A research synthesis on effective writing instruction in primary education

Fien De Smedt*, Hilde Van Keer

Department of Educational Studies, Ghent University, Dunantlaan 2, 9000 Ghent, Belgium

Abstract

Effective writing skills are considered to be indispensable to participate in contemporary society. Despite its importance, there is considerable concern about writing instruction and the writing skills of primary school children. Based on this research synthesis, we recommend future studies to blend strategy instruction with a structured form of collaborative writing and to investigate its impact on cognitive and non-cognitive outcomes. To maximise writing performances, ICT needs to be integrated with instructional practices combining strategy instruction and collaborative writing. Consequently, writing practices are properly attuned to the twenty-first century for which children are ought to be prepared.

1. Introduction

Effective writing skills are considered to be indispensable to participate and communicate in contemporary society. Therefore, education is found accountable for preparing children to be socially active by giving them high quality writing instruction and by doing so, supporting them to develop essential writing skills. Despite its importance, there is considerable concern about the writing instruction (Zimmerman & Kitsantas, 2007) and the writing skills of primary school children (Graham & Perin, 2007; MacArthur, Graham, & Fitzgerald, 2006b; Rogers & Graham, 2008).

Based on the social cognitive model of writing (Zimmerman & Risemberg, 1997), Graham, Gillespie, and McKeown (2013) define writing as “a goal directed and self-sustained cognitive activity requiring the skillful management of (a) the writing environment; (b) the constraints imposed by the writing topic; (c) the intentions of the writer(s); and (d) the processes, knowledge, and skills involved in composing” (p.4). In this respect, writing
requires high levels of self-regulation (e.g. planning, revision, and composition strategies) (Graham & Harris, 2000; Harris, Graham, MacArthur, Reid, & Mason, 2011; Zimmerman & Risemberg, 1997) as well as low-level transcription skills (e.g. handwriting) (Graham & Harris, 2000). Consequently, research indicates that writing is a complex activity (Flower & Hayes, 1981), involving cognitive, metacognitive, and affective processes (Hidi & Boscolo, 2006) and demanding the mastery of different types of knowledge (Hillocks, 1987). Bruning and Horn (2000) suggest that this complex process creates motivational challenges for writers. Especially novice writers experience cognitive constraints while composing texts (Bereiter & Scardamalia, 1987), therefore planning, revision, and fluent text production processes barely occur (McCutchen, 2006; McCutchen, Teske, & Bankston, 2008).

Previous meta-analyses revealed various effective instructional practices for teaching writing to children (Graham, McKeown, Kiuhara, & Harris, 2012; Rogers & Graham, 2008) and adolescents (Graham & Perin, 2007; Rogers & Graham, 2008). It, therefore, is worthwhile to zoom in on these instructional practices in order to reveal possible gaps in current research and to build bridges between these evidence-based writing practices. In this respect, the present study focuses particularly on strategy instruction, collaborative writing, and the integration of ICT in primary writing education. These instructional practices are not randomly selected, but consciously chosen considering current research trends on writing and taking into account the challenges of twenty-first century communication. Finally, we try to relate the presented instructional practices by offering an integrated perspective.

2. Method

The present research synthesis applied a snowball-technique, taking meta-analyses and handbooks of research on writing as starting points, in order to locate relevant theoretical and empirical research studies. The Handbook of Writing Research (MacArthur, Graham, & Fitzgerald, 2006a) and the Handbook of Research on Writing (Bazerman, 2008) formed our starting point. Additionally, we examined meta-analyses comprising the following topics: (a) effective writing practices (including strategy instruction, collaborative writing, and/or ICT) (Graham et al., 2012; Graham & Perin, 2007; Rogers & Graham, 2008), (b) strategy instruction in particular (Graham, 2006), (c) the use of computers (Goldberg, Russel, & Cook, 2003), and (d) the use of word processing (Bangert-Drowns, 1993). Finally, Web Of Knowledge was consulted in order to take into account recent research studies that are not yet included in the meta-analyses and handbooks of research on writing.

