

Seven reasons why elementary school teachers do not encourage their students' metacognition in L1 language lessons

Stéphane Colognesi¹  | Thibault Coppe²  | Lara Dannau¹ | Elise Barbier¹

¹Faculty of Psychology and Educational Sciences, UCLouvain, Louvain-la-Neuve, Belgium

²Faculty of Behavioural and Social Sciences, University of Groningen, Groningen, The Netherlands

Correspondence

Thibault Coppe, Faculty of Behavioural and Social Sciences, University of Groningen, GION Education/Research Unit Grote Rozenstraat 3, 9712TG Groningen, The Netherlands.

Email: t.coppe@rug.nl

Abstract

Specifically in the field of language teaching, it has been recognized that metacognitive strategies maximize language acquisition and improve performance. But despite this, it appears that few teachers currently consider metacognition in their teaching practices. The current study adopted a qualitative design to focus on the reasons that inhibit teachers in French-speaking Belgium from prompting their students to engage in metacognition in first-language (L1) lessons. Semistructured interviews were conducted with seven teachers. The teachers in our sample believed that use of metacognitive strategies can provide benefits for students. But despite this, they explicitly said that they do not prompt their students to engage in metacognition in L1 language lessons. And this for seven specific reasons, as outlined in the article. Knowing these reasons allows us to target the points of attention to be had in training teachers in metacognition in L1.

KEYWORDS

first-language teaching, metacognition, qualitative approach, teachers' beliefs

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2024 The Author(s). *European Journal of Education* published by John Wiley & Sons Ltd.

1 | INTRODUCTION

The field of metacognition-related research is undergoing great development and has taken a major place in the fields of psychology and education in recent years (da Rosa et al., 2021). Indeed, metacognition is of interest to researchers and professionals because of its essential role in school learning and in an individual's daily life (Veenman, 2012). As a result, studies representing significant contributions related to metacognition have emerged in these past few years.

First of all, the concept has benefited recently from clearer definitions. A few years ago, several works criticized the fact that metacognition was not a simple concept to define (Veenman et al., 2006; Zohar & Barzilai, 2013). There are now summaries that have refined our understanding of this concept. Da Rosa et al. (2021) noted that 'metacognition represents the knowledge of knowledge and the regulation of cognition (or executive control and regulation), especially when it comes to educational processes' (p. 705). Specifically in the contexts of language learning and teaching, Haukås (2018) explained that metacognition 'refers to an awareness of and reflections about one's knowledge, experiences, emotions and learning' (p. 13). And in any case, Vosniadou et al. (2021) noted that all theories agree that metacognition refers to the fact that individuals are able to improve their learning and academic performance through the use of strategies to plan, monitor and control their learning. Nevertheless, in a 2022 article, Zohar and Ben-Ari, after analysing studies in the field of metacognition, still deplored the lack of conceptual clarity and a common theoretical framework in the studies involved. This shows that, even though our understanding of the concept has been refined recently, there is still work to do to reach a consensual grounding.

Second, many studies have shown the benefits that metacognition can provide. Thus, the positive effects of metacognitive strategies on students' academic success have been shown (e.g. Avargil et al., 2018; Dignath & Büttner, 2008). Notably, these strategies allow students to become aware of what they are doing, what they are thinking and to evaluate the effectiveness of their actions (Hacker et al., 2009). Metacognition also allows the individual to access better understanding of their strengths and weaknesses and to use better strategies and responses accordingly (Colognesi et al., 2019; Noël & Cartier, 2016). Specifically in the field of language teaching, it has been shown that metacognitive strategies maximize language acquisition and improve performance (e.g. Colognesi et al., 2020; Haukås et al., 2018; Teng et al., 2022). For L2, the meta-analysis by Raoofi et al. (2014) shows that it is possible to influence learners' language performance through metacognitive intervention; that metacognitive instruction improves language learners' metacognitive knowledge and strategy use; and that metacognition is a predictor of language performance.

But despite this, it appears that few teachers currently consider metacognition in their teaching practices (Barbier & Colognesi, 2024; Depaepe et al., 2015; Dignath-van Ewijk, 2016). Dignath and Mevarech (2021), in their editorial for a special issue devoted to the gap between research and practice in metacognition, made three key points to explain this phenomenon. First, teachers generally provide little explicit support for metacognition. Second, they perceive activation of metacognition as desirable for their students, but not possible to use in their classrooms. Third, they often have misconceptions about what are the benefits for their students from the use of metacognition. These aspects are related to what teachers know and think about metacognition.

Studies of teachers' beliefs have shown that beliefs can explain why certain practices are not used (Kagan, 2010). Beliefs are opinions, personal convictions linked with both the emotions and moral values of individuals, which permeate their daily ways of acting and thinking (Ma & Liu, 2022). Teachers' beliefs refer to their practical experiences and personal history that guide their classroom actions (Williams & Burden, 2010) and their professional development (Heyder, 2019). Beliefs have been shown to play an important role in the instructional choices and practices of teachers (Hanin et al., 2020, 2022) and have an impact on student learning (Borg, 2011). In addition to teachers' beliefs about education, the formal knowledge they possess also influences their instructional choices (Safrudiannur & Rott, 2021; Voss & Kunter, 2019).

1.1 | What is known about teachers' knowledge and beliefs about metacognition

Hiver and Whitehead (2018) argued that little is known about language teachers' knowledge and beliefs about metacognition. Indeed, few studies we could find were related to teachers' knowledge and beliefs and metacognition, but were not specifically about L1 language teachers.

One of the earliest studies on this issue was by Wilson and Bai (2010). The researchers examined understanding of the concept and support for metacognition among 500 preschool teachers in the United States. The results showed that there appeared to be contradictions in the teachers' understanding of the concept. The study also showed that while some teachers know what is 'right to do' in relation to supporting metacognition in the classroom, they do not necessarily do it. Two reasons were given. First, it is not encouraged by legal requirements (the curriculum). Second, they feel that the amount of knowledge to be taught does not allow them to devote time to prompting students' metacognition.

Haukås (2012) surveyed 145 secondary language teachers in Norway about the importance they give to reflection in classroom language learning. The results showed that these teachers had a positive attitude towards metacognition. But many participants felt that their knowledge about metacognition was limited. And very few teachers reported giving students opportunities to try out different learning strategies, reflect on their learning with others, set goals for their own learning or assess their own performance.

