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Exploring Kindergarten Teachers' Perception of In-Class Modelling by School-Based Speech-Language Pathologists Through Four Implementation Outcomes

Explorer la perception d'enseignantes de maternelle quant à l'utilisation du modèle en classe par des orthophonistes scolaires au moyen de quatre critères

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Abstract

Engaging teachers in professional development programs can be challenging. Modelling could make it easier for teachers to enroll in such programs because observing someone else may be less threatening than being observed and coached. More information on teachers' perceptions of in-class modelling would be useful in school settings as this professional development modality could be relevant when speech-language pathologists support teachers to implement supportive language practices. This study reports the perceptions of 28 kindergarten teachers regarding a professional development program with modelling as its main modality, using interactive book reading to foster language skills. The modelling was delivered by school-based speech-language pathologists in real settings. At the end of the program, the teachers completed a questionnaire which was analyzed quantitatively and qualitatively. The results gave information about four implementation outcomes. Acceptability: The respondents reported a high level of satisfaction with different aspects of modelling. Appropriateness: Respondents perceived relevant impacts of the program on their practices and on the children, with modelling being determinant to assimilate the content. Adoption: Most respondents reported changes in their practices and planned to make more in the upcoming year. Feasibility: Respondents suggested improvements to time-related features (for example, the length of the sessions) and better access to the books used. This study highlights the need for further research on modelling as a professional development modality in projects aiming to foster language skills. Also, being sensitive to the context of their practice settings, school-based speech-language pathologists could consider in-class modelling as a valuable modality when supporting teachers.

Abrégé

Il peut être difficile de faire participer le personnel enseignant à des programmes de développement professionnel. Présenter des modèles en classe pourrait faciliter l'engagement dans de tels programmes, car observer une autre personne est potentiellement moins menaçant que de se faire observer ou superviser. Il serait utile de connaitre les perceptions du personnel enseignant quant à l'utilisation du modèle en classe. En effet, ce dernier pourrait s'avérer pertinent pour les orthophonistes scolaires qui accompagnent les enseignants et enseignantes dans l'utilisation de pratiques soutenant le développement langagier des enfants. Cette étude fait état des perceptions de 28 enseignantes de maternelle qui ont pris part à un programme de développement professionnel où le modèle en classe était la composante principale. Ce programme portait sur la lecture interactive dans le but de soutenir le développement langagier des enfants. La présentation du modèle a été donnée par des orthophonistes scolaires dans des milieux de pratiques usuels. À la fin du programme, les enseignantes ont répondu à un questionnaire qui fut analysé quantitativement et qualitativement. Les résultats ont permis de documenter quatre critères. Acceptabilité : Les répondantes ont rapporté un niveau élevé de satisfaction envers les différents aspects du modèle. Pertinence : Les répondantes ont perçu des effets pertinents du programme sur leurs pratiques et sur les enfants. La présentation du modèle s'est avérée déterminante pour s'en approprier le contenu. Adoption : La plupart des répondantes ont déclaré avoir effectué des changements dans leur pratique et en planifier d'autres pour l'année suivante. Faisabilité : Les répondantes ont suggéré des améliorations liées aux aspects temporels (par exemple, la durée des séances) et à l'accès aux livres utilisés. Cette étude souligne l'importance d'étudier davantage le modèle en classe en tant que méthode de développement professionnel dans le cadre de projets visant à améliorer les habiletés langagières des enfants. De plus, selon leur contexte de pratique, les orthophonistes scolaires pourraient considérer le modèle en classe comme une méthode de développement professionnel pertinente pour soutenir le personnel enseignant.

Professional development (PD) programs are offered to teachers with the goal "to improve students' learning by enhancing teachers' use of evidence-based approaches to instruction" (Diamond & Powell, 2011, p. 76). In education, PD programs are defined as "in-service training opportunities for teachers who work in center-based childcare" (Egert et al., 2018, p. 3). Meta-analyses suggest that including a coaching component in PD programs is a key factor in improving effectiveness (Egert et al., 2018; Kraft et al., 2018; Markussen-Brown et al., 2017). Although coaching is recognized as being effective, it requires that the trainee is willing to make changes in their practices and to welcome, in the work environment, an outsider who will provide suggestions for improvement. However, achieving readiness for changing practices in educational settings can be challenging (Cook et al., 2019; Moir, 2018). Kraft et al. (2018) discussed this important aspect: "No matter the expertise or enthusiasm of a coach, coaching is unlikely to impact instructional practice if the teachers themselves are not invested in the coaching process" (p. 573).

One major challenge in practice settings is that PD programs that include coaching can be perceived as threatening to teachers' positive face (Brown & Levinson, 1987) and can provoke resistance in teachers (Jacobs et al., 2018). An alternative, nonthreatening PD modality, such as modelling, could therefore be relevant in such settings. Modelling happens when a trainee observes an expert performing the target behaviour in an ecological context. Even though it is promising, modelling is usually not studied as a stand-alone modality (Schachter, 2015) and has mostly been studied as an optional feature of coaching (e.g., Neuman & Wright, 2010). The present project sought to explore kindergarten teachers' perceptions of a PD program that features modelling as the main modality, using interactive book reading to foster language skills.

Modelling in Studies on Shared Book Reading

Modelling is sometimes reported in studies on shared book reading as a part of coaching. As an example, in a study by Wasik and Hindman (2011), one session of in-class modelling by coaches was included before coaching sessions for each module of the PD program. The teachers in the experimental group exhibited more improvements in their instructional practices, such as giving feedback to the children on their language, than those in the control group. In a study by Neuman and Wright (2010), modelling was planned to be a part of the coaching condition, but according to the coaches' self-reports, it was seldom offered. It is possible that when the modelling role of coaches is not explicitly required, coaches may feel more comfortable serving mostly as guides.

Modelling was used as the main PD modality in a study by Wasik and Bond (2001) that sought to increase children's vocabulary by showing teachers how to stimulate the learning of new words during interactive book reading. The modelling was provided during a 4-week period to two teachers who then continued the intervention that had been modelled. The children with these teachers learned more vocabulary words than those in the group with the two control teachers who engaged in art, craft, and science activities instead. No data were reported on the teachers' perceptions of the modelling modality itself.

