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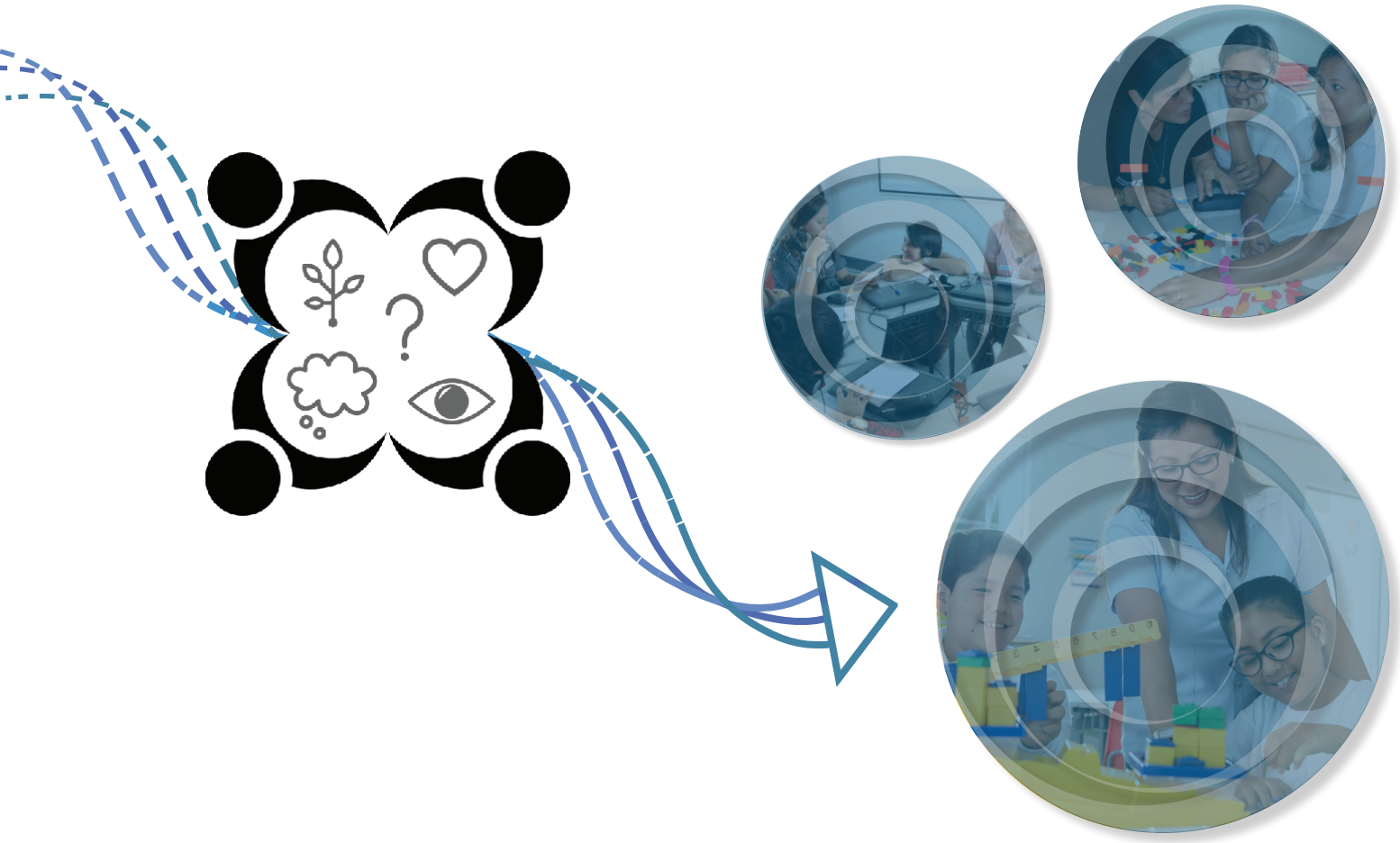
PROJECT ZERO

Deeper, Together

Practical lessons on cultivating deeper learning from a low-cost school network



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Introduction

To begin to take action, to make decisions, we need pathways for reflecting and we need to constantly develop our ability to reflect on what was done, how it was done, how it could be done later. [There's a] metacognitive aspect too. So if I didn't develop that metacognitive awareness of the actions I take, it would be difficult for me to start taking the next step or to think about improvements or to enhance what has already been worked on. So I think that at the heart of starting to make autonomous decisions is developing those pathways for reflection. (Juan, Coach)

We expect students to be autonomous and more reflective but we don't always explain to students how to develop greater autonomy or reflectiveness, do we? What are the steps? And now I realize that we can't help students to be more autonomous if their teachers and the coaches aren't autonomous... So that's a big problem. (Diana, Coach)

Juan and Diana, the instructional coaches who shared these thoughts with us, point to two essential aspects of cultivating pedagogic change in schools. They frame autonomy and practice-based reflection as goals *and* as means to enact change; they also mention scaffolds and modeling ("pathways," "steps," "explaining") as important opportunities for their own growth and for those whom they support within their school network. In addition, their words imply dedication to their practice as educators, openness to personal growth and change, and awareness of being part of an interconnected system.

