research for the quantitative dimension constitutes Turkish language teacher candidates in a city located on the Mediterranean Region of Turkey. The sample is the Turkish language teacher candidates who are studying at a university in this province. Of the total 128 students, 60 were women; 68 were men. The qualitative dimension of the study is 20 participants. 9 of these 20 participants are men; 11 candidates are women. Twenty participants were selected based on the results of the quantitative data collection tool. Also voluntary participation in the implementation process has also been taken as a basis. The real names of the 20 people who made the participants of the survey were kept secret in the study. Nicknames were used when presenting data about these persons in the findings section.

3.3. Data Collection Techniques

In this study, questionnaire, diary, semi-structured observation form, semi-structured interview form and student products were used as data collection technique. The development stages of these data collection tools are presented below.

Survey. This data collection tool was used for the quantitative dimension of the research. With this questionnaire form, it was tried to determine the existing situations of Turkish language teacher candidates for multimodal literacy. The three-part form; In the first part, personal information; In the second part, ten questions with closed ends; In the last part, there are four open-ended questions. Identify existing situations for the ability to produce multimodal text with closed-end questions; and open-ended questions were tried to reveal information about the stage of text production. The closed-end questions on the questionnaire were designed as a triple likert type of "yes", "no", "partly". The reason for selecting the triple likert type is that it does not want to generalize the existing conditions of the teacher candidates. This questionnaire, which constitutes the quantitative dimension of this study, plays a supporting role in the study. It is desired to examine in depth information at a qualitative dimension. While preparing the questionnaire form; firstly the search of the field has been done. Survey questions were prepared by considering the purpose of the research. The created draft text was presented to the expert after it was reviewed by the researcher. As a result of the expert opinion, changes were made to the proposed questions to make them ready for pilot implementation (Johnson and Christensen, 2007). In pilot study, 30 Turkish language teacher candidates were selected with similar characteristics except for the research group (Altunışık, 2008). After the pilot implementation, necessary corrections were made and the questionnaire was finalized for implementation. This form is a sample of 128 Turkish language teacher candidates who form the sample of researching the source.

Semi-structured observation form. When the observation form was developed, the results of the survey were taken into consideration. Expert opinion was presented to determine the appropriateness of the questionnaires to the structure of the observation form in terms of the environment to be observed and the target audience (Yıldırım and Şimşek, 2013). Following the expert opinions, pilot implementation was made to the form which was corrected by considering the suggestions. The final form of the post-treatment form is given. There are six questions in the semi-structured observation form developed. The questions are usually followed closely by the subject in order to determine the state of the teaching process about the deficiencies identified in the survey data. The source of this form is the researcher.

Diary. The source of this data collection tool is the 20 Turkish language teacher candidates that make up the qualitative dimension of the study group. At the end of each course, teacher candidates are asked to state their comments on the digital environment. They were guided by a structured diary when expressing themselves. Three questions are provided to evaluate the process of producing multimodal text in this format, taking into account the objectives of the research, from their point of view. Through these diaries, the Turkish language teacher candidates' personal observations and comments on the teaching process (Yıldırım and Şimşek, 2013) were reached.

Product. Products are performed by 20 Turkish language teachers throughout the implementation process During the implementation process for multimodal text production, draft story, written and visual text, multimodal texts were created respectively.

Semi-structured interview form. This form has been developed in order to determine the opinions of the Turkish language teacher candidates regarding the implementation process for multimodal text production. The content of the study was considered when the interview form was developed (Merriam, 2013). As the content of the study, questions were raised from the data obtained from the survey. Developed questions were presented to the expert for evaluation of content validity (Glesne, 2013). After the opinions of the experts, the form was arranged and the pilot implementation was carried out in terms of compliance with the target group. The form was finalized with feedback from the pilot implementation. The developed semi-structured interview form has 11 questions. Negotiations were recorded with voice recorder.

3.4. Data Collection Process

In this study, which is designed by mixed method, data collection process lasts 20 weeks (5 months). This is the 12-week multimodal text production process. In the implementation phase, 2 lessons per week were conducted. The data collection process was carried out with qualitative data; and quantitative data supportive role. The supportive role of quantitative data has been to determine the multimodal literacy skills of Turkish language teacher candidates. In addition to, findings from quantitative data provided the basis for the implementation process and qualitative data collection tools. Therefore, the qualitative data collection process that constitutes the

majority of the research is based on quantitative data. As a result of the analysis of these quantitative data collected by the survey form, the implementation process was decided. In the implementation process, three main points were focused.

- **Field knowledge:** At this stage, it has been tried to improve the text production skills of Turkish language teacher candidates. Teacher candidates have been given necessary information about the stages of producing texts and the issues to be considered. They are required to compose written texts in accordance with this rule and steps. Finally, this section has been completed by giving feedback to the written texts they have created.
- **Technological knowledge:** It has been determined that teacher candidates are deficient in visualization and multimodal text production. It is understood that it can not integrate technological knowledge with field knowledge. So, at this stage, web 2.0 tools have been included in the process. Two different tools were used. The first of these is Pixton (<https://www.pixton.com/>), which is used to visualize the written text. Teacher candidates integrate written texts with visuals using the pixton tool. Another tool is photo story (<https://microsoft-photo-story.tr.uptodown.com/>). Through this tool, teacher candidates have voiced written and visual texts they have created. They also made the final appearance of multimodal text by adding music and making necessary visual adjustments. Detailed information on this process is included in the findings section.
- **Pedagogical information:** When it comes to this stage, teacher candidates have completed multimodal texts. But they are not knowledgeable about the applicability of texts. Therefore, the opinions of the Turkish language teachers were consulted for the applicability of the texts and their suitability to the student's level. For this purpose, 30 Turkish language teachers (15 female, 15 male) who worked in the Ministry of National Education for at least 5 years were interviewed. In line with the criticisms made, teacher candidates have made the necessary arrangements in their texts. Detailed information on this process is included in the findings section. When the Turkish language teachers working in the Ministry of National Education criticize the findings, the names of ethical elements are not used. Instead, the male teachers were numbered as "EO1, EO2, EO3 ... EO15" and female teachers as "KÖ1, KÖ2, KÖ3 ... KÖ15".

At the end of the 12-week implementation period of the workshop, semi-structured interviews with the teacher candidates were conducted. These interviews attempted to investigate the existing situations before the research and the situations at the end of the implementation process of the Turkish language teacher candidates.

3.5. Data Analysis

Data analysis, was performed by sequential analysis technique, the determining one another (Creswell ve Plano Clark, 2011). Survey data used as the determinant of the implementation period of the research and qualitative data collection tools were analyzed by descriptive analysis technique. The obtained results are presented together with the frequency values.

Semi-structured observation form, diaries and Turkish language teacher candidates' products, which constitute the data collection tool of the second research question, were analyzed by descriptive analysis technique. The reason for the choice of the descriptive analysis technique is to provide a gradual introduction of the implementation process. For the third research question, the content analysis technique was used in the analysis of the data to reveal the opinions of the teacher candidates towards the implementation process. The data for the first and second research questions were analyzed weekly by macro analysis technique for the purposes of the research. At the end of the implementation process, all the data were analyzed again by microanalysis. Macro analysis results and micro analysis results are compared and the final version of the codes, categories and theme are given.

In the findings of the study, the primary data (data from qualitative data collection tools) were interpreted by associating with the secondary data (data from the questionnaire). From these interpretations we have been inferred. General inferences of the findings obtained from the primary and secondary data are included in the conclusion.

