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Perceptions and practices of L2 teachers in metacognitive oracy instruction: A longitudinal case study

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Abstract

This embedded single-case study investigates four secondary school L2 teachers' perceptions of metacognitive oracy instruction (MOI) over a two-year Design-Based Research (DBR) project and examines the effects of the project on their declared practices almost a year after its completion. Questionnaires, learner notes, and interviews to the double were used to collect data. Data analysis included descriptive statistics and content analysis. The results indicate that the DBR project had an overall positive effect on three of the four teachers' perceptions of MOI. The study also found a link between the teachers' perceptions of MOI and their self-reported implementation in practice. The findings highlight difficulties teachers face in developing metacognitive practices, even when they believe in their efficacy and intend to implement them. The study offers insights into language teachers' adoption of metacognitive practices through DBR and can serve to inform teacher educators and researchers.

Keywords: Metacognition, in-service language teachers, second/foreign language teaching, design-based research, metacogntive oracy instruction, teacher professional development

Introduction

The positive effects of metacognition on student learning are now well documented (Avargil et al., 2018; Colognesi, Piret et al., 2020; Wilson & Bai, 2010). Research indicates that metacognition enables learners to understand their thinking processes, evaluate the effectiveness of their actions, and implement strategies for change (Veenman et al., 2006). In addition,

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engaging students in metacognitive processes improves their self-efficacy (Colognesi et al., 2019). The benefits of metacognition are also acknowledged in the field of Second Language Acquisition (SLA) (Anderson, 2002; Chamot, 2005; Wenden, 1998). Successful language learners commonly exhibit proficiency in metacognitive skills (Haukås, 2018; Zhang & Goh, 2006), and metacognitive strategies are seen as vital to the development of learner autonomy (Zhang & Zhang, 2019).

Despite the benefits, metacognitive activities are uncommon in classrooms (Depaepe et al., 2010; Dignath-van Ewijk, 2016) due to multiple reasons detailed by Barbier and Colognesi (2023). First, teachers struggle with understanding the concept of metacognition (Ben-David & Orion, 2013; Spruce & Bol, 2015; Wilson & Bai, 2010) and lack knowledge on how to engage students in metacognitive practices (Veenman et al., 2006). Second, teachers hold beliefs that may hinder the promotion of students' metacognition, such as the perception that students are incapable of answering metacognitive questions (Ben-David & Orion, 2013; Braund, 2019; Spruce & Bol, 2015). They also report time constraints as another barrier (Wilson & Bai, 2010; Șuteu, 2021).

In French-speaking Belgium (*Fédération Wallonie-Bruxelles*, FW-B), an ongoing educational reform called *Le Pacte pour un Enseignement d'Excellence*[1] (henceforth, the *Pacte*) mandates the implementation of metacognition as a core component of instruction (FW-B, 2016). This requirement presents a two-fold challenge in terms of shifting teachers' beliefs and providing training to empower teachers to effectively foster metacognition among their students (Barbier & Colognesi, 2024).

In a recent article, Sato and Loewen (2022) proposed Design-based Research (DBR) (The DBR Collective, 2003) as a collaborative solution to address "epistemological and practical obstacles" (p. 512) to the research-practice dialogue in Instructed Second Language Acquisition (ISLA). We believe that the challenges L2 teachers meet with metacognitive practices fall into these same categories and that DBR, given its iterative nature, offers a promising approach to their development and implementation. Therefore, we set out to determine to what extent DBR could contribute to L2 teachers' professional development (TPD) by promoting metacognitive practices.

In line with the *Pacte* reform (FW-B, 2016) and against the backdrop of the literature, we set up a DBR project to improve L2 learners' oral communication skills through metacognitive instruction. The project was funded by the FW-B and spanned two years with two iterative cycles. In this study, we portrait four different teacher profiles who were involved. We specifically focus on how said teachers' perspectives evolved during the DBR process, and if and how their declared metacognitive practices changed over time.

In the following sections, we first introduce the concept of TPD, and present L2 oracy and metacognitive practices as possibilities for TPD. We then outline the objectives of the study, and present our methods, the DBR process, the participants, and our data collection and analysis. Subsequent sections report the results for the four participants. Finally, we discuss these findings and their practical implications for L2 teaching.

Theoretical Background

This theoretical background section centers on the significant role of TPD in improving the efficacy of L2 teaching and is structured around three interconnected themes. Initially, the section establishes a basic understanding of TPD and suggests research as a springboard for it. The focus then shifts to two specific instances within this framework: L2 oracy and metacognition. These areas serve as key examples of how principles of TPD can be applied in language teaching contexts. The final part of the section introduces metacognitive oracy instruction (MOI),

an approach that integrates metacognitive instruction into L2 oracy education and represents a targeted practice for TPD.

Teachers' Professional Development

TPD opportunities play a pivotal role in the continuous improvement of instructional practices and student performance (Darling-Hammond et al., 2017). Desimone (2009) outlines that meaningful TPD offers a focus on content, active learning, coherence, sustained duration, and collective participation. Research by Wei et al. (2010) also puts forward the importance of aligning TPD activities with actual classroom and school priorities, which directly correlates with improved teacher practices and student performance. Similarly, Guskey (2002) suggests that changes in teacher practices are contingent upon TPD that directly relates to their specific classroom challenges, but also includes opportunities for applying new strategies to overcome those challenges. More recent research underscores the importance of continuous professional training that focuses on the teachers' work not only at the classroom level, but also at the organizational level (Coppe et al., 2024).

While research has been identified as an important contributor to TPD that can help teachers find solutions to concrete issues they face (Darling-Hammond et al., 2017), it appears that L2 teachers' engagement with research remains limited (Medgyes, 2017; Marsden & Kasprowicz, 2017). One way to ensure the effective dissemination of research findings and help teachers develop new practices is by involving teachers in the process and providing them with opportunities to develop professionally (Borg, 2013).

L2 Oracy and Metacognition as Objects of Professional Development

L2 Oracy

Oracy, a term introduced by Wilkinson (1966), is defined as "the ability to use the oral skills of speaking and listening" (p. 13). This concept parallels literacy and numeracy, which concern the abilities to read, write, and work with numbers, respectively. Unlike more commonly used terms such as 'communication skills' or 'speaking and listening skills' (Mercer et al., 2016), oracy clearly emphasizes the holistic nature of verbal communication. The term more accurately reflects real-life scenarios (Alexander, 2012), where speaking and listening can occur simultaneously or asynchronously, and can be interdependent or isolated.

Oracy holds a central position in language learning. As Goh (2014) reminds us, its importance extends beyond communication and has "long been accorded prominence in influential second language acquisition theories that foreground the importance of linguistic input and output" (p. 1). Consequently, it is not uncommon for research to examine 'listening and speaking' together. In fact, there is an increasing amount of research that investigates the effects of an integrated skills approach (listening and speaking) to L2 teaching. A critical synthesis of four such studies by Chen (2024) reveals that three out of the four yielded positive outcomes for learners. Additionally, the field of oracy intersects with metacognitive processes. Zhang and Goh's (2006) study of 278 Singaporean students' metacognitive knowledge and use of listening and speaking strategies is a case in point. Similarly, a study by Bangkom and Sukavatee (2021) focuses on the impact of oracy instruction in a blended-learning environment on Thai students' metacognitive awareness.

Metacognition

In educational sciences, metacognition is traditionally defined as the process of thinking about one's own thinking and learning (Flavell, 1979). The simplicity of this definition has led to a lack of consistency and clarity as to what the construct really entails (Veenman et al., 2006).

Nonetheless, contemporary research predominantly aligns with Flavell's (1979) and Brown's (1987) conceptualization, who emphasize two key components: metacognitive knowledge and metacognitive regulation. Another facet of metacognition, metacognitive experiences, has been alternatively associated with metacognitive knowledge (Flavell, 1979) or recognized as a separate component (Efklides, 2006; Allix et al., 2023). Although this study acknowledges the significance of metacognitive experiences, this aspect does not constitute its primary focus.

Flavell (1979) proposed dividing metacognitive knowledge into three dimensions: person, task, and strategy knowledge. *Person knowledge* pertains to the understanding of the learning process as experienced by oneself or others. *Task knowledge* encompasses understanding the nature of a task and the processes required to complete it. *Strategy knowledge* refers to familiarity with strategies, to perform tasks or reach learning objectives. Metacognitive regulation is facilitated using metacognitive strategies (Ku & Ho, 2010), which enable individuals to plan, monitor, and assess their learning or problem-solving processes (Brown & Deloache, 1978; Veenman, 2005; Veenman et al., 2006). In short, metacognitive strategies can be defined as the processes that allow learners to regulate their use of cognitive strategies (Flavell, 1979).

Metacognition in SLA

While Flavell (1979) recognized the role of metacognition in first language acquisition, he did not explicitly connect it to SLA. This linkage was first made by Wenden (1989), who adapted Flavell's model for L2 research by incorporating metacognitive knowledge of person, task, and strategy, along with metacognitive regulation. Drawing on this conceptualization, many researchers have since examined the link between metacognition and L2 learning and teaching (Sato, 2022; Zhang & Zhang, 2019). Findings indicate that metacognition is a predictor of successful language learning (Anderson, 2002; Chamot, 2005; Wenden, 1998). In fact, metacognition has been shown to benefit learner autonomy and self-regulated learning (SRL).

Metacognition is an essential component of learner autonomy, which Holec (1981) defines as "the ability to take charge of one's own learning" (p. 3). This inherently involves decision-making, self-direction, and self-evaluation by the learners (Little, 2003). Learners who effectively utilize their metacognitive knowledge are more likely to develop autonomy, as they can better assess their learning needs and adjust their approaches accordingly (Wenden, 1998; Zhang, 2016). This underscores the importance of fostering metacognitive skills to empower learners towards more autonomy.

While learner autonomy emphasizes a more general capacity to take charge of one's learning process, SRL, a similar concept, focuses on the specific strategies learners use to manage and control their learning path (Andrade & Evans, 2012). Metacognitive strategies are therefore integral to SRL, as they involve the active management of one's learning through planning, monitoring, and evaluating (Zhang & Goh, 2006). In practice, these strategies help learners identify the best ways to approach different learning tasks, leading to more personalized and therefore more effective learning experiences. For instance, Teng and Zhang (2016) used a quantitative approach and structural equation modeling to validate a questionnaire assessing SRL strategies in EFL writing. Their research included 790 undergraduates from six universities in Northeast China. They aimed to verify the hierarchical and multidimensional structure of SRL strategies, by focusing on the role of metacognitive strategies. Their results confirmed that metacognitive strategies are a significant predictor of successful self-regulation, especially in improving EFL writing proficiency.

Metacognitive Instruction and L2 Oracy Skills

Given the link between metacognition and successful language learning, researchers have investigated how metacognitive instruction can benefit L2 learners, particularly in improving their language proficiency. While there is some evidence regarding improvements in reading (Alqahtani, 2019; Zhang & Wu, 2009) and writing skills (Harris et al., 2009; Sitko, 1998), this discussion focuses more specifically on oracy skills.

Metacognitive instruction has been shown to have significant benefits for L2 listening comprehension. Several studies have found that metacognitive instruction can lead to substantial improvements, especially for less-skilled learners (Bozorgian, 2012; Graham & Macaro, 2008; Vandergrift & Cross, 2017; Vandergrift & Tafaghodtari, 2010). Li et al. (2022) examined the influence of language proficiency on the effectiveness of metacognitive instruction among Chinese college students. Their study found that the listening performance of the experimental group improved significantly compared to the control group, despite lower language proficiency constraining some learners' engagement in metacognitive activities. This study indicates that metacognitive instruction is effective in improving listening performance even when language proficiency exerts a negative effect. These benefits can also extend to young learners and those from low socioeconomic backgrounds. Colognesi (2023) conducted a study with early elementary students in schools with low socioeconomic index. The findings indicated that explicit instruction in comprehension strategies significantly enhanced listening performance across various student profiles. In addition to enhancing listening skills, metacognitive instruction also addresses the emotional aspects of language learning. Xu and Huang (2018) revealed that metacognitive awareness significantly mediated the relationship between listening anxiety and performance among Chinese EFL learners, once again particularly benefiting those with lower proficiency.