Diana and Juan were participants in the final year of a four-year collaborative research partnership between our research team at Project Zero and colleagues at Innova Schools: a rapidly-expanding, highly-centralized, low-cost network of 65 K-12 schools that seeks to address longstanding issues of educational quality in Peru and other Latin American countries. The research partnership strove to explore ways in which the network could support pedagogic change to help its students engage more effectively in inquiry-driven learning, problem-solving, and critical thinking—or what we loosely refer to in this paper as *deeper learning*. Mehta and Fine

(2019) point to the scarcity of deeper learning in US schools even where ample resources are available; they note that surface-level or rote learning tends to be the default, particularly in core academic subjects. But why is it so challenging to cultivate deeper learning in schools? And where do opportunities exist to move toward deeper learning by building on the good work and educator commitment that already exist?

Beginning to grapple with these questions requires taking a close look at specific educational cultures and contexts. Over the course of four years, our research team gained a better understanding of the context and culture of the Innova Schools of Peru and the ways in which the school network continuously evolved during our collaboration, including during the Covid-19 pandemic. Given notable differences in the practices of the network during different periods of the research, we have chosen to focus this paper on the work conducted from March to December 2021 which involved 28 instructional coaches and academic coordinators (hereafter collectively referred to as "participants"). Through a process of collaborative inquiry, facilitated by the research team via a series of online workshops, these participants explored how to incorporate more autonomy and inquiry into their own everyday practices and those of the teachers they supported, with the ultimate goal of promoting deeper learning in Innova classrooms. This research paid particular attention to educators—rather than policies or frameworks—as the drivers of pedagogical change. Across the four years of the project, we listened closely to the educator participants—teachers, coaches, academic coordinators, and members of Innova's central Back Office—and their voices and experiences form the basis for our findings.

What have we learned? Among other findings detailed in this white paper, this research suggests that strengthening the interrelated practices and stances of **inquiry**, **autonomy**, and **collaboration** can help everyone in an education system to go "**deeper, together**"—that is, to learn in ways that involve developing the kinds of understandings that go beyond superficial content recall and are personally meaningful, while at the same time building intellectual community. Furthermore, the inevitable puzzles and challenges encountered along such a journey may be important for promoting growth and development, both individually and collectively, if participants are supported to reflect on their learning over time. Given the importance of reforming teaching and learning in many parts of the world, our findings are both important and encouraging.

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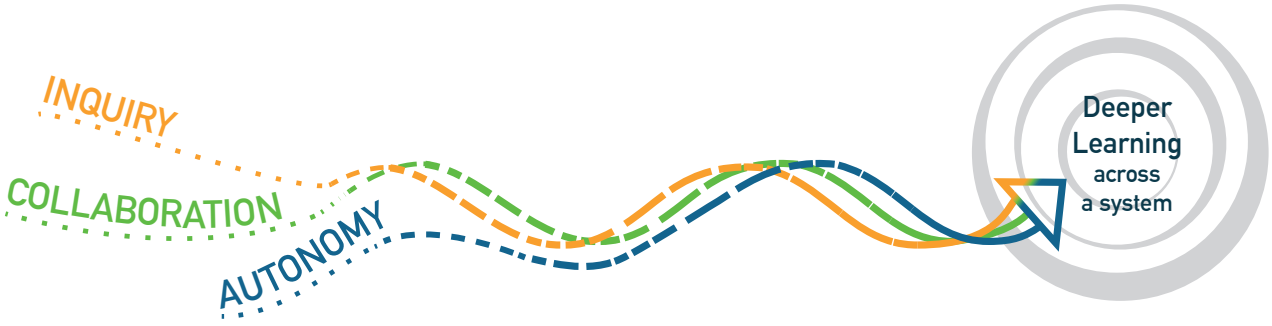
Three key elements: Autonomy, inquiry, and collaboration

As we envisioned an initial research focus with Innova Schools in late 2017, we jointly decided to focus on a project we called "Creando Comunidades de Indagación" (Creating Communities of Inquiry) to explore how inquiry-based teaching and learning might become broadly embedded across an entire network of schools. Given this focus, the key themes of **inquiry** and **collaboration** were a part of the research from the very beginning. While the concept of "deeper learning" would arise later on in the work, from the outset our research sought to explore ways of strengthening educational practice across the network in ways aligned with many deeper learning frameworks (e.g., Fullan et al., 2017; Mehta & Fine, 2019; Ortega Díaz & Hernández Pérez, 2015; William and Flora Hewlett Foundation, 2013). In early 2021, after three years of research