

Effects of research-based teacher training on writing instruction practices

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Abstract

We explored whether training through and about research on effective writing practices would enable teachers to use these practices fully in

their classrooms. To do this, we followed seven teachers who had participated in research on the teaching of writing. They had between 6 and 15 years of experience. Five of them teach at primary level, two at secondary level. They were trained in a programme involving effective practices. They adapted the practices for their class with the referent researcher, implemented them in the classroom, and participated in the collection, analysis and dissemination of data. This work took place over a year. Semi-structured interviews were conducted at least one year after this experience, to find out the effects of this training-research programme. In the end, it appears that the participants in training and research had a desire to change their practices as a result of this experience. All of the seven teachers interviewed felt that they implemented rewrites, feedback, scaffolding, and were attentive to students' relationship to writing. And six of the seven teachers added peer evaluation and eliciting student metacognition. But they specified that these practices were the most complex for them to implement, especially the metacognitive prompts.

Keywords : effective writing practices; writing instruction ; teacher practices; research-based teacher training ;

1. Introduction

In many countries, including Belgium, France, and the Netherlands, students' performance on writing tests is judged to be globally inadequate (Bucheton, 2014; Koster et al., 2015; Penneman et al., 2016;

Rietdijk et al., 2017). Based on studies from around the world in primary education, Rietdijk et al. (2018) explained this poor performance by identifying three main problems related to writing instruction. The first is the limited time devoted to writing and its instruction in the classroom. The second is teachers' feelings of being ill-equipped to teach writing effectively. The third is teachers' lack of use of evidence-based writing practices. This last aspect has actually been documented widely in the literature beyond writing instruction (Altet et al., 2013; Perez-Roux, 2016). In addition to these difficulties, other authors have added the feeling of discouragement that teachers may feel when faced with students' lack of reinvestment of their learning in their written products. They are also discouraged by the many corrections needed for students' texts (Bucheton, 2014; Colognesi & Lucchini, 2016b).

A change in teaching practices could therefore allow for changes and improvements in students' writing performance. Yet, such a change is a significant challenge (Bucheton, 2014; Delisse et al., 2021; Dupriez, 2015). Quinn and Kim (2017) mentioned that there are at least two reasons why teachers do not change their practices. First, "new" practices do not systematically encourage teachers to change their usual practices. They feel that their practices are no worse than what is being proposed. Second, these new practices are not easily applicable to all classes, in all contexts. In addition, teachers tend to only pick up on aspects of the training that confirm their own beliefs and

conceptions regarding teaching/learning (Caena, 2011; Hanin et al., 2020, 2022; Vinatier & Morrissette, 2015).

To remedy this, and to make changes in practice easier by making use of research data, a key approach seems to be to train teachers in research and by doing research about problems that concern them (Coburn & Penuel, 2016; Darling-Hammond, 2017; Flores, 2017).

Thus, we investigated whether training in research and by doing research on effective writing instruction practices would lead teachers to want to use these practices in their classrooms. To do this, we followed 7 teachers who had participated in research/training on writing instruction. They had between 6 and 15 years of experience. They were trained in a program involving effective practices, adapted the program for their class together with the lead researcher, implemented it in the classroom, and participated in the data collection, analysis and dissemination. This work took place over a year. Semi-structured interviews were conducted at least one year after this experience, to find out the effects of participation in this research/training.

2. Theoretical framework

2.1. Effective writing instruction practices

Writing is a complex activity that consists of three dimensions: the writer (the person who writes), the writing process (how the person

writes) and the result of this activity (what the person writes; Alamargot et al., 2011; Dabène, 1991). The teaching of writing therefore requires that these three dimensions be considered together (Dabène, 1991), which makes it complex. A number of research studies have been conducted to help teachers improve their writing instruction and address the challenges that it presents. In particular, three meta-analyses provide an update on this issue: those by Graham et al. (2012), Koster et al. (2015), and Van Weijen and Janssen (2018).

Graham et al. (2012) conducted a meta-analysis of writing process interventions with elementary school students in the United States. The purpose of their study was to provide teachers with effective instructional tools for teaching writing. In this work, the authors analyzed about 100 studies. The results showed that several practices improved students' writing quality. These included explicit instruction (in strategies, text structure, creativity, grammar, transcription skills, and metacognition), supporting students in their writing (prewriting activities, peer evaluation, goal setting, teacher feedback) and rewriting.