Korth et al. (2010) reported the results of a qualitative analysis of interviews with three teachers who were exposed to emergent literacy activities led by speech-language pathologists (S-LPs). The teachers perceived a positive impact of the S-LPs' pedagogical approaches on the children's motivation and performance. Two years after the activities, interviews with two of the three teachers revealed that both wanted to apply the approaches but did this to a different extent, one not as fully as the other. Lack of ready-made materials and time to create their own materials were the reasons given by the teachers for not fully embracing the behaviours modelled by the S-LPs. Complementing modelling with other PD modalities, such as assistance in preparation of materials, could be one way to overcome these obstacles. Furthermore, complementary modalities may add opportunities for teachers to reflect on their practices, which may help improve effectiveness, as PD programs with many components are reported to be more effective than those with fewer components (Markussen-Brown et al., 2017).

Evidence-Based Practice and Practice-Based Evidence for PD Implementation

Previous studies showed the crucial role that translational research can play to reduce the time lag between innovation and clinical uptake (Morris et al., 2011). Knowledge creation is a cycle involving a tailoring of previous knowledge to local context (Graham et al., 2006). The importance of being context sensitive when choosing implementation strategies in educational settings is raised by many authors (M. Curran et al., 2022; Komesidou et al., 2022; Moir, 2018; Owens et al., 2014). In that vein, Lyon and Bruns (2019) said that there is "no implementation without adaptation" (p. 3). Indeed, M. Curran et al. (2022) emphasized that no clinical setting is gathering the ideal conditions under which most intervention research is designed. Therefore, it is up to the research to align with typical conditions in practice settings. For example, Piasta et al. (2017, 2020) found no effect of a large-scale, evidence-based PD program on children's language and literacy

offered in a real-world context to early childhood educators. They stressed the importance of studying PD programs delivered in real-world contexts to better understand how effectiveness can be achieved and whether it is comparable to the results obtained in research-controlled settings.

In our clinical experience, teachers seldom seek to be coached by S-LPs. In some practice settings, S-LPs offering coaching to teachers may be perceived as going beyond the scope of their practice by "telling teachers how to do their job" (and the subtext of this is that "teachers should know best"). In contrast, in other practice settings, S-LPs offering coaching to teachers is widely recognized and considered part of their normal workload. Although coaching will probably continue to be perceived as the gold standard in effective PD, more information on the impact of modelling would be relevant. Indeed, in school settings S-LPs have opportunities to support teachers as they implement language-enhancing practices by providing in-class modelling. Modelling could be a way to sensitively adapt to contexts where S-LPs are not seen as coaches for whatever reasons inherent to the practice setting's culture or history. For other S-LPs, who are not yet familiar with the role of supporting teachers in the classroom, as in Tier 1 interventions, in-class modelling could be a gentle path to different kinds of partnership practices with teachers (Heisler & Thousand, 2021).

Potential Distinctive Features of Modelling

The impact of a shared book reading intervention on language development relies on the adult's mediation of the text, targeting specific language and emergent literacy skills (Piasta, 2015). Modelling appears to be a modality that is favourable to making this explicit to teachers. It also could be perceived as a respectful way of making a realistic proposition of how evidence-based practices should be carried out, as the model intervenes in the teachers' classroom with all that it involves, for example, behaviour management and space. Modelling could express an implicit respect towards the teachers' autonomy. Indeed, teachers are free to try and decide how many and which strategies they want to incorporate into their teaching, and to uptake the new practices at their own pace. Besides, in-class modelling requires that the teacher opens the door to the model at a certain time in their schedule and engage by actively paying attention to what is being modelled. This could be an advantage in comparison to other modalities, in which teachers need to plan and perform actions in addition to their usual workload. For example, in Diamond and Powell's (2011) study, the teachers found it challenging to send video recordings of their teaching to the coach. As a result, some teachers did not send all the planned videos, as they represented "one more thing" to do in addition to their regular tasks. Finally, in-class modelling has the potential added benefit that it can impact both the teachers' practices and children's language skills at the same time. In other PD modalities like coaching and workshops, the benefit for the children is exclusively dependent on the changes that teachers implement in their practices.

More research is needed to understand how modelling is perceived by teachers engaged in PD programs. This modality is so seldom studied as a main modality that it is not listed in the review by Schachter (2015) of 73 studies on various PD modalities in early childhood education. The most frequent modalities found were coaching and workshops. Modalities less often reported include coursework, online resources, online coaching, and communities of practice (Schachter, 2015). In-class modelling has, to our knowledge, been understudied, given its potential advantages as a way to support teachers implementing language-enhancing practices and its relevance in school settings as a way to engage more teachers in PD programs.

Hybrid effectiveness-implementation projects have the potential to give useful information on how to accelerate translation of research results into usual practice conditions (G. M. Curran et al., 2012). Data on both the effectiveness of the intervention and its implementation were collected in the project presented in this article, which used interactive book reading to foster children's language skills and a PD program using in-class modelling as the main PD modality to improve teachers' practices. In order to describe and analyze each component in sufficient detail, effectiveness and implementation of the program are presented in distinct articles. The data on the intervention were examined in a previous publication regarding its effectiveness on improving children's comprehension of text-based inferences, collected on 249 children from 36 kindergarten classes (McMahon-Morin et al., 2021). The results showed a significant difference in the improvement of referential inferences' comprehension for the intervention group and delayed intervention group in comparison with an active control group. A significant difference was also found regarding the improvement of comprehension of causal inferences for the intervention group compared with the active control group (McMahon-Morin et al., 2021). This intervention and the PD program that accompanied it were delivered by S-LPs, in usual practice conditions (i.e., not research-controlled conditions). It included diverse PD modalities, such as in-class modelling, workshops, and an online community of practice. Nonetheless, the main PD modality was in-class modelling.

This intervention has therefore the potential to shed some light on teachers' perceptions of modelling, which is the subject of this article.