3.6. Validity and Reliability of the Study

All data collected at the end of the implementation process were transferred to the qualitative analysis program without any changes being made. After transferring the data to the article, an domain expert was asked for help. The domain expert has confirmed the consistency of the raw data and transferred data. The collected data is re-coded by the domain expert. After coding, the codes of domain expert and researcher were compared; the inconsistent points were reconciled and necessary corrections were made. The coding confidence between the

two experts (Opinion union / Opinion union + Opinion union \times 100) was found to be 90% (Miles and Huberman, 1994, p. 64). Procedures related to credibility, dependability, confirmability and transferability (Lincoln and Guba, 1985) were conducted to determine the validity of the study.

Credibility. The credibility of the work was primarily provided by a data collection process as long as 5 months. In addition, it is another element that provides the credibility of designing the research with mixed method and realizing the implementation process with different data collection tools.

Transferability. Each stage is presented in detail, from the grounds of research to the end of the data collection process. In this way, other researchers have the opportunity to repeat this work or to do a similar work.

Dependability. Five different data collection tools were used for the reliability of the study. How these data collection tools are developed; it is explained how validity and reliability are provided.

Confirmability. Confirmability of the study is not based on a single data source. Different data sources was used. These data sources are presented in association with the study report. In addition to, direct citation of these data has been attempted to ensure the validity of the study.

4. Results

This part of the study consists of three parts. The chapters are based on research questions. The findings for each research question were included respectively.

4.1. Multimodal Literacy Skills of Turkish Language Teacher Candidates

In this chapter, it is tried to show the existing situations of Turkish language teacher candidates towards multimodal literacy skills. In the surveyed, firstly, teacher candidates were asked about the selectability of reading and multimodal texts. The answers from the teacher candidates are shown in Table 2.

Table 2. Text Selection Schemes of Turkish Language Teacher Candidates

The way of determining text	Literary products	Internet	Myself
Reading text for Turkish lesson	92	24	8
Multimodal text for Turkish lesson	4	112	10

As seen in Table 2, very few of the Turkish language teacher candidates ($f = 8$) are enough that they can produce a reading text suitable for Turkish lesson. Therefore, most ($f = 116$) stated that they would be able to meet their needs by going to the ready texts. As a source of ready text, they have shown literary products ($f = 92$) belonging to famous poets and writers. More internet ($f = 112$) was preferred as a source in selecting multimodal texts. It has been found that the preference for literary products as multimodal text is much lower than the reading texts.

After these evaluations of Turkish language teacher candidates about text selection, questions were asked about the ability of producing texts. The answers to these questions are presented in Table 3.

Table 3. Status of Turkish Language Teachers' Ability to Produce Text

Knowledge and Sufficiency	Yes	Partly	No
Whether Turkish language teacher candidates should have the ability to produce text	104	16	4
Information about features that should be included in a text	36	40	52
Information on the steps of producing text	26	18	74
Information on what to look out for during text production	24	40	64
To be able to produce reading text	52	50	24
To be able to produce multimodal text	10	58	54
Ability to create images while producing multimodal text	8	50	68
Ability to create sound, visual and text harmonization while producing multimodal text	5	45	76

In Table 3, it is noteworthy that most of the Turkish language teacher candidates ($f = 104$) stated that they should have the ability to produce texts. The number of people about "Information about the features to be included in

the text" ($f = 36$) is more than number of people about "the text generating step of" ($f = 26$) and "knowledge about what needs to be considered in the text production phase" ($f = 26$). Therefore, as the size of the information increases, the deficiencies of Turkish language teacher candidates increase.

Table 3 highlights are the significant difference between the number of teacher candidates who can produce reading texts and the number of teacher candidates who can produce multimodal texts. The difference between those who think they can produce reading text and those who can not think of it is more homogeneous. In multimodal text production, this situation is more heterogeneous.

As regards the ability to produce multimodal text, the qualifications of teacher candidates vary as the structure of the text becomes more complex. As seen in Table 3, the number of teacher candidates who say that they can produce multimodal text can be reduced to the number of teacher candidates who indicate that they can convert a digital text compatible with sound, text, and visuals. This is because the teacher candidates see multimodal texts as reading text; so they think they can be easily designed. But as we move towards the higher-level skills of the multimodal text, it can be said that the multimodal text skills fall.

4.2. Findings and Comments on the Implementation Process for Developing Multimodal Literacy Skills

In this part of the research, the implementation process for improving the multimodal literacy skills of the Turkish language teacher candidates has been reported. As can be seen in the image of FIG. 1, the implementation process is performed according to certain stages. In this section, the process of writing text formation, the process of creating the visuals and the process of creating the multimodal text are listed respectively. The data are exemplified by the products of a single teacher candidate in terms of the clarity of the research report when presented. Because there are a total of 20 teacher candidates. Since the texts produced in the implementation process are long, the submission of the products of all the teacher candidates will make it difficult to understand the workings. However, the data of all teacher candidates are included in the observation and diary.

Creation of Written Text. In this section, the findings and interpretation section of the Turkish language teacher candidates about the written text production process is given. This process, which constitutes the first two weeks of the implementation period, lasted a total of 4 hours.

In the first week, the contents of the written text and the type of the text were discussed with the teacher candidates. As a result of the discussions, the implementation process was carried out through the narrative text type. After the text, they were asked to identify a subject from the teacher candidates. Primary Education Turkish Language Teaching Program and Guide (6th, 7th, 8th Grades) (2006) were released at the choice of topic with a relation to one of them. Following the selection of the topic, the drafting process of the draft text has been passed. Before creating your texts, the following reminders were made:

- The text should be appropriate to the level of middle school students.
- Main characters and supporting characters should be well analyzed in terms of their role in the text.
- The place, the event and the characters must support each other.
- Finally, it should not be forgotten that this text will turn into a multimodal text and this detail should be taken into consideration when designing.

After the necessary precautions, teacher candidates have passed the process of drafting the texts. Reflecting on the observation forms of the teacher candidates who make up the draft text as follows:

"This week we did the first course of the implementation process. I could see that they were all interested in the implementation process. But what worries me is that the process can not be understood. But I was afraid it did not work. I knew they understood everything I told. When they went through the process of drafting text, I could see more clearly what they wanted. Although they understood, it was obvious that the first course had a hard time about what they would do. At the end of the course, they gradually completed draft texts." (Investigator, Semi-structured observation form, 08. 03. 2017).

Teacher candidates who did the process of drafting text in the first week as described in the observation form were different from the lesson in the second week. Almost all of the teacher candidates indicated that they did not like the content of the draft text and the text they created the previous week. So, many of them came to class by creating a new draft text (Researcher, Semi-structured observation form, 15 March 03, 2017).

The second week was divided into stages by discussing on draft texts and correcting incomplete aspects. Thus the text became more regular for the next steps. The following is a story of a student, presented with his scenes (Nazike, written text, 13.03.2017).

Figure 1. Nazike's Written Text

Scene 1: Arif was looking forward to the summer vacation. Because at night, he could watch the sky and the stars as he wanted. He loved to do this because he could easily imagine watching the stars. It was stable, it would be a scientist. He's already reading astronomy books.

Scene 2: When Arif won a good luck, he could finally get his father the telescope he wanted. He could watch the surface of the moon for hours and take a closer look at the stars. Who knows what will fall into thinking when examining them.

-My father, thank you so much for this gift.
-It is not important, my son, I hope it works. But do not stop your quiet lessons.
-Don't worry, Daddy.

Scene 3: The day he bought the telescope, he went out on the terrace of his house. He set up a telescope to examine the sky. He looked carefully at the craters on the surface of the moon. They looked like thousands of bubbles. He never noticed that the moon seemed so beautiful.

