

Evaluation of “Klassekist Super Spellen”

A Dutch method of spelling

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Dutch language instruction and Mathematics are core subjects in the Netherlands. An important part that is taught during Dutch language instruction is spelling. Spelling is the way words are written and includes all the official rules for written language (Kennisplatform voor het onderwijs, 2016). As a result of the literature research of Nijhof (2006) about effective instruction for spelling for a primary school in the Netherlands, the method “Klassekist Super Spellen” is developed for Dutch spelling instruction. Because Klassekist is in practice for seven years now in the fourth grade in the Netherlands and is in practice at approximately 50 primary schools, the question was raised by the developer of Klassekist how well the method works. Therefore, the following research questions were formulated for this study: “To what extent are the aspects of effective spelling instruction and the interim objectives of the fourth grade, that are formulated by the SLO, met by the method?” and “To what extent are the potentially different scores on the Cito test of the fourth grade dependent on the method of spelling that is used?” A literature review of effective spelling instruction has been conducted, in which the results are compared with Klassekist. A checklist with the interim objectives that are formulated by the SLO and the Cito scores of 355 students from their third grade (year of 2014-2015) and their fourth grade (year of 2015-2016) are used. The literature review showed that Klassekist contains many aspects of effective spelling instruction. The checklist revealed that the major interim objectives are treated within Klassekist. Results of the scores from the Cito student monitoring system did not show a significant effect of Klassekist. Recommendations for practice and for further research are discussed.

Keywords: spelling, primary school, evaluation, Klassekist

1. Introduction

As with Mathematics, the Dutch language instruction is regarded as a core subject in primary schools. Spelling is taught in the curriculum for Dutch language. Spelling is the way words are written and includes all the official rules for written language (Kennisplatform voor het onderwijs [Knowledge platform for education], 2016). An essential aspect of spelling is to ensure that the written message conveys what you want, and is well understood by others (Graham, Harris & Fink-Chorzempa, 2003).

The school curriculum consists of three kinds of curriculum: the intended curriculum, the implemented curriculum and the attained curriculum (SLO [Dutch Institute for Curriculum Development], 2005; Van den Akker, 1997). The intended curriculum is about the goals of the education system (SLO, 2005; Van den Akker, 1997). Therefore, the Dutch Ministry of Education, Culture and Science has formulated what students should learn at the primary school. The Dutch curriculum consists of 3 types of objectives: 1) core objectives, 2) learning trajectories and 3) interim objectives (Tule, can be found at tule.slo.nl; Kennisplatform voor het onderwijs, 2016). The core objectives contain general descriptions of important educational content and are developed by the Dutch Ministry of Education, Culture and Science (Tule). In the learning trajectories, the core objectives are concretized and contain more details. These learning trajectories are subsequently specified for several moments in primary school: the interim objectives (Tule). The learning trajectories and interim objectives are developed by the SLO, the Dutch Institute for Curriculum Development, by means of the core objectives. These learning trajectories and interim objectives suggest possibilities to cover core objectives over the eight primary school grades for developers of learning material and for schools.

The second kind of curriculum is the implemented curriculum. This is about methods, activities and institutional arrangements within the school and class that are used to implement the core objectives (SLO, 2005; Van den Akker, 1997). In the Netherlands, many methods of spelling are available. A couple of methods that are used the most are “Spelling op Maat”, “Staal”, “Taalverhaal”, “Spelling in Beeld” and “Taal Actief”. “Klassekist Super Spellen” is also one of the methods that is developed for teaching Dutch spelling. Nijhof (2006) had conducted a literature study about the effectiveness of spelling and how to improve the effectiveness at a primary school in the Netherlands. It resulted in the development of Klassekist Super Spellen. The method is used by approximately 50 primary schools in the Netherlands and is used for grades three to eight. A crucial aspect of this method is the structure: the general structure within each lesson and within each grade is the same. The format is as follows: in advance a rule of spelling is introduced to the students, they hear a word together with a description of that word, they repeat it and then they see how the word is written. After the introduction of five words, each day a dictation is held in which the former rules of spelling are addressed. In addition, icons are used to symbolize the rules of spelling. Klassekist uses elements from research that have been shown to be effective. For example, research has shown that when students can first process words aurally and then visually, students learn spelling more effectively (Vaessen & Blomert, 2013). This is, among other things, processed within the rules and icons that Klassekist uses (Wallace, 2006; Cordewener, Verhoeven & Bosman, 2016; Paffen & Bosman, 2005). Moreover, research of Hilte and Reitsma (2011) has shown that it is more effective to learn spelling when students get a description of the word as well. Another feature that is processed within Klassekist is feedback (Kearny & Drabman, 1993; Weekers, Van Huygevoort, Bosman & Verhoeven, 2005). It can be noticed that the each of the several methods of spelling use a direct instruction, and that the methods all use their own structure in each lesson. The main difference between Klassekist and other methods of spelling are the icons that are used to symbolize the rules of spelling, the daily dictation, the amount of repetition and the spelling lesson that is done each day in which all the phases are treated. So Klassekist has some other features processed in the method in comparison with other methods of spelling.

The last kind of curriculum is the attained curriculum and is about the learning outcomes (SLO, 2005; Van den Akker, 1997). Therefore, the spelling performances of Dutch students are regularly monitored. Results of the PPON [Annual Survey Research of the Educational Level], that is conducted by Cito [Central Institute for Test Development in the Netherlands], showed increased spelling performances of

the fourth¹ grade students, within each year over a four year period, between 2008 and 2012 (Van Weerden, Hemker & Mulder, 2014). Yet, their performances dropped significantly in 2013. This can be due to the relative high scores in 2012 (Van Weerden et al., 2014). Unfortunately, 2013 was the last year this survey was held in the fourth grade.

In 2010, Bonset (2010) mentioned four explanations why students could get worse in spelling. The first explanation is that students don't see the use of correct spelling. They would have a lack of spelling awareness (the will to spell faultless) and because of that, there is a lack of spelling consciousness (the ability to reflect on their own spelling, spelling skills and processes of spelling) (Oepkes, 2006). A second explanation will be that students don't pay enough attention to spelling. This could be due to the high cognitive load when writing a text (Bonset, 2010). In this way, students take more time for the content instead of the spelling. A third explanation is that students don't make use of present devices, like the spellchecker in Word. The last explanation is that students make mistakes because they don't know the underlying rule system. It is the question if the students don't know the rules or that they know the rules but don't apply it (Bonset, 2010).

Because Klassekist is in practice for seven years now, the question has arisen by Michelle Nijhof, the developer of Klassekist, how well the method works and if students got better in spelling with her method. As the method has been used the longest in the fourth grade, the quality of Klassekist in the fourth grade is evaluated within this research. With regard to the content, a comparison takes place between the intended curriculum and the implemented curriculum. Therefore, aspects of effective instruction for spelling are compared to the content of Klassekist and the interim objectives as stated by the SLO are used as guidelines to check whether these are covered within Klassekist. For the evaluation of the scores, a comparison takes place between the intended curriculum and the attained curriculum. Therefore, scores of the student monitoring system of Cito were used. A student monitoring system gives insight in the development of the students (Kennisplatform voor het onderwijs, 2016). Results of the assessments of the student monitoring are processed in this monitoring system. The first purpose of this research is to check whether elements of effective spelling instruction and the interim objectives are covered in Klassekist Super Spellen. The second purpose is to check whether differences in scores on the spelling test from the Cito monitoring system can be attributed to the method of spelling that is used. Therefore, two research questions are formulated:

“To what extent are the aspects of effective spelling instruction and the interim objectives of the fourth grade, that are formulated by the SLO, met by the method?”

“To what extent are the potentially different scores on the Cito test of the fourth grade dependent on the method of spelling that is used?”

2. Theoretical framework

This section describes the main research on how to learn to spell words. Literature is searched about the way students spell, to find out what happens during spelling. Therefore, more insight in their spelling has been gathered. Research has been conducted to identify strategies used during spelling that keep mistakes at a minimum. This is set out under the heading “spelling strategies”. Furthermore, it is interesting what kind of processes take place during spelling. This is also investigated and set out under the heading “processes related to spelling”. Moreover, aspects of effective instruction of spelling is pointed out under the heading “effective instruction for spelling”. This is in line with the first research question in which it is checked what features of effective instruction of spelling is processed within Klassekist. The features will be pointed out in this section.

To gain more insight in the spelling situation in the Netherlands, literature about the situation of spelling in the Netherlands is set out. Therefore, the relation and differences between learning Dutch spelling compared to other languages, for example, English, is set out for more insight in the difficulty of learning

¹ In the Netherlands, students of the fourth grade are approximately 7-8 years old.

Dutch spelling. This is set out under the heading “transparent versus opaque languages”. Finally, information about the organization of spelling instruction in the Netherlands is set out. This is set out under the heading “spelling instruction in the Netherlands”. What core objectives, learning trajectories and interim objectives are and who has decided what should be learned is pointed out in this section. This information will be used within the checklist.

Spelling strategies

Spelling is the way words are written and includes all the official rules for written language (Kennisplatform voor het onderwijs, 2016). It is a technical skill in which the goal is to write flawless (Schraven, 2004). Spelling is an element of the Dutch language and is an important part of the Dutch primary school curriculum. Spelling is a way of communication, so deviations can exist (Nunn, 1998). Through the little amount of letters in the Dutch alphabet (26), there are not enough letters to represent each sound: some letters represent different sounds (Nunn, 1998). Only six vowel letters (“a”, “i”, “e”, “o”, “u”, “ij”) are available to represent sixteen vowels (Nunn, 1998). Therefore, letter combinations are used in Dutch (for example “aa”, “ee”, “ie”, “eu”, “ou”). Even more, the “h” and diacritics (“é” and “è”) are used to have more possible sounds. Another reason for deviations are changes in pronunciation and the influence of loan words (Nunn, 1998). To ensure that mistakes are kept at a minimum, strategies are used to relate sounds in a context to the appropriate spelling. A strategy of spelling is the way a student uses to come up with the right way of writing (Huizenga, 2003). This can be a direct strategy of spelling, in which the word is automatized, or an indirect strategy, in which the word is not automatized and strategies are needed (Huizenga, 2003). The indirect strategies of spelling that are used are the phonological strategy, the word image strategy, the strategy of rules, the analogy strategy and the help strategy (Bonset & Hoogeveen, 2009; Huizenga, 2003). The phonological strategy is also called the auditory strategy (Huizenga, 2003). Within this strategy, a word is divided into sounds or groups of sounds and the corresponding letters are written down. The word image strategy is also called the visual strategy (Huizenga, 2003). Within this strategy an appeal is made on the verbal memory. Some writing notations are tried and are compared with the word that is present in the memory. In Dutch, this is especially the case for phonemes that sound the same but are written differently, for example /ei/ or /ij/ and /ou/ or /au/. The strategy of rules is used when a rule is needed for non-pure sound words (Huizenga, 2003). The analogy strategy compares a word with similarly written words. Consequently, a pattern is discovered when writing those kind of words (Huizenga, 2003). At last, self-made mnemonics are used within the help strategy (Huizenga, 2003).

An overview of the strategies is given in Table 1.

Table 1
Indirect strategies of spelling

Strategy	Description	Example
Phonological strategy	A word is decomposed into sounds	z-o-n [s-u-n]
The word image strategy	Some writing notations are tried and is compared with the word that is present in the memory	The difference between “ij” and “ei” or “au” and “ou” “Ge <i>ij</i> t” or “g <i>ij</i> t” [goat], “k <i>ou</i> d” or “k <i>au</i> d” [cold]
The strategy of rules	Rules of spelling are used	You can hear the /j/ but you writes an “l”: ha <i>ai</i> [shark], moo <i>j</i> [beautiful]
The analogy strategy	Compare the word with similar words	“Bureau” has the same style as “plateau” so is written at the same way
The help strategy	Use of self-made mnemonics	There can’t be a “z” at the end of a word, so “poes” [kitten] is written with a “s” instead of a “z” (poez)

That strategies are important in spelling performance has been shown in many studies (among others Paffen & Bosman, 2005). Parts of spelling strategies are the instruction of rules of spelling, application of syllable segmentation and visual imagery (Cordewener et al., 2016). Spelling of words that needs rules require the explanation and practicing of the rule (Hilte & Reitsma, 2011; Kemer, Verhoeven &

Bosman, 2012; Cordewener, Bosman & Verhoeven, 2014). When students use rules of spelling, they develop the ability to spell unfamiliar words that belong to a specific category (Cordewener et al, 2016).