Subsequently, Koster et al. (2015), following the observation of a need to improve elementary school writing instruction in the Netherlands, also conducted a meta-analysis of writing intervention studies done in a regular school setting with students in grades 4-6. In their research, five categories of interventions, previously identified by Graham et al. (2012), showed statistically significant results: goal

setting, strategy instruction, text structure instruction, peer evaluation, and teacher feedback.

Van Weijen and Janssen (2018) aimed to propose relevant variables that could be incorporated into assessment instruments nationwide, also in the Netherlands, in order to improve writing instruction. The researchers collected 28 writing intervention studies published since 1986 concerning primary education. From their meta-analysis, it appeared that four instructional practices also highlighted in the previous meta-analyses had statistically significant effects on student writing quality: goal setting, strategy instruction, peer evaluation, and teacher feedback.

As a synthesis of this work, we can conclude that effective writing instruction practices are goal setting, teacher intervention, strategy instruction, and peer evaluation, when these occur in instructional programs that promote rewriting. They are listed and detailed in Table 1.

Table 1 - Summary of Effective Practices for Teaching Writing

Effective Practices	Details
Goal setting	- explain the sense and purpose of the writing task - provide students with clear and specific goals throughout the writing process. - state objectives that can be related to (1) the expected product and the characteristics of the texts to be produced (e.g., length of text, number of paragraphs) or (2) the process involved, by specifying the learning strategies to be acquired

Interventions by the teacher	- provide scaffolding to support students according to the problems raised by the type of text to be produced (e.g.: text structure, questions about language) - provide feedback to students, indicating their progress and areas for improvement
Strategies in instruction - Metacognition	- highlight effective and efficient cognitive and metacognitive strategies that will enable the student to make progress on the task
Peer evaluation	- provide times for peer evaluation
Rewriting	- allow writers to come back to their product and to improve it by adopting a reflective attitude towards it

In addition, in order to fully consider the writer, recent work on teaching of the writing process (see, in particular, Colognesi & Niwese, 2020) has shown that it is relevant to consider the writer's relationship to writing. A writer's relationship to writing is determined by all their writing experiences throughout their life (Barré-De Miniac, 2002). Depending on the theories invoked, it is composed of four or five dimensions: affective, axiological, conceptual, praxeological, and metascriptural (Barré-De Miniac, 2002; Chartrand & Blaser, 2008; Colin, 2014; Colognesi & Lucchini, 2016a). The *affective* dimension refers to the feelings, emotions and even passions that writing brings. The *axiological* dimension refers to the opinions, values, and attitudes that people may have about writing. The *conceptual* dimension refers to the writer's representations of writing and its learning. The *praxeological* dimension involves the individual's actual reading and writing practices. The *metascriptural* dimension is added by some

authors. It refers in particular to the writer's ability to explain their approaches, choices, the level of their work, difficulties, progress, and the like.

As a result of this research, didactic tools and instructional programs that incorporate these effective practices have been developed, such as the instructional program that we used in the training program for the teachers participating in the study reported here.

2.2. Changing teacher practices

Several researchers have tried to understand the processes leading to teachers' use of new pedagogical practices and didactic tools. Their research has shown that teachers' uptake of new practices is not easy or quick. On the contrary, it is a long, complex and dynamic process that constantly requires adjustments (Bélanger et al., 2012; Theureau, 2011). Moreover, according to the same authors, even though a change in teaching practices may seem to be taking place, there is no guarantee that it will be sustainable. A return to previous practices remains possible.

Penneman et al. (2016) pinpointed five types of factors that are needed for teachers' adoption and use of a teaching resource. First, there are factors related to the teacher, such as the teacher's skills in using the resource, the teacher's sense of self-efficacy, the value the teacher places on the resource, the teacher's beliefs and conceptions about the profession, or the teacher's prior practices. Second, there are factors

related to the resource, that is, whether it fits into the teacher's professional genre, whether it brings benefits to the users, whether it is not too far removed from usual practices, and whether it is adaptable to the context. Third, there are classroom factors, for example, students (number, initial skill level, motivation...) and classroom climate. Fourth are factors related to the organizational environment, such as relationships between colleagues, the teaching team's relationship with innovation and the values they share, the degree of trust and collaboration between teachers, and the support of the principal. The fifth factors are related to external support: support that can be provided through training and/or specific coaching.

As mentioned previously, changes in practice and the adoption and use of didactic resources can be more easily achieved through training in research and by doing research.