The Present Study

The present study lays groundwork for a forthcoming study on interactive book reading, where modelling will be used as the main PD modality, without coaching. The goal of the present study is to gather information about the teachers' perceptions of modelling. For this purpose, we used the implementation outcomes terminology by Proctor et al. (2011). Four outcomes were examined and constituted the basis for the research questions: acceptability, appropriateness, adoption, and feasibility. First, *acceptability* is defined as "the perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory" (Proctor et al., 2011, p. 67). Second, *appropriateness*, although being close to the acceptability concept, refers more to the fit between the innovation or a given practice and its potential to meet certain expectations or to solve a problem. Proctor et al. (2011) made the distinction between those two concepts, as a practice could be seen as relevant for a situation (appropriate) while also being viewed as difficult to implement (not acceptable). On the contrary, a certain practice could be seen as acceptable to implement but not relevant to impact a certain problem. Third, *adoption*, also called uptake, is "the intention, initial decision, or action to try or employ an innovation or evidence-based practice" (Proctor et al., 2011, p. 69). Fourth, *feasibility* is usually examined a posteriori, as the success or the failure with which an innovation was carried out in the setting.

Based on those terminological concepts, the research questions are

1. Are the respondents satisfied regarding the PD program and the modalities used to deliver it? (Acceptability)
2. Do the respondents perceive that the PD program achieved relevant impacts for them and/or the children in their class? (Appropriateness)
3. Do the respondents report actual or planned changes in their practices following the PD program? (Adoption)
4. Do the respondents have suggestions to improve how the PD program was carried out? (Feasibility)

Answering these questions will help to explore if, how, and why modelling should be considered as a PD modality in future clinical projects and future research.

Method

This study originated out of a clinical project conducted in a school setting in the 2016-2017 school year at the Val-des-Cerfs School Service Centre in Québec. Four S-LPs developed an interactive book reading intervention that was delivered in kindergarten classrooms in low socioeconomic settings, alongside an offering of various PD modalities to the teachers, in-class modelling being the main one. The schools were chosen due to their low socioeconomic index according to Québec's system—based on the mother's education and the parents' employment situation (Ministère de l'Éducation et de l'Enseignement supérieur, n.d.). One of the S-LPs (the first author) sought the approval of the School Service Centre to analyze the data beyond the clinical project's initial scope. The protocol and consent forms were approved by the Ethics Committee of the Centre for Interdisciplinary Research in Rehabilitation of Greater Montréal.

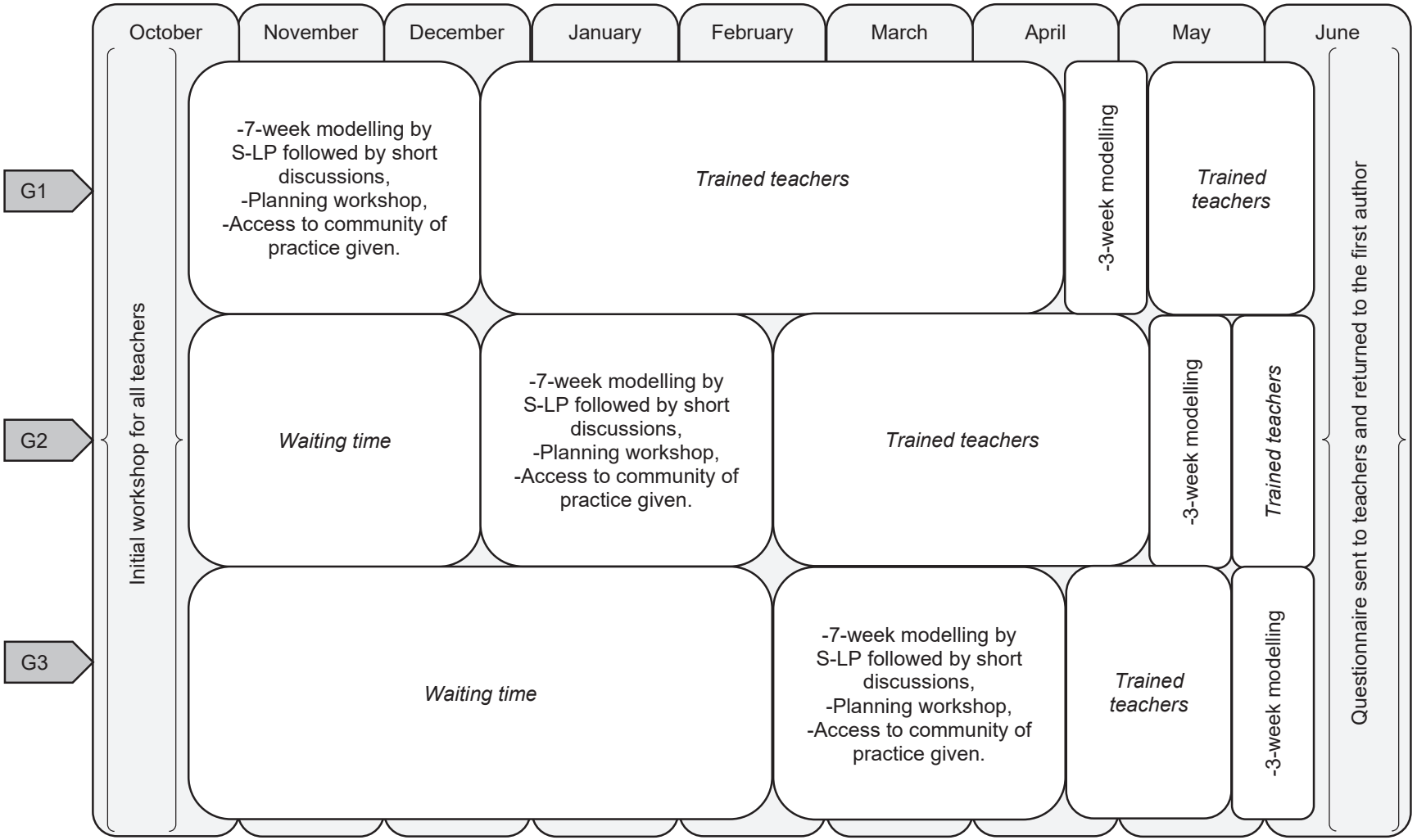
Participants and Procedure

Thirty-six teachers of kindergarten classes (all children were 5 years old by October 1) and two teachers of prekindergarten classes (all children were 4 years old by October 1) were automatically included, as they were teaching in the 12 schools where the clinical project took place. Although participation in the original clinical project was not voluntary, the teachers were invited to fill a questionnaire voluntarily and anonymously, for research purposes, at the end of the school year, in June. As this questionnaire was not planned in the original clinical project and was added afterwards, a preintervention questionnaire was not administered. This study thus used a one-group posttest-only quasi-experimental design. The questionnaire was sent through the School Service Centre's internal mail and an anonymous participant code was attributed to each based on the order in which they were returned. Twenty-nine questionnaires were returned, but one was excluded as the respondent wrote that she had replaced a teacher who retired during the school year and consequently was unable to answer most of the questions. Twenty-eight questionnaires were retained for analysis, representing 74% of the participants in the clinical project.