Processes related to spelling

The phonology, and therefore the phonological strategy, is a fundamental element when children spell a word (Bosman, 1994). An important clue for this is the claim that the mistakes that spellers make are almost all phonological mistakes (Bosman & Van Orden, 1997). These are mistakes in which the sound is still the same in comparison with the correct word. This was also found in research. Research has shown that three cognitive processes are active during spelling: phonological awareness, rapid automatized naming (RAN) and the ability to match letters to their corresponding speech sounds (Vaessen & Blomert, 2013). Phonological awareness is the ability to perceive, segment and manipulate speech sounds in a word and RAN is the ability to quickly name well-known visual items (Vaessen & Blomert, 2013). Also the relationship between phonological and orthographic information is an important focus (Hilte & Reitsma, 2011). The orthographic information is a word image, which is present in a person's memory and gives information about the notation of that word (Coenen, 2007).

Landerl and Wimmer (2008) conducted a study to assess when these cognitive processes are important in the development of spelling. They investigated what the influence is of phonological awareness and RAN for the spelling performance of Austrian children from Grades 1, 4 and 6. It was found that phonological awareness was a significant predictor of spelling performance in all grades. Yet, RAN has shown not to be a predictor of spelling performance. Vaessen and Blomert (2013) have conducted a similar study on phonological awareness and RAN on spelling performance with Dutch students in primary education. Their results were in line with those of Landerl and Wimmer (2008). The influence of phonological awareness to spelling development was stable over the years, so students always rely on phonology mappings during spelling. However, RAN was not a predictor of spelling performance in any of the grades. Other research showed that this also counts for English-language learners (Caravolas, Hulme & Snowling, 2001; Furnes & Samuelsson, 2011), Greek children (Georgiou, Manolitsis, Nurmi & Parila, 2010) and Scandinavian children (Furnes & Samuelsson, 2011). Although these studies showed that RAN wasn't a predictor of spelling performance, research of Savage, Pillay and Melidona (2008) has shown that RAN predicts spelling concurrently. The study included 65 children with poor spelling skills but with average reasoning ability. They completed RAN tasks and spelling, reading and reasoning tasks. It showed that RAN was a strong predictor of spelling acquisition (Savage et al., 2008). However, due to the little amount of studies conducted about the association between RAN and spelling, little is known about this topic (Furnes & Samuelsson, 2011).

Additionally, research about orthographic and phonological information has been conducted. Hilte and Reitsma (2011) have investigated whether semantic and neutral descriptions influence the spelling development. An example of a semantic description is: "elephant: very big grey animal", and of a neutral description: "spell as good as you can" (Hilte & Reitsma, 2011). In addition, they investigated whether it matters if students get those descriptions before the process of spelling or afterwards in the feedback. This is done with computer exercises in a within-subject design, involving orthographic and phonological information in all conditions. Within this design, semantic and neutral descriptions were contrasted and provided either before the process of spelling or in the feedback. Results showed that words that were trained with semantic descriptions are better spelled than words with neutral descriptions (Hilte & Reitsma, 2011). This was still the case one month after the training period. In addition, there was no difference between the descriptions given in advance or afterwards (Hilte & Reitsma, 2011).

Effective instruction for spelling

The purpose of instruction for spelling is to teach children to convert words into proper writing images (Schraven, 2004). Therefore, it is useful to see what kind of words should be selected for the spelling instruction (Wallace, 2006). After a review of literature, Wallace (2006) recommends a student-directed spelling program, so the students would be responsible for learning words unique to their own reading and writing programs. As a consequence, the words should be selected from their spelling textbook, textbooks of other fields they use, students' reading literature and students' writing (Wallace, 2006).

In addition, Wallace (2006) concludes in his literature review that an effective spelling instruction should consist of “weekly spelling lists and administering weekly tests, as the difficulty of the words is adjusted to the instructional level of the speller”, “administering words in a pretest-teach-posttest format with students self-correcting the tests”, “including words originating from other subjects and from students’ own reading and writing in conjunction with the commercially prepared word lists”, “keeping records of misspelled words that offers the student, parent and teacher a way to isolate and practice words that are personally difficult to spell” and “teaching strategies and procedures that assist students to learn new words”. As said before, strategies are important in spelling instruction (Cordewener et al., 2016). These strategies require among other things rules of spelling, application of syllable segmentation and visual imagery (Cordewener et al., 2016).

For adequate spelling performances, a formal spelling instruction is required (Bosman, 2004; Cordewener et al., 2016). There are two kinds of instruction: implicit and explicit instruction. Both kinds of instruction are intentional, but they differ in the structure. Implicit instruction provides instruction on what to learn (Cordewener et al., 2014). Students must learn the spelling, but they are not told about the underlying structure. Explicit instruction provides explicit clarification of the underlying rules or knowledge structure to be acquired (Cordewener et al., 2014). Students are told about the spelling rule that they must learn. Research of Bosman, Huygevoort and Noten (2009) concludes that students that had explicit instruction had a better spelling performance than students that had implicit instruction. In this research, two explicit instruction conditions and one implicit condition were used. The students in the first explicit instruction condition used the spell checker in Word, in which a red mark was the only feedback when the word was incorrect written. Students in the second explicit instruction condition used the spell checker in Word, in which suggestions were given if a word was incorrectly spelled. Students in the implicit instruction condition didn’t receive feedback. Students that used the spell checker had a better spelling performance in comparison with students that had the implicit instruction. This was especially the case for native words. No differences were found between the two explicit conditions, except when it was used for inconsistent phoneme-grapheme relations. In this case, the suggestions of the spell checker led to higher achievements (Bosman et al., 2009).

In addition, Cordewener et al. (2014) examined the influence of implicit and explicit instruction for the acquisition of Dutch rules of spelling. These rules consisted of a morphological and a phonological rule. A morphological rule is a rule for spelling words that are inconsistent in their phoneme-to-grapheme relations that requires spellers to have knowledge of the meaning of words and their derivatives (Steffler, 2001; Cordewener et al., 2014). An example in English language is knowing that in the past tense “-ed” is added. A phonological rule is a rule for spelling words that are inconsistent in their phoneme-to-grapheme relations, that requires spellers to have knowledge about how phonemes map onto graphemes (Steffler, 2001; Cordewener et al., 2014). For example, in English, the phoneme /k/ can be represented by “k”, “c”, “ck” or “ch”. Students were assigned to one of the three conditions: implicit-instruction, explicit-instruction or control-group condition. In the implicit instruction, visual dictation was used. Within visual dictation, students study a word for a few seconds. Then the word is covered and the student is asked to write the word. The word is made visible again allowing students to check the spelling and make corrections. In the explicit instruction, students were taught a rule of spelling. The underlying rule was explained to the students and they had to apply the rule. Students had to write down the entire word and they received immediate visual feedback allowing them to check the spelling and make corrections. In the control condition, students did not get any training. Results showed that students made more progress in the explicit condition compared to students in the control condition, concerning the morphological and the phonological rule (Cordewener et al., 2014). The progress between the implicit and explicit condition and the implicit and control condition did not differ. This indicates that students should receive spelling training since students in this condition made more progress than students who didn’t get any training (Cordewener et al., 2014).

Cordewener et al. (2016) conducted a study on the immediate and sustained effects of three conditions on spelling performance and spelling consciousness. Dutch primary school students participated in this research. The conditions were the strategy-instruction condition, the self-correction procedure and the no-correction procedure. Students in the strategy-instruction condition were taught an integral spelling

strategy that they can apply to different kinds of words. It included the aspects of dividing words into syllables and applying one or more rules of spelling. Within the self-correction procedure, students checked their spelling with a model. In the no-correction procedure students didn't receive any feedback. Results show that the strategy-instruction was most effective on the immediate effect on spelling performance. This was the case for both low- and high-skilled spellers and for regular and loan words. In addition, the strategy-instruction was more effective on the immediate effect on spelling consciousness of loan words than the no-correction condition. However, the positive effect of the strategy-instruction faded out after the training stopped: only students of the no-correction condition had more progress in spelling performance. The overall effect showed that there was no difference in progress in spelling performance between the three conditions. Moreover, there was no difference on spelling consciousness. This means that spelling instruction is important, because the training does not have a lasting effect (Cordewener et al., 2016).

The research of Cordewener et al. (2016) is in line with former research. Former research has shown that the strategy-instruction is effective for improving spelling performance and spelling consciousness of poor and good spellers (Paffen & Bosman, 2005). In addition, former research has shown that self-correction procedure is effective for students in general education, special education and for students with learning disabilities (McGuffin, Martz & Heron, 1997; Grskovic & Belfiore, 1996; McNeish, Heron & Okyere, 1992). Gettinger (1985) has shown that the spelling performance of poor spellers increased more if students had to find the mistakes themselves.

Research that has been conducted by Van Leerdam, Bosman and Van Orden (1998) and Kieboom, Hasselman, Verhoeven and Bosman (2005) showed that when students write down the words that have to be learned, it results in better achievements of spelling. Writing words was compared with more passive kinds of practice, for example reading (Van Leerdam et al., 1998). Writing words down, including feedback on the correctness of the spelled word, is the most effective method (Van Leerdam et al., 1998). Research of Cunningham & Stanovich (1990) showed the same results. In this research, the training phase existed of writing the words, typing the words or laying letter cubes down. The test also exists of one of these conditions. Students that had to write the words in the training phase had better results in the test, even when these students had to type the words or to lay letter cubes down in the test.

Another feature of good spelling instruction is practicing the whole word instead of parts of words (Bosman, 2016). It has been thought that the most complicated part of a word should be trained instead of the whole word. Therefore, Leerdam et al. (1998) conducted a study to investigate whether this was the case. In this study, children of the third grade in the Netherlands got a list with words in which the most complicated part was underlined, for example “geit” [goat]. The students had to say the word and mention what the most difficult part is. Other conditions were “only say the words aloud” and “mention all letters of the word”. Students that had to mention the most difficult part had better results than students that only said the words aloud. However, students that had to mention all letters of the word performed better than students who had to mention the most difficult part. Another conclusion of this research is that spelling instruction needs to be geared to the spelling difficulty of the word (Leerdam et al., 1998).

Feedback is another feature. Multiple research set out that immediate feedback is more effective than delayed feedback. Moreover, if students corrected the work itself they learned even more of it (among others Kearny & Drabman, 1993). Students that received information about what was wrong learned spelling better than students who was only said there was a mistake (Weekers et al., 2005).

An overview of the features of effective instruction is set out in Table 2.

Table 2
Features effective instruction for spelling

Features effective instruction for spelling	Description feature	Sources
Phonological awareness	Use sounds for the spelling of words	Vaessen & Blomert (2013); Bosman (1994); Bonset & Hoogeveen (2009); Huizenga (2003)
Semantic descriptions	Use meaningful descriptions for a word	Hilte & Reitsma (2011)
Student-directed spelling program	Students are responsible for learning and choosing words.	Wallace (2006)
Weekly spelling lists and administering weekly tests	The difficulty of the words should be adjusted to the instructional level of the speller.	Wallace (2006)
Administering words in a format	The pretest-teach-posttest format should be used.	Wallace (2006)
Students self-correcting tests	Students should correct the tests themselves.	Wallace (2006); Cordewener et al. (2016); McGuffin et al. (1997); Grskovic & Belfiore (1996); McNeish et al. (1992); Gettinger (1985); Kearny & Drabman (1993)
Choosing words	Words should be chosen from other subjects and from students' own reading and writing in conjunction with the commercially prepared word lists.	Wallace (2006)
Keeping records of misspelled words	Words that were misspelled should be recorded in order to have more individualized practicing.	Wallace (2006)
Teach strategies and procedures / strategy-instruction	Teach the students strategies and procedures that they can use when they spell words. These include i.e. rules of spelling.	Wallace (2006); Cordewener et al. (2016); Paffen & Bosman (2005)
Explicit instruction	Give instruction to the students.	Bosman et al., (2009); Cordewener et al. (2014)
Write words down	Students write words down that have to be learned.	Van Leerdam et al. (1998), Kieboom et al. (2005); Cunningham & Stanovich (1990)
Practice the whole word Feedback	Practicing the whole word instead of parts of words. Immediate feedback and feedback about what was incorrectly spelled.	Bosman (2016); Leerdam et al. (1998) Kearny & Drabman (1993); Weekers et al. (2005)

Transparent versus opaque languages

Spelling represents sounds (Nunn, 1998). Therefore, a distinction is made in kinds of language: transparent languages and opaque languages (Patel, Snowling & De Jong, 2004). Within transparent languages, each letter of an alphabet corresponds to a phoneme. The mappings between spelling and phonology are highly consistent (Patel et al., 2004). This is not the case for opaque languages. Within opaque languages, each letter of an alphabet can correspond with more phonemes. The mappings between spelling and phonology are inconsistent (Patel et al., 2004). Dutch, as well as German and Spanish, have a more transparent spelling in contrast to English and Danish that have a more opaque spelling (Patel et al., 2004). The consistency of mappings is a major factor in how easily spelling can be learned: the more consistent, the faster spelling is learned (Patel et al., 2004). Although there is a distinction made between these types of languages, a language can't only be opaque or only transparent. Therefore, Borgwaldt, Hellwig and De Groot (2005) conducted a study to see what the overall spelling-to-sound relation is for seven European languages at the word-initial letter-phoneme level, and what this relation is for vowels and consonants separately. They examined the degree of word-initial letter/phonemes in more than 10.000 words per language (with a range of 10.031 Portuguese words to 119.580 Dutch words) that are stated in dictionaries. They found that, at the overall level, English has the most inconsistent spelling, followed by (in decreasing order) French, German, Portuguese, Dutch, Italian and Hungarian (Borgwaldt et al., 2005). There was a slightly different pattern for the vowels (in decreasing order): English, German, Dutch, French, Portuguese, Italian and Hungarian. There was also a different pattern for the consonants (in decreasing order): French, English, German, Hungarian, Italian, Dutch and Portuguese (Borgwaldt et al., 2005). As can be seen, English is a more opaque language and Dutch a more transparent language. Therefore, it is easier to learn the Dutch spelling than the English spelling.