2.3. Training teachers in research and by doing research

In recent years, there has been a trend to incorporate an intensive research orientation into the teacher education curriculum (Darling-Hammond, 2017; Flores, 2017; Snoek et al., 2017). Integrating research into teacher education programs is now known to provide several benefits, contributing to teacher effectiveness in the long run. First, research can contribute to teacher professional development and school improvement (Coburn & Penuel, 2016; Dobber et al. 2012). Second, doing research through inquiry-based work is a way to bridge the gap between theory/research and practice (Baan et al., 2019;

Morrisette, 2013). Third, research can help teachers to find solutions to particular problems, it can provide them with up-to-date sources of information, and it can help determine priorities when introducing educational changes (Austin, 2016). Finally, training in research and by doing research is a key to developing teacher reflexivity (Duroisin et al., 2020).

In recent research, Colognesi and März (in press) analyzed the impact of a collaborative research training module in preparing future teachers in Belgium. Teacher training in research and by doing research was found to have several positive aspects for the participants: (1) the possibility of focusing on a problematic issue in order to understand what happens in the classroom; (2) the change in beliefs and updating of knowledge related to this problematic issue; (3) the opportunity to better observe students and to get an in-depth understanding of how they learn, due to the data collected and the measurement of progress; (4) a change in perceptions of research, with a feeling of pride about contributing to their profession.

Nevertheless, despite all of these benefits, Aussel and Bedin (2019) drew attention to several types of challenges that need to be considered when implementing this type of training, particularly through collaborative action research (McNiff, 2013; Riel & Lepori, 2011). First of all, there are institutional difficulties, which can arise with regard to impositions or restrictions in the field, such as access to data, for example, or linked with the institution's lack of recognition of the

research project. There are also methodological difficulties, in particular, the fact of having to collaborate (researcher, teachers, trainers, and even students), and management of the considerable time that the entire process takes up or of the size of the group of participants to ensure efficient and positive follow-up. Epistemological difficulties can also arise, since it is a question of producing knowledge together with the teachers, and disseminating the results. And, the researcher(s) must have an appropriate stance that allows each of them to develop and invest in the research project.

3. Method

As a reminder, our aim is to determine whether training in research and by doing research on effective writing instruction practices would lead teachers to want to use them fully in their classrooms. To accomplish this, we opted for a qualitative approach having a comprehensive (Van der Maren, 2004) and interpretative (Savoie-Zajc, 2011) purpose. It is the teachers' perspective that interests us, the meaning they give to effective practices, their motivation (or absence thereof) to change, and their perception of their own development (Bogdan & Biklen, 1992; Denzin & Lincoln, 1994).

3.1. Participants

Seven teachers participated in this study. Their characteristics are described in Table 2.

Table 2. Profile of participants.

	Genre	Years of experience	Function	Grade
Teacher 1	Female	20	Primary school teacher	5 th (aged 10-11)
Teacher 2	Female	15	Secondary school French teacher	1-2-3 (aged 12-15)
Teacher 3	Female	9	Primary school teacher	6 th (aged 11-12)
Teacher 4	Female	6	Secondary school French teacher	DASPA, B1 ¹
Teacher 5	Female	10	Primary school teacher	6 th (aged 11-12)
Teacher 6	Female	8	Primary school teacher	6 th (aged 11-12)
Teacher 7	Male	11	Primary school teacher	5 th (aged 10-11)

3.2. Training teachers in effective practices for teaching writing

All participants were enrolled in a master's degree program in education, providing them with training in research and by doing research.

¹ DASPA = Reception and schooling program for newcomers. In the DASPA classes, French as a foreign language is taught to students aged 12 to 18 in secondary education. Level B1 corresponds to the level at which the student is able to write a short text according to the CEFR (Common European Framework of Reference for Languages), a reference tool defining language levels.

Two specific parts of that program have particular relevance regarding dedicated training in effective writing instruction practices.

First, participants took a "language didactics" course. This 30-hour course follows the principles of LETRA (Learner Engineer Teacher Reflective Analyst : Colognesi & Lucchini, in press), where students adopt several different roles in order to grasp the content of, in this case, effective writing instruction practices. They first take on the *role of learners*, working through an instructional program that itself implements effective practices for teaching writing, the *Itineraries* method (see Figure 1). This can be summarized as follows.

