Research in Educational Administration & Leadership

Volume: 8, Issue: 1 / March 2023

Expert Teams in Instructional Leadership Practices Based on Collaboration and Their Transference to Local Teaching Improvement Networks

Paulo Volante*

Pontificia Universidad Católica de Chile, Santiago, Chile

Magdalena Müller

Pontificia Universidad Católica de Chile, Santiago, Chile

Álvaro Salinas

Pontificia Universidad Católica de Chile, Santiago, Chile

Xiu Cravens

Peabody College, Vanderbilt University, United States of America

Abstract

This article shows the research results of implementing a professional learning model based on instructional leadership practices and structured teacher collaboration. The primary purpose was to promote a collaboration model focused on developing communities of practice, formed by school leaders and teachers, focusing on instructional improvement in 8th grade Math and English. The model consists of a cycle with 4 iterative practices: planning, classroom observation, feedback, and refinement and three guiding principles: deprivatisation, collaboration, focus on learning. The methodological approach was a design-based research model, with school teams (within-school level) and collaboration networks (between schools-level) that included principals and teachers. 22 schools in two districts in Chile, 44 school leaders, 74 teachers, 49 non-participating teachers as a control group, and at least 1,000 students in 40 classes were part of the study sample that participated

Article Info

Article History:
Received:
March 30, 2022
Accepted:
September 17, 2022

Keywords:
collaboration, instructional leadership, deprivatisation, professional development.

*Corresponding author
E-mail: pvolante@uc.cl

in the research between 2019 and 2020. Mixed methods were used for data analysis. The research team conducted a five-scale questionnaire and semi-structured interviews with participants and non-participants teachers as the control group. The main progress was the deprivatisation of pedagogical practice and joint decision-making for teaching improvement. The practical implications of the model, adjusted for local characteristics, are that it facilitates professional development at three levels: individual, within school teams, and allows professional exchange between schools. It enabled the enactment of peer collaboration practices, and the role of instructional leadership shared between teachers and the school leadership team members were bolstered.

Cite as:
Volante, P., Müller, M., Salinas, Á ., & Cravens, X. (2023). Expert teams in instructional leadership practices based on collaboration and their transference to local teaching improvement networks. *Research in Educational Administration & Leadership*, *8*(1), 256-294. https://doi.org/10.30828/real.1095600

Introduction

International evidence shows that instructional leadership is critical in explaining teaching practices, student learning improvement and teachers' professional learning. From its origins to the present, and in different contexts, this approach has focused on the quality of teaching to achieve learning (Hallinger & Murphy, 1985; Hou, Cui & Zhang, 2019; Özdemir, Gümüş, Kılınç, & Bellibaş, 2022). Instructional leaders pays attention to the school mission, curriculum management and instruction to bolster teacher performance, monitor student progress and establish a harmonious instructional environment (Robinson, Lloyd & Rowe, 2008). In local studies, we have seen how instructional leadership teams worked as a network of relationships that generated

co-influences of principals and teachers, distributing itself throughout the system.

The instructional practices, exercised in a collective and articulated way, show significant effects on student achievement, teachers' perception of effectiveness, and leadership capacity, focusing on teachers and intermediate leaders (Supovitz & Christman, 2003). Thus, it is crucial to empower headteachers and teachers individually; it is also vital to mobilise and empower leadership teams, focusing their efforts on collaboration and professional development, emphasising learning improvement. The principals' instructional practices can influence teacher learning and collaborative practices among teachers changing diverse components of classroom instruction (Bellibas, Polatcan, & Kilinc, 2020). Furthermore, global research has described that collaboration networks between schools further mobilise capacities and knowledge beyond the school.

Communities of practice (CoP) can expand and distribute instructional influence in and between schools. Wenger (2004) defined CoP as 'groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly. They share elements, such as a focus on a specific domain and commitment to work in it; participation in activities and discussions; mutual support and shared information; and practice, a shared repertoire of resources (Wenger, 2004). According to the comparative research between the English-speaking and Asian contexts, Cravens & Drake, (2017) indicate that the basic steps to forming a CoP in the school environment are: individual and group learning with access to peer observation, participation in practices, and co-construction of new practices or improvement of existing ones. They also identified four fundamental aspects for the development of CoPs: (1) instructional leadership of the

director, (2) teachers with a sense of community work, (3) an environment of trust and (4) teaching effectiveness (i.e., feeling capable of enabling and achieving their students' learning).

Supovitz & Christman (2003), systematically described the concept of 'Instructional Communities of Practice' as communities within schools whose specific focus is the improvement of teaching and student learning. After analysing two experiences in Philadelphia and Cincinnati, they highlighted that one of the main effects is moving teachers from lonely classroom work towards a collaborative exploration of how their teaching relates to student learning, thus 'institutionalising' the teaching practice and producing mutual learning. However, they also emphasise that CoPs require specific conditions and organisational strategies to fulfil their purposes, such as a protected meeting time and tools that allow them to explore student performance and its link to effective teaching.

A recent model of CoPs with an instructional focus is the Teacher Peer Excellence Groups model (TPEG) was designed to support teaching improvement, which 'is comprised of iterative cycles of collaborative lesson planning, peer observations, feedback, and revision by teachers based on the Shanghai model` (Cravens, Drake, Goldring & Schuermann, 2017). This experience has been applied in two different contexts: in Shanghai, where teachers have solid collaborative ties and an inclination towards collective values, and in the U.S., where teachers' culture emphasises teaching as an individual act, with autonomy and isolation between teachers. The results of these teacher-led collaborative inquiry cycles have demonstrated growth in the instruction ratings of the teachers involved and value-added scores in the subsequent year of the study (Cravens & Hunter, 2021).

In both contexts, the application of TPEG had promising results. However, there is no evidence of its application in Latin American countries, which shows a less teacher collaboration culture. According to Talis (2018), for example, compared to Shanghai and the U.S., Chile has a higher percentage of teachers who declare 'never' to carry out professional collaboration activities in five of the eight indicators (observe, provide feedback, exchange teaching materials, work with others to ensure standards in the evaluation and participate in collaborative professional learning). Shanghai shows the lowest percentages of teachers who indicate 'never' for these indicators.

