



Teacher professional development in early childhood education through action-research

Desarrollo profesional docente en educación infantil desde la investigación-acción

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Received on: 2024-04-29 / **Revised on:** 2024-10-21 / **Accepted on:** 2024-10-29 / **Published on:** 2025-01-01

Abstract

Teacher professional development is a key factor in enhancing pedagogical interactions. However, implementing programs that are tailored to teachers' specific needs and teaching contexts remains challenging. This article examines a professional development program in pedagogical mediation based on action research, designed for early childhood educators in Chile. The study employed a case study design, involving nineteen teachers and six trainer educators. Data was collected through semi-structured interviews and written reports, which were analyzed using reflexive thematic analysis. The findings highlight four key aspects for teacher professional development: reflective chaining, video-based training, the role of the critical friend, and work within professional learning communities. These categories form a continuous action-research and reflection spiral that enhances teaching professionalism and self-awareness of practice, promoting a shift from the individual to the collective and from the simple to the complex. This approach fosters a collaborative culture of improvement, strengthening professional development and serving as a model for other programs that contribute to quality in this educational level.

Keywords: early childhood education, applied research, pedagogical practice, continuing education, preschool teachers, teacher educators.

Resumen

El desarrollo profesional docente es un aspecto clave para mejorar las interacciones pedagógicas. No obstante, la implementación de programas adaptados a las necesidades específicas del profesorado y a sus contextos de enseñanza sigue siendo un desafío. Este artículo analiza un programa de desarrollo profesional en mediación pedagógica basado en la investigación-acción, dirigido a maestras de educación infantil en Chile. El diseño fue un estudio de caso, que consideró la participación de diecinueve educadoras y seis docentes formadores. La información se recogió mediante entrevistas semiestructuradas e informes escritos, analizados a través de un análisis temático reflexivo. Los resultados destacan cuatro aspectos clave para el desarrollo profesional docente: encadenamiento reflexivo, video-formación, rol del amigo crítico y trabajo en comunidades profesionales de aprendizaje. Las categorías analizadas configuran un espiral continuo de investigación-acción y reflexión que potencia la profesionalidad docente y la autoconciencia sobre la práctica, promoviendo un tránsito de lo individual a lo colectivo y de lo simple a lo complejo. Este enfoque fomenta una cultura colaborativa de mejora, fortaleciendo el desarrollo profesional y sirviendo como modelo para otros programas que contribuyen a la calidad de este nivel educativo.

Palabras clave: educación infantil, investigación aplicada, práctica pedagógica, educación continua, docente de preescolar, formador de docentes.

1. Introduction

High-quality pedagogical interactions are essential to foster comprehensive development in early childhood or pre-primary education (Grieshaber et al., 2021). However, recent studies indicate that these interactions often show weaknesses, especially in terms of pedagogical support, limiting their effectiveness in stimulating the cognitive and socioemotional development of children (Aumann et al., 2024; Cubillos, 2018; Gebauer & Narea, 2021).

The context described underscores the importance of focusing efforts on Teacher Professional Development (TPD) at the level, as it plays a key role in maintaining and improving the quality of teaching in Early Childhood Education on a global scale (Schachter et al., 2019). These programs strengthen the competencies, knowledge, attitudes and experiences of teachers (Brunsek et al., 2020), as evidenced by the meta-analysis of Egert et al. (2020), which shows how Continuing Education (CE) programs enhance the quality of pedagogical interactions, by strengthening classroom organization and the emotional and pedagogical support of professionals in service.

In this sense, following Bergmark (2020), the TPD has historically focused on specific events such as talks and workshops carried out by experts, seeking to improve the management of teaching skills in a decontextualized way. In Latin America, studies establish that despite improvements and the implementation of professionalization policies, CE often lacks cohesion and context, making it difficult to attend to the specific needs of teachers (Adlerstein and Pardo, 2020; Galván et al., 2023; Vezub, 2019). On the other hand, the research highlights the importance of improving training programs in early childhood education to effectively address the diversity of the classroom and face the challenging conditions that arise in this environment (Galván et al., 2023; Henry & Namhla, 2020). Recently, the importance of developing research and reflective competences in teachers, such as critical thinking, observation and the problematization of practice, improving professionalism and promoting autonomy and self-regulation of learning has been highlighted (Aldana-Zavala et al., 2021; Díaz et al., 2024; Mármol et al., 2024).

Specifically in early childhood education, successful programs combine modalities such as

workshops, individual support and teacher self-reflection, key elements to improve pedagogical interactions (Egert et al., 2020; Schachter et al., 2019). Action research stands out as an effective method for TPD, focusing on specific and relevant contexts (Hughes, 2023; Johannesson, 2022). Lewin (1948) defines it as a paradigm of inquiry focused on improving the capacities and practices of the researcher, rather than generating only theoretical knowledge. Elliott (1991) emphasizes both process and product improvement, driving needs-based changes to improve the human situation.

