HIGH-QUALITY WRITING INSTRUCTION IN DUTCH PRIMARY EDUCATION

A FRAMEWORK FOR NATIONAL ASSESSMENT

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Abstract

In the Netherlands, nationwide assessments are periodically executed to evaluate the quality of teachers' writing instruction and students' writing in primary schools. These assessments provide an empirical basis for the societal debate about the content and level of writing education, and enable the Inspectorate of Education to monitor the quality of teaching practices.

However, educational quality is a complex, multidimensional construct. In this literature review we discuss the question which domain-specific and more general teaching variables at the classroom level could be incorporated in nationwide assessment instruments, such as teacher questionnaires and classroom observation instruments. Based on theoretical and empirical studies on writing education, we propose a framework of variables which appear to be relevant, in the sense that they have been found to be characteristic of high-quality writing instruction. This framework can be used for the development of assessment instruments, and can also be a valuable resource for writing researchers, curriculum designers, and teachers.

Keywords: writing instruction, primary education, educational quality, teachers' behavior, nationwide assessments, writing framework

1.   INTRODUCTION

Since the 1990's nationwide assessments of writing education have periodically been conducted in Dutch primary schools. These assessments have provided important insights into the quality of teachers' writing instruction and the level of students' writing achievements at a given time (Krom, Van de Gein, Van der Hoeven et al., 2004; Kuhlemeier, Van Til, Hemker, De Klijn, & Feenstra, 2013; Sijtstra, 1992; Van Roosmalen, Veldhuijzen, & Staphorsius, 1999; Zwarts, 1990). These periodic assessments usually take place every six years and aim to answer questions such as: What are current teaching practices in Dutch classrooms? What do pupils know and at what level do they perform? How have teaching practices and student outcomes changed over time? Thus, these studies have provided insights into teaching practices—such as time spent writing, the teaching materials used, the course content and the type of instructional approaches used during writing lessons—and the quality of texts written by students in grades 3 and 6 of Dutch primary schools.

In preparation for the next assessment, in 2019, the Dutch Inspectorate of Education wished to ascertain which features of effective writing instruction should be incorporated into future assessment instruments. The aim of the present literature review, therefore, was to provide a more or less complete overview of teaching variables which might have a positive influence on the quality of students' writing, and develop a framework for the construction of instruments (surveys, interviews, observation schemes) which can be used to describe and evaluate the quality of writing education in primary schools.

To answer the question "*What are features of high-quality writing instruction?*" we consulted three kinds of sources: (1) theoretical models of good (writing) education, (2) meta-analyses of effective writing interventions, and (3) recent Dutch writing programs that proved to be effective in earlier research. The most important findings from these three sources were synthesized in a Writing Framework: an overview of variables which we found to be theoretically and/or empirically relevant for good writing education. In this paper we will report on the most important findings from the first two sources (theoretical models and meta-analyses) and present the Writing Framework. In addition, we examined which of the variables included in the Writing Framework have already been operationalized and which ones were lacking in earlier assessment studies.

2.   THEORETICAL MODELS OF EFFECTIVE EDUCATION AND WRITING INSTRUCTION

The first step in the literature review was an analysis of theoretical models of good writing education to determine which variables should be included in our overview from a theoretical point of view. We distinguished between *general characteristics of high-quality education*, which are relevant for teaching in all domains, *teachers' professional qualities*, and *domain-specific variables*, which are features specifically related to writing instruction. For general characteristics of high-quality instruction,

we consulted the dynamic model of effective education proposed by Kyriakides, Creemers and Antoniou (2009), and Merrill's design principles which are common to various design theories (Merrill, 2002), while for teachers' professional qualities we incorporated variables proposed by Van de Grift (2007). Finally, for domain-specific characteristics we included variables from a theoretical model of writing instruction by Graham (2018). Together these four theoretical models formed a good starting point for our Writing Framework, because they each stressed the importance of a number of characteristics of high-quality education, but also complemented each other by placing emphasis on different variables. Each of these models is described briefly below.

2.1 Dynamic model of educational effectiveness

The first of the three general models of high-quality education we analysed was proposed by Kyriakides et al. (2009). They developed a dynamic model of educational effectiveness, in which they differentiated between eight different factors of effective teacher behavior, including *Orientation* (e.g. setting clear lesson goals), *Structuring* (e.g. ensuring students understand the lesson's structure) and *Modelling* (demonstrating the skill to be learnt). In addition, according to Kyriakides et al., it is not only important how often teachers display a certain behavior (frequency), but also with what purpose they do it (focus), at what time (stage), how well they do it (quality) and whether they adjust their behavior to the differences in students' levels of ability in the classroom (differentiation) (see Table 1).

Table 1. Overview of factors and dimensions of effective teaching behavior in the Dynamic model of Educational Effectiveness (Kyriakides et al., 2009, p. 13-14)

Factors of effective teaching behavior	Dimensions which can be used to define and measure the different factors
1. Orientation	1. Frequency
2. Structuring	2. Focus
3. Modelling	3. Stage
4. Application	4. Quality
5. Questioning	5. Differentiation
6. Assessment	
7. Time Management	
8. Classroom as a learning environment	

Kyriakides et al. investigated the possible combinations of these behavioral factors and dimensions by means of teacher and student questionnaires and class observations. The findings revealed five clearly distinguishable cumulative types of teacher behavior, which increase in degree of difficulty, from skills related to direct teaching (Type 1), to advanced skills aimed at modelling, orientation, and differentiation

(Types 4 and 5). Finally, by linking these five teacher types to students' performance Kyriakides et al. (2009) found that teachers who displayed behavior related to types 4 and 5 were more effective teachers, as their students outperformed those taught by teachers who displayed behaviors from the lower types on their scale (Kyriakides et al., 2009, p. 20). Therefore, when determining the overall quality and effectiveness of education, it seems to us most useful to determine whether teachers display behavior related to types 4 and 5, since that behavior seems to be most effective. Finally, Kyriakides et al., proposed that teacher-student and student-student relations are incredibly important, and as a result that the ability to create a safe learning climate and to differentiate successfully to meet different pupils' needs are important characteristics of effective teachers and thus of high-quality education.

2.2 First principles of instruction

The second model we based the Writing Framework on was Merrill's design principles for effective education. Merrill (2002) analysed various instructional theories and empirical intervention studies and formulated five design principles for high-quality education based on his findings, which he proposed are the foundations for the development and implementation of effective education: an authentic task or problem, activating, demonstrating, application and integration (see Figure 1). It is important to note that Merrill did not test the effectiveness of the principles in his 2002 paper directly, but rather formulated them based on the premise that *"if a principle is included in several instructional design theories, the principle has been found either through experience or empirical research to be valid"* (Merrill, 2002, p. 44).

Figure 1. Overview of Merrill's phases for effective instruction (Merrill, 2002, p. 45)
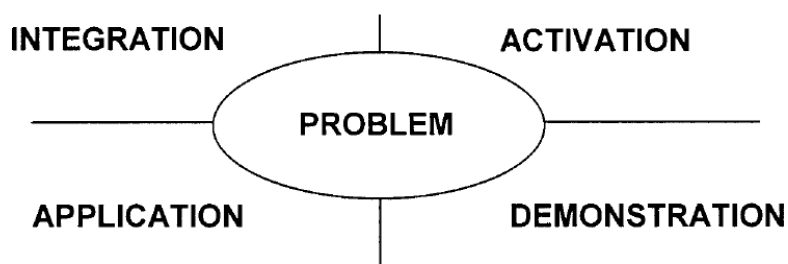
In Merrill's view, high-quality education should be problem oriented, which means that students should work on authentic tasks related to real-world problems. In addition, Merrill proposed that students' learning will be promoted when they are encouraged to *activate* prior knowledge and skills and given the opportunity to observe *demonstrations* of the skill they have to learn so they can understand how the task

must be carried out. Furthermore, they should be offered the chance to *apply* this new knowledge or skill through ample practice, and finally they should be given the opportunity to *integrate* their new skills in their daily lives (Merrill, 2002, p. 50).

Merrill subdivided each of these principles in a number of sub-principles. For example, for *applying* he emphasized the importance of gradually decreasing the level of guidance teachers provide, while for *integrating* he stressed the importance of giving students the opportunity to demonstrate their new knowledge or skills to others (the "*look at me"* principle) (Merrill, 2002, p. 50). We incorporated all these main and sub-principles in the Writing Framework.

2.3 International Comparative Analysis of Learning and Teaching (ICALT)

The third and last general model of educational effectiveness we incorporated in the Writing Framework was developed by Van de Grift (2007), who investigated the relations between features of high-quality education and student performance and developed an observation instrument for evaluating teachers' pedagogical and didactic behavior. The instrument was used to observe and analyse the quality of learning and teaching in primary schools, in four European countries. His starting point was the idea that teaching is a multidimensional construct in which different teaching and learning strategies and activities all play their own role in enabling pupils to learn effectively (Van de Grift, 2007, p. 137).

The instrument focused on six different aspects of teaching quality (Van de Grift, 2007, p. 127). First of all, learning can only take place if there is a *safe and stimulating learning environment*. On the one hand this concerns safety in the classroom and on the other hand, it entails offering students sufficient challenges so that they are stimulated to learn. Second, *effective classroom management* is important; too much time should not be lost on maintaining order or during transitions between activities. Third, teachers must also offer *clear and structured instructions*, with clear goals, as well as well-structured lessons. As a fourth point, Van de Grift mentioned the importance of *adapting* the level of instruction and tasks to differences between students. Fifth, Van de Grift noted the importance of *teaching learning strategies* and, lastly, the importance of offering *intensive and activating lessons* (Van de Grift, 2007, p. 127). All these elements were included in the Writing Framework, as an addition to elements from the other models (Kyriakides et al., 2009; Merrill, 2002), while taking into account the overlap between certain elements of these models, such as between *Time management* (Kyriakides et al., 2009) and *Effective classroom management* (Van de Grift, 2007).