While there is comparatively less research on the role of metacognitive instruction in the development of speaking skills (Kim & Kim, 2017), findings increasingly seem to point in a similar direction. For instance, Forbes and Fisher (2015) found that explicitly teaching metacognitive strategies in secondary school French lessons positively impacted the learners' confidence and oral proficiency, as indicated by increased perceived value and use of metacognitive strategies after the experimental treatment. Similarly, Sato and Loewen (2018) noted that metacognitive instruction combined with corrective feedback improved speaking skills in English language learners. In a quasi-experimental study focusing on the effects of metacognitive instruction on young L2 learners, Sato and Dussuel Lam (2021) observed positive effects on metacognitive knowledge, L2 production, and participation patterns, despite the absence of notable changes in the learners' willingness to communicate.

Implementing Metacognitive Oracy Instruction

Amidst the landscape of metacognition and oracy research, it appears that enhanced metacognitive engagement in oracy instruction, or what we will now refer to as metacognitive oracy instruction (MOI) can help L2 learners develop the necessary metacognitive knowledge and regulation abilities to become accomplished listeners and speakers. Metacognitive knowledge in this context refers to understanding the nature of oracy tasks and one's own learning processes while performing them, along with a familiarity with effective comprehension (Goh & Vandegrift, 2021) and communication strategies (Sato, 2022). Metacognitive regulation involves the use of strategies to plan, monitor, assess, and regulate one's learning or problem-solving processes when performing oracy tasks. Across the various studies on metacognitive instruction, including those focusing on oracy skills, several recurring principles emerge regarding the implementation of MOI. This section summarizes these principles.

First, as the definition of metacognitive strategies suggests, the literature emphasizes the use of metacognitive prompts, which involve cues or questions to activate specific strategies to support learners' performance (Berthold et al., 2007) before, during, and after the task. In fact, in a study involving young learners, Kaur (2014) also suggests dividing listening tasks into smaller bits punctuated by metacognitive prompts.

Explicit instruction is often advised, especially to develop learners' strategy knowledge (Lam, 2010; Goh, 2014) and selecting those suitable for specific language learning tasks (Graham & Macaro, 2008). One way to achieve this is through modeling strategy use (Bowman et al., 2005). For example, in an experimental study aimed at enhancing EFL learners' proficiency through metacognitive strategy instruction, Rashtchi and Khani (2010) asked the teacher to initially describe, explain, and provide examples of a metacognitive strategy before learners engaged in the practice.

Soliciting learners' metacognition in writing is yet another recurrent principle. Reflective writing has been found to contribute to learners' metacognition (Moon, 2006) and foster deeper reflection (Lew & Schmidt, 2011). Employing learning journals can lead to increased metacognitive knowledge (Fung et al., 2019; Nückles et al., 2012). Kaur (2014) argues for the use of listening diaries to help learners reflect explicitly on their person, the task and the strategies they use. Goh (2008) also suggests using journals or diaries as forms of metacognitive instruction for L2 listening development. In the same vein, He (2011) found that weekly journaling led to EFL learners' improved pronunciation proficiency.

This Study

Aims

While the literature highlights the benefits of MOI and provides clear guidelines for implementation, such findings do not seem to percolate into practice. Research that is concerned with MOI typically focuses on their impact on learning (Fairbanks et al., 2010; Hattie, 2012; Hiver & Whitehead, 2018; Hiver et al., 2019) rather than on how language teachers perceive and appropriate this practice. In a recent study, Ozturk (2017) investigated the self-reported metacognitive instruction competencies of 30 English teachers before and after a professional development intervention. The results showed that half the teachers lacked metacognitive knowledge and competencies from the start, which is in line with highlights from similar studies in education (Fisher, 2002; Kerndl & Aberšek, 2012; Wilson & Bai, 2010). Ozturk (2017) also notes that the intervention only impacted the practices of highly metacognitive teachers. Their results bring forward the need for more research on teachers' perspectives on metacognitive instruction.

The current *Pacte* reform in French-speaking Belgium mandates the integration of metacognition into teaching. Yet, despite available guidelines in the literature, its complexity challenges effective implementation (Ben-David & Orion, 2013; Spruce & Bol, 2015; Wilson & Bai, 2010). The field of educational sciences provides solutions to address these challenges by changing teachers' beliefs, and as a result their practices (Aragón et al., 2018; Hanin et al., 2022). One promising approach is to train teachers through research (Darling-Hammond et al., 2017; Flores, 2017), particularly by engaging in collaborative research endeavors (Borko et al., 2010; Cochran-Smith & Lytle, 2009) such as DBR (Barab & Squire, 2004; McKenney & Reeves, 2012; The DBR Colllective, 2003).

Therefore, we have chosen to employ DBR to help bridge the research-practice gap in ISLA (Sato & Loewen, 2022), and to investigate the extent to which this methodology affects language teachers' perspectives on MOI. Most studies on metacognitive practices only capture teachers' perspectives at a specific moment. Such studies are also in short supply in

ISLA research. This study, which portrays four L2 teachers involved in a two-year DBR project on MOI, thus aims to offer a longitudinal perspective by exploring the following research questions:

RQ 1: How do the four language teachers' perceptions of MOI evolve over the two-year DBR research project?
RQ 2: What are the teachers' self-reported effects of the project on their practices almost a year after its completion?

Context

Secondary education in the FW-B is structured into three two-year levels. The first level, for ages 12 to 14, focuses on transitioning students from primary education, while the middle level, for ages 14 to 16, emphasizes orientation towards potential career paths. The final level, for ages 16 to 18, prepares students for higher education or the professional world, offering paths in general, technical, artistic, and vocational education (Eurydice Network, 2024).

To support in-service teachers working across these levels, the FW-B provides structured TPD opportunities through both mandatory and optional training days. They are entitled to six half-days of mandatory training each year to address collective educational needs, as well as ten half-days of voluntary training tailored to individual professional goals (FW-B, 2021). The number of training days is relatively limited, and these training sessions are typically designed as standalone events without subsequent follow-up. The focus is on immediate skill acquisition rather than ongoing development.

The *Pacte* reform was introduced to further improve the quality and equity of the educational system. It focuses on modernizing teaching practices, updating curricula, and improving teacher training to align with contemporary needs. This includes increasing mandatory training days, from three days to potentially four to six days annually, depending on needs (FW-B, 2017). To support TPD, the government has also facilitated sponsored research and training projects to help implement the reform in recent years, such as the project our DBR study is embedded in.

Methods

To achieve our research ambitions, we chose a qualitative approach and more precisely an embedded single-case design (Yin, 2017), which involves multiple subunits of analysis. By doing so, we aimed to obtain a fine-grained understanding of the different teachers' experience and relation to MOI in the wider context of the DBR project.

DBR Procedure

We employed DBR as a methodological approach within the broader field of Design Research (Van den Akker et al., 2006). This methodology proved successful in other studies pertaining to L2 teaching practices (Lim & Nguyen, 2021; Moore et al., 2018; Reeves & McKenney, 2013). It is characterized by its systematic yet flexible design of interventions and analysis to improve educational practices through progressive refinement and reiteration, with the aim of generating "sharable theories" (The DBR Collective, 2003, p. 5). DBR is mostly characterized by its iterative process. Reeves (2006) and Herrington et al. (2007) described DBR as involving an integrated approach where teachers and researchers first collaborate to analyze issues, where solutions are then developed, and where these solutions subsequently undergo iterative cycles

of testing and refinement. This process culminates in the joint evaluation of the intervention's effectiveness (Plomp, 2013), and the generation of theory that informs other practitioners interested in exploiting a similar design in their context (Anderson & Shattuck, 2012).

Five researchers (Author 1 and 4 included) and 115 lower-secondary English and/or Dutch as foreign language teachers from 22 school teams were initially recruited on a voluntary basis to participate in a state-funded DBR project. The project adhered to Reeves' (2006) and Herrington et al.'s (2007) four-phase model: collaborative analysis of issues, development of solution, iterative cycles of testing and refinement, and evaluation.

Phase 1 (September 2019) focused on the identification of oracy instruction challenges through discussions with teachers. In **Phase 2** (October to December 2019), the researchers reviewed relevant literature, designed a solution involving MOI, and introduced it to the teachers. This included two types of materials: models of listening and speaking tasks for explicit metacognitive strategy instruction and a metacognitive journal template (see translated examples in Appendix A and B). These materials were referred to simply as 'strategies' and 'learning journal' to facilitate communication and avoid jargon (Sato & Loewen, 2022). **Phase 3** consisted of two iterative cycles. The first cycle ran from January to May 2020, where teachers integrated and tested the materials within their lesson plans, including a mid-cycle review with the researchers in March. This cycle concluded with an evaluation in May 2020, leading to refinements in the design. The second cycle spanned from September 2020 to May 2021, starting with the introduction of these refinements. Throughout this period, the teachers implemented MOI, and a check-up meeting was held in February 2021. The project culminated in **Phase 4** (May 2021), where the design was evaluated with the teachers to generate theory on the application of MOI in language teaching. Figure 1 provides a detailed overview of these phases.

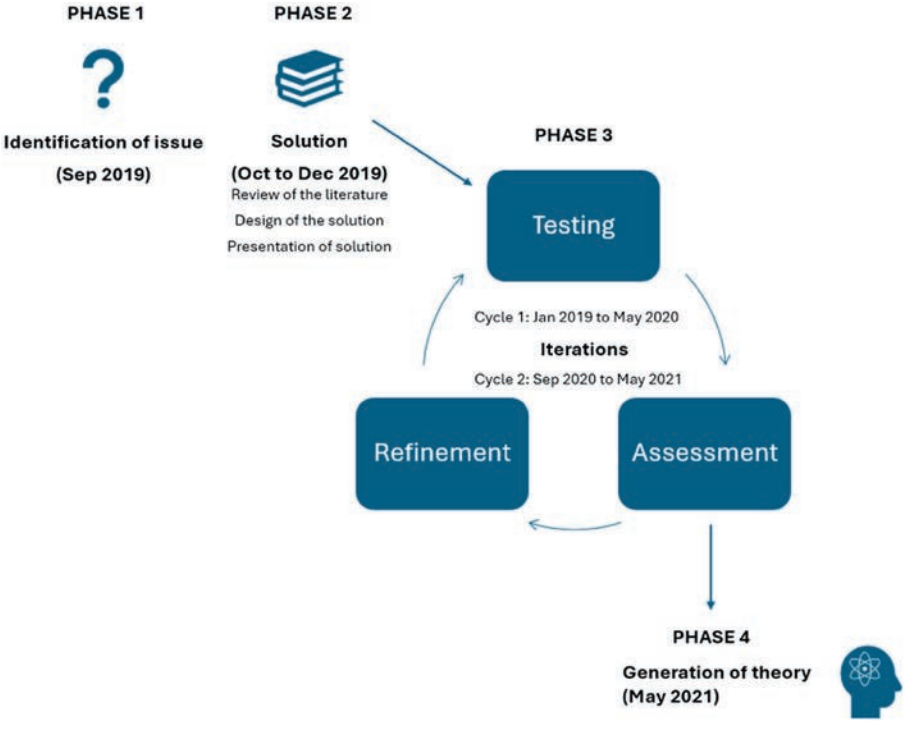


Figure 1 Overview of the DBR project.

Participants

This study specifically focuses on four teachers who took part in the DBR project. The selected teachers were part of the pool of 19 teachers who collaborated directly with Author 1. They were selected at the beginning of the second cycle. A series of three criteria was employed to select the participants.

First, the teachers had to participate in the second iteration as this would allow us to follow up on the effect of the project on their practices after the DBR concluded. Once this condition was applied to the population, 17 teachers remained eligible.