On the other hand, reflective practice constitutes a fundamental aspect for TPD, being understood as a cyclic, systematic and intentional problem-solving process, in which theory (based on evidence) is related to practice (Medina & Mollo, 2021). In addition, this cognitive process encompasses other subprocesses of thought and action such as: planning, evaluation, observation and collaboration, understood also as attributes of research competence (Mármol et al., 2024). In this field, Flores et al. (2022) highlight that teachers often make pedagogical decisions based on intuition, neglecting the use of reference frameworks, which hinders the development of a solid construction of knowledge through critical inquiry.

Although reflection is presented as a key skill for change and TPD, teacher education lacks clear models and effective assessments to encourage it (Mármol et al., 2024; Ruffinelli, 2017). In this sense, reflection, considered as a necessary condition for professional status, requires specific tools for its effective development (Mármol et al., 2024; Ruming & McFarland, 2022). According to Ruffinelli (2017) reflection is a social phenomenon that needs mediation and scaffolding to guide individuals in the exploration and understanding of their experiences from various perspectives. In this line, Schachter et al. (2019) underline that CE that includes expert modeling and individualized coaching meets the needs of teachers with diverse backgrounds and previous experiences. According to MacPhail et al. (2020), the TPD strategy is enriched by the inclusion of external agents, understood as *critical friends*. These provide committed support, generating dynamics that stimulate TPD in a relationship based on respect and trust, facilitating progress in the investigative spiral and professional learning.

Also, video-training has been established as an effective tool to promote educational change, reflection and analysis of teaching practices (Baustad & Bjørnstad, 2023; Figueroa-Céspedes et al., 2024). Specifically, the video recordings of the classroom facilitate reflective dialogs between trainers and teachers of early childhood education (Baustad & Bjørnstad, 2023; Varghese et al., 2022), proving to be an effective approach in training environments (Baustad & Bjørnstad, 2023; Figueroa-Céspedes et al., 2024; Walsh et al., 2020). This method allows to analyze interactions in authentic contexts, enabling a repeated and systematic observation (Walsh et al., 2020).

On the other hand, Johannesson (2022) shows that Professional Learning Communities (PLCs) allow teachers to appropriate conceptual and procedural repertoire through action research, stimulating professional learning through: development of a collaborative analytical repertoire, construction of mutual commitment and articulation of local improvement plans. In early childhood education, work at PLC supports programs to enhance learning and CE (Schachter et al., 2019), fostering trust and shared identity, strengthening TPD and collaboration among pedagogical teams (Guerra et al., 2020).

The action-research emerges as a training model that promotes the participatory appropriation of the mediating role of teachers of early childhood education, facilitating quality interactions through self-observation, practical reflection and feedback, thus enhancing the role of children and professional agency in their professional teaching development (Figueroa-Céspedes, 2016; Guerra et al., 2017). At an international level, Hughes (2023) investigates the action-research circuits among early childhood education teachers, highlighting their impact on the worldview, identity and agency within the framework of education for sustainability. However, research exploring the characteristics of action-research-based training programs is still limited, especially those aimed at improving mediated interactions in early childhood education at the local level, highlighting the need to know how it contributes to the TPD (Egert et al., 2020; Figueroa-Céspedes, 2016; Figueroa-Céspedes et al., 2024; Guerra et al., 2017).

Thus, this article proposes to analyze TPD program in pedagogical mediation based on action research, describing those aspects that, in the opi-

nion of the informants (teachers, trainers and participants), were key to the training process.

2. Methodology

The study adopts a qualitative approach with a descriptive-interpretive nature and uses a case study design. Its focus is a teacher professional development program (TPD) implemented between 2012 and 2020, aimed at educators of a public foundation in Chile that serves children between 3 months and 4 years old. This article is part of a broader research process aimed at understanding the training practices of Continuing Education (CE) projects, in which the research team also plays the role of collaborating teacher (Figueroa-Céspedes, 2016; Guerra et al., 2017; Guerra et al., 2023).

The studied program fosters an inclusive and dynamic vision of pedagogical processes through cycles of analysis of interactions in the classroom from a sociocultural constructivist perspective. Its objective is to implement Mediated Learning Experiences that promote cognitive flexibility and modifiability (Feuerstein et al., 2015). Supported by a dynamic conception of intelligence, this approach highlights the relevance of intentional, reciprocal, meaningful and transcendent interactions facilitated by a mediating educator. In this way, a constructive and enriching connection is established between each child and his/her environment, through a playful approach appropriate to the educational level, optimizing the integral development and cognitive adaptability of childhood.