Spelling instruction in the Netherlands

To determine what students should know at the end of primary school, several core objectives are developed by the Dutch Ministry of Education, Culture and Science (Tule; Kennisplatform voor het onderwijs, 2016). Core objectives are global descriptions of important educational content (Tule). These are drawn for every course of the school curriculum. The core objectives are written in general terms, without any details or examples, and should at least be offered to the students (Tule). Due to these core objectives, teachers know where their primary focus should be on (Kennisplatform voor het onderwijs, 2016). There are 58 core objectives in total, of which 12 relate to language education and one of them relates to spelling (SLO; Tule). The core objectives of language education are stated in Appendix 10.1.

To concretize the core objectives, learning trajectories are developed (Tule; Kennisplatform voor het onderwijs, 2016). The learning trajectories are specified by the SLO (SLO, can be found at www.slo.nl/primair/kerndoelen/tule/). The learning trajectories consist of three interconnected components: the line of content/curriculum (which content should be offered), the educational line (didactical and pedagogical instructions) and the line of the student (global overview of the learning processes of the student). When these different trajectories are adapted to each other, a learning trajectory is formed. To clarify the core objectives and learning trajectories for the different groups of the primary school, several interim objectives are formulated by the SLO for four levels of primary education: first & second grade², third & fourth grade³, fifth & sixth grade⁴ and seventh & eighth grade⁵ (Tule; Kennisplatform voor het onderwijs, 2016). The interim objectives for the fourth grade are stated in Appendix 10.2.. The focus of this research is spelling. Therefore, the interim objectives of punctuation are not taken into account.

The developers of methods of spelling and teachers should process the core objectives that are formulated by the Dutch Ministry of Education, Culture and Science within their method and lessons (Tule, SLO). However, how it is processed is up to the developers and teachers, as long as these core objectives are treated before the end of the eighth grade. The SLO has specified the core objectives into learning trajectories and interim objectives. These learning trajectories and interim objectives are a way developers of methods and teachers can process it. It is a support that the SLO offers and is often used. Therefore, these interim objectives for the fourth grade are used in this research. (SLO).

An element of spelling is the spelling of verbs (Moons, Bovenhoff & Latjes, 2008). In Dutch, a major difficulty is the verb conjugation with “d”, “dt” or “t”. For example, in Dutch, in some sentences “herkend” [recognize] is written with a “d” while the same word is used in other sentences with a “t” (herkent) (Moons et al., 2008). There is a lot of attention for the spelling of verbs, because it is an important part in the Dutch language (Moons et al., 2008). However, it is advised to taught the spelling of verbs since the fifth grade in the Netherlands (Tule). Therefore, this kind of spelling is not taken into account in this research.

As mentioned before, the core objectives should be processed within each method of spelling, also within Klassekist Super Spellen. Because the core objectives are very broadly described and are not specified enough for the fourth grade, the interim objectives for the fourth grade that are specified by the SLO are used in this research. The focus of the first part of this study is to compare the intended curriculum and the implemented curriculum. Therefore, the extent to which the content of Klassekist Super Spellen corresponds to the interim objectives has been investigated.

² In the Netherlands, students of the first grade are approximately 4-5 years old and students of the second grade are approximately 5-6 years old

³ In the Netherlands, students of the third grade are approximately 6-7 years old and students of the fourth grade are approximately 7-8 years old

⁴ In the Netherlands, students of the fifth grade are approximately 8-9 years old and students of the sixth grade are approximately 9-10 years old

⁵ In the Netherlands, students of the seventh grade are approximately 10-11 years old and students of the eighth grade are approximately 11-12 years old

3. Klassekist Super Spellen

More information about the method of spelling “Klassekist” is set out in this section. The focus of Klassekist is explained, the rules of spelling, including their focus, meaning and icon, are described and the structure of Klassekist is set out.

To make sure that the spelling performances of students are appropriate, methods of teaching are necessary. A method of teaching that is used for Dutch spelling for grades 3-8 of primary education is Klassekist Super Spellen (Appendix 10.3). Klassekist is in practice for approximately seven years now and is used by approximately 50 primary schools. The focus of Klassekist lies in applying the rules and the transfer to practice. Klassekist contains some rules of spelling, together with a matching icon. The icons symbolize what type of word is treated and provide support and structure to the rules of spelling. In each grade the same icons are repeatedly used. The annual planning of Klassekist is stated in Appendix 10.4. An overview of the rules of spelling, including their meaning and their icon, is given in Table 3.

In addition, two boards (Figure 1) with rules are developed within Klassekist. These contain homophobes: words that sound the same but are written differently and have a different meaning. One board includes “ei” words and one includes “au” words. If a word is present at that board, it is written with respectively an “ei” and an “au”. If it is not present at that board, it is written with respectively an “ij” and an “ou”. Consequently, a distinction is made between “ei-ij” words and “au-ou” words. For example “de trein” [the train] is present at the board, so it is written with “ei”. “Kijk” [look] is not present at the board, so it is written with “ij”. This also counts for “au-ou” words: “Australië” [Australia] is present at the board while “koud” [cold] is not present, so “Australië” is written with “au” and “koud” with “ou”. These board also contain a rule of spelling: “Ei/ij”: “kippen ei-ijsjes ij”; “au/ou”: “Atjes au and otjes-ou”.



Figure 1. The au- and ei boards.



These rules of spelling also have their own icons:

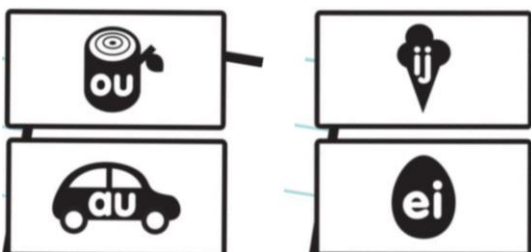



















Figure 2. The icons of “Otjes-ou-Atjes-au” and “Kippen ei-ijsjes ij”

Table 3
Rules of spelling Klassekist

Rule of spelling in Dutch	Focus of the rule	Meaning	Icon
"Hakwoorden and vriendjesflat"	Divide words into sounds and write it as you hear it	A pure-sound monosyllabic word or a combination of monosyllabic words. Spell by dividing words into sounds and write down a letter for every sound from left to right. Write the word as you hear it. In the "vriendjesflat" there are letter combinations in which you can hear a /u/ but you don't write it. Example "hakwoorden": de klant [the customer] Example "vriendjesflat": het dorp [the village]	
"Achtwoorden"	"cht"	A short shound (i-o-e-a-u) + /cht/ with the "ch" of acht [eight]. Example: de lucht [the air]	
"Fopletterwoorden"	"-eer" "-oor" "-eur"	Letters for /eer/ /oor/ and /eur/. You can hear an /i/ but you write "ee". Example: teer [tar] You can hear an /o/ but you write "oo". Example: door [through] You can hear an /u/ but you write "eu". Example: de beurt [the turn]	
"Bankwoorden"	"nk"	"Ank and Frank are sitting together on the couch. The "g" can't come between them otherwise they can't kiss together." Example: de pink [the pinky]	
"Chinese letter woorden"	"ng"	"The Chinese letter of pingpong". Example: de tong [the tongue]	
"Haaiwoorden"	"ooi" "aai" "oei"	You can hear the /j/ but you write an "i". Example: het hooi [the hay]	
"Weetwoorden"	Words that you should know	There are many words without rules, you must know/remember those. Example: vies [dirty]	
"Hondwoorden"	Singular "d" or "t"	Do you hear a /t/ at the end of a word? Rule of prolongation! Staart-staarten [tail – tails]: you can hear a /t/, you write a "t". Hond-honden [dog-dogs]: you can hear a /d/, you write a "d". Examples: het bed [the bed], de taart [the cake]	
"Leeuwwoorden"	"uw" "eeuw" "ieuw"	Don't forget the "u". Example: de eeuw [the century]	
"Be-ge-ver woorden"	"be- ge- ver-"	You can hear an /u/ but writes an "e". Example: het begin [the beginning]	
"Verkleinwoorden"	Diminutives	The primitive +je, -tje or -pje. You can hear an /u/ but writes down an "e". Example: het briefje [the note]	
"Duifwoorden"	Singular "f" and plural "v"	If the word is singular, you write a "f". If the word is plural, you write a "v". Example: dief – dieven [thief – thieves]	
"Muiswoorden"	Singular "s" and plural "z"	If the word is singular, you write a "s". If the word is plural, you write a "z". Example: huis – huizen [house – houses]	
"Schaarwoorden"	"sch"	If you hear a word with /sch/, you always write "sch". Example: de schaar [the scissors]	
"Letterdief"	After a long sound, one vowel	"I think two "aa"- "oo"- "ee"- "uu" are too much, hence, I steal one". Example: de buren [the neighbours]	
"Dubbelzetter"	After a short sound, two consonants in a row	"After a short sound, /i/-/o/-/e/-/a/-/u/, believe it or not, I put the same consonants in a row". Example: de bakker [the baker]	
"Hoormannetje"	Write the words as you hear it	"I am the boss. You write the word as you hear it." Example: het wonder [the miracle]	

Klassekist pays attention to spelling in short daily activities of 15 minutes. Within those 15 minutes, students learn a new rule of spelling and repeat former rules through a dictation that is built around word clusters and on the basis of current events. Examples of an event are “Christmas”, “Easter” and “Max Verstappen”.

The structure of Klassekist is always the same: in each lesson and during the entire primary school career (in each grade the same structure). Therefore, the structure is very important within Klassekist. It is, among other things, based on the interim objectives and the tests in the Cito monitoring system. There are several phases that are treated within those 15 minutes: the preparation phase, the beginning of the lesson, the group instruction, the supervised practice, the self-processing phase, the feedback phase and the closure.

Within the “preparation phase”, the teacher shows the icon with the rule of that day. During “the beginning of the lesson” the pre-knowledge of the students is activated and the teacher explains the purpose of the lesson. During the “group instruction”, the students learn five new words around the rule of the day. The format during the “group instruction” is as follows: the students hear a word together with a description of that word, they repeat it and then they see how the word is written and write it down themselves. After the “group instruction”, students get a daily dictation during the “supervised practice”. Within this daily dictation, former rules of spelling are repeated, containing four words and one sentence. During the “self-processing” phase, the students are making an exercise about the five new learned words. To finish the lesson, there is a “feedback” stage in which students get process-oriented feedback and a “closure” in which the purpose of the lesson is repeated. An overview of the structure of a spelling lesson is set out in Appendix 10.5. Because of the structure, the teacher knows what to do without much preparation time. An example of a spelling lesson is presented in Appendix 10.6.

Klassekist is a method that is developed in response to the literature study of Nijhof (2006) about effective instruction for spelling. Therefore, it is expected that Klassekist is more effective in comparison with other methods of spelling. In the second part of this study, the intended curriculum and the attained curriculum were compared. Hence, it was examined if the progress on Cito scores for spelling of students that use Klassekist is significantly higher compared to the students that use other methods of spelling.

4. Study 1

The methodology of the first part of this study is set out in this section. In this part, a comparison takes place between the intended curriculum and the implemented curriculum. Therefore, it was examined if Klassekist contains aspects of effective spelling instruction and if the interim objectives were treated within Klassekist. The research question for this section was: “To what extent are the aspects of effective spelling instruction and the interim objectives of the fourth grade, that are formulated by the SLO, met by the method?” First, the method is set out, in which the instruments, the procedure and the data analysis are described. Next, the results are discussed. The results contain the features of effective instruction in Klassekist and the results of the checklist. Finally, the conclusion is described.