3. Results

3.1. Strategy instruction

Graham (2006) defines strategy instruction as “explicitly and systematically teaching students strategies for planning, revising, and/or editing text” (p. 188). The Self-Regulated Strategy Development model (SRSD) is an influential approach to teach struggling writers strategies for planning, revising, and composing texts (Graham & Harris, 1993; Graham, Harris, & Troia, 2000; Harris, Graham, Mason, & Saddler, 2002).

An extensive body of evidence points to the effectiveness of strategy instruction to optimise writing skills and writing performance of school-age children (See meta-analyses Graham et al., 2012; Graham & Perin, 2007; Rogers & Graham, 2008). Teaching children strategies to plan, write, and revise is effective for different types of students: (a) students with learning disabilities (e.g. De La Paz & Graham, 1997; Sexton, Harris, & Graham, 1998), (b) struggling writers (e.g. Graham, Harris, & Mason, 2005; Harris, Graham, & Mason, 2006), and (c) normal writers (e.g. Brunstein & Glaser, 2011; Torrance, Fidalgo, & Garcia, 2007). In addition, the effect of strategy instruction is significant across different text genres: (a) stories (e.g. Graham & Harris, 1989a; Sawyer, Graham, & Harris, 1992), (b) persuasions (e.g. Graham & Harris, 1989b; Graham, Macarthur, Schwartz, & Pagevoth, 1992), and (c) expository texts (e.g. Torrance et al., 2007). Although the majority of research on
strategy instruction is conducted in upper-primary grades (e.g. Wong, Hoskyn, Jai, Ellis, & Watson, 2008), strategy instruction also seems effective in lower grades (e.g. Lane et al., 2008; Zumbrunn & Bruning, 2013). Further, research indicates that when self-regulation (e.g. goal setting, self-monitoring) is added to strategy instruction, the quality of students’ writing improved (Glaser & Brunstein, 2007; Graham et al., 2005; Harris et al., 2006; Sawyer et al., 1992).

Studies investigating the impact of strategy instruction on motivation are less conclusive and produce mixed results. Motivation comprises different areas and is therefore a broad and complex research field (Wigfield & Eccles, 2002). In comparison with other areas of motivation (e.g. attitude, attribution, …), self-efficacy has received most attention in research on writing (Zimmerman & Kitsantas, 2007). Some studies supply evidence that strategy instruction enhances self-efficacy for writing (e.g. Graham & Harris, 1989a, 1989b), whereas others fail to confirm the impact of strategy instruction on self-efficacy for writing (e.g. Danoff, Harris, & Graham, 1993) or writing motivation (e.g. Harris et al., 2006).

Despite increasing empirical evidence on strategy instruction, teachers barely adopt this evidence-based practice to teach writing (Graham, 2006; Kistner et al., 2010). On the other hand, the process approach to writing is widespread. Although it is not quite clear what the process approach exactly entails (Pritchard & Honeycutt, 2006), Graham and Perin (2007) indicate a number of underlying principles: a supportive writing environment where students engage in cycles of planning, translating, and reviewing while they interact with each other, write for real audiences, and feel responsible for their writing projects. Contrary to the process approach to writing (Graham & Sandmel, 2011), strategy instruction is sometimes erroneously regarded as not in line with constructivist thinking (Graham & Harris, 1997a; Harris & Pressley, 1991). Nevertheless, good strategy instruction can be considered as scaffolded teaching, wherein both teachers and students play an active role in constructing knowledge (Harris & Pressley, 1991; Pressley, Harris, & Marks, 1992). Moreover, meta-analyses reveal that the process approach is effective (Graham & Sandmel, 2011), but compared to strategy instruction not so powerful in teaching children to write (Graham et al., 2012; Graham & Perin, 2007; Rogers & Graham, 2008).

3.2. Collaborative writing

According to the social cultural theory, writing can no longer be seen as a solitary endeavour. Writing is rather conceived as a social activity in which coparticipation and guided instruction are essential (Boscolo, 2008; Englert, 1992; Englert, Mariage, & Dunsmore, 2006; Nolen, 2007; Prior, 2006).