2.4 Writer(s) Within Community Model of Writing

In addition to these three models of general educational effectiveness, we also included elements of Graham's domain-specific *Writer(s) Within Community Model of Writing* (Graham, 2018). Graham based his model on insights and findings from

research from different sociocultural and cognitive angles. His model consists of two components: a writing community and one or more writers (see Figure 2). The writing community, such as a classroom, working environment or online forum, consists of different components, including its *Physical/Social environment*, *Collective history*, *Purposes*, *Members* and their *tools*, *writing goals*, *actions*, and *written products*, which all influence the writing process as a whole in their own way.

In his model, Graham emphasizes the combination of, and interaction between, the sociocultural context provided by the writing community and the writer himself, and thus, in our view, provides a valuable addition to the three more general models of high-quality education. More specifically, he names five factors which can influence the development of students' writing ability on a personal level: *learning by doing, learning by observing, learning from others, learning through deliberate agency,* and *learning through accumulated capital* (Graham, 2018).

Figure 2. Basic components of a writing community (Graham, 2018, p. 280)
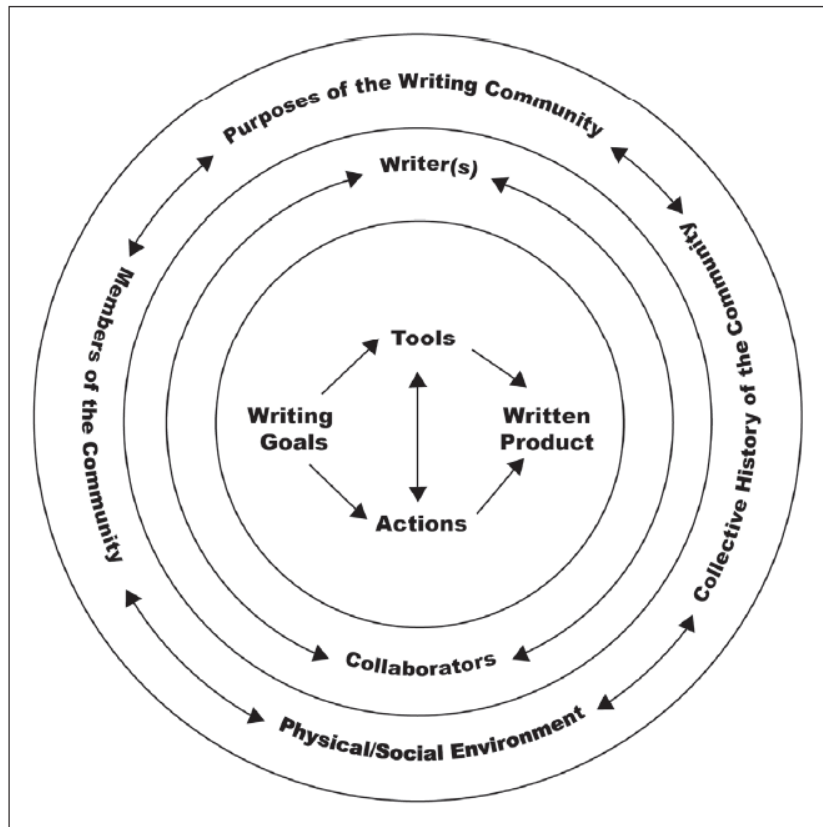
Graham proposed that teachers can facilitate these different kinds of learning in many ways. *Learning by doing, observing* and *learning from others*, for example, can all be integrated in lessons quite easily, for example through *modelling*, collaboration and by offering lessons which activate students' thinking processes. *Learning through deliberate agency* is related to motivation, which can be achieved by providing activating lessons and by making clear to students what the purpose and value is of what they are being taught. Goal setting and providing motivating feedback based on clear and specific goals can have a positive impact as well as increasing students' self-regulation skills through strategy instruction, for example using Self-Regulated Strategy Development (SRSD, Harris, Graham, & Mason, 2006). Finally, *Learning through accumulated capital* can be facilitated by making students aware of their performance so they realize they are making progress. This relates to self-efficacy and enjoyment of writing and is also influenced by offering positive feedback with clear goals. In addition, it can also be facilitated by data-based teaching. This entails systematically tracking students' development and regularly evaluating and adapting one's teaching based on those evaluations (see Blok, Ledoux, & Roeleveld, 2013). Teachers who are aware of their students' development can point them towards earlier positive experiences to build upon. Because of the possible impact each of these five types of learning might have on students' writing development we decided to include them in the Writing Framework.

2.5 Theoretical models: conclusions

Together these four theoretical models formed a good starting point for developing our Writing Framework, because they each stressed the importance of a number of characteristics of high-quality education, such as activating prior knowledge, ample opportunities to practice and modelling. But they also complemented each other by placing emphasis on different variables.

Kyriakides et al. (2009) emphasized the importance of good relations between teachers and students and between students and their peers, and also stressed that the quality of teachers' behavior is crucial. Thus, for periodic assessments of writing education this means that one should not only assess *what* happens in writing classrooms and *how often*, but the focus should be mainly on the *quality* of the behavior observed.

Merrill (2002) emphasized the importance of authentic, problem-based learning, in which solving real-world problems play a central role, preferably in a series of consecutive tasks of increasing complexity, the outcome of which can be compared to each other. Furthermore, the steps he proposed based on his principles are potentially relevant for many subject domains, perhaps even for all of them. Finally, Merrill stressed the importance of integration. Students have a natural desire to demonstrate their new skills to others and it is important to facilitate this need. Thus, for writing education this means that students' texts should be read by others besides

the teacher, for example by publishing them on a school's website, having them read aloud in class, or by exhibiting them in public areas of the school.

Van der Grift (2007) stressed the importance of activation and direct instruction, and also underlined the importance of creating a stimulating learning environment and providing strategy instruction, because earlier studies have shown that teaching students learning strategies, through modelling and scaffolding can have a large positive effect on their performance (Van de Grift, 2007, p. 135).

In his model, Graham (2018), focused on the combination of, and interaction between, the writing community (the socio-cultural context) and the writer, and thus provides, in our view, an essential domain-specific addition to the three general educational models. Teachers can turn their class into a writing community by, for example, encouraging students to work together, read each other's texts, help each other progress by providing peer feedback, and present their work to their peers. Furthermore, Graham explained how teachers can help their students become better writers, not only by practicing a lot and observing models, but also by encouraging students to act consciously and by giving them the opportunity to learn from previous experiences.

Overall, we found the characteristics of these four models highlighted here complemented each other well and together formed a strong theoretical foundation for the development of the Writing Framework.

3.   META-ANALYSES OF EFFECTIVE WRITING INTERVENTIONS

In this section we summarize what is known about effective writing interventions in the primary grades, based on existing meta-analyses. A meta-analysis provides a statistical analysis of the results of individual experimental and quasi-experimental studies, with the aim to identify which teaching practices are most effective. To this end an average weighted effect size across individual studies is computed. This effect size (*ES*) is usually expressed by means of Cohen's *d*: the standardized difference between the average writing scores of the experimental and control condition on the post-test. A distinction is made between small ($d = 0.20$), medium ($d = 0.50$) and large effects ($d = 0.80$).

Although meta-analyses are often considered to be the highest form of evidence, they have also been subject to criticism (Cohen, Manion, & Morrison, 2011). In each meta-analysis certain choices are made, for instance with regards to the search process, the selection of intervention studies, and the way in which they are grouped and analysed. These choices are often arbitrary. Therefore, meta-analyses on the same topic might report different outcomes. Nevertheless, meta-analyses do have the capacity to indicate which teaching practices achieve large positive effects on students' writing performance—time after time—, and which practices tend to produce relatively small effects or none at all.

3.1 Selected meta-analyses

For the present study we collected 28 studies published since 1986: 25 meta-analyses and three reviews of meta-analyses (see Table 2). Most studies to date were published in the United States; in particular Steve Graham and colleagues have been very active in this domain. Only two meta-analyses included in this study were conducted by Dutch researchers (Koster, Tribushinina, De Jong, & Van den Bergh, 2015; Van Schooten, Fukkink, & De Glopper, 2004), while an early Dutch review by Wesdorp (1982) was excluded, since it focused only on secondary education.