Ben-David and Orion (2013) surveyed 44 elementary school teachers in Israel about the integration of metacognition in science lessons. The results showed generally negative and sceptical beliefs about the integration of metacognition in this context. The study found that the participants' knowledge of metacognition contained errors and misconceptions, such as thinking that access to metacognition is only available to high-achieving students.

Spruce and Bol (2015) also investigated what teachers' knowledge and beliefs are in relation to metacognition and self-regulated learning. They interviewed 10 secondary teachers from different disciplines in the United States. The researchers found a lack of knowledge about metacognition among the teachers they interviewed. But, despite this, these teachers were able to hold positive beliefs about metacognition, unlike the participants surveyed by Ben-David and Orion (2013). However, Spruce and Bol study also showed that these teachers seemed to agree in their perception that students are not ready to self-regulate at the middle school level. The authors concluded that if teachers do not believe their students are capable of self-regulation, this may limit their willingness to try to engage the students' metacognition.

Braund (2019) surveyed 44 Canadian elementary school teachers in science classrooms. As with Spruce and Bol (2015), her study also showed that participants did not have good knowledge of the concept of metacognition. This point was also made by Zohar and Ben-Ari (2022). Similar to Ben-David and Orion's (2013) and Spruce and Bol's (2015) studies, some participants in Braund's (2019) study felt that younger students do not have the ability to answer metacognitive questions and would not understand what is being asked of them. Yet, research has shown that children's metacognitive abilities can emerge at 2–3 years old. After that, all the metacognitive skills develop and are available around the age of 12, and continue to develop throughout life (Bryce et al., 2015; Geurten & Bastin, 2019; Roebers et al., 2020). In addition, Ben-David and Orion's (2013) study highlighted that teachers believe that metacognitive prompting should be a school-wide project, in which support for metacognition is provided by all teachers, beginning in the early grades. Nevertheless, their participants had positive beliefs; they believed that metacognition can occur in all disciplines and is not associated with a specific domain.

Recently, Suteu (2021) surveyed 120 preschool and elementary school teachers in Romania who were at different career stages. She wanted to know if they promoted metacognition and self-regulated learning in the classroom. The author explained that although teachers try to engage their students' metacognition, this is hindered by three factors: the fact that students do not seem motivated to respond to metacognitive prompts; the fact

that teachers do not feel trained to do this; the need to teach disciplinary content and the limited time available to encourage metacognition.

Also recently, Vosniadou et al. (2021) surveyed 366 Australian student teachers at the end of their first year of studies about their beliefs about metacognition. This study found that two major beliefs may impede student teachers' prompting of metacognition. First, the most entrenched belief—held by half of the participants—is that the most important role of teachers is to provide disciplinary knowledge about the subject matter. Thus, it seems that it is more important for them to impart knowledge than to promote metacognitive strategies. This finding connects with much work that has highlighted that teachers' dominant concern is to transmit knowledge (Ioannidou-Koutselini & Patsalidou, 2015). Second was the belief that intelligence/learning is innate. This leads to the belief that metacognition is not necessary for student success. This belief is questionable because it overlooks the evidence showing that metacognitive strategies can enhance learning outcomes for all students, regardless of their initial abilities (Barbier et al., 2024).

1.2 | This study

Encouraging metacognition is often highlighted as an effective teaching practice in educational research, although the actual implementation of this in classrooms appears limited. This is notably true for language teaching. Additionally, it is important to note that while encouraging metacognition has been recommended in L2 teaching due to its positive impact on language acquisition (Decorte et al., *in press*), these benefits can be extended to L1 teaching as well. The connections between languages are indeed present in overall linguistic metacognition (Schoonen et al., 2011), although they are too rarely taken into account (Meunier et al., 2020). Therefore, the principles of metacognitive strategies—such as planning, monitoring and evaluating—are universally applicable and can enhance students' understanding and performance in their native language just as they do in a second language (Xu & Zhu, 2024).

Nevertheless, teachers do not implement it in their classroom activities. Understanding the reasons behind this reluctance is certainly an important first step towards training and convincing teachers that it is worth to encourage their students to use metacognition (Dignath & Mevarech, 2021). As such, the overall objective of this study is to further document and understand the reasons why teachers do not implement encouragement of metacognition in their teaching practices. By understanding and addressing the reasons why teachers may not incorporate metacognition into their teaching practices, this study aims to bridge the gap between research and classroom application, ultimately contributing to improved educational outcomes. Specifically, we focused on first language instruction. Indeed, while some results exist in relation to L2, the links between metacognition and first language teaching are very little documented for the moment (Hiver & Whitehead, 2018).

2 | METHOD

This study follows up on earlier work, mentioned above, in which we questioned 300 Fr-Belgian primary school teachers about the teaching practices they do or do not use (Colognesi et al., 2024). Prompting students' metacognition was reported as the least-often used practice in our results. It led us to design this study to understand why.

To achieve our research objectives, we opted for a qualitative approach with a comprehensive focus (Van der Maren, 2004). The teachers' points of view are of primary interest to us, which is why we chose to conduct semi-structured interviews with a selected group of them.

2.1 | Participants

The participants in this study were primary school teachers in French-speaking Belgium. In primary education, teachers are responsible for teaching a variety of subjects, such as French (L1), cultural and artistic education, mathematics, sciences and manual, technical, technological and digital education, as well as history, geography, economics and social studies.

They were recruited from among those who indicated that they were available for an interview following the questionnaire completed as part of the previous study mentioned above. We decided to interview teachers who teach the same age group: 10- to 12-year-old students (5th and 6th grade). This was done to have commonality between the participants and to better understand what they were saying. We also thought it would be interesting to have the opinion of teachers at the end of primary school, from the point of view of the primary–secondary transition. We also decided to recruit teachers with different years of experience to avoid restricting our understanding to one career phase. Table 1 provides a brief overview of the participants.

2.2 | Data collection

Semistructured interviews were conducted with each of the participants. Given the health conditions at the time of the study due to Covid-19, the interviews were conducted in French via teleconference and they were recorded.