4.1. Method

Instruments

To check whether the interim objectives of the fourth grade are covered in Klassekist Super Spellen, a checklist has been developed. The checklist is shown in Appendix 10.7. This checklist is based on the inspection report “Spellenderwijs” (1997, as cited by SLO, can be found at basistaal.slo.nl/spellen), a report that has examined the usage of interim objectives in methods of spelling. Although this inspection was done for the curriculum of the eighth grade, the set-up was the same in this research. The interim objectives that are specified by the SLO for the fourth grade are used in this research (Tule). An example of an interim objective is: “Spelling of clusters of consonants (for example. “Schr-“, “-rnst”, “-cht”)”. In addition, the checklist contained questions and aspects which were examined. These questions and aspects were as follows: “Which rule of spelling treats this objective”, “When is the objective treated according to the annual planning”, “On which pages is the objective treated according to the teachers’

manual”, “Notes of the general manual” and “General notes”. These aspects were included to gain more insight on whether or not it is treated, where it is treated and where it is repeated.

Procedure

To check the interim objectives in this research, the general manual and the teachers’ manual are analyzed. These are analyzed in accordance to the checklist by two assessors for reliability. Because the manuals are quite extensive, the assessors have checked the manuals at the same time. As a result, if there was a disagreement between the assessors, the assessors had a discussion right away to get the opinions the same. Consequently, one checklist has been completed.

Because there is a lot of information about the different rules of spelling in Klassekist and how Klassekist is constructed, the general manual has been checked first. Doing so, it has been verified if there was any information about the interim objectives of the fourth grade that should be treated in the method. If this was the case, the information was written down in the checklist. The different rules of spelling that Klassekist Super Spellen contains were viewed to check which rules of spelling treat interim objectives. Based on this, the annual planning that is situated in the general manual has been analyzed to see how often and in which week the rule of spelling is treated. In addition, general notes have been made.

In addition, the teachers’ manual has been studied. The teachers’ manual has been analyzed instead of the workbook of the students, because there are some hints and notes given in the teachers’ manual. The teachers can consider those notes and can cope with it in the class, so it could influence the spelling lesson. Because there is a daily dictation within Klassekist in which former rules of spelling are repeated, the teachers’ manual has been analyzed to check when a rule of spelling is repeated. This has been done by looking at the pictograms that are stated on each page. These pictograms are ticked if the rule of spelling is treated in the daily dictation. Again, general notes have been made.

Data analysis

The general manual and the teachers’ manual are analyzed by two assessors for the reliability (Baarda, De Goede & Teunissen, 2009). The purpose of this is to guarantee the quality of the research (Baarda et al., 2009). One checklist has been completed thanks to the simultaneous analysis of the two assessors and their discussions. The findings were summarized.

4.2. Results

Features of effective spelling instruction in Klassekist

Klassekist contains aspects that have shown to be effective. The instruction of Klassekist is explicit (Bosman et al., 2009). Klassekist uses a clear instruction to learn students spelling of words. There is also some implicit instruction (unconscious learning), but the focus of Klassekist is explicit instruction (conscious learning). The phonological strategy is processed within Klassekist (Vaessen & Blomert, 2013; Bosman, 1994) by the use of a sound based scheme. Within Klassekist, the words are processed first aurally and then visually (Vaessen & Blomert, 2013). This strategy is also processed within the rules and icons that Klassekist uses (Wallace, 2006; Cordewener et al., 2016; Paffen & Bosman, 2005). Klassekist teaches the students to spell words on the basis of phonology and rules. Based on these rules, students can make decisions on how to write a word. These words will all be written down to practice them (Van Leerdam et al., 1998; Kieboom et al., 2005; Cunningham & Stanovich, 1990). In addition, whole words are practiced and not only the difficult parts (Bosman, 2016; Van Leerdam et al., 1998). Before the students write down the words, the students get a description of the word, so the students will know what the meaning of a word is. This corresponds to the semantic descriptions that Hilte and Reitsma (2011) describe. A last feature that is used in Klassekist is the feedback (Kearny & Drabman, 1993; Weekers et al., 2005). During the group instruction, supervised practice, self-processing phase and the feedback students get immediate feedback of the teacher on the words that they have written.

Checklist interim objectives

An overview of the checklist is given in Table 4. The complete checklist is stated in Appendix 10.8. The explanation of the rules of spelling can be found in Table 3.

Table 4
Overview checklist

Interim objective	Rule of spelling Klassekist	Focus of the rule	Central in how many weeks (n)	How often repeated in daily dictation (n)
Spelling of clear sounding words on the basis of elementary	Hakwoorden, incl. vriendjesflat	Divide words into sounds and write it as you hear it.	Hakwoorden: 2 Vriendjesflat: 3	Hakwoorden incl. vriendjesflat: 106
Spelling of words with specific spelling patterns, like words that ends with –nk, –uw, –eeuw, –ieuw, –aai, –ooi, –oei	Bankwoorden, Leeuwoorden, Haaiwoorden, Fopletterwoorden, Chinese woorden	“nk” “uw” “eeuw” “ieuw” “aai” “ooi” “oei” “eer” “oor” “eur” “ng”	Bankwoorden: 2 Leeuwoorden: 1 regular, 1 outflow Haaiwoorden: 2 Fopletterwoorden: 2 Chinese woorden: 2	Bankwoorden: 15 Leeuwoorden: 1 Haaiwoorden: 7 Fopletterwoorden: 11 Chinese woorden: 10
Spelling of clusters of consonants (for example. Schr-, -rnst, -cht)	Achtwoorden, Schaarwoorden	“ch” “sch”	Achtwoorden: 2 Schaarwoorden: 1 regular, 1 outflow	Achtwoorden: 20 Schaarwoorden: 10
Spelling of words with homophobes (ei-ij, au-ou, c-k, g-ch)	Kippen ei & Ijsjes ij regel, Atje au & otjes ou woorden	“ei-ij” “au-ou”	Ei-ij: 2 Au-ou: 1	Ei-ij: – Au-ou: –
Spelling of words with a ‘mute e’	-	-	-	-
Spelling of words with open and closed syllables	Letterdief, Dubbelzetter, Hoormannetje	After a long sound, one vowel. After a short sound, two consonants in a row. Write the words as you hear it.	Letterdief: 1 Dubbelzetter: 1 Hoormannetje: 1	Letterdief: 20 Dubbelzetter: 17 Hoormannetje: 18

As can be found in Table 4, there are six interim objectives for spelling formulated by the SLO. Rules of spelling have been developed in Klassekist Super Spellen to treat those objectives. In Table 4 it can be seen which rule of spelling is developed for which interim objective. A rule of spelling is developed for almost every interim objective, except for the interim objective “spelling of words with a ‘mute e’”. The following is mentioned in the general manual about the ‘mute e’: “This category will not be treated separately because this is, in most cases, automatized after practice” (p. 32). The teacher is only reminded on pages 89 and 108 of the daily manual that “the rule should be carefully and regularly practiced and the ‘mute e’ should be appointed each time”. Therefore, there is no special attention for this interim objective.

A part of the interim objective “spelling of words with homophobes” (“ei-ij”, “au-ou”, “c-k”, “g-ch”) is treated within Klassekist, but it’s not clear that those words are homophobes. The part that is treated are the “ei-ij” and “au-ou” and there is a special rule for them (“kippen ei-ijsjes ij” and “Atjes au and otjes-ou”), but there is no clear practice about the differences of “ei-ij” and “au-ou” and it is not mentioned that some words can sound the same but have another meaning and other spelling. The “c-k” and “g-ch” are not treated at all. Lastly, there are some rules of spelling treated in the fourth grade while these are not formulated in the interim objectives. These are the “hondwoorden”, “duifwoorden”, “muiswoorden”, “lijmwoorden”, “be-ge-ver-woorden”, “verkleinwoorden” and “weetwoorden/mixwoorden” (the explanation of the rules of spelling can be found in Table 3).

Finally, Table 4 shows a summarization on how often a rule of spelling is leading and how often this rule is repeated. The different rules of spelling have roughly the same occurrence rate when the rule is the leading theme of the lesson. However, the occurrence rate for how often the rule of spelling is repeated in the daily dictation is not the same. For example, “hakwoorden” are repeated 106 times in the daily dictation while the “schaarwoorden” are repeated 10 times and the “leeuwoorden” are repeated

just once (the explanation of the rules of spelling can be found in Table 3). For the “ei-ij” and “au-ou” rules no separate pictogram is included. Therefore, the rule is treated but it is not indicated.

Summarized, the checklist revealed that almost all the interim objectives are covered within Klassekist. Only the homophobes and the ‘mute e’ are not (completely) treated. The occurrence rate on how often a rule of spelling is leading is almost the same. The occurrence rate on how often a rule is repeated in the daily dictation differs a lot.

4.3. Conclusion

In the first part of this research, the intended curriculum and the implemented curriculum are compared. It was examined if Klassekist contains aspects of effective spelling instruction and to check whether the interim objectives of spelling for the fourth grade that are formulated by the SLO are covered by Klassekist Super Spellen.

Klassekist does indeed contain features of effective spelling education. The features that are processed within Klassekist are the explicit instruction, the phonological strategy, teaching strategies and procedures, practice and writing down of whole words, descriptions of the words and feedback.

Furthermore, this research showed that not every interim objective was treated within Klassekist. In total, six interim objectives for spelling are formulated by the SLO, of which four were treated within Klassekist. The interim objectives that were not (completely) treated were: “spelling of words with a ‘mute e’” and “spelling of words with homophobes (“ei-ij”, “au-ou”, “c-k”, “g-ch”)”. For all the other interim objectives, rules of spelling are developed within Klassekist. In addition, these rules of spelling have roughly the same occurrence rate. However, the occurrence rate for how often the rule of spelling is repeated in the daily dictation differed a lot between the several rules of spelling. There are also some rules of spelling treated in the fourth grade, while this was not stated in an interim objective.

5. Study 2

The methodology of the second study is set out in this section. In this section, a comparison takes place between the intended curriculum and the attained curriculum. The research question for this section was “To what extent are the potentially different scores on the Cito test of the fourth grade dependent on the method of spelling that is used?” The method is set out, in which the participants, the instruments, the procedure and the data analysis are described. Next, the results are discussed. The results contain the differences in weight of students and of the Cito scores. Finally, the conclusion is described.

5.1. Method

Participants

More than 700 primary schools in the Netherlands have been approached to cooperate in this research. The primary schools were approached by mail. A mail was sent to principals, to interim coaches, to teachers of the fourth grade and to the overall mail address of the school. In some cases, the school was approached by telephone. The mail addresses of schools that use Klassekist were given by the developer of Klassekist. In the end, a total of 14 primary schools have cooperated in this research, of which 5 schools use Klassekist and 9 schools use other methods of spelling. The schools are located throughout the Netherlands, for example Almelo, Leiden and Leeuwarden. In total, data of 474 students are collected. Due to several circumstances, like illnesses and students transferring to other schools, not all the scores are complete. Therefore, data of 355 ($n=355$) students are used, of which 115 used Klassekist and 240 other methods of spelling. The data has been gathered from participating students from their third grade (year of 2014-2015) and their fourth grade (year of 2015-2016). Because all the data has been provided anonymously, there is no other demographic information of the students available.

Instruments

The scores of the student monitoring system are used. The assessments for this system are administered every year in January and June. The students’ scores of the fourth grade of 2015-2016 are used in combination with the scores of the same students in 2014-2015 (when these students were in the third

grade). The scores contained the actual scores of the student and the level of the student compared to the national level. For example, if a student was situated in category I, the student belongs to the top 20 percent. This continues to level V. The levels of the student could be presented in categories A to E or I to V. The range of the categories differed from each other, causing non comparable categories. This means that the scores were the same but with a different kind of category. The scores were compared with the tables that were presented in the interim report of Cito (School begeleiding Zaanstreek Waterland [School Guidance Zaanstreek Waterland], 2017). Therefore, the scores that were presented as categories A to E were transcribed into categories I to V with help of these tables. Some scores of the students' data were selected to check for certainty. Four examples are given for this check:

- the score "109" of the M3 period with the 2006-2010 version correlates to category "B" and can be transcribed into category "III"
- the score "210" of the E3 period with the 3.0 version correlates to category "B" and can be transcribed into category "III"
- the score "209" of the M4 period with the 3.0 version correlates to category "D" and can be transcribed into category "IV"
- the score "123" of the E4 period with the 2006-2010 version correlates to category "B" and can be transcribed into category "II"

The I to V categories are used in this research. Table 5 shows in which category a particular score belongs.