Table 2. Overview of meta-analyses of writing intervention studies

Interventions tested	Publication	Number of studies	Grades
Strategy instruction	Graham & Harris, 2003	23	3-8 *
	Graham, 2006	39	1-12
	Graham, Harris, & McKeown, 2013	84	1-12 *
Process writing approach	Graham & Sandmel, 2011	29	1-12
Grammar, sentence combining	Andrews, Torgerson, Beverton et al., 2006	31	2-10
Spelling, handwriting	Graham & Santangelo, 2014	53	K-12
	Santangelo & Graham, 2016	80	K-12
Word processing	Bangert-Drowns, 1993	32	1-college
	Goldberg, Russell, & Cook, 2003	26	K-12
	Van Schooten, Fukkink, & De Glopper, 2004	72	4-12
	Morphy & Graham, 2012	27	1-12
	Zheng, Warschauer, Lin, & Chang, 2016	10	K-12
Formative assessment	Graham, Harris, & Hebert, 2011	136	1-12
	Graham, Hebert, & Harris, 2015	35	1-8
Writing to support learning	Bangert-Drowns, Hurley, & Wilkinson, 2004	46	1-college
Writing to support reading	Graham & Hebert, 2010	152	1-12
	Graham & Hebert, 2011	95	1-12
	Hebert, Gillespie, & Graham, 2013	19	1-12
Multiple interventions	Hillocks, 1986	60	1-college
	Gersten & Baker, 2001	13	1-9 *
	Graham & Perin, 2007a, b	123	4-12
	Graham, Bollinger, Booth Olson et al. 2012	41	K-6
	Graham, McKeown, Kiuhara, & Harris, 2012	115	1-6
	Gillespie & Graham, 2014	43	1-12 *
	Koster, Tribushinina, De Jong, & Van den Bergh, 2015	32	4-6
Reviews of meta-analyses	Graham, Harris, & Santangelo, 2015	20	1-8
	Graham, Harris, & Chambers, 2016	19	1-12
	Graham & Harris, 2018	20	1-12

*) These reviews are specifically focused on learning by disabled students or struggling writers.

As shown in Table 2, two thirds of the meta-analyses examine the effects of a particular approach to writing instruction, such as strategy instruction, the teaching of spelling or the use of a word processor. The remaining meta-analyses involve a variety of teaching approaches, the effects of which are compared (e.g. Graham & Perin, 2007a, 2007b; Koster et al., 2015).

Only a few meta-analyses specifically focus on students in the primary grades. Most studies include writing interventions for the secondary grades as well, or even interventions at college level, and usually focus on normally developing students. We included four meta-analyses which focused on writing interventions for struggling writers or students with learning disabilities (e.g. Gersten & Baker, 2001). However, as our focus was on first language writing, meta-analyses aimed at second language learners were not included (e.g. Adesope, Lavin, Thompson et al., 2011).

Text quality is the main dependent variable included in the analyses. In some cases, other variables, such as text length, attitude or motivation to write were also taken into account. In the present study we only report the effects on text quality.

A special category of meta-analyses, which we also included in our study, centers on the effects of writing and writing instruction on content learning (Bangert-Drowns, Hurley, & Wilkinson, 2004) and text comprehension (Graham & Hebert, 2011). The focal point here is not so much '*learning to write*' as '*writing to learn*', with learning outcomes or text comprehension as dependent variables.

3.2 Effective writing interventions according to the meta-analyses

In Table 3 we present an overview of the effects of a wide range of approaches to writing instruction on text quality, content learning and text comprehension, based on the 28 meta-analyses in Table 2. The approaches are grouped as much as possible following grouping in the meta-analyses themselves. For each approach, we report the smallest and largest effect size found in the meta-analyses.

Table 3 shows that there is considerable variability in reported effect sizes of writing interventions between meta-analyses. However, four instructional approaches to writing were found to have consistently large (or medium to large) effects on the quality of students' writing: writing strategy instruction, assigning process or product goals, collaborative writing and providing (adult) feedback.

Table 3. Effects of various instructional approaches to writing. Range of average weighted effect sizes found in the meta-analyses (large effects are bolded)

Writing interventions	ES minimum	ES maximum
Content: knowledge and skills		
Prewriting activities	0.13	0.54
Writing strategies	0.69	**1.26**
General writing strategy instruction	0.56	**0.89**
SRSD instruction *)	**1.14**	**1.75**
Summarizing		**0.82**
Revising	0.19	0.58
Transcription skills (spelling, handwriting)	0.19	**0.84**
Grammar skills	-0.41	-0.17
Vocabulary		0.78
Sentence combining	0.35	0.56
Text structure	0.30	0.76
Creativity/imagery	0.70	0.76
Instructional approach		
Process oriented instruction	-0.25	0.43
Teacher centred instruction		0.02
Interactive instruction		0.44
Individual instruction		0.17
Extra time for writing	0.24	0.30
Free writing		0.16
Assigning process or product goals	0.70	**2.03**
Inquiry / data analysis	0.32	0.56
Emulating models	0.22	0.40
Collaborative writing	0.59	**0.89**
Dictating to teacher, peer or recorder		0.55
Procedural facilitation	0.24	**0.86**
Writing assessment		
Feedback	0.42	**0.88**
Goal directed feedback		0.74
Adult feedback	0.76	**0.87**
Positive feedback		0.43
Negative feedback		-0.20
Peer feedback	0.21	0.77
Computer feedback	0.34	0.38
Self-assessment	0.46	0.62
Use of assessment instruments		
Scales		0.36
6+1 Traits **)	0.05	0.43
Teacher monitoring students´ progress	0.18	0.24

Media / computer environment		
Pen and paper		0.48
Word processing	0.27	0.64
Word processing plus instructional support	0.20	**1.46**
*Writing-to-learn ***)*		
Writing to support learning	0.17	0.29
Metacognitive prompts		0.26
Duration of intervention		0.23
*Writing-to-read ****)*		
Writing to support reading	0.37	0.65
Writing instruction	0.18	0.27
Extra writing	0.30	0.35
Spelling instruction		0.68
Writing task in response to reading		
Answering questions	0.27	0.28
Making notes	0.45	0.47
Summary / synthesis writing	0.52	0.53
Extended writing	0.68	0.77

*) SRSD refers to Self-Regulated Strategy Development. This is a specific form of strategy instruction, developed by Karen Harris and colleagues (see for example Harris et al., 2006).
**) In the 6 (+1) Traits Writing Model students are asked to judge their own text or those of others on seven traits: ideas, structure, voice, vocabulary, sentence construction, conventions and presentation (Graham & Harris, 2018).
***) Writing-to-learn studies evaluated the effects of writing on content learning.
****) Writing-to-read studies focused on the effect of writing on reading comprehension.

3.2.1   Writing strategy instruction

In this approach students learn how to plan, draft, write, revise and/or edit texts, by following more or less fixed steps, which are often provided as a mnemonic, such as POW: Pick my ideas, Organize my notes, Write and say more (Harris et al., 2006). A writing strategy can be general in nature, applicable to all kinds of texts, or a genre-specific strategy, for instance, a strategy for writing an opinion essay. The strategies are taught in recursive phases:
- activating prior knowledge about writing (in a genre);
- direct, explicit instruction: explanation of the various steps of the strategy;
- supporting memorization of the strategy through the use of mnemonics;
- teacher modelling of the strategy;
- practicing with support of materials, the teacher and/or peers; and
- practicing independently, with little support.

A strategy approach that was found to be particularly effective is Self-Regulated Strategy Development (SRSD), a program developed by Karen Harris and colleagues (Harris et al., 2006). In this approach students are not only taught a writing strategy, but also self-regulation skills, such as goal setting, self-monitoring, and self-reinforcement. According to several meta-analyses (Graham & Perin, 2007a, 2007b;

Graham et al., 2012; Graham et al., 2016), adding such a self-regulation component can result in better writing than strategy instruction without it.

Strategy instruction was found to be effective across all primary grades, and for normally developing writers as well as for struggling writers. However, Koster et al. (2015) found that students in Grade 6 benefitted more from strategy instruction than students in lower grades.

3.2.2   Assigning process or product goals

One explanation for the large effects of strategy instruction might be the inclusion of assigning goals for writing and learning, which itself was found to be an effective approach, given the medium to large effects found in meta-analyses. In this approach students are encouraged to strive for specific product or process goals when writing a text. Examples of product goals are: '*persuade your reader*' or '*provide three arguments*'. Process goals encourage students to use a certain technique or to follow certain steps when writing. Assigning goals that are clear and specific ('*provide three arguments*') appears to lead to better texts than providing more general goals ('*do your best*') (Schunk & Swartz, 1993; see Koster et al., 2015).

3.2.3   Collaborative writing

Medium to large effects on text quality were also found for approaches in which students work together in pairs or small groups, and help each other to plan, draft and/or revise their texts. This approach is effective, provided that the collaboration is well structured and has a specific goal. In their meta-analysis Koster et al. (2015) found that peer collaboration in combination with a more focused intervention, such as teaching genre knowledge or sentence combining, was more effective than collaboration alone.

3.2.4   Feedback

Providing feedback to students may help them improve their first draft and produce a better text. This feedback can take many different forms: teacher or peer feedback, global or detailed, process oriented or product-oriented feedback, et cetera. A combination of clear goals, teacher feedback and peer feedback may have a large positive effect on text quality, as indicated by Hillocks (1986).

Table 3 suggests that teacher feedback is more effective than peer feedback alone. However, this conclusion might be premature, as Koster et al. (2015) emphasize that few studies have been conducted in the primary grades.

Besides the four approaches mentioned above, other approaches have been found to generate large effects in meta-analyses as well, in particular: teaching transcription skills (spelling, handwriting), word-processing with extra support (e.g. in the

form of graphic organizers) and procedural facilitation (e.g., prompts to reflect on the writing or learning process) (Table 3). However, the findings for these interventions are inconsistent: There is a considerable variability in reported effect sizes between meta-analyses, ranging from small to large effects.

Consistently negative effects on text quality have been found for the teaching of grammar. Andrews et al. (2006), for instance, found little evidence that the teaching of formal grammar is effective. A factor that might be responsible for these negative findings is that grammar is often taught in isolation, that is, separate from writing a text. If explicit attention is paid to applying grammatical knowledge in the context of writing, this might be beneficial to the quality of students' texts (Graham & Perin, 2007a, 2007b).