The program combines face-to-face sessions and activities on a virtual platform, reaching a total of 124 hours of classes over two years. In the first year, educators analyze and optimize their pedagogical practices with the support of teachers and tutors, focusing on improving the interactions they promote. In the second year, the educators are grouped into communities according to their region of origin and develop a collaborative research-action plan, which favors a continuous reflection on their professional learning and culminates with the presentation of a thoughtful individual final report.

The sample was selected based on accessibility and availability criteria and is composed of 25 participants: six teacher educators and nineteen early childhood educators. The entire teaching staff

involved in the final phase of the 2018-2020 cohort participated. The training group consists mainly of women, aged between 30-45 years, from various professions and with different levels of experience (Table 1).

Table 1. *Characterization of teachers sample*

Participant	Gender	Profession	Age	YearsExperience
D1			33	10
D2		Special Education Teacher	45	15
D3	Female		34	5
D4		Speech and Language Therapist	33	7
D5			30	10
D6	Male	Psychologist	43	15

The sample of participating early childhood educators is composed of nineteen women with an average age of 33 years, from various regions of Chile. These educators are at different stages of their TPD, with professional experience ranging from 3 to 22 years (Table 2). The selection of the sample was based on its active participation between 2018

and 2020 and on the accessibility of its reflective reports, ensuring relevant and representative data of the period. In addition, in-depth interviews were conducted with three volunteer educators to obtain detailed and committed perspectives on their experience in the CE program.

Table 2. *Characterization of sample of educators*

Participant	Region	Age	Years of experience	Instrument	
				Report	Interview
Q1	Arica and Parinacota	39	14	●	
Q2		28	3	●	
Q3		32	8	●	
Q4	Tarapacá	28	3	●	
Q5		31	6	●	
Q6	Antofagasta	36	11	●	
Q7		36	12	●	
Q8		29	5	●	
P9	Valparaíso	34	10	●	●
P10	Araucanía	33	9	●	
P11		31	7	●	
P12		30	6	●	
Q13		43	19	●	
Q14		28	4	●	

Participant	Region	Age	Years of experience	Instrument	
				Report	Interview
P15	Los Rios	28	5	●	●
Q16		30	6	●	
Q17		47	22	●	
Q18	Aysén	33	9	●	●
P19		32	7	●	

As information production tools, 19 reflective reports of participating educators were used, structured in (1) introduction, which establishes context and expectations, (2) a body, which narrates learning and participation in the program, and (3) conclusions, which synthesize achievements and projections. To ensure the credibility of these reports, iterative reviews were conducted and guidelines provided for their development. In addition, semi-structured interviews were conducted in two sessions of approximately one hour with six teachers and three educators, following guidelines based on previous research (Figueroa-Céspedes, 2016; Figueroa-Céspedes et al., 2024; Guerra et al., 2017). The first session explored the characteristics of the course, the role of the teacher-tutor and the reflective development, while the second focused on the process of problematization and the strengthening of reflection within the PLCs, providing detailed descriptions of those situations and experiences of the course. The interviews were conducted between July 2019 and October 2020, with the 2019 interviews conducted in person and the 2020 interviews conducted through Zoom. The combination of these methods and data sources allows a crystallization of the findings, providing a richer and more nuanced understanding of the experience (Tracy, 2021).

Subsequently, a reflective thematic analysis was carried out (Braun & Clarke, 2022) to interpret the data in a deep and detailed way, useful in exploring diverse perspectives. The process included initial reading, emergent coding, and cross-topic grouping, followed by iterative and recursive refinement of codes and categories. The joint analysis of the ins-