Table 5
Scores with corresponding categories

		Category				
		V	IV	III	II	I
M3	2006-2010 version	66-103	104-106	107-109	110-112	113-124
	3.0 version	0-113	117-136	142-156	166-177	193-273
E3	2006-2010 version	77-110	111-113	114-115	116-118	119-135
	3.0 version	0-167	172-188	195-210	220-232	248-324
M4	2006-2010 version	83-115	116-118	119-121	122-125	126-141
	3.0 version	0-201	205-226	231-248	256-265	276-364
E4	2006-2010 version	81-116	117-119	120-122	123-126	127-151
	3.0 version	0-231	234-252	256-269	274-291	298-408

As can be found in Table 5, there were two different versions of the spelling assignment: the 2006-2010 version and the 3.0 version. The 3.0 version is more closely adapted to the latest developments and does not contain any multiple choice questions (Cito, 2014). Although there are some differences between these versions, the versions are comparable through the different categories (I t/m V). Therefore, the different categories will be used in the analysis. These categories are used to check if the potentially different scores on the Cito test were dependent on the method of spelling that was used.

Procedure

Principals, interim coaches and teachers of schools that use Klassekist and of schools that don't use Klassekist were approached through mail and by telephone. The purpose of this research was explained and they had been given the opportunity to cooperate in this research by sending the spelling scores from the student monitoring system to the researcher. The "ability scores" are comparable across different year groups, so these scores were used in combination with the categories that are linked to these scores, instead of the raw scores (Wijzeroverdebasisschool.nl [better informed about primary school], 2015). There are several versions of the spelling assessment, that are incomparable. However, the categories are still comparable over the years. Therefore, the categories were used. The data were processed with SPSS.

Finally, data were retrieved from the database of DUO [the Education Executive Agency of the Dutch Ministry of Education, Culture and Science] (2017). DUO is a government organization that executes education laws and regulations on behalf of the Ministry of Education, Culture and Science. Among other things, DUO gathers and manages data with regard to education. Within this study, background

data of the student populations in each school were retrieved (DUO, 2017). These data includes the weight of the weight regulation. This weight regulation exists to give schools extra financial support for students that need more attention. There are three kinds of weights: weight 0 (no extra weight), weight 0.3 (students have weight 0.3 when both parents have no more education than lower pre-vocational education) and weight 1.2 (students have weight 1.2 when both parents have no more than primary education) (DUO, 2017). Schools that have more disadvantaged students can have more teachers per student, to eliminate educational disadvantages. In this research, the weight of a school establishment is used, that is based on the number of students with a weight from the weight regulation. These data are used to see whether there is a difference in the background of the students.

Data analysis

To measure the effect of the different methods of spelling on the students' Cito scores, an Anova for repeated measures (Field, 2009; Van den Berg, 2016) was used. This method was appropriate to use, because there are two different groups and multiple measurements of the same variable. In addition, this analysis measures if the means differ from each other, taking into account that these are still the same persons that are measured and not three different kind of groups (Van den Berg, 2016). The data were gathered through the scores of the student monitoring system. The categories of the students were used and transformed to perform this analysis. When a student scored a (I) it was transformed into a (V), and when a student scored a (II) it was transformed into a (IV) and vice versa. This has been done to gain more clarity (to suggest that a higher category is better).

In this research, the first factor is the method of spelling that is used. This factor has two levels, Klassekist and another method, and will be the between-subjects-factor in the analysis. The second factor is the period, that contains four levels (third grade first period, third grade second period, fourth grade first period and fourth grade second period). This will be the within-subject variable in the analysis. The dependent variable will be the score of spelling. For the means for each level of the factors a plot is made. The separate lines is the kind of method of spelling, the horizontal axis are the periods. With regard to the effectiveness of Klassekist, the interaction effect of the method and period is decisive: if the analysis shows that more progress is made in schools using Klassekist, this would be strong evidence for the effectiveness of Klassekist.

5.2. Results

Results differences weight of students

The weight of students are used in a regulation for more financial support to schools. Students with more weight have parents with lower education. A student with weight 0 means no extra weight, a student with weight 0.3 means that both parents have no more education than lower pre-vocational education, and a student with weight 1.2 means that both parents have no more than primary education. In this research, the weight of a school establishment is used, that is based on the number of students with a weight from the weight regulation.

In the data of DUO has been found that there is a difference in the weight of students (Table 6). Hence, the education of the parents of students that use Klassekist and students that use other methods differs. It appears that schools that don't use Klassekist have a higher percentage of weights 0.3 (resp. 5.8 & 3.6) and 1.2 (resp. 4.6 & 2.5) in comparison with schools that use Klassekist. This means that the parents of those students have a lower education than the parents of the students that use Klassekist.

Table 6
Weights of students

	Weight 0 (%)	Weight 0.3 (%)	Weight 1.2 (%)
Klassekist	94.0	3.6	2.5
Other methods	89.6	5.8	4.6

Results Cito scores

An overview is given in Table 7.

Table 7
Overview results Cito scores

	Condition		Total (<i>n</i> = 355)	<i>F</i>	<i>p</i>
	Klassekist (<i>n</i> = 115)	Other methods of spelling (<i>n</i> = 240)			
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
Third grade, first period ^a	3.86 (1.04)	3.45 (1.36)	3.59 (1.28)		
Third grade, second period ^b	3.55 (1.33)	3.64 (1.28)	3.61 (1.30)		
Fourth grade, first period ^c	3.77 (1.27)	3.37 (1.29)	3.50 (1.29)		
Fourth grade, second period ^d	3.65 (1.31)	3.38 (1.40)	3.47 (1.38)		
Time				1.41	0.239
Method of spelling	3.71(0.10)	3.46 (0.07)		4.05	0.045
Time x method of spelling				5.70	0.001

Note: ^aminimum 1 and maximum 5; ^bminimum 1 and maximum 5; ^cminimum 1 and maximum 5; ^dminimum 1 and maximum 5

The repeated measures of Anova showed that there is no difference in time, $F(3, 2,754) = 1.41$, $p = 0.239$, meaning that the students stay approximately in the same category across the four measurements. This means that there are no fluctuations between the several categories. However, a difference is found in the methods of spelling, $F(1, 353) = 4.05$, $p = 0.045$. This means that the average scores of Klassekist are significantly higher than of other methods of spelling. In addition, a significant period x method of spelling interaction-effect was found, $F(2,754, 971,991) = 5.70$, $p = 0.001$. This effect means that the scores of the method of spelling significantly differed across the periods. The means of the different methods can be found in Table 7.

The interaction effect and the means of the different methods can be seen in Figure 3. Figure 3 shows that student users of Klassekist had a different initial level, it was higher than users of other methods. This pattern continues to the other periods, except for the second period of the third grade. In this period, the users of the other methods had an upturn. In addition, Figure 3 shows that the average score has declined over the four periods, for both Klassekist users as other method users. There is no strong progress line found.

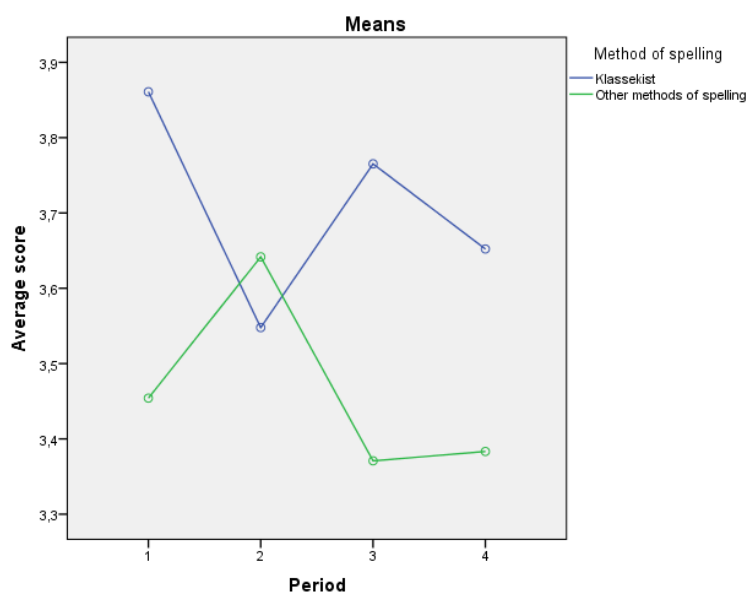


Figure 3. Interaction effect.

Because of this pattern, in which student users of Klassekist constantly had a higher score than users of other methods and the declined average score, there is no convincing evidence that Klassekist is more effective than other methods of spelling.

5.3. Conclusion

In the second study of this research the intended curriculum and the attained curriculum were compared. It examined whether students that use Klassekist would show more progress on the Cito test compared to the students that use other methods of spelling. Research showed that student users of Klassekist had a higher average score than students that used a different method. The average score of student users of Klassekist on the Cito test was consistently higher than the average score of users of other methods. However, there was no indication of stronger progress in comparison with the other methods. Even more, the average scores are declined over the four periods. Therefore, no convincing evidence that Klassekist is more effective than other methods of spelling is found.

6. Limitations

There are some limitations in this research. These limitations are discussed in this section.

First, only 14 primary schools have participated in this research, of which 5 schools use Klassekist and 9 schools use other methods of spelling. Due to the limited amount of primary schools participating in this research, no additional analyses could have been conducted. For example, it was interesting to take the differences of weights of students into account during the analysis. However, due to the limited number of schools, no differences can be found if such an analysis was conducted. In addition, further analysis about the different methods of spelling that are used can't be conducted. In the present study, Klassekist was compared to all the other methods of spelling. It would have been interesting to split up all the other methods of spelling and compare them individually to each other. However, the sample of students that can be classified to a specific method of spelling would be too small for such analysis.

Second, due to the little amount of schools, there are no comparable schools used during this research. The comparable schools could have ensured that the difference in effectiveness can't be assigned to the weights of the students.

Third, no additional background data of the students are available. For example, no additional information about the gender and age of the students, their results of other courses, the gender and level of experience of the teacher and demographic information about the school were available. In addition, how the teacher instructs spelling to the students was not taken into account. Moreover, the weights of students that are used in this research were only present at school level instead of student level.

Finally, the period that is measured during this study is rather short. Therefore, the effect of students that use Klassekist as early as the third grade, compared to other methods of spelling that start in the fourth grade, couldn't be measured. Hence, the effect of this difference is not taken into account.

7. Conclusion & discussion

In this section, the conclusion to the two research questions is given. These research questions were: "To what extent are the aspects of effective spelling instruction and the interim objectives of the fourth grade, that are formulated by the SLO, met by the method?" and "to what extent are the potentially different scores on the Cito test of the fourth grade dependent on the method of spelling that is used?" Therefore, a comparison between the intended curriculum and the implemented curriculum and a comparison between the intended curriculum and the attained curriculum took place. In response to the conclusion, recommendations for practice and for further research are discussed.

Recommendations for practice

The first part of this research concerns the aspects of effective spelling instruction and the interim objectives that are processed within Klassekist. Therefore, the research question "To what extent are the aspects of effective spelling instruction and the interim objectives of the fourth grade, that are formulated

by the SLO, met by the method?” is answered. It is found that the major aspects of effective spelling instruction as well as the major interim objectives are treated within Klassekist. In total, six interim objectives for spelling were stated by the SLO, of which four interim objectives are completely treated within Klassekist. Only the interim objectives “spelling of words with homophobes” and “spelling of words with a ‘mute e’” were not completely treated. Although the interim objectives of the fourth grade that are stated by the SLO are used in this research, these objectives are more guidelines how to process the core objectives in the school curriculum. This can be a reason why the interim objectives are not completely treated within Klassekist. The several rules of spelling have roughly the same occurrence rate, although the retrieval rate differs a lot. In response to this conclusion, recommendations are given. These recommendations are based on the interim objectives of the fourth grade.

The results showed that within Klassekist, the focus on the interim objective with the ‘mute e’ occurs only twice in the teachers’ manual. Therefore, the first recommendation concerns this objective. It is advised to treat this objective and give this objective more attention according to the interim objectives. There are some options to give the objective more attention. For example, an extra icon can be developed for the ‘mute e’ and each time that a word with a ‘mute e’ is treated, the attention of the teacher and students should be pointed to it. This can be set out in the teachers manual.

The checklist revealed that the homophobes are not completely treated within Klassekist in contrast to the interim objectives, in which it is advised to treat homophobes in the fourth grade. These are words that sound the same, but have a different meaning and are written different, especially with the letters “ei-ij”, “au-ou”, “c-k” and “g-ch”. Therefore, the second recommendation concerns the homophobes. It is advised to give homophobes more attention. To process it in Klassekist, it could be pointed out in the teachers’ manual that these are homophobes, and, consequently, is pointed out to the students. Another option is to process and use it in the group instruction, point out the difference, and process and use it in the self-processing phase. To develop an icon with a rule of spelling for homophobes is also an option.

Within Klassekist, there is a rule of spelling for the “ei-ij” and “au-ou” (“kippen ei – ijsjes ij” and “Atje au”). This is also treated in the daily group instruction, in which new words are learned. However, the checklist revealed that these rules of spelling are not included in the daily dictation. The words are treated, but it is nowhere indicated that it’s about this rule of spelling. Therefore, the third recommendation succeeds the second issue. It is recommended to include these icons in the daily dictation, together with the other rules of spelling, so it can be ticked. Consequently, it will be more clear for the teachers and students that this rule of spelling is leading.