The teacher assigns a writing project to the class, highlighting the objectives and characteristics of the texts to be produced (Goal setting). Students write a first draft of a text related to a discourse genre (e.g., a wanted notice), without any teacher intervention. They are then put in groups of three or four and given the task of comparing the first drafts they have written. They must identify what is the same in all of their texts, what is different and what is problematic. This is followed by a collective synthesis based on highlighting the differences between groups. After that, in order to answer the questions that have emerged from comparison of their first versions, the students are given a corpus of model writing products belonging to the same discursive genre (Interventions by the teacher: scaffolding "textual structure"). As before, they must find the elements that are identical to all of the products, the differences and the aspects that are problematic. This is also followed by a synthesis. The identical aspects become the

characteristics guiding the organization of the text (the obligatory elements to be considered). The differences are discussed as options. The activity ends with the creation of a summary sheet that includes the characteristics discovered. These aspects are to be considered when students rewrite the text immediately afterwards (Rewriting). After that, students read and comment on each other's texts to help them improve (Peer evaluation). The evaluative criteria are mainly those worked on before related to the structure of the text. Then, the students again rewrite their texts with the help of this feedback (Rewriting). The teacher then offers adapted support (instruction on grammar, conjugations, vocabulary, spelling, etc.) depending on the students' difficulties and the genre to be produced (Interventions by the teacher: scaffolding "language"). This support is given either for the whole class, for small groups of students or individually. The students then again rework their texts with the help of that teacher input (Rewriting), followed by another peer evaluation session (Peer evaluation). This time, the evaluative criteria are based on what students were told about during the teacher's language scaffolding. Finally, the students write a final version of their text (Rewriting), which the teacher can monitor by giving final feedback (Interventions by the teacher: final feedback). Throughout this process, discussions take place about how students are going about creating and reworking their texts, and on the contributions of the different activities (metacognition). Students are also asked to answer metacognitive questions that highlight aspects (content, strategies) that can be used during their next rewrite and, ultimately, when writing a similar type of text. The

final versions are distributed to the intended recipients identified in the writing objectives. A few weeks later, students are asked to produce another text of the same genre, in which the learning can be transferred (for more details on this instructional program and its effects on the development of students' writing competence, see in particular Colognesi & Lucchini, 2018; Colognesi et al., 2021).

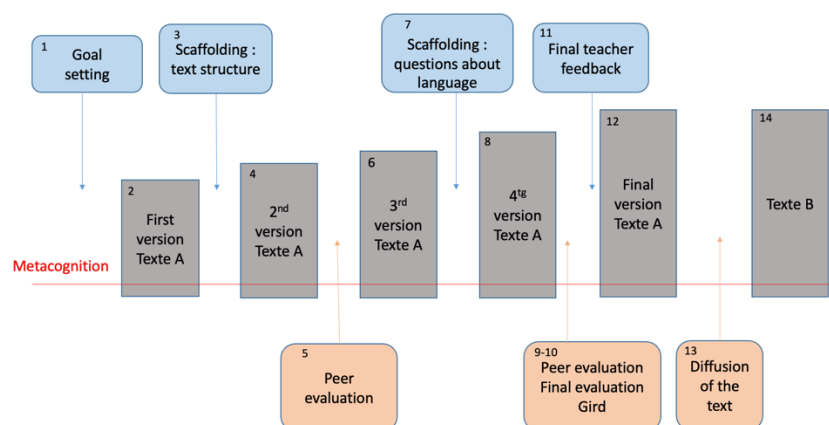


Figure 1 - Summary of the Itineraries method (translated from Colognesi and Lucchini, 2018, p. 231)

In the language didactics course, the students experience this method step-by-step, by having to write a text adapted to their level. Then they explain how they felt as writers, what they experienced, and so forth. The theoretical principles grounding the method are then highlighted,

in connection with the literature in the field. After having been learners, the students take on the *role of engineer*. In small groups, they develop an instructional program similar to the Itineraries program but adapted to their professional area. Then they take on the *role of teachers*. They experience presenting their designed activities in the classroom with their own students. Finally, the students take on the *role of reflective analysts*. That is, they take a reflexive stance on what happened in the classroom. All steps are monitored by the trainer. At the end of the course, the students present what they have done to the others.

Second, all seven participants completed their master's theses on writing, each focusing on a specific issue (see Table 3). This involved extensive reading and summarizing of the research in a literature review; designing a complete intervention to be tested, based on the principles seen in the language didactics class; collecting experimental data related to their research question in several classes, including a control class; and analyzing and interpreting the data. They used mixed methods: quantitative analyses to measure student progress and qualitative analyses to gain a deeper understanding of what happened.

In all, participants experienced effective writing instruction practices themselves as learners and implemented these practices as teachers as part of the didactics class; they then developed, implemented, and evaluated an intervention related to a research question concerning

effective writing instruction practices, to observe these practices and analyze their effects, as part of their thesis. This was separate from their implementation of their designed version of the Itineraries program during the class.