Design and Content of the Clinical Project

The classrooms were clustered within schools, which were then organized into three groups according to geographical location. Groups were randomly assigned to one of the three moments in the year when they would receive the modelling of the interactive book reading in their class: The first started in October, the second in December, and the last in February. **Figure 1** presents the timeline

Figure 1



Timeline of the Project

Note. G1 (2, 3) = Group 1 (2, 3); S-LP = speech-language pathologist.

of the project. Ten respondents were in Group 1, seven in Group 2, and 11 in Group 3.

Two S-LPs delivered the PD program. Both had 4 years of experience and had worked as school-based S-LPs since becoming certified. They attended a 2-day PD workshop on interactive book reading (Lefebvre, 2016) before the project began. Two other S-LPs provided part-time support in parts of the project not related to the PD program (e.g., testing children's inference skills).

Including many modalities is recommended to increase effectiveness of a PD program as it provides different contexts in which teachers can reflect on their practices (Markussen-Brown et al., 2017). In accordance with this, the two S-LPs embedded different modalities over the course of the project. However, coaching was deliberately excluded, because teachers were included in the clinical project based on their schools' low socioeconomic index rather than based on their personal interest. As well, teachers had been made aware of the clinical project only at the beginning of the school year and the S-LPs felt that requiring adaptations to the class schedule was a heavy enough constraint to impose on teachers at such short notice. Finally, this project was the first one in the practice settings where S-LPs took an active role in Tier 1 intervention and anticipating the reactions of teachers to S-LPs assuming this role was difficult. The different PD modalities are described below.

Initial Workshop

All the teachers participated in a half-day workshop at the start of the project. The workshop was divided into three parts. First, the S-LPs presented the project and the interactive book reading approach. The second part involved a demonstration with a book that would be used during the upcoming modelling phase. Last, the teachers constructed their schedule within a time slot attributed to their school throughout the year.

Modelling: 10-Week Interactive Book Reading

Each S-LP was assigned to some schools in each group and performed the interactive book reading intervention in the classroom, thereby serving as a model for the teachers. The sessions lasted 30 min and took place three times per week. All the teachers attended the sessions in an observer role. The 10-week intervention was divided in two parts. The first one lasted 7 weeks, beginning either in October, December, or February. The S-LPs then returned to all the classrooms to offer a refresher modelling intervention for 3 weeks during April to June.

The intervention was adapted from the proposal of Lefebvre et al. (2011). In each book, the S-LP targeted the same three causal inferences, one referential inference, three novel vocabulary words, and one print concept. The book was read three times over the course of 1 week, following a procedure that was explicit-teaching based (Archer & Hughes, 2011; Lefebvre et al., 2012; van de Pol et al., 2010). The first reading was dedicated to modelling the targets to the children, the second to guided practice, and the third to (more) independent practice. The S-LPs used Van Kleeck's (2008) "think aloud" strategy during the readings as well as embedded interactive discussion and meaningful gestures to scaffold the children's inference and vocabulary comprehension (Coyne et al., 2009; Justice & Kaderavek, 2004; Pesco & Gagné, 2017; Wood et al., 1976). For more information on the intervention and details on books used, see McMahon-Morin et al. (2021).

To ensure the fidelity of the intervention, both S-LPs used the same books and developed the interactive book reading plannings together. Not only did they target the same words, the same inferences, and the same print concept in each book, but they also provided the same explanations and definitions for those targets, as verbatims were collaboratively developed and included in the plannings. As well, the S-LPs coached each other, observing one another holding interactive book reading sessions for 6 days over the course of the year, representing a total of 19 interactive book reading sessions for each S-LP. They gave each other feedback to ensure that they delivered the intervention in the same manner.

Short Discussions

Short periods for discussion of approximately 5 min per teacher were planned after each interactive book reading session to discuss what had happened during the session (e.g., the response of a particular child). This was the modality delivered with the most variation because of the S-LPs' tight schedules. Some discussions were held systematically after every session, sometimes in the presence of the children who were eating a snack or in the schoolyard, and sometimes when the children were not present. In some schools, teachers preferred to have one somewhat longer discussion (around 30 min) per week without the children present. In other schools, some meetings were simply not held as the teachers were not available or did not feel the need for them after the first few weeks.

Planning Workshop

During the 4th week of the 7-week modelling phase, the teachers took part in a 1-day planning workshop with the S-LP. The workshop was delivered to teams of teachers from one

to three schools at a time, representing three to 10 teachers. The morning was dedicated to a review of the theory (e.g., the different types of inferences, the link between oral and written language). The teachers discussed concrete examples of what happened in the classroom during the modelling phase and took the opportunity to talk with their colleagues from other schools. The afternoon was dedicated to providing assistance to teachers in planning interactive book reading. They brought books from their classrooms that they wanted to read to the children and developed one or two interactive book reading plans around those books. The S-LP circulated among them, giving the teachers support, for example, on how to recognize inferences and choose relevant targets for vocabulary words.

Community of Practice

An online community of practice was developed on the Outlook platform (http://outlook.office.com). The teachers were given access to the community of practice when the modelling phase began in their classrooms. At first it was designed to let the teachers talk to the S-LPs when they were no longer receiving modelling, but in the end, it was never used this way. Rather, the S-LPs used it to share the interactive book reading plans created by the teachers in the planning workshops to all teachers in the project. Thus, by the end of the school year, interactive book reading plans for more than 40 books were available, which could be considerably supportive for teachers in reducing the preparation time to implement their own interactive book reading sessions. In addition, the S-LPs sent short publications (a dozen during the school year) to all the members, summarizing an aspect of the interactive book reading or responding to teachers' questions that emerged when the S-LPs discussed with teachers during the different PD modalities.

Although many modalities were used to deliver the PD program, we consider in-class modelling to be the one that carried the most weight as it was the most frequent, had the longest total duration, and lasted over an extended period of time.