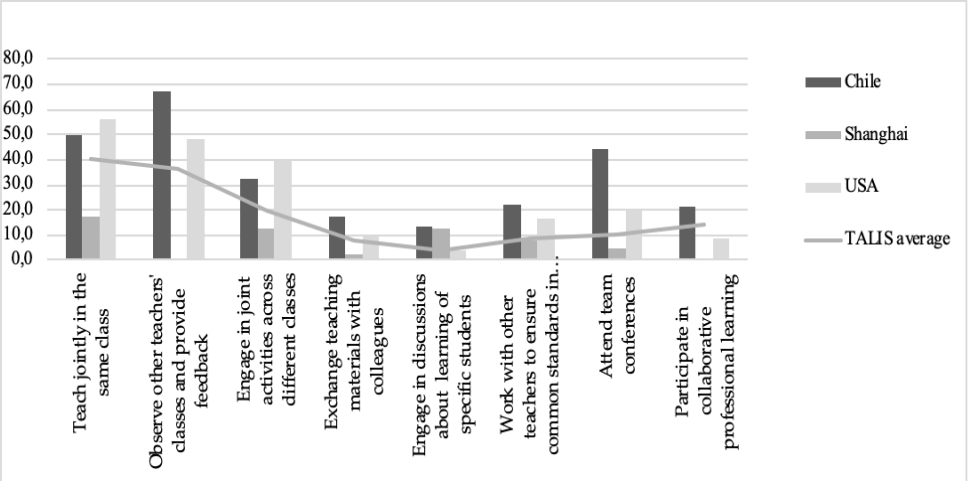

Figure 1.

TALIS 2018 (OCDE 2019) average performance in deprivatized practices in countries that implemented TPEG project

Teachers and management teams from the U.S. who participated in this experience reported a positive impact in that it allowed for 'collaboration in an open and non-threatening environment; and allowed for greater exchange of ideas, strategies, and materials. It was

the first time for many, if not all teachers (including many veteran teachers), observing teaching regularly within their school' (Cravens & Drake, 2017, p.359). However, the model has not yet been implemented in other contexts. In Tennessee's statewide teacher collaboration initiative, known as the Instructional Partnership Initiative (IPI), a study found that the frequency of collaborative activities, the focus on instructional activities, and the perceptions of IPI as beneficial, were significantly predicted by school supports and characteristics of teacher partnerships (Caroll, Patrick & Goldring, 2021). This article shows the results from applying the TPEG model, modified for the Chilean context. The proposed leadership and collaboration model is based on local (Volante & Müller, 2017) and international experience (Cravens & Drake et al., 2017), which has advanced in defining and implementing distributed instructional leadership practices. The TPEG cycle, which operationalises collaboration and exchange between professionals, was adapted based on three principles: 1) the teaching practice is made visible to others; 2) collective work is shareable; 3) teachers' expertise helps validate teaching strategies. The model adapted for this project, called Collaborative Research Cycles ('Ciclos de Investigación Colaborativa', CIC), considers four collaboration practices: 1) joint planning, 2) peer observation, 3) feedback and 4) refinement.

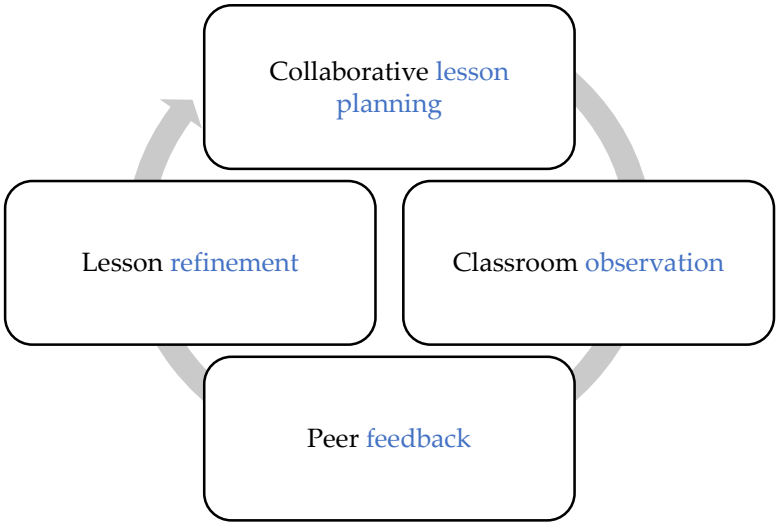

Figure 2.
Teacher Peer Excellence Groups Model (Cravens, Drake, Goldring, & Schuermann, 2017).

Since the collaboration structure is focused on pedagogical improvement and involves the interaction of the teams with the 4 iterative practices described above, it was adjusted and tested in an online format in the context of the pandemic for a continuity study which includes a third district. The model was adjusted to the online context and was valued by the participants as a very useful support tool for collaboration in the pandemic scenario.

These results are relevant in evaluating policies that promote teacher collaboration in Chile and highlight the importance of the role of school leaders in generating conditions and making these policies and practices viable at the local level. This is especially relevant in light of Chile's structural reforms of the teacher professional development system (Law 20,903 of 2016), and due to the changes in the type of

administration promoted by the New Public Education reform (Law 21,040, 2017).

Instructional leadership and teaching improvement

In Chile, a quasi-experimental experience of instructional CoPs was carried out, whose purpose was to develop Instructional Leadership Teams (ILT) in six schools, with 24 school leaders and 78 teachers, impacting over 500 secondary school students. The objective of the intervention was to improve pedagogical management and learning outcomes in mathematics in students from Year 9 to 11 through the following practices (Fromm, Olbrich & Volante, 2015; Volante & Müller, 2017):

· Practice 0: Constitute Instructional Leadership Teams (ILT)

· Practice 1: Assemble a shared vision around teaching and learning

· Practice 2: Define critical learnings in a specific domain

· Practice 3: Lead students to set their own goals

· Practice 4: Ensure that all students have successful experiences

· Practice 5: Monitor curriculum and student goals

· Practice 6: Give feedback to teaching practice

· Practice 7: Carry out observation and feedback loops

· Practice 8: Create Professional Learning Communities (PLC).

After a two-year intervention that compared experimental schools (with ILT intervention) with a control group (without ILT intervention), it was possible to account for the impact on leadership and teaching teams, as well as on the academic achievement of the

students (Volante & Müller, 2017). Collaboration between teachers appears as a mediating variable for change in teacher practices in contexts of leadership focused on learning (Cagatay, Sukru & Polatcan, 2020; Sükrü, Gümüş & Liu, 2021).One common element between the three initiatives of CoPs with an instructional focus relates to deprivatising teaching practice or making teaching public: teachers observe other teachers, are continuously observed and reflect on their practice with a focus on improving student outcomes (Lingard, Mills & Hayes, 2000; Louis & Marks,1998). Local studies have also shown that observation skills can be trained deliberately in the short term to achieve expertise in this specific task (Müller, Volante, Grau & Preiss, 2014). The focus seems especially relevant in the implementation of collaboration strategies. The target feedback guides the instructional practices that could contribute to the achievement of the goals stated by the teams (Papay et al., 2020). As Ainscow et al. (2012) point out, the best way to expand professional expertise in schools and between schools is strengthening collaboration. In Chile, a law creating the Teacher Professional Development System was enacted in 2016 (MINEDUC, 2016). One of its focuses is that leadership teams promote collaboration as a strategy to strengthen the professional development of teachers. However, professional collaboration is not a common practice in OECD countries or economies that participate in TALIS (Teaching and Learning International Survey). In Chile, according to the TALIS 2018 study (in which a representative sample of 1,963 7th- and 8th-grade teachers and 169 principals participated), 24% of teachers indicate that they participate in collaborative professional learning at least once a month (OECD average: 21%) and 29% are engaged in the team teaching just as often (OECD average: 28%) (OECD, 2020). In this context, it becomes imperative to study evidence-

based collaboration strategies that focus on the learning of teachers and students, generating learning communities.