Table 3. Research question of participants' master's thesis

	Research question of the master's thesis
Teacher 1	What are the effects of feedback given by the teacher, by a peer, or by peers who collectively negotiate it?
Teacher 2	What are the effects of the Itineraries program on the writing development of early high school students ?
Teacher 3	During the implementation of the Itineraries program, what writing processes do struggling students use?
Teacher 4	What are the effects of the Itineraries program on the writing development of immigrant students at the B1 level?
Teacher 5	What are the effects of providing metacognitive mediation on the writing competence of 10- to 12-year-old students?
Teacher 6	During the implementation of the Itineraries program, what writing processes do students use?
Teacher 7	What are the effects of the Itineraries program on 10-to 12-year-old students' relationship to writing?

3.3. Data collection and analysis

Semi-structured interviews were conducted at least one year after the research/training. The aim was to gain access to the representations, intentions, choices and decisions of the individual participants (Lefebvre et al., 2008). The interview guide contained three parts: (1) presentation of the interview process; (2) questions about the interviewee as well as a brief description of what they implemented in their research project on the teaching of writing; and (3) a discussion around their current practices for teaching writing, the resources used, and whether or not they have implemented identified effective practices. Various questions were formulated to guide the interviewee, focus the discussion, and refocus the topic, if necessary (e.g., Could you describe a "typical" activity you used to teach writing? What was new for you in the training? How do you teach writing now? Why do you do this? What did you keep from the training in your current practice?).

Interviews were conducted in March/April 2020 via video conferencing. Each interview was recorded and lasted an average of 45 minutes. All interviews were transcribed. An average interview was 3340 words. A content analysis (L'Ecuyer, 1990) was applied to the collected data. A total of 164 units of meaning were selected for analysis. The categorization of these units was a combination of deductive coding (i.e. using categories derived from theories, such as effective practices, adaptation of the instructional program promoted in the training, impact of research) and inductive coding (for example the teacher as a transmitter of knowledge).

4. Findings

As a reminder, the aim of this research is to understand whether training in research and by doing research on effective writing instruction practices leads teachers to want to use these practices fully in their classrooms. The main results of our analyses are reported here. First, pre-training practices are presented. Then, the similarities and differences in the changes made by the participants are highlighted. Next, the extent to which participants adapted or did not adapt the "Itinerary" instructional program is noted. Finally, two additional elements are proposed: the aspects that justify the changes noted; the fact that teachers also wanted to improve practices more broadly in their schools. Representative quotations are proposed to illustrate the findings. They have been translated from French.

It should be noted that when we say 'training' then in the presentation of the findings, we are including both the learning about/use of the Itineraries method and their research related to their master's thesis.

4.1. Participants' practices before the training

Before the training, the participants' writing instruction practices were very similar. Each teacher had their students write a first draft, followed by proofreading using a criteria or rubrics, and then production

of a final version to be handed in. Therefore, the students of these teachers wrote two versions.

I was working on writing in a very basic way. First, students made a small draft. Then, they had to revise it. (T7)

In addition, they explained that the time they had for writing in class was very limited:

I did not work on writing in class very often, if at all. (T2)

And so finally, we had 3 or 4 of these writing products over the year. (T6)

Two major difficulties were highlighted to explain this: the feeling of not being able to teach writing, as well as the corrections that they found tedious:

I even tended to skip writing activities. Because I didn't feel equipped to work on writing. Not to mention the tedious corrections. (T7)

Nevertheless, the participants mentioned that two effective practices were already present in their writing instruction before the training. This was the case for clarification of objectives (5 out of 7) and teacher feedback (5 out of 7). These practices were maintained or even increased after the training for those who were already using them.

The objectives necessarily behave, well, I was already doing it, but the fact of having reviewed it with Itineraries, automatically, to put the child in a project, to give him clear objectives, I think that I also

do it more than before, like putting in writing on a big poster the goal of the activity, why we are going to do that, what stages we go through, and each time to come back, to start again from that at each session so that it is very clear in their head what we are doing, that, I think that is something that I kept. (T3)

4.2. Four effective practices being implemented by all participants after the training: rewriting, scaffolding, feedback and attention to the writer

In retrospect, all participants described their former practices negatively. They said they no longer agreed with that way of doing things.

Generally speaking, well, the writing wasn't, uh, it wasn't great in my class. (T5)

I was teaching it in a really bad way. (T6)

Now I work differently with writing. First, my way of working with writing was not fully enriching for the students. I would even say it really sucked to begin with. I'm not afraid to say it like that. (T7)

The participants all said that they had made four major changes as a result of these observations: using rewriting, scaffolding, feedback and taking the writer into account.