Questionnaire

An exploratory questionnaire of 18 questions was developed based on previous work by the research team (Croteau et al., 2017) and through discussions on aligning the content with the PD program being implemented. The questionnaire was designed to be completed in approximately 15 min, with questions that used a five-point Likert scale and open-ended questions that could be answered with a short sentence. Three questions gathered information on the participants' characteristics regarding their teaching experience, their group (the one starting in October, December, or February), and their previous knowledge on interactive book reading. Five questions targeted the teachers' level of satisfaction with each PD modality and its importance in the program's content. Four questions concerned the perceived impact of the PD program on their teaching and the impact of the intervention on their pupils. Two questions dealt with the actual reported changes in practices and those that teachers planned to implement during the next school year. Two questions asked whether teachers would need something else to facilitate the knowledge transfer and what they would view as the next step in the project. Finally, one question asked about their general experience over the school year. The questionnaire used scales and open questions which allowed us to have a mixed methods approach, with a convergent design as described by Creswell and Plano Clark (2017). In this type of design, both quantitative and qualitative data are collected in a parallel manner and the results are integrated together to deepen the comprehension of the subject of the study.

Analysis

Quantitative analysis was performed on the questions using a five-point Likert scale: for the questions regarding satisfaction, 1 = *not satisfied* to 5 = *very satisfied*; for the questions on the intervention's impact on their teaching and pupils, 1 = *totally disagree* to 5 = *totally agree*. Statistical treatment included paired samples t tests and independent sample *t* tests because of their ability to identify small effects using five-point Likert items (de Winter & Dodou, 2010).

The open-ended questions (i.e., actual and planned changes of practice, the needs for additional support, the next steps in the project, and the general experience) were analyzed qualitatively with a thematic analysis embracing the six phases suggested by Braun and Clarke (2022). As it was an exploratory study, the analysis was performed inductively at first, not to limit the findings in any way. Although we present the phases in order, they overlapped, and sometimes they were performed iteratively throughout the process as is expected in qualitative analysis (Braun & Clarke, 2022). First, repeated reading of the answers allowed the first and third authors to get accustomed to the data. Second, the third author went systematically through each text segment representing an idea and developed codes.

Teachers wrote very short answers of few words to questions about changes in their practices and therefore, qualitative analysis could not be further performed on their answers. The codes were used instead to develop

a simple categorization carried out by the first and third authors. Those categories were organized in a frequency table and treated as quantitative data. For the questions regarding needs for additional support, next steps in the project, and the general experience, teachers answered with full sentences, providing richer data that could lead to a deeper analysis. Those answers were further analyzed in the subsequent phases of the analysis.

In the third phase, the third author generated ideas of general themes, sometimes promoting a code as a theme in itself. The first and third authors performed iteratively the second and third phases to refine and develop the organisation of the coding, which led to the refinement of the coding in the fourth phase, achieved through discussion between the first and third authors. In the fifth phase, the precision and final definition of themes was performed collaboratively through iterative discussions between the first, third, and fourth authors. As well, the themes were revisited with a more deductive approach, through the "interpretative lens" (Braun & Clarke, 2022, p. 57) of the four implementation outcomes. A natural fit was observed between the themes developed inductively, each one of them fitting within the scope of one outcome. The implementation outcomes were then used as overarching themes, framing the relation between the themes developed inductively. Sixth, vivid excerpts to represent each category were selected. The original verbatim transcripts are in French, and selected excerpts were translated into English for the purposes of this article.

Results

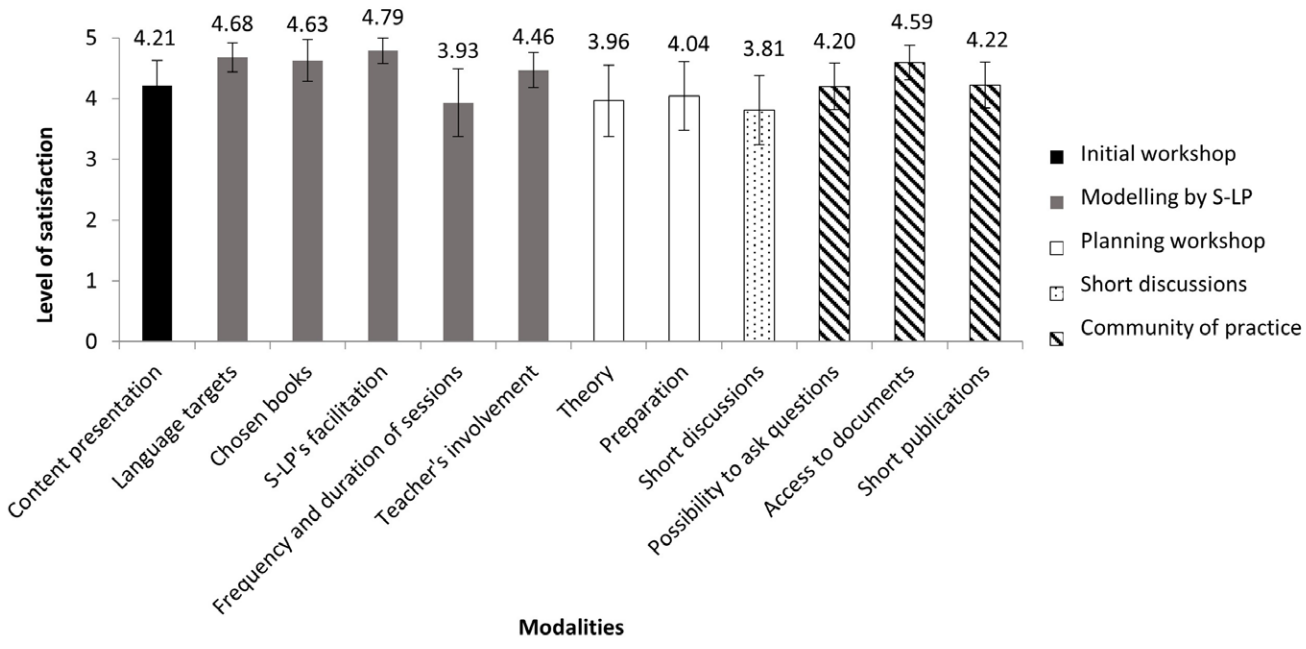
All 28 respondents were women. Three teachers had 5 years of experience or less, five had between 6 and 10 years of experience, seven between 11 and 20 years, and 13 teachers had more than 20 years of experience. Nine teachers reported that they had knowledge of interactive book reading before the start of the project, and 19 reported not having prior knowledge. All had a bachelor's degree, as this is a requirement to obtaining a license to teach in Québec. The quantitative results are presented first, followed by the qualitative analysis findings. The four terminological concepts are used as a guide to organize the results' presentation.