Scene 4: Now Arif is going out on the terraces every night, watching the sky for hours. He was very curious. He carefully examined each star separately. As he was playing with his wavy hair in the slight wind, he was naming stars in the meantime.

Scene 5: Arif struck something in her eyes one night while watching the sky. Something he has never noticed before ... But it was impossible to realize this before. Because he was always staring amongst the stars he had never seen before. A purple star ... A purple spot ...

Scene 6: When the other stars were white, it was interesting that it was purple. Even more strange this bright spot was not flashing like stars.

Scene 7: In the books he had read previously, he had learned that the star is flashing point, the planet is a fixed point. This point is fixed.

-I think a planet, he thought. But when he looked at that point more carefully, he realized he was not steady.

Scene 8: The point was getting bigger and bigger. At first he thought it was an eye misunderstanding. But he could see that the point was growing slowly. He did not understand what it was. Arif was very excited.

-Vaasy, what is this light?
Scene 9: Suddenly he heard his father's voice behind him:
-Arif, are you tired now?
-Dad, come here now!
-What happened, man, something?
-Dad, you have to see this!

Scene 10: His father went to the Arif immediately. It was obvious that Arif was so surprised. His father put his eyes on the telescopic lens and looked carefully. At that time Arif called the spot with the naked eye. But she could not see it with the naked eye.

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Scene 11:
Arif: Did you see it? Purple point?
Father: Very interesting. It's not like a star. Maybe it's a meteor.
Arif: Meteor?
Father: Yes meteor.
Arif: So is it a comet?
Stage 12: When Arif asked his father questions, the brightness of the spot has increased so much that he can be seen with the naked eye. The other stars are starting to fade.
Scene 13: When both of them realized this, the color of the spot turned yellow. A second later the sky was enlightened enormously.
Scene 14: The weather was so enlightened that they both had to blink. Both were frightened.
Scene 15:
Arif: What was that too?
Father: Arif, I think a great meteor passed very close to Earth ...
Scene 16: Arif's curiosity rose further after the night. Because he could live on the curiosity of what he witnessed. He had experienced something that very few of the living people could experience. A meteorite disappears before your eyes ... It is a historic moment.
Stage 17: Years later, Arif won the university of space sciences and continued to do research as a very curious student there. He made his dreams come true. Now he could study the sky with huge telescopes. He could ever forget the first time the surface of the moon as viewed through a telescope. At that time, the excitement was still going on.
Scene 18: The event that he lived with his father was a very important thing for scientists. Because a meteor never before had ever approached the Earth. He was a rare person who could witness this naked eye. At that time, there was no one who could see this phenomenon, except those who followed the sky by chance.
Scene 19: As a result of the investigations, he learned that meteorite is an asteroid. If that asteroid hit Earth before it was destroyed, it would lead to a massive cataclysm.
Scene 20: Arif was a scientist world-wide after many years. He brought her curiosity and interest to this spot. This incident, which happened years ago, was a turning point for her. Now every asteroid passing near the Earth knew each one's orbit. He made people aware of the possible disasters that could happen in the world.
Scene 21: He was very successful because he did his favorite job. He came to these days with the help of his father's telescope and curiosity. He was Turkish scientist Arif Pancar...

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As seen in the example of Nazike, teacher candidates have created written texts in this way by dividing them into stages. Thus the written text production phase is completed. Teacher candidates' assessment of this stage is reflected in their diary as follows:

"I find it very difficult to determine what is going on in the process of creating the script. It was easy to construct after deciding on subject. I have been using our experience. I did not have a hard time keeping fit with middle school students because I used my interests and tendencies at those ages. As an element of curiosity, I used how the event would result and the desired positive behavior "(Taner, Diary, 15.03.2017).

"I have difficulty writing the script because the direction of creativity has not improved so much. The event and the people are definite but I may be missing them in the construction. I have written my essay, inspired by the environment, like everyone else "(Melek, diary, 15.03.2017).

"I did not have much trouble writing the text. But one of the most important elements of the text was creativity. This part was a little difficult. Because one of our aims was to keep the attention of the students alive throughout the text. "(Orhan, diary, 15.03.2017).

"I am challenged because I am not creative to include things with curiosity. But when we started to write the script by setting the heroes, it was not hard to bring the event up. "(Irfan, diary, 16.03.2017).

As seen in the evaluations of the teacher candidates, they were forced to choose the subject. It is among other things that it is compulsory to make suitable for the student level and to save the event from boredom. In fact, these evaluations reveal the missing aspects of the teacher candidates' process of text formation. In the diary, they all know what to do, but they do not know how to do it.

Creation Process of Images. This part of the research includes the findings and interpretations of the Turkish language teacher candidates about the visual production process. A total of 4 weeks visual creation process is 8 hours. During the first week, the introduction of the web 2.0 tool Pixton was introduced. Pixton is a tool for producing comics (<https://www.pixton.com/>). Teacher candidates used this tool to design appropriate images for their stories. The second stage of multimodal literacy is the visual creation process that has been carried out with this tool. Comic book production stages in pixtonda are as follows:

Pixton can be used in three different ways. However, the purpose of this study was to choose the "for schools" option.

- It is the stage in which creates the necessary visuals for each scene in the written text of teacher candidates. In this section character selection, background, decorations and speech bubbles are made.
- Teacher candidates have identified the characters appropriate to their story at this stage. With Pixton's rich content, each character can be given the desired outfit, gesture, mimic.
- In this section, teacher candidates have arranged the place where their stories pass.
- This section is a small detail of the story; it is the part where the deficiencies of the place element are removed.
- In the last part, the heroes were made to speak by adding speech bubbles. Teacher candidates have turned their written text into speech bubbles at this stage.

Following the introduction of Pixtoda comics, the implementation process continued. Teacher candidates have begun to transform their stories into a visual and written account. At the end of the fourth week, the teacher candidates have completed their visual texts by moving from their written texts. Sample text is shown in Figure 2 (Nazike, written and visual text, 12.04.2017).

Figure 2. Written and visual text of Nazike



As seen in the example of Nazike, the teacher candidates formed their visuals from the written texts. At the end of four weeks, the teacher gave the final text of the texts that the candidates integrated with the visuals. The evaluations of teacher candidates towards this stage are reflected in different ways. Most of the evaluations are about the problems of character creation:

"I have difficulty in creating character and shape. I created many characters for the script. I had a good time while giving shape to the character. As a result, it was an entertaining work, although it was challenging."(Abdullah, diary, 15.04.2017).

"I have difficulty reflecting the character in my dream. Limited options on the outside environment have created some problems. Despite everything, it was fun."(Arda, Diary, 16.04.2017).

On the other hand, those who stated that they have no problems in terms of character formation or even made the visualization process easier have found similar evaluations:

"I did not have difficulty creating visuals. I found the characters I looked for in the Pixton program. I made it meticulously to work so that the writing and the visuals are compatible" (Zeynep, diary, 14.04.2017).

In addition to these positive and negative opinions about character formation, another problem is the content of the written text. This difference in content and event organization has left some teacher candidates in such a difficult situation:

"Using the Pixton implementation requires patience. There were extraordinary parts of my text that are related to place. It was difficult to create the visuals of these sections. In Pixton practice, there were only human figures, it was difficult to create an alien. However, I think that I have successfully created my visuals" (Ozan, diary, 15.04.2017).

"It was challenging to create characters in Pixton practice because of extraordinary events and people involved in the script of my text. I also have difficulty finding visuals about events. But it was still a pleasant work" (Pervin, diary, 16.04.2017).