First, they explained that they had gone from two drafts (a draft and a "clean" version) to several versions. In this way, students have time to rewrite and rework their texts in response to the support they

receive. As a result, the participants also all said that they had rethought the school agenda in terms of the time spent working on writing.

The realization that drafting/correcting doesn't lead to a finished text, doesn't really allow you to discover the substance of the material. It doesn't really allow you to integrate it. (T1)

The time that we put into this work is obviously more consequential (...) But it's not a waste of time at all. (T6)

Second, scaffolding was also now present in the practices of all participants. The seven teachers said these helped students to improve their writing. They then saw a direct reinvestment of the lessons in the students' products. This was a change in their conception of language teaching. Indeed, the participants mentioned that they now see the subjects (such as grammar, conjugation, etc.) as directly linked to the texts to be produced, no longer in a "fragmented" way, as was the case before.

In terms of scaffolding, they really make sense because they are directly useful and we haven't learned pronouns once and determiners once. We learned, "How do we avoid repetition?" and so we use pronouns, and so we use determiners. So it's seeing the material in a completely involved way, and uh, there you go, for me that changes everything. (T1)

Third, teacher feedback was provided in participants' writing activities. Three of them explained that with experience, they think their feedback is more and more effective. They said that providing good feedback cannot be improvised, and that it is important for feedback

to be thoughtful and structured. Teacher 7 said that he begins his feedback by comparing different rewrites by the same student. In his opinion, the practice of feedback is essential and rewarding for the students.

Feedback, I do it in a more efficient way uh... with the exercise, too, because I think it can't be improvised. (T6)

Essential for me. It is also rewarding for the student. My feedback starts each time with a comparison of the different rewrites. (T7)

Fourth, all of the participants also talked about students as writers and their awareness of their development and their relationship with writing. We noticed in the comments of the teachers that they were attentive to this, and observed the pupils in this sense.

They got into this work with great motivation. I had never seen that before. (T7)

I can see that there is a real evolution and a real investment in the work by the children. (T1)

The teachers expressed that they have sought to show the purpose of the written products assigned to the students. They also said that they try to bring pleasure to writing. They also try to allow the students to identify their progress themselves.

And it's true that it's super enriching for everyone and my students were super proud afterwards too. That feeling of... of having finally done something good. (T2)

And then, the pride of the students, so everything that is commitment to the task and self-esteem, perception of one's own value, had an effect because the students were super proud of their writing, they saw that they had obviously progressed. (T5)

4.3. Two important but complex transformations: peer evaluation and the elicitation of metacognition

The interviews showed that two practices had undergone significant transformation for six of the seven teachers: peer evaluation and metacognition.

Regarding the peer evaluation, all six teachers explained that asking students to give feedback on each other's work was something totally new to them. The students enjoyed it very much. They mentioned the mutual support between students that developed thanks to the collaborative proofreading and the positive effects on improving the texts.

What was new was to uh... to have them write and use each other's perspective. Before, it was each one for himself and here everyone was helping each other, so it was this collective dimension in their texts, even though they were individual, so that was totally new. (T6)

The feedback by the peers (...) and then after practicing it, they really realize the benefits they get from it and it's really very positive for them, so that was also a little novelty. (T3)

Nevertheless, one participant (T4) felt that it was not easy to implement peer evaluation.

It is not always easy at this level to find students who work well together. (T4)

The six teachers also said that they now seek to elicit metacognition from their students during writing situations. They explained that they ask questions so that students can tell what they are doing, explain their difficulties, their progress, their choices, their strategies, and so forth.

Metacognition, I sometimes ask them meta questions or I also write small questions on a few sheets of paper at the end. (T3)

Yet, all six teachers said that they do not do it as much as they would like. And three teachers (T4, T5 and T7) explained that they have difficulty doing so and would like to improve on this point.

I still don't do it enough for my taste, but I know how much metacognition influences the process of relationship to writing. This is the point I am working on. (T7)

T2 explicitly said that she does not use peer evaluation and metacognition. However, she had tried these practices at the time of the research and had found them to be positive.

What changed a lot was to have them work together (...) I was really learned: we had the habit of working individually, we try not to

make too much noise. It was really completely new, but very positive in the end. Quite frankly I was impressed. (T2)

She explained that she does not implement these two practices for three reasons: (1) the change in the curriculum, (2) the fact that she has to work with her colleagues who are not trained in this, and she feels forced to follow the group, and (3) the difficulty for her students to give constructive feedback.