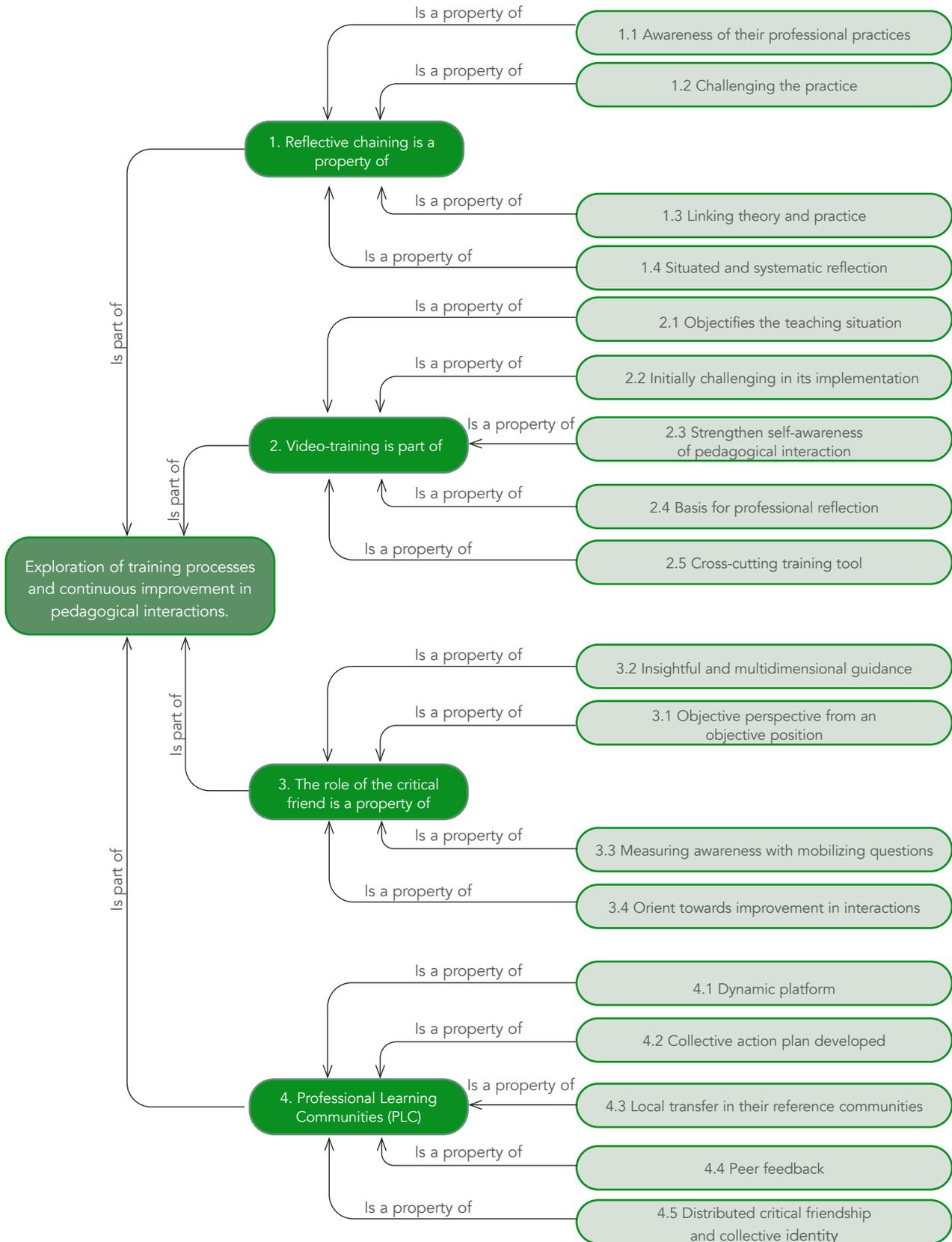
truments allowed confirming the exhaustiveness of the topics until reaching the information saturation. Rigor and quality were guaranteed following Tracy's criteria (2021), ensuring validity, transparency and investigative relevance. The analysis was performed with Atlas.ti ©24 software.

Finally, ethical guidelines were followed, informing participants about the objectives of the study and obtaining their consent validated by the university. In addition, individual complexities were respectfully addressed, guaranteeing confidentiality, anonymity, fairness, impartiality and a comprehensive commitment to knowledge (Villalta et al., 2022).

3. Results

The results reveal that the situations, tools and methodologies used promote the reflection and professional development of the participants through a action research approach in continuing teacher education. This process integrates four central themes: reflective chaining, which guarantees continuity in the critical analysis of one's own practice; video-training, which favors self-evaluation to adjust mediating skills; the role of the critical friend, which encourages constructive feedback between peers; and *professional learning communities*, which generate collaborative spaces for exchange and mutual support. These strategies, applied in a spiral process of inquiry, allow participants to consolidate their professional competencies by integrating reflection and learning at each stage of their development (Figure 1). The details of each category will be reviewed below:

Figure 1. *Synthesis of findings*



3.1 Reflective Chain: a Cycle of Theory and Practice

Reflective chaining stands out as an essential component in the implementation of the program, which consists of cyclically integrating educational theory with practice located in the context of teaching. In this regard, the participating educators point out the importance of being *aware of their practices*, analyzing that, before starting the program, their reflections were not systematic or intentional due to limitations of their institutional and sociocultural context.

I was not as conscious, nor reflective before the course, perhaps I was a little more automatic, maybe because the same kindergartens and schools have well established routines. There are few moments, or periods in which I sit down to think or to reflect, really reflect, because I can say every day that the day went well or that I lacked something, but that is as more superficial thinking(...)as but I was more aware with this course. (P14, September/2020)

This aspect is supported by the training team, who agree on the need to develop the *problematization* competence on the practice. This encourages educators to face pedagogical challenges, questioning knowledge and going beyond the traditional response based solely on intuition and experience.