The student Melek gave a different perspective to the process of visualization of the written text in his diary. From this point of view, he pointed out that practitioners care about the details, not the inadequacy of the implementation:

"It was a hard work because of the opportunities for details. I did not have exactly the background I wanted. It was difficult to maintain continuity. We had to play some of the scenes in the story. Still, it was better than finding and combining different images. It was fun and a different work. Thank you." (Angel, diary, 13.03.2017).

An opinion similar to that of Melek's positive view came from the student named Sercan. Sercan has made an evaluation of the visualization process from the beginning to the end:

"It pleased me that the text was transferred to the visual world. Because it was a very good experience to embody the physical characteristics of the events, situations and people you imagined while creating the text. I will use the experience I have gained in the process of preparing this text for future life in my life. It was a difficult but creative preparation process" (Sercan, diary, 15.04.2017).

These evaluations of teacher candidates' visualization process are also consistent with the observation form. The researcher noted the technical difficulties experienced by teacher candidates in the observation form as follows:

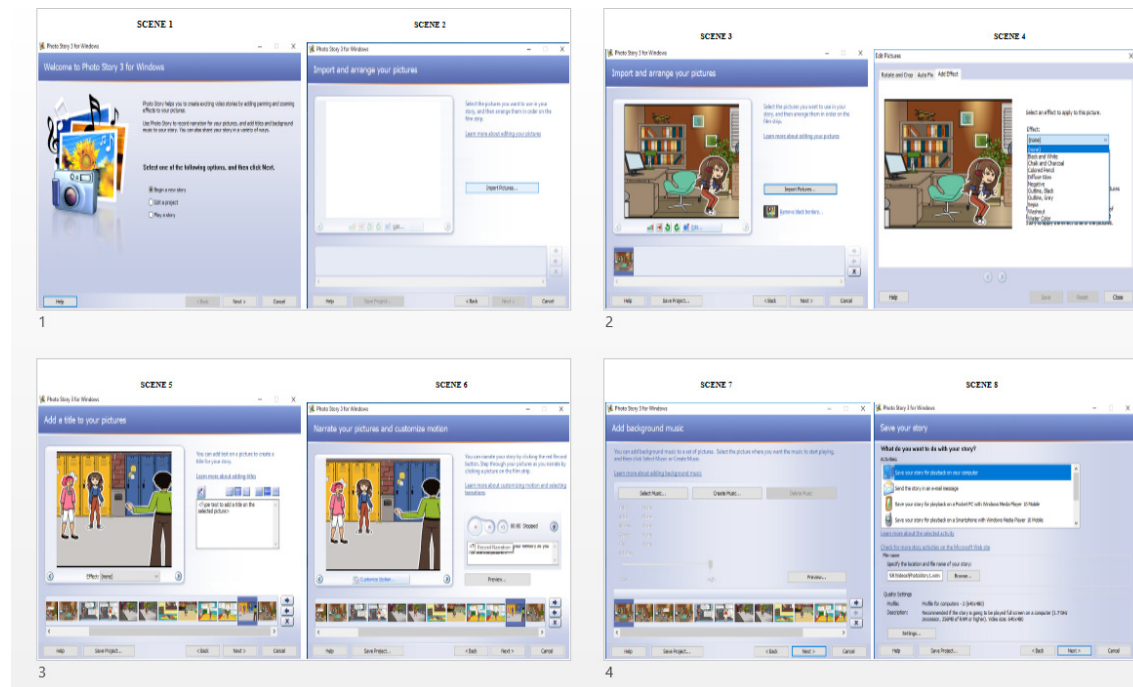
"Written text has problems with converting the visual context. Particularly, students who try to stick to the written text complain about the inadequacy of the continuous program. However, the program has many features for transferring images to their text. They are drowning in details. If the problem is one of the points, the program is confusing what and where it is because it is comprehensive (...). But in general, it was observed that the teacher candidates had a lot of fun in the process of creating visual texts." (Researcher, semi-structured observation form, 12.04.2017).

It is seen that the data obtained in the diary and observation forms have more problems than the written text creation process. It can be said that this situation arises from the fact that the field information and the technological information can not be related.

Multimodal Text Creation Process. In this section, the findings and interpretation section of the Turkish language teacher candidates about the process of producing multimodal texts are given. This process, which constitutes 4 weeks of the implementation period, lasted 8 hours in total.

In the first week, the photo story program, in which the text modals are combined, is introduced. Teacher candidates used this program to design their multimodal texts by voicing written texts that transformed into visual text. Teacher candidates have created visual texts and voices in this order from Figure 3:

Figure 3. Steps to Generate Multimodal Text



As seen in Figure 3, teacher candidates have primarily loaded written and visual texts. They made the image adjustments they needed on the images. Then they titled their texts and vocalized each scene. They were helped by other people from their friends because they had a lot of people in their texts when they were making a voice call. Finally, they have completed multimodal texts by adding music to the sub-theme of the text. The evaluations of teacher candidates for this practice, which last four weeks, are as follows in general:

"Especially the voiceover stage was a lot of fun for us. The program was easier than we thought. I did not have much trouble using it. I believe that study adds something to me." (Ayten, diary, 13.05.2017).

"... the photo story was very handy and easy" (Ozan, diary, 14.05.2017).

"The voice part was pretty fun. We did not have the difficulty as we initially thought. I think it is a useful imlementation for me." (Gülhan, diary, 14.05.2017).

It is also reflected in the observation form that the teacher candidates are less challenged at this stage of the implementation process by looking at the visual creation process. However, it has been observed that there are some deficiencies in the pedagogical relevance of texts (Researcher, semi-structured observation form, 12.05.2017). An example is the evaluation of a teacher candidate, although not fully reflected in this pedagogical problem:

"... let the text vocalizing; this stage was a lot of fun. I'm so laughed. I do not have a problem with the characters that my other friends have spoken to me, forcing me to voice my character. Because my character carried all the adolescent qualities. I could not get into the mood of a 12-year-old. It was not just a job to voice. I had to give that soul. I do not know if I gave it to you." (İrfan, diary, 13.05.2017).

It is desirable to be able to solve this problem and to make the texts more relevant to the teaching process. For this purpose, 30 Turkish language teachers (15 female, 15 male) who have been working in the Ministry of National Education for at least five years have been included in the process. They were asked to present their critiques of the applicability of each textual review and text. At the end of the week, teachers presented their criticisms of texts. It is seen that the criticisms are mostly on misspelling and incoherency:

"For example," graduated from college "rather than" graduated from college ". In addition, too many short sentences were used. Codes usually consist of 2-3 words. In this way, the same verbs are constantly becoming boring." (EÖ1, 19.05.2017)

"Friends, unfortunately, have word mistakes and incoherency from start to finish For example, there is no time machine, it is invented. Unfortunately, there are many mistakes before and after him." (KÖ5, 21.05.2017).

"First of all, the verbs that are used are the ones that draw attention. 'Why was this room a stranger to me?' 'The eye has ducked away' cries also ears. You must be careful the writing and reading of the clocks. I can generally agree with the theme. The images are well chosen. If necessary regulations are made, a viable text is fine." (E13, 20.05.2017).

Following the criticism of misspelling and incoherency, the most criticism has been directed at the topic and theme. Teacher views on this can be illustrated as follows:

"When the theme is technology, the imagination of children waiting for a more creative style technology text.. The time machine is no longer interesting. Still a viable text. Eventually the text serves the theme" (K17, 21.05.2017).

"The subject is appropriate to the theme, but they take the easy way out. In this sense, it has become a text far from arouse curiosity in the student. Still, it can be used in the 5th grade because it follows the theme." (E22, 20.05.2017).