3.3 Meta-analyses: Conclusion

Meta-analyses of writing intervention studies indicate which approaches to the teaching of writing might—time after time—result in a significant improvement in text quality. As mentioned, above, four approaches appear to be particularly promising: writing strategy instruction, assigning process or product goals, collaborative writing, and feedback.

In these four approaches we discern various components of Graham's *Writer(s) within Community Model of Writing*, which we discussed in the previous section. *Learning by observing*, for instance, is often part of writing strategy instruction: students observe the teacher or a peer who models the strategy while thinking aloud. *Learning through deliberate agency* can also be seen in strategy-oriented approaches, especially if attention is being paid to the learning of self-regulation skills (SRSD). Assigning clear goals and providing motivating, goal directed feedback also fit well in strategy instruction, in particular if the feedback is not limited to the quality of the text, but is also directed at the strategy that is used. *Learning from others* is reflected in collaborative writing and (peer) feedback. These approaches are not necessarily linked to writing strategy instruction, although collaborative writing is often applied as a temporary tool, to facilitate content learning (i.e. learning of the strategy).

Most studies of effective writing education by far have been conducted in the United States. The question arises to what extent the findings reported in meta-analyses are generalizable to the Dutch educational context. As Graham and Rijlaarsdam (2016) noted, there are many differences in writing instruction from one country to the next. There appear to be "(…) *quite different perspectives on the what, why and how writing is taught in particular countries*" (Graham & Rijlaarsdam, 2016, p. 2). What works in one country, may not work in another country, with another cultural background.

Writing strategy instruction, for instance, is rather uncommon in Dutch primary education, as shown by Rietdijk, Van Weijen, Janssen, Van den Bergh, & Rijlaarsdam (2018) in an analysis of teacher interviews and classroom observations. However,

recently two writing programs based on strategy instruction have been developed and tested in Dutch primary schools: *Tekster* (Bouwer & Koster, 2016) and *Better Writing* (Rietdijk, Janssen, Van Weijen, Van den Bergh, & Rijlaarsdam, 2017). In quasi-experimental studies students' writing performance improved significantly after 20 to 40 lessons, with effect sizes ranging from small (0.27) to medium (0.55). These findings indicate that writing strategy instruction can be successfully adapted to and implemented in the Dutch educational context (see Janssen & Van Weijen, 2017 for an analysis of four recent Dutch writing programs).

4.   THE WRITING FRAMEWORK

On the basis of the theoretical models and meta-analyses described above, we constructed a Writing Framework, an overview of theoretical and empirically relevant writing instruction variables which play a role in high-quality writing education, based on earlier research (Graham, 2018; Kyriakides et al., 2009; Merrill, 2002; Van de Grift, 2007, and meta-analyses). The framework consists of three nested main components: *General educational quality*, *General teacher behavior*, and *Domain-specific characteristics* of good writing education, each consisting of multiple sub-components (*n* = 74) (see Figure 3). The characteristics of General Educational Quality (outer ring) form the preconditions for high-quality education, which is facilitated by different types of Teacher behavior (second ring), and whose content is formed by Domain-specific characteristics (core). A detailed description of all the variables included in the Writing Framework is provided in Appendix A.

Figure 3. The Writing Framework: Overview of theoretically and empirically relevant writing education variables
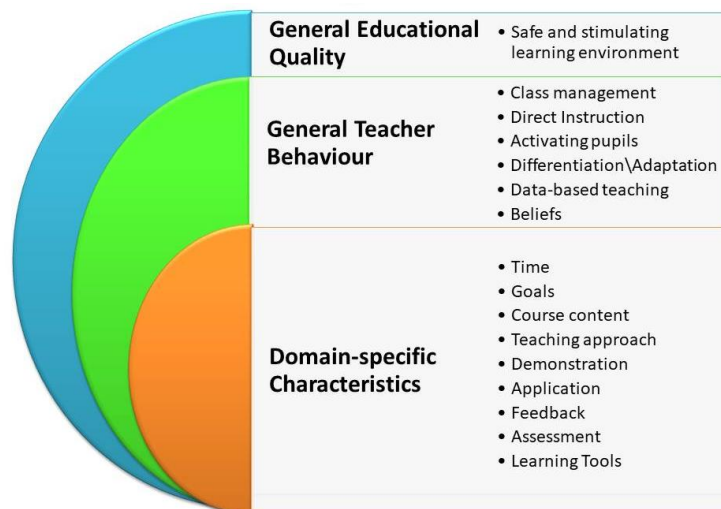
4.1 General Educational Quality

The outer ring of the Writing Framework consists of characteristics of general educational quality (see Figure 3). A safe learning environment is an essential precondition for good quality education, and consists of two components: a safe environment and a stimulating environment (Van der Grift, 2007, p. 130). A safe learning environment is based on healthy relations between both teachers and pupils and pupils with their peers. Creating and maintaining high-quality relations within the classroom is very difficult, takes a lot of effort and is thus something which, according to Kyriakides et al. (2009), only experienced teachers are able to do well. However, if teachers succeed in doing so, this results in greater educational effectiveness (Kyriakides et al., 2009; Van de Grift, 2007).

Furthermore, Van der Grift emphasized that an intellectually stimulating environment is also important. In such an environment, pupils gain self-confidence through teachers' positive expectations, there is a focus on acquiring basic skills and a performance-oriented attitude and there is room for self-regulated learning (Harris et al., 2006; Van der Grift, 2007). Pupils who are able to regulate and monitor their own behavior, in relation to motivational, cognitive, social and academic skills, generally outperform students who are less able to do so (Van de Grift, 2007, p. 132).

4.2 General Teacher Behavior

The middle component of the Writing Framework refers to characteristics of general teacher behavior (see Figure 3). What can teachers do to initiate the learning process, in this case the development of writing skills, and encourage and support it? Based on earlier research we found six characteristics of teacher behavior which are essential for high-quality education in general and high-quality writing instruction as well.

4.2.1   Classroom management

If a teacher is not able to control what happens in the classroom, then teaching and knowledge transfer become very difficult (Kyriakides et al., 2009). More specifically, it is important that lessons are carried out as efficiently as possible, to ensure that little or no time is lost, for example due to problems at the start of the lesson, due to latecomers or due to pupils' restless behavior (Kyriakides et al., 2009; Van de Grift, 2007).

4.2.2   Direct instruction

A second characteristic of effective teacher behavior is the ability to use *direct instruction* as a teaching method. This entails setting clear goals, activating prior knowledge, introducing new content in a stepwise manner, allowing students to

apply knew knowledge and skills through guided practice, and offering explicit instruction (Van de Grift, 2007, p. 133). Three of these components have been explicitly added to the Writing Framework as sub-variables: *goal setting*, *orientation,* and *structuring*.

   Orientation refers to the way in which teachers direct their students' focus at the start of the lesson towards the task at hand. The ability to do this well, at a level suited to the students' ability, is a sign of high-quality education and teaching experience (Kyriakides et al., 2009). For writing instruction, it is important for teachers to encourage students to familiarize themselves with the writing task, to ensure that they have a clear picture of what is expected of them. Furthermore, it is important to clearly distinguish between learning goals and writing goals.

4.2.3   Activating pupils

Activating pupils revolves around actively involving students in class, by activating their *prior knowledge* and stimulating students to use this *accumulated capital* (Graham, 2018) as a basis for learning new content and skills (Merrill, 2002). Furthermore, it is also related to *learning through deliberate agency,* which means teachers should encourage students to make a conscious choice to want to learn (Graham, 2018).

4.2.4   Differentiation/Adaptive instruction

Differentiation is another characteristic of effective teacher behavior and can be used in many ways by teachers in their lessons, for instance by adapting instructions and/or tasks to differences between pupils. Teachers who are able to do so thus increase the performance of their pupils (Kyriakides et al. 2009, Van de Grift, 2007). It is also important to offer students freedom of choice in the classroom to some extent, in the form of self-differentiation, which means pupils are given the opportunity to choose tasks or topics themselves and thus influence their own learning process (Van de Grift, 2007).

4.2.5   Data-based teaching

Schools and teachers who apply *Data-based teaching*, regularly monitor their students' progress and adapt their lessons or teaching based on what their students need to be able to further develop their knowledge and skills. The ability to work this way is a characteristic of good teachers, who regularly wonder whether the learning objectives they set are achieved (Kyriakides et al., 2009). Furthermore, research has shown that the systematic and structural monitoring of students' progress can have a positive influence on their performance (Van de Grift, 2007). That is why it is important to check to what extent schools and teachers actually do this.

4.2.6   Teachers' beliefs

Research has shown that teachers' beliefs about writing and writing instruction can influence their actions in the classroom (see for example Graham, Harris, MacArthur, & Fink, 2002). They can have beliefs about a number of aspects related to writing instruction, such as the value and usefulness of writing/writing instruction; their self-efficacy as writing teachers, problems they experience in relation to writing instruction and their own identities as writers and writing teachers. Given the growing interest in the influence of such beliefs on the quality of education, it is important to determine what (Dutch) teachers' beliefs are. Students' beliefs can also influence their development as writers, but the focus here is on the teachers' perspective, so these were not included in the Writing Framework. For a discussion on the role of students' beliefs about writing, see Graham (2018, p. 23-26).