Quantitative Results

Acceptability

Figure 2 presents levels of satisfaction with each PD modality's specific characteristics. Mean satisfaction was 4.23 points, located on the continuum between *satisfied* and *very satisfied*.

Figure 2



Level of Teachers' Satisfaction Regarding Each Professional Development Modality's Specific Aspects

Note. S-LP = speech-language pathologist.

The S-LPs' facilitation during the interactive book reading received the highest level of satisfaction with the smallest standard deviation. Very high levels of satisfaction were also found with the language aspects targeted in the reading and the books chosen by the S-LPs, all three items being related to the in-class modelling modality.

Appropriateness

One question asked the respondents to designate the PD modality or modalities that were most determinant in assimilation of the content. Teachers had to choose a minimum of one modality to a maximum of five (all modalities). The 28 respondents chose on average 2.54 modalities (*SD* = 1.14), using the whole range of possible choices (1 to 5). Twenty-seven teachers (96%) designated the modelling by S-LPs in the classroom as determinant in their assimilation of the content. This was followed by the planning workshop, which was selected by 15 respondents (54%); the initial workshop, by 13 respondents (46%); the short discussions, by 9 respondents (32%); and last, the community of practice, selected by 7 respondents (25%). In-class modelling in the classroom was chosen significantly more often than all the other modalities: initial workshop ($t(4.58) = 27$, $p < .001$), planning workshop ($t(4.58) = 27$, $p < .001$), short discussions ($t(6.97) = 27$, $p < .001$) and community of practice ($t(8.22) = 27$, $p < .001$). All p values were below the Bonferroni corrected alpha (.0125).

All 28 teachers responded to the question on the impact of the PD program. The results were situated on a continuum from *agree* (4 points) to *totally agree* (5 points). The teachers agreed to the same extent that the project had an impact on their pupils' participation in book reading and their interest in reading, with a mean of 4.43 (*SD* = 0.63).

Adoption

Regarding the adoption of the scaffolding strategies, the teachers agreed that they used the strategies modelled by the S-LP in their book reading with a mean of 4.46 (*SD* = 0.51) and agreed that they used those strategies in their general teaching, with a somewhat lower mean of 4.04 (*SD* = 0.64). Twenty-four teachers reported that they implemented changes in their practices (86%) and four mentioned not having made any changes (14%). Moreover, 26 teachers planned to make changes in their practices in the next year (93%) and two reported not planning any further changes in the future (7%). Teachers reported various aspects of interactive book reading as implemented or planned changes in their practices. **Table 1** presents the number of responses in each category on actual and planned changes in practices.

Qualitative Results

Nine teachers responded to the question regarding needs for additional support. Twenty teachers responded to the question regarding next steps in the project. All the respondents answered the question about general experience. Responses to all questions were pooled together and analyzed as a single corpus.

Acceptability: A General Positive Experience

The responses about the general experience with the project were brief comments that expressed appreciation, enjoyment, interest in, or gratitude for the project, such as, "Thank you for this beautiful experience!" (P24) and "Very agreeable and very enriching!" (P1). Three teachers expressed a reluctance at the beginning of the project, but they came around during the year, for example, "With

Table 1

Teachers' Reported Actual or Planned Changes in Practices Following the Professional Development Program

Categories	Number of responses on	
	Actual changes	Planned changes
Language targets	13	5
Scaffolding strategies	12	0
Ways to engage pupils in reading	5	0
Structure of the interactive book reading	3	9
Reading intention	2	1
Book choice	1	0

Note. Teachers could report changes, actual or planned, under more than one category.

some reluctance at the beginning, I reconsidered, and I liked the project a lot" (P28). Other comments expressed the appreciation of the S-LP the teachers worked with, explicitly mentioning the S-LP by name: "[Name of the S-LP]: any time! [happy face]" (P14), or being more specific about their appreciation, such as, "She is an important reading resource" (P11).

Appropriateness: Benefits for Everyone!

Some teachers reported that the project provided them with a new way to read books which they embraced, for example, "It allowed me to further develop how I teach comprehension through stories" (P3) and "I adhere to this way of teaching!" (P5). It should be noted that one quotation was oriented more towards adoption outcome, the participant speaking of the opportunity to learn new practices from the S-LP: "I learned a lot by watching [name of the S-LP] reading" (P10).

Other comments were specific about the impact for the children, as perceived by teachers, such as specific learning: "The children acquired nice concepts. To read from left to right: Wow!" (P5) or more general competencies, for example, "[The children] are more aware of the importance of understanding what we read" (P19). Some comments expressed surprise about unexpected learning by children with difficulties, for instance, "I am pleasantly surprised with the achievements of the children with the greatest difficulties" (P27) and "Some of them revealed themselves to me during these sessions" (P7). Comments describing the children's increased participation were also specific: "The children asked more questions" (P19) or more general: "The children were active during the reading" (P7). The teachers commented on the project increasing the pupils' interest in reading, for instance, "I am amazed by the children's interest" (P20). One teacher mentioned that this interest would be beneficial for children in Grade 1: "I found that the children felt competent, and it was rewarding. Their interest in reading will be fostered for Grade 1" (P23).

The participants expressed that this approach should be offered to more children. Some teachers expressed that the project should go on with kindergartners in the next year, for instance, "Do it again with the new kindergarten children" (P14). One (P17) mentioned that all kindergarteners should have access to this project (i.e., not only those from low socioeconomic settings). Those who mentioned that the project should go on with the same pupils in first grade commented on the aspect of continuation, for example, "but also to pursue it with the first-grade pupils. Continue with their learning" (P5). Other teachers said that in the future, the S-LPs should pay more attention to children experiencing difficulties, for example, "It would be good if the S-LPs had time to work with small groups of children experiencing difficulties in applying the different steps of the project (1st day, tell the story; 2nd day, recognizing mistakes; etc.)" (P3). One teacher referred explicitly to the second tier of the response to intervention model: "More teaching on the 2nd tier for children in need" (P25).