The interview consisted of three parts. First, we invited the teacher to talk about their career and what they generally do to teach L1 language in their classrooms. Second, we asked the teacher about metacognition, with questions such as: Do they engage their students in trying to use metacognition in their L1 language class? Why and how? Is this something they do easily? How would they define this concept? Did they hear of it in training? Do they talk about it with colleagues? Third, we showed the teacher a series of questions that prompted students' metacognition (before/during/after the tasks) from a textbook for teaching writing to students. We asked them to give their opinion on this: Would they ask their students these questions? Why? Under what conditions? What would block them from doing this? Finally, we asked the teacher if there was anything else, they would like to say

TABLE 1 Participant details.

Teacher (pseudonyms)	Age	Years of teaching experience	Additional information
Augustin	25	2	He works part time so that he can complete a master's degree in education at the same time. He works in a school in the capital
Anne	29	6	She has worked for 4 years with 6- to 8-year-old students. She works in a school in the capital
Anthony	33	11	He works in a school in the capital
Amelia	47	25	For the last 10 years, she has been a teacher in the 6th primary grade. She has always taught in the same rural school
Alex	47	26	Earlier in his career, he was a school principal for 12 years. Currently, he is a teacher again, in a country school
Arthur	57	37	He has experience in all primary grades. He has worked in his current location, a school in the capital, for over 30 years
Arlette	59	39	This is her last year of teaching. She has always taught in the same school in the capital

about the topic. We also asked if there were any questions that bothered them and how they felt at the end of the meeting. The average interview lasted 64 min (min = 40' / max = 212'). All interviews were transcribed, with a total length of 80,794 words.

2.3 | Data analysis

For data analysis, content analysis was applied (Miles & Huberman, 1994). During data analysis, different analytical steps were used to ensure the trustworthiness of the findings (Creswell, 2007). First, we reduced the data: All fragments in which metacognition was mentioned were selected. Next, we conducted a categorical analysis. We categorized the data according to teachers' definition of metacognition, the value teachers placed on metacognition for their students, the practices they said they have related to it and the reasons that prevent them from implementing these practices. To categorize the reasons, we used the aspects identified in our literature review. We also allowed new themes to emerge. Third, we attempted to highlight quotes to illustrate each identified category. These steps were completed by two researchers discussing interpretations together in order to strengthen the reliability of the analysis (Strauss & Corbin, 1990).

3 | FINDINGS

The results are structured in three parts and are illustrated by representative quotes, which have been translated from French to English. First, the participants' definition of metacognition is presented. Second, the perceived usefulness of and reported practices related to metacognition are described. Third, the seven identified reasons that prevent teachers from seeking to engage students' metacognition are described.

3.1 | Teachers' definition of the concept of metacognition

Augustin, Anne and Anthony, who had between 2 and 11 years of experience, said that they heard about the concept of metacognition during their initial training. The others reported that they hear about this concept primarily when trainees come to their classes:

The first time I heard about it was during my initial training. Since then, I don't think we've heard much about it.

(Augustin)

I hear about this from the trainees who come with their metacognition.

(Amélia)

Generally speaking, the seven teachers provided imprecise definitions of metacognition, and they all expressed doubts about the accuracy of their definitions.

For Arthur, metacognition refers to students' prerequisites, the knowledge they already possess:

Metacognition is about prerequisites. Because it can come from what the child has discovered on their own as well as what they may have been taught.

(Arthur)

For Alex, it involves asking questions before taking action and, in the context of writing, the questioning around the parameters of the communication situation:

It is asking all the right questions: why am I writing, who am I writing to, and so on.

(Alex)

For others, metacognition is defined as an opportunity to reflect, to look back on what has been done, after it has been done:

It's when, how I learned and why I learned and what are my strengths, what are my weaknesses, how did I experience my learning inside my brain, something like that.

(Anne)

It is reflecting after a task on what you've done and how to do it better another time.

(Anthony)

Metacognition is the student's ability to look back at everything that has been done and understand the path taken to achieve learning.

(Augustin)

For me, metacognition really means reflecting not on the content, but on the strategies used to achieve something.

(Amélia)

It's about getting students to think about what they've understood, what they've done, what they've retained from an activity we've done with them.

(Arlette)

3.2 | Usefulness and practices related to prompting students' metacognition

The seven teachers believed that metacognition can be useful for students overall. They also said that it would therefore be important to insert the prompting of metacognition into their classroom practices, as shown in the following quotes, referring to metacognitive strategies.

Yes, I know it's helpful to ask students metacognitive questions.

(Arthur)

I'm sure it's interesting for the students.

(Alex)

It could really be useful because it forces the child to ask questions (...) so I think it's interesting.

(Anne)

More specifically, the seven participants highlighted certain positive benefits for students in L1 language class that they perceive metacognition to offer: preparation for tasks (7/7), checking the written productions, (6/7),

clarification of objectives (4/7), changing their approach to the task (4/7), self-confidence (3/7), help for students in difficulty (3/7), structuring of learning (2/7) and autonomy (1/7). In addition, five participants added that prompting metacognition would allow them to receive more precise indications of students' level of deep understanding of the lessons.

This will make sure that everyone, or almost everyone, has understood. Because the children will be checking their own understanding and then saying if they didn't get it.

(Augustin)

While Arlette and Anne also expressed this importance, they were less enthusiastic when it came to the metacognitive questions they might ask their students:

I don't see the relevance of all these questions. There is probably, of course there is, otherwise one would not do research on it. But I don't know, there is something that I don't like, but I don't know what. I don't know why.

(Anne)

Despite these benefits they identified, all participants were unanimous that they do not plan to try to engage their students in metacognition. Indeed, while they said that they sometimes ask students metacognitive questions spontaneously, they said that it is not something that is found in their L1 language lesson planning.

Let's just say that it's hardly ever in my lesson plans or in my course materials. But it should be. I should do it, I know I should.

(Augustin)

I honestly don't think I have metacognition in my L1 lesson preparations.

(Anne)

I'm not sure how I would plan for that, both for reading and writing.

(Anthony)

Only Arthur mentioned the presence of some metacognitive questions in some of the documents he gives to students. But he insisted that they are rare. And when there are such questions, it is because they are included in the textbook he uses. He does not programme it.

It's true that from time to time, but it's very rare, there are some metacognition questions at the end of the page in the textbooks I use. The student is asked if he has answered all the questions, what he did to get there, etc. In that case, I ask them to answer the questions.

(Arthur)

3.3 | Reasons for not prompting students' metacognition

We identified seven reasons that stand in the way of teachers seeking to engage students' metacognition during L1 language activities.