Finally, much criticism has been made about the vocalizing of texts. These criticisms have often been that vocalizing is not understandable. Here are some examples of criticism:

"The vocalizing is not clear. It is also good to use text in texts we have prepared other than listening texts. The student has a chance to follow the place he does not understand from the pronunciation. The choice of music and visuality is appropriate to the context. Vocalizing can be corrected and used for grades 6 and 7" (KÖ30, 21.05.2017).

"The story is generally edited perfectly. Music and visuals are appropriate for the story, but the voice is not clear at all. So it is difficult to listen to it until the end. A viable text if the vocalizing is changed." (K19, 20.05.2017).

"It does not seem possible to use this text as a listening text because the music on the rear fone lifts the clarity of the music while the voice is being played. I thought that if a good voice had been given, it would attract attention because the transmission of the text is related to the present world" (EÖ21,20.05.2017).

On the other hand, there have been positive reviews of Turkish language teachers. But the criticism about the mistake is given because the important thing is to optimize the text. After these criticisms, each teacher edited the candidate text. Thus, the process of producing multimodal text is completed.

4.3. Findings and Interpretations of How Turkish Language Teacher Candidates Change Multimodal Literacy Skills After the Implementation Process

In this part of the research, the opinions of the Turkish language teacher candidates about the implementation process to develop multimodal literacy skills were given. Teacher candidates' opinions were presented in relation to survey data at the beginning of the research. Table 4 provides a content analysis of the teacher candidates' perspectives on the implementation process:

As can be seen in Table 4 below, the highest frequency category is the "Features that should be in the text" (f = 40). This category consists of 7 codes in total, namely "student relativity, simplicity, curiosity, robust fiction, clarity, spelling and punctuation, originality ". When we look at the survey data for the ability to produce multimodal texts, it seems that most of the features (f = 92) that the teacher candidates should have in the text do not have knowledge. As a result of the implementation process, teacher candidates have been informed about the features that should be found in the text. When we look at the frequency value of the codes, it is noteworthy that the most important characteristic is "student relativity" (f = 14). Teacher candidates for the student's relativity feature expressed the following opinion:

"It should be interesting. It should match the age levels of students. There should be no bad elements" (Nevra, semi-structured interview form, 05.06.2017).

"It should be appropriate for the students in content and form" (Abdullah, semi-structured interview form, 07.06.2017).

"It should be compatible with factors such as interesting, curiosity, age, gender, etc." (Angel, semi-structured interview form, 07.06.2017).

Table 4. Opinions of Candidate Teachers towards the Implementation Process

Category	Code	f
Features that should be in the text	Student relativity	14
	Simplicity	9
	Curiosity element	7
	Durable fiction	5
	Clearness	2
	Spelling and punctuation	2
	Originality	1
Problems in visual creation	Inadequate of Web 2.0 tools	8
	Creation of character	4
	Difficulty using Web 2.0	4
	No problem	3
	Creating a place	2
	Time	1
Problems with writing text	Selection of subject	6
	Student relativity	5
	Curiosity element	4
	Creating a dialogue	3
	Editing	2
	Generation of character	1
Usability of multimodal text in Turkish lesson	Usable	9
	Should be corrected	5
	Must be enriched	3
	Change according to school	1
	Unavailable	1
Criterion of visual creation	Written text	15
	Web 2.0 tool	1
	Target group	1
Problems with multimodal text generation	Vocalizing	10
	Interesting	1
	Generation of character	1
	Equality	1
	No problem	1
	Use of the Web 2.0 tool	1

It can be said that the deficiencies of the knowledge of the teacher candidates have been eliminated by the above opinions and by the codes belonging to this category. Because at the beginning of the implementation period, it was seen that only 26 of the teacher candidates were informed about the "steps of text production" and "what should be considered in the text production stage" in the questionnaire. However, at the end of the implementation period, it was seen that the teacher candidates increased awareness about the text production process.

Another awareness is considered to be about competences for multimodal text production. In the survey data of teacher candidates, there is a big difference between "written text" (f = 52) and "multimodal" (f = 10) However, it has seemed teacher candidates' awareness of multimodal text production has increased after the implementation process. The questionnaire showed that "the number of self-sufficient teacher candidates (f = 8) for visual formation for multimodal texts is very low; it is thought that the information about creating visuals with the implementation process is increased. Because of the opinions of teacher candidates regarding the implementation process, the problems with visualization (f = 22) are the second most frequent category. This category consists of 6 different codes as seen in Table 6. Teacher candidates' views on this category can be illustrated as follows:

"I had difficulty trying to simulate places." (Ayten, semi-structured interview form, 06.06.2017).

"I had trouble finding the appropriate view for the character." (Irem, semi-structured interview form, 07.06.2017).

"I could not apply the gestures and mimics I wanted" (Sercan, semi-structured interview form, 06.06.2017).

"I had problems with the program until I learned the program. After I learned how to use the program, I got it done easily." (Orhan, semi-structured interview form, 06.06.2017).

As it is clear from the comments, the teacher candidates could successfully accomplish the visual creation process. Some teacher candidates have said that they can not do enough with the existing ones and do more beautiful things. This shows that the candidates of the teachers are suffice about the visual making process.

Finally, only 5 of the teacher candidates in the survey indicated that it is enough to form audio, visual and text adaptation. After the implementation process, teacher candidates have produced multimodal text and have expressed their views on the applicability. Only one teacher candidate reported negative opinion that it was applicability. This teacher candidate said "I do not think it can be used" without a detailed description (Melek, semi-structured interview form, 07.06.2017). This suggests that they are confident in their multimodal text production. As a result of this situation, negative criticisms of Turkish language teachers about the availability of the text can be shown.

5. Conclusion, Discussion and Suggestions

When we look at the studies about multimodal literacy in literature (Aytan and Bařal, 2015, Boyacı and Güner, 2017, Bulut, Ulu and Kan, 2015, Güneř, Çukurbařı and Iřık, 2015), it is seen that they are generally oriented towards theoretical or scale development. The lack of practical studies on teacher education draws attention. The study is separated from related research in this respect.

As a result of the findings of the research, it has been achieved that Turkish language teacher candidates do not feel well enough in terms of producing text. Therefore, they were found to be difficult in the writing process. Similar results were obtained in the studies about the effects of writing self-efficacy perceptions on the writing process (Bağcı, 2007; Göçer, 2013; Göçer, 2017). When it is necessary to select a text suitable for Turkish language lesson, the views on reading text and selecting multimodal text are different. In terms of reading text, literary products are seen as the primary source, but in multimodal texts this is not the case. For multimodal texts, main source is internet resources. This shows that the source types differ according to the modal of the text.

A great deal of teacher candidates agree that they should have the ability to produce text. However, as the knowledge dimension of text production goes beyond the skill level, the sufficiency of teacher candidates decreases. These shortcomings also negatively affected the writing process of teacher candidates. The same result was reached in other studies (Arıcı, 2008, Bağcı, 2007, Demir, 2016, Dođan, 2002, Kan and Tiryaki, 2015). Editing the scene to include curiosity is another question they encounter. This situation coincide up with the quantitative size of the study. Ceran (2015) also found that teacher candidates had problems in terms of text editing in their work. A similar result is seen in the study of Coskun (2017). Teacher candidates are knowledgeable about producing texts, but their deficiencies arise when details of text production are explored. From here it can be said that teacher candidates have problems in converting their knowledge of reading and writing to behavior. Teacher candidates have information about what to do; but they do not have enough navy to do it.

Teacher candidates' confidence in reading texts is much higher than in multimodal texts. It has also been shown in previous studies that the writing experience of the individual writing with multimodal texts and writing using paper is different (Harris and Kington, 2002, Kress, 1997, Merchant, 2005). This is because teacher candidates do not seem to have enough equipment to create a text composed of different modals. This situation also reveals their inadequacy in the teaching process integrated with technology.