Feasibility: Changes Could Make It Easier

Three subthemes related to improving the feasibility of the project: better access to books, time is central!, and increase teachers' involvement.

Better Access to Books. Even though the books were available at the School Service Centre's central library, some teachers commented that they would have liked to have access to the books in their school or in their classroom, for example, "To have the books available to me" (P13). One teacher (P28) mentioned that a budget to buy the books would have been necessary.

Time is Central! Teachers expressed schedule challenges they experienced, both for themselves, for example, "Constraining in the schedule … For classroom management, it was more difficult" (P21), and for their pupils, for instance, "Moments should be better chosen to suit the children's needs, their energy level during the day" (P4). Comments identified problems without suggesting solutions, all pointing at a different problematic aspect of the schedule: the length and the time during the year of the first 7-week modelling phase, the time of year for the 3-week modelling phase, the length of each session, and the frequency of sessions per week. Three teachers explicitly referred to the children's ability to adapt to those time issues, for example, "I felt that the children were less receptive in May and June" (P19).

Some teachers said that they would like to have had time to plan more interactive book reading sessions, for example, "I would have liked to plan other interactive book reading sessions with the S-LP" (P7), and others mentioned that this time would be used to link the interactive book reading to other themes covered in the classroom. One teacher expressed the need for more PD on print and phonological awareness: "I would have liked more workshops on writing (during the morning message, pretend play). More phonological awareness please" (P24). Finally, the teachers who wanted to practice the actual facilitation of interactive book reading referred to the need for time as a work in progress, for example, "More time to practice and experience it regularly in my class will help me become more skilled at leading interactive book reading" (P11) and

"I consider that I am still in an acquisition phase [of the project]" (P6).

Increased Teachers' Involvement. One teacher (P4) commented that she would like to be more involved in the future, and that what was done regarding that issue during the project was not enough. Another teacher who suggested becoming more involved was referring to an aspect of the coaching as a continuation of the project: "I want to continue with [name of the S-LP]. Facilitation in the classroom and in team (she can give me her feedback)" (P11).

Discussion

This study explored the perceptions of 28 teachers on in-class modelling through the lens of four implementation outcomes: acceptability, appropriateness, adoption, and feasibility. In-class modelling was the main PD modality of a PD program using interactive book reading to foster language skills in kindergarten children. This project was delivered in a real practice setting under the usual practice conditions. This aspect of the study is important, as the teachers participating in the clinical project were not selected based on their personal interest but on their school's low socioeconomic index. Only after the PD program did they complete the questionnaire on a voluntary basis for research purposes. The teachers were not in ideal conditions: For example, they were made aware of the project taking place in their class only at the beginning of the school year (i.e., not through a collaborative process of preparation in advance). The respondents reflect the usual readiness (or a lack thereof, for some of them) that is reported in the implementation sciences literature (e.g., Moir, 2018).

The quantitative and qualitative results were convergent and complementary on the four implementation outcomes. The findings are summarized for each outcome as a way to present the integration of both quantitative and qualitative results (Creswell & Plano Clark, 2017). Then, the discussion explores if, how, and why modelling should be considered as a PD modality in future clinical projects and future research.

Integrative Summary of the Quantitative and Qualitative Findings

First regarding the acceptability outcome, using modelling as a main PD modality appeared to help achieve a high level of satisfaction among teachers, as reported in the quantitative results. Complementary to those results, the qualitative analysis revealed that teachers experienced the project and the relationship with the S-LP they worked with as enjoyable. Second, regarding the appropriateness outcome, in the quantitative results, participants chose modelling the most frequently as a PD modality that helped them in assimilation of the content of the PD program. Nonetheless, participating in a diversity of PD modalities also seemed to be determinant in assimilation of the content, which reflects previous findings (Markussen-Brown et al., 2017), and should be considered when using in-class modelling. Quantitative and qualitative results were convergent about the respondents perceiving positive impacts of the clinical project on their pupils' participation, interest in reading, and learning. In the qualitative results, the teachers expressed that many different children should have access to this approach. Third, regarding the adoption outcome, the quantitative results indicated that 86% of the respondents reported changes in their practice on diverse aspects of the interactive book reading and 93% planned to implement further changes, which suggested that the respondents were eager to adopt some practices modelled by the S-LPs. Finally, the qualitative analysis revealed many areas that could improve the feasibility according to the respondents. Teachers suggested improvements mostly regarding the schedule and access to the books. They also said they needed more time to uptake the content of the project.

Modelling as an Accessible and Acceptable Modality

The results lead us to suggest that in-class modelling is a PD modality that warrants further research and could be considered by school-based S-LPs in some practice settings. Currently, modelling may or may not be included in some studies that use coaching, and this is not always clear in the descriptions provided by authors (Schachter, 2015). Based on our results, we suggest that modelling should be studied as a PD modality in its own right as a way to improve supportive language practices in school settings. Indeed, we believe this would have important clinical implications as S-LPs have opportunities to provide in-class modelling. Even if coaching remains the gold standard, important implementation challenges often prevent S-LPs (or other professionals) from offering coaching to a large proportion of teachers (Cordingley & Buckler, 2012). As Schachter (2015) put it, "The narrow focus on coaching may prevent researchers from exploring other formats and designs, particularly designs that are more feasible and less costly to implement" (p. 1016).

Hypotheses on Modelling's Distinctive Features

One advantage of in-class modelling that may have contributed to its acceptability is its nonthreatening aspect, where the expert puts themself "at risk" instead of placing the trainee under a spotlight. This aspect probably contributed to the fact that teachers described the project as satisfying and agreeable in the general positive

experience theme. In this project, some teachers initially openly expressed that they did not see how S-LPs could show them something about "how to read stories to children," as they felt it was a simple thing that they were already doing every day. In that sense, the project did not address a need expressed by the teachers, even if a majority of the respondents reported not having previous knowledge on interactive book reading. However, studies have reported low levels of instruction in language and literacy areas among childhood educators/teachers, and a low level of related knowledge (Cunningham et al., 2009; Schachter et al., 2016). Perhaps working only on the needs expressed by teachers in a real-world context would result in PD programs missing important areas of potential improvement. Coaching, even if it is seen as a component that enables more effective PD programs (e.g., Kraft et al., 2018), would probably have been perceived by teachers as threatening or invasive in this context. In the qualitative results, some teachers expressed that they were reluctant at the beginning of the project but eventually overcame this, and some expressed surprise at some impacts they perceived on their pupils. The nonthreatening aspect of modelling might have contributed to this change of heart among those teachers. This could also be an advantage as it could lay a path for further collaborative work that could then include coaching. Indeed, one teacher stated that she would like to obtain feedback from the S-LP as the next step in the program.