Lowry, Curtis, and Lowry (2004) define collaborative writing as “an iterative and social process that involves a team on a common objective that negotiates, coordinates, and communicates during the creation of a common product” (p.72). Schultz (1997), however, argues for multiple definitions of collaborative writing that reflect a variety of collaboration practices, including working in pairs or groups on individual or joint writings, but also including writing alone for others.

In order to be effective, research indicates that collaborative writing practices have to meet important conditions. Dale (1994) indicates the following factors affecting the success of collaborative writing groups: (a) the group members have to be engaged with each other, the topic, and the writing process, (b) there has to be a certain level of cognitive conflict, so the members need to reach a consensus, and (c) the group members have to trust each other. Finally, a collaborative writing practice has to be structured. The use of different roles (e.g. writer, consultant, editor, reviewer, team leader, facilitator,…) can encourage writers to explore and experience the writing process from different viewpoints and mediating practices can help students to coordinate their collaborative activities (Englert, Berry, & Dunsmore, 2001; Lowry, Curtis, & Lowry, 2004).

Meta-analyses suggest that instructional arrangements, in which students work together and assist each other during the writing process, have a strong impact on the quality of students’ writing (Graham et al., 2012; Graham & Perin, 2007). Quantitative and qualitative studies have operationalised ‘collaborative writing’ in different ways, but results show that various forms of collaborative writing are effective: (a) paired writing (e.g. Nixon & Topping, 2001; Yarrow & Topping, 2001), (b) cross-age peer tutoring (e.g. Paquette, 2009), (c) peer feedback
(e.g. Olson, 1990), (d) peer collaboration (e.g. Daiute & Dalton, 1993), and (e) group discussions (e.g. De Bernardi & Antolini, 2007).

It is important to optimise the writing performance of school-age children, but motivating students to write is of equal importance. Boscolo and Hidi (2007) acknowledge that collaborative writing can have motivational effects on students. Empirical studies indicate that collaborative writing, besides its positive impact on writing performance, significantly influences several non-cognitive aspects such as: (a) motivation (e.g. De Bernardi & Antolini, 2007; Schultz, 1997), (b) self-efficacy (e.g. De Bernardi & Antolini, 2007; Paquette, 2009), (c) attitude towards writing (De Bernardi & Antolini, 2007; Nixon & Topping, 2001), (d) self-perception (e.g. Yarrow & Topping, 2001), (e) enjoyment (e.g. Nixon & Topping, 2001; Paquette, 2009), (f) group interactions (e.g. Daiute & Dalton, 1993), (g) active engagement (e.g. Englert et al., 2001; Schultz, 1997), (h) ownership (e.g. Schultz, 1997), and finally it seems that collaborative writing reduces anxiety to write (e.g. De Bernardi & Antolini, 2007).

Despite the positive influence of collaborative writing practices on cognitive as well as non-cognitive outcomes, it is not commonly used in primary classrooms (Dale, 1994).

3.3. ICT

Neither educational practice, neither educational research can remain blind for the immense impact of ICT on communication and writing processes of children (Cutler & Graham, 2008; MacArthur, 2006). Writing has undertaken a shift from a paper-pencil activity to a technology-driven endeavour (Peterson-Karlan, 2011). Wollak and Koppenhaver (2011) acknowledge the increased complexity of reading and writing as a result of the technology-boom. They insist on the integration of these technologies in schools, to guarantee that primary school children are well-prepared to participate in 'a technology-infused world'.

MacArthur (2006) distinguishes research on the use of technology to support traditional writing outcomes (e.g. word processor, computer support for the writing process, and assistive technology) from research on new forms and contexts for writing (e.g. hypermedia and computer-mediated communication). The integration of technology with writing practices can adopt different forms: (a) technology can support writing (e.g. word processor), (b) technology-enabled writing (e.g. new sources and tools that enhance sharing and editing), and (c) multimedia writing (e.g. hypermedia) (Peterson-Karlan, 2011). In addition, Bangert-Drowns (1993) makes a distinction between several tools, ranging from tools substituting lower order tasks (e.g. word processor) to tools explicitly stimulating higher order thinking (e.g. tools that explicitly prompt metacognition).