As noted above, the primary purpose of the research presented in this paper is to promote a model of collaboration focused on developing communities of practice formed by school leaders and teachers, focusing on instructional improvement in 8th grade Math and English. Specifically, the objectives of our study are to 1) facilitate the transference of effective teaching and instructional leadership practices to peer teams that need to improve these focused teaching areas; 2) evaluate the implementation of crucial teaching and leadership practices in the context of pedagogical improvement processes and 3) systematize a model for the transfer of critical leadership and teaching practices in schools that belong to local networks and require support to improve educational quality.

Methods

The research is framed within the design-based research (DBR) approach, which 'seeks to test educational interventions within the context of classrooms, programs or learning environments' (Lochmiller & Lester, 2017, p.15), developing materials and teaching practices that can be implemented, while advancing in research and theory on how to improve in natural contexts (Coburn, Penuel & Geil, 2013). The research is situated in the educational context and focuses on designing and testing a meaningful intervention through mixed methods. It included multiple iterations and collaboration between researchers and practitioners to refine the collaborative model to achieve tangible impact in practice (Anderson and Shattuck, 2012) and identify the factors that influence the consolidation of the instructional leadership teams.

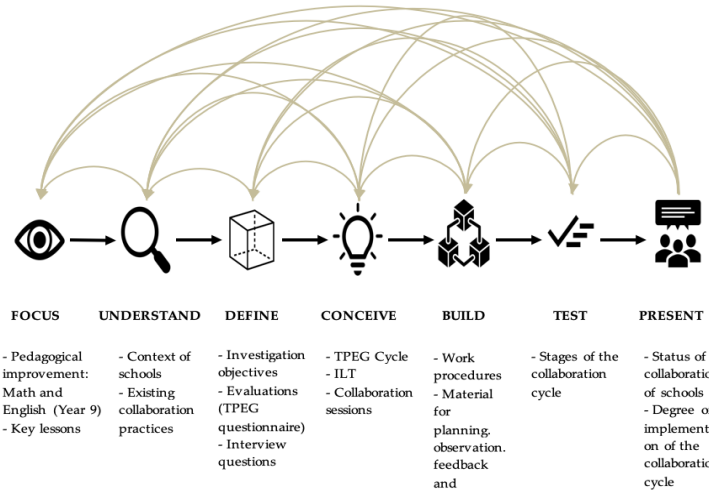

Figure 3.

Design-based research approach (adapted from Easterday, R. & Gerber, 2018)

According to the systematisation and the recent literature on DBR, the stages and moments of application are somewhat recursive and iterative, and each project can vary in its sequence and progression. In this experience, the researchers simultaneously evaluated the initial state of the factors involved, designed, tested, validated an intervention model, and conducted participant-reported change assessments about distributed instructional leadership and proposed collaborative actions.

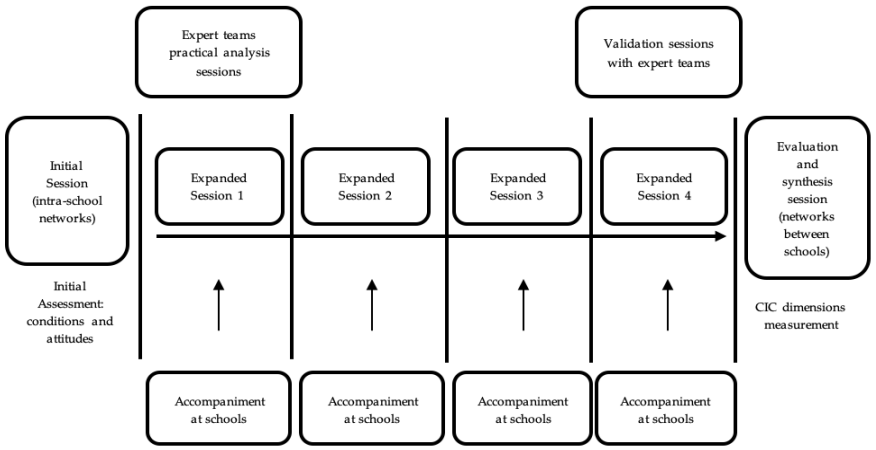

Figure 4.

Diagram for the transfer of leadership practices and teaching collaboration

Figure 4 shows four instances organized to enable and transfer the model of professional development and collaboration: (1) dissemination sessions between schools, (2) guided sessions at each school, (3) independent work by each school team and (4) modeling and exchange sessions between schools. The opportunities, activity sequences to build ILTs, and the development of the CIC in and between schools are highlighted.

Participants

Two Chilean public school districts were invited to participate in the first year: one from the Metropolitan Region (central zone) and one from the Maule Region (southern zone). More than 40 schools are located in these districts, administered by the local municipal authority, and have leadership teams in each school. Eleven schools from each municipality were invited to participate voluntarily (n = 22), which agreed to participate in the research and form collaborative

teams with their teachers. The teams were made up of two members of the school leadership team (n=44) and 8th grade English and Maths teachers (n=74). The school leaders suggested incorporating the professionals (special educators) from the School Integration Program (SIP). Table 1 summarizes the total number of schools (22) and the distribution of participants (118).

Table 1. *Participants in Project 2019-2020*

Municipalities	Central Zone	Southern Zone	Total
Schools	11	11	22
Directors (female)	10	7	17
Directors (male)	1	4	5
Heads of UTP (female)	10	10	20
Heads of UTP (male)	1	1	2
Mathematics Teachers (female)	5	4	9
Mathematics Teachers (male)	7	11	18
Professor of English (female)	4	9	13
Professor of English (male)	7	4	11
SIP special educators *	11	12	23
Total participating professionals	56	62	118

Note: All SIP special educators who participated in this project were women.

Participating schools serve a high percentage of low-income families. Most of them report that over 80% of the families they serve are socioeconomically vulnerable, and only three oscillate between 68% and 79%, according to a national vulnerability index that includes information on socioeconomic characteristics of families, household access to basic services, educational level of parents, and others (Junaeb, 2022). The inclusion criteria of the schools are that they have consolidated leadership teams, that they have support from the local

administration (district authorities) and that they are willing to participate in the project (voluntarily). The selection criterion for the teachers was that they teach Math or English in the 7th and/or 8th grade. Most of them had more than 10 years of experience in the school system. There were no selection criteria for the students, but consent was requested from the families.

The research team set up a control group of teachers (n=49) within the schools to evaluate and validate the model. They were not part of the educational leadership team formed for the research. A final questionnaire and semi-structured interview were applied to compare results.

Instruments

The 'Instructional Leadership and Collaboration Practices Scale' instrument was applied to explore conditions that allowed and enabled the implementation of collaborative practices and the degree to which schools implemented joint work (one version for headteachers and another for teachers). The instrument was translated and adapted from the TPEG questionnaire (Cravens & Drake, 2017).