The fact that the modelling was offered over an extended period was probably a factor of success, as teachers need time and intensive support to change and improve their practices (Piasta et al., 2012; Sailors & Price, 2015). A hypothetical advantage that would need further attention is that a sustained period of modelling may help develop a stronger relationship between the pupils and the model, which could therefore more extensively demonstrate important features of the interaction that supports the children's participation and learning as their learning progressed over the weeks. Indeed, some teachers expressed surprise over unanticipated learning by children with difficulties, which might not have been possible if the in-class modelling had been provided only during a short period.

A sustained modelling period could also enable development of a link between the teacher and the model. In their comments, some teachers expressed a personal appreciation of the S-LP they worked with, which probably contributed to the acceptability of modelling. Sailors and Price (2015) showed that the interaction between coaches and teachers matters in the improvement of teachers' practices, and it is likely that the same principle applies to the interaction between models and teachers. Further research should address what could be the qualities of effective models, as the qualities of coaches have already been described in previous research (e.g., Piasta et al., 2017).

All the areas for improvement were related in some way to time-related issues, all regarding different parameters, which should also be considered in future use of modelling and in future studies. It would appear that helping many teachers at once presents a challenge in terms of making the schedule satisfying for everyone, as each teacher may have different preferences. Although modelling could be conceived as less demanding than other modalities in terms of the actions that teachers need to take, opening the door to the model still requires teachers to adapt their daily routines, which is demanding and should be acknowledged. Finally, better access to the books can also be conceived as a time issue. To order those books at the School Service Centre's central library and find the related planning on the community of practice might have been "one thing too many," resulting in the perception that the accessibility of those books was a problem. Time issues should be carefully taken in consideration when choosing modelling in clinical settings to increase the feasibility, and this aspect and should be further studied.

Future Research

We suggest that the next step in research should be to perform video analysis to study the capacity of in-class modelling to change teachers' practices. As well, semistructured interviews could be suitable to better understand how this process of changing practice happens when one has mostly an observer role while the intervention unfolds. Further research is currently ongoing on that matter.

Eventually, further studies could compare coaching to modelling to reveal their respective advantages, as has been done in previous studies comparing the respective advantages of coursework and coaching (Neuman & Wright, 2010). Further investigation is needed to reveal the active ingredients of coaching (Neuman & Wright, 2010). Modelling may eventually appear as an active ingredient of effective coaching, so future studies could measure the additional benefit of modelling in coaching, in the same manner that a previous study addressed the additional benefit of coaching to coursework (Rezzonico et al., 2015). The literature discusses the cost/effect of coaching, and this should be taken into account while further untangling the respective advantages of coaching and modelling: In modelling, the model, who has expertise in the area targeted by the PD program, interacts directly with the children and can already provoke improvements in children, as was the case in this

project (McMahon-Morin et al., 2021) and this should be counted in its benefits.

Another area of research that should be further studied is the perception of school-based S-LPs regarding being in the model role. As reported by Neuman and Wright (2010), coaches themselves might prefer being a coach than a model. Indeed, it is possible that for some S-LPs, putting themselves "under the spotlight" in the model role feels risky and therefore they might prefer acting as coach. In a study by Campbell et al. (2016), 91 Canadian school-based S-LPs took part in a survey on their role in inclusive education. They reported a low level of confidence in their skills to plan and lead an activity in the classroom that would address the needs of all children in the class. The S-LPs' perceptions of acting as a model in class should be explored in further research and a project on that matter is in preparation. It is however encouraging that S-LPs with limited experience could implement a new intervention in their practice setting with positive results, suggesting that this type of approach is within reach for most professionals.

Limitations

Nine teachers out of the 38 involved in the project did not respond, and we cannot know why. They may have been less satisfied than those who did respond, or the time of the year to answer the questionnaire might not have been suitable. Teachers responded to the questionnaire in June but had the project in their class at different times of the year. As a result, some teachers had more time than others to put in practice the content of the PD program before answering the questionnaire. Given the one-group posttest-only quasi-experimental design, it is not possible to make comparison with the perspective teachers had prior to the project. Had we had this opportunity, deeper understanding of the potential changes in the teachers' perceptions could have been achieved and put in relation with teachers' expectations prior to the project. In future projects, questionnaires should be developed to be administered as pre- and postmeasures. Although the questionnaire was based on previous work, the current version was not validated or piloted prior to sending it to teachers due to the time constraints of this clinical project. As well, the content was aligned with the PD program offered. These results should be interpreted with care when considering other PD programs. Finally, our questionnaire enabled us to gather both quantitative and qualitative data in a timely fashion. However, having only one source of data in mixed methods tends to limit the extent of both types of information that are collected (Creswell & Plano Clark, 2017). Future studies relying on mixed methods could combine quantitative and qualitative data collected from different sources.

Conclusion

In this exploratory study, 28 teachers participated in a clinical project delivered in a real-world setting using interactive book reading to foster language skills. In-class modelling was examined through the lens of four implementation outcomes: acceptability, appropriateness, adoption, and feasibility. Results suggested that in-class modelling was experienced as agreeable, and teachers reported a high level of satisfaction toward the in-class modelling. Modelling offered with complementary PD modalities appeared to be a key ingredient for the teachers to assimilate the content of the PD program. The teachers perceived positive impacts on their teaching as well as on their pupils. The respondents reported actual or planned changes in their practices following their participation in the PD program. Careful attention should be paid to time features in such projects as a way to enhance the feasibility of projects using in-class modelling. Future research should continue to explore the use of in-class modelling to uncover the potential benefits of this modality in PD programs delivered in different contexts and settings. This research would help S-LPs better support teachers as they implement supportive language practices in kindergarten classes.

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Authors' Note

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