The checklist showed that the frequency of the retrieval of rules of spelling differs a lot between the several rules of spelling. Therefore, the last recommendation concerns the occurrence rate. Research has shown that retrieval is more effective than restudying the information (Bouwmeester & Verkoeijen, 2011). Retrieval occurs for example during a test: retrieve previously studied material in memory (Roediger & Butler, 2011; Butler, 2010). Restudying is learning the material all over again. This means that retrieving previously studied material in memory is more effective than restudying the information for an equivalent amount of time (Roediger & Butler, 2011; Butler, 2010). This is called the testing effect and has been shown in different populations, different settings and with a variety of stimulus material (Bouwmeester & Verkoeijen, 2011). It is recommended to equalize the occurrence rate in the daily dictation. The “hakwoorden” are often used in combination with other rules of spelling, so this one will be ruled out. However, for example, the occurrence of “haaiwoorden”, “leeuwwoorden” and the “letterdief” should be more equalized (the explanation of the rules of spelling can be found in Table 3). If these have roughly the same occurrence rate, the rules of spelling will probably be learned to a more similar extent.

Recommendations for further research

The second part of this research concerns the effectivity of Klassekist compared to other methods of spelling. By answering the research question “to what extent are the potentially different scores on the Cito test of the fourth grade dependent on the method of spelling that is used?” no convincing evidence was found that Klassekist is more effective than other methods of spelling. There is no obvious progress

found in the spelling achievements of Klassekist users compared to students using other methods. However, in almost all the periods, students that use Klassekist had an higher average score. An explanation for the higher average score can be the background data of the students. It has been found in the data of DUO (2017) that there are some differences between schools that use Klassekist and schools that use another method. The data showed that the amount of students that have parents with lower education is higher for the schools that don't use Klassekist. Research of Fettelaar, Mulder and Driessen (2014) has shown that there is a correlation between the level of education of the parents and the language performances of students in the second and eighth grade. The higher the level of education of the parents, the higher the language performances of their children. Data of the PRIMA-cohort investigation and the COOL-cohort investigation are used for this research (Fettelaar et al., 2014). PRIMA and COOL are widespread cohort investigations, in which regular background data of ten thousands of students and measurements of those students are used and questionnaires of students, teachers and parents are taken. Therefore, it is plausible that the differences in data of the present research can be explained through the background of the students. For this reason, it is important to do this evaluation again, but with a more comparable control group. The control group should approximately have the same background data and should start at a comparable average score level. Hence, the background data that can influence the effectiveness can be ruled out.

Another explanation for the higher scores of Klassekist, can be that schools that use Klassekist have Klassekist in practice already from the third grade, while other methods of spelling are used from the fourth grade. Because Klassekist users learn spelling a year earlier, the achievements of the Klassekist users can already be higher compared to students that use another method of spelling. This possible effect should be measured in a longitudinal follow-up study, in which all students that participate in the research already make a spelling test in the first days of the third grade, when they don't have had spelling at all. Therefore, it is clear what the initial level is of all the students and the progress of spelling can be measured from the first day on. Again, a more comparable control group should be used. If the initial level is approximately the same and there is more progress for Klassekist users in comparison with users of other methods, it can be assumed that Klassekist is more effective.

Moreover, because Klassekist is in practice for just a couple of years, there is limited data available. It is advised to do this evaluation again over a couple of years, so more data is available and this research can be extended. The data that can be used in the follow-up study are the spelling scores of the Cito monitoring system before the schools started with Klassekist and of the years that schools use Klassekist. Furthermore, a comparable control should be used. In this manner, it can be checked if the scores of spelling are improved when schools began to use Klassekist. If Klassekist is more effective, it is expected that the spelling scores of the users of Klassekist have improved while the spelling scores of users of other methods remain the same.

In addition, this research can be extended to the other grades of the primary school in which Klassekist is used, for example the fifth and sixth grade to see whether Klassekist is more effective in other grades of the primary school. This research can be conducted in the same way as the other advised evaluation. And even, over a couple of years, when students of the eighth grade have had Klassekist from the fourth grade on another kind of evaluation can be conducted. The data of the students that have used Klassekist from the fourth until the eighth grade can be used, together with the same kind of data of students that have not used Klassekist at all. Again, a comparable control group should be used. It can be checked if students that use Klassekist make more progress in spelling in comparison with the control group.

This research showed that there is no convincing evidence that one method of spelling is more effective than another. Therefore it is important to compare the methods of spelling that are available in the Netherlands, to see which method of spelling suits the best in the school situation. Every method of spelling has different characteristics that can or can't fit in the school situation. Hence, the effectiveness of a method can differ between schools. It must be checked which characteristics a method of spelling fits in the school and which methods cover these needs. In addition, the methods should be checked on the basis of the interim objectives, to ensure that these are also covered. If a method is chosen that fits the best in the school situation, the achievements of the students may improve.

Finally, more research should be conducted to the occurrence rate of the course material. Many research has shown that retrieval is effective, even more than restudying the information (Bouwmeester & Verkoeijen, 2011; Roediger & Butler, 2011; Goossens, Camp, Verkoeijen, Tabbers & Zwaan, 2014). However, more research should be conducted to the most effective frequency of retrieval. If the course material can be learned most effective at a certain point of retrieval, this should be processed within methods of spelling. Moreover, research can be extended to other learning areas.

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10. Appendices

10.1. Core objectives “language education”

Verbal education

1. The students learn how to acquire information out of spoken language. They also learn to present that information oral or written in a structured way
2. The students learn to express themselves in form and content, when giving or asking for information, reporting, giving explanations, instructing and participating in discussions.
3. The students learn to assess information in discussions and in conversations that are informative or opinion forming in nature and learn to respond with arguments.

Correspondence education

4. The students learn to retrieve information from informative and instructive texts, including diagrams, tables and digital sources.
5. The students learn to write content and texts with different functions such as: informing, instructing, persuading or providing pleasure.
6. The students learn to structure information and opinions when reading educational- and study texts and other instructive texts, and systematically structured sources, including digital sources.
7. The students learn to compare information and opinions and to evaluate this in various texts.
8. The students learn to structure information and opinions when writing a letter, a report, a form or a paper. They pay attention to syntax, correct spelling, a readable handwriting, sheet level, optionally visual elements and color.
9. The students get pleasure in reading and writing for those intended stories, poems and informative texts.

Linguistics

10. The students learn to recognize, to express, to use and to evaluate the objectives of “verbal education” and “correspondence education” strategies.
11. The students learn a number of linguistic principles and rules. In a sentence, they can distinguish the subject, the verbal predicate and parts of the proverb. The students know:
 - The rules for spelling verbs
 - The rules for spelling words other than verbs
 - The rules for the use of punctuation
12. The students acquire an adequate vocabulary and strategies for understanding words that are unknown to them. “Vocabulary” includes terms that allow pupils to think about language and to speak.

10.2. Core objective and interim objectives of spelling of the fourth grade

Core objective spelling

The students learn a number of linguistic principles and rules. In a sentence, they can distinguish the subject, the verbal predicate and parts of the proverb. The students know:

- The rules for spelling verbs
- The rules for spelling words other than verbs
- The rules for the use of punctuation

Interim objectives spelling of the fourth grade

- Spell of clear sounding words on the basis of elementary
- Spelling of words with specific spelling patterns, like words that ends with –nk, -uw, -eeuw, -ieuw, -aai, -ooi, -oei
- Spelling of clusters of consonants (for example. Schr-, -rnst, -cht)
- Spelling of words with homophones (ei-ij, au-ou, c-k, g-ch)
- Spelling of words with a ‘mute e’
- Spelling of words with open and closed syllables
- Simple punctuation: use of capitals, dot, question mark and exclamation mark
- Recognize and correct spelling- and punctuation mistakes

10.3. Daily manual Klassekist Super Spellen

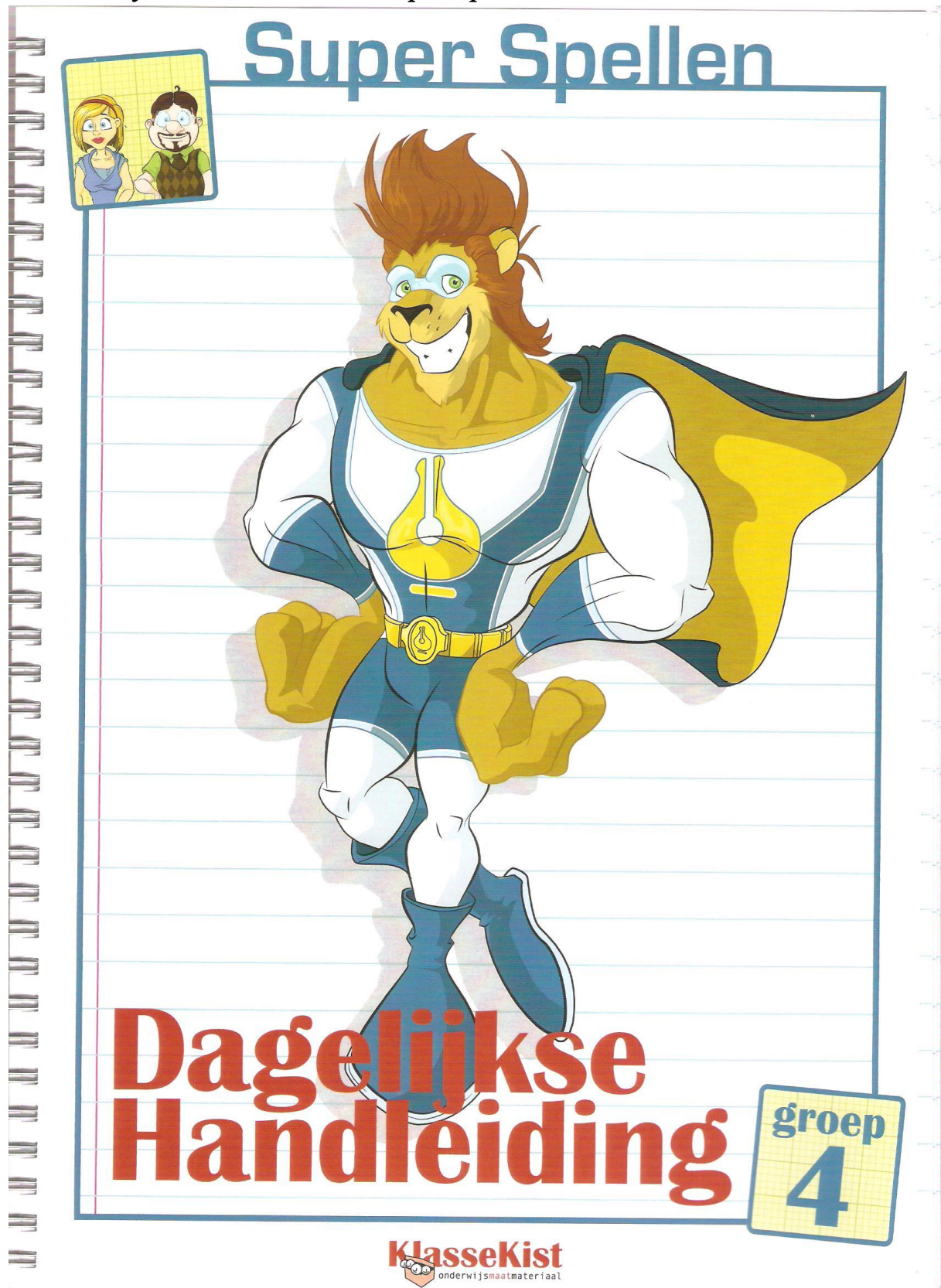


Figure 4. Daily manual Klassekist Super Spellen.