3.3.1 | Difficulty understanding the concept

Augustin, Amelia, Anne and Alex stated that metacognition was part of their initial training. This was not the case for the others. But the four teachers also admitted that they had forgotten what they learned in training about metacognition. They also said that it is a subject that they do not discuss with their colleagues.

I heard about metacognition in initial training. And since then, I don't think we talk about it anymore.

(Augustin)

I think it's something we forget when we're in the classroom.

(Amelia)

But whether they learned the concept in training or not, participants seemed to have incomplete and even incorrect definitions of what metacognition is. The two most experienced teachers mentioned only knowledge aspects. For Arthur, metacognition is the students' prior knowledge. For Arlette, metacognition is reflecting on the knowledge acquired during an activity.

It's what he is able to say he knows.

(Arthur)

Other participants went beyond (the lack of) metacognitive knowledge and mentioned elements related to metacognitive skills, although this was always very unspecific. For example, Amelia and Augustin talked only about strategies, but in a general way, without specifying which ones or when they might appear (before, during, after the task).

For me, metacognition is really about reflecting not on the content, but on the strategies put in place to achieve something.

(Amelia)

Metacognition is the ability of the student to look back on everything that has been done and to understand the process, the strategies used.

(Augustin)

For Alex, Anthony and Anne, metacognition is related to answering questions about why and how. Anne developed her answer a little, particularly in relation to the component relating to metacognitive evaluation skills. Furthermore, she was the only one to mention elements related to metacognitive experiences.

It is to ask yourself all the right questions: why I am doing it, how I am doing it, that's it.

(Alex)

Participants mentioned at the end of the interview that they were not confident when asked to define metacognition. To confirm this, we found in all of responses doubts and hesitations when approaching the concept.

I don't know if what I'm saying here is really metacognition.

(Augustin)

Now, maybe I'm wrong, it's not metacognition.

(Anthony)

3.3.2 | Not essential for learning L1 language

The interviews revealed that prompting students' metacognition does not seem to be one of the participants' priorities. It is not one of their high-priority missions, such as teaching children to read, to write and the like. They also feel that it is a form of teaching that goes beyond the expectations for their profession. Augustin justified this secondary aspect in parallel with his beginner level as a teacher. He made it clear that his primary role is to teach content to students. Thus, we see that for these teachers, prompting students' metacognition is not part of the learning process. This is despite the positive effects of metacognition they also told us about in the interview.

It's not something I take as indispensable.

(Arlette)

As a beginner, I'm more focused on all the learning and purpose. I don't necessarily do metacognition.

(Augustin)

I teach them reading, writing, grammar. But for me it's not essential to ask them questions about themselves at this point.

(Anthony)

3.3.3 | Lack of time

For the seven participants, prompting students' metacognition would be something that would take too much time. They feel that in order to complete the L1 curriculum, they do not have time for metacognition. And they had the idea that it would take a lot of time to do in the whole classroom.

It would really take a tremendous amount of time to do it. When?

(Alex)

They felt that it was not possible to 'add' more metacognition time to the set of tasks that they already have to complete on a daily basis in the classroom.

It's a matter of time. In fact, our timetables are not elastic. Now, at the same time, we have to include all kinds of things. We are asked to take computer classes, citizenship classes (...) so many things are added. I just don't see when I'm going to do metacognition on top of all that.

(Amelia)

I don't know how I could fit metacognition into my class schedule.

(Alex)

Participants believed that students' engagement in metacognition necessarily involves writing, which adds to the time it would take, both to allow time for questions in covering the course material, and also to let students respond in writing.

The problem is that it takes time to have a moment for the students to complete the metacognition questions. These are things that take time.

(Augustin)

Teachers also questioned whether the time they would spend prompting students to engage in metacognition would really pay off. Yet they all, for the record, pointed out all of the 'theoretical' benefits they conceived metacognition to offer.

I tend to think it's a bit of a waste of time, but I guess not.

(Anne)

But is the time spent on it profitable? I don't know.

(Alex)

I don't really see the point of wasting my time on this. I have so much to do in class. Time is already so tight. No, no, I think it would be a waste of time.

(Arlette)

3.3.4 | Beyond students' current level of skills

Six of the seven participants felt that late elementary school students do not yet have the skills to respond to metacognitive prompts. Only Augustin did not mention this. First of all, they thought that such students are too young to respond to metacognitive prompts. Three participants even expressed that demonstrating metacognition is complex for adults.

I find it very difficult for a 10–12-year-old.

(Arlette)

I think if I, as an adult, don't know what and how to answer and what they want from me, I'm not sure that an elementary school child could.

(Anne)

A second reason mentioned was that students do not understand the purpose of these questions. They do not understand what is being asked of them or why it is being proposed. Or students will respond but filter what they mean, out of social desirability.

I've already tried two or three times. But I really feel like they're looking at me like, 'What the hell does she want from me?'

(Anne)

I feel like the students would be in a school logic. They would answer what I expect. Without being true.

(Alex)

The third reason, mentioned by five of the participants (all except Augustin and Arthur) is that struggling students are unable to respond to metacognitive prompts, regardless of their age. Alex and Arlette pointed out that they have seen an increase in the number of struggling students in the classroom. And their belief that metacognition is inaccessible for these students reinforces not doing it at all.

Now we have to be clear, too, there are groups of students, those in difficulty, who would not succeed.

(Amelia)

I think that children with special needs already have so much trouble understanding what they are being asked to do, to do the task. So if on top of that we torture them by asking them what happened above. It's not possible.

(Alex)

3.3.5 | Not appropriate for L1 language tasks

All participants also emphasized that they would not integrate metacognition into any L1 language task at any time. Five participants (all except Arthur) thought that prompting students' metacognition would only be appropriate when performing complex tasks. They did not perceive how metacognition could be prompted in L1 language instruction, and they thought that it is not possible to do so. This apparent contradiction may stem from a lack of practical training and resources that bridge between theoretical knowledge and L1 classroom application. For them, it seemed more accessible to do this in mathematics, since students are usually asked to explain their problem-solving process.

I could do it, but only in math (...).

(Amelia)

More in mathematics because all the technical calculation and other things seem more realistic to me. In language teaching, I don't see when or how to do it.

(Augustin)

For me, metacognition, I would do it in problems to solve. But in L1 lessons, I don't see it. Especially for activities related to listening and speaking skills.