The original questionnaire evaluates seven dimensions. Based on the criteria of relevance, five dimensions were selected: (1) Collaboration with an instructional focus; (2) Comfort with deprivatised practices; (3) Commitment to the deprivatised practice; (4) Instructional leadership of the principal; (5) The school's sense of professional community. Of these, comfort and commitment to deprivatised practice are of great interest and therefore essential to analyze in this study. Comfort refers to how comfortable teachers and administrators feel about collaborative activities associated with the CIC, whereas commitment refers to the observed involvement and performance reported by

teachers and school leaders with these collaborative activities. In addition, the research team designed a set of questions to evaluate the perceived benefit of this project and expectations of scalability and satisfaction. This instrument was applied only to teachers and school leaders who applied the model at their schools.

Finally, at the end of the intervention, to examine the experience more deeply, semi-structured interviews were carried out with school leaders, participating and non-participating teachers, focused on investigating the collaborative practices and the enabling and hindering factors, in addition to exploring their experiences surrounding the deprivatised practices.

The data collected includes the perceptions of the teachers participating in the project. To avoid the usual biases in self-report studies, a control sample of teachers who worked in the same schools as the participants, but did not participate in the project, was included in this study. Additionally, the research team periodically monitored the work carried out in the schools, and were able to directly verify both the performance of the collaborative meetings, and the projection of this work at the end of the intervention.

Data Analysis

For the Collaborative Practices analysis, the data obtained in the TPEG questionnaire were descriptively analysed, and a comparison of means (T-Student) between the participating teacher's group (n=48) and the teachers in the control group (n=49), allowing for the establishment of parameters of perception and implementation of practices. Of the 74 participating teachers, 48 answered, and valid questionnaires were collected.

On the other hand, to more profoundly examine the teams' experience, the interviews were processed (N=21), and a content analysis was applied to them by two coders using the Nvivo 11 software. Open coding was performed, including emergent categories and axes of analysis established according to the project's objectives, prioritizing the identification of enabling and hindering factors for teaching collaboration, perceived effects of the experience, and necessary conditions for future applications and possible scaling of the project. Axial coding contributed to the refinement and differentiation of concepts and gave them the character of categories (Flick 2003).

Figure 5 shows the organization of the nodes and subnodes used in the qualitative analysis. The “CIC Project” (Collaborative Research Cycle) node includes text segments with specific evaluations and meanings that the participants attributed to the most important perceived results in the collaborative research cycle: the collaboration between schools, within the school and between the teachers and the results in the students, including the support mechanisms (the materials and the organization of the sessions, the monitoring of the participating teams). The "implementation factors" node includes the assessments and meanings of the elements that facilitated or hindered the achievement of goals, and the challenges for future interventions. Lastly, the "synthesis" node of the project integrates the evaluations and global meanings that the participants highlighted as the most important learning they obtained during the implementation of the project, the aspects that should be maintained in future implementations, and the recommendations for improvement.

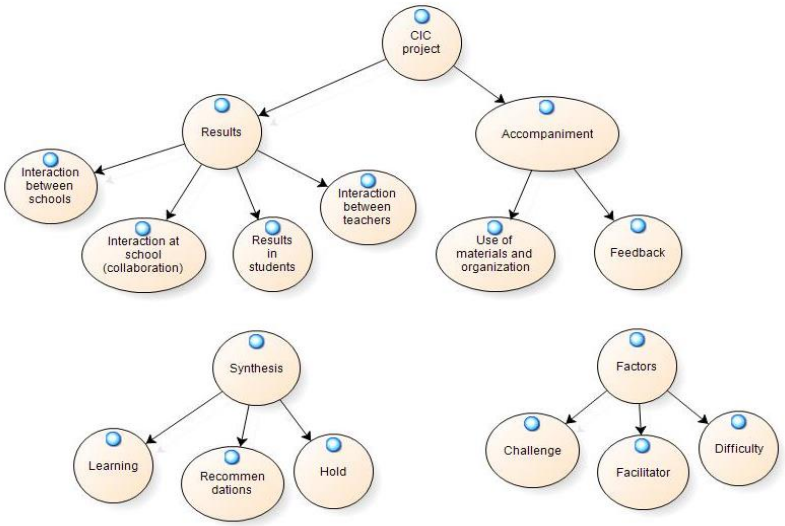

Figure 5.

Nodes organization in qualitative analysis (own elaboration)

The project was submitted to the ethical protection procedures defined by the National Research Agency (Agencia Nacional de Investigación, ANID) and the institution that carried out the research. These include the signing of informed consent of the participants, procedures to ensure their anonymity, and the careful handling of the generated databases. The research will have to prepare periodic reports, which – alongside an audit – will allow the university to monitor these ethical aspects.

Results

The participants were asked how satisfied they felt with the experience, the model, and some critical factors of its application. The results summarized in Figure 6 show satisfaction levels higher than 3 on a scale of 1 to 4. Some results that stand out are the recognition of

the role of the school leadership teams (leadership dimension); the exchange between peers; the quality of materials used to plan, observe and provide feedback; the guided sessions (in schools); and the extended work sessions with other schools. These results are consistent with the elements that stand out as enablers when implementing systematic collaboration practices. The lowest score — an average of 2.77 — was given to the time available to work on the proposed activities. This data is highly consistent with the results reported in the qualitative analyses regarding the main factors that hinder the execution of this initiative. This issue is important and poses a challenge in improving the efficiency of the proposal and in establishing conditions to protect the instructional time and ensure more agile possibilities for an effective transfer. These optimisation elements challenge coherence and coordination between teachers, school leaders and local authorities.

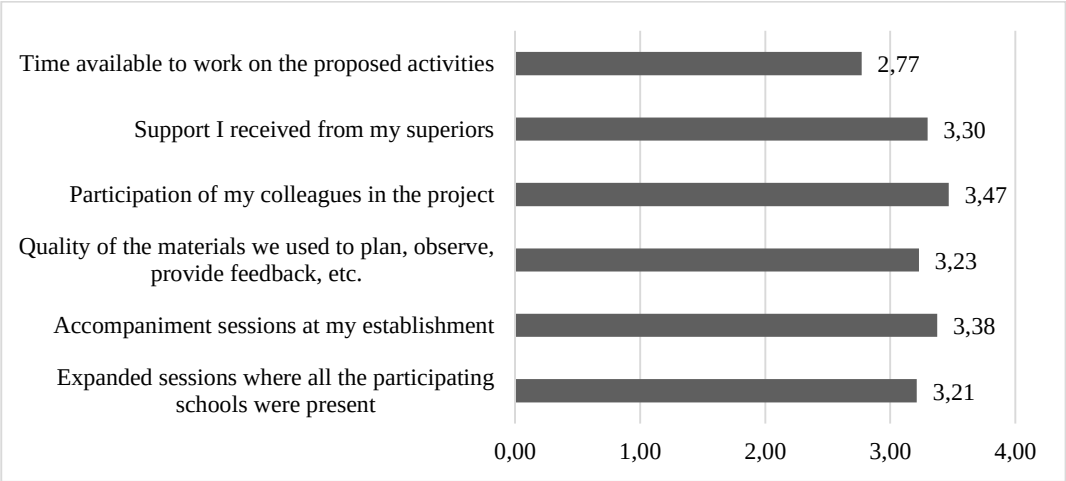

Figure 6.