Teacher candidates are having problems in relating technological, pedagogical and field knowledge. Especially, it has been determined that they are inadequate to integrate technological knowledge and field knowledge. The development of teacher candidates' ability to overcome these shortcomings and to ensure technology integration requires good education (Chen, 2010). Pedagogical information is limited to their own experience. While he was in the age group, he decided to include his own thoughts and behaviors in his account to determine whether the texts were pedagogically appropriate. This information is not enough to evaluate the pedagogical orientation of multimodal texts. As a matter of fact, Turkish language teachers who evaluated the texts pedagogically provided opinions that supported this result. However, teacher candidates must be involved in the process by integrating these three types of information. This may be because the production of written texts is seen as the most important stage by teacher candidates. It can be said that the technological and pedagogical knowledge has been put into the second plan by the candidate teachers in the light of the findings of the research. Because some of the teacher candidates, such as "It will only be a Turkish language teacher." This priority situation is thought to be a result of their past experiences with literacy. Previous research on the relevance of literacy to experiences

and beliefs (Kist and Pytash, 2015; Hudley and Holbrook, 2013; Pytash, Testa and Nigh, 2015) supports this conclusion.

Teacher candidates are have difficulty with the visual creation and vocalizing stages while converting texts into multimodal structures. Although the details of all the fiction are obvious, it is interesting to be forced. Because written language; it is closely related to the visual in terms of place, order and typography usage (Cope and Kalantzis, 2009). On the other hand, it is thought that the lack of self-confidence of the teacher candidates is the basis of the problem. There are also difficulties in using the web 2.0 tools used to create multimodal text. This suggests that teacher candidates are not having trouble producing a new text. They are having trouble reproducing the text. On the other hand, almost all of their gratification towards this practice, which is directed towards multimodal literacy, has been reported. Many have even said that they will use it in future classroom activities. In other researches, when the lessons associated with technology were given to teacher candidates, the attitude towards using the technology in the classroom environment was changed in a positive way (Ertmer and Ottenbreit-Leftwich, 2010; Wake and Whittingham, 2013). In fact, it has been determined that some of them will use multimodal texts that they have created using these tools in the teaching process when teaching. This result of your research coincides with the work of Julie and Tina (2015) and Wake and Whittingham (2013).

Significant deficiencies have also been identified from the results of the research. First, it is thought that the renewal of the curriculum is not enough to adapt to today's conditions. Achievement and applicability for the purpose of the program can not be considered apart from teacher competencies. Teacher training should be given the necessary importance starting from the licensing process. In this sense, either institutional or academically applied studies can be given priority. Course contents at the undergraduate level can be reviewed again. Multimodal literacy should be considered in the courses, which are determined by the presidency of the main science department. Even though these courses do not offer content consisting entirely of multimodal literacy, the courses can be associated with multimodal literacy. Finally, deficiencies related to technological, pedagogical, and field knowledge of teacher candidates should be identified and addressed. Then, teacher candidates should develop skills to produce text by associating these three types of information.

References

- Abendroth, M. (2009). *Rebel literacy : Cuba's national literacy campaign and critical global citizenship / by Mark Abendroth. Duluth, Minn. : Litwin Books.*
- Alshreif, N. F. (2016). Multimodal Writing: The Case of Graffiti. *Arab World English Journal*, 7(4), 453-466.
- Altın, H. M. ve Kalelioğlu, F. (2015). Student and Teacher Opinions about Fatih Project. *Başkent University Journal of Education*, 2(1), 89-105.
- Altunışık,R. (2008). Anketlerde Veri Kalitesinin İyileştirilmesi İçin Öntest (Pilot Test) Yöntemleri. *Pazarlama ve Pazarlama Araştırmaları Dergisi*, 2, 1-17.
- Arıcı, A. F. (2008). Üniversite Öğrencilerinin Yazılı Anlatım Hataları. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi*, XXI (2), 209-220.
- Aytan, T., ve Başal, A. (2015). Türkçe Öğretmen Adaylarının Web 2. 0 Araçlarına Yönelik Algularının İncelenmesi. *International Periodical For The Languages, Literature and History of Turkish or Turkic*, 10(7), 149-166.
- Ayvacı, H. Ş., Bakırcı, H. ve Başak, M. H. (2014). Fatih Projesinin Uygulama Sürecinde Ortaya Çıkan Sorunların İdareciler, Öğretmenler Ve Öğrenciler Tarafından Değerlendirilmesi. *Journal of Yüzüncü Yıl University Faculty of Education*, 6(1),21-47.
- Bağcı, H. (2007). Türkçe Öğretmeni Adaylarının Yazılı Anlatıma Ve Yazılı Anlatım Derslerine Yönelik Tutumlarının Değerlendirilmesi. *TÜBAR-Turkish Science Research*, 21, 29-61.
- Barone, D. M. (2006). *Narrowing the literacy gap : what works in high-poverty schools / Diane M. Barone. New York : Guilford Press.*

- Baz, F. Ç. (2016). Teknik, Donanım Ve İçerik Yönüyle Fatih Projesinin Değerlendirilmesi. *Gümüşhane Üniversitesi Sosyal Bilimler Enstitüsü Elektronik Dergisi*, 7(15), 196-209. doi:10.17823/gusb.71
- Beavis, C. (2002). Reading, writing and role-playing computer games. In L. Snyder (Ed.), *Silicon Literacies: Communication, Innovation and Education in the Electronic Age*. London/New York: Routledge, 47-61.
- Beth, M. (2011). Web 2.0: Information literacy, libraries, and pedagogies. Emerald Group Publishing Limited. doi:10.1108/S2044-9968(2011)0000001015
- Bourelle, T., Bourelle, A., Spong, S., & Hendrickson, B. (2017). Assessing Multimodal Literacy in the Online Technical Communication Classroom. *Journal Of Business And Technical Communication*, 31(2), 222-255. doi:10.1177/1050651916682288
- Boyacı, Ş. D. ve Güner, M. (2017). Views of Students and Teachers About Use of Technological Authentic Environment in Turkish Language Course. *Anadolu University Journal of Educational Sciences International*, 7(1): 35-71.
- Bulut, B., Ulu, H. ve Kan, A. (2015). Multimodal literacy scale: A study of validity and reliability. *Eurasian Journal of Educational Research*, 61, 45-60. <http://dx.doi.org/10.14689/ejer.2015.61.3>
- Cassidy, J., Garrett, S. D., & Texas A and M Univ., C. R. (2002). Early Childhood Literacy: Programs & Strategies To Develop Cultural, Linguistic, Scientific and Healthcare Literacy for Very Young Children & their Families.
- Ceran, D. (2015). Türkçe Öğretmeni Adaylarının Yazdıkları Hikâyelerin Metnin Üst Yapı Unsurları Açısından İncelenmesi. *International Journal of Language Academy*, 3 (4), 204-218.
- Chen, R. (2010). Investigating models for preservice teachers' use of technology to support student-centered learning. *Computers & Education*, 55, 32-42. doi:10.1016/j.compedu.2009.11.015
- Cope, B. b., & Kalantzis, M. (2009). "Multiliteracies": New Literacies, New Learning. *Pedagogies*, 4(3), 164-195. doi:10.1080/15544800903076044
- Coşkun, H. (2017). Türkçe Öğretmeni Adaylarının Öğretim Materyali Olarak Amaca Uygun Yazdıkları Metinlerin Değerlendirilmesi. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, 14(1), 458-582.
- Creswell, J. W. (2009). *Research design : qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, Calif. : Sage Publications.
- Creswell, J.W., & Plano Clark, V.L. (2011). *Designing and conducting mixed methods research* (2nd Ed.). Los Angeles: Sage Publications.
- Danielsson, K. k., & Selander, S. (2016). Reading Multimodal Texts for Learning -- a Model for Cultivating Multimodal Literacy. *Designs For Learning*, 8(1), 25-36. doi:10.16993/dfl.72
- Demir, S. (2016). The levels and reasons of writing anxiety of Turkish language teacher candidates: A mixed method study. Unpublished Master's Thesis. *Yüzüncü Yıl University Institute of Educational Sciences*, Van.
- Doğan, Y. (2002). A Research on reading, writing skills and general culture levels of the students in the Turkish teaching training departments in education faculties. Unpublished Master's Thesis. Gazi University Institute of Educational Sciences, Ankara.
- Dunkerly-Bean, J., & Bean, T. W. (2015). Exploring Human Rights and Cosmopolitan Critical Literacy With Global Young Adult Literature Multimodal Text Sets. *New England Reading Association Journal*, 50(2), 1-7.
- Ekici, S. T., & Yılmaz, B. T. (2013). FATİH Projesi Üzerine Bir Değerlendirme. *Turkish Librarianship*, 27(2), 317-339.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of research on Technology in Education*, 42(3), 255-284.