Everything that has to do with the teacher, feedback, support, etc. I still do that, but everything that has to do with peers, you can take it away, I don't do it anymore. Metacognition uh... not anymore in fact. (...) A lot of courses were changed in the programs as well and we work in parallel with other colleagues, so it's not easy to always work as we would really want to. (T2)

The difficulty for them is to make constructive comments (...) to say when something is not going well, it is not easy for them (...) they don't have the words, in fact, and perhaps they don't dare either, so as not to offend. (T2)

4.4. Rigid or adaptive use of the instructional program for students

Of the six teachers who changed their way of teaching writing, five (T1, T3, T5, T6 and T7) said that they were using the Itineraries method presented in their training. T4 explained that she uses the manuals explaining this instructional program. She clarified that she adheres to the authors' instructions rigorously, out of fear of missing out on an important element:

I follow the manual as is (...). I stick to it, so that I don't just go too fast with something that has to come afterwards or things like that, to let things come as the training program says. It works, so there's no reason for me to try to skip a step. Certainly not. That would be failing the instructional program for me. (T4)

The other five teachers explained that they are more comfortable with the experience. They have understood the principles and structure of the instructional program. As a result, they are able to take more or less time, to vary certain aspects depending on their class. They also built their own itineraries for the genres of texts they wanted to work on with their students.

The one I tested for research I really followed without changing anything. Now I've perhaps become a little more detached. (...) I vary the questions, the instructions. I'm more comfortable, and I'm cooler with the follow-up. (T5)

T1 had a similar approach: she kept the effective principles for teaching writing, but did not necessarily follow the instructional program as laid out during their training.

4.5. Research as a stimulus and awareness

Participants attributed all of these transformations to the training in research and by doing research. Indeed, we found in their comments that they understood the theoretical frameworks. It was now easier for them to use these frameworks in their practices.

I feel like having worked on understanding effective practices for my dissertation. I still studied the how, the why and so I did some research. I read all the articles about them and the benefits of metacognition, scaffolding, feedback (...) I am convinced, even of the rewriting stages, and so obviously I feel more confident. (T1)

Feedback, I do it, now it's true that I give them more... well it's also linked to Mrs. X's course (i.e., another course in the master program, SC), and so feedback, obviously I do it, I know the concept, I know towards what, how, which types, etc. and it's true that I do it more efficiently. (T6)

In addition, collecting data, analyzing it and writing a research paper seem to have been an important vehicle for changing their practices.

The metacognitive mediations, which were quite difficult at the beginning because the students are not used to it, but uh... I didn't believe in it, in fact, at the beginning, I didn't think that I would have, that I would see a result on the writing, so I was in the end positively impressed to see that there was a difference in the writing. (T5)

From the interviews with the students, it was apparent that they had a sense of pride at the end of the project, they were proud and seemed aware of their progress. (T4)

It was also apparent from the interviews that in addition to changing their practices in teaching writing, teachers had adapted their vision of teaching and strengthened their overall practices.

When I teach history-geography, I encourage group discussions for these assignments. (T1)

4.6. Teachers as knowledge ambassadors and resources in their schools

The six teachers out of the seven who fundamentally changed their practices expressed that they wanted to share them with their colleagues. They tried to convince them to experiment with such changes as well. To do this, they told their colleagues about the positive results of the program, shared their experiences and the knowledge they had acquired during the training, and presented their students' products. With the support of his principal, T7 even gave his colleagues a 1-day training session on the effective practices for teaching writing. T5, who is now a teacher trainer, shared the instructional program with her students and colleagues and purchased resources for the library.

I wanted to share this discovery with them and so I explained to them what the thesis consisted of, the Itineraries system, I showed them examples of children's products, etc. to try to convince them to apply this method and to practice the teaching of writing differently in their class. (T3)

I even did a 1-day training and brought activities to life. I had asked the trainer for help to make sure I mastered things. (T7)

In this way, they were able to convince some colleagues to follow them in implementing effective practices for teaching writing. T3 persuaded her entire team to purchase the manuals and even acts as a mentor for other teachers in her school.