Satisfaction with the implementation of the model according to key factors

On the other hand, to carry out a more detailed analysis of the scores in the five selected dimensions, the means (T-Student) were compared between the group of participating teachers and another group who did not participate directly (see Table 2).

Table 2. *Comparison between participants and non-participants in the Collaboration Practices for Teaching Improvement questionnaire*

Participants v/s Non-participants		N	*M*	*SD*	df	t	Sig.(p)
Instructional focus collaboration	Participants	48	3.13	0.61	95.997	-0.884	0.378
	Control	49	3.02	0.61			
Comfort with deprivatised practices	Participants	48	91.17	10.38	87.657	-0.979	0.329
	Control	49	88.70	14.28			
Commitment to deprivatised practice	Participants	48	2.48*	0.77	95.736	-2.193	0.030
	Control	49	2.15*	0.73			
Instructional Leadership	Participants	48	3.18	0.78	93.278	0.419	0.675
	Control	49	3.24	0.66			
Sense of professional community	Participants	48	2.74	0.60	90.265	0.000	1.000
	Control	49	2.74	0.77			

*p<.05

The results show a significant difference between participants and non-participants from the same schools in the dimension of commitment to deprivatised practice (p<0.05; t -2.193; n 98). This result provides substantive evidence that participating teams get involved in joint planning, peer observation, feedback, and joint improvement, which allow the teachers to open their classrooms and are a stimulus for more intense professional development among peers. In more detail, this dimension refers to putting into practice, focusing on

collective performance, and maintaining a constant exercise of the collaborative practices proposed in the CIC model.

On the other hand, given the brief intervention (eight months) and the 'authentic' conditions of public education, it was predictable that no significant differences would be observed in other dimensions more related to dispositions (attitudes) associated with deprivatised practices. In fact, in terms of dispositions toward collaborative practices and professional development among peers, there is a high interest, and slight variance between teachers and school leaders, who consider these practices necessary, desirable, and timely, but their level of application and sustainability make the difference. In this sense, the group that more systematically and coherently participates in the project perceives a higher level of transfer of the knowledge and tools provided in actions materialised in an experience consistent with the hypothesised model.

Perceptions and foundations of collaboration practices from those involved

To examine teachers' perceptions more deeply, in-depth analyses are reported below based on 21 semi-structured interviews with school representatives: a member of the management team, the participating teacher, and a non-participating teacher.

Regarding deprivatisation, the participants highlight a progressive advancement in their ability to publicly share teaching practices within and between schools. Some mention that their schools previously applied observation and feedback practices, but these practices were carried out by teachers in higher positions (the principal or TPU); it was not systematic (it did not always happen, the feedback was not

timely or specific) and its purpose was to supervise teacher performance. Therefore, in their experience, this project adds:

1. A greater systematicity in collaborative work
2. A more explicit focus on student learning
3. Greater horizontality in teaching work and
4. A more active exchange between peers

Some excerpts from the interviewees illustrate this:

> 'It allowed us to enrich practices we had already been working on concerning collaboration among teachers, departments, and subjects, but now I feel... entering the classroom and allowing another teacher to observe you, and that the teacher who does the class looks at themselves, it is very innovative, it was what I liked the most.' (Principal - School II_4)

> 'The deprivatisation contributed at least to two directions: to teachers' professional development and the improvement of pedagogical practices.' (Director - School II_2)

> 'Class observation was no longer about observing the teacher's performance, but the focus was on the student. The final objective was how they interacted with each other, with the teacher, and what they learned. (Head of TPU, Technical Pedagogical Unit – School I_1)

Although observation and feedback appear more frequently in the previous excerpts, the interviewees also valued the refinement of the plans as a contribution, especially concerning re-planning the initial

class, which they mentioned as one of the elements with less previous experience.

> 'You make a lesson plan, but there is no time to refine, adapt, evaluate. We have 30 minutes of joint planning, so little is done, but through this project, the principal gave us the time to carry out each one of the steps that they gave us' (SIP Professional - School II_2).

> 'But if I had to plan with other people, that is much better, because you share ideas, "this or that can work for you". For example, I consulted the library girl, if I am going to do an activity with books, or take them weekly to the library, see what books can be and be there with them.' (Non-participating teacher - School I_5)

> '...From this experience, we collected all the concrete evidence to improve it in a new scenario that was applicable in the future, and all the evidence we observed, nothing dressed up, we wanted to do it in the other scenario, as refinement, it can be an improvement, a transformation.' (Participating teacher - School II_7).

Concerning the sense of collaboration, the participants express that this opportunity to work collaboratively contrasts with teachers' everyday experiences.

> As a non-participating teacher describes: 'Each of us works on their planning alone and sends them to the TPU (supervising teacher), she makes the suggestions or adjustments that she deems appropriate.' (Non-participating teacher - School II_4).

The horizontal relationship was also highlighted and had critical consequences on teachers' work at school. One element reported is that horizontal collaboration generates trust and enables improvement.

> 'It flipped the switch for me. Before observing the teacher's practice, observe if the planning was consistent with what was done in the classroom. I would observe the fulfilment of the objectives, activities, etc., but observing the development of the student regarding learning, I found it super innovative; it changed my perspective as part of the management team that accompaniment in the classroom my point of view. It was tremendously positive for me.' (Director - School II_4).

> 'It also contributes to trust between teachers, which occurs in parallel with work itself. I speak for myself (…) critiquing others seems very constructive. (…) It is not only from above, from the school leaders, (…) this changed thanks to the research project, and offers the possibility for colleagues to enrich each other, to enter a state of trust that allows them to listen to each other, in a different way that I had not seen before at any school.' (Director - School II_4).

Even from a positive assessment of the collaboration in teams of managers and teachers, one teacher points out limits to the contribution of colleagues from other areas. He is sceptical towards the recommendation that his colleagues, technical heads (TPU) and teachers of other subjects can propose, for example, on generic criteria for new curricula.

> 'If they evaluate me with a standard test, I cannot spend every class doing crafts. When can I take advantage of that?

> When it is the first class, when one must go to the daily routine; for example, in the class about the Pythagorean theorem, demonstrated with a practical activity, there is no problem in doing that. But I cannot do this practical activity every class because my evaluation instrument must be consistent with the Ministry's: SIMCE, PSU.' (Participating teacher - School I_8)

This limitation seems to be produced by disciplinary and methodological differences between teachers. This teacher is reluctant to include specific activities suggested by his TPU head and SIP professional since he assumes they do not correspond to what is expected in the teaching of his subject. On the other side, a SIP professional from another establishment describes math teachers as:

> '(…) They are very structured, not very flexible, so there was an exchange about certain methodologies. We [special] educators are more flexible, which was difficult.' (SIP Professional - School II_2).