4.3 Domain-specific variables

The core of the Writing Framework is formed by domain-specific characteristics of high-quality writing instruction (see Figure 3). Based on the theoretical models and findings from the meta-analyses, we selected nine main variables, each consisting of several sub-variables, which will be described briefly below (see Appendix A for more details).

4.3.1   Time

It is essential that enough time be made available to enable students to learn how to write and more importantly that the time invested is well spent (Van de Grift, 2007; Kyriakides et al., 2009). Sufficient time should not only be made available for writing instruction, but also for students to practice applying new knowledge and skills. The Dutch inspectorate proposed a bare minimum of two writing lessons per month in sixth grade (Henkens, 2010), but advises investing more time in teaching students to write, including giving students time to finish texts that they are writing. This minimum of 2 writing lessons per month may seem surprising, given the recommendation in the Practice Guide by Graham et al. (2012) that teachers should devote an hour per day to writing. We think this might be due to the fact that the Practice Guide includes all types of writing in its recommendation, including writing in other subjects or across the curriculum, while the Dutch Inspectorate based its recommendation only on writing as part of the language learning curriculum. Any writing done for other subjects or across the curriculum is seen as a valuable addition to this minimum requirement.

4.3.2   Task goals

The inventory of previous meta-analyses of effective writing instruction revealed that goal setting is one of the most effective approaches for improving writing skills. In addition to clear learning objectives per lesson (see general teacher behavior, Van de Grift, 2007), it is also important to set clear goals for each writing task (Graham, 2018). A distinction is often made between *process goals*, which include strategies for students to apply while writing, and product goals, which are goals related to the quantity or quality of the writing task (e.g. *'provide three arguments'*) (Koster et al., 2015).

   Task goals can also be related to writing to learn and writing to read. Writing can help students increase their subject-specific content knowledge and improve their critical thinking (Klein & Boscolo, 2016). Furthermore, it can also have a positive influence on students' reading skills, because when students learn to write, their text comprehension skills, reading speed, and technical reading skills all improve (Graham & Hebert, 2011, p. 710).

4.3.3   Course content: Knowledge and skills

Course content concerns the knowledge and skills that students need to be able to write well. Skills that can help students become better writers include learning about *prewriting activities* and *writing strategies*. *Prewriting activities* are activities that writers carry out prior to and in preparation for the writing process, such as ways to find information to write about (e.g. brainstorming, observing, reading external sources) and ways to organize the information found (e.g. mind mapping or planning). *Writing strategies* can be *general strategies* which can be used for many different writing tasks (see Bouwer & Koster, 2016) or *genre specific strategies* which apply to a specific type of text, e.g. narratives or persuasive texts (see Rietdijk et. al., 2017). In all, 14 types of course content knowledge and skills were included in the Writing Framework, including *Summarizing, Revising, Spelling, Grammar, Vocabulary, Style, Text structure,* and *Creativity*. These were chosen because various meta-analyses on writing indicated that they have a positive effect on writing and/or writing instruction, except for a *focus on traditional grammar*, which seems to have a negative effect.

4.3.4   Teaching approach

Two different teaching approaches were included in the Writing Framework, based on earlier research; the communicative approach and the process-oriented approach. The *communicative approach* is based on the use of authentic communicative tasks with a clear goal, for example solving a communicative/rhetorical problem, for real readers instead of the teacher. The use of authentic tasks can have a positive effect on writers' reader awareness and on the quality of their texts (Rijlaarsdam et

al., 2009). It is also related to the use of problem-oriented tasks (Merrill, 2002), in which learning is stimulated by challenging students to solve real world problems (principle 1). In the *process-oriented approach*, explicit attention is paid to the different phases of the writing process: planning, formulating and revising. It helps students become aware of these phases and how they alternate, so that they can deal with them as effectively as possible while writing. Students' awareness can be increased by reflecting on the process during and after writing (see Merrill, 2002, p. 50).

4.3.5   Demonstration

Demonstration, which includes modelling, is an effective technique for helping students learn to write, by providing students with a clear idea of how the task should be carried out (see Merrill, 2002, p. 47) and by offers students the opportunity to learn to write by observing others, instead of having to write themselves (Graham, 2018). This may involve observing experienced or inexperienced writers, teachers or fellow pupils, and writers or readers. Alternatively, students can also learn about text structure and other text features by reading and analysing good and weak model texts. The effectiveness of modelling depends to some extent on whether students actually notice the right things while observing and how they process, internalize and then apply this input (see Graham, 2018, p. 44). Finally, it is important to note that modelling is more difficult than it seems, which is why the ability to do it well is a characteristic of experienced teachers (Kyriakides et al., 2009).

4.3.6   Application

"Learning is promoted when learners are required to use their new knowledge or skills to solve problems" (Merrill, 2002, 4th Principle; see also Kyriakides et al., 2009, and Graham, 2018). According to Graham (2018) there are different ways in which students can learn to write, most obviously by writing a lot. Practice, or application, therefore forms the core of the domain-specific characteristics of the Writing Framework. It is important, however, that practicing writing is embedded in a meaningful context and is done under the right conditions. This includes offering students *different types of tasks or genres* to practice with, such as instructive, persuasive or informative texts. Teachers can stimulate students' writing development through *learning by doing*, by learning from their previous experiences, or by expanding their knowledge.

Teachers can encourage *learning from others* while learning to write in different ways by acting as a mentor, by applying modelling during their lessons (see above) or by giving students the opportunity to learn from each other, through peer mentoring or *collaborative writing* (Graham, 2018). This can involve collaborating on planning, formulating or revising, giving each other feedback on a first draft of the text (see feedback, below) or by assessing each other's work (Graham, 2018, Koster

et al., 2015). Teachers can also help students learn how to write by *gradually decreasing guidance*, feedback and coaching that is gradually phased out (Merrill, 2002, p. 49, principles 3 & 4). This increases students' independence step-by-step when performing a (writing) task.

Finally, Merrill (2002) emphasized that after practicing, students should be encouraged to transfer what they have learned to other contexts. This can be done in several ways, including presenting one's own work to others (*'look at me'*), reflecting on the learning or writing process (see process approach above), or by writing (creating) new texts, in which students learn new knowledge, and/or apply their new skills in new situations. Modelling and collaboration (peer work) can also help facilitate this (Kyriakides et al., 2009).

4.3.7   Feedback

The comparison of the different meta-analyses of research into effective writing education clearly showed that feedback forms an essential component of high-quality writing education. That is why it is also included in the Writing Framework. However, it is important that positive and targeted feedback is provided, with clear goals. Feedback can be received from different agents or sources (teachers, peers, computers), with different roles (reader, co-author), with different goals, and at different moments during the writing process (e.g. during writing, after completion of the first draft, only on one aspect of the assignment, etc.) (see Graham, 2018).

4.3.8   Text quality assessment

Assessment, just like feedback, is an essential component of the Writing Framework. Assessing text quality is a difficult but also very important component of writing education. The quality of students' texts must be assessed to facilitate students' reflection on their writing processes (Merrill, 2002, 5th principle) and to enable teachers to adapt their lessons in the context of data-based teaching (Van de Grift, 2007, see above). Assessment can be done by teachers, but also by peers, using online assessment tools or through self-assessment. Furthermore, assessments can be carried out using different instruments, depending on the function and its purpose (formative or summative). One method which usually tends to work well is the use of rating scales, where texts are compared with better or poorer quality example texts on a scale.

Assessment can also be done using a standardized periodic assessment of writing skills, which can have both a positive and a negative influence on how writing is taught in schools (Graham, 2018). Periodic assessment can ensure writing obtains a more central place in the curriculum, and thus positively influence the way in which teachers teach writing in their classrooms, or it can result in a negative focus on writing and result in teaching to the test (see Graham, 2018).

4.3.9   Learning tools/Media

The last domain-specific characteristic included in the Writing Framework is the use of Learning tools or Media, which can have considerable influence on the writing process (Graham, 2018). For example, writing on the computer logically differs from pen and paper and the chosen medium also influences the number of readers that can be reached with it. Furthermore, writing with the aid of a word processor can also have a positive effect on the quality of the written texts if use is made of online support (for instance using prompts or a graphic organizer).

5.   INSTRUMENTS FOR ASSESSING WRITING INSTRUCTION

The Writing Framework can be used as a starting point for the development of instruments for writing assessments in primary schools. Instrument construction can be a daunting and challenging task, and it is thus advisable to reuse or adapt instruments which have been successfully used for similar purposes in earlier research, as this increases the chance that the instruments will be valid and reliable. To facilitate the use of existing instruments in future writing assessment studies, we examined which of the variables included in the Writing Framework have already been operationalized and which ones were lacking in earlier assessment studies. We did this by selecting a number of earlier studies and investigated whether they included questionnaires, classroom observation instruments, and other useful tools, and analysed their content using the Writing Framework.

We examined the instruments used in 14 different studies. We started by examining the instruments used in the most recent Dutch periodic writing assessments (Krom et al., 2004; Kuhlemeier et al., 2013) and instruments that were used in recent Dutch and Flemish research into writing in elementary education (De Smedt et al., 2016; Franssen & Aarnoutse, 2003; Henkens, 2010; Rietdijk et al., 2018). We supplemented this group of studies with instruments from studies used as a theoretical basis for the Writing Framework (Kyriakides et al., 2009; Van de Grift, 2007) and with questionnaires developed by Steve Graham's research group (Cutler & Graham, 2008; Gilbert & Graham, 2010; Graham et al., 2002; Graham et al., 2003). Finally, we included an observation instrument (Coker et al., 2016) and a questionnaire study (Dockrell et al., 2016) from recent studies in primary education. An overview of the studies and their instruments is provided in Table 4. Finally, we determined to what extent the questions included in the different instruments matched the 74 variables included in the Writing Framework.