Many times, they have diminished problematic skills, for example: to seek reliable information from the scientific area; then there is much everyday knowledge of the practice itself on which they move and not so much from the other perspective of more formal knowledge. (D5, July/2019)

I had to unlearn a lot of the things I thought I was right about mediating to internalize new knowledge. When I put them into practice, I realized it wasn't as easy as I thought. (P13, August/2020)

Thus, the course proposes to *link theory and practice* through the development of conscious relations between the theoretical concepts related to mediation and the concrete actions carried out during the pedagogical experiences. This is achieved by providing reflection structures and practical

examples that require a pedagogical positioning and the need to base their work.

We not only teach the different ways of reflecting, but our entire working methodology is centered on reflection. In other words, we teach how to reflect through reflecting itself, rather than teaching reflection as content. (D3, August/2019)

I feel that what stayed with me from the course was that (...) theory was put into practice (...) one had to ensure that this [recorded] class had certain characteristics, and then that class would be reflected upon, analyzed, but always with others, never alone. (P17, September/2020)

In this sense, theoretical-practical integration is not simply a matter of applying abstract ideas to specific situations, but of establishing a *situated and systematic reflection*, to problematize and improve the quality of interactions. By deepening the understanding of the theory through its visible and concrete implementation, significant improvement and alignment between its pedagogical practices and the conceptual foundations that underpin the mediated interaction is oriented.

I believe that the real reflection we were able to have in the different meeting instances is a reflection that is not abstract (...) critical knots are addressed, where the reflection is around a strategy of improvement for that situation (...) I think that today they are looking very closely at this research-action spiral: something happens, let's find out why, let's find out what to do, let's put it into practice, let's look again at whether it is working out for us, let's rethink the problem. (D2, June/2019)

The program has developed in me new ways of teaching, being more aware that mediated experiences occur through moments intentioned by the adult that consider specific curricular factors. (P2, August/2020)

Consequently, reflective chaining benefits female teachers, while also establishing a professional culture that values reflection to achieve learning and continuous improvement. This synergy suggests that

reflection is not an isolated act, but an integral part of a broader process that enriches teaching practice.

3.2 Video-training: *learning and reflection with evidence*

Video-training is a tool that promotes reflection and professional learning. By integrating into the action-research cycle, it allows participants to observe and reflect on their own practices through video recordings. This detailed process helps to objectify the pedagogical situation and to identify challenges in professional learning.

[LA] I see the methodology of video-training as an excellent tool, since it allows us to objectively look at our pedagogical practices in relation to what is written in the planning and to carry out a critical analysis, which leads us to constant improvement. (P10, August/2020)

In this way, video-training acts simultaneously as a learning scenario and tool, since it catalyzes pre-existing perceptions, stimulating the identification of opportunities for improvement. Although *initially challenging*, this process allows teachers to learn to observe their practices in a balanced way, identify patterns of behavior and evaluate the effectiveness of the strategies implemented.

At first it wasn't easy for both the team and me, recording wasn't simple and you were really observing actions that weren't optimal. (P3, August/2020)

Video-training is a very valuable strategy that will be very useful in my professional practice, it takes me out of the comfort zone, advancing in search of new strategies... (P18, August/2020)

Also, this process strengthens self-awareness by allowing constant monitoring and detailed analysis of the classroom, facilitating the identification of problems in pedagogical interaction. The CE process and the analysis cycles promote a progressive appropriation of the techniques and strategies of pedagogical mediation, resulting in a more fluid and effective practice.

I swore that it was okay at first, but there was not much truth (...) then you can plan more cons-

ciously what you want children to achieve and also be aware of their skills (...) you are catching the rhythm and it is like that after a little it is coming out more naturally. (P18, October/2020)

(...) It's not just recording yourself and telling how you did but recording yourself based on a problem that you are systematically looking at, with that group of children, a problem that more or less becomes frequent in your practice. (D2, June/2019)

In this way, video-training positions as the *basis of reflection* by deepening the analysis and advancing the theoretical argumentation of classroom problems. In addition, it is perceived as a cross-cutting tool that provides solid support for educators to analyze and justify their observations and interpretations. This process of theoretical-practical integration facilitates a deeper and informed understanding of pedagogical strategies, promoting continuous improvement in teaching practice.

When you record (...) in my point of view, is when I really reflect with all the senses. (P1, August/2020)

Video-training is the cross-cutting basis to all this reflection (...), it allows to have an argued opinion about what they are saying. If they give an opinion, they are giving it in relation to what they have managed to integrate into the continuous development process. That's what I was trying to say before, deep down, how do I give an opinion that I can argue from theory that I'm seeing in my practice? I can't do that if I haven't gone through a video-training process. (D1, June/2019)

Thus, video-training is a key process for the learning and continuous reflection of teachers, especially in the framework of action research. By recording and analyzing videos of their pedagogical practices, participants identify specific challenges and improve their understanding of the pedagogical strategies of the course, integrating theory and practice. This process promotes improvements in their teaching, expanding their repertoire of strategies and strengthening their self-awareness about the needs of children.