I use the itineraries. And by the way, I convinced my colleagues to get it, I think all the grades have it now. I even supervised my 5th grade colleague who was a little hesitant. I told him, "Go ahead, we'll do some debriefs, I can help you" so I try to motivate them to start. (T3)

T6 explained that among her colleagues, there were many ways to react to her suggestion that they integrate effective practices for teaching writing. She explained that only one colleague was directly receptive, the one who had completed a master's degree in education. For the others, she said they need time. And she also mentioned that some colleagues do not want to change their practices because they feel it is too much work:

Of course I talked about it already to my close colleagues, because they knew what I was working on. I told them about it, I showed them (...). Now, uh, with my direct colleague from 6th grade, clearly yes, she was into it, but she also did a master's degree in education so she also understands the scope, she sees the numbers, the results, so she also understands and she is motivated to do it. (...) People who are a little reluctant, you show them and even if they don't do it at the same time as you, the same year, you show what you have done with your students, you show the products, the progress, etc. and that convinces them a little bit, you convince them a little like that. (T6)

5. Discussion and conclusion

In the end, it appears that the participants in training and research had a desire to change their practices as a result of this experience. This further confirms the positive effects of training in research and by

doing research (Coburn & Penuel, 2016; Dobber et al. 2012), when no inhibiting factors occur, such as institutional difficulties or tensions related to the conditions of knowledge production (Aussel & Bedin, 2019). We saw in the participants' discourse that they were able to argue for their choices, linked to theoretical frameworks that they had understood and integrated. One lever for change was the analysis of data, giving the opportunity to better observe the students and to understand their functioning more precisely (Colognesi & März, in press).

Therefore, of the seven teachers interviewed, six reported fundamentally changing their writing instruction practices so as to implement effective practices (Graham et al., 2012; Koster et al., 2015; Van Weijen & Janssen; 2018). All felt that they implemented rewrites, feedback, scaffolding, and were attentive to students' relationship to writing. And six of the seven teachers added peer evaluation and eliciting student metacognition. But they specified that these practices were the most complex for them to implement, especially the metacognitive prompts. The participants said that they felt the least comfortable with this practice. This has also been noted in other work (Depaepe et al, 2015; Vlassis et al., 2014). This is certainly one practice where teacher training can be improved. Especially given the effects of metacognition on learning writing (Colognesi et al., 2020).

The teacher who did not introduce peer evaluation and metacognition into her writing instruction justified it by two main reasons. First, she

explained that her teaching context is not suitable for these practices (Quinn & Kim, 2017). This is because she believes that students in her context do not have the skills to collaborate around evaluation of other students' work. She also believes that they are not able to respond to metacognitive prompts. Second, she referred to the organizational environment factor (Penneman et al., 2016), by explaining that her colleagues pressured her to stick to their common practices (Coppe et al., 2018).

Furthermore, one point that emerged from the analyses was that the teachers who participated in the training felt competent not only to change things in their practice, but also to make a more ambitious change within their school. Participants explained that they shared practices with their colleagues. They tried to convince them to improve their writing instruction practices. In this way, they became resources/trainers for their colleagues and positioned themselves as knowledge ambassadors. Thus, while the training of our participants was a long and demanding process for them in terms of investment, it seems that direct colleagues could benefit as well. This was a success in some schools. In this way, training to and through research tends to improve the quality of teaching for participants, but also for the school (Coburn & Penuel, 2016; Dobber et al. 2012). It would be worthwhile for future research to examine the instructional practice of those teachers trained by a colleague and their perceptions. It needs to be noted, however, that this training of colleagues did not occur in all

schools, reinforcing the idea that changing practice is a long and complex process (Bélanger et al., 2012; Theureau, 2011).

Limitations and perspectives

Our study is not without its limitations. First, we worked with a small number of participants, which does not allow us to generalize the results. Second, we deliberately based our investigation on the self-reported practices of the teachers. It would be interesting to see their actual practices as well through classroom observations, and as triangulated with their lesson plans, in order to really be able to substantiate the implementation of the practices discussed here. Third, the time spent between the training and the interviews was not identical for all participants, since they did not belong to the same cohort. This may have played a role in their greater or lesser implementation of certain practices.

Practical implications

This study allows us to identify some practical implications for the teaching of writing. First of all, we should consider teacher training modules as research, with specific questions for the students to take up. Second, these questions should focus on the two practices that seem most complex for teachers to implement: peer assessment and metacognition. The challenge would then be to see how to implement these practices in a concrete and adaptable way for the school's different audiences. Regarding peer evaluation, we could examine, for example: how can students be helped to give feedback? What

guidelines should be put in place so that students can give effective feedback to their peers? For metacognition, work could be done on the type of questions to ask students, and at what times. And also question the most effective modalities (is it better to have students say out loud or write down, or both?). In this regard, it also seems necessary to work with teachers on beliefs and realities about metacognition, such as the fact that it is only accessible to a certain audience.

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