- Essential readings on early literacy. (2010). Newark, Del. : International Reading Association.
- Gail D., C. (2013). Demystifying Mixed Methods Research Design: A Review of the Literature. *Mevlana International Journal Of Education*, 3(2),112-122 (2013), (2), 112.
- Glesne, C. (2013). Nitel Araştırmaya Giriş (Ali Ersoy ve Pelin Yalçınoğlu, çev.). Ankara: Anı Publishing.
- Göçer, A. (2013). The Factors Effective in the Acquisition and Development of Writing Skills According to Turkish Students Teachers. *Mustafa Kemal University Institute of Social Sciences*, 10(24), 1-14.
- Göçer, A. (2017). Investigation Of Against Writing Skills Attitude Of Turkish Student Teachers In Terms Of Certain Variables. *Kastamonu Education Journal*, 25(3), 1025-1038.
- Güneş, F., Çukurbaşı, B., & Işık, A. D. (2015). Bilgi Teknolojisinden Beyin Teknolojisine: Mobil Öğrenme Projesinin Değerlendirilmesi. *Journal of Bartın University Faculty of Education, Special Issue*, 11-18. Doi: 10.14686/BUEFAD.
- Harris, S. ve Kington, S. (2002) 'Innovative Classroom Practices Using ICT in England', accessed from <http://nfer.ac.uk/research/> adresinden 09.08.2017.
- Hudley, M. & Holbrook, T. (2013). Set in stone or set in motion? Multimodal and digital writing with preservice English teachers. *Journal of Adolescent and Adult Literacy*, 56(6), 500-509.
- Improving Financial Literacy [electronic resource]: Analysis of Issues and Policies. (2005). Paris : OECD Publishing.
- İzci, E. & Eroğlu, M. (2016). Evaluation of in-service training program named Technology Usage Course in Education. *International Journal of Human Sciences*, 13(1), 1666-1688. doi:10.14687/ijhs.v13i1.3584.
- Jackson-Howard, C. (2015). Teachers' perceptions of multimodal literacies in middle school health literacy programs (Order No. 3685385). Available from ProQuest Dissertations & Theses Global. (1666454361).
- Johnson, B. & Christensen, L. (2007). Educational Research: Quantitative, Qualitative, and Mixed Approaches (3rd ed.). Thousand Oaks, CA: Sage.
- Julie K., C., & Tina, B. (2015). Pre-service Teachers' Perceptions of Technology and Multiliteracy Within the Inclusive Classroom. *International Journal Of Psychology And Educational Studies* , Vol 2, Iss 2, Pp 35-46 (2015), (2), 35. doi:10.17220/ijpes.2015.02.004
- Kalantzis, M. & Cope, B. (2001). 'Multiliteracies': A framework for action. In M. Kalantzis & B. Cope (Eds.), Transformation in Language and Learning: Perspectives on Multiliteracies. Victoria: Common Ground, 19–32.
- Kalkınma Bakanlığı. (2016). Kamu Bilgi ve İletişim Teknolojileri Yatırımları. Accessed from, <http://www.bilgitoplumu.gov.tr/>, 20.07.2017.
- Kalkınma Bakanlığı. (2016). Kamu Bilgi ve İletişim Teknolojileri Yatırımları. Accessed from, <http://www.bilgitoplumu.gov.tr/>, 20.07.2017.
- Kan, M., ve Tiryaki, E. (2015). Türkçe Öğretmeni Adaylarının Metin Oluşturmadaki Sorunları. *Mersin University Journal Of The Faculty Of Education*, 11(2), 550-562. doi:10.17860/efd.19368
- Karabacak, N. (2015). Türk Eğitim Sistemindeki FATİH Projesinin CIPP Modeline Göre İncelenmesi. *Mersin University Journal Of The Faculty Of Education*, 11(3), 700-719. doi:10.17860/efd.15447
- Karatekin, K., Elvan, Ö., & Öztürk, D. (2015). Social Studies and Classroom Teachers's Opinions about Fatih Project. *International Journal Of Eurasia Social Sciences*, 6(18), 81-114.
- Karchmer-Klein, R., & Shinas, V. H. (2012). 21st Century Literacies in Teacher Education: Investigating Multimodal Texts in the Context of an Online Graduate-Level Literacy and Technology Course. *Research In The Schools*, 19(1), 60-74.

- Kist, W. & Pytash, K.E. (2015). "I love to flip the pages": Preservice teachers and New Literacies within a field experience. *English Education*, 47(2), 131- 167.
- Koçak, Ö. (2013). Attitudes of teachers about interactive whiteboards with LCD panel of Fatih Project (Erzincan province sample). Unpublished Master's Thesis. *Mersin University Journal of the Educational Science*, Erzurum.
- Kress, G. & Van Leeuwen, T. (2001). *Discourse: The Modes and Media of Contemporary Communication*. New York: Oxford University Press.
- Kress, G. (1997) 'Visual and verbal modes of representation in electronically mediated communication: The potentials of new forms of texts', I. Snyder (ed.) *Page to Screen: Taking literacy into the electronic age*. London: Routledge, s. 53–79.
- Kress, G. (2004). *Literacy in the new media age*. New York : Routledge.
- Kurt, A., Kuzu, A., Dursun, Ö., Güllepınar, F., ve Gültekin, M. (2013) FATİH Projesinin Pilot Uygulama Sürecinin Değerlendirilmesi: Öğretmen Görüşleri. *Journal of Instructional Technologies & Teacher Education*, 1(2), 1-23.
- Kurtdede Fidan, N., Erbasan, Ö., ve Kolsuz, S. (2016). Views of Classroom Teachers about the Use of Education Information Network. *Journal Of International Social Research*, 9(45), 626-637. doi:10.17719/jisr.20164520642
- Lenters, K. (2016). Riding the Lines and Overwriting in the Margins: Affect and Multimodal Literacy Practices. *Journal Of Literacy Research*, 48(3), 280-316.
- Lincoln, Y.S. ve Guba, E.G. (1985). *Naturalistic Inquiry*, Beverly Hills, CA: Sage.
- Linda J., C., & J. Peter, R. (2010). Levels of Reconstruction as Complementarity in Mixed Methods Research: A Social Theory-Based Conceptual Framework for Integrating Qualitative and Quantitative Research. *International Journal Of Environmental Research And Public Health*, 7(9), 3478-3488. doi:10.3390/ijerph7093478
- Liu, S., Varma, K., & Roehrig, G. (2014). *Climate Literacy and Scientific Reasoning*. Wiley Blackwell. doi:10.1002/9781118854280.ch4
- Loerts, T., & Heydon, R. (2017). Multimodal literacy learning opportunities within a grade six classroom literacy curriculum: constraints and enablers. *Education* 3-13, 45(4), 490-503. doi:10.1080/03004279.2016.1139608.
- Lund, T. (2012). Combining Qualitative and Quantitative Approaches: Some Arguments for Mixed Methods Research. *Scandinavian Journal Of Educational Research*, 56(2), 155-165. doi:10.1080/00313831.2011.568674
- Makrakis, V., & Kostoulas-Makrakis, N. (2016). Bridging the qualitative-quantitative divide: Experiences from conducting a mixed methods evaluation in the RUCAS programme. *Evaluation And Program Planning*, 54,144-151. doi:10.1016/j.evalprogplan.2015.07.008
- Mary, R. (2011). Chapter 1 Literacy as a Game and its Players. Emerald Group Publishing Limited. doi:10.1108/S1479-3687(2011)0000015007
- McLaughlin, M. (2013). Hoping to engage students in the common core? Try using multimodal text!. *Reading Today*, 31(2), 20-22.
- McNabb, K. B. (2014). Using web 2.0 technologies to teach "literacy for life": How to use multimodal matters.com to facilitate transfer in first-year composition (Order No. 1564745). Available from ProQuest Dissertations & Theses Global. (1615412384).
- Meadow Sherrill G. and Sheila, B. (2010). A Springboard Rather Than a Bridge: Diving into Multimodal Literacy. *The English Journal*, 100(2), 93-97.