There is a significant agreement in the elements that the participants report from their own experiences regarding the enabling and hindering factors for the implementation. As enabling factors, they highlight the importance of support from the principal and school leaders for a good execution of the project. This support comes to fruition, especially in providing time to participate in project activities and prioritizing collaborative activities.

> 'I believe this has to come from the principal and school leaders; there must be a commitment. They must be the most involved in this effort because deep down in schools; there are many things that you see during the year; there is

> much work being done; the teachers also have a high workload; therefore, it is the management team, or the principal, who motivates these teachers to see this activity as a great possibility to improve the processes inside the school'. (Principal - School II_5).
>
> 'We were given the time, something essential that sometimes we do not have, we have a lot of work and little time, but the school leaders tried to give us the time to develop it.' (SIP Professional - School II_2).
>
> The availability of time in the project context contrasts with the difficulties of this type that teachers usually have. A non-participating teacher points out: 'In my case, I did not have the opportunity for another colleague to observe my class due to a scheduling issue. That is why no one came to see me.' (Non-participating teacher - School II_4).

An additional element that contributed to the achievement of the objectives was the flexibility in scheduling activities on the part of the executing team. The participants highlighted that:

> 'The work at the school continued; the school had to continue working, so you were very flexible in that sense to discuss the times.' (Director - School I_7).
>
> 'There were some adjustments, flexibility because there was a strike between, etc., but we never lost… I do not want to say "control" because some words today are difficult to mention in front of teachers, but project supervision, project focus, to keep moving forward despite the difficulties in the dates, that horizon was never lost.' (Principal - School II_4)

In contrast, one of the factors that hindered the project's objectives was the resistance of some teachers to the proposed practices:

> 'Resistance by many colleagues to accept that a member of the leadership team or another peer enters their classroom (…). (In) Unfortunately, English did not do well with the colleague because she is not there on Tuesday either, so I do not think she understood the dynamics of what was intended very well, or she simply didn't want to open her classroom.' (Director - School II_6).

> 'That intervention that appears from the moment someone is recording puts the person in a defensive disposition to watch their manners, but I think it is necessary to continue practising, and we must move forward (…). I think it is no longer so strange, invasive, and we should continue moving forward.' (Principal - School II_4).

If the protected time allocated by the administration was a factor that positively contributed to the project's achievements, the lack of time is a factor that hindered those achievements.

> 'The main adverse factor is the lack of time because we have a curriculum to cover, and of course, there is a requirement, and sometimes [the time] is not enough to do all this work that takes much planning, that is so oriented toward improving, toward having the students exposed to the subject, or toward deepening their understanding of it, which is what this program allows, I think that is the first obstacle, the extensive curriculum, with a tight timeframe, which forces the teacher to go forward and forward.' (Director - School II_6).

Finally, in some schools, there was only one teacher per subject (especially in English). This condition limited the possibilities of collaborative work within a subject, even though contact across subjects was also experienced:

> 'It is not done here because there is only one teacher per subject, there is no mathematics department, so we have to talk among colleagues.' (Participating teacher - School I_5).

In this way and concerning evaluating the implementation of the model and proposed practices, there is abundant material for a quantitative and qualitative description of the leadership practices and teaching collaboration observed in the participating teams. Additionally, the effort to store and systematise this experience made it possible to produce useful audio-visual material to demonstrate and transfer the process, the learning and the observable effects on the dynamics of the work teams.

Discussion

This study has made it possible to more deeply examine the relevance of an adaptive research methodology to the characteristics of the school system, primarily to approach processes of change and structural reforms that require coherence between leadership at the national policy level, at the district administration level and at the local school leadership level. The DBR approach was of great value: its iterative and flexible nature allowed for modifications to the original model and their immediate testing with different agents of the school system (Ainscow et al., 2012; Coburn, Penuel & Geil, 2013). Along with the completion of the project, methodological knowledge has been generated, as well as a model and tools for the implementation of what

we call professional research, particularly its applications for the development of collaborative capacities in managers and teachers.

In this sense, in this line of research on leadership, collaboration and pedagogical school improvement, a very close approach to the dynamics of collaboration has been possible in situ, in an 'authentic context' and highly exposed to the contingency of the current scenario. This is even more relevant in the uncertain scenario of the following years, with the pandemic and the disturbances of the school system.

Therefore, the implementation and results have high ecological validity and have been tested by representative users at different school system levels and with very diverse points of view: teachers, principals, local authorities, ministerial representatives, etc. The resulting proposal and model have been validated with the pressures and barriers that schools experience: lack of time and resources, simultaneous demands for numerous projects and initiatives, and tensions related to union and political contingency. These factors are frequently reported as barriers to the implementation of collaborative strategies both within and between schools. For this reason, it is especially relevant that although the model was adjusted to local characteristics, it was implemented in contexts that managed to minimize the effects of these barriers by being integrated as instructional collaboration routines. The TPEG has already been applied in three countries with very different cultures and it seems that the focus is to maintain the non-negotiables proposed in the original project: deprivatization; shareable and storable collective work; and teaching strategy validation. The proposed research model makes it possible to enable the encounter and exchange between different points of view, not only within each school but also between teams from different schools, whether they belong to the same territory.

Secondly, the project provides evidence that allows us to think about the implementation of collaborative processes in close relation to pedagogical improvement efforts, focusing on subjects and specific teaching levels. It seems feasible to adapt the CIC model, proposed by the TPEG team, in combination with an instructional leadership logic (ILT), in improvement processes at the local network level since it provides tools and a shared sense of practice-based professional learning processes. In this sense, the proposed collaboration model aligns perspectives and enables both principals and teachers to focus on more specific conversations focused on learning opportunities in specific subjects. Therefore, it provides opportunities to expand the sources of instructional influence, empowering formal leaders and fostering confidence in teachers as leaders (Supovitz & Christman, 2003).

Therefore, the research approach, as well as the background of the problem and opportunity for a solution, seem to be validated by this experience precisely because the research provides evidence and experience to describe and influence actions that seek teaching improvement from a collaborative approach while expanding the sources of instructional leadership in schools.

Implications of the study

As a summary of the and implications of the main results of the research carried out, it is possible to make the following propositions:

(1) Some conditions must be considered for the implementation, such as: having leadership teams with advanced knowledge in shared practices, guaranteeing support from school leaders and local authorities, providing protected time for the formation of the collaboration team and the joint activities of the model, in addition to

outlining a work agenda for schools that is consistent with the objectives of the model and with available resources for collaborative work. Such conditions operate as critical organizational resources, which this type of experience will enrich since effective collaboration constitutes a factor in developing other essential elements of professional capital in schools (Kahne et al., 2001).