An extensive body of research has focused on the effectiveness of word processing (MacArthur, 2006). Meta-analyses show that the use of word processors has a moderate positive influence on the writing performance of children (Bangert-Drowns, 1993; Goldberg et al., 2003; Graham et al., 2012; Graham & Perin, 2007; Rogers & Graham, 2008). Bangert-Drowns (1993) acknowledges the ease in which writers can add, delete, and revise their text, which in turn allows writers to target higher order decisions. Simultaneously, the researcher recognises that a typical word processor is not an intelligent tool (i.e., it does not explicitly stimulate metacognitive processes), therefore he suggests the use of word processors as instructional tools (e.g. by adding metacognitive prompts).

Research on technology-enabled writing and multimedia writing is limited (MacArthur, 2006). More specifically, in comparison to research on the integration of web 2.0 technologies in secondary and higher education, research in primary education remains a blind spot. Although, the available research conducted in primary education seems promising. Liu, Liu, Chen, Lin, and Chen (2011) indicate that a hypermedia approach facilitates the collaborative process, enhances peer support and ensures a sense of authorship during collaborative storytelling activities in social media environments.

Considering the social cultural theory, ICT can provide applications that facilitate collaborative work (Daiute & Dalton, 1993; Schwartz, Van Der Geest, & Smit-Kreuzen, 1992). Additionally, Goldberg et al. (2003) suggest that the writing process is more collaborative and social when students write in computer classrooms, than when they write in traditional paper-pen conditions. Students who write on the computer participate more in peer-editing work and they share their work more easily with each other. Finally, research indicates the positive
impact of integrating ICT with writing practices on the motivation of students. Students seem to be more engaged and motivated when they can use the computer to write (Boscolo & Hidi, 2007; Goldberg et al., 2003).

Despite its potential added value, ICT does not yet comprise an integral part of teaching writing (Cutler & Graham, 2008).

4. Discussion

Pritchard and Honeycutt (2006) state that there is a continuous need to test theories of teaching writing. Furthermore, Graham et al. (2013) warn for the inferior quality of much of the intervention research. In this discussion we will systematically tackle the presented instructional approaches and point out potential research gaps which future research should consider to investigate further. Finally, we build bridges between the presented evidence-based instructional approaches by offering an integrated point of view.

The research on the effectiveness of strategy instruction is a well-documented area. However, there are still some important blind spots in this research literature. First, the majority of the studies particularly focus on the effectiveness of SRSD (Graham & Harris, 1993; Graham et al., 2000; Harris et al., 2002). Within this model, students with learning disabilities are the main target group. Although some researchers have examined the impact of strategy instruction on average and good writers, there is a continuous need to investigate the latter target groups (Graham, 2006; Graham & Harris, 1997b). Second, the results on the impact of strategy instruction on motivation are mixed. Despite these inconclusive findings, the area of self-efficacy is particularly well studied, whereas other areas of motivation have received little research attention (Zimmerman & Kitsantas, 2007). Third, the majority of the intervention research employs multiple probes (post, maintenance, and sometimes generalisation tests) planted within a single school year to examine the effectiveness of strategy instruction. However, there is an urgent need to record the long-term effects of strategy instruction (Harris, Santangelo, & Graham, 2008). Finally, regarding the discrepancy between the effectiveness of strategy instruction and its exceptional implementation in the classroom, we follow the point of view, offered by Harris et al. (2008). In this view, practitioners and researchers should focus their (research on) instruction on blending different evidence-based practices.

Researchers commonly reject the idea that writing is a solitary endeavour and therefore they accept the inherently social nature of writing. Nevertheless, the cognitive research studies on writing largely outnumber the social cultural studies (Englert, Mariage, & Dunsmore, 2006). Therefore additional research on the social aspects of writing is recommended (Daiute & Dalton, 1993; Englert et al., 2006; Hidi & Boscolo, 2006). In addition, there is some concern about the quality of the conducted research on collaborative writing (Graham et al., 2013). Sutherland and Topping (1999) state that the few satisfying studies are particularly conducted with older writers and therefore the results are not automatically applicable to younger writers. Finally, intervention studies investigating collaborative writing mainly apply a pre-posttest design, without considering whether the effects are maintained over a longer period of time and/or generalised across different writing genres.