3.3 The role of the critical friend: *facilitator of change and reflection*

The teaching educators assumes the role of critical friend by collaborating in the research of the educational practice of the participating teachers. They request arguments, offer counterpoints and provide accompaniment in individual and collective research, adopting an interrogative and empathetic style to co-investigate mediated interactions. This role offers an *objective perspective from a peripheral position*, crucial to focus on pedagogical challenges. This underlines the importance of a structured approach to enrich reflection and learning in video-training.

The critical friend (...) fulfills a fundamental role because in a process of analysis it is important to have an objective look that allows to focus (...) because being a third party in the group favors the objective look, which is a key element. (D3, August/2019)

The critical friend exercises *insightful guidance* that helps educators navigate through the complexities of their own practices. Its function is *multidimensional*, ranging from the facilitation of the communication of reflections to the enrichment of the process through active listening, orientation, stimulation of discussion and the promotion of a deeper reflection.

They share that knowledge of truth, and they make you understand it, and they explain it to you and if they do not explain it to you, they make you question about it until you see it; it is not that they tell you everything, just as look here, no!, they also make you question it and analyze it! until you see it. Construct, co-construct and deconstruct and come back and it's like "wow!" It's like your mind explodes, so, I think that opportunity was super helpful. (P18, October/2020)

The critical friend plays the role of a reflective mentor, facilitating the awareness of the quality of pedagogical interactions through the search for logical evidence. Through mobilizing questions, it guides teachers in reflecting on their thought processes and decisions, promoting critical thinking and helping to identify strengths and weaknesses. Their balanced feedback strengthens the confidence of teachers and underscores the importance of develo-

ping emotional understanding in these interactions, transforming them into valuable opportunities for learning and personal development.

We must take care that the questions that we ask are questions that cognitively involve them; argue not only from experience, but also argue from knowledge, from this analysis, of this critical capacity and for that I am standing from a sociocultural paradigm to say such a thing, I am saying that mediation is such a thing because I believe in the capacity for change. (D1, October/2019)

My tutor is a mediator who not only answers my doubts through a screen in a clear, assertive, and timely way, but also, manages to become aware of each process I go through, teaches me and enhances my way of assimilating and understanding my emotions from enrichment and love, to use everything as a source of learning. (P16, August/2020)

The critical friend's approach encourages a *focus on interactions* as aspects susceptible to change, thus increasing the levels of agency and empowerment of educators, while recognizing the relevance of the institutional context. In addition, it is highlighted that the recording and analysis of pedagogical practices can be emotionally challenging due to personal exposure and the reception of criticism, which can affect self-esteem and confidence during the training process.

So our help, in doing the analysis from the *problem tree*, is 'ok, that's a reality. Is it more of a problem, is it a consequence, is it an effect? What is it and what can we do about it?' So, let's clear everything that we have no influence on, like any institution... and let's move into the classroom. (D2, June/2019)

I remember a few words that one of the tutors said when we had to watch the videos of the pedagogical practices "the little box of self-love", It is not easy to show video, nor is it easy to tell your classroom experiences and that other people correct you, question you, criticize you sometimes in a bad way. (P6, August/2020)

Therefore, the teaching educators team, from the critical friendship, guides the educators in the investigation of their practice, encourages critical thinking and offers acute and empathetic feed-

back. Its structured and objective approach facilitates reflection and pedagogical improvement in the context of video-training.

3.4 Professional learning communities: *collaboration and collective growth*

The work in PLC characterizes by the active and participatory interaction between educators from the same territory. During the second year of the program, this methodology is implemented, transcending the simple exchange of experiences, becoming a *dynamic platform* to engage in a deep reflective dialog about their interactions in the classroom, by identifying and addressing common problems.

In the second year they arrive at a problematization and based on it they design an action plan, obviously always linked to what is the process of training in pedagogical mediation. (D3, June/2019)

In this context, PLC are an enriching space that promotes collaboration and plays a significant role in the elaboration of a collective action-research process. This approach involves a joint immersion in the dynamics of the classroom, and allows educators to share, question and reflect on their pedagogical interventions, through the elaboration of a *shared action plan*.

We have acted as a bridge, enriching our knowledge by implementing an action plan designed and carried out by ourselves. This plan responds to the needs identified in our region and in the educational practices within the classroom, both by us and our colleagues. (P12, August/2020)

This collaborative approach provides an understanding of the pedagogical scenario, noting that theory is not only an abstract component, but a practical and organizational foundation that guides analysis and informs decision-making. Thus, action research emerges as an essential component that transitions from an individual process to a collective process of local transfer of their professional learning.