10.4. Annual planning Klassekist Super Spellen


Jaarplanning groep 4  woordpakketten		
Super Spellen bevat 12 blokken van 3 weken. Ieder blok wordt afgesloten met een dictee. Twee maal per jaar is er een herhalingsweek.		
	Categorie	Stellessen/Thema
instap	Instapweek: instapdictee/week	stellessen
1	Hakwoorden 2 medeklinkers	stellessen
2	Hakwoorden 2 medeklinkers	stellessen
3 blok 1	Hakwoorden 2 & 2 medeklinkers	Dictee blok 1
4	Hakwoorden vriendjesflat	stellessen
5	Hakwoorden vriendjesflat	stellessen
6 blok 2	Hakwoorden vriendjesflat	Dictee blok 2
7	Hakwoorden 3 medeklinkers	stellessen
8	Achtwoorden	stellessen
9 blok 3	Fopletterwoorden	Dictee blok 3
10	Bankwoorden	stellessen
11	Chinese letterwoorden	stellessen
12 blok 4	Haaiwoorden	Dictee blok 4
13	Hondwoorden	stellessen
14	Be-Ge-Verwoorden	stellessen
15 blok 5	Verkleinwoorden	Dictee blok 5
16	Schaarwoorden	stellessen
17	Kippen ei – IJsjes ij	stellessen
18 blok 6	Weetwoorden sz/vf	Dictee blok 6
19 blok	Herhalingsmix Cito	Winterwereld
20 cito	Cito spelling M4	Landelijke spellingtoets
21	Leeuwwoorden	stellessen
22	Letterdief	stellessen
23 blok 7	Dubbelzetter	Dictee blok 7
24	Hoormannetje	stellessen
25	Bankwoorden	stellessen
26 blok 8	Achtwoorden	Dictee blok 8
27	Fopletterwoorden	stellessen
28	Chinese letterwoorden	stellessen
29 blok 9	Haaiwoorden	Dictee blok 9
30	Hondwoorden	stellessen
31	Duifwoorden	stellessen
32 blok 10	Atje au woorden	Dictee blok 10
33	Be-Ge-Verwoorden	stellessen
34	Kippenei/ IJsjes ijwoorden	stellessen
35 blok 11	Muiswoorden	Dictee blok 11
36	Herhalingsmix cito	ZomerZon
37 blok cito	Cito spelling E4	Landelijke spellingtoets
38 blok 12	Uitloop: Schaarwoorden	stellessen
39	Uitloop: Leeuwwoorden	stellessen
40	Uitloop: Mixwoorden	Dictee blok 12 (optioneel)
41	Laatste schoolweek	stellessen

Figure 5. Annual planning Klassekist Super Spellen.

10.5. Structure of a lesson *Klassekist Super Spellen*

Dutch structure as set in the daily manual


Algemeen gedeelte	
1	
Lesfase	Inhoud (15 minuten)
Voorbereiding	Pictogram met de regel van de dag. Digibord presentatie met nieuwe woorden.
Start van de les  "Doel"	<p>Activeren voorkennis. Begin de les met het activeren van de voorkennis. Enkele mogelijkheden:</p> <ul style="list-style-type: none"> • Blik terug op de voorgaande les. Welke spellingregels kwamen er aan bod? • Bespreek het belang van goed leren spellen. • Breng zelf een leuk, bijzonder of verrassend woord in met diverse spellingregels of vraag (een van) de kinderen om een gek of bijzonder woord. Zet hierbij eventueel het wiskbordje in. Gebruik geen spellingregels die nog niet aan bod zijn geweest. <p>Lesdoel: Maak een koppeling naar het lesdoel van de les van vandaag. Lees het lesdoel hardop voor. In het lesdoel wordt de spellingregel van vandaag benoemd.</p> <p><i>Bijvoorbeeld: Ik ken 'achtwoorden' en kan deze regel toepassen.</i></p> <p>Voor meer achtergrondinformatie over de spellingregel zie de Algemene Handleiding.</p>
Groepsinstructie Nieuwe woorden	<p>Uitleggen/demonstreren/concrete voorbeelden/voordoen nieuwe spellingregel.</p> <p>Pak het spellingpictogram met de regel van vandaag en hang deze op. Als het al ergens hangt, wijs het dan aan. Licht de regel toe met de tekst tussen de aanhalingstekens.</p> <p><i>Bijvoorbeeld: "Achtwoorden. Korte klank (i-o-e-a-u) + cht is met ch van acht.</i></p> <p>Geef aan dat de kinderen vandaag vijf nieuwe woorden leren met deze spellingregel.</p> <p>Open de presentatie met de les van vandaag. Laat eerst de sheet met de spellingregel van vandaag zien. Herhaal de regel.</p> <ol style="list-style-type: none"> 1. Lees het eerste woord hardop voor uit de handleiding. Let op: Laat het woord nog niet zien op de presentatie. 2. Geef een korte omschrijving van het woord of kies uit de volgende mogelijkheden: <ul style="list-style-type: none"> - zet het in een betekeniszin. - beeld het woord uit of wijs het aan. - laat het woord als afbeelding zien. 3. Laat nu het eerste woord zien via het Digibord. 4. Zeg het woord hardop en laat de kinderen het woord nazeggen. 5. Laat ze nu allemaal het woord opschrijven. Loop rond en geef feedback. 6. Herhaal stap 1 t/m 5 met de overige vier woorden. 7. Na alle vijf woorden herhaal je de regel.
Begeleide inoefening Dagelijks dictee	<p>Herhalen, verwoorden en toepassen van eerder aangeboden spellingregels.</p> <ol style="list-style-type: none"> 1. Bied de vier woorden van het dagelijks dictee woord voor woord aan. De kinderen zeggen het woord eerst hardop na en schrijven het daarna op. Ze kunnen ook de spellingregels aankruisen. Als alle vier woorden zijn geweest, volgt direct feedback. Geef de feedback door de vier woorden op het whiteboard te schrijven. Benoem de bijbehorende spellingregels. 2. Dicteer na de feedback pas de zin. De kinderen hebben nu steun aan de feedback die ze hebben gekregen bij de vier woorden. Kijk bij de zwakke spellers gelijk mee en verbeter waar nodig. Schrijf nu ook de zin op het whiteboard. De kinderen kijken na.
Zelfstandige verwerking Oefenopdracht	<p>Taakwerk, verwerken van de nieuwe woorden van vandaag.</p> <p>Dit is een korte oefenopdracht die altijd gaat om de vijf 'nieuwe woorden' van die dag. Deze oefenopdracht slaat dus niet terug op de gebruikte woorden bij het dagelijks dictee. Sterke spellers gaan direct aan de slag en kunnen eventueel doorwerken met de extra kopieerbladen. De gemiddelde spellers maken de oefenopdracht zelfstandig of met het schoudermaatje. Zwakke spellers krijgen extra hulp van de leerkracht. Voor extra tijd voor zwakke spellers zie de algemene handleiding.</p>
Feedbackronde	Serviceronde met procesgerichte feedback.
Afsluiting	Gezamenlijke afronding. Bespreek het behalen van het lesdoel en de werkhouding.

Figure 6. Structure of a lesson Super Spellen (Dutch version).

The structure in English, translated of the Dutch structure as set in the manual.



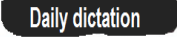
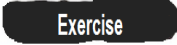
Lecture phase	Content (15 minutes)
Preparation	Pictogram with the rule of the day Digiboard presentation with the new words
Beginning of the les 	Activating pre-knowledge Begin the lesson with activating the pre-knowledge. Some opportunities: <ul style="list-style-type: none"> • Look back at the previous lesson. Which rules were treated? • Discuss the importance of good spelling • Give a nice, special or surprising word with different rules of spelling or ask (one of the) students for a crazy or special word Learning objective: make a link to the learning objective of today. Read the learning objective out loud. The spelling rule of the day will be appointed in the learning objective. <i>For example: I know the “achtwoorden” [eight words] and can apply this rule</i> For more background information about the spelling rule, check the overall manual.
Group instruction 	Explain / demonstrate / concrete examples / pose new spelling rule Take the spelling pictogram with the rule of today and hang this one up. If it is there already, point to it. Explain the rule with the text between the quotes. <i>For example: “Achtwoorden.[eight words] Short sound (i-o-e-a-u) + cht is with the “ch” of acht.</i> Indicate that the students learn five new words with this spelling rule. Open the presentation with the lesson of today. Show the sheet with the spelling rule of today first. Repeat the rule. <ol style="list-style-type: none"> 1. Read the first word out loud out of the manual. Attention: don't show the word already on the presentation. 2. Give a short description of the word and choose one of the next opportunities <ul style="list-style-type: none"> - Put it in a significance sentence - Picture the word or point it - Show the word as a picture 3. Show the first word through the digiboard 4. Say the word out loud and let the students repeat the word 5. Let them write the word down. Walk around and give feedback 6. Repeat step 1 to 5 with the other four words 7. After the five words, repeat the rule
Supervised practice 	Repeat, express and apply the former rules of spelling <ol style="list-style-type: none"> 1. Present the four words of the daily dictation word for word. The students say the word out loud and write it down. They can also tick the rules of spelling. If the four words are passed, direct feedback will be given. Give feedback through writing the four words on the digiboard. Appoint the corresponding rules of spelling. 2. Dictate the sentence after the feedback. The students have some support of the feedback they received with the four words. Look at the poor spellers straight away and improve if necessary. Write the sentence on the digiboard. The students will check it.
Self-processing phase 	Task work, process the new words of today This is a short exercise that is always about the five “new words” of that day. This exercise is not about the used words at the daily dictation. Strong spellers start immediately and can eventually work through with the extra copy sheets. The average spellers make the exercise autonomous or with their “shoulder buddy”. Poor spellers get extra help of the teacher. For extra time for poor spellers see the overall manual.
Feedback	Service round with process-oriented feedback.
Closure	Collective closure Discuss obtaining the learning objective and the work attitude.

Figure 7. Structure of a lesson Super Spellen (English version).

10.6. Example spelling lesson "Achtwoorden" Klassekist Super Spellen

Achtwoorden

8

cht

Doel: Ik ken woorden met de regel van het 'achtwoord' en kan deze regel toepassen.

"Achtwoord, korte klank (i-o-e-a-u) + cht is met ch van acht."

Nieuwe woorden

- 1 dicht
- 2 het uitzicht
- 3 echt
- 4 de knecht
- 5 slecht

ik verbeter

☐ 1 _____

Tipblok Dagelijks dictee: Eigen woorden

Eigen woorden: Bedenk of kies zelf 4 woorden en maak een korte zin. Kies daarbij voor spellingregels of moeilijkheden waarvan je hebt gemerkt dat (veel) kinderen hier moeite mee hebben. Als het mogelijk is, sluit hiermee aan op de actualiteit in de klas of de wereld. Voor inspiratie check KlasseKist op Facebook of Twitter. Natuurlijk is het ook een optie om kinderen een dagelijks dictee te laten verzinnen. Geef ze hiervoor vooraf bedenktijd.

Dagelijks dictee

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- 1 eigen woorden
- 2 _____
- 3 _____
- 4 _____
- 5 _____

- 3 _____
- 4 _____

Oefenopdracht

Onderstreep in onderstaand verhaaltje de 'achtwoorden' en vul het gedicht aan. Dit kunnen ook woorden zijn die je eerder deze week geleerd hebt.

1. Ik rijd op mijn fiets en maak een tocht.
2. Oeps! Op de berg maak ik ineens een scherpe bocht
3. Ik schreeuw au! Vogels slaan op de vlucht.
4. Ik lig op de grond en kijk naar de blauwe lucht
5. Dat wordt een blauwe plek. Ik slaak een diepe zucht.
6. De pijn valt mee. Ik ben opge lucht
7. Nu hup naar huis, want nu is het nog licht.
8. Dit is het eind van dit ge dicht

Blz.36 Blok 3 week 8

KlasseKist
onderwijsmaatmateriaal

Figure 8. Example spelling lesson "Achtwoorden" Klassekist Super Spellen.

10.7. Checklist

Leerdoel	Met welke spellingregel wordt dit onderdeel behandeld?	Hoe vaak en waar wordt het behandeld volgens jaarplanning?	Hoe vaak en waar wordt het behandeld in het werkboek?	Aantekeningen uit algemene handleiding	Aantekeningen
Spellen van klankzuivere woorden op basis van de elementaire spelhandeling					
Spellen van woorden met specifieke spellingpatronen, zoals woorden eindigend op –nk, -uw, -eeuw, -ieuw, -aai, -ooi, -oei					
Spelling van clusters van medeklinkers (bijv. schr-, -rnst, -cht)					
Spelling van woorden met homofonen (ei-ij, au-ou, c-k, g-ch)					
Spelling van woorden met de stomme e					
De spelling van woorden met open en gesloten lettergrepen					
Overige opmerkingen					

Figure 9. Checklist.