Milli Eğitim Bakanlığı. (2017). Milli Eğitim Bakanlığı 2016 Yıllık Raporu. https://sgeb.meb.gov.tr/meb_iys_dosyalar/ adresinden erişildi.

Milli Eğitim Bakanlığı. (2017). Türkçe Dersi Öğretim Programı (1.-8. sınıflar). Talim ve Terbiye Kurulu Başkanlığı, Ankara.

Melanie, H., & Teri, H. (2013). Set in Stone or Set in Motion? Multimodal and Digital Writing With Preservice English Teachers. *Journal Of Adolescent & Adult Literacy*, 56(6), 500-509. doi:10.1002/JAAL.171

Merchant, G. (2005) 'Digikids: cool dudes and the new writing', *ELearning*, 2 (1): 50–60.

Merriam, S. B. (2013). Nitel Araştırma Yöntemleri (Selahattin Turan, çev.). Ankara: Nobel Yayıncılık.

Miles M., & Huberman, M. (1994). An expanded sourcebook qualitative data analysis (2nd. Ed.). CA: Sage Publications.

The New London Group. (2000). A pedagogy of multiliteracies: Designing Social Futures. In B. Cope & M. Kalantzis (Eds.) *Multiliteracies: Literacy Learning and the Design of Social Futures*. Melbourne: MacMillan, 9–37

O'Brien, D. G., & Bauer, E. B. (2005). New literacies and the institution of old learning. *Reading Research Quarterly*, 40 (1), 120-131.

O'Halloran, K. L. (2015). The language of learning mathematics: A multimodal perspective. *Journal Of Mathematical Behavior*, 40,63-74. doi:10.1016/j.jmathb.2014.09.002

Omerbašić, D. (2015). Literacy as a Translocal Practice: Digital Multimodal Literacy Practices among Girls Resettled as Refugees. *Journal Of Adolescent & Adult Literacy*, 58(6), 472-481.

Özdemir, U. (2014). Examination of science teachers' views related to tablet pc using in courses in terms of different variables: Example of Giresun province. Unpublished Master's Thesis. Institute of Science and Technology, Giresun University, Giresun.

Özkan, A., ve Deniz, D. (2014). Orta Öğretimde Görev Yapan Öğretmenlerin FATİH Projesi'ne İlişkin Görüşleri. *Ege Eğitim Dergisi*, 15(1), 161-175.

Parylo, O. (2012). Qualitative, quantitative, or mixed methods: An analysis of research design in articles on principal professional development (1998-2008). *International Journal Of Multiple Research Approaches*, 6(3),297-313. doi:10.5172/mra.2012.6.3.297

Pence, K. L. (2007). *Assessment in emergent literacy* / edited by Khara L. Pence. San Diego : Plural Pub.

Photo story. Accessed from <https://www.microsoft.com/tr-tr>.

Pixton. Accessed from <https://www.pixton.com/tr/>.

Potter, W. J. (2005). *Media literacy*. Thousand Oaks, CA : Sage.

Pytash, K. E., Testa, E. ve Nigh, J. (2015). Writing the World: Preservice Teachers' Perceptions of 21st Century Writing instruction. *Teaching/Writing: The Journal of Writing Teacher Education*, 4(1), 141-163.

Robins, G. (2011). Music and multimodal text. *English 4--11*, (41), 4-7.

Shanahan, L. (2013). Composing "Kid-Friendly" Multimodal Text: When Conversations, Instruction, and Signs Come Together. *Written Communication*, 30(2), 194-227.

Tammy, R. (2013). *Designing an Off-Campus Literacy Clinic*. Emerald Group Publishing Limited. doi:10.1108/S2048-0458(2013)0000002006.

Teddle, C., & Yu, F. (2007). Mixed Methods Sampling A Typology With Examples. *Journal Of Mixed Methods Research*, 1(1), 77-100.

The Economist Intelligence Unit (2017). The Inclusive Internet Index: Bridging digital divides. 22.07.2017 tarihinde <http://www.eiu.com/home.aspx> adresinden erişildi.

Türker, A. ve Güven, C. (2016). Türker, A. & Güven, C. (2016). Lise öğretmenlerinin eğitim bilişim ağı (eba) projesinden yararlanma düzeyleri ve proje ile ilgili görüşleri. *Eğitim ve Öğretim Araştırmaları Dergisi*, 5(1), 244-254.

Unsworth, L. (2001). *Teaching Multiliteracies Across the Curriculum: Changing Contexts of Text and Image in Classroom Practice*. Buckingham, United Kingdom: Open University Press.

Wake, D., & Whittingham, J. (2013) Teacher candidates' perceptions of technology supported literacy practices. *Contemporary Issues in Technology and Teacher Education*, 13(3), 175-206.

Watts-Taffe, S. M., & Gwinn, C. B. (2007). *Integrating literacy and technology : effective practice for grades K-6* / Susan Watts Taffe, Carolyn B. Gwinn. New York : Guilford Press.

Weaver, F. S. (2010). *Economic literacy : basic economics with an attitude* / Frederick S. Weaver. Lanham : Rowman & Littlefield Publishers.

World Economic Forum (2016). The Global Information Technology Report 2016. 22.07.2016 tarihinde <https://www.weforum.org/> adresinden erişildi.

Yıldırım, A. ve Şimşek, H. (2013). *Sosyal bilimlerde nitel araştırma yöntemleri* (9.bsk.). Ankara: Seçkin Yayıncılık.

Yıldız, H., Sarıtepeci, M., & Seferoğlu, S. S. (2013). FATİH Projesi Kapsamında Düzenlenen Hizmet-İçi Eğitim Etkinliklerinin Öğretmenlerin Mesleki Gelişimine Katkılarının ISTE Öğretmen Standartları Açısından İncelenmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi Özel Sayı*, 1, 375-392.

Yi, Y., & Angay-Crowder, T. (2016). Multimodal Pedagogies for Teacher Education in TESOL. *TESOL Quarterly*, 50(4), 988-998. doi:10.1002/tesq.326