An extensive body of research has focused on the effectiveness of word processing, however ICT holds greater potential than the use of technology-supporting tools. We believe that research on ICT and writing has certainly not fully reached its boundaries and therefore there are many unexplored research areas. Following MacArthur (2006), we first recommend additional research to explore the possibilities to integrate new forms and contexts of writing into writing education. In this respect, there is a critical need for research on technology-enabled writing and multimedia writing. Peterson-Karlan (2011) argues that it absolutely essential to investigate current technologies that support students with learning disabilities in their writing. In addition, we suggest that this necessity also applies to normally achieving students. Second, MacArthur (2006) recommends further empirical research on the cognitive and social effects of ICT on writing.
To tie the abovementioned research areas on writing instruction together, we recommend future research to focus on blending the presented instructional practices (strategy instruction, collaborative writing, and ICT) and to investigate its combined effectiveness. Moreover, prominent researchers on strategy instruction argue to combine strategy instruction with other instructional writing practices, such as the process approach (e.g. Danoff et al., 1993) or peer assistance (e.g. Harris et al., 2006), to optimise students’ writing performance (Graham, 2006; Graham et al., 2000).

Based on the results of the present research synthesis, we now put forward a productive combination of the evidence-based practices. Several reasons for this integrated view are indicated.

First, we suggest to combine strategy instruction with collaborative writing because of their complementary nature. Strategy instruction is imperative for students to take in new knowledge or to refine existing knowledge, whereas peer collaboration is especially preferable to exercise, integrate, and reflect upon the knowledge students have gained from experts (Daiute & Dalton, 1993). Therefore, a blend of both writing practices will enhance knowledge transmission as well as knowledge construction.

Second, the present study reveals the effectiveness of strategy instruction on students’ writing performances, whereas research on the influence of strategy instruction on motivation shows mixed results. Furthermore, research on collaborative writing indicates significant influences on non-cognitive outcomes such as motivation. In this respect, a combination of strategy instruction and collaborative writing seems a productive attempt to increase the quality of students’ writing as well as the motivation of students to write.

Third, previous attempts to combine strategy instruction and peer assistance offer a rather weak application of peer assistance (e.g. Graham et al., 2005; Harris et al., 2006). The peer assistance condition is quite unstructured. For example, students are not positioned in different roles (Englert et al., 2006). What is more, the researchers in question, acknowledge the need for further research on combining strategy instruction and collaborative writing (Harris et al., 2006; Harris et al., 2008). Consequently, we contend for the combined action of strategy instruction and a powerful and structured application of collaborative writing.

Fourth, we put forward the need to integrate ICT with instructional approaches combining strategy instruction and collaborative writing. Peterson-Karlan (2011) has already indicated the urgency to integrate emerging technologies with evidence-based writing interventions. In this view, a great deal of research evidence on strategy instruction is yet established, suggesting that the integration of ICT is a next step in research on the effectiveness of this writing approach. Furthermore, ICT is of substantial importance to facilitate collaborative work (Daiute & Dalton, 1993; Goldberg et al., 2003; Schwartz et al., 1992). Consequently, the integration of ICT with instructional approaches is not only a logical outcome considering the current knowledge society (MacArthur, 2006), but it also holds a great potential to enhance writing practices such as strategy instruction and collaborative writing.

In our opinion, this study reveals important avenues for future research, considering previous research on writing and taking the influence of the twenty-first century on communication into account. Therefore, we finish this study by proposing our final conclusion.

In sum, we claim that it would be interesting for future intervention studies, to combine strategy instruction with a structured form of collaborative writing and investigate its impact on cognitive as well as non-cognitive outcomes. In addition, we highlight the urge to integrate ICT with instructional practices combining strategy instruction and collaborative writing in order to maximise students’ writing performances. Simultaneously, by integrating ICT, writing practices are properly attuned to the twenty-first century for which today’s children are ought to be prepared.

References