That which is individual in the first year, has its decantation in the first face-to-face day of the second year for the integration of the community

and allows in this sharing of critical incidents, of individual problems, to get to something that they see common from that group of teachers and that they also extrapolate to what happens with the teachers of their gardens, to their colleagues. (D2, September/2019)

Collaboration becomes a driving force for optimizing pedagogical practices. Within communities, peer feedback emerges as a reflexive resource towards finding effective solutions to common educational problems. The generation of an affective bond and a safe space in each community favors the research-action process in the context of the PLC.

The last works where I had to analyze the work of a colleague from a video of a recorded experience helped me a lot. It wasn't hard for me to accept comments like 'look, here you could have noticed this' or 'here you could have done that'. I think that kind of trust and complicity arises more when there is greater affection and bond with someone. (P15, September/2020)

Peer feedback thus becomes a vehicle for deep analysis and collective generation of pedagogical strategies, focusing on the practical application of mediation in the specific context of each community, *extending the critical friendship approach to everyday practice*.

When you are already a mediator with other colleagues, with the communities, that is also very important, when there are other people who advise you, who see things from the same experience that you have and that you may not be able to see. (P18, October/2020)

Finally, PLCs are strongly linked to the creation of a collective identity that gives meaning and purpose to professional teaching learning. The participants underline the importance of collaboration and co-creation in mediation, highlighting the construction of a collective knowledge that mobilizes and strengthens their sense of unity and purpose. In this way, mediation is seen as a community effort that values culture and fosters integral development.

As Comunidad *Guiando Saberes* we proposed to contribute to the region, projecting ourselves over time with a plan aimed at teams, families and community, make our children thinking beings and

take advantage of every opportunity and interaction to promote their thinking. (P3, August/2020)

This beautiful, complex and even magical concept has emerged in the mediating community under the name 'Zomo Kimün' ("female wisdom", in Mapudungun). (P16, August/2020)

I have learned a lot from each of them, together we have created a collective knowledge about mediation that mobilizes us to fulfill the objective of our action plan. (P11, August/2020)

The PLC, implemented in the second year of the program, allow common problems to be identified and addressed with a joint action plan. Led by the participants, they foster collaboration and collective growth among educators. This approach facilitates action-research and provides a safe space for feedback and the building of collective knowledge that favors TPD.

4. Discussion and conclusions

This article analyzes a TPD program in pedagogical mediation based on action-research, highlighting four key aspects: reflective chaining, video-training, critical friend role and professional learning communities. Each of these elements offers valuable insights to encourage reflection and TPD in early childhood education. The importance of integrating these resources into daily practice is emphasized, strengthening research competencies and enhancing the professionalism of teachers (Aldana-Zavala et al., 2021; Díaz et al., 2024; Mármol et al., 2024).

The *reflexive chaining* acts as a powerful mediating tool that facilitates the construction of relevant pedagogical knowledge through the strategic articulation between theory and practice, revitalizing the professional practice of the participants. The conscious connection between theoretical concepts and concrete actions highlights the challenges of going beyond a merely experiential reflection, especially in the absence of an adequate theoretical framework or optimal conditions for its implementation. This finding highlights the need to understand reflective practice as a deliberate and systematic process that integrates theory and practice (Flores et al., 2022; Medina & Mollo, 2021) manifesting itself in

a transformative curricular intention. In addition, it is essential to foster self-observation and awareness of one's own practice, developing critical thinking that integrates various perspectives and reference frameworks essential for inquiry and continuous improvement (Mármol et al., 2024; Ruffinelli, 2017; Ruming & McFarland, 2022).

The *video-training*, nested in the research-action cycle of the program, focuses on pedagogical interactions and the identification of challenges for improvement. Although it can generate anxiety for fear of negative evaluations (Figueroa-Céspedes et al., 2024), recording one's own practice enhances self-awareness and facilitates active mediation in the classroom by relying on concrete evidence that confronts theory and practice. This iterative process not only builds deep and relevant knowledge, but also enriches pedagogical intentionality and strengthens investigative competencies, with a focus on the analysis of the offered mediation (Figueroa-Céspedes et al., 2024; Mármol et al., 2024). The video-training systematizes the professional vision (Walsh et al., 2020), reaffirming the key role that teachers have in early childhood education. This strategy aligns with action-research-based professional learning, which drives teaching agency and professional identity (Figueroa-Céspedes, 2016; Hughes, 2023). Moving away from univocal and decontextualized approaches that have predominated in the CE (Adlerstein and Pardo, 2020; Henry and Namhla, 2020; Vezub, 2019), this proposal adopts a sociocultural turn that empowers the teaching body as an active protagonist in their professional learning processes within their specific contexts (Figueroa-Céspedes, 2016; Guerra et al., 2017; Guerra et al., 2020; Mármol et al., 2024; Ruffinelli, 2017).