(Anthony)

3.3.6 | Must be done as a team, school-wide

Four teachers (Amelia, Arlette, Anne and Alex) seemed to consider metacognition as something that should be worked on as a team and throughout the elementary school curriculum. Indeed, all four teachers said that these are skills that should be developed from an early age to allow for their mastery. They did not see themselves doing this alone in their classroom without the support of their colleagues. Moreover, for Anne and Alex, if this has not

been introduced and practiced previously, it is too late to propose beginning to engage in metacognition to 10- to 12-year-old.

I need it to be a team project, thought-out with my colleagues from the beginning of primary school. Otherwise, it's useless.

(Amelia)

Because in the 5th/6th year, isn't it already late to learn how to do that? It should be done before that, too.

(Alex)

It might come easier collectively.

(Arlette)

3.3.7 | Not metacognitively competent as an adult

In the interviews, it emerged that all the teachers felt that they themselves were not competent as metacognitive individuals. They say they never had any metacognitive input when they were learners themselves. As a result, they say they have difficulty finding answers to the metacognitive questions they might ask students in the context of language teaching activities. And while some, like Anthony or Augustin, say they could still find some strategies for reading or writing, they don't see what they could come up with for oral language, and specifically listening comprehension.

To these metacognitive questions, I say to myself that, as an adult, I don't really know what to answer. And what do they want from me? Besides, I was never asked that when I was a student.

(Amelia)

It's already complicated to answer these questions, so even us adults, 'What did you learn in the activity on adjectives?' for example, I don't really know how to answer.

(Alex)

Okay, with reading strategies, I can see what I could highlight. Possibly a few strategies for writing too, and then some. But when it comes to oral communication, how do I go about listening to a message or speaking up? Well, I really don't know what to say.

(Anthony)

4 | DISCUSSION AND CONCLUSION

Current literature states that teachers are not yet prompting their students to engage in metacognition, despite the benefits highlighted by the research (Dignath & Mevarech, 2021). This is why we sought to understand the reasons that inhibit teachers from using metacognitive prompts in their L1 language classrooms.

As others have shown before us in other contexts (e.g. Haukås, 2012; Spruce & Bol, 2015), overall, the teachers in our sample believe that metacognition can provide benefits for students. But despite this, they explicitly say they do not prompt their students to engage in metacognition. Our study revealed seven reasons for this. Six of these seven reasons are already documented in the literature (for a complete overview, see Barbier &

Colognesi, 2023). Nevertheless, 1) our results confirm that these reasons, identified in studies ranging from 2010 to 2021, are still present today; 2) in previous studies, there are not as many reasons appearing in the same study; 3) previous studies are not focused on the teaching of a first language (French in our case of French-speaking Belgium). The six reasons are as follows: (1) Participants have difficulty understanding what metacognition is; (2) they think it is not essential for students to do this in order to learn their L1 language; (3) they say they do not have time to do it; (4) they think their students are not able to respond to metacognitive prompts; (5) they think it is not appropriate for L1 language tasks; (6) they think it is necessary to do it as a team and not just in their classroom by themselves. In addition, we were able to highlight an additional reason that is not yet documented in the literature: (7) teachers do not feel metacognitively competent as adults.

Thus, it appears that the failure to prompt students' engagement in metacognition in the L1 classroom is due to a combination of these seven reasons in our context of first-language teaching in French-speaking Belgium.

In addition, teachers' conceptual difficulties related to metacognition were evident in the studies consulted that looked at teachers' knowledge about metacognition as an obstacle to its implementation. (Ben-David & Orion, 2013; Braund, 2019; Haukås, 2012; Spruce & Bol, 2015; Wilson & Bai, 2010). Our study highlighted that the definitions provided by teachers were incorrect, imprecise or incomplete. For example, one teacher associated metacognition with students' prerequisites or prior knowledge, while another viewed it as planning actions by asking questions before starting a task. Four teachers out of seven defined metacognition as a reflection on actions only after they have been completed. Back in 2006, Veenman et al. explained that despite their good will, teachers are considerably lacking in knowledge about metacognition. We see that over time, this has remained constant, even though we might expect that teacher training that is increasingly based on research results would reduce this lack. Indeed, even our participants with the most recent teacher training experience did not define the concept correctly, even though some of our participants reported having been trained about metacognition during their teacher training programme. As formal knowledge that teachers possess has been shown to influence their instructional choices (Safrudiannur & Rott, 2021; Voss & Kunter, 2019), the lack of implementation of metacognitive prompting in teaching practice undoubtedly pertains to some extent to the lack of knowledge they received or retained about this concept.

Our participants did not prioritize metacognitive prompts, insofar as they did not consider them essential for student learning. Participants clearly expressed that they are busy with other tasks, and that their top-priority mission is to teach the content, which has been seen also in other work with teachers (Ioannidou-Koutselini & Patsalidou, 2015) and student teachers (Vosniadou et al., 2021).

Teacher participants in Wilson and Bai's (2010) and Suteu's (2021) studies also said they did not have time to prompt students' metacognition. As this result has emerged across multiple studies, including our own, the obvious challenge is to make teachers aware that metacognition is an essential part of the teaching/learning process and can help students' learning processes when given explicit instructional attention.

Our participants' belief that their students are too young to respond to metacognitive prompts was also seen in studies involving both elementary and middle school teachers (Ben-David & Orion, 2013; Braund, 2019; Spruce & Bol, 2015). This belief needs to be deconstructed, since it has been shown that the first metacognitive abilities and thinking begin to emerge at 2–3-years old, and continue to develop up to 10–12 years old (Bryce et al., 2015; Geurten & Bastin, 2019; Roebbers et al., 2020). In a previous study, we found that 6-year-old students could talk about the strategies they used to respond to a listening task (Colognesi, 2023). This is information that should come into play in teachers' metacognition training, with examples, to show teachers the possibilities for metacognitive engagement by students at different ages. But another of our studies (Demorsy et al., 2023) showed that while 12- to 13-year-olds can answer metacognitive questions, the way they talk about their strategies remains simplistic. In addition, our participants believed that students would not understand why they are being offered metacognitive prompts. This refers to telling students what the teacher's goals are when prompting their metacognition, so that students can also commit to responding to the prompts they are offered (Suteu, 2021).