Table 4. Overview of research instruments for writing instruction assessment analysed using the Writing Framework

Study	Type of instrument(s)	Grades	Geographical Context	Focus
Coker et al. (2016)	Observation instrument	1	United States	Writing instruction in grade 1, mainly teacher behavior
Cutler & Graham (2008)	Questionnaire	1 – 3	United States	Teacher behavior in writing instruction in grades 1 – 3
De Smedt et al. (2016)	Multiple Questionnaires	5 & 6	Flanders (Belgium)	Writing instruction in grades 5 & 6: 3 teacher questionnaires used to measure: attitudes for writing instruction; self-efficacy for writing instruction; and a writing questionnaire based on Cutler & Graham (2008). They also included 2 student questionnaires, which were excluded from this analysis.
Dockrell et al. (2016)	Questionnaire	1 – 6	United Kingdom	Teacher behavior in writing instruction in primary education
Franssen & Aarnoutse (2003)	Observation instrument	4 & 5	The Netherlands	Teacher behavior in writing instruction in grades 4 & 5
Gilbert & Graham (2010)	Questionnaire	4 – 6	United States	Teacher behavior in writing instruction in grades 4 – 6
Graham et al. (2002)	Multiple Questionnaires	1 – 3	United States	Questionnaire about teachers' beliefs about writing and writing instruction, and a brief survey on teaching practices during writing lessons.
Graham et al. (2003)	Multiple Questionnaires	1 – 3 (special needs)	United States	Three questionnaires on: (1) teaching practices & teaching special needs students, (2) teachers' beliefs about writing and writing instruction, and (3) teachers' self-efficacy for writing instruction (not obtained so not included in the analysis).
Van de Grift (2007)	Observation instrument	Kindergarten – 6	Multiple countries (including The Netherlands)	General teaching quality: mainly teacher behavior.
Henkens (2010)	Multiple observation instruments	3 – 6	The Netherlands	Evaluation instrument with 5 components for grades 3 – 6, two of which were turned into classroom observation instruments.
Krom et al. (2004)	Multiple Questionnaires	4 – 6	The Netherlands	Questionnaires per group on teacher behavior
Kuhlemeier et al. (2013)	Multiple Questionnaires	4 – 6	The Netherlands	Questionnaires per group on teacher behavior
Kyriakides et al. (2009)	Multiple observation instruments	5	Cyprus	General teaching quality: mainly teacher behavior. Tested for grade 5, but suitable for broader use.

Rietdijk et al. (2018)	Multiple instruments including observation instruments and questionnaires	4 – 6	The Nether-lands	Writing instruction and teaching in grades 4 – 6. Classroom observation instrument; Teacher logbooks; questionnaires on: teachers' beliefs about writing and writing instruction; self-efficacy; teachers' actions during writing lessons; time-on-task obser-vations; teacher interview

The results of the instrument analysis revealed that each variable in the Writing Framework is covered, on average, by questions from 4 or 5 instruments, although some variables are covered by almost all instruments or by none at all. Below is a brief discussion of the most striking results. The only variable covered by all 14 in-struments is a sub-variable of differentiation: *Tailoring instruction to differences be-tween students*. Other well covered variables include those related to students writ-ing together, attention to handwriting and spelling, offering general writing strate-gies, attention to planning and reviewing, and offering different types of tasks.

Coverage of the four most effective practices of writing instruction varies. Two practices, the *use of strategies* and *collaborative writing*, are well covered by the instruments, but the coverage of *goal setting* varies greatly. *Product and process goals* are included in a number of instruments, but writing to learn or to read are barely questioned. The same applies to giving feedback. The most common forms, teacher and peer feedback, are reasonably well covered, but we found hardly any questions about feedback goals, online feedback or reader feedback. Other aspects which are barely covered by the instruments, or not at all, have to do with offering an *intellectually challenging learning environment*, *demonstrating* (peer modelling or observing readers) and *activating students* (learning on the basis of previous ex-periences and/or deliberate agency). Furthermore, we found few or no questions related to *style*, *learning by doing*, *learning through integration*, *decreased guidance*, and the *use of inquiry learning*.

Overall, the coverage for the three main aspects of the Writing Framework in existing instruments is reasonable. For the first main aspect *General educational quality*, coverage is good, except for *offering an intellectually challenging learning environment*. For the variables associated with *general teacher behavior*, the second aspect, coverage is moderate, except for *differentiation*, for which the coverage is good. For the third aspect, *Domain-specific characteristics*, coverage varies between variables. Some variables, such as *collaborative writing* and *strategy instruction*, are well covered while others, such as *online assessment methods* or *activating students* are not covered at all.

6.   CONCLUSIONS

This literature review was carried out to determine which general teaching variables and domain-specific variables contribute to high-quality writing instruction, and could be incorporated in nationwide assessment instruments, such as teacher

questionnaires and classroom observation instruments. Based on theoretical and empirical studies on writing education, we proposed a framework of variables which appear to be relevant, in the sense that they have been found to be characteristic of high-quality writing instruction. The Writing Framework we presented in this study contains the most important characteristics of effective writing instruction found in the literature. The content of the outer two components, general quality of education and general teacher behavior, was mainly based on the different theoretical models of high-quality education we analysed, while the content of the domain-specific characteristics component was mainly based on Graham's (2018) model and findings from the meta-analyses we studied.

When constructing a framework such as this one, for a construct as complex as writing instruction, it can be almost impossible to avoid some overlap and interdependence between the factors or elements included in the framework. In some cases, factors, such as time management and classroom management might be interdependent to some extent, which makes it hard to distinguish between them. Similarly, as emphasized by Kyriakides et al. (2009), the way in which certain processes are carried out in terms of quality is often more important than how often a process is carried out. Thus, frequency of occurrence of certain activities cannot be taken as a measure of their quality. We have done our best to explain potential overlap and/or relations between elements in the framework where possible.

As a last step, we investigated which variables from the Writing Framework have already been operationalized in existing research instruments and which variables are missing. The coverage for the three main aspects of the writing framework was generally satisfactory. For the first main aspect *General educational quality*, coverage was good, except for *offering an intellectually challenging learning environment*. For the variables associated with *general teacher behavior*, the second aspect, coverage is moderate, except for *differentiation*, for which the coverage was good. For the third aspect, *Domain-specific characteristics*, coverage varied between variables. Some variables, such as *collaborative writing* and *strategy instruction*, were well covered while others, such as *online assessment methods* or *activating students* were not covered at all.

Given the large number of variables included in the Writing Framework, it is almost inevitable that in future writing assessment studies choices must be made with regard to what one wishes to measure. The Writing Framework and the instrument analysis can serve as a guide for making evidence-based choices. When choosing which variables one wishes to measure, for example in a survey, the final choice of variables will not only be influenced by theoretical considerations, but also by more pragmatic ones. For example, in order to determine how writing instruction and students' writing ability have developed since the previous periodic assessment, some instruments or questions from those earlier assessments will have to be included to make comparisons possible. In addition, as mentioned above, conclusions about the quality of execution of certain activities cannot be drawn merely based on the frequency with which they are observed in the classroom.

Furthermore, research has shown that some general characteristics of high-quality education are already reasonably well integrated in Dutch primary education. This applies, for example, to a safe learning environment, good class management and activating students: teachers generally do this quite well (Rietdijk et al., 2017; Van de Grift, 2007). This might be a reason for excluding the evaluation of such basic skills from future assessment studies.

Similarly, there are other very effective approaches to writing instruction, which are rarely applied in the practice of Dutch primary education, such as writing strategy instruction with or without instruction in self-regulation skills or SRSD. These approaches may be difficult to communicate to teachers, because they do not have a clear idea of what such approaches entail. This can be a consideration for not including such an approach in future assessment studies in a specific context, at least not in a teacher questionnaire.

Overall, the Writing Framework can be a useful tool for the development of instruments for writing assessments in primary schools. In addition, since it provides a state-of-the-art description of what we know about high-quality writing education, it may also be a valuable source for others, such as writing researchers, curriculum designers, and practitioners.

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APPENDIX A: THE WRITING FRAMEWORK

The Writing Framework, including sub-variables and sources

General Educational Quality

The outer ring of the Writing Framework consists of characteristics of general educational quality (see Figure 3). A good learning environment is an essential precondition for high-quality education, and consists of two components: a safe environment and a stimulating environment (Van der Grift, 2007, p. 130).

Teaching process variables	*Sub-variables*	*Description and sources*
Safe and stimulating learning environment	High-quality teacher-student relations	A safe learning environment is based on healthy relations between both teachers and students and pupils with their peers. Creating and maintaining high-quality relations within the classroom is very difficult, takes a lot of effort and is thus something which, according to Kyriakides et al. (2009) only experienced teachers are able to do well. However, if teachers succeed in doing so, this results in greater educational effectiveness (Kyriakides et al., 2009; Van de Grift, 2007).
	High-quality student-peer relations	
	Intellectually stimulating teaching environment	In such an environment: - Students gain self-confidence through teachers' positive expectations; - there is a focus on acquiring basic skills and a performance-oriented attitude; and - there is room for self-regulated learning (Van de Grift, 2007). Students who are able to regulate and monitor their own behavior, in relation to motivational, cognitive, social and academic skills, generally outperform students who are less able to do so (Van de Grift, 2007, p. 132).