(2) Based on the evidence collected from participants and non-participants in this experience, a general willingness to adopt deprivatised teaching practices is observed. This factor seems to be an enabler at the beginning of initiatives like this one. However, favorable attitudes will not be enough during implementation since the most significant challenge is promoting action and, even more so, stimulating the permanence of collaborative activities in schools' daily operations. As observed in other instructional leadership practices, maintaining the focus and giving continuity to the collective effort is one of the critical dimensions when evaluating the effect of the leadership of principals and teachers (Levine & Marcus, 2010).

(3) For this reason, it is advisable to accelerate the experience, encourage them to act, even when there are conditions and aspects to be optimized. It is convenient that the teams start pilot experiences, that the leaders stimulate the initiative and that the teachers trust in trying, testing, and improving as they go. It is also convenient to start pilot activities in a few subjects to avoid overwhelming the effort of the schools and instead guarantee the quality of an authentic collaboration experience.

Additionally, when considering the sustainability of collaboration models with an impact on improving teaching practices, it is essential to more deeply examine the factors that enable and hinder implementation in state schools (Muijs, 2015). The schools included in

this project operate in highly vulnerable contexts, and patterns are observed in leadership and administrations that show difficulty focusing their influence on educational improvement and in the final teaching levels of primary education. Among the enabling factors, it is important to highlight the support and time that local authorities and principals can prioritise for professional development in the schools themselves and within a territory. Both agents contribute significantly to validating the importance of teaching collaboration when they protect time and ensure the organizational conditions for its implementation. In some cases, it was also observed that headteachers who were closely involved in the pedagogical conversation of the teaching teams in their schools accelerated decisions and made the collective commitment visible to distribute instructional leadership that inspired enthusiasm in subject teachers and other school leaders (Spillane, Hopkins & Sweet, 2015). Among the factors that hindered implementation is the assimilation effect of this specific model concerning other practices established in schools but not guided by the principles of making public, sharable and storable that were at the base of this project. For example, in some schools, at the beginning of the intervention, the teams claimed that they planned, observed, and provided feedback collaboratively, so the model offered little novelty to the practices they were already developing. During implementation, the research team emphasised the quality of the implementation and the execution of actions required by the proposed model. In several cases, changes were observed in the team's notion of collaboration and the quality of observation and feedback, especially in the roles and interactions between the participants of the teams. The main contrast with previous ideas about collaboration has consisted of a more focused look at student learning and a perspective of analysis of practices less focused on the teacher's individual performance and

more coherent with communities of practice and with the improvement of evidence-based classroom planning, with an emphasis on improvement rather than supervision (Müller, Volante, Grau & Preiss, 2014).

Three limitations of the study need to be considered. First, the teams from the participating schools voluntarily joined the project, so they are interested in and motivated by the research proposal. Second, self-reporting is used to quantitatively and qualitatively assess project implementation. Third, it was not possible to completely isolate the teachers who did not participate in the project, so there may be some degree of contamination in the control group, especially in the schools that implemented the model with greater intensity.

The design-based research methodology has consistently been particularly relevant in high contingency circumstances in the school system, but especially in any research that aims to simultaneously design, intervene, and produce resources for professional learning in authentic contexts. On the other hand, we sought to generate initiatives to adapt the model to emerging conditions while advancing in scaling up the collaborative practice in times of high uncertainty.

The identification of conditions, factors and results shows that the proposed model can maintain its fidelity and be applied considering each school's particularities. The model needs to be implemented under certain conditions. Above this 'baseline', it should obtain results associated with instructional leadership teams and collaboration for teaching improvement, as observed in the schools classified as having a high commitment to these practices. In this sense, the model's innovation can interact with previous experience and lead to a greater depth of professional development capacities at the level of intra-school teams and networks between schools, complementing and

focusing the interest on collaboration for its application in specific subjects. Undoubtedly, a permanent challenge is to examine the conditions more deeply for sustaining these practices, which requires influencing the different agents to maintain focus and coherence with a notion of pedagogical collaboration, which implies the deprivatisation of teachers' performance and the orientation to impact the quality of student learning.

Acknowledgement

This research was supported by the Chilean National Agency for Research and Development (ANID), National Fund for Scientific and Technological Development (FONDECYT), under Grant FONDECYT Regular Nº Grant Nº 1201710.

References

Anderson, T. & Shattuck,J. (2012). "Design-Based Research: A Decade of Progress in Education Research?" Educational Researcher 41 (1): 16–25. https://doi.org/10.3102/0013189X11428813.

Bellibas, M. S., Polatcan, M. & Kilinc A. C. (2022). Linking instructional leadership to teacher practices: The mediating effect of shared practice and agency in learning effectiveness. Educational Management Administration and Leadership 55(5):812-831. DOI: 10.1177/1741143220945706

Kilinc A. C., Bellibas, M. S. & Polatcan, M. (2020). Learning-centred leadership and change in teacher practice in Turkey: exploring the mediating effects of collaboration, Educational Studies, DOI: 10.1080/03055698.2020.1828833

Carroll, K., Patrick, S. K., & Goldring, E. (2021). School Factors That Promote Teacher Collaboration: Results from the Tennessee Instructional Partnership Initiative. American Journal of Education, 127(4), 501-530.

Chilean Ministry of Education (2017). "Study on the implementation of the School Improvement Networks." Researcher responsible for the project: Luis Ahumada.

Coburn, C., Penuel, W. R. & Geil, K. (2013). "Research-Practice Partnerships at the District Level: A New Strategy for Leveraging Research for Educational Improvement." Berkeley, CA and Boulder, CO: University of California and University of Colorado. January. www.wtgrantfoundation.org.

Cravens, X. & Hunter, S. (2021). Assessing the impact of collaborative inquiry on teacher performance and effectiveness. School Effectiveness and School Improvement 32(4):1-43. DOI: 10.1080/09243453.2021.1923532

Cravens, X., Drake, T., Goldring, E. & Schuermann, P. (2017). Teacher peer excellence groups (TPEGs): Building communities of practice for instructional improvement. Journal of Educational Administration, Vol. 55 Issue: 5, pp.526-551, https://doi.org/10.1108/JEA-08-2016-0095

Cravens, X. & Drake,T. (2021). From Shanghai to Tennessee: Developing instructional leadership through Teacher Peer Excellence Groups. International Journal for Lesson and Learning Studies 6(30), pp.348-364. https://doi.org/10.1108/IJLLS-12-2016-0062

Easterday, M. W., Rees Lewis, D. G. & Gerber, E. M. (2018). "The Logic of Design Research." Learning: Research and Practice 4 (2): 131–60. https://doi.org/10.1080/23735082.2017.1286367.

Flick, U. (2003). "Qualitative Sozialforschung — Stand Der Dinge." In Soziologische Forschung: Stand Und Perspektiven, 309–21. VS

Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-322-95017-8_19.