The idea that metacognition is only possible in certain tasks and disciplines, such as complex tasks in mathematics, was mentioned by some teachers. This idea was not found in our review of research about teachers' beliefs and knowledge. On the contrary, Braund's (2019) teacher participants believed that metacognition is not associated with a specific domain. Zohar and Ben-Ari (2022) mentioned that this contradiction regarding the domain specificity or generality of metacognition is also present in the literature. Indeed, the initial assumption was that metacognition corresponded to a global and cross-cutting ability that applied to all domains and disciplines (Brown, 1987; Pressley et al., 1987). This was the view of participants in Braund's (2019) study. However, research has shown that there is a gradual shift from domain-specific metacognition to general metacognition between the ages of 10 and 13 (Allix et al., 2023). Once this age is passed, individuals exhibit general metacognitive abilities (Veenman, 2011). Nevertheless, our participants did not uniformly believe that metacognition is inappropriate for L1 classes. Instead, their hesitation seemed to stem from uncertainty about how to apply metacognitive strategies in language teaching. They perceived metacognition as more straightforward in subjects such as mathematics.

And like the participants in Braund's (2019) study, our participants believed that prompting students' metacognition should be a team project. They do not intend to do this alone in their classroom; they want it to be pursued together. They also want all teachers at the same school to practice this in their classrooms, starting with the youngest grades.

And finally, our participants feel that they lack metacognitive competence. They say that, as adults, they don't know how to correctly express the strategies they use to carry out language-related tasks. And they mention that it is even more complex for them when it comes to oral skills, both speaking and listening. They explain that they have never experienced this as a student. This opens the door to teacher training. If we want teachers to be able to call on their students' metacognition, it seems essential that they feel competent beforehand.

4.1 | Limitations

Besides the contributions of this study, readers should be aware of some limitations. First, we only interviewed seven primary school teachers. It is therefore their opinion that is reported here and we cannot, of course, generalize. A larger sample may now be needed to reflect on whether a greater or lesser proportion of teachers hold one or other belief.

Second, we specifically focused our interviews on language lessons (French). Even though teachers gave us some information related to other disciplines, we cannot expect to grasp teachers' conceptions of the use of metacognition from an interdisciplinary perspective. As primary school teachers are responsible for different disciplines, further studies could investigate their beliefs regarding specific disciplinary approaches (e.g. I think metacognition is more useful for learning math than languages).

Third, one of the many impacts of the Covid-19 pandemic has been teachers' feeling of being overwhelmed. In this context, and because they usually already consider metacognition as an additional, non-required task, it is possible that our participants were particularly emphatic when presenting metacognition as something they do not have the time to do.

4.2 | Practical implications

First, the lack of teachers' knowledge about metacognition highlights the need to train them properly on what it is and how it can be used in their classroom. And there is also a need for them to feel capable of responding to the metacognitive prompts they might offer their students. Vosniadou et al. (2021) suggested that teachers themselves should be trained to use metacognition during their own teacher training. In training settings where prospective teachers are asked to be reflective themselves, they show development (Colognesi et al., 2021). It is also

important to make metacognition a key element of in-service training as well. As shown by several authors (e.g. Coburn & Penuel, 2016; Colognesi & März, 2023), a promising way to do that is to train teachers to do research and through research, positioning metacognition as a central element of the research aspects done together with students/teachers.

Second, beside of knowing what is metacognition, teachers need to perceive its usefulness for students' learning processes. This implies the need to change teachers' beliefs about the use of metacognition. At this time the most relevant would consist of trying to introduce and analyse the effect of some activities, materials or actions to modify the attitudes of teachers towards metacognition. This is what we are currently doing by experimenting with a programme to train future teachers in metacognition (for a description, see Barbier & Colognesi, 2020).

Third, because teachers often rely on existing textbooks to prepare their lessons (Coppe et al., 2018), it seems important to make course materials with metacognitive prompts in the learning activities available to teachers. A whole school team approach to metacognition could also help with this, as textbooks are often a team's choice.

Fourth, beyond using a whole team approach to metacognition, it seems also important to adopt a developmental perspective about the implementation of metacognition in schools.

This study highlights the barriers that prevent teachers from integrating metacognitive strategies into their L1 language lessons. By addressing these barriers through targeted training and resource development, teachers will be better able to support students in L1 learning and in completing complex writing, reading, speaking and listening tasks. Ultimately, the results of this research are important for informing future teacher training programmes.

CONFLICT OF INTEREST STATEMENT

There is no conflict of interest for this submission.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Stéphane Colognesi  <https://orcid.org/0000-0001-5763-5873>

Thibault Coppe  <https://orcid.org/0000-0001-5886-5435>

REFERENCES

- Allix, P., Lubin, A., Lanoë, C., & Rossi, S. (2023). Connais-toi toi-même: une perspective globale de la métacognition. *Psychologie Française*, 68(3), 451–469.
- Avargil, S., Lavi, R., & Dori, Y. (2018). Students' metacognition and metacognitive strategies in science education. In Y. Dori, Z. Mevarech, & D. Baker (Eds.), *Cognition, metacognition, and culture in STEM education* (pp. 33–64). Springer. <https://doi.org/10.1007/978-3-319-66659-4>
- Barbier, E., & Colognesi, S. (2020). Investiguer l'évolution des connaissances, des croyances et des pratiques de la métacognition des futurs enseignants de français. *La lettre de l'AIRDF*, 67, 40–43. <https://doi.org/10.3406/airdf.2020.2334>
- Barbier, E., & Colognesi, S. (2023). Croyances des enseignants et des futurs enseignants relatives à la métacognition. In J.-L. Berger & S. Cartier (dir.), *L'apprentissage autorégulé* (pp. 199–215). De Boeck Supérieur.
- Barbier, E., & Colognesi, S. (2024). Les pratiques préconisées en formation pour faire la classe interviennent-elles dans les planifications des futurs enseignants de français? *Canadian Journal of Education*, 47(1), 113–148.
- Barbier, E., Dewulf-Termolle, J., & Colognesi, S. (2024). Évolution des connaissances et des croyances relatives à la métacognition de futurs enseignants du secondaire. In J.-L. Berger, S. C. Cartier, & A. Fagnant (dir.), *Apprentissage autorégulé: Formation, pratiques et conceptions des enseignants* (pp. 45–70). Alphil.