General Teacher Behavior

The middle component of the Writing Framework contains the characteristics of general teacher be-havior. What can teachers do to initiate the learning process, in this case the development of writing skills, and encourage and support it? In addition to 6 characteristics of teacher behavior (see below), Kyriakides et al. (2009) proposed that it is also important to distinguish between 5 dimensions when observing different aspects of teachers' behavior in the classroom:

- <u>Frequency</u>: does the desired behavior occur, and if so, how often?
- <u>Focus</u>: what is the behavioral goal and is it effective?
- <u>Stage</u>: at what stage in the learning process does the behavior occur?
- <u>Quality</u>: is the behavior of sufficient quality?
- <u>Differentiation</u>: does the teacher adapt his/her behavior and actions to different stu-dents?

Of these five dimensions, the last two related to the quality of teachers' behavior and their ability to differentiate are most important, as these are clear indications of effective teaching which are most often shown by experienced and effective teachers (Kyriakides et al., 2009). Therefore, these two dimensions should definitely be taken into account when observing writing instruction practices.

Teaching process variables	Sub-variables	Description and sources
Classroom management	Efficient lesson organization	If a teacher is not able to control what hap-pens in the classroom then teaching and knowledge transfer become very difficult (Kyriakides et al., 2009). More specifically, it is important that lessons are carried out as efficiently as possible, to ensure that little or no time is lost, for example due to problems at the start of the lesson due to latecomers or due to students' restless behavior (Kyria-kides et al., 2009; Van de Grift, 2007).
Direct Instruction	A second characteristic of effective teacher behavior is the ability to use *direct instruction* as a teaching method. According to Van de Grift this entails: *"… beginning the lesson with a short statement of goals, reviewing previous learning, presenting new material in small steps, allowing pupils practice time after each step, giving clear and detailed instructions/explanations, providing active and ample practice, asking questions, checking for under-standing and obtaining responses from all pupils, providing guided practice and explicit instruction"* (Van de Grift, 2007, p. 133). Three of these compo-nents have been explicitly added to the Writing Framework as sub-variables: *goal setting*, *orientation* and *structuring*.	
	Set clear learning goals	It is important to set clear learning goals for every lesson (Van de Grift, 2007).
	Orientation	Orientation refers to the way in which teachers direct their students' focus at the start of the lesson towards the task at hand. The ability to do this well, at a level suited to the students' ability is a sign of high-quality education and teaching experience (Kyriaki-des et al., 2009). For writing instruction, it is important for teachers to encourage stu-dents to familiarize themselves with the writing task, to ensure that they have a clear picture of what is expected of them.

		Furthermore, it is important to clearly distinguish between learning goals and writing goals.
	Structuring	It is important to provide well-structured lessons (Kyriakides et al., 2009; Van de Grift, 2007).
Activating students	Activation (Activating students)	Activating teaching is all about actively involving students in class, but also ensuring that students understand what happens during the lesson. This can be done, for example, by activating their general *prior knowledge* on the subject (Merrill, 2002; Van de Grift, 2007).
	Activating prior knowledge	
	Stimulating learning by building on prior knowledge and experience	According to Merrill (2002), it is also important to encourage students to *build on their previous knowledge and experiences*. He makes a distinction between activating content knowledge (see above) and previous experiences that are relevant to the new (writing) task. According to Merrill, learning is promoted when learners: "*are directed to recall, relate, describe, or apply knowledge from relevant past experience that can be used as a foundation for the new knowledge* " (Merrill, 2002, p. 46). In the case of writing, the development that a writer goes through can act as an incentive to develop oneself further; if you notice that writing is getting easier, it motivates you to spend even more time and energy on it. It is therefore about making students aware of their performance (especially successful experiences) so that they can see that they are making progress (Graham, 2018, *Learning through accumulated capital*). This is also in line with data-based teaching (see below). Teachers who understand how their students develop can more easily point them towards previous successful experiences to build on.
	Stimulating learning through deliberate agency.	This means that the teacher tries to encourage students to make a conscious choice to increase their skills, to apply what they have learned, and to develop new ideas and insights about writing. This has to do with student motivation, and can be achieved by activating (see above) and by showing students what the usefulness is of what they are being taught (Graham, 2018).
Differentiation / Adaptation	Tailoring instruction to differences between students	*Differentiation*, or the provision and organization of adaptive education, is a characteristic of effective teacher behavior and can be used in many ways by teachers in their

Tailoring teaching materials (tasks) to differences between students	lessons, mainly by adapting instructions and /or tasks to differences between students. Teachers who are able to do so thus increase the performance of their students (Kyriakides et al. 2009, Van de Grift, 2007). Although differentiation was also mentioned by Kyriakides et al. as a general characteristic to be taken into account in all observations (see above), this is such an important element that it is also included here as a characteristic of teacher behavior.
Self-differentiation / Freedom of choice	This can be seen as a form of self-regulation, in which students are given the opportunity to choose tasks or topics themselves to transfer and /or get the chance to shape or fill in (part of) their learning process themselves (Van de Grift, 2007).

Data-based teaching	The aim of *Data-based teaching* is that "... *schools and teachers regularly determine the progress of their pupils and use their outcomes in the design of subsequent educational activities*" (Blok, Ledoux & Roeleveld, 2013, p.7). This involves several components: *evaluating lessons*, *monitoring student progress*, and *adjusting future lessons* based on those outcomes.
Evaluating lessons: learning goals achieved?	Good teachers regularly wonder whether the learning objectives they set are also achieved. They evaluate their lessons to determine whether their students are learning during the lesson, if so what they learn, and to what extent learning takes place (Kyriakides et al., 2009). Depending on the outcomes, they determine whether the lessons need to be adjusted in the future, and what their students need to be able to further develop (see adjusting lessons based on evaluation results, below).
Monitoring students' progress	Research has shown that the systematic and structural monitoring of students' progress can have a positive influence on their performance (Van de Grift, 2007). That is why it is important to check whether this also happens to a sufficient degree in Dutch primary schools. This is also in line with the requirement that each students' level of achievement at the end of primary school must be compared with the reference levels for Language and Mathematics (Meijerink et al., 2009). This check can only be done well if there is insight into how a student has progressed in the preceding months, and such progress cannot be determined sufficiently on the basis of a single writing task at the end of the school year.

	Adjusting lessons based on evaluation results	Good teachers regularly evaluate whether their lessons were successful (see evaluating lessons, above). Based on that evaluation, they then determine whether the lessons have to be adjusted in future and what their students need to be able to further improve.
Teachers' Beliefs	Specific beliefs about writing/writing instruction	The beliefs that teachers have about writing and writing instruction can influence their actions in the classroom (see for example Graham, Harris, MacArthur & Fink, 2002). This includes, for example, opinions they have about: 1. the value and usefulness of writing/writing instruction; 2. their ability as a writing teacher (self-efficacy); 3. why they feel that they can or cannot teach successful writing lessons; 4. their identity as a writing teacher. Given the growing interest in the influence of such beliefs on the quality of education, it is important to find out what (Dutch) teachers' beliefs are. For a discussion on the role of students' beliefs about writing, see Graham (2018, p. 23-26).

Domain specific characteristics of high-quality writing instruction

The core of the Writing Framework is formed by domain-specific characteristics of good quality writing education. This section contains nine main variables, each consisting of several sub-variables.

Teaching process variables	*Sub-variables*	*Description and sources*
Time	Spend enough time on instruction	The amount of time devoted to education is "*a prerequisite for education*" (Kyriakides et al., 2009) and "*a good predictor of educational effectiveness*" (Van de Grift, 2007). Therefore, sufficient time should not only
	Spend enough time on application	be available for learning to write, but it is especially important that this time is well spent (Van de Grift, 2007, Kyriakides et al., 2009, Henkens, 2010).
	Spend enough time on completing own texts	According to the Dutch Inspectorate, two writing lessons per month (including instruction, processing and completing texts) is the absolute minimum (Henkens, 2010). It is also important that sufficient time is spent on instruction, on practice and that students have ample time to finish their texts themselves. This last point in particular seems to be one that is regularly skipped due to lack

		of time. In order to determine whether more time is being spent on writing, it is important to include this aspect in future research.
Task Goals	Setting product & process goals	The inventory of previous meta-analyses of effective writing instruction revealed that goal setting emerged as one of the most effective approaches for improving writing skills.
		In addition to clear learning objectives per lesson (see general teacher behavior, Van de Grift, 2007), it is also important to set clear goals for each writing task (Graham, 2018). A distinction is often made between process and product goals.
		Process goals are techniques or strategies that students use to learn, for example, to learn how to use certain steps/strategies while writing. *Product goals* can be considered goals that have to do with the quantity or quality of the work, for example "*write an X number of paragraphs or words*" (quantitative) or "*convince your reader*" (qualitative) (Schunk & Swartz, 1993).
	Writing to learn	Previous research shows that writing can also contribute to the development of students' subject-specific content knowledge in other subjects, and can help students to think critically and to construct new knowledge (Klein & Boscolo, 2006). In addition, it offers the possibility to increase the amount of time spent practicing writing.
	Writing to read	Writing can also have a positive influence on students' reading skills. Research shows that when students learn to write, their text comprehension skills, reading speed and technical reading skills all improve (Graham & Hebert, 2011, p. 710).
		In addition, *writing to read*, writing about a text that was read, should "*facilitate comprehending it, as it provides students with a tool for visibly and permanently recording, connecting, analyzing, personalizing, and manipulating key ideas in text*" (Graham & Hebert, 2011, p. 712). This involves different types of tasks, such as answer questions about texts that were read, taking notes, summarizing and writing longer texts (extended writing) in response to texts that were read.
Course content: knowledge and skills	*Course content* concerns the knowledge and skills that students need to be able to write well. The 14 aspects below are included in the Writing Framework because various meta-analyses on writing indicated that they have a	

positive effect on writing and /or writing instruction, except for focus on traditional grammar, which seems to have a negative effect.