Fromm, Olbrich & Volante, (2015). Fidelidad de la implementación de prácticas de liderazgo instruccional. Magis Revista Internacional de Investigación en Educación 7(15):117-134. DOI: 10.11144/Javeriana.M7-15.FIPL

Goldring, E., Porter, A., Murphy, J., Elliott, S. N. & X. Cravens (2009). "Assessing Learning-Centered Leadership: Connections to Research, Professional Standards, and Current Practices." Leadership and Policy in Schools 8 (1): 1–36. https://doi.org/10.1080/15700760802014951.

Hallinger, P. & Murphy, J. (1985). "Assessing the Instructional Management Behavior of Principals." The Elementary School Journal 86 (2): 217–47. https://doi.org/10.1086/461445.

Hou, Y., Cui, Y. & Zhang, D. (2019). Impact of instructional leadership on high school student academic achievement in China. Asia Pacific Educ. Rev. 20, 543–558.

JUNAEB (2022). Prioridades 2022 con IVE SINAE básica, media y comunal. Retrieved June 13, 2022, from https://www.junaeb.cl/wp-content/uploads/2013/02/IVE-2022.xlsx

Kahne, J., O'Brien, J., Brown, A. & Quinn, T. (2001). "Leveraging Social Capital and School Improvement: The Case of a School Network and a Comprehensive Community Initiative in Chicago." Educational Administration Quarterly 37 (4): 429–61. https://doi.org/10.1177/00131610121969389.

Levine, T. H. & Marcus, A. S. (2010). "How the Structure and Focus of Teachers' Collaborative Activities Facilitate and Constrain Teacher Learning." Teaching and Teacher Education 26 (3): 389–98. https://doi.org/10.1016/j.tate.2009.03.001.

Lingard, B., Mills, M. & Hayes, D. (2000). "Teachers, School Reform and Social Justice: Challenging Research and Practice." The Australian Educational Researcher 27 (3): 101–15. https://doi.org/10.1007/bf03219733.

Lochmiller, C. R. & Lester, J. N. (2017). "Conceptualizing Practitioner-Scholarship for Educational Leadership Research and Practice." Journal of Research on Leadership Education 12 (1): 3–25. https://doi.org/10.1177/1942775116668525.

Louis, K. S., & Marks, H. M. (1998). "Does Professional Community Affect the Classroom? Teachers' Work and Student Experiences in Restructuring Schools." American Journal of Education 106 (4): 532–75. https://doi.org/10.1086/444197.

MINEDUC. (2016). Law 20,903 "Crea el sistema de desarrollo profesional docente y modifica otras normas". Retrieved from https://www.leychile.cl/Navegar?idNorma=1087343.

Muijs, D. (2015). "Improving Schools through Collaboration: A Mixed Methods Study of School-to-School Partnerships in the Primary Sector." Oxford Review of Education 41 (5): 563–86. https://doi.org/10.1080/03054985.2015.1047824.

Müller, M., Volante, P., Grau, V., Preiss, D.D (2014). Desarrollo de Habilidades de Observación en la Formación de Liderazgo Escolar a Través de Videos de Clases. Psykhe, Vol. 23, 2, 1-12

OECD (2014). "TALIS Teacher's Guide 2013: International Study on Teaching and Learning". OECD, Paris.

OECD (2019). "TALIS Teacher's Guide 2018: International Study on Teaching and Learning". OECD, Paris.

OECD (2020), TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals, TALIS, OECD Publishing, Paris. https://doi.org/10.1787/19cf08df-en.

Özdemir, N., Gümüş, S., Kılınç, A. Ç., & Bellibaş, M. Ş. (2022). A systematic review of research on the relationship between school leadership and student achievement: An updated framework and future direction. Educational Management Administration & Leadership, 17411432221118662.

Papay, J. P., Taylor, E. S., Tyler, J. H., & Laski, M. E. (2020). Learning job skills from colleagues at work: Evidence from a field experiment using teacher performance data. American Economic Journal: Economic Policy, 12(1), 359–388. https://doi.org/10.1257/pol.20170709

Robinson, V. (2007). School Leadership and Student Outcomes : Identifying What Works and Why. ACEL Monograph Series. http://www.peersupport.edu.au/wp-content/uploads/2014/08/Student-leadership.pdf.

Robinson, V., Lloyd, C. A. & Rowe, K. J. (2008). "The Impact of Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types." Educational Administration Quarterly 44 (5): 635–74. https://doi.org/10.1177/0013161X08321509.

Spillane, J. P., Hopkins, M. & Sweet, T. M. (2015). "Intra- and Interschool Interactions about Instruction: Exploring the Conditions for Social Capital Development." American Journal of Education 122 (1): 71–110. https://doi.org/10.1086/683292.

Şükrü, M., Gümüş, S. & Liu, Y. (2021) Does school leadership matter for teachers' classroom practice? The influence of instructional leadership and distributed leadership on instructional quality, School Effectiveness and School Improvement, 32:3, 387-412, DOI: 10.1080/09243453.2020.1858119

Supovitz, J. A., & Christman, J. B. (2003). "Developing Communities of Instructional Practice: Lessons for Cincinnati and

Philadelphia." Policy Briefs, November, 1–9. https://repository.upenn.edu/cpre_policybriefs/28.

Volante, P., Müller, M. (2017). 9 claves ELI: Manual de prácticas para equipos de liderazgo instruccional. Santiago: Ediciones UC

Wenger, E., & Trayner-Wenger, B. (2015). "Communities of Practice: A Brief Introduction." Communities of Practice 15 (5): 1–8. https://scholarsbank.uoregon.edu/xmlui/handle/1794/11736.

About the authors:

Paulo Volante, Ph.D. in Psychology, Associate Professor at the Faculty of Education (Department of Theory and Policy) from the Pontificia Universidad Católica de Chile.

E-mail: pvolante@uc.cl

Authorship credit details: Conceptualization- formulation of overarching research goals and aims, funding acquisition- fund application, investigation- conducting a research and investigation process, data/evidence collection, methodology- design of methodology, writing- original draft.

Magdalena Müller, Ph.D. in Psychology and Assistant Professor at the Faculty of Education (Department of Learning and Development) from the Pontificia Universidad Católica de Chile.

E-mail: mbmuller@uc.cl

Authorship credit details: Formal analysis- interview coding, investigation- data/evidence collection, writing- review & editing.

Álvaro Salinas, Ph.D. in Social Sciences, Information and Communication, and Associate Professor at the Faculty of Education (Department of Curriculum) from the Pontificia Universidad Católica de Chile.

E-mail: asalinase@uc.cl

Authorship credit details: Formal analysis- interview coding, methodological advice, results systematisation, investigation- data/evidence collection.

Xiu Cravens, Ph.D. in Educational Policy's and Associate Dean for International Students and Affairs, Office of the Dean; Associate Professor at the Peabody College of the Vanderbilt University.

E-mail: xiu.cravens@vanderbilt.edu

Authorship credit details: Validation, verification- verification of the overall replication/reproducibility of results.