- Ben-David, A., & Orion, N. (2013). Teachers' voices on integrating metacognition into science education. *International Journal of Science Education*, 35(18), 3161–3193.
- Borg, S. (2011). Language teacher education. In J. Simpson (Ed.), *The Routledge handbook of applied linguistics* (pp. 215–228). Routledge.
- Braund, H. (2019). Science education: Exploring Ontario elementary teachers' beliefs and practices in metacognition. *Alberta Science Education Journal*, 46(1), 10–21.
- Brown, A. L. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65–116). Lawrence Erlbaum Associates.
- Bryce, D., Whitebread, D., & Szucs, D. (2015). The relationships among executive functions, metacognitive skills and educational achievement in 5 and 7 year-old children. *Metacognition and Learning*, 10(2), 181–198. <https://doi.org/10.1007/s11409-014-9120-4>
- Coburn, C. E., & Penuel, W. R. (2016). Research–practice partnerships in education: Outcomes, dynamics, and open questions. *Educational Researcher*, 45, 48–54.
- Colognesi, S. (2023). Listening comprehension is not innate to elementary school students: They need to be taught listening strategies. *Education 3-13*, 51(2), 262–275. <https://doi.org/10.1080/03004279.2021.1963802>
- Colognesi, S., Coppe, T., Leroux, L., & Wiertz, C. (2024). Does pedagogical metamorphosis exist? Exploring the practices of primary school teachers at different stages of their careers. *British Educational Research Journal*, 00, 1–29. <https://doi.org/10.1002/berj.4014>
- Colognesi, S., Deprit, A., Coppe, T., Van Nieuwenhoven, C., März, V., & Hanin, V. (2021). Developing student teachers' reflexivity toward their course planning: Implementation of a training program focused on writing and reflective skills. *SAGE Open*, 11(2), 21582440211016897. <https://doi.org/10.1177/21582440211016897>
- Colognesi, S., Hanin, V., Still, A., & Van Nieuwenhoven, C. (2019). The impact of metacognitive mediation on 12-year-old students' self-efficacy beliefs for performing complex tasks. *International Electronic Journal of Elementary Education*, 12(2), 127–136. <https://doi.org/10.26822/iejee.2019257657>
- Colognesi, S., & März, V. (2023). Educating about and through research. The role of research in pre-service teachers' classroom practices. In J. Madalińska-Michalak (dir.), *Quality teachers and quality teacher education. International perspectives from a Changing world* (pp. 329–351). Brill. https://doi.org/10.1163/9789004536609_016
- Colognesi, S., Piret, C., Demorsy, S., & Barbier, E. (2020). Teaching writing—With or without metacognition?: An exploratory study of 11-to 12-year-old students writing a book review. *International Electronic Journal of Elementary Education*, 12(5), 459–470. <https://doi.org/10.26822/iejee.2020562136>
- Coppe, T., März, V., Decuyper, M., Springuel, F., & Colognesi, S. (2018). Ouvrir la boîte noire du travail de préparation de l'enseignant: essai de modélisation et d'illustration autour du choix et de l'évolution d'un document support de cours. *Revue française de pédagogie. Recherches en éducation*, 204, 17–31.
- Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Sage.
- da Rosa, C. T. W., Corrêa, N. N. G., Passos, M. M., & de Mello Arruda, S. (2021). Metacognição e seus 50 anos: cenários e perspectivas para o Ensino de Ciências. *Revista brasileira de Ensino de Ciências e Matemática*, 4(1), 267–291.
- Decorte, R., Colognesi, S., Dacht, D., & Meunier, F. (in press). Perceptions and practices of L2 teachers in metacognitive oracy instruction: A longitudinal case study. *Australian journal of Applied Linguistics*.
- Demorsy, S., Hanin, V., & Colognesi, S. (2023). How do 12- and 13-year-old students respond to metacognitive questions? Findings from math and science classes in French-speaking Belgium. *Education*, 3-13, 1–15. <https://doi.org/10.1080/03004279.2023.2169049>
- Depaepe, F., De Corte, E., & Verschaffel, L. (2015). Students' non-realistic mathematical modeling as drawback of teachers' beliefs about and approaches to word problem solving. In B. Roosen-Winter (Ed.), *From beliefs to dynamic affect systems in mathematics education* (pp. 137–156). Springer International Publishing.
- Dignath, C., & Büttner, G. (2008). Components of fostering self-regulated learning among students. A meta-analysis on intervention studies at primary and secondary school level. *Metacognition and Learning*, 3, 231–264. <https://doi.org/10.1007/s11409-008-9029-x>
- Dignath-van Ewijk, C. (2016). Which components of teacher competence determine whether teachers enhance self-regulated learning? Predicting teachers' self-reported promotion of self-regulated learning by means of teacher beliefs, knowledge, and self-efficacy. *Frontline Learning Research*, 4(5), 83–105. <https://doi.org/10.14786/flr.v4i5.247>
- Dignath, C., & Mevarech, Z. (2021). Introduction to special issue: Mind the gap between research and practice in the area of teachers' support of metacognition and SRL. *Metacognition and Learning*, 16, 517–521. <https://doi.org/10.1007/s11409-021-09285-5>
- Geurten, M., & Bastin, C. (2019). Behaviors speak louder than explicit reports: Implicit metacognition in 2.5-year-old children. *Developmental Science*, 22(2), e12742.
- Hacker, D. J., Keener, M. C., & Kircher, J. C. (2009). Writing is applied metacognition. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 154–172). Routledge.

- Hanin, V., Colognesi, S., Cambier, A. C., Bury, C., & Van Nieuwenhoven, C. (2022). Association between prospective elementary school teachers' year of study and their type of conception of intelligence. *International Journal of Educational Research*, 115, 102039.
- Hanin, V., Colognesi, S., Cambier, A. C., Bury, C., & Van Nieuwenhoven, C. (2020). Décris-moi ta conception de l'intelligence et je te dirai quelle (s) pratique (s) évaluative (s) tu as tendance à préconiser. *e-JIREF*, 6(2), 45–71.
- Haukås, Å. (2012). Lærarhaldningar til språklæringsstrategiar [Teachers' beliefs about language learning strategies]. *Norsk Pedagogisk Tidsskrift*, 96(2), 115–129.
- Haukås, Å. (2018). Metacognition in language learning and teaching: An overview. In Å. Haukås, C. Bjørke, & M. Dypedahl (Eds.), *Metacognition in language learning and teaching* (pp. 11–30). Taylor & Francis.
- Haukås, Å., Bjørke, C., & Dypedahl, M. (Eds.). (2018). *Metacognition in language learning and teaching*. Taylor & Francis.
- Heyder, A. (2019). Teachers' beliefs about the determinants of student achievement predict job satisfaction and stress. *Teaching and Teacher Education*, 86, 1–10. <https://doi.org/10.1016/j.tate.2019.102926>
- Hiver, P., & Whitehead, G. E. (2018). Teaching metacognitively: Adaptive inside-out thinking in the language classroom. In A. Haukås, C. Bjørke, & M. Dypedahl (Eds.), *Metacognition in language learning and teaching* (pp. 243–262). Routledge.
- Ioannidou-Koutselini, M., & Patsalidou, F. (2015). Engaging school teachers and school principals in an action research in-service development as a means of pedagogical self-awareness. *Educational Action Research*, 23(2), 124–139. <https://doi.org/10.1080/09650792.2014.960531>
- Kagan, D. (2010). Implication of research on teacher belief. *Educational Psychologist*, 27(1), 65–90. https://doi.org/10.1207/s15326985ep2701_6
- Ma, L., & Liu, N. (2022). Teacher belief about integrating critical thinking in English teaching in China. *Journal of Education for Teaching*, 49, 137–152. <https://doi.org/10.1080/02607476.2022.2044267>
- Meunier, F., Hendrikx, I., Bulon, A., Van Goethem, K., & Naets, H. (2020). MultINCo: Multilingual traditional immersion and native corpus. Better-documented multi-literacy practices for more refined SLA studies. *International Journal of Bilingual Education and Bilingualism*, 26(5), 572–589.
- Miles, M., & Huberman, A. (1994). *Qualitative data analysis*. Sage Publications.
- Noël, B., & Cartier, S. (2016). *De la métacognition à l'apprentissage autorégulé*. De Boeck.
- Pressley, M., McDaniel, M. A., Turnure, J. E., Wood, E., & Ahmad, M. (1987). Generation and precision of elaboration: Effects on intentional and incidental learning. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 13(2), 291–300. <https://doi.org/10.1037/0278-7393.13.2.291>
- Raoofi, S., Chan, S. H., Mukundan, J., & Rashid, S. M. (2014). Metacognition and second/foreign language learning. *English Language Teaching*, 7(1), 36–49.
- Roebbers, C. M., Kälin, S., & Aeschlimann, E. A. (2020). A comparison of non-verbal and verbal indicators of young children's metacognition. *Metacognition and Learning*, 15(1), 31–49. <https://doi.org/10.1007/s11409-019-09217-4>
- Safrudiannur, S., & Rott, B. (2021). Offering an approach to measure beliefs quantitatively: Capturing the influence of students' abilities on teachers' beliefs. *International Journal of Science and Mathematics Education*, 19, 419–441. <https://doi.org/10.1007/s10763-020-10063-z.pdf>
- Schoonen, R., van Gelderen, A., Stoel, R. D., Hulstijn, J., & de Glopper, K. (2011). Modeling the development of L1 and EFL writing proficiency of secondary school students. *Language Learning*, 61(1), 31–79.
- Spruce, R., & Bol, L. (2015). Teacher beliefs, knowledge, and practice of self-regulated learning. *Metacognition and Learning*, 20, 254–277.
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Sage.
- Suteu, L. (2021). Teachers' beliefs about classroom practices that develop students' metacognition and self-regulated learning skills. *Acta Didactica Napocensia*, 14(1), 165–173.
- Teng, M. F., Qin, C., & Wang, C. (2022). Validation of metacognitive academic writing strategies and the predictive effects on academic writing performance in a foreign language context. *Metacognition and Learning*, 17, 167–190. <https://doi.org/10.1007/s11409-021-09278-4>
- Van der Maren, J. M. (2004). *Méthodes de recherche pour l'éducation* (2nd ed.). Presses de l'Université de Montréal et De Boeck.
- Veenman, M. (2012). Metacognition in science education: Definitions, constituents, and their intricate relation with cognition. In A. Zohar & Y.-J. Dori (Eds.), *Contemporary trends and issues in science education metacognition and learning* (pp. 21–36). Springer.
- Veenman, M. V. (2011). Learning to self-monitor and self-regulate. In R. E. Mayer & P. A. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 197–218). Taylor & Francis.
- Veenman, M. V. J., Van Hout-Wolters, B. H. A. M., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and Learning*, 1, 3–14. <https://doi.org/10.1007/s11409-006-6893-0>

- Vosniadou, S., Darmawan, I., & Lawson, M. J. (2021). Beliefs about the self-regulation of learning predict cognitive and metacognitive strategies and academic performance in pre-service teachers. *Metacognition and Learning*, 16, 523–554. <https://doi.org/10.1007/s11409-020-09258-0>
- Voss, T., & Kunter, M. (2019). “Reality shock” of beginning teachers? Changes in teacher candidates' emotional exhaustion and constructivist-oriented beliefs. *Journal of Teacher Education*, 71(3), 292–306. <https://doi.org/10.1177/0022487119839700>
- Williams, M., & Burden, R. (2010). *Psychology for language teachers* (15th ed.). Cambridge University Press.
- Wilson, N. S., & Bai, H. (2010). The relationships and impact of teachers' metacognitive knowledge and pedagogical understandings of metacognition. *Metacognition and Learning*, 5(3), 269–288.
- Xu, W., & Zhu, X. (2024). Examining metacognitive strategy use in L1 and L2 task-situated writing: Effects, transferability, and cross-language facilitation. *Metacognition and Learning*, 1–20. Advance online publication. <https://doi.org/10.1007/s11409-024-09387-w>
- Zohar, A., & Barzilai, S. (2013). A review of research on metacognition in science education: Current and future directions. *Studies in Science Education*, 49(2), 121–169.
- Zohar, A., & Ben-Ari, G. (2022). Teachers' knowledge and professional development for metacognitive instruction in the context of higher order thinking. *Metacognition and Learning*, 17, 855–895. <https://doi.org/10.1007/s11409-022-09310-1>

How to cite this article: Colognesi, S., Coppe, T., Dannau, L., & Barbier, E. (2024). Seven reasons why elementary school teachers do not encourage their students' metacognition in L1 language lessons. *European Journal of Education*, 00, e12740. <https://doi.org/10.1111/ejed.12740>