	Prewriting activities	*Prewriting activities* are activities that writers carry out prior to and in preparation for the writing process. This concerns, for example, activities related to finding content to write about, such as collecting (e.g. external sources, brainstorming, discussing, observing, etc.) and processing (e.g. reading for writing) (see also activating prior knowledge). Another possible activity is the organization of information that was found and ideas about the writing task (for example by mind-mapping, planning, drafting, etc.).
	General writing strategies	The teaching of writing strategies is one of the four didactics that seemed to have the most potential based on the comparison of the meta-analyses. This was also confirmed by research on Tekster and Better Writing: two Dutch strategy-oriented writing programs (Bouwer & Koster, 2016; Rietdijk et al., 2017). Positive effects were found in meta-analyses for instruction in each of these aspects of writing, with the exception of traditional grammar education.
	Genre-specific writing strategies	
	Summarizing	
	Revising	
	Spelling, handwriting, etc.	
	Grammar: traditional	
	Grammar: functional	
	Vocabulary	
	Sentence combining	
	Style	
	Text structure	
	Creativity/Imagination	
	Use of Inquiry/data analysis	
Teaching approach: communicative approach	Use of authentic communicative tasks with a clear purpose	The *communicative approach* is based on the use of authentic communicative tasks with a clear goal, for example solving a communicative/rhetorical problem, for real readers instead of the teacher. Previous research shows that the use of authentic tasks can have a positive effect on how aware writers are of their readers and on the quality of their texts (Rijlaarsdam et al., 2009). This is also related to two of Merrill's (2002) principles: the use of problem-oriented tasks, where learning is

stimulated by challenging students to solve real problems (principle 1), and displaying/presenting new knowledge (principle 5, Integration). See also Better Writing, a recent Dutch writing program based on the communicative approach (Rietdijk et al., 2017).

Teaching approach: process-oriented approach	Focus on phases of the writing process: planning Focus on phases of the writing process: formulating Focus on phases of the writing process: revising Focus on phases of the writing process: reflection on the process/Learning by integrating: reflection	Within the *process-oriented approach*, explicit attention is paid to the different phases of the writing process: planning, formulating and revising. It is important that students become aware of these phases and how they alternate, so that they can deal with them as effectively as possible during writing. This awareness can be stimulated by reflecting on the process during and after writing: "*Learning is promoted when learners can reflect on, discuss, and defend their new knowledge or skill.*" (Merrill, 2002, p. 50).
	Modelling by the teacher (expert model) Modelling by students (peer model)	*Demonstration,* also modelling, has proved effective in two different ways. On the one hand, learning is promoted: "*... when the instruction demonstrates what is to be learned rather than merely telling information about what is to be learned.*" (Merrill, 2002, 3rd principle, p. 47). On the other hand, modelling offers students the opportunity to learn to write by observing others, instead of writing themselves (Graham, 2018; Rijlaarsdam et al., 2009). This may involve observing experienced or inexperienced writers, teachers or fellow students, and writers or readers.
Demonstration	Stimulating learning by observing: observing writers Stimulating learning by observing: observing readers	But whether observational learning succeeds, "*depends on the writer's focusing attention on relevant features of the event observed, retaining in long-term memory the pertinent information, and translating the retained information into successful action when writing.*" (Graham, 2018, p. 311). Modelling is more difficult than it seems. According to Kyriakides et al. (2009), being able to use modelling in the classroom (right stage, focus, good quality) is a characteristic of experienced teacher behavior and effective education. The writing programs Tekster and Better Writing both include modelling of the writing process.

Analysing good and weak model texts	This is an effective approach according to meta-analyses on effective writing education, in which students read and analyse good and weak texts and thus acquire knowledge about text structure and textual characteristics and get an idea of what is expected of them.

"Learning is promoted when learners are required to use their new knowledge or skills to solve problems" (Merrill, 2002, 4th Principle; Kyriakides et al., 2009; Graham, 2018). According to Graham (2018), there are different ways in which students can learn to write. The most obvious way is by writing a lot. Practice therefore forms the core of the domain-specific characteristics of the Writing Framework. It is important, however, that practicing writing is embedded in a meaningful context and is done under the right conditions.

	Offering different types of tasks/genres (suitable for level 1F of the Reference Levels for Language and Maths)	It is important to offer students *different types of tasks and genres* to practice with, preferably in line with level 1F of the Language and Mathematics Frame of Reference (Meijerink et al., 2009). A large number of different tasks and texts are offered in Tekster, while Better Writing focuses on a limited number of text functions, including instructing and amusing.
	Text functions	Instructing (e.g. recipes, instructions or manuals)
		Amusing (e.g. poems, stories etc.)
Application/ Practice (Writing)		Informing (This includes describing (e.g. describing a lost object) and explaining (e.g. giving an explanation about a phenomenon)).
		Convincing/Activating (e.g. a letter to the school principal to ask for an extra day off)
	Use of a specific method or learning materials	It is also important to determine whether teachers use a fixed method/textbook or whether they use self-developed materials.
	Stimulating Learning by doing	Teachers can encourage students to practice writing in three different ways, (1) by participating in a writing community (for example in the classroom), (2) by learning as a consequence of action, so from their previous experiences, or (3) by expanding their knowledge. Writers can expand their knowledge and learn to become beter writers by reading a lot, gaining more content knowledge, or by increasing their vocabulary (see Graham, 2018).
	Stimulating Learning from others (mentor/peers)	Teachers can encourage *learning from others* in different ways by acting as a

		mentor themselves, applying modelling during their lessons (see above) or by giving students the opportunity to learn from each other, by letting one act as a mentor for another, or by letting students write together (see below) (Graham, 2018).
	Practicing together (collaborative writing/peer assistance)	Collaborative writing / peer assistance appears to have a positive effect on text quality. This may involve collaborating on planning, formulating or revising, giving each other feedback on a first draft of the text (see feedback, below) or by assessing each other's work (Graham, 2018, Koster et al., 2015).
	Gradually moving to independent practice	*Gradually moving to independent practice* can also play an important role in practicing writing. According to Merrill (2002), learning is promoted when students receive appropriate guidance, feedback and coaching that is gradually phased out (Merrill, 2002, p. 49, principles 3 & 4). This increases students' independence step-by-step when performing a (writing) task.
	Stimulating Learning by integrating: presenting	According to Merrill (2002), learning is also facilitated by encouraging students to integrate their "... *new knowledge or skill into their everyday life*" (Merrill, 2002, p.50, 5th principle). This can be done in several ways, including presenting one's own work to others (look at me), reflecting on the learning or writing process (see process approach above), or by writing (creating) new texts, in which students learn their new knowledge, and/or apply skills in new situations. Modelling and collaboration (peer work) can also help facilitate this (Kyriakides et al., 2009).
	Stimulating Learning by integrating: creating	
Feedback	Targeted feedback: clear goals	The comparison of the different meta-analyses of research into effective writing education clearly showed that *feedback* is an essential part of high-quality writing education. That is why it is also included in the Writing Framework. However, it is important that positive and targeted feedback is provided, with clear goals. Feedback can be given by different agents (teachers, peers, computers), with different roles (reader, co-author), with different goals, and at different moments during the writing process (e.g. during writing, after
	Teacher feedback	
	Peer feedback	
	Online feedback (learning from machines/computers)	
	Reader feedback (test your text)	

		completion of the first draft, only on one aspect of the assignment etc.) (see Graham, 2018).
Text quality assessment	Assessment by the teacher	*Assessment,* just like feedback, is an essential component of the Writing Framework. Assessing text quality is a difficult but also very important component of writing education.
	Peer assessment	To determine students' progress in the development of their writing skills, the quality of their texts must be assessed, formatively or summatively. This can be
	Self-assessment	done, for example, in the context of data-based teaching (Van de Grift, 2007, see above) or as part of reflecting on the learning process (Merrill, 2002, 5th principle). The teacher can assess
	Online assessment (computer)	the quality of students' texts, but this can also be done by classmates, students themselves or using computer programs. Furthermore, assessments can be carried out using different instruments, depending on the function and its purpose (formative or summative).
	Assessment tools	One method which usually tends to work well is the use of rating scales, where texts are compared with better or poorer quality example texts on a scale.
		Assessment can also be done using a standardized periodic assessment of writing skills. The introduction of such a periodic assessment can, according to Graham (2018), have both a positive and a negative influence on how writing is treated in schools. In a positive sense, writing can obtain have a more central place in the curriculum as a result of such periodic assessments, which can give a positive impulse to the way in which teachers teach writing in their classrooms. On the other hand, the writing curriculum can also be restricted in an unintentionally negative way (for example, teaching to the test) (see Graham, 2018).
Learning Tools/Media	Using pen and paper	According to Graham (2018), the influence of media and learning tools on the writing process is considerable. For example, writing on the computer logically differs from pen and paper and the chosen medium also influences the number of readers that can be reached with it. Furthermore, writing

with the aid of a word processor can also have a positive effect on the quality of the written texts if use is made of online support.

Using a word processor

Word processor + additional support