The *role of the critical friend* facilitates a deep reflection among educators about their pedagogical interactions in the classroom, acting as a reflective mentor with a multidimensional and contextualizing approach. Its emphasis on self-observation and the problematization of the practice itself enriches the professional repertoire (Figueroa-Céspedes, 2016), promoting collaboration between the teaching educators team and the teachers (Varghese et al., 2022) to develop a systematic and shared reflective practice (Mármol et al., 2024; Ruming & McFarland, 2022). In this way, the critical friend, in her reflective role, enriches the video-training by raising ques-

tions about the quality of the mediation and the consistency with the pedagogical objectives raised. This stimulates the problematization of the practice, highlighting the professional development potential of each participant. By encouraging argument, critical friends accompany teachers in a deeper and more conscious understanding of their work and beliefs to the grassroots, agreeing with MacPhail et al. (2020), who emphasize the longitudinal and adaptive character of critical friendship.

PLCs highlight pedagogical leadership and peer dialog as essential drivers for improving educational practices, creating a sense of shared purpose. Mobilizing feedback practices among educators poses the challenge of promoting critical friendship and collaboration, essential elements for teacher professional development (TPD), in a similar

link to coaching and peer scaffolding (Ruffinelli, 2017; Schachter et al., 2019). Active participation in collaborative analysis allows identifying areas for improvement and sharing proposals, based on theories that value teacher collaboration as a key element to improve practice (Johannesson, 2022). This approach not only responds to the need to raise educational quality in childhood (Aumann et al., 2024; Cubillos, 2018; Gebauer & Narea, 2021), but also promotes trust and shared identity (Guerra et al., 2020) and aligns TPD purposes with staff interests, positively impacting educational communities (Schachter et al., 2019). In this framework, PLCs consolidate a collaborative culture of continuous improvement and research-action, positioning itself as an effective model for the TPD (Johannesson, 2022).

Figure 2. Diagram of the professional learning process



By way of conceptual integration, the results reveal a clear spiral of progression in which educators move from individual reflection to integration into learning communities, a process that drives their TPD, establishing a transition from the individual to the collective and from the simple to the complex (Figure 2). During the first year of the program, the participants focus on theoretical exploration by questioning their pedagogical conceptions through personal reflection on their practices, which allows them to identify and analyze their teaching approaches and lay a solid foundation for a deeper understanding of their teaching role and the principles of pedagogical mediation. In the second year, the process becomes more complex, as educators face practical challenges that require negotiation of ideas, conflict resolution, and co-creation of effective pedagogical strategies. This action-research approach allows individual experiences to be articulated in a collective effort to improve educational practice (Guerra et al., 2017; Guerra et al., 2020), advancing towards the construction of knowledge relevant to their own practice.

This approach expands mediation and reflective practice beyond the classroom, integrating the sociocultural context into its transformative purpose. The incorporation of tools such as video-training and critical friendship presents as a promising model to optimize practices in early childhood education, since they promote self-reflection (Egert et al., 2020; Schachter et al., 2019) and collaborative action research (Johannesson, 2022).

This experience shows that a situated and relevant teacher professional development (TPD) requires overcoming obstacles such as the lack of self-awareness about the pedagogical practice itself, the absence of a solid theoretical framework, the scarcity of spaces for reflection and resistance to constructive criticism, factors that can undermine trust and hinder collaborative learning. In addition, complex group dynamics and low motivation for continuous learning can restrict exchanges to superficial dialogs. To face these challenges, it is essential to implement proactive strategies that strengthen TPD aimed at enhancing the mediating role of educators in learning processes (Figueroa-Céspedes, 2016). This requires designing systemic policies that drive TPD programs focused on promoting cultural change where action research and interdisciplinary

collaboration are consolidated as pillars of teaching practice (Adlerstein & Pardo, 2020; Aldana-Zavala et al., 2021; Johannesson, 2022).

Although this research provides a rich and detailed understanding of a specific case, it presents certain methodological limitations. On the one hand, findings derived from a single case cannot be generalized statistically, and emerging issues may vary in other contexts, limiting their direct extrapolation (Tracy, 2021). However, the depth of the analysis offers significant value in terms of transferability, allowing this knowledge to be applied to similar situations. It would also have been relevant to incorporate methods of ethnographic recording of learning activities and create dialogic spaces to discuss the results with the participants, which is suggested as a challenge for future research. Finally, it is recommended to explore how the key aspects of the analyzed program can be adapted to different educational contexts and evaluate their long-term impact on pedagogical practices.

Acknowledgement

The authors thank the teachers and the academic team participating in the research for their participation and commitment. They also thank Fernanda Agurto and Valentina Veit for their collaboration and support during the data collection phase.

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