



Examining First Grade Teachers' Handwriting Instruction

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Abstract

The purpose of this study is to examine the first grade teachers' practices of handwriting instructions in terms of teaching, evaluation and handwriting difficulties. From qualitative research patterns, phenomenology was used. The study was applied to the 54 First grade teachers who work at central Burdur and Burdur county centre primary education schools. Interview is used while collecting data and content analyze is used while analyzing data. The results showed that most of the first grade teachers spare two hours of their active lecture times in a week for handwriting lessons. Students write letters: "e, c, i, o, ç, ö, u, l, y, ü, a" easily but have difficulties "f, k, r, H, b, z, s, m" letters while writing. Teachers teach the handwriting by making students write. In order to develop handwriting instruction first graduate teachers' handwriting lectures can be observed. By making practice especially on the letters whose writing are difficult, alternative writing ways of these letters can be developed. Handwriting scales can be developed in order for student handwritings to be assessed.

Key Words

Handwriting, First Grade, Cursive Handwriting, Handwriting Difficulties, Handwriting Evaluation.

Handwriting, one of the important skills of an individual's academic life, is taught by class teachers. Reading and writing are taught together. Method of teaching reading-writing also affects handwriting instruction. In Turkey, while the phones of the letters are taught in handwriting instruction going parallel with reading instruction, their forms are taught according to the phone groups stated in the programme.

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Handwriting, generally, is one of the encounters of a child with reading-writing. A child learns knowledge about handwriting world by writing his/her name. Handwriting is the individual expression of a child's developing reading-writing skills (Dobbie & Askov, 1995) and should not be disregarded as if it is a simple task to these children (Hagin, 1983). Handwriting is a psychomotor skill taught by instruction. At first, children should learn about certain forms that are used, the ways of constructing these forms and how to fit these forms on the face. Feedback plays a crucial role in this learning process (Hamstra-Bletz & Blöte, 1993, p. 689). Students' successes in handwriting affected by handwriting instructions provided in the classroom as a result of the teacher's willing to teach that skill and these successes are shaped by the skill of the teacher (Graham et al., 2008). The most important items of handwriting instruction, as stated in the handwriting researches (Dobbie & Askov; Graham & Weintraub; 1996; Peck, Askov, & Fairchild, 1980), are; age of handwriting instruction, handwriting style,

methods of handwriting instruction, handwriting equipment, evaluation, handwriting difficulties.

In Turkey, in preschool education, along with the activities like painting, drawing lines develop the small muscles; the main handwriting education is started in the first grade according to 2005 Primary Education Programme. In France, handwriting instruction is started when children are between 5 and 6. Before that, children are taught to write the simple components of cursive handwriting like waves. They expect 6 year-old children to write a sentence in cursive handwriting at the end of the preschool education (Vinter & Chartel, 2010, p. 477). Handwriting is started to be taught in preschool education in England, as well (Sassoon, 2003). In the United States of America, they start with manuscript handwriting in the first grade, and in the third grade, they switch to cursive handwriting (Armitage & Ratzlaff, 1985; Asher, 2006).

In Turkey, handwriting instruction is carried out according to the letter forms stated in the primary education program, and they follow these letter forms. In the United States of America, alternative forms of letters are placed in the methods of handwriting like D'Nealian (Thurber, 1995), Handwriting without Tears (Galanis, 2008), Loops and Other Groups, Zaner-Bloser. Asher (2006) found out that teachers, when teaching manuscript handwriting, use D'Nealian, Daily Oral Language spelling, Handwriting Without Tears, Land of the Letter People and, Zaner-Bloser handwriting programs, informal programs; when they are teaching cursive handwriting, they use Zaner-Bloser, Orton-Gillingham handwriting programs. According to Graham et al. (2008), teachers mostly use Zaner-Bloser or D'Nealian in handwriting instruction.

Using equipment in teaching handwriting is important, as well. Such items as pencil, notebook, eraser, pencil sharpener, CD are used. Besides, such tools as pencil grips or handiwriter are also used. In order to prevent children from feeling pain on their hands when they hold a pencil, the tools, which make handling a pencil easy are attached to handling place of the pencil or are found in the pencil itself, such as the grips. Handiwriter, which makes easy handling a pencil where the rope, one of whose ring is attached to the pencil and the other ring to the wrist, and which has extension, to be clutched, are used. How to use these items is instructed by the teacher. According to Graham et al. (2008), teachers teach the students by holding the pencil and using paper as a model, by using the reminders in appropriate ways.

Teachers evaluate the handwritings of the students from different perspectives. Generally, legibility is determinant in handwriting evaluations. A teacher develops a very negative idea about the work of the student who wrote illegibly or imprecisely, compared to the one who wrote legibly (Roston, Hinojosa, & Kaplan, 2008). According to Hammerschmidt and Sudsawad (2004, p. 190), along with legibility, teachers look for letter formation, spacing, writing letters on the line, uniformity of letters (size), and the student's attentiveness to the handwriting activity in students' handwritings. It was seen that the traditional processes of handwriting evaluations were not useful for instruction purposes, and various items were developed to improve. One of these evaluation techniques is holistic rating system. It includes scoring handwriting samples with Likert type scale (Graham, 1986, p. 373). At the end of the handwriting evaluations, the ones who have learnt handwriting, who experience handwriting difficulties and who could not learn it are detected.

There are some students, as well, who have difficulties in handwriting. Students' difficulties in handwriting are; the fact that students have much to say but they cannot write them down and, they fall back with their peers in the classroom. Teachers state that they are having difficulties in reading the finished works of students. It was stated that some students couldn't read their own notes taken during the class (Roston et al., 2008). In Israel and USA, class teachers direct their students who experience difficulties in handwriting to occupational therapist (Asher, 2006; Hammerschmidt & Sudsawad, 2004). Occupational therapists interfere with these students' handwriting difficulties and develop their handwriting skills (Koziatek & Powell, 2002; Ratzon, Efrain, & Bart, 2007).

As seen in the researches, different aspects of handwriting and handwriting instruction are studied in each (Dobbie & Askov, 1995; Graham & Weintraub; 1996; Peck et al., 1980). The studies carried out in the field of handwriting in Turkey increased especially when cursive handwriting is started to be used in 2005 (Arslan & Ilgin, 2010; Bay, 2010; Duran, 2011; Duran & Akyol, 2010; Temur, 2011; Temur, Aksoy, & Tabak, 2011; Turan, 2010a, 2010b; Turan & Akpınar, 2008; Yıldırım & Ateş, 2010). However, more studies are needed about handwriting instruction. From this point of view, the purpose of this study is to examine the first grade teachers' practices of handwriting instructions in terms of teaching, evaluation and handwriting difficulties.

Method

Research Design

This research performed for the purpose of assessing the teaching handwriting applications of first grade teachers of primary education is a qualitative study. In the research, phenomenology was used among qualitative study designs. Events, objects and experiences make different senses to different people. The objective of the phenomenology studies is to gain a viewpoint to the life-worlds of those who attended the study (Johnson & Christensen, 2008, p. 395, 396) and to regard the world from the standpoint of the participants and to comprehend the meaning (Lodico, Spaulding, & Voegtle, 2010) and the origin (McMillan, 2008) of their experiences. Interview was used as a means of data collecting in the study.

Participants

First grade teachers were chosen as participants because they teach the handwriting first. Rural schools excluded from research due to their different circumstances (example multigrade classes). The study was applied to the first grade class teachers who work at central Burdur and Burdur county centre primary education schools in the second semester of 2009-2010. As participation in the study was based on voluntariness, 54 first grade teachers filled the forms.

17 of the participants are female and 37 are male. 2 of the teachers have 1-5 years occupational seniority, 4 of them have 6-10 years, 8 of them 11-15 years, 5 of them 16-20 years, 35 of them 20 years and more. 53 of the teachers work permanently, and 1 of them works contractedly. 14 of the teachers graduated from faculty of education, 27 of them from Training Institute, 1 of them from Faculty of Science and Literature, 10 of them from Faculty of Open university, and 2 of them from other fields. 3 of the teachers has instructed first grade for once, 6 of them for twice, 11 of them for three times, 5 of them for four times and 29 of them for five and more times.

Data Collection Instrument

The interview form that was developed by the researcher as a result of consult the relevant literature was used as data gathering device. In the research, before the main execution was carried out, two expert's idea from Turkish instruction was consulted and it was applied to two class teachers. In line

with the feedbacks, some changes were done on the interview form. The ideas of first grade teachers about handwriting teaching time, cursive letters, handwriting instruction, evaluation and handwriting difficulties were tried to be determined with seven open ended question.

Validity and Reliability

In order to expand the validity of the study, the methods of long-lasting interaction, deeply -focused data collection, expert study and detailed description were used. First, the responds of the teachers were read by the researcher, and these responds of each question were made written in separate file. The findings were analyzed with the help of Nvivo and the obtained tables were studied for many times. During these studies, some controls were made by referring back to raw data. Besides, citations were directly made without making comments in the "findings" part. In order to increase the reliability of the study, the interrater reliability (Creswell, 2009; Miles & Huberman, 1994), confirmation study were utilized. For this purpose, the interview forms filled by teachers were coded by researcher and another expert experienced on the analysis of research and qualitative data, and coherence level between the codes were controlled (90%). The findings and codes obtained in the research are kept by the researcher in case they could be examined by anyone else.

Procedure

The ideas of first grade teachers about handwriting instruction and handwriting difficulties were taken in written. The reason for the data to be gathered in written and with open ended questionnaire is in face-to-face interview, interviewer is the weakest point, and the presence of an interviewer can affect the participants' answers (Leeuw, 2008). Besides, according to Johnson and Christensen (2008), in the phenomenology researches, the participants' experiences can be obtained in written, as well as making face to face meeting with them.

While interview forms were applied by the researcher to the first grade teachers working in Burdur centre, these forms were sent to the schools in county centers with post. A stamped and address written return envelope was put in the envelope that was sent. The teachers working in the primary schools in the county centers sent the forms by putting them in those stamped return envelopes.

Data Analysis

Content analysis was used in the analysis of the data. Content analysis is a method which was first used historically (Bilgin, 2006) and one of whose main properties (Gökçe, 2006) is digitization (Bilgin; Gökçe). In this study, the technique of frequency analysis, which is one of the techniques of content analysis, was employed. Frequency analysis suggests the prevalence of units or elements numerically. This ensures the understanding of the intensity and importance of a particular element (Bilgin).

The answers given for the interview questions were read before they were grouped (Patton, 1987). The answers the classroom teachers provided were recorded to a word document created for each questions. In analysis of the data, Nvivo 9 was made use of.

The data were analyzed through Nvivo. Then, a chart was formed with Nvivo including the themes, the frequencies and the codes included by the theme. The data being analyzed with the raw data were re-compared and irrelevant themes were removed, the themes were combined or new themes were formed.

The raw data were sent to an expert. As a result of the comparison of the ideas of the researcher and the expert, "agreements" and "disagreements" among the expert were defined by marking. If both the researcher and the expert marked the different theme in the concerned question, the researcher's marking was taken as reference and this situation was considered as "Disagreement" (Anagün & Yaşar, 2009). Reliability was calculated by using Miles and Huberman's (1994) Reliability= $\frac{\text{Agreement}}{\text{Agreement} + \text{Disagreement}}$ formula. As a result of using this formula, 90 % reliability was gained.

Results

In this part, the first grade teachers' ideas about handwriting instruction in terms of teaching, evaluation and handwriting difficulties are included. The findings of research are as follows:

1) The teachers separate two class hours (n=12), one hour (n=11), three hours (n=10), one-two hours (n=6), two-three hours (n=5), three-four hours (n=3), half of the first term (n=2), 60 minute (n=1) in a week for handwriting instruction. Some of teachers teach handwriting in all lessons (n=4).

2) The cursive letters the students write easily are; e (n=19), c (n=19), ı (n=17), i (n=17), o (n=16),

ç (=15), ö (n=14), u (n=14), l (n=13), y (n=12), ü (n=12), a (n=11), n (n=10), m (n=10), z (n=9), g (n=7), t (n=7). The cursive letters that the students have difficulty when writing are; f (n=33), k (n=23), r (n=18), H (n=12), b (n=12), z (n=12), s (n=11), m (n=11), v (n=9), A (n=9), d (n=9), g (n=9), p (n=9), K (n=7), G (n=7), n (n=7), ğ (n=7), h (n=7), j (n=7), h (n=7), S (n=7).

3) The explanations of the first grade teachers about handwriting instruction are examined under the themes of method, material, preparation, programme and experience.

4) The teachers state that they carry out handwriting instruction; by writing (n=54), by controlling (n=9), by writing sample (n= 9), by correcting (n=7), by teaching one-to-one (n=6), by practicing (n=6), by expression (n=5), by repetition (n=3), by watching (n=3), by listening (n=1) and by carrying out the rules (n=1). The handwriting studies of the teachers are gathered under six categories; "writing in the air, writing on the desk, dictating by showing, by dictating, looking, overwriting on the letters, writing on the earth and sand. The teachers carry out the study of overwriting on the letters by making the students write on dotted letters and sample letters.

5) The teachers explained their handwriting instruction studies with material. Teachers stated that they were using notebook (n=14), CD (n=11), visual (n=9), book-magazine (n=8), board (n=8), projection (n=5), computer (n=3), worksheets (n=3), presentation (n=3), animation (n=1), bean (n=1) and brochure (n=1) in their handwriting studies.

6) The teachers have explained preparation studies in the handwriting. In the sub-theme of preparation teachers explain the study of direction teaching (n=9), strengthening the muscles (n=8), line study (n=6), holding pencil and writing on the line (n=3), using equipment (n=1) and modelling clay (n=1).

7) The first grade teachers evaluate the students' handwritings in nineteen different ways, as they state. The teachers evaluate them by examining the shapes of the letters (n=20), by controlling (n=14), by correction (n=10), by checking whether the letters are written on the lines or not (n=8), and by evaluating in terms of beauty (n=6), order (n=5), space (n=4), legibility (n=4). Along with these, the teachers evaluate the handwritings of the students by giving feedback (n=4), by reward (n=3), by showing again (n=3), by using evaluation

tools (n=2), with activities (n=2), by displaying the handwritings (n=2), with the students (n=1), watching while they are writing (n=1), by using handwriting examining markings (n=1), by showing on them (n=1), by examining notebooks (n=1).

8) According to teachers handwriting difficulties faced by students are shapes of letters (n=12), conjoining (n=8), writing italic (n=8), difficulty at writing some letters (n=7), difficulties at handwriting (n=6), difficulties at the beginning (n=6), physical development (n=5), directions of letters (n=5), capital letters (n=4), spacing between letters (n=4), detailed letters (n=3), lack of ability at using the space between lines (n=3), not writing in the proper way (n=3), exhaustion (n=3), the use of hands (n=2), speed (n=2), getting bored (n=2), writing all the time (n=2), letters looking like each other (n=1), changing the notebook (n=1), course books having manuscript handwritings (n=1), writing perpendicular (n=1), not writing fine (n=1), forgetting the letters (n=1), difficulties at separating words into syllables (n=1), habitual misuses caused by lack of control (n=1), lack of proper tools (n=1), spacing between words (n=1), not using the proper tools (n=1), underage students (n=1), not to like writing (n=1), local accent (n=1), intrinsic motivation (n=1), kindergarten habits (n=1), helping grids (n=1) .

9) The teachers carried out studies with the students who don't write. The teachers carry out the study of repeating (n= 21), overwriting (n= 16), writing on the board (n=13), exercising (n=12), holding the students' hand (n=11), overwriting on the dotted letters (n=8), using worksheet (n=6), writing in the air (n=6), studying one-to-one (n=5), writing on the notebook (n=5) , watching from CD (n=4), writing on the desk (n=4), showing (n=3), controlling (n=3), writing on sand (n=3), learning from a friend (n=2), line study (n=2), writing with bean (n=2), showing (n=2), being model (n=2). Along with these, the teachers teach handwriting with the studies of; painting, working on the guide line, modelling clay, using reinforcement, drawing illustration, re-teaching, expression, writing together, giving trust, negotiating with family, repeating the rules, having the students done, drawing big.

10) As an end, teachers stated that they wanted to add their thoughts about handwriting education. The teachers told that it affects learning to read (n=5) and some are remarked the importance of family (n=2), kindergarten (n=2) and the teacher (n=2). In addition to these, teachers emphasize that, handwriting should be taught on second

grade, students are having difficulties at the beginning, their hands have to be strong and the relation of understanding- fine writing, the effect of young age and the reading/writing book must be detailed. Furthermore, one teacher stated that the haste in education affects the technique of learning handwriting and another stated that direction in handwriting is important.

Conclusion

The first grade of elementary school has an important part at handwriting instruction. The handwriting of the individual is proportional to the quality of this education, the effort of classroom teacher and students individual attributes. According to Hagin (1983), script is neither only a visual nor a motor task; a handwriting program should consider all the process. Handwriting instruction must be considered carefully. In addition Rosenblum, Dvorkin, and Weiss (2006; 609), state that poor handwriters cannot be fully achieve in the process of automation and their handwritings may be slow and unclear. During writing, it's important to automate or write fluently. The automatic production of strokes, letters and words frees up mental resources for the process of composing or the understanding of the content of texts or lessons (Tucha, Tucha, & Lange, 2008, p. 146). Handwriting is a skill that one uses it all along his once it is gained incorrectly it's very hard to restore it. From this point of view, the aim of this study is to examine the practices of first grade elementary school teachers' handwriting instructions in terms of teaching, evaluation and writing difficulties.

Most of the first grade teachers spare two hours of their active lecture times in a week for handwriting lessons. Schoenfeld, Coppola, Kertis, and Barnes (2009) observes that, 43% of first grade teachers spare 5-15 min., 45% 15-30 min., 5% 30 min. and 6% spares no time for daily handwriting lectures while Addy and Wylie (1973 cited in Peck et al., 1980) determines that first grade teachers spend most of their times on handwriting. Hammer-schmidt and Sudsawad (2004) reports that, % 58 of first to fourth grade teachers save at least one day in every two weeks for rather handwriting lectures or handwriting applications. According to Graham et al. (2008) first to third grade teachers spares an average of 70 min. as handwriting lessons.

According to first grade teachers, students write letters: "e, c, i, i, o, ç, ö, u, l, y, ü, a" easily but have difficulties "f, k, r, H, b, z, s, m" letters while writ-

ing. In his study Turan (2010b) determined that students wrote “f, s, r, ş, k, b, h, z” with difficulty and Graham et. al (2008) determined that students wrote “b, q, d, k, g, p” with difficulty. Parallel, in both works, subject students endured hardship during writing letters: “b, k”. In addition, in the study Duran (2011) conducted, teachers stated that the cursive writing style of the letters of “f, r, b, z, ş, k, s, d, v” must be changed.

The most frequently used materials during the teaching of handwriting by teachers are; notebook, CD, visual, books-magazines, board and projection. Yıldırım and Ateş (2010), observed that teachers use guided notebooks, worksheets, and boards are the main materials. According to the research of Graham et al. (2008), teachers preferred special pens or pencils, pencil grips and wide-lined papers to fasten the learning procedure of handwriting.

It's noted that, teachers applied following methods of preparation by order: teaching directions, strengthening the muscles and training with lines. Teachers teach the handwriting by making students write. Their handwriting trainings are simulating the act of drawing letters on air, on desks, dictating by showing, by making students observe the act of writing, overwriting on the letters, writing on sand. First grade teachers use individual and whole class teaching techniques. During lectures teachers uses the methods of individual teaching, teaching to small groups, teaching to whole class (Graham et al., 2008; Schoenfeld et al., 2009) and homework assignments method (Schoenfeld et al.) to teach handwriting. In their study, Graham et al. stated that the most frequent methods of teaching handwriting are showing how to write the letter, flattering the students' performance and make the students to draw the letter as the application or simply copying it. Other methods for teaching the letters are letting the student to choose best letter and revise the distorted letters, the student to use the arrows, numbers and signs as guide during the act of drawing and holding the student's hand to shape the letter.

It's observed that first grade teachers explained the difficulties that students are facing as (in order) shapes of letters, conjoining the letters, bent letters, troubles at writing certain letters, difficulty at handwriting, trouble at beginning days, physical development and the directions of letters. Yıldırım and Ateş (2010) found parallel results to the research's results. During the teaching handwriting, students had difficulties at writing some letters and

conjoining them together. In the study of Schoenfeld et al. (2009), which consists of a survey with 270 first grade teachers, 88% of the students found incapable of handwriting. And 31% of these teachers reported that four to seven students had difficulty forming most of the letters at the start of the school year and other 35% of these teachers reported that eight or more students had similar difficulty. The most important two reasons behind this failure are, motor problems and visual perceptual problems. In addition to these there are weaker causes as low writing motivation, starting to attend school without preparations, general academic difficulties or low IQ (Graham et al., 2008). The other reason of students having difficulties at writing some letters are guiding problems while teaching handwriting (Brown & Conti-Ramsden, 1989), less knowledge about handwriting (Reis, 1989) and the high student population in classrooms prevent teacher from caring with each student individually (Brown & Conti-Ramsden).

Teachers use the same methods which they use to teach handwriting as methods for improving the students who have difficulties while writing. First grade teachers apply the methods by the same previous order: to repeat, overwriting letters, writing on the board, doing exercise, by holding student's hand and overwriting dotted letters. Yıldırım and Ateş (2010) observed that the difficulties encountered at the teaching process of cursive handwriting are tried to be solved by teachers via more practicing on the problem, taking care of each individual student and sparing more time for students to learn. In order to improve the handwriting abilities of the students, overwriting letters, to direct by narration, working through dots, having proper samples of handwriting hanged on the classroom walls and also the usage of computers can be used by teachers (Akyol, 2009).

Teachers use following methods for evaluation: checking the shapes of letters, controlling, correcting, writing on the lines, the beauty of the handwriting, order, and spacing. In recent study of Yıldırım and Ateş (2010), it is confirmed that teachers evaluate the student scripts by firsthand checking. What teachers take into account in the handwritings of students as criterias for examination are letter formation (99 %), uniform letter size (97 %), spacing (97 %), letter allignment (91%), pencil grip (86 %) and speed (68 %) (Schoenfeld et al., 2009). According to Hammerschmidt and Sudsawad (2004) what teachers give most importance is correctly drawn letters and proper spacing. Zvi-

ani and Elkins (1986) reported that speed and legibility is the key to the handwriting performance. The difficulties students endure during writing are indicated by their scripts' legibility. Addy and Wylie (1973 cited in Peck et al., 1980) reported that, evaluation of the scripts are made by teachers' observations much more frequently than comparing the scripts with certain standard reference charts. 89.5% of teachers compare the handwritings of the students with classmates and the rest (10.5%) even do not examine at all (Hammerschmidt & Sudsawad). According to Graham et al. (2008), teachers use informal and subjective techniques for their judgments. In addition to these, teachers prefer to use check-list and rarely, standard-test sheets. And to boost the motivation, teachers exhibit the best examples of student handwritings.

To observe the improvement at handwriting or to indicate the problems at handwriting, it is important to use the certain standard techniques of evaluation. Among most traditional techniques, there are also well developed holistic rating systems or true/false indication methods. These techniques help teachers to examine and diagnose the handwritings and problems, weaknesses of students, improvements by level and the effectiveness of education in a much more efficient way (Graham, 1986).

Teachers highlight that, the education for writing affects learning reading (Goldberg & Simner, 1999), so this leads to the result that family, kindergarten and teachers have great importance. Also teachers undermark that cursive handwriting should be thought in the second grade, the students got many troubles with it at the beginning and relationship between understanding-fine handwriting, the student must have strong hands, be overcome of the young age effects and the read/write books must be detailed. Additionally teachers stressed the importance of learning speed, method of learning handwriting and handwriting direction.

For the students to truly express themselves by script teaching handwriting is vital. For the education of handwriting be improved, it is possible to do many experimental or descriptive studies. It's possible to observe first grade teachers' handwriting lectures. It was observed that writing difficulties are mostly related to the letters' ways of writing. In order to be able to prevent these writing difficulties, by making practice particularly on the letters the writing of which are difficult, alternative writing ways of these letters can be developed. Scales for assessing handwriting can be developed so that students' handwritings can be appraised.

References/Kaynakça

- Akyol, H. (2009). *Türkçe ilkökuma yazma öğretimi*. Ankara: PegemA Yayıncılık.
- Anagün, Ş. S., & Yaşar, Ş. (2009). Developing scientific process skills at science and technology course in fifth grade students [Electronic Version]. *Elementary Education Online*, 8 (3), 843-865. Retrieved April 29, 2011 from <http://ilkogretim-online.org.tr/vol8say3/>.
- Armitage, D., & Ratzlaff, H. (1985). The non-correlation of printing and writing skills. *The Journal of Educational Research*, 78 (3), 174-177.
- Arslan, D. ve Ilgın, H. (2010). Öğretmen ve öğrencilerin bitişik eğitim yazı ile ilgili görüşleri. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 11 (2), 69-92.
- Asher, A. V. (2006). Handwriting instruction in elementary schools. *American Journal of Occupational Therapy*, 60, 461-471.
- Bay, Y. (2010). İlk okuma yazmayı öğrendiği yönteme göre ilköğretim ikinci sınıf öğrencilerinin okuma yazma hatalarının karşılaştırılması. *Milli Eğitim Dergisi*, 187, 23-38.
- Bilgin, N. (2006). *Sosyal bilimlerde içerik analizi: Teknikler ve örnek çalışmalar* (2. bs). Ankara: Siyasal Kitabevi.
- Brown, B., & Conti-Ramsden, G. (1989). Teaching letter formation in handwriting to young pupils with special educational needs. *European Journal of Special Needs Education*, 4 (1), 45-54.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). California: Sage Publications.
- Dobbie, L., & Askov, E. N. (1995). Progress of handwriting research in the 1980s and future prospects. *The Journal of Educational Research*, 88 (6), 329-351.
- Duran, E. (2011). Bitişik eğitim yazı harflerinin yazım şekillerine ilişkin öğretmen görüşleri. *Onokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi*, 30 (2), 55-69.
- Duran, E., & Akyol, H. (2010). Bitişik eğitim yazı çalışmalarının çeşitli değişkenler açısından incelenmesi. *Türk Eğitim Bilimleri Dergisi*, 8 (4), 817-838.
- Galanis, J. A. (2008). The effect of the handwriting without tears program on student cursive writing achievement at Central Institute for the Deaf (CID). *Independent Studies and Capstones*, Paper 417. Program in Audiology and Communication Sciences, Washington University School of Medicine.
- Gökçe, O. (2006). *İçerik analizi: Kuramsal ve pratik bilgiler*. Ankara: Siyasal Kitabevi.
- Goldberg, E. R., & Simner, M. L. (1999). A comparison of children's handwriting under traditional vs. whole language instruction. *Canadian Journal of School Psychology*, 14 (2), 11-30.
- Graham, S. (1986). The reliability, validity, and utility of three handwriting measurement procedures. *Journal of Educational Research*, 79 (6), 373-380.

- Graham, S., & Weintraub, N. (1996). A review of handwriting research: Progress and prospects from 1980 to 1994. *Educational Psychology Review*, 8 (1), 7-87.
- Graham, S., Harris, K. R., Mason, L., Fink-Chorzempa, B., Moran, S., & Saddler, B. (2008). How do primary grade teachers teach handwriting? A national survey. *Read Writ*, 21, 49-69.
- Hagin, R. A. (1983). Write right-or left: A practical approach to handwriting. *Journal of Learning Disabilities*, 16 (5), 266-271.
- Hammerschmidt, S. L., & Sudsawad, P. (2004). Teachers' survey on problems with handwriting: Referral, evaluation, and outcomes. *American Journal of Occupational Therapy*, 58, 185-192.
- Hamstra-Bletz, L., & Blöte, W. A. (1993). A longitudinal study on dysgraphic handwriting in primary school. *Journal of Learning Disabilities*, 26 (10), 689- 699.
- Johnson, R. B., & Christensen, L. B. (2008). *Educational research: quantitative, qualitative, and mixed approaches* (3rd ed.) California: Sage Publications.
- Koziatek, S. M., & Powell, N. J. (2002). A validity study of the evaluation tool of children's handwriting—cursive. *American Journal of Occupational Therapy*, 56, 446-453.
- Leeuw, E. (2008). Self-administered questionnaires and standardized interviews. In P. Alasuutari, L. Bickman & J. Brannen (Eds.), *The sage handbook of social research methods* (pp. 311-327). Los Angeles: Sage Publications.
- Lodico, M. G., Spaulding, D. T., & Voegtler, K. H. (2010). *Methods in educational research: From theory to practice* (2nd ed.). San Francisco: Jossey-Bass.
- McMillan, J. H. (2008). *Educational research: Fundamentals for the consumer* (5th ed.). Boston: Pearson education.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). California: Sage Publications.
- Patton, M. Q. (1987). *How to use qualitative methods in evaluation* (2nd ed.). California: Sage Publications.
- Peck, M., Askov, E. N., & Fairchild, S. H. (1980). Another research in handwriting: Progress and prospect in the 1970s. *The Journal Of Educational Research*, 73, 283- 298.
- Ratzon, N. Z., Efraim, D., & Bart, O. (2007). A short-term graphomotor program for improving writing readiness skills of firstgrade students. *American Journal of Occupational Therapy*, 61, 399-405.
- Reis, E. M. (1989). Activities for improving the handwriting of learning-disabled students. The Clearing House. *A Journal of Educational Strategies, Issues and Ideas*, 62 (5), 217-219.
- Rosenblum, S., Dvorkin, A. Y., & Weiss, P. L. (2006). Automatic segmentation as a tool for examining the handwriting process of children with dysgraphic and proficient handwriting. *Human Movement Science*, 25, 608-621.
- Roston, K. L., Hinojosa, J., & Kaplan, H. (2008). Using the minnesota handwriting assessment and handwriting checklist in screening first and second graders' handwriting legibility. *Journal of Occupational Therapy, Schools, & Early Intervention*, 1(2), 100-115.
- Sassoon, R. (2003). *Handwriting: The way to teach it* (2nd ed.). London: Sage.
- Schoenfeld, H. B., Coppola, C., Kertis, N., & Barnes, K. J. (2009). A pilot study: Impacting first grade written literacy through teacher education. *Journal of Occupational Therapy, Schools & Early Intervention*, 2 (1), 6-19.
- Temur, T. (2011). İlköğretim birinci sınıf öğrencilerinin kalem tutma şekilleri ile kavrama ve sıkıştırma kuvvetlerinin betimlemesi. *Kuram ve Uygulamada Eğitim Bilimleri Dergisi*, 11 (4), 2199-2205.
- Temur, T., Aksoy, C. C. ve Tabak, H. (2011). İlköğretim Birinci sınıf öğrencilerinin kalem tutma biçimleri, kavrama ve sıkıştırma kuvvetlerinin yazma hızı ve hatalarına etkisi. TÜBİTAK, Proje No:109K598.
- Thurber, D. N. (1995). *D'Nealian handwriting versus circle-stick print* (Eric Document Reproduction Service No: ED 381 911).
- Tucha, O., Tucha, L., & Lange, K. W. (2008). Graphonomics, automaticity and handwriting assessment. *Literacy*, 42 (3), 145-155.
- Turan, M. (2010a). Analogy of lower and capital letters of vertical and italic handwriting in first grade literacy. *Educational Research and Review*, 5 (10), 593-603.
- Turan, M. (2010b). Birinci sınıf öğretmenlerinin ses temelli cümle yöntemi ve yazı türlerine ilişkin görüşleri. *Milli Eğitim Dergisi*, 187, 8-22.
- Turan, M. ve Akpınar, B. (2008) . İlköğretim Türkçe dersi ilkokuma yazma öğretiminde kullanılan ses temelli cümle ve bitişik eğik yazı yöntemlerinin değerlendirilmesi. *Fırat Üniversitesi Sosyal Bilimler Dergisi*, 18 (1), 121-138.
- Vinter, A., & Chartrel, E. (2010). Effects of different types of learning on handwriting movements in young children. *Learning and Instruction*, 20, 476-486.
- Yıldırım, K., & Ateş, S. (2010). Sınıf öğretmenlerinin bitişik eğik yazı uygulamalarına ilişkin görüşleri. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 5, 57-71.
- Zviani, J., & Elkins, J. (1986). Effect of pencil grip on handwriting speed and legibility. *Educational Review*, 38 (3), 247-257.