10.8. Complete checklist

Leerdoel	Met welke spellingregel wordt dit onderdeel behandeld?	Hoe vaak en waar wordt het behandeld volgens jaar-planning?	Hoe vaak en waar wordt het behandeld in het werkboek?	Aantekeningen uit algemene handleiding	Aantekeningen
Spellen van klankzuivere woorden op basis van de elementaire spel-handeling	De hakwoorden en de vriendjesflat	<p>Hak-woorden 2 mede-klinkers worden 2x behandeld (week 1, 2).</p> <p>Hak-woorden 2&2 mede-klinkers wordt 1x behandeld (week 3).</p> <p>Hak-woorden vriendjes-flat worden 3 keer behandeld (week 4, 5, 6).</p> <p>Hak-woorden 3 mede-klinkers wordt 1x behandeld (week 7).</p>	<p>Hakwoorden Nieuwe woorden: Blz. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 29, 30, 31, 32</p> <p>Specifiek vriendjesflat Nieuwe woorden: Blz. 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28</p> <p>Dagelijks dictee: Blz. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 42, 43, 46, 47, 49, 53, 54, 55, 57, 58, 59, 61, 62, 63, 65, 66, 67, 69, 71, 73, 74, 75, 76, 77, 78, 79, 82, 83, 85, 86, 87, 89, 90, 91, 93, 94, 95, 97, 98, 101, 102, 103, 105, 106, 107, 109, 110, 111, 113, 115, 117, 121, 122, 126, 127, 129, 130, 131, 133, 135, 137, 138, 139, 142, 143, 145, 146, 147</p>	<p>Vanaf groep 3 wordt er onderscheid gemaakt tussen klankzuivere en niet-klankzuivere woorden. Dit wordt ook naar groep 4 doorgetrokken met de pictogrammen.</p> <p>De klankzuivere woorden worden geleerd a.d.h.v. hakwoorden en de vriendjesflat. In de vriendjesflat staan speciale letter-combinaties waar geen andere letter tussen mag (bijv. –rk, –rp, en –rm).</p>	<p>Dictaties 15 woorden, 2 zinnen</p> <p>Dicteer dictee blok 1 hakwoorden Dicteer dictee blok 2 hakwoorden en vriendjesflat Dicteer dictee blok 3 hak-, acht- en fopletterwoorden Blok 4: Bank-, Chinese letter- en Haaiwoorden Blok 5: Hond-, Verklein- en Be-ge-ver-woorden Blok 6: schaar-, kippen ei & ijsjes ij en weetwoorden Blok 7: leeuwwoorden, letterdief en dubbelzetter Blok 8: hoormannetje, bank- en achtwoorden Blok 9: Fopletter-, Chinese letter- en Haaiwoorden Blok 10: Hond-, Duif-, Atje au en Otje ou woorden Blok 11: Kippen ei & Ijsjes ij, Muis- en Be-ge-ver woorden Blok 12: Schaar-, Leeuw- en Mixwoorden</p> <p>4 lessen achter elkaar met dezelfde spellingregel bij de nieuwe woorden. Bij de laatste les zijn er bij de dagelijks dictee eigen woorden in gebruik. De docent mag dus zelf kiezen welke regels er hier gebruikt worden.</p> <p>In de zomereditie en wintereditie worden ook de spellingregels herhaald voor de Cito toets.</p>
Spellen van woorden met specifieke spelling-patronen, zoals woorden eindigend op –nk, –uw, –eeuw, –ieuw, –aai, –ooi, –oei	Bankwoorden, Leeuwwoorden, Haaiwoorden, Fopletter-woorden, Chinese woorden	<p>De bank-woorden worden volgens de jaar-planning van groep 4 2x behandeld in een jaar (week 10, week 25)</p> <p>Leeuw-woorden worden 1x behandeld en bij de uitloop worden ze</p>	<p><i>Bankwoorden</i> Nieuwe woorden: Blz. 41, 42, 43, 44, 93, 94, 95, 96</p> <p>Dagelijks dictee: Blz. 45, 46, 51, 54, 58, 69, 71, 77, 93, 94, 95, 109, 118, 121, 138</p> <p><i>Leeuwwoorden</i> Nieuwe woorden: Blz. 77, 78, 79, 80, 141, 142, 143, 144</p> <p>Dagelijks dictee: Blz. 79</p> <p><i>Haaiwoorden</i> Nieuwe woorden:</p>	<p>–nk zijn bankwoorden</p> <p>–uw, –eeuw en –ieuw zijn leeuwwoorden</p> <p>–aai, –ooi en –oei zijn haaiwoorden</p> <p>Daarnaast zijn er nog een aantal woorden die van klank kunnen veranderen onder invloed van de “r”. Dit wordt geleerd aan de hand van de fopletter-woorden. Deze</p>	

		<p>ook 1x behandeld (week 21, week 39).</p> <p>De haai-woorden worden 2x behandeld (week 12, week 29).</p> <p>Fopletter-woorden worden 2x behandeld (week 9, week 27).</p> <p>Chinese woorden worden 2x behandeld (week 11, 28).</p>	<p>Blz. 49, 50, 51, 52, 109, 110, 111, 112</p> <p>Dagelijks dictee: Blz. 55, 70, 97, 109, 122, 133, 137</p> <p><i>Fopletterwoorden</i> Nieuwe woorden: Blz. 37, 38, 39, 40, 101, 102, 103, 104</p> <p>Dagelijks dictee: Blz. 41, 47, 54, 57, 58, 59, 66, 101, 103, 118, 147</p> <p><i>Chinese woorden</i> Nieuwe woorden: Blz. 45, 46, 47, 48, 105, 106, 107, 108</p> <p>Dagelijks dictee: Blz. 45, 54, 66, 101, 106, 109, 113, 117, 119, 141</p>	<p>eindigen specifiek op –eer, -oor en –eur.</p> <p>Ook de “ng” wordt behandeld als Chinese woorden.</p>	
Spelling van clusters van medeklinkers (bijv. schr-, -rnst, -cht)	Achtwoorden en schaarwoorden	<p>Acht-woorden worden 2x behandeld (week 8, week 26).</p> <p>Schaar-woorden worden 1x behandeld en 1x in uitloop behandeld (week 16, week 38).</p>	<p><i>Achtwoorden</i> Nieuwe woorden: Blz. 33, 34, 35, 36, 97, 98, 99, 100</p> <p>Dagelijks dictee: Blz. 35, 42, 45, 50, 54, 58, 66, 82, 90, 93, 97, 98, 101, 114, 117, 118, 125, 127, 138, 145</p> <p>Uitzondering op achtregel: blz. 99</p> <p><i>Schaarwoorden</i> Nieuwe woorden: Blz. 65, 66, 67, 68, 137, 138, 139</p> <p>Dagelijks dictee: Blz. 42, 71, 73, 74, 78, 87, 95, 106, 137, 140</p>	<p>-cht zijn achtwoorden</p> <p>-sch zijn schaarwoorden. De –r wordt hierbij wel overgeslagen. Voor –schr is er geen aparte spellingregel.</p> <p>Voor –rnst is er geen aparte spellingregel. –rn is wel opgenomen als spellingregel in de “vriendjesflat” maar is niet hetzelfde als -rnst.</p>	
Spelling van woorden met homofonen (ei-ij, au-ou, c-k, g-ch)	Kippen ei & Ijsjes ij regel, Atje au woorden	<p>Ei-ij wordt 2x behandeld (week 17, week 34).</p> <p>Au-ou wordt 1x behandeld (week 32).</p> <p>c-k wordt niet apart geleerd, net als de g-ch</p>	<p><i>Kippen ei – ijsjes ij regel</i> Nieuwe woorden: Blz. 69, 70, 71, 72, 129, 130, 131, 132</p> <p>Dagelijks dictee:</p> <p><i>Atje au woorden</i> Nieuwe woorden: Blz. 121, 122, 123, 124</p> <p>Dagelijks dictee:</p>	<p>De ei-ij wordt geleerd met de kippen ei – ijsjes ij regel. Voor de ei-ij bestaat er ook de “ei-plaat” waarbij er verschillende woorden ontstaan die een “ei” hebben. Als het niet op deze plaat staat dan is het “ij”. Hetzelfde geldt voor de au-ou, waarbij de plaat bestaat uit au-woorden. Ook hier is er een regel: de Atje au woorden.</p> <p>De c-k wordt pas vanaf groep 5 behandeld.</p> <p>g-ch wordt niet apart in een</p>	Bij deze spellingregels staat niet duidelijk vermeld of het gaat om homofonen, of je hetzelfde woord hoort maar met een andere schrijfmethode en andere betekenis. Wel zijn er diverse spellingregels opgeschreven waarbij deze lettergrepen (bijv. ei-ij) worden geleerd.

				spellingregel gebruikt.	
Spelling van woorden met de stomme e	-	Wordt niet apart behandeld		Dit valt onder aanvullende categorieën. "Deze categorie wordt niet apart aangeboden omdat deze in veel gevallen na inoefening al snel is geautomatiseerd" (p. 32)	Op pagina 89 en 108 van de dagelijkse handleiding wordt er aandacht geschonken aan woorden met een stomme e. In het blokje voor de docent wordt aangegeven dat de regel zorgvuldig en regelmatig moet worden ingeoeft en dat de stomme e elke keer benoemd moet worden.
De spelling van woorden met open en gesloten lettergrepen	Letterdief, Dubbelzetter, Hoormannetje	Letterdief wordt 1x behandeld (week 22) Dubbelzetter wordt 1x behandeld (week 23). Hoormannetje wordt 1x behandeld (week 24).	<i>Letterdief</i> Nieuwe woorden: Blz. 81, 82, 83, 84 Dagelijks dictee: Blz. 81, 83, 101, 106, 107, 111, 114, 125, 126, 129, 131, 134, 135, 138, 139, 141, 142, 145, 146, 147 <i>Dubbelzetter</i> Nieuwe woorden: Blz. 85, 86, 87, 88 Dagelijks dictee: Blz. 85, 87, 101, 106, 107, 111, 114, 118, 122, 125, 133, 134, 135, 137, 139, 141, 145 <i>Hoormannetje</i> Nieuwe woorden: Blz. 89, 90, 91, 92 Dagelijks dictee: Blz. 81, 89, 90, 91, 93, 105, 107, 110, 113, 123, 125, 126, 130, 133, 137, 138, 141, 143	Dit wordt geoefend met klankvoetwoorden. Daarbij worden de pictogrammen letterdief, dubbelzetter en hoormannetje gebruikt.	
Overige opmerkingen	Overige spellingregels die geleerd worden zijn hondwoorden, duifwoorden, muiswoorden, lijmwoorden, be-ge-ver-woorden, verkleinwoorden, weetwoorden/mixwoorden		<i>Hondwoorden</i> Nieuwe woorden: Blz. 53, 54, 55, 56, 113, 114, 115 Dagelijks dictee: Blz. 58, 59, 61, 62, 63, 67, 74, 81, 82, 86, 90, 93, 101, 102, 114, 116, 118, 125, 127, 130, 135, 141, 142, 146 Koppeling op blz. 92 <i>Duifwoorden</i> Nieuwe woorden: Blz. 117, 118, 119, 120 Dagelijks dictee: Blz. 135 <i>Muiswoorden</i> Nieuwe woorden: Blz. 133, 134, 135, 136 Dagelijks dictee:	Met Klassekist worden er in groep 4 ook "hondwoorden" geleerd, waarbij er onderscheid gemaakt wordt tussen -d en -t woorden. Twee spellingregels die ook in groep 4 worden geleerd m.b.v. Klassekist zijn Duifwoorden (enkelvoud een f, meervoud een v) en Muiswoorden (enkelvoud een s, meervoud een z). Ook lijmwoorden (een woord dat uit twee of meer woorden bestaat), be-ge-ver-woorden (voorvoegsels be-	In de leerlijn van spellingregels wordt duidelijk welke regels in groep 4 zullen worden behandeld. Dit is te lezen op pagina 16. De uitleg van de spellingregels a.d.h.v. de pictogrammen zijn te vinden van pagina 22 t/m 30 Vanaf blz. 145 wordt het symbool van de "weetwoorden" (!) gebruikt voor mixwoorden. Dit zijn woorden met verschillende regels.

			<p>Blz. 134, 135, 142, 143, 147</p> <p><i>Lijmwoorden</i> Nieuwe woorden:</p> <p>Dagelijks dictee: Blz. 22, 25, 41, 45, 58, 62, 69, 74, 75, 86, 93, 94, 101, 109, 114, 117, 118, 122, 126, 129, 131, 134, 137, 138, 141, 142, 145, 146</p> <p><i>Be-ge-ver-woorden</i> Nieuwe woorden: Blz. 57, 58, 59, 60, 125, 126, 127</p> <p>Dagelijks dictee: Blz. 43, 66, 71, 79, 87, 94, 98, 102, 107, 109, 111, 117, 118, 125, 128, 137, 139, 147</p> <p><i>Verkleinwoorden</i> Nieuwe woorden: Blz. 61, 62, 63, 64</p> <p>Dagelijks dictee: Blz. 62, 63, 65, 78, 81, 94, 109</p> <p><i>Weet-woorden/mixwoorden</i> Nieuwe woorden: Blz. 73, 74, 75, 76, 145, 146, 147, 148</p> <p>Dagelijks dictee: Blz. 75, 76, 77, 81, 105, 110, 115, 117, 118, 121, 123, 126, 129, 130, 131, 138, 141, 142, 143, 145</p>	<p>ge-ver) en verkleinwoorden worden behandeld in groep 4.</p> <p>Daarnaast zijn er een aantal weetwoorden, waarbij er geen regels zijn maar die je gewoon moet weten en onthouden.</p>	
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Figure 10. Complete checklist.