A second selection criterion pertained to experience. Seasoned teachers tend to be more reflective in their practice and have a greater understanding of the educational context in which they operate (Feiman-Nemser, 2001; Ingersoll & Strong, 2011). Novice teachers tend to be more self-focused, while experienced teachers exhibit a shift towards more learner-centeredness (Levin et al., 2010, 2013), an approach that recognizes the importance of metacognition (Bremner, 2022). Applying this criterion eliminated nine teachers.

The final selection of the four teachers was conducted through a qualitative, purposeful sampling approach, which consists "in selecting information-rich cases for in-depth study" (Patton, 2014, p. 401). In this context, the phenomenon was the teachers' engagement and attitudes towards MOI. To do so, two researchers used direct observations, a key technique in qualitative research (Angrosino, 2007), to assess teachers' verbal and non-verbal reactions during the first two meetings at the beginning of the second cycle. Observations included teachers' expressions of enthusiasm or skepticism, and engagement during discussions. These observations were systematically documented, by focusing on nuances such as facial expressions, the tone of voice, and body language. After the two meetings, the two researchers consulted their notes and agreed to select four teachers with different profiles.

The four different profiles of teachers represent a range of perspectives on MOI. To maintain confidentiality, they were assigned aliases based on their reactions. *C*laire was *C*onvinced, as she showed consistent enthusiasm and a proactive approach to adopting MOI practices, which made her an exemplary case for positive reception. *R*oberta was *R*eluctant, as she expressed skepticism and concerns, a view that puts forward challenges in terms of adoption. *P*hoebe had an overall *P*ositive attitude, as she was very enthusiastic. *Hope*, who joined the project for cycle 2 only, expressed *Hope*fulness towards the effects of MOI. Appendix C summarizes the information on the participants. To meet ethical standards, the participating teachers provided their informed consent, and the study was approved by the policymakers prior to data collection.

Instruments and Data

To answer research question 1, we used a questionnaire and to answer research question 2, we chose to triangulate (Flick, 2018) two data collection methods: learners' notes were collected and an interview to the double (ITTD) was conducted.

Questionnaires. The questionnaire used in this study is an adaptation of the TAM (Davis, 1989; Teo et al., 2007; Venkatesh & Davis, 1996) in French. Originally designed to assess individuals' readiness to adopt new technologies, Davis (1989) acknowledged its potential applicability "across a wide variety of innovation types" (p. 322). The model has since been widely used in various research contexts (Marangunić & Granić, 2015), as well as in the field of education (Teo et al., 2007; Scherer et al., 2019; Granić & Marangunić, 2019) and ISLA (Romero Muñoz et al., 2024). Although our study did not primarily examine technological aspects, we contend that MOI aligns with Davis's (1989) idea of innovative practice. The TAM dimensions (Perceived Usefulness, Perceived Ease of Use, Attitude, Intention to Use) center around change,

and technology is just an instantiation thereof, which can therefore be readily substituted with any other novel practice.

Our questionnaire was administered at four key points during the project: first, after presenting MOI as a solution in December 2019 (T1); second, after the completion of the first cycle in May 2020 (T2); third, before the beginning of the second cycle in October 2020 (T3); and finally, at the end of the project in May 2021 (T4).

The questionnaire had four sub-scales of 12 items, which aimed to examine teachers' perceptions of strategy instruction (metacognitive strategies) and of the learning journal (metacognitive journal), each time from theirs and their learners' perspectives. Appendix D provides an overview of the questionnaire and examines its psychometric quality. Although our study examines the responses of four specific teachers, all participating teachers in the DBR project underwent the same process. Some open questions were also added to complement the teachers' answers. A summary thereof is provided in Appendix E.

Learners' notes. In March 2022, about a year after the DBR project concluded, we reached out to four teachers to collect samples of their learners' materials from the previous month, including notes, handouts, worksheets, textbooks, journals, or any annotated classroom materials. We asked for materials from the preceding month to avoid influencing current teaching practices. The teachers selected a student with perfect attendance for that month, ensuring the materials accurately reflected the activities completed during the period.

Interview to the double. To obtain a fine-grained perspective on the teachers' activities and idiosyncratic choices (Nicolini, 2009), we used the ITTD methodology (Clot, 2001). This introspective method (Mackey & Gass, 2021), akin to a think-aloud protocol, involves the interviewee instructing a 'double' (the interviewer) on performing a task, allowing this double to execute it independently (Forget, 2013). This approach was chosen to investigate if and how the teachers had been incorporating metacognitive strategies into their teaching. Prior to the interview, the interviewer had a more informal discussion with the teacher about the learners' notes and the DBR project to establish a relaxed atmosphere. The teachers were then shown samples of learners' notes and asked to select an activity identified by researchers as using MOI, or a suitable listening or speaking activity if none were labeled as such. The ITTD began with the researcher asking:

> *Suppose I'm your double and tomorrow I find myself in the position of having to replace you to give this activity. What instructions would you like to give me so that no one notices the substitution?* (adapted from Clot, 2001)

Using the second person, the teacher then proceeded to explain how to carry out the selected activity. The researcher asked 'naive' questions or repeated some of the teachers' statements to elicit detailed explanations. Conducted in French (the teachers' first language) and recorded, the interviews, including preliminary discussions, lasted an average of 42 minutes, totaling 32,252 words in transcription.

Analysis

To answer RQ1 (i.e., How do the four language teachers' perceptions of MOI evolve over the two-year DBR research project?), the responses to the questionnaire items were described using *ggplot2 package* (Wickham, 2016) on R (version 4.1.3) software. For each teacher, we calculated the average of the responses across the four dimensions—perceived usefulness, perceived ease of use, attitude towards use, and intention to use—at four different time points: T1, T2, T3, and T4. These averages were plotted on a line

graph for each dimension, with time on the X-axis and the average scores on the Y-axis. For each teacher, four separate graphs were created to depict the progression in each of the four dimensions throughout the DBR project. Additionally, each graph included four lines representing the different Likert scales employed: the teacher's perceptions of strategy instruction for herself (ST) and her learners (SL), and the use of the learning journal for herself (JT) and her learners (JL).

To answer RQ2 (i.e., What are the teachers' self-reported effects of the project on their practices almost a year after its completion?), a content analysis approach (Miles et al., 2019) was used to examine both the learners' notes and the ITTD transcriptions. To do so, a series of criteria based on our theoretical framework were used as theory-generated codes (Marshall & Rossman, 2016) to analyze both the learners' notes and the transcription of the interviews. Table 1 summarizes these criteria and descriptors.

Table 1 Criteria for content analysis.

	Criteria	Descriptors
1	**Presence of oral or listening tasks**	The materials contain listening/speaking activities with potential for MOI.
2	**Prompting**	The teacher offers metacognitive prompts before (planning)…
		… during (monitoring)…
		… after (assessing and regulating) the listening/speaking activities.
3	**Explicit Instruction**	The teacher explicitly instructs learners on how to select strategies that fit a specific language speaking/listening task.
4	**Modality**	The teacher solicits learners' metacognition in writing.
		The teacher solicits learners' metacognition orally.

Learners' notes. For the analysis of the learners' notes, the analysis thus focused on identifying instances where listening and speaking tasks were presented with opportunities for metacognitive instruction, on the presence of metacognitive prompts at key moments (before, during, after the task), and on explicit instructions on strategies and strategy selection. The notes were also examined for evidence of written prompts and instructions (in the form of a learning journal or not). This evaluation helped determine whether and how MOI practices were documented**.**

Interview to the double. Similarly, the criteria utilized for analyzing the learners' notes were adopted as pre-established themes to facilitate the coding of the ITTD data. Additionally, we specifically looked for traces of spoken metacognitive instruction as well as spoken prompts, as this could not be observed in the learners' notes.

Results

Teachers' Perception of MOI

In what follows, we answer RQ1 by presenting the selected teachers' perceptions of MOI over the DBR project. To do so, we combined the produced graphs with the teachers' answers to the open-ended questions in the questionnaire. The answers were translated from French into English.

Claire's Perception of MOI. Claire has a positive profile overall, and the curves for the different variables measured indicate that she remains favorable in terms of her perception of usefulness, her attitude, and her intention to use both the strategies and the learning journal the following year (see Figure 2). Only her perception of the ease of use seems to deteriorate between T3 and T4.

She also believes that strategies benefit learners:

> *Strategies allow students to understand certain processes, to become aware of their needs and difficulties in communicating in a foreign language, to overcome certain shortcomings (lexical, grammatical, behavioral, etc.), to gain confidence in themselves.* (T3)

Only the curve of her perception of ease of use decreases between T3 and T4, both for the strategies and the journal, but more for the students than for herself.

Even though she mentions having already used the strategies in the first year of the project, it is the metacognitive reflection in writing through the learning journal that, after a cycle of experimentation, still seems complex for her to implement:

> *Last school year I was able to practice some of them [...] and the experience was positive and beneficial for the students.* (T3)
>
> *I'm not worried about it, but it's true that working with the learning journal sometimes takes quite a bit of time.* (T3)

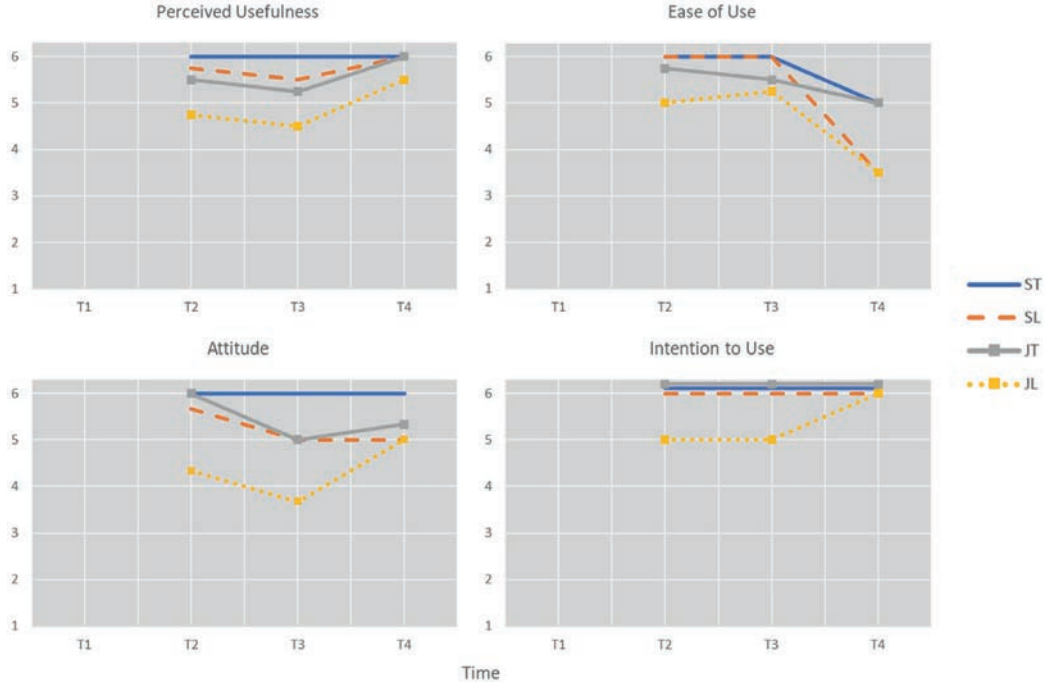


Figure 2 Evolution of claire's perception of strategy instruction and use of a learning journal for herself and her learners.

Note. ST = Strategies for Teachers. SL = Strategies for Learners. JT = Journal for Teachers. JL = Journal for Learners.

Roberta's Perception of MOI. In many ways, Roberta's profile is different from Claire's. Overall, she has a negative final opinion on all the variables but one: she finds it easy to teach strategies and to have learners reflect in writing in the learning journal (see Figure 3).

Most of the variables change positively between T1 and T2 but deteriorate as time goes on. The deterioration of the curves can be explained by two aspects. First, she has difficulties in understanding the concept of strategies which remain "too vague"[2] (T3) and whose implementation "takes time" (T3). Second, concerning the implementation of the learning journal, the two disadvantages seem to be "a lot of sheets" and "a lack of time to analyze the answers" (T3).

Two variables evolve positively between T3 and T4. The graphs reveal that her own perception of the ease of use of the strategies and the learning journal is quite high at the end of the project. It appears that she finds it easy to integrate MOI in her practices, but that her learners find it difficult. This, combined with her low perception of the usefulness of MOI could also explain her attitude and unwillingness to continue to implement it further. Yet, Roberta mentions in the questionnaire that "it is a pity that the project will not continue" (T4).

Phoebe's Perception of MOI. Phoebe has an overall positive profile (see Figure 4), especially regarding strategy instruction.

In fact, it appears that she connects her new practices to what she already did before:

> *Yes, but many of the strategies were already used in different textbooks. What is interesting is to pull together everything that already exists and use them more in listening comprehension exercises.* (T3)

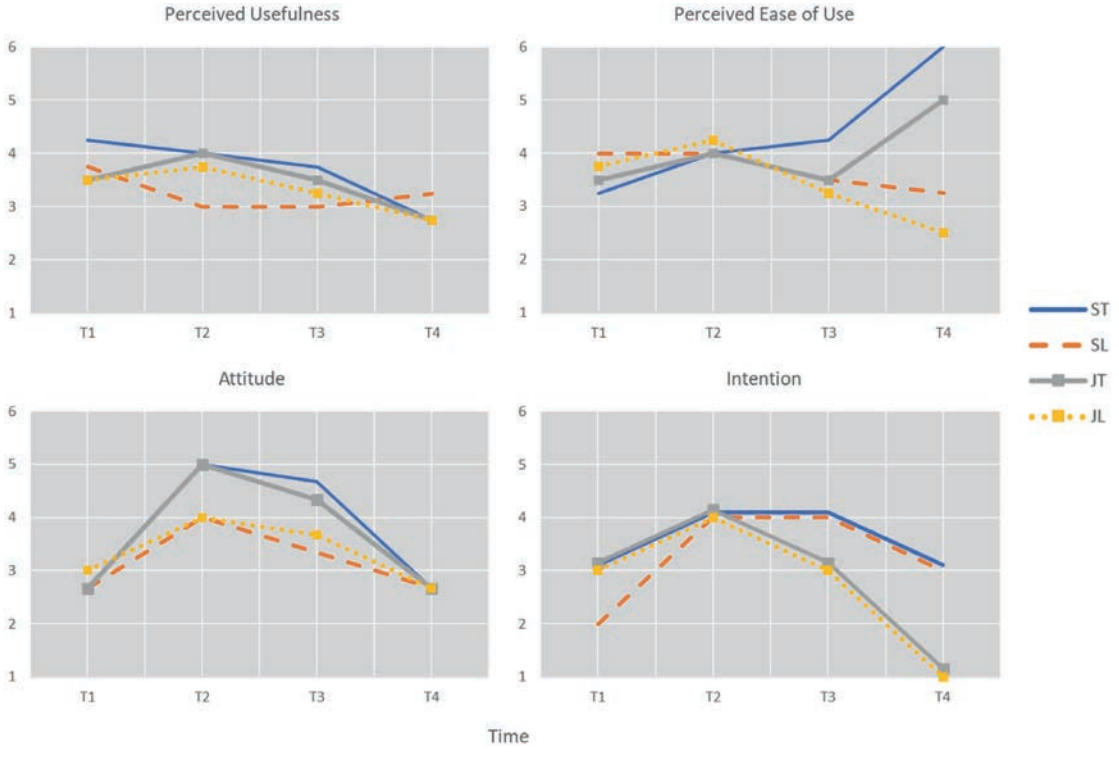


Figure 3 Evolution of Roberta's perception of strategy instruction and use of a learning journal for herself and her learners.

Note. ST = Strategies for Teachers. SL = Strategies for Learners. JT = Journal for Teachers. JL = Journal for Learners.

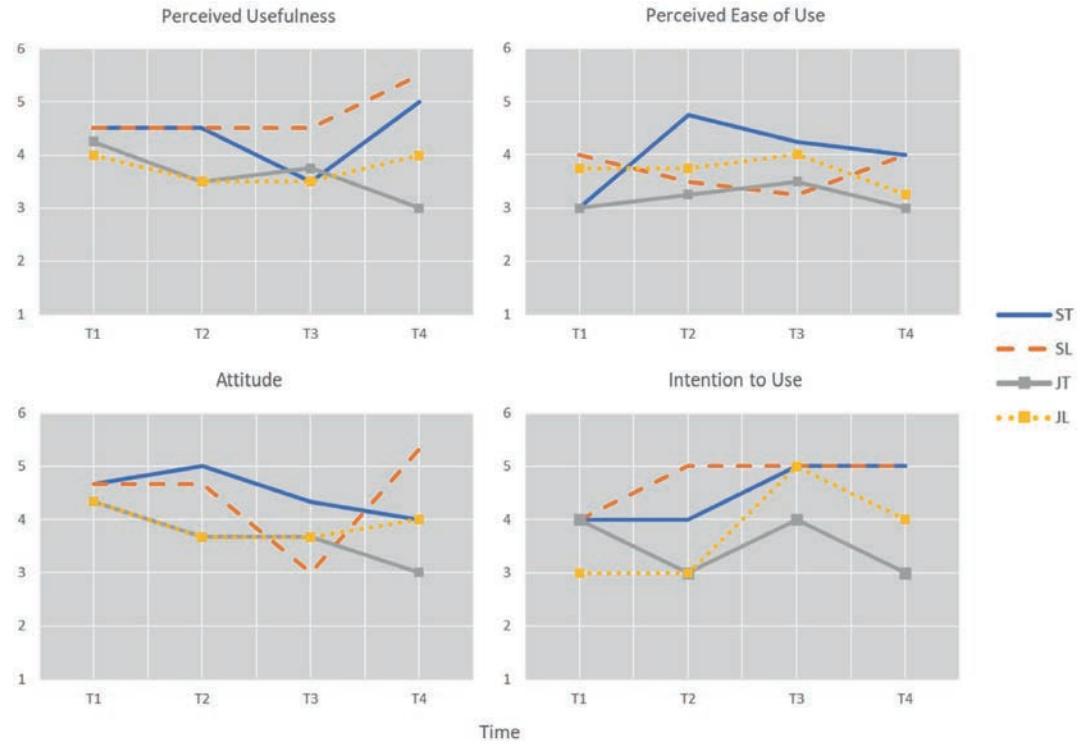


Figure 4 Evolution of phoebe's perception of strategy instruction and use of a learning journal for herself and her learners.

Note. ST = Strategies for Teachers. SL = Strategies for Learners. JT = Journal for Teachers. JL = Journal for Learners.

In contrast, the curves are lower for soliciting metacognition in writing which she explains is due not only to lack of time to put the activities into practice, but also to a need for training:

> *We didn't have time to use the learning journal very much. I would use it in the future, but mainly to do some work method with them.* (T2)
>
> *I think the students could benefit if we were better trained because right now I find it complicated to guide them.* (T3)

Nonetheless, she expresses benefits related to metacognition:

> *I think it can be interesting to read the learners' perceptions in order to improve our practices. It will help us realize the difficulties our students are facing*. (T1)

Hope's Perception of MOI. As visible in Figure 5, Hope's profile shows a generally positive development in relation to metacognitive strategies for both herself and her learners.

Her perception of the usefulness of the metacognitive journal was quite negative when she joined the project. She attested that "[i]t takes time, the students don't see the point, and don't use it outside of [her] prompting." (T3)

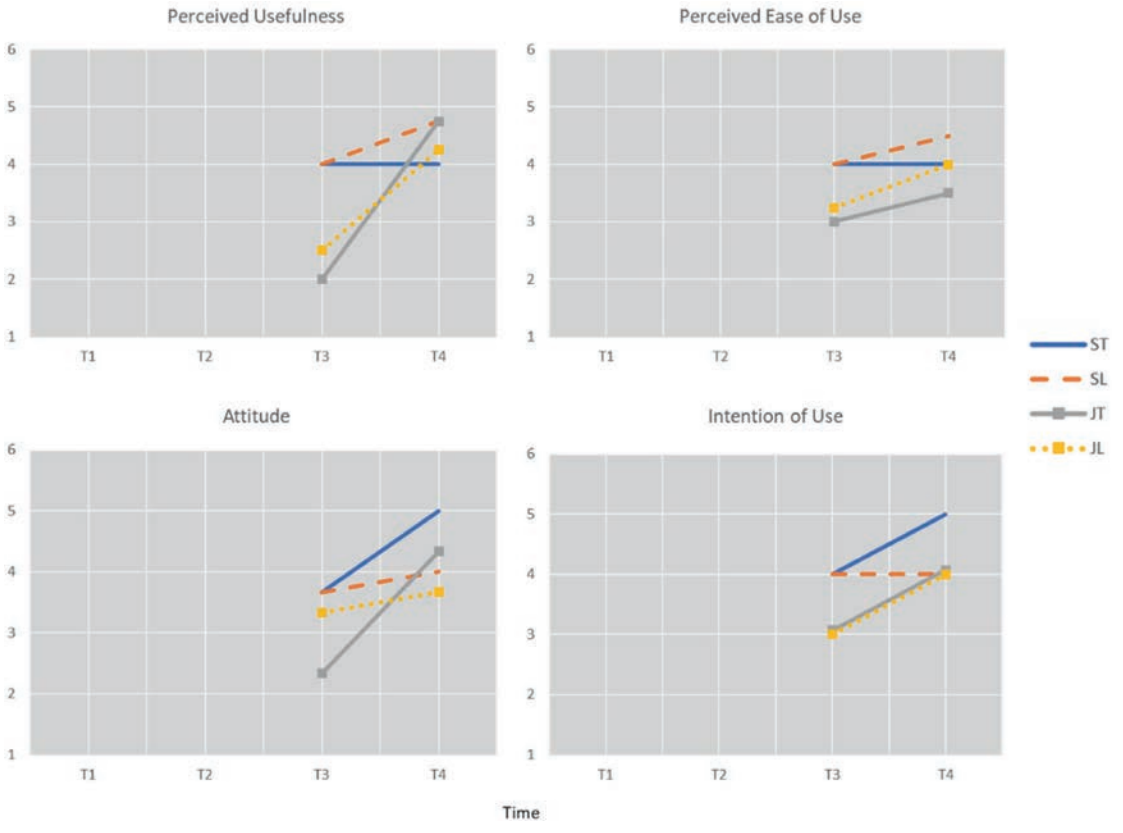


Figure 5 *Evolution of Hope's perception of strategy instruction and use of a learning journal for herself and her learners.*

Note. ST = Strategies for Teachers. SL = Strategies for Learners. JT = Journal for Teachers. JL = Journal for Learners.

She also suggested not using it "in this form" (T3), but "agree[d] with the reflective aspect" (T3) of the exercise.

Nonetheless, her opinion evolved significantly, as her perception of the usefulness of written metacognition increased drastically between T3 and T4. Her intention to continue implementing MOI is also higher at the end of the project. She explains:

> *The task is not always easy and requires a great investment of time, but I intend to continue the work done with the researchers in the years to come in my 1st year classes and to extend it to the 2nd years as well. I would also like to gradually be able to do this work in the other skills.* (T4)

Teachers' Self-reported Effects on their Practices

In this section, we answer RQ2 by describing the teachers' self-reported effects of the project on their practices almost a year after its completion. To do so, we portrait each teacher's metacognitive practices by combining our criteria analysis with translated verbatims from the ITTD transcription.

Table 2 Claire's metacognitive practices.

	Criteria	Descriptors	Notes	ITTD
1	**Presence of oral or listening tasks**	The materials contain listening/speaking activities with potential for MOI.	X	N.A.
2	**Prompting**	The teacher offers metacognitive prompts before (planning)…	X	X
		… during (monitoring)…	X	X
		… after (assessing and regulating) the listening/speaking activities.	X	X
3	**Explicit Instruction**	The teacher explicitly instructs learners on how to select strategies that fit a specific language speaking/listening task.	X	X
4	**Modality**	The teacher solicits learners' metacognition in writing.	X	X
		The teacher solicits learners' metacognition orally.	N.A.	X

Claire's Metacognitive Practices. It emerges from the analysis of the data relating to Claire's activity that she implements MOI in a very regular manner throughout the year. In fact, she has set up a learning scenario dedicated to strategies. Table 2 shows that Claire also ticks all the boxes when it comes to MOI.

To illustrate her practice, she explains that she begins each activity by having students plan the tasks:

> *So, me, the first thing I would explain is that it's a planning strategy, which means we're going to plan. We're going to teach the students to plan things, that is to say that we're not going to give them the sheet and "you go ahead and do it" we're going to say "how are you going to do your spoken interaction here."*

Moreover, she explains a strategy specific to the context of the task:

> *Finally, you'll also have to explain that a dialogue, well there's an introduction and there's an ending and you don't do a dialogue like that without saying 'hello' and so on.*

She reminds the learners to use strategies they have already seen:

> *"Don't forget that you can use gestures too. If you don't know how to say, 'sit down' anymore, well point to it and say 'please'." At least the communication won't be cut off.*

She gives special attention to regulation in the task as well, by inviting students to mention difficulties and strategies they use:

> *We do a debriefing immediately. So I tell them, "How did you find this?". Give me the positive points. If there were none, negative points then, without being critical, of course, it's just constructive, that is to say we will eventually use the negative points to avoid making the same mistakes.*

This allows them to use the strategies that they think are the best for them, and she explains additional ones to them:

> *I also explain to them that there are 2 ways to do it here, there are some students who [...] use mindmaps. You tell them "If you're used to doing it with this", you use page 4. If some of the other students are more used to using a table and prefer a table instead, well you do it in the table, it's the same.*

She proposes moments to evaluate their productions and strategies:

> *When we do our debriefing, we obviously analyze what we saw. Here's what happened, what went well, what didn't go well, why it didn't go well, what needs to be improved so that it works better.*

In the evaluation, Claire allows everyone to identify the elements they must improve and to find the means to do so.

> *This means that for the student who is at the blackboard and who has played role B, it will also allow him to say, "Oh yes, I must speak louder, I must articulate, I must uh, I must improve my pronunciation."*

In connection with her less positive perception of ease of use in the questionnaires, Claire expresses that she tends to prompt metacognition in an oral manner:

> *So, the sheets that we had during the project, that's a little too constraining in writing for them. I also did it once, but I like to do it orally because we have them in front of us and we really have them in the heat of the moment.*

Finally, Claire embeds metacognitive prompts directly in the course materials (see Appendix F). She states:

> *This little self-assessment sheet, uh, it's pretty easy, so it's pretty quick and so [...] it's not going to be a problem.*

Roberta's Metacognitive Practices. The analysis of Roberta's data did not uncover any indication of regular strategy instruction (see Table 3). She blames this on lack of time:

> *Strategies, yes. I don't do them systematically. Well, the lack of time in class is the reason too. There are so many things to cover in the curriculum.*

Table 3 Roberta's metacognitive practices.

	Criteria	Descriptors	Notes	ITTD
1	**Presence of oral or listening tasks**	The materials contain listening/speaking activities with potential for MOI.	X	N.A.
2	**Prompting**	The teacher offers metacognitive prompts before (planning)…		
		… during (monitoring)…		
		… after (assessing and regulating) the listening/speaking activities.		
3	**Explicit Instruction**	The teacher explicitly instructs learners on how to select strategies that fit a specific language speaking/listening task.		
4	**Modality**	The teacher solicits learners' metacognition in writing.		
		The teacher solicits learners' metacognition orally.	N.A.	

It appears that Roberta's teaching method involves providing instructions, having the students complete the exercise, and then correcting it by emphasizing the content.

> *So after the exercise is explained, you do to the first listening. […] So then you go to the listening and they have to do the exercise […] Then when you correct, you make them make small sentences.*

For example, for a listening task, she has students listen to the material several times without discussing the strategies at any moment of the process.

> *Yes, the second listening, do it with pauses. […] [G]ive them time to write, to think, to see where they are. And the third time, I don't usually pause.*

Nevertheless, if she mentions that she acknowledges a time of oral reflection on the strategies is necessary before carrying out the task, she does not seem to do it in a systematic manner as confirmed by a part of her interview:

> *So, before we even start, it's true that we need to ask them a little bit about what they're going to listen to, how they'll be able to guess; that is give them little strategies at that level.*
>
> *This one I don't really introduce because it's just listening and completing a plan.*

Roberta explains that time and high student population are factors that prevent her from integrating MOI:

> *Now, when you have a lot of students, it's complicated to implement. It's always lack of time and time management in class as well.*

Phoebe's Metacognitive Practices. Table 4 summarizes Phoebe's metacognitive practices. The analysis of the interviews and the written traces point to three aspects. First, Phoebe pays particular attention to vocabulary.

> *The learners don't know much vocabulary in general, so it would be good to do a vocabulary recap first to see what they already know.*

Second, she follows books.

> *Uh, and so in the book on page 179, you can work on the mindmap that's there.*

Third, she appears to offer prompts to activate a planning strategy. For instance, in the following excerpt she allows learners to anticipate the content of the listening exercise:

> *It's an anticipation activity, so it's before the first listening, you have 4 images and [...] they have to imagine what they could hear thanks to the images.*

Table 4 Phoebe's metacognitive practices.

	Criteria	Descriptors	Notes	ITTD
1	**Presence of oral or listening tasks**	The materials contain listening/ speaking activities with potential for MOI.	X	N.A.
2	**Prompting**	The teacher offers metacognitive prompts before (planning)...		
		... during (monitoring)...		
		... after (assessing and regulating) the listening/speaking activities.	X	X
3	**Explicit Instruction**	The teacher explicitly instructs learners on how to select strategies that fit a specific language speaking/listening task.		
4	**Modality**	The teacher solicits learners' metacognition in writing.		
		The teacher solicits learners' metacognition orally.	N.A.	

To do this, she proposes the pre-listening strategy on an additional handout. She mentions that she does not discuss it in detail with the learners afterwards but rather asks them orally whether this step was useful.

> *In any case, we didn't correct what they wrote down, so I wouldn't spend too much time on what they wrote down [...] Maybe go back to the first sheet and ask them "did this sheet help you?"*

Hope's Metacognitive Practices. Table 5 summarizes the analysis of Hope's metacognitive practices based on her learner's notes and the interview.

Hope considers that the project has allowed her to verbalize existing practices, to become aware of them and to clarify them.

> *We weren't starting from scratch because there were already things in our practices. Now, I think we needed to go into more detail.*

She finds that strategies are effective because they meet the needs of the students and that they are worth taking the time to use.

> *I think that these strategies, for students who need to have, to follow different steps and to go through a stage of reflection before accomplishing a task, I think that for them, it is beneficial to take this time.*

The analysis of her learner's notes shows that the teacher follows a book but adds extra sheets or other questions that students copy in their book.

Table 5 *Hope's metacognitive practices.*

	Criteria	Descriptors	Notes	ITTD
1	**Presence of oral or listening tasks**	The materials contain listening/speaking activities with potential for MOI.	X	N.A.
2	**Prompting**	The teacher offers metacognitive prompts before (planning)...		
		... during (monitoring)...		
		... after (assessing and regulating) the listening/speaking activities.	X	X
3	**Explicit Instruction**	The teacher explicitly instructs learners on how to select strategies that fit a specific language speaking/listening task.		X
4	**Modality**	The teacher solicits learners' metacognition in writing.	X	X
		The teacher solicits learners' metacognition orally.	N.A.	

After some activities, Hope seems to offer metacognitive prompts orally.

> *Then you ask the others to observe: "OK what could they do to further improve their performance?" We try to be positive, we're not going to say, "what was wrong?", so we value the student.*

The learners then summarize the discussion in writing:

> *So, at some point, we stop, we summarize and often it's either a method, or here for the dialogues, it was 10 sentences maximum, not more.*

She explains that the learners sometimes request a written summary of metacognitive moments themselves:

> *They asked me "can we write down some sentences and have a written record of all that in our notes".*

Nevertheless, the metacognitive prompts do not seem to be enough, as the teacher realizes that most students fail to mobilize the same strategies autonomously afterwards.

> *The students are not going to spontaneously remember the strategies that we saw two months before.*

Therefore, she reactivates these strategies herself as she "[has] to get them to do that". She would like to continue to emphasize this in the future but finds that it requires focus and energy.

> *I'm going to re-insist, I hope that in the second year it will continue because sometimes the things that were put in place in the first year come to a halt, you have to start again. So, it requires the teacher to be quite attentive to everything you have seen before, and you cannot have a slump.*

Discussion

The results for RQ1 indicate that the DBR project had a positive effect on three out of four teachers' perceptions of MOI. Claire's positive perception was reinforced, while Phoebe showed improvement in her perception of MOI's usefulness and intention to use. However, Phoebe expressed a need for more support after the project. Hope's perception of MOI displayed a promising evolution. Soliciting students' metacognition in writing, particularly through a learning journal, proved challenging for all three teachers due to time constraints. Phoebe, unlike Claire and Hope, had reservations about the usefulness of metacognitive writing. Initially skeptical, Hope eventually became convinced. In contrast, Roberta's perception of MOI remained unaffected, with no intention to use the strategies or the learning journal in the future. She struggled to grasp their value, and her initial negative attitude towards them evolved positively during the first iteration only to deteriorate towards the end of the project.

Regarding RQ2, our findings suggest a positive yet somewhat more limited effect of the DBR project on the practices of the same three teachers. In fact, the results indicate a connection between the teachers' perceptions of MOI and its implementation. Claire's positive attitude is

reflected in her effective integration of MOI into her teaching, including metacognitive prompting, explicit instruction, and moments for soliciting learners' metacognition in writing. Neither in the individual interviews nor in the written traces did the analyses reveal any evidence that Roberta includes MOI in her practices, which aligns with the conceptual and temporal constraints reported in the questionnaires. Phoebe, who needed additional support in implementing MOI, is limited in her practice. She teaches cognitive strategies and attempts to offer metacognitive prompts to assess the use of these strategies. For Hope, the positive evolution observable in the results of the questionnaires translates into a partial integration of metacognitive strategies in her teaching practices.

Interestingly, Hope, who joined the project during the second cycle, displayed a positive attitude towards MOI. It is worth noting that she did not have input in choosing the addressed issue and solution. This aspect may also account for her initial negative opinion on the usefulness of the learning journal.

These findings support our initial claim that DBR projects can influence teachers' practices, but they also confirm that teachers experience difficulties developing metacognitive practices, even when they believe in their efficacy and intend to implement them. As suggested by Phoebe, more long-term support could have been beneficial, at least for herself and perhaps also for Hope. Introducing a new requirement in curricula – as is the case for the implementation of metacognition in the FW-B context (FW-B, 2016) – requires that time be spent to help teachers become aware of what metacognitive instruction means, what its benefits can be and how it can be implemented. Behavior change and the intention-behavior gap phenomenon are widely researched topics in psychology. For instance, Webb and Sheeran (2006)'s meta-analysis found that a medium-to-large change in intention leads to a small-to-medium change in behavior. Time from 'intention to use' to 'actual implementation' is a key element to consider. So is classroom time and space, and our results align with Wilson and Bai's (2010) and Șuteu's (2021) observation that lack of time is a factor that prevents teachers from implementing metacognition. Our study shows that this is all the truer when it comes to soliciting learners' metacognition in writing.

Addressing the nuanced gaps between intention and behavior requires a layered approach. Initially, this involves both structured and informal TPD opportunities. On one hand, TPD programs should be tailored to the different phases of a teacher's career and recognize the specific needs and contexts at each stage (Coppe et al., 2024). On the other hand, newly qualified teachers benefit greatly from informal exchanges with trusted colleagues, which are often more influential than formal training sessions (Colognesi, Van Nieuwenhoven et al., 2020). This form of institutional support is critical, as it promotes peer collaboration and knowledge sharing among teachers that can lead to more effective integration of new teaching practices such as metacognition.

Expanding on the roles within TPD could further transform teacher engagement with metacognition. For instance, Colognesi & Lucchini (2021) propose that teachers take on the successive roles of *Learner* and *Engineer*. In the former role, teachers would experience MOI firsthand, allowing them to 'feel' its impact, which is especially useful if they haven't encountered it during their own schooling—an obstacle to its implementation. As *Engineers*, they would collaboratively plan metacognitive interventions, guided by examples and methods that equip them with practical tools for effective teaching.

While our study pertains to in-service teachers, integrating research into pre-service teacher training can also help bridge the research-practice gap (Colognesi & März, 2023). Embedding metacognitive components into the curriculum would allow pre-service teachers to engage both theoretically and practically. This approach could also involve pre-service teachers in action

research projects where they would apply MOI in simulated or real classroom settings to evaluate its impact.

The current study has several limitations that should be acknowledged. First, the use of a case study format confines the findings to the four teachers selected for this research. While focusing on a limited number of teachers allows for thick description (Geertz, 1973), expanding the study to include other teachers from the initial candidate pool who share similar profiles might provide a more robust test of whether the results are consistent across different cases. Second, the study focuses exclusively on teachers in lower secondary education, teaching learners aged 12 to 14. The complexities involved in articulating thoughts at this developmental stage could explain the observed difficulties in eliciting metacognitive responses in writing. Further research could focus on how learners experience this modality. It could also explore alternative modalities for capturing learners' metacognitive processes, such as digital portfolios. It could also be worthwhile to conduct a similar study with teachers at the upper secondary level and learners ranging from 15 to 18 years old to compare and contrast the findings. Thirdly, Claire did not respond to the initial questionnaire, which restricts the analysis of the evolution of her perception. Then, some verbatim data were collected from informal conversations that occurred prior to the ITTD, and these discussions were not standardized across all participants. Lastly, the project was initially funded by the FW-B and was not extended beyond its second iteration due to financial constraints.

These limitations notwithstanding, we believe that our methods offer the following advantages: they permit a fine-grained and qualitative description of teachers' understanding and self-reported practices of MOI; they highlight possible barriers to implementation and hence point to levers for change. Back in 1999, Gollwitzer pointed to factors that help with behavior change, including among others the fact that goals should be as specific as possible or that the reason for behavior change should be 'for learning' rather than for performance or achievement. We believe that our study meets those two factors, that it also confirms Sato and Loewen's (2022) suggestion that DBR is an effective way of fostering the research-pedagogy dialogue in ISLA, and that the researcher's role should go beyond sharing research knowledge. It is also paramount to offer and co-construct concrete ways of activating that knowledge in practice, or in other words to put research in action.

Conclusion

This study presents the outcomes of a DBR project focused on developing MOI, a crucial yet intricate aspect of language education. The study shows the project had an overall positive effect on the perception of MOI for three out of four teachers. However, challenges arise in soliciting metacognition in writing, as it proves to be time-consuming and difficult for all teachers. Moreover, the study demonstrates a positive, albeit more limited, effect on the self-reported practices of these three teachers. Interestingly, difficulties in implementing metacognitive practices persist, even when teachers believe in their efficacy and intend to use them. As such, the present research also contributes to enriching the existing body of knowledge on the intention-behavior gap phenomenon. The limitations of the study underscore the need for further DBR investigations to validate these findings and perhaps delve deeper into challenges associated with implementing metacognitive practices in the classroom.

Notes

1. http://www.enseignement.be/index.php?page=28280
2. Contrary to the other teachers, Roberta favored phrases and short sentences in her answers to the open-ended questions. As a result, the quotes are presented as such in the text.

References

Angrosino, M. (2007). *Doing ethnographic and observational research*. Sage.

Alexander, R. (2012, February). Improving oracy and classroom talk in English schools: Achievements and challenges. In *Extended and referenced version of a presentation given at a Department for Education seminar on Oracy, the National Curriculum and Educational Standards, London* (Vol. 20).

Allix, P., Lubin, A., Lanoë, C., & Rossi, S. (2023). Connais-toi toi-même : une perspective globale de la métacognition [Know thyself: A global perspective on metacognition]. Psychologie Francaise. https://doi.org/10.1016/j.psfr.2022.08.002

Alqahtani, S. M. A. (2019). Investigating the relationship between metacognitive strategies and reading proficiency among the university students of Jeddah learners. *Acra Scientiae et Intellectus*, *5*(4), 38–52.

Andrade, M. S., & Evans, N. W. (2012). *Principles and practices for response in second language writing: Developing self-regulated learners*. Routledge.

Anderson, N. J. (2002). *The role of metacognition in second language teaching and learning*. Center for Applied Linguistics, ERIC Clearinghouse on Languages and Linguistics.

Anderson, T., & Shattuck, J. (2012). Design-based research: A decade of progress in education research? *Educational Researcher*, *41*(1), 16–25. https://doi.org/10.3102/0013189X11428813

Aragón, O. R., Eddy, S. L., & Graham, M. J. (2018). *Faculty beliefs about intelligence are related to the adoption of active-learning practices*. CBE: Life Sciences Education, (3), 17. https://doi.org/10.1187/cbe.17-05-0084

Avargil, S., Lavi, R., & Dori, Y. J. (2018). Students' metacognition and metacognitive strategies in science education. *Innovations in Science Education and Technology*, 33–64. https://doi.org/10.1007/978-3-319-66659-4_3

Bangkom, K., & Sukavatee, P. (2021). Effects of oracy building instruction via blended-learning environment on Thai students' metacognitive awareness and oracy skills. *LEARN Journal: Language Education and Acquisition Research Network*, *14*(1), 240–293.

Barab, S. A., & Squire, K. (2004). Design-based research: Putting a stake in the ground. *The Journal of the Learning Sciences*, *13*(1), 1–14. https://doi.org/10.1207/s15327809jls1301_1

Barbier, E., & Colognesi, S. (2023). Croyances des enseignants et des futurs enseignants relatives à la métacognition [Teachers' and future teachers' beliefs about metacognition]. In J.L. Berger & S.C. Cartier (Eds). *L'apprentissage autorégulé* (pp. 199–216). 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? [Do the classroom practices recommended in training play a part in the planning of future French teachers?] *Canadian Journal of Education*, 47(1), 113–148.

Ben-David, A., & Orion, N. (2013). Teachers' voices on integrating metacognition into science education. *International Journal of Science Education*, *35*(18), 3161–3193. https://doi.org/10.1080/09500693.2012.697208

Berthold, K., Nückles, M., & Renkl, A. (2007). Do learning protocols support learning strategies and outcomes? The role of cognitive and metacognitive prompts. *Learning and Instruction*, *17*(5), 564–577. https://doi.org/10.1016/j.learninstruc.2007.09.007

Borg, S. (2013). *Teacher research in language teaching: A critical analysis*. Cambridge University Press.

Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International Encyclopedia of Education* (Vol. 7, pp. 548–556). Elsevier.

Bowman, C. L., Galvez-Martin, M., & Morrison, M. (2005). Developing reflection in preservice teacher. In S. E. Israel, C. C. Block, K. L. Bauserman, & K. Kinnucan-Welsch (Ed.), *Metacognition in literacy learning: Theory, Assessment instruction, and professional development* (pp. 335–349). Erlbaum.

Bozorgian, H. (2012). Metacognitive instruction does improve listening comprehension. *International Scholarly Research Notices*, *2012*(1), 734085.

Braund, H. (2019). Supporting metacognitive development in science education: Exploring Ontario elementary teachers' beliefs and practices in metacognition. *ASEJ*, *46*(1), 10–21.

Bremner, N. L. (2022). What is learner-centered education? A qualitative study exploring the perspectives of English language teachers in Colombia. *Teaching English as a Second or Foreign Language—TESL-EJ*, *25*(4). https://doi.org/10.55593/ej.25100a12

Brown, A. L., & DeLoache, J. S. (1978). Skills, plans, and self-regulation. In R. S. Siegler (Ed.), *Children's thinking: What develops?* (pp. 3–35). Lawrence Erlbaum Associates, Inc.

Brown, A.L. (1987). Metacognition, executive control, self-regulation, and other mysterious mechanisms. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65–116). Lawrence Erlbaum Associates.

Chamot, A. U. (2005). Language learning strategy instruction: Current issues and research. *Annual Review of Applied Linguistics*, *25*, 112–130. https://doi.org/10.1017/s0267190505000061

Chen, F. (2024). A review on speaking and listening learning for L2 learners. In *SHS Web of Conferences* (Vol. 183, p. 03002). EDP Sciences.

Clot, Y. (2001). Psychopathologie du travail et clinique de l'activité [Work psychopathology and activity clinic]. *Éducation permanente, 146*(1), 35–49.

Cochran-Smith, M., & Lytle, S. L. (2015). *Inquiry as stance: Practitioner research for the next generation*. Teachers College Press.

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., 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., & Lucchini, S. (2021). LETRA: A teacher training program based on the adoption of different roles. *McGill Journal of Education*, *56*(2), 314–323.

Colognesi, S., & März, V. (2023). Educating about and through research. The role of research in pre-service teachers' classroom practices. In J. Madalińska-Michalak (Ed.). *Quality in teaching and 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

Colognesi, S., Van Nieuwenhoven, C., & Beausaert, S. (2020). Supporting newly-qualified teachers' professional development and perseverance in secondary education: On the role of informal learning. *European Journal of Teacher Education*, *43*(2), 258–276. https://doi.org/10.1080/02619768.2019.1681963

Coppe, T., Parmentier, M., Kelchtermans, G., Raemdonck, I., März, V., & Colognesi, S. (2024). Beyond traditional narratives about teacher professional development: A critical perspective on teachers' working life. *Teaching and Teacher Education*, *139*, 104436. https://doi.org/10.1016/j.tate.2023.104436

Darling-Hammond, L., Hyler, M. E., Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. https://doi.org/10.54300/122.311

Davis, F. D. (1989). Technology acceptance model: TAM. *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behavior and Technology Adoption*, *205*, 219.

Depaepe, F., De Corte, E., & Verschaffel, L. (2010). Teachers' metacognitive and heuristic approaches to word problem solving: Analysis and impact on students' beliefs and performance. *Zdm – Mathematics Education*, *42*(2), 205–218. https://doi.org/10.1007/s11858-009-0221-5

Design-Based Research Collective (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, *32*(1), 5–8. https://doi.org/10.3102/0013189x032001005

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, *38*(3), 181–199.

Dignath-van Ewijk, C. (2016). What determines whether teachers enhance self-regulated learning? Predicting teachers' reported promotion of self-regulated learning by teacher beliefs, knowledge, and self-efficacy. *Frontline Learning Research*, *4*(5), 83–105. https://doi.org/10.14786/flr.v4i5.247

Efklides, A. (2006). Metacognition and affect: What can metacognitive experiences tell us about the learning process? *Educational Research Review*, *1*(1), 3–14. https://doi.org/10.1016/j.edurev.2005.11.001

Eurydice Network. (2024). *Overview [French Community, Belgium]*. European Commission. Retrieved from https://eurydice.eacea.ec.europa.eu/national-education-systems/belgium-french-community/overview

Fairbanks, C. M., Duffy, G. G., Faircloth, B. S., He, Y., Levin, B. C., Rohr, J., & Stein, C. M. (2010). Beyond knowledge: Exploring why some teachers are more thoughtfully adaptive than others. *Journal of Teacher Education*, *61*(1–2), 161–171. https://doi.org/10.1177/0022487109347874

Fédération Wallonie-Bruxelles. (2016). *Avis n°2 du Groupe Central du Pacte pour un Enseignement d'excellence* [Opinion n°2 of the Pacte pour un Enseignement d'Excellence core group].

Fédération Wallonie-Bruxelles (2021). *Décret portant le Livre 6 du Code de l'enseignement fondamental et de l'enseignement secondaire et portant le titre relatif à la formation professionnelle continue des membres de l'équipe éducative des écoles et des membres du personnel de l'équipe pluridisciplinaire des Centres PMS* [Decree establishing Book 6 of the Code of Primary and Secondary Education and including the title related to the continuing professional development of the members of the educational team of schools and the members of the multidisciplinary team of PMS Centers].

Fédération Wallonie-Bruxelles. (2017). *Avis n°3 du Groupe Central du Pacte pour un Enseignement d'excellence* [Opinion n°3 of the Pacte pour un Enseignement d'Excellence core group].

Feiman-Nemser, S. (2001). From preparation to practice designing a continuum to strengthen and sustain teaching. *Teachers College Record*, 103, 1013–1055.

Fisher, R. (2002). Shared thinking: Metacognitive modelling in the literacy hour. *Reading*, *36*(2), 63–67. https://doi.org/10.1111/1467-9345.00188

Flavell, H. (1979). Metacognition and cognitive monitoring: A new era of cognitive developmental inquiry. *The American Psychologist*, *34*, 906–911.

Flick, U. (2018). Triangulation in Data Collection. In U. Flick (Ed.), *The SAGE handbook of qualitative data collection* (pp. 527–544). Sage.

Flores, M. A. (2017). Practice, theory and research in initial teacher education: International perspectives. *European Journal of Teacher Education*, *40*(3), 287–290. https://doi.org/10.1080/02619768.2017.1331518

Forbes, K., & Fisher, L. (2015). The impact of expanding advanced level secondary school students' awareness and use of metacognitive learning strategies on confidence and proficiency in foreign language speaking skills. *Language Learning Journal*, *46*(2), 173–185. https://doi.org/10.1080/09571736.2015.1010448

Forget, M. (2013). Le développement des méthodes de verbalisation de l'action : un apport certain à la recherche qualitative [The development of action verbalisation methods: a definite contribution to qualitative research]. *Recherches Qualitatives*, *32*(1), 57–80. https://doi.org/10.7202/1084612ar

Fung, C. Y., Abdullah, M. N. L. Y., & Hashim, S. (2019). Improving self-regulated learning through personalized weekly e-Learning Journals: A time series quasi- experimental study. *e-Journal of Business Education & Scholarship of Teaching*, *13*(1), 30–45.

Geertz, C. (1973). *The interpretation of cultures* (Vol. 5019). Basic books.

Goh, C. C. M. (2008). Metacognitive instruction for second language listening development. *RELC Journal*, *39*(2), 188–213. https://doi.org/10.1177/0033688208092184

Goh, C. C. M. (2014). Reconceptualising second language oracy instruction: Metacognitive engagement and direct teaching in listening and speaking. *AJELP: Asian Journal of English Language and Pedagogy*, *2*, 1–20.

Goh, C. C.M., & Vandergrift, L. (2021). *Teaching and learning second language listening: Metacognition in action*. Routledge.

Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54(7), 493–503.

Graham, S., & Macaro, E. (2008). Strategy instruction in listening for lower-intermediate learners of French. *Language Learning*, *58*(4), 747–783.

Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology*, *50*(5), 2572–2593. https://doi.org/10.1111/bjet.12864

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching*, 8(3), 381-391.

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.

Harris, K. R., Graham, S., Brindle, M., & Sandmel, K. (2009). Metacognition and children's writing. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 131–153). Routledge.

Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge.

Haukås, Å. (2018). Metacognition in language learning and teaching. In Å. Haukås, C. Bjørke, & M. Dypedahl (Eds.), *Metacognition in language learning and teaching* (pp. 1–20). Routledge.

He, L. (2011). Metacognition in EFL pronunciation learning among Chinese tertiary learners. *Applied Language Learning*, *21*, 1–27. https://doi.org/10.5167/uzh-128569

Herrington, J., McKenney, S., Reeves, T., & Oliver, R. (2007). Design-based research and doctoral students: Guidelines for preparing a dissertation proposal. In C. Montgomerie & J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications* 2007 (pp. 4089–4097). AACE.

Holec, H. (1981). A propos de l'autonomie: quelques éléments de reflexion [About autonomy: Some elements for reflection]. *Etudes de linguistique appliquée*, *41*, 7.

Hiver, P., & Whitehead, G. E. K. (2018). Teaching metacognitively: Adaptive inside-out thinking in the L2 classroom. In Å. Haukås, C. Bjørke, & M. Dypedahl (Eds.), *Metacognition in language learning and teaching* (pp. 243–262). Routledge.

Hiver, P., Whiteside, Z., Sánchez Solarte, A. C., & Kim, C. J. (2019). Language teacher metacognition: Beyond the mirror. *Innovation in Language Learning and Teaching*, *13*(3), 303–313. https://doi.org/10.1080/17501229.2019.1675666

Ingersoll, R. M., & Strong, M. J. (2011). The impact of induction and mentoring programs for beginning teachers. *Review of Educational Research*, *81*(2), 201–233. https://doi.org/10.3102/0034654311403323

Kaur, K. (2014). Young learners' metacognitive knowledge of listening comprehension and pedagogical recommendations for the teaching of listening. *International Journal of Innovation in ELT and Research*, *3*(2), 231–244.

Kerndl, M., & Aberšek, M. K. (2012). Teachers' competence for developing reader's reception metacognition. *Problems of Education in the 21st Century*, *46*(1), 52–61. https://doi.org/10.33225/pec/12.46.52

Kim, T., & Kim, J. (2017). Metacognitive instruction using web 2.0 technologies in an adult ESL speaking course. *Journal of Research and Practice in Adult Literacy, Secondary, and Basic Education*, *6*, 50–59.

Ku, K. Y. L., & Ho, I. T. (2010). Metacognitive strategies that enhance critical thinking. *Metacognition and Learning*, *5*(3), 251–267. https://doi.org/10.1007/s11409-010-9060-6

Lam, W. W. T. (2010). Implementing communication strategy instruction in the ESL oral classroom: What do low-proficiency learners tell us? *TESL Canada Journal*, *27*(2), 11. https://doi.org/10.18806/tesl.v27i2.1056

Levin, B. B., He, Y., & Allen, M. H. (2010). What do they believe now? A cross-sectional longitudinal follow-up study of teachers' beliefs in action. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO, April 2010.

Levin, B. C., He, Y., & Allen, M. H. (2013). Teacher beliefs in action: A cross-sectional, longitudinal follow-pp study of teachers' personal practical theories. *The Teacher Educator*, *48*(3), 201–217. https://doi.org/10.1080/08878730.2013.796029

Lew, D. N. M., & Schmidt, H. G. (2011). Writing to learn: Can reflection journals be used to promote self-reflection and learning? *Higher Education Research and Development*, *30*(4), 519–532. https://doi.org/10.1080/07294360.2010.512627

Li, Q., Zhang, L., & Goh, C. C. (2022). Metacognitive instruction in second language listening: Does language proficiency matter? *English as a Foreign Language International Journal*, *2*(5), 27–55.

Lim, F. V., & Nguyen, T. T. H. (2022). Design-based research approach for teacher learning: a case study from Singapore. *ELT Journal*, *76*(4), 452–464.

Little, D. (2003). *Learner autonomy and second/foreign language learning*. Retrieved from https://web-archive.southampton.ac.uk/www.llas.ac.uk/resources/gpg/1409.html.

Mackey, A., & Gass, S.M. (2021). Second language research: Methodology and design (3rd ed.). Routledge. https://doi.org/10.4324/9781003188414

Marangunić, N., & Granić, A. (2015). Technology acceptance model: A literature review from 1986 to 2013. *Universal Access in the Information Society*, *14*(1), 81–95. https://doi.org/10.1007/s10209-014-0348-1

Marsden, E., & Kasprowicz, R. (2017). Foreign language educators' exposure to research: Reported experiences, exposure via citations, and a proposal for action. *The Modern Language Journal*, *101*(4), 613–642.

Marshall, C., & Rossman, G. B. (2016). *Designing qualitative research*. Sage.

McKenney, S., & Reeves, T. C. (2012). *Conducting educational design research*. Routledge.

Medgyes, P. (2017). The (ir)relevance of academic research for the language teacher. *ELT Journal*, *71*(4), 491–498.

Mercer, N., Warwick, P., & Ahmed, A. (2017). An oracy assessment toolkit: Linking research and development in the assessment of students' spoken language skills at age 11–12. *Learning and Instruction*, *48*, 51–60.

Miles, M. B., Huberman, A. M., & Saldana, J. (2019). *Qualitative data analysis: A methods sourcebook*. Sage.

Moon, J. A. (2006). *Learning journals: A handbook for reflective practice and professional development*. Routledge.

Moore, J., Schleppegrell, M., & Palincsar, A. S. (2018). Discovering disciplinary linguistic knowledge with English learners and their teachers: Applying systemic functional linguistics concepts through design-based research. *TESOL Quarterly*, *52*(4), 1022–1049.

Nicolini, D. (2009). Articulating practice through the interview to the double. *Management Learning*, *40*(2), 195–212. https://doi.org/10.1177/1350507608101230

Nückles, M., Hübner, S., & Renkl, A. (2012). Fostering self-regulated learning by journal writing: How should instructional support be designed to promote high-quality learning? In J.R. Kirby & M.J. Lawson (Eds.), *Enhancing the quality of learning: Dispositions, instruction, and learning processes* (pp. 178–200). Cambridge University Press. https://doi.org/10.1017/cbo9781139048224.012

Ozturk, N. (2017). Assessing metacognition: Theory and practices. *International Journal of Assessment Tools in Education*, *4*(2), 134–148

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage.

Plomp, T. (2013). Educational design research: An introduction. *Educational Design Research*, 11–50.

Rashtchi, M., & Khani, P. (2010). Improving EFL learners' oral proficiency through metacognitive strategy instruction. *Journal of English language Studies*, *4*(1),137–156.

Reeves, T. C. (2006). Design research from a technology perspective. *Educational Design Research*, *1*(3), 52–66.

Reeves, T. C., & McKenney, S. (2013). Computer assisted language learning and design-based research: Increased complexity for sure, enhanced impact perhaps. In J. C. Rodríguez & C. Pardo-Ballester (Eds.), *Design-based research in CALL* (pp. 9–21). CALICO.

Romero Muñoz, E., Decorte, R., & Dachet, D. (2024). Applying cognitive grammar to the Count/Mass Distinction. *Review of Cognitive Linguistics*. Advance online publication. https://doi.org/10.1075/rcl.00187.rom

Sato, M. (2022). Metacognition. In S. Li, P. Hiver, & M. Papi (Eds.), *The Routledge handbook of second language acquisition and individual differences*. Routledge.

Sato, M., & Dussuel Lam, C. (2021). Metacognitive instruction with young learners: A case of willingness to communicate, L2 use, and metacognition of oral communication. *Language Teaching Research*, *25*(6), 899–921. https://doi.org/10.1177/13621688211004639

Sato, M., & Loewen, S. (2018). Metacognitive instruction enhances the effectiveness of corrective feedback: variable effects of feedback types and linguistic targets. *Language Learning*, *68*(2), 507–545. https://doi.org/10.1111/lang.12283

Sato, M., & Loewen, S. (2022). The research–practice dialogue in second language learning and teaching: Past, present, and future. *The Modern Language Journal*, *106*(3), 509–527. https://doi.org/10.1111/modl.12791

Savoie-Zajc, L. (2011). La recherche qualitative/interprétative en education [Qualitative/interpretive research in education]. In T. Karsenti & L. Savoie-Zajc (Eds.), *La recherche en éducation: étapes et approches* [Educational research: Stages and approaches] (pp. 123–147). ERPI.

Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, *128*, 13–35. https://doi.org/10.1016/j.compedu.2018.09.009

Schwandt, T. A. (1997). *Qualitative inquiry: A dictionary of terms*. SAGE.

Sitko, B. M. (1998). Knowing how to write: Metacognition and writing instruction. In *Metacognition in educational theory and practice* (pp. 93–115). Routledge.

Spruce, R. S., & Bol, L. (2015). Teacher beliefs, knowledge, and practice of self-regulated learning. *Metacognition and Learning*, *10*(2), 245–277. https://doi.org/10.1007/s11409-014-9124-0

Șuteu, L. (2021). Teachers' beliefs about classroom practices that develop students' metacognition and self-regulated learning skills. *Acta Didactica Napocensia*, *14*(1), 165–173. https://doi.org/10.24193/adn.14.1.13

Teng, L. S., & Zhang, L. J. (2016). A questionnaire-based validation of multidimensional models of self-regulated learning strategies. *The Modern Language Journal*, *100*(3), 674–701.

Teo, T., Lee, C. B., & Chai, C. S. (2007). Understanding pre-service teachers' computer attitudes: Applying and extending the technology acceptance model. *Journal of Computer Assisted Learning*, *24*(2), 128–143. https://doi.org/10.1111/j.1365-2729.2007.00247.x

Van den Akker, J., Gravemeijer, K, McKenney, S. & Nieveen, N. (Eds.). (2006). *Educational design research*. Routledge.

Vandergrift, L., & Cross, J. (2017). Replication research in L2 listening comprehension: A conceptual replication of Graham & Macaro (2008) and an approximate replication of Vandergrift & Tafaghodtari (2010) and Brett (1997). *Language Teaching*, *50*(1), 80–89.

Vandergrift, L., & Tafaghodtari, M. H. (2010). Teaching L2 learners how to listen does make a difference: An empirical study. *Language Learning*, *60*(2), 470–497. https://doi.org/10.1111/j.1467-9922.2009.00559.x

Veenman, M. (2005). The assessment of metacognitive skills: What can be learned from multi-method designs? In C. Artelt & B. Moschner (Eds.), *Lernstrategien und Metakognition: Implikationen für Forschung und Praxis* [Learning strategies and metacognition: Implications for research and practice] (pp. 75–97). Waxmann.

Veenman, M. V. J., Van Hout-Wolters, B., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and Learning*, *1*(1), 3–14. https://doi.org/10.1007/s11409-006-6893-0

Venkatesh, V. & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision Sciences*, *27*(3), 451–481

Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 132(2), 249–268.

Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession. A status report on teacher development in the United States and abroad*. National Staff Development Council.

Wenden, A. L. (1987). Metacognition: An expanded view on the cognitive abilities of L2 learners. *Language Learning*, *37*(4), 573–597.

Wenden, A. L. (1998). Metacognitive knowledge and language learning. *Applied Linguistics*, *19*(4), 515–537. https://doi.org/10.1093/applin/19.4.515

Wickham H (2016). *ggplot2: Elegant graphics for data analysis*. Springer-Verlag New York. Retrieved from https://ggplot2.tidyverse.org.

Wilkinson, A. (1966). *Spoken English*. University of Birmingham.

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. https://doi.org/10.1007/s11409-010-9062-4

Xu, J., & Huang, Y. (2018). The mediating effect of listening metacognitive awareness between listening test anxiety and listening test performance. *Asia-Pacific Education Researcher*, *27*(4), 313–324. https://doi.org/10.1007/s40299-018-0388-z

Yin, R. K. (2017). *Case study research and applications: Design and methods*. http://cds.cern.ch/record/2634179

Zhang, D., & Goh, C. C. M. (2006). Strategy knowledge and perceived strategy use: Singaporean students' awareness of listening and speaking strategies. *Language Awareness*, *15*(3), 199–119. https://doi.org/10.2167/la342.0

Zhang, L. J. (2016). A dynamic metacognitive systems perspective on language learner autonomy. *Language learner autonomy: Teachers' beliefs and practices in East Asian contexts*, *11*, 150–166.

Zhang, D. L., & Zhang, L. J. (2019). Metacognition and self-regulated learning (SRL) in second/foreign language teaching. In X. Gao (Ed.), *Second handbook of English language teaching* (pp. 883–897). Springer International Handbooks of Education. Springer. https://doi.org/10.1007/978-3-319-58542-0_47-1

Zhang, L. J., & Wu, A. (2009). Chinese senior high school EFL students' metacognitive awareness and reading-strategy use. *Reading in a Foreign Language*, *21*(1), 37–59. http://files.eric.ed.gov/fulltext/EJ838388.pdf

Appendices

Appendix A. Example of Task for Explicit Instruction of Planning Strategy

Title: getting to know each other

NAME :

Context

You and your class are taking part in an international day in Brussels. You meet other young people from all over Europe. You meet one of them, who lives in England/Netherlands.

Task

Introduce yourself.

Describe your family.

Find out about your new friend's identity and family.

Consider one of the photos below.

Student A:

Student B:

1A Planning: Decoding instructions to identify what is expected of me.

Read the communication situation and complete the table below.

What questions to ask?	**What information do you find in the instructions?**
Who's talking?	Me A new friend
To **whom?**	To my new friend Him/her to me
About **what?**	Me (my identity) My family Him His family
Where?	In Brussels
When?	On International Day
For what purpose?	Getting to know each other
For what reason?	I'm taking part in an international day

Appendix B. Template for the Learning Journal

My learning journal : instructions for use

The learning journal is a "notebook" devoted to the activities you've carried out, focusing on strategies. In this journal, after each activity, you'll complete a sheet covering the following points:

Questions to ask yourself	Phrases you can use	
First, describe the activity: *What did you do?* *What were the different stages?* *What was the purpose of the exercise?*	*During the activity, I was first asked to ... and then to ... Then, I ...* *We did this because ...*	
Secondly, give your opinion: *Did you enjoy the activity? Why or why not?* *What did you find easy/difficult about the activity? Why or why not?* *How did you feel during the activity (e.g. stressed, comfortable, motivated, etc.)?* *Why or why not?*	*What I liked was ... I* *liked it less ...* *What I found easy* *What I found difficult* *I felt ...*	
Third, explain how you did it: *How did you go about completing the task?* *What strategies did you use to complete the activity? Which ones worked? Which didn't? How will you do it next time?*	*I listened...* *I read the instructions...* *I underlined, highlighted... I noted...* *I answered...* *I paid attention to...*	*I used...* *I sorted...* *I checked...* *I checked...* *I asked...*
Fourth, if you have any, list: *- questions to ask your teacher;* *- questions to ask another student.* **... to help you progress.**	*I wonder if...* *I wonder why...* *I wonder how...* *I wonder...*	
Finally, based on the first four points, identify : *- your progress;* *- your goals for the future.*	*I'm better at* *I have made progress in* *I feel better*	*I'd have to* *It would help me to...* *I still need to learn to I need to think about*

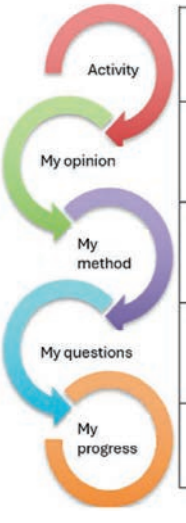
Your teacher will invite you to share your notes with him or her, so that we can get to know you better, understand you better and help you better. Every time you fill in a form, don't forget to write down :

- ✓ Your surname, first name and date;
- ✓ The name of the activity (or number) and the strategy(ies) worked on.

« Stop and think»

Name:
Date :

Activity : **Strategy :**



Appendix C. Teachers' Demographic Characteristics

Teachers' Demographic Characteristics

	Claire	Roberta	Phoebe	Hope
Gender	F	F	F	F
Age	49	43	43	36
Experience	23	21	20	15
School SES	5/20	8/20	20/20	19/20
Language taught	English	Dutch	Dutch	Dutch
Cycle	1&2	1&2	1&2	2

Note. SES = Socio-Economic Status.

Appendix D. Likert Scales and Psychometric Analysis

The table below introduces the 12 items per dimension at T1 and T3. At T2 and T4, the items were rewritten in the past, except for item INT1.

TAM Dimensions and Items at T1 and T3

Dimensions		Items
Perceived usefulness	PU1	Using … will improve my work.
	PU2	Using … will be effective.
	PU3	Using … will be productive.
	PU4	Using … will be useful.
Perceived ease of use	PEOU1	… is a clear and understandable tool.
	PEOU2	I will easily adapt … to my needs
	PEOU3	Using … will not require a lot of mental effort.
	PEOU4	I find that … will be easy to use.
Attitude toward use	ATT1	… will make my work more interesting
	ATT2	Working with … will be fun.
	ATT3	I will appreciate working with …
Intention to use	INT1	The use of … will continue after the project.

In the questionnaires, the items were rated on a six-point Likert scale, ranging from fully disagree to fully agree. We opted for an even scale to force a choice.

Our questionnaire consists of 4 sub-scales whose internal consistency and psychometric quality were confirmed in our sample (n = 85).

1. 12 items dealing with teachers' perceptions of the instruction of strategies that have excellent internal consistency with a standardized Cronbach's alpha of 0.95.
2. 12 items dealing with teachers' view of their students' perceptions of the instruction of strategies for their learners that have excellent internal consistency with a standardized Cronbach's alpha of 0.94.

3. 12 items dealing with teachers' perceptions of a learner's journal that have excellent internal consistency with a standardized Cronbach's alpha of 0.97.
4. 12 items dealing with teachers' view of their students' perceptions of a learner's journal for their learners that have excellent internal consistency with a standardized Cronbach's alpha of 0.97.

The principal component analysis indicates that a single factor groups all the items of each subscale and explains, respectively, 78.73 %, 74.80 %, 83.48 % and 83.57 % of the total variance. Furthermore, the Cronbach's alphas calculated for each construct of each subscale also all indicate good internal consistency.

Cronbach's alphas for each construct of each subscale.

Subscale Construct	**(1)**	**(2)**	**(3)**	**(4)**
Perceived Ease Of Use (PEOU)	0.82	0.75	0.87	0.87
Perceived Usefulness (PU)	0.80	0.76	0.89	0.89
Attitude towads use (ATT)	0.92	0.91	0.95	0.93
Intention to use (INT)	NA	NA	NA	NA

Notes. NA = Not Available (INT is measured on the basis of a single item and therefore does not allow the calculation of an internal consistency index).

Appendix E. Additional Questions in the 4 Questionnaires (Translated)

	Question 1	**Question 2**	**Question 3**	**Question 4**
TAM1	Does the prospect of working with a learning journal on listening/speaking strategies in a foreign language motivate you? Why or why not?	Are you worried about the prospect of working with a learning journal on foreign-language listening/speaking strategies? Why or why not?		
TAM 2	What do you think will be needed to keep the project running smoothly next year?	Do you have any additional comments/ suggestions/ comments?		
TAM 3	Does the prospect of working with listening/speaking strategies in a foreign language motivate you? Why?	Does the prospect of working with listening/speaking strategies in a foreign language worry you? Why or why not?	Does the prospect of working with the learning journal motivate you? Why or why not?	Does the prospect of working with student notebooks worry you? Why or why not?
TAM 4	Do you have any comments about explicit teaching of listening/speaking strategies?	Do you have any comments about the learning journal with students?	Do you have any other comments?	

Appendix F. Excerpt from Claire's Teaching Materials with Evidence of Metacognitive Prompting

Stratégies inefficaces	***Coche la/les phrase(s) te correspondant.*** o J'abandonne o **parfois.** o **souvent.** o Je ne parviens pas souvent à dire ce que je veux dire. o J'utilise o **parfois** le français. o **souvent** o Je prononce o **parfois** un mot « à la française » o **souvent**	**Que puis-je faire pour m'améliorer ?**
Stratégies de communication efficaces	***Pour me faire comprendre, j'utilise les stratégies de communication.*** *je l'ai fait* *je ne l'ai pas fait* ➢ J'ai demandé de l'aide à mon partenaire. ➢ J'ai utilisé le non-verbal (gestes, mimiques…). ➢ J'ai maintenu le contact visuel.	**Que puis-je faire pour m'améliorer ?**