Learning How to Spell in Turkish

Ecehan Sönmez, Nalan Babür and Belma Haznedar

Abstract

In comparison to the large body of research on reading and its underlying processes in the field of literacy acquisition, the number of studies investigating the components of writing has remained rather limited (Treiman, 1993). Given that spelling is a fundamental aspect of the ability to write, understanding the nature of spelling may contribute to improvements in literacy instruction, in particular, for those who experience learning difficulties. The course of spelling development has been mostly studied in English (Ehri, 1986; Frith, 1980; Gentry, 1982; Henderson, 1985), a language known for its opaque orthography. In recent work there appears to be a growing interest to investigate spelling patterns in relatively transparent orthographies such as German (Wimmer & Hummer, 1990) and Czech (Caravolas, Volin & Hulme, 2005). However, only few studies to date have dealt with spelling performance in transparent orthographies such as Finnish (Lehtonen, 2006) and Turkish (e.g., Babayiğit & Stainthorp, 2007; Erden, Kurdoğlu, & Uslu, 2002). The primary purpose of the present paper is to examine spelling development in Turkish across grades 1-3. We compared results obtained from different tasks (e.g., single word, sentence and text spelling tasks based on auditory and visual prompts) based on a comprehensive error categorization. Spelling performance in Turkish is analyzed both quantitatively and qualitatively; and the findings are discussed in terms of development of spelling across grades and characteristics of error types according to varying spelling task demands. The most common error type was found to be grapheme substitution, followed by grapheme omission; and auditory prompts yielded more errors when compared to visual prompts, which was an expected outcome. Some implications are made regarding the role of universal processes and language specific characteristics in the emergence of spelling errors.

Key Words: Error types, Spelling, Transparent Orthography, Turkish

Introduction

Literacy acquisition is a long process which sets its ground during the early years of life and continues for years after being shaped by formal literacy instruction at school. The roots of emergent literacy could be traced back to infancy, when babies become exposed to written stimuli on the everyday objects in their environment, and develop some degree of print awareness specific to the orthography of their mother tongue (Lancaster, 2003). This state of readiness is reinforced by the exercises done with the letters in children's names and the alphabet knowledge acquired during the kindergarten years.

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Children's sensitivity to sounds and letters developed at this stage facilitates the formal literacy training provided later at school (Treiman, 2006).

Given that literacy is a fundamental asset to communicate, gain access to knowledge and share information, investigating literacy skills is highly important in order to understand developmental, psycholinguistic and cognitive processes underlying reading and writing achievement, and to design more efficient teaching programs not only for normally developing children, but also for those who are faced with learning difficulties.

When compared to the large body of research conducted on reading skills, the number of studies investigating spelling skills is rather limited (Treiman, 1993). The reason for the lack of research in this field is that spelling has long been treated as an epiphenomenal outcome of reading instruction. However, it is recently stated in the literature that spelling is a more complex skill than reading as it involves more complicated and sensitive phonological processes, and there is a need for further spelling research (Babayiğit & Stainthorp, 2007; Bosman & Van Orden, 1997; Perfetti, 1997).

While reading, an individual *recognizes* the letters in a word, matches them with their corresponding sounds and reaches the target word and its meaning by quickly eliminating other possible alternatives in the mental lexicon. While spelling, on the other hand, the cognitive mechanisms work in the opposite direction-the person selects a word from the mental lexicon where the phonological representation of the word is stored along with its meaning, and *recalls* the graphemes corresponding to the phonemes in that particular word (Perfetti, 1997). Thus, although its strong relationship with reading cannot be underestimated, spelling deserves a more scientific approach as a separate construct. It is predicted that studies dealing with the course of spelling development and its components will provide researchers and educators with a better understanding of psycholinguistic, cognitive and pedagogical aspects of literacy acquisition.

In spelling research, analyzing spelling errors is considered an informative and valuable guideline (Read; 1975, 1986). So far, the majority of studies investigating the developmental patterns of spelling have been conducted in English (Ehri, 1986; Frith, 1980; Gentry, 1982; Henderson, 1985; Treiman, 1993). These studies have focused on the characteristics of spelling errors and revealed that English speaking children go through several stages until they master conventional spelling rules.

Languages demonstrate variation with regard to their writing systems, phonological features and orthographic regularities. Whether a language has a transparent or opaque orthography might influence the course of literacy development (Liberman, Liberman, Mattingly & Shankweiler 1980). In languages with transparent orthographies, graphemes have one-to-one correspondence with their matching phonemes (Aydın, 2012). While English has a highly opaque orthography, languages such as Finnish or Turkish could be classified as having orthographies with nearly perfect transparency. Hence, it is highly predictable that the patterns of literacy acquisition observed in Turkish will be different from those in English.

Several studies have found that transparent orthographies facilitate and accelerate reading and spelling development (Durgunoğlu & Öney, 1999; Lehtonen, 2006; Oktay ve Aktan, 2002; Öney & Durgunoğlu, 1997; Seymour, Aro ve Erskine, 2003; Wimmer & Goswami, 1994; Wimmer & Hummer, 1990). Durgunoğlu and Öney (1999) argue that phonological awareness of Turkish speaking children develop much faster than their English speaking peers, and this factor facilitates the earlier reading achievement among Turkish children. Studies conducted in the relatively transparent orthography of German revealed that German speaking kids performed better on word reading and non-word reading tasks when compared to English speaking children due to their higher levels of phonological awareness (Wimmer & Goswami, 1994; Wimmer & Hummer, 1990). In another study comparing English and Czech, Caravolas, Volin and Hulme (2005) found no quantitative differences between the phonological skills which predict the children's spelling skills across languages. However, they stated that literacy acquisition may be dependent on qualitatively different mechanisms in transparent versus opaque orthographies. In another study investigating the spelling of letter doublets in Finnish, Lehtonen (2006) found that Finnish children developed awareness for the letter doublets in their mother tongue well before school instruction, and accounted for this early advantage by the transparent orthography of the Finnish language. The researcher claimed that spelling models developed for opaque orthographies such as English cannot be used in order to explain the developmental processes of spelling in languages such as Finnish.

Findings in the literature highlight the importance of conducting spelling research across languages with different orthographies. To this end, there is need for spelling research in Turkish, which has a special position among other languages with its nearly perfect orthography. Such a study was conducted by Erden, Kurdoğlu and Uslu (2002), who aimed to develop reading and spelling norms to be used in diagnosing learning difficulties among Turkish children. They tested children from 1st to 5th grade and in the spelling section of the study; they used a dictation text consisting of 3 sentences. After the spelling errors made by the children were analyzed and categorized, it was found that the children mostly made *punctuation errors* and *grapheme substitution errors* in comparison to other type of spelling errors. They also analyzed the developmental differences across grade levels for each error category and paved a way for the development of standardized spelling tests for Turkish. Future studies with the same purpose will be of high importance since their findings will enhance the quality of teaching methods, material design and curriculum development in Turkish.

The main purpose of the present study is to investigate spelling development across 1st, 2nd and 3rd grades of elementary school, and to see how the tests designed using different prompts (auditory versus visual at word, sentence and text levels) will influence the children's spelling performance in Turkish. It also aims to demonstrate the most common error types in spelling based on a comprehensive error categorization, and account for the possible reasons of these errors with regard to universal phonological processes and language specific properties.

Method

Participants

79 students attending a state school in Beşiktaş, İstanbul participated in the study. In the sample, there were 24 1st graders, 27 2nd graders and 28 3rd graders. Overall, 46 % of the participants were female students while 54 % consisted of male students. They used cursive writing throughout the data collection process.

Data Collection Instruments

In the present study, 6 different tests with different modalities and complexities were used in order to assess the spelling skills of Turkish speaking children. The words included in the spelling tests were selected from the passages in the students 'course books.

Word Copying

In this test, the students were asked to copy 6 words given on a worksheet. Only 1st and 2nd graders took the test. The words were *badem (almond), birden (suddenly), bardak (glass), kulübe (cottage), dibinde (at the bottom)* and *dolabın (of the cupboard)*, which included several confusing sounds.

Sentence Copying

The students copied a whole sentence given on the same worksheet. They were supposed to pay attention to the proper use of capital letters and full stop.

Text Copying

The participants copied a short paragraph given in a separate work sheet.

Word Dictation

In this test, the researcher read aloud 25 words including several confusing sounds, and the students were asked to spell the words. Each word was read aloud twice.

Text Dictation

The researcher read aloud short paragraphs whose difficulty was adjusted according to the grade levels. The students were asked to listen and write down the sentences carefully. Each sentence was read aloud twice.

Error Categorization and Scoring

An extensive error categorization was made in order to classify spelling errors in each test. If a participant spelled the items without any errors, he or she received 1 point in all categories. If the participant made at least 1 specific error type, then he or she received 0 for that category. The error categorization and the examples are demonstrated in Table 1.

Table 1. Error categorization

Rubric	Error Explanation/Example
Writing status	Partial/no writing
Legibility	Illegible handwriting
Alignment	Writing not aligned well along the line
Size	Too small or too big graphemes
Syllable separation	Bir-den
Syllable addition	Birdenden
Syllable omission	Bir
Syllable reversal	Denbir
Grapheme substitution	Pirden
Grapheme addition	Biriden
Grapheme omission	Biden
Grapheme formation	Improper forms (a, b, e, k, r, ğ, z)*
Dotted graphemes	Bırden
Dotless graphemes	Külübe
Ğ (phonemic representation)	Baırdı, Dooru
Title (for texts)	No title
Capital letters	Lowercase sentence start
Full stop	No full stop at the end of sentences
Word omission	Words omitted
Word addition	Extra words used
Joint word writing	Birrüzgarçıktı
Hyphen	Incorrect hyphen use

* Each grapheme was evaluated separately

After the scoring procedure, the error frequencies were calculated and percentages were formed out of these frequencies. In addition, the most problematic words were detected in each test, and the common spelling errors made while spelling these difficult words were analyzed by the researcher.

Findings

Findings across Task Modalities

As can be seen in Figure 1, when compared to word copying task (with visual prompts), more students made spelling errors in many of the categories in the word dictation task (with auditory prompts). When the students moved from word copying to word dictation, there was an increase in the number of students who made spelling errors in *partial writing, grapheme substitution, grapheme omission* and *grapheme addition* categories.
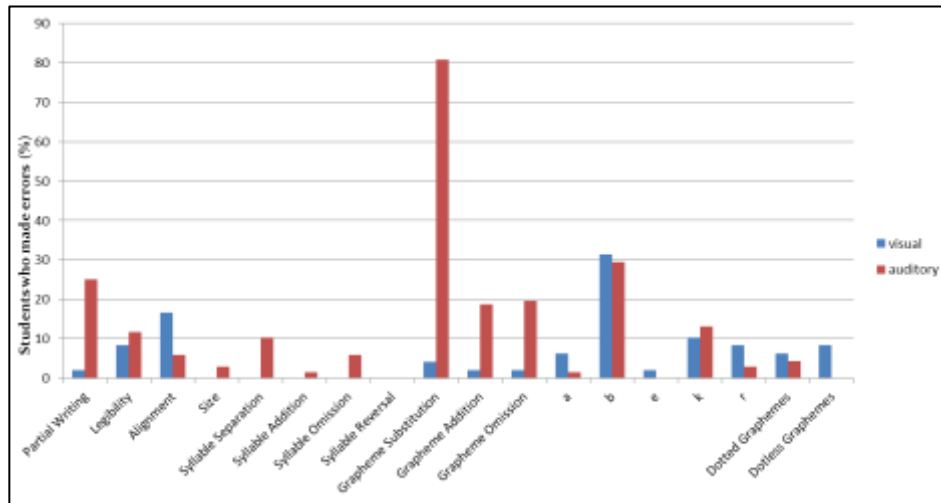

Figure 1. Error Percentages across Word Copying and Word Dictation

When a comparison is made between the spelling performances across text copying and text dictation, a similar pattern is observed (see Figure 2). There was an increase in the number of students who made errors in *partial writing, grapheme substitution, grapheme omission, grapheme addition, syllable omission, word omission, use of capital letters, use of full stop, joint writing* and *use of hyphen* during the text dictation task. In other words, text dictation was more difficult than text copying for the students.

Interestingly, the participants performed better at *alignment* category in the text dictation task. This situation was probably a result of the different sheets used during the tasks (while the students used a special worksheet for copying, they used a regular notebook sheet for dictation-a material which was more familiar).
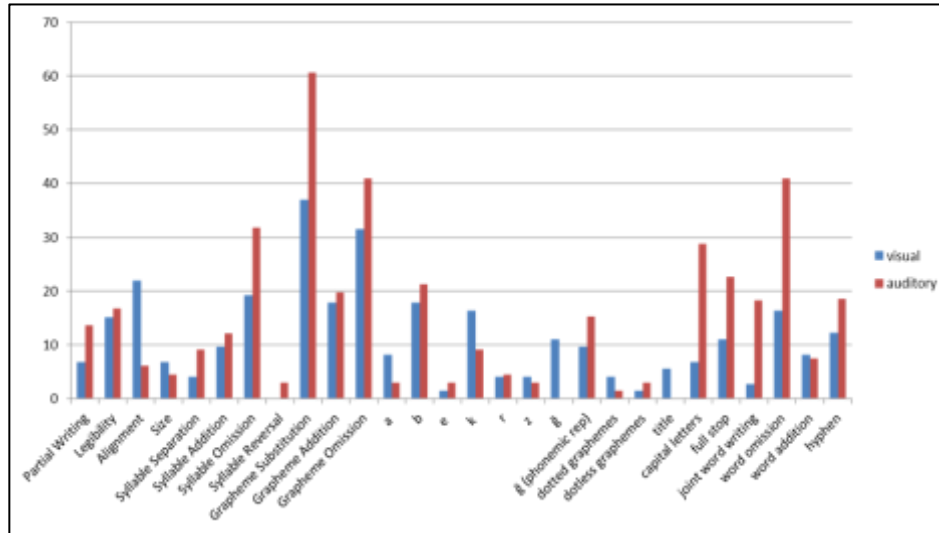

Figure 2. Error Percentages across Text Copying and Text Dictation

Overall, the students seemed to have more difficulty in spelling during dictation tests both at word and text levels. This is an expected outcome since the students had to depend more on their working memory capacities as they were asked to listen and write the words and sentences during the dictation tasks. In addition, as they tried to retrieve correct mappings between the sounds and the letters, the role of phonological awareness and phonological memory came into play, which made the auditory tasks more challenging.

Another finding was that there were more *joint writing* cases in text dictation in comparison to text copying. This situation shows that the students had problems in differentiating between word boundaries as they listened. This comparison between task modalities supports the argument made by Bosman and Van Orden (1997) who stated that spelling performance might vary to a great extent depending on the test requirements.

Findings across Task Complexities (Lengths)

As demonstrated by Figure 3, within copying tasks, from word level spelling to sentence and text level spelling, there is an increase in the error percentages in several error categories.
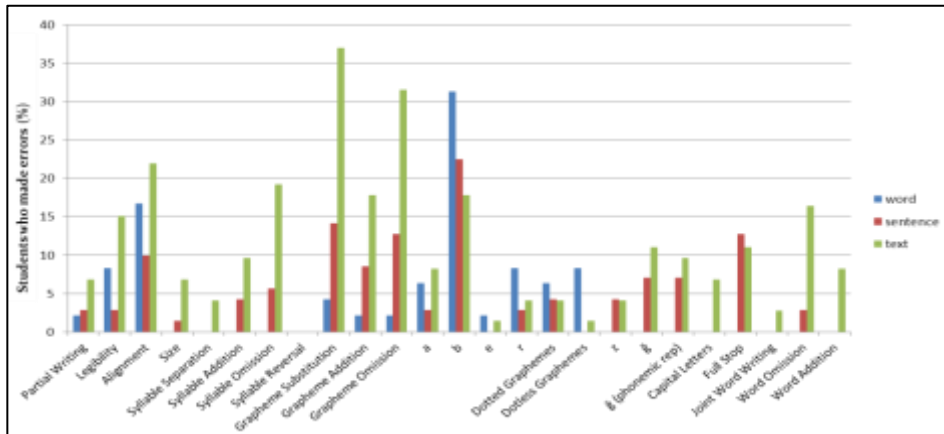
Figure 3. Error Percentages across Word, Sentence and Text Copying

Among the critical error types, the increase in *grapheme substitution, grapheme addition* and *grapheme omission* is more salient. This is an expected outcome when the length and the contextual complexity of the text are taken into consideration (Bosman & Van Orden, 1997).
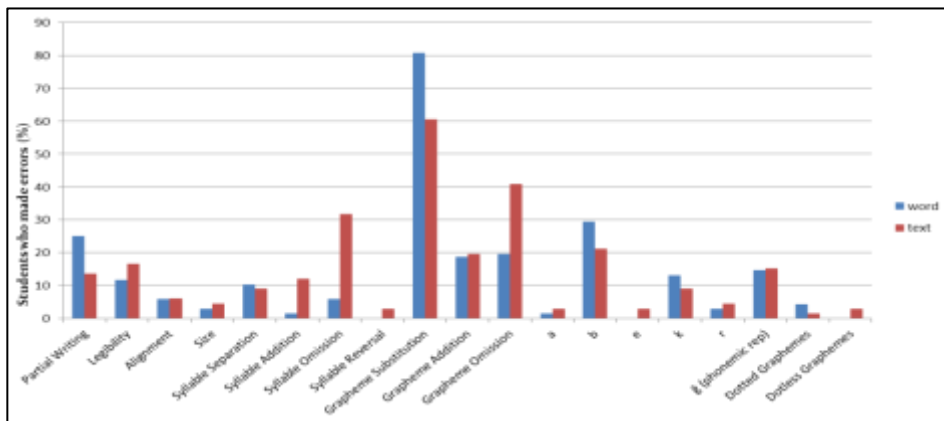

Figure 4. Error Percentages across Word and Text Dictation

In the dictation tasks, the patterns in most of the error categories show parallelism to the findings of the copying tasks. That is, the students had more difficulty in spelling words in a contextual integrity as required by text dictation. Therefore, more students made spelling errors in text dictation than in word dictation, which required spelling of individual words only (see Figure 4).

Interestingly, the number of the students who did *partial writing* was higher in word level dictation than in text level dictation. This situation is probably a result of the scoring procedure in which the students received 0 even when they missed one word out of 25 items in the list. Another interesting finding is that more students made *grapheme substitution* errors in word dictation. The reason for this outcome might be the highly confusing phonemes in words such as *pabuç (shoe)* and *pembe (pink)* presented to the children during the word dictation task.

Findings across Grade Levels

As can be seen in Figure 5, more students from the 1st grade made spelling errors in categories such as *partial writing, alignment, legibility, grapheme substitution, grapheme omission, grapheme addition* and the *formation of the letters b, k, r* when compared to 2nd graders in the word copying task. Interestingly, 2nd graders demonstrated poorer performance on the spelling of *dotted* and *dotless graphemes.*
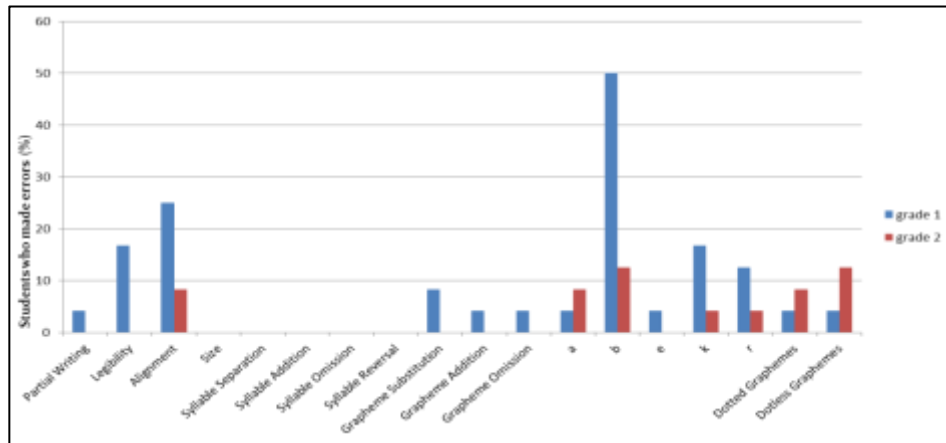

Figure 5. Error Percentages in Word Copying Test across 1st and 2nd grades

In the sentence copying task, there was not a consistent pattern of improvement from 1st to 2nd and 3rd grades (see Figure 6). While 1st graders had difficulty in *alignment* and formation of the letter *b*, 2nd and 3rd graders commonly made *grapheme substitution* and *grapheme addition* errors. This situation might be a result of the limited number of participants and the distributional characteristics of the sample.
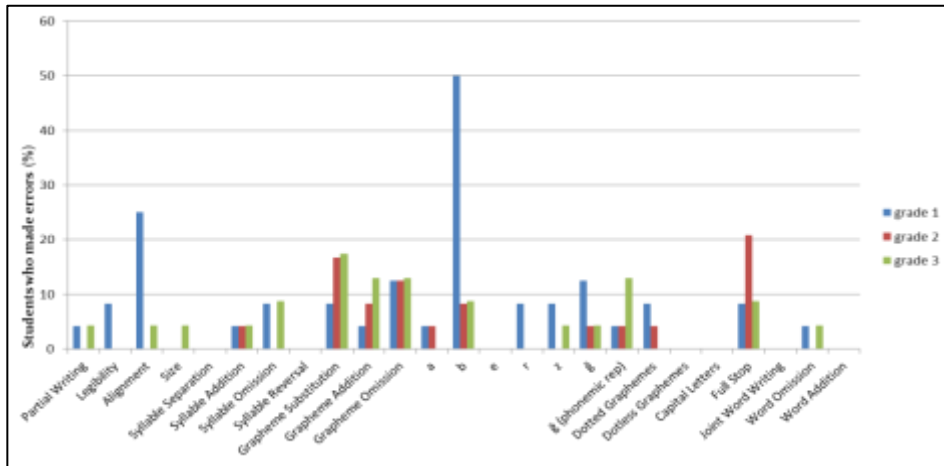
Figure 6. Error Percentages in Sentence Copying across 1st, 2nd and 3rd grades

In the text copying test, the most salient developmental patterns across grade levels were observed in *legibility, grapheme substitution, soft g, formation of k, joint writing, word omission, word addition* and *the use of dotted graphemes* as presented by Figure 7. The lowest performance in *grapheme omission* and *grapheme addition* was demonstrated by 2nd graders in this test.
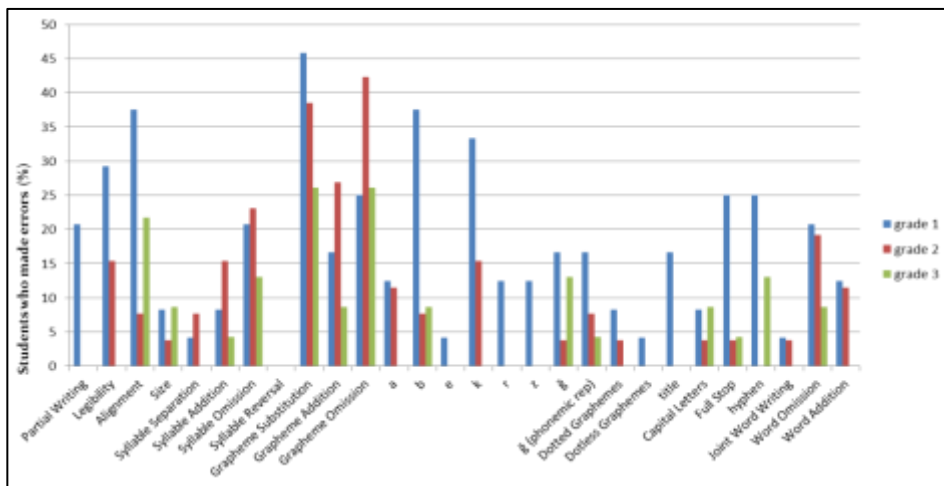

Figure 7. Error Percentages in Text Copying across 1st, 2nd and 3rd Grades

In the word dictation test, the developmental patterns across grades were mostly observed in the categories of *partial writing, legibility, grapheme substitution, grapheme omission, soft g*, and *formation of k*. As the grade level increased, the error rates in these categories started to decrease (see Figure 8).
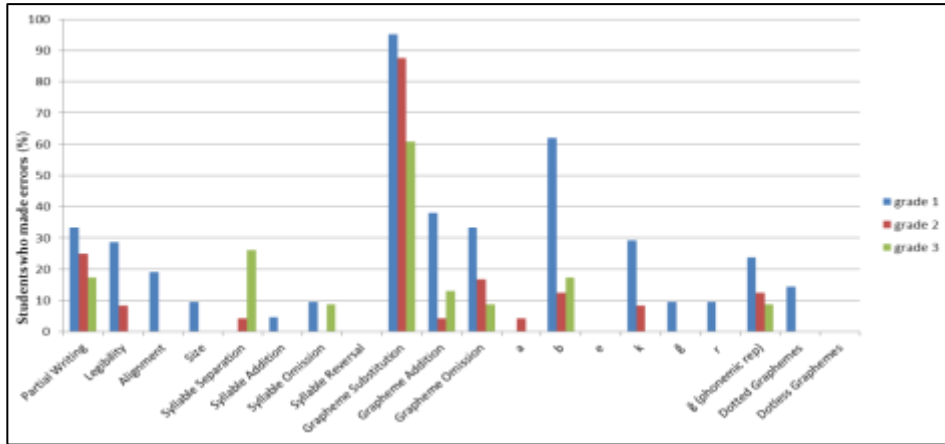

Figure 8. Error Percentages in Word Dictation across 1st, 2nd and 3rd Grades

The results of the text dictation test are presented in Figure 9. Accordingly, as the grade level increased, the error rates in *legibility, grapheme substitution, formation of b* and *k, use of capital letters, hyphen, full stop* and *word omission* tended to decrease.
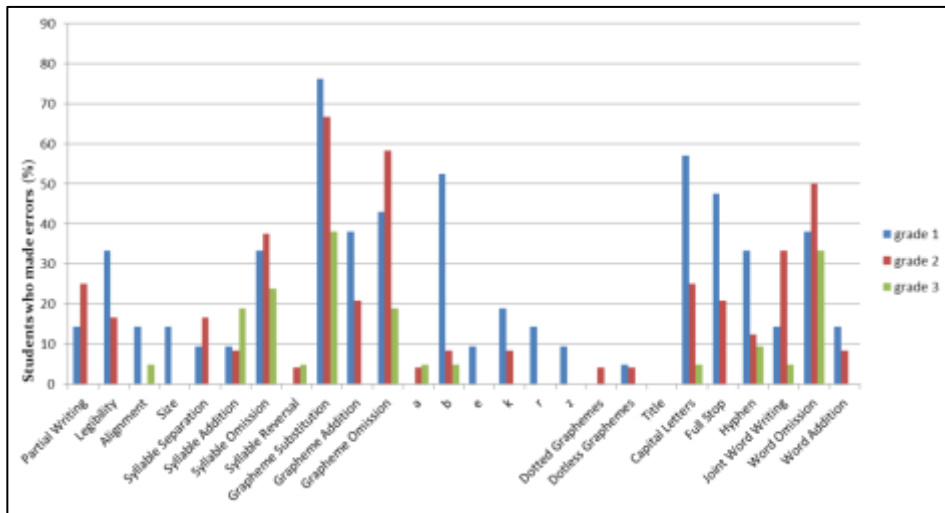

Figure 9. Error Percentages in Text Dictation across 1st, 2nd and 3rd Grades

Based on the overall results of the tests, it can be stated that although there is a general improvement in spelling performance across the three grade levels, this improvement is not observed for all of the error categories in all the tests. The existing inconsistencies could be eliminated with a replication of the study with a larger and statistically appropriate sample.

An Analysis of Spelling Errors in relation to Universal Phonological Processes and Language Specific Properties

In his seminal work, Ingram (1974) investigated the phonological development of English, French and Czech speaking children. According to his findings, regardless of their linguistic backgrounds, children go through similar phonological stages while learning to speak. They tend to choose the easiest and the most economical ways of articulation, and produce utterances by using several operations such as *syllable deletion*, *voicing* and *sound assimilation.*

It is believed that the phonological knowledge children acquire during listening and speaking has an important role not only in the development of reading skills but also in spelling abilities (Bryant, MacLean, Bradley, & Crossland, 1990). This situation makes it possible to account for a large variety of spelling errors by considering the role of the phonological processes.

In this part of the study, the most problematic words for the participants are presented, and several explanations for the spelling errors are provided with regard to the universal phonological processes and the language specific characteristics of the Turkish language.

In the word copying test, the most problematic word was *kulübe (cottage)* (21%). The word was misspelled as *külübe* (40%) or *kulube* (30%) by the majority of the students. Since it is a loan word from Persian, this word violates the palatal harmony (e, i, ö, ü should be preceded by *e, i, ö, ü;* and *a, ı, o, u* should be preceded by *a, ı, o, u*) in Turkish, and the participants' attempt to spell it as *külübe* might be interpreted as an implicit way of maintaining the palatal harmony of the mother tongue. The reason underlying the other type of misspelling, *kulube,* seems to be less clear as the children might have simply forgotten to place the diacritics properly.

In the word dictation test, *pabuç* (shoe) (74%), *dip dibe* (nose to tail) (44%) and *kulübe* (39%) appeared as the most commonly misspelled words. *Pabuç* was mostly spelled as *papuç* (58 %), and *dip dibe* was spelled as *dib dibe* (33%). The effects of universal phonological processes can be observed in these two misspellings. When the students heard the word *pabuç,* they devoiced *b* (a voiced consonant) and converted it into *p* under the influence of the initial *p* sound. Assimilation of these sounds is frequently applied in spoken Turkish, but it can also occur in other languages. This case is a good example showing that variations in the spoken language may be transferred into written language. Similarly, when spelling *dip dibe,* the students converted *p* (voiceless) into b (voiced) as a result of the preceding sound *d,* which is a voiced consonant. The error types in *kulübe* were consistent with the ones found in the word copying test (*kulube* 48 %, *külübe* 30%). Another finding in word dictation was that 3 students from 1st grade (14 %) reversed the graphemes *d* and *r* in the proper noun *Bodrum,* and misspelled the

word as *Bordum*. A similar case was observed for the proper noun *Bedri,* which was misspelled as Berdi by 2 (9 %) students from 3rd grade. Furthermore, several instances in which the students made *grapheme addition* errors while spelling these two words were recorded (i.e. *Bodurum, Bediri)*. Normally, the letters *d* and *r* do not follow this sequence in Turkish words. While *Bodrum* is of Greek origin, *Bedri* is a borrowed word from Arabic. That might be the reason for the difficulty the children had while trying to spell them. In order to make more detailed explanations for such spelling errors, there is a need for statistical studies investigating the phonotactics (frequencies of phoneme sequences in a syllable or a word) of the words used in Turkish.

In the sentence copying test, many students made errors while spelling the word *beğendi (he/she liked it)* (20%). The word was often misspelled as *begendi* (57 %) or *beyendi* (21 %). This specific example might be indicating the problems faced by the students both in the formation and the phonological conceptualization of soft g, which is an exceptional grapheme violating the regularity between the sounds and the letters in Turkish.

In the text copying test, the students had problems when spelling *olacağını (that it will happen)* (28 %), *bırakmamızın (that we release)* (24 %) and *rüzgar (wind)* (18 %). *Olacağını was* mostly written as *olacagını* (35%) and *olacanı* (15%), a finding which supports the statement that there exist problems regarding soft g among Turkish students. *Bırakmamızın* is a long and multimorphemic word, and it included many different types of spelling errors. *Rüzgar* was commonly spelled as *ruzgar* (30 %) and *yüzgar* (23 %). The underlying reason of the misspelling *ruzgar* might be another attempt to maintain Turkish palatal harmony, or it might be a simple performance error which left the grapheme *ü* dotless. In the misspelling *yüzgar,* there seems to be the influence of universal phonological processes. This might be an example of *liquid gliding* in which children substitute /l/ and /r/ with /y/ and /w/, and it occurs in other languages such as English.

In the text dictation test, 1st graders mostly misspelled the words *kutbu (pole)* (90%), *kutbunda (at the pole)* (66 %) and *penguenler (penguins)* (62 %). The most problematic words for 2nd graders were *etmezsek (if we do not do it)* (80 %) and *bırakmamaktır (it is not releasing)* (54 %). Lastly, 3rd graders had the most difficulty in spelling the word *baltalıyorlardı (they were axing)* (43 %). *Kutbu* was commonly misspelled as *kutubu* (37%) by 1st graders. The students had difficulty noticing the vowel dropping in the word. Instead of transferring this omission into their spellings, they inserted the grapheme *u* between *t* and *b*. This tendency could be explained by the most common syllable type in Turkish, which includes two-letter syllables (56 %) with a CV structure (51%) in general (Aşlıyan, Günel, & Filiz, 2006). This finding reflects the influence of language specific characteristics on the emergence of spelling errors. *Kutbunda* was frequently spelled as *kutpunda* (64 %), and accepted as an example of the universal assimilation procedure, in which the participants converted *b* into *p* as it was preceded by a voiceless sound, *t*. *Penguenler* was misspelled as *penguvenler* (15 %) or *penguğenler* (15 %) by the 1st graders. For this specific error, it is predicted that the students inserted additional graphemes between *u* and *e* due to the fact that Turkish does not allow vowel doublets. Among 2nd graders, *etmezsek* was commonly spelled as *etmessek* (58 %). This error is another example of assimilation. The sounds /t/, /s/ and

/k/ are all voiceless consonants, and the students devoiced the only voiced sound /z/ within this word, and converted it into /s/. This procedure is often observed in the spoken Turkish, as well. However, during the test administration, the researcher paid special attention to the distinction between z and s. Despite this, findings show that the students did not concentrate on the researcher's pronunciation. Rather, they focused on the phonological representation of the word in their own minds. As another problematic word, *bırakmamaktır* yielded several different types of spelling errors among 2nd graders probably because it is quite a long and multimorphemic word. Lastly, 3rd graders had the most difficulty in spelling the word baltalıyorlardı. Since it is a complex word with several suffixes and the recurring /l/ sound, they misspelled this word in many different ways such as *baltalı yollardı* (22 %), *baltalıyordu* (22 %), and *baltalı yollardalardı* (11 %).

When word omission errors were analyzed, it was found that in the text copying test, the most commonly omitted word was *kadar (as)* (7 %). In the text dictation test, while 1st graders tended to omit *ve (and)* (16 %), 2nd and 3rd graders mostly omitted *bir (a/an)* with the rates of 30 % and 14 % respectively. These examples are all function words which do not have deep semantic connections as content words, and it is an understandable finding that they were omitted more frequently by the students.

Error characteristics in this part show that both universal phonological processes and language specific features of Turkish played a major role in the emergence of spelling errors. These factors should be taken into consideration while planning spelling instruction, teacher education and material design.

Discussion

Overall, the findings of the present study show that the students mostly made *grapheme substitution* errors and *grapheme omission* errors. This outcome is in line with the findings of Erden et al. (2002), who found that *grapheme substitution* errors were more common in comparison to the other type of grapheme errors in their study. Despite the fact that Turkish has a transparent orthography, spelling errors emerge very frequently as a result of the conflict between the spoken variations and the conventional spelling rules in Turkish. This implies that children are in need of more efficient spelling instruction supported by phonological awareness training and conventional spelling requirements.

In all tests, the students mostly had difficulty in the *formation of b* in cursive writing. This was followed by the letters *k, ğ* and *r.* It seems that teachers should focus on the formation of these particular letters when teaching spelling.

Another important finding is that soft g may become a problematic grapheme for the students who are learning to spell in Turkish. They make both formation errors and several other types of errors such as *grapheme substitution* (*beyendi* instead of *beğendi*), *grapheme addition* (*eşyağlar* instead of *eşyalar*) and grapheme omission (*doru* instead of *doğru)* when they deal with spelling tasks. This finding supports Ergenç's (1991) definition of soft g as an exceptional phenomenon which causes vowel lengthening and vowel shift in Turkish. Therefore, special activities regarding the case of soft g should be included or reinforced in the literacy curriculum at schools.

When the tests were compared in terms of different modalities, it was found that more students made spelling errors in the tests which used auditory prompts than in the ones which used visual prompts. This finding was explained by the working memory and phonological memory demands of the dictation tasks.

When the tests were compared based on their complexities (length), the students were found to have more difficulty when spelling words in a contextual integrity than when spelling them individually. These results demonstrate that spelling performance show variation depending on the task type and task requirements.

Across grades, an improvement was detected in many of the error categories in many of the tests. In general, it can be argued that as the grade level increased, the spelling performance improved among the children. This situation was not valid for all the error types in all the tests. Therefore, more evidence provided by similar studies with larger and statistically more appropriate samples seems necessary to see a clearer picture of the characteristics of spelling development in Turkish.

This study shows that children transfer phonological variations in spoken Turkish to their spellings, and it points to the complex relationships between phonological components of spoken and written language. In addition to the phonological and orthographic rules of Turkish, universal phonological processes also play a role in the emergence of spelling errors.

Conclusion

This study aims to understand the underlying processes of spelling in Turkish, explain the developmental course of spelling, and discuss the possible reasons of spelling errors. It is expected that it provides some insight into the most common error types in Turkish spelling and leads to further research in order to find more efficient solutions to the problems of literacy training at schools.

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Türkçe'de Yazma Becerisinin Gelişimi

Özet

Okuma süreçleri üzerine yapılan çok sayıda çalışmaya oranla, yazma becerisini araştıran çalışmaların sayısı oldukça sınırlıdır (Treiman, 1993). Yazma becerisinin doğasını ve altında yatan bilişsel süreçleri anlamak, okuma yazma öğretimindeki gelişmelere katkıda bulunmak ve öğrenme güçlüğü yaşayan öğrencilerin ihtiyaçlarına yönelik programlar geliştirmek açısından son derece önemlidir. Yazmanın gelişimsel seyri, genellikle İngilizce gibi saydam olmayan dillerde araştırılmıştır (örn. Ehri, 1986; Frith, 1980; Gentry, 1982; Henderson, 1985). Günümüzde, yazma süreçleri Almanca (örn. Almanca (Wimmer & Hummer, 1990) ve Çekçe (Caravolas, Volin & Hulme, 2005) gibi daha saydam dillerde de araştırılmaya başlamıştır. Öte yandan, Fince (Lehtonen, 2006) ve Türkçe (Babayigit & Stainthorp, 2007; Erden, Kurdoğlu, & Uslu, 2002) gibi tamamen saydam dillerde yürütülen çalışma sayısı oldukça azdır. Bu çalışmanın temel amacı, Türkçedeki yazma becerisini ilkokul 1-3. sınıflar arasında gelişimsel olarak incelemektir. Farklı uyaranların kullanıldığı testler (işitsel ve görsel uyaranlara göre sözcük, tümce ve metin yazma) İstanbul'un Beşiktaş ilçesindeki bir okulda öğrenim gören 79 ilkokul öğrencisine uygulanmış ve elde edilen veri, detaylı bir hata sınıflandırması kapsamında nitel ve nicel olarak analiz edilmiştir. Bulgular, sınıflar arası gelişimsel farklar ve test türüne göre değişen hata türleri açısından tartışılmıştır. En yaygın hata türü harf karıştırma ve harf atlama olarak belirlenmiş ve işitsel uyaranların görsel uyaranlara kıyasla daha fazla sayıda hataya yol açtığı gözlemlenmiştir. Ayrıca, yazım hatalarının oluşumunda evrensel süreçlerin ve dile özgü unsurların rolü karşılaştırmalı olarak incelenmiştir.

Anahtar sözcükler: Yazma, Türkçe, Saydam Yazı Sistemi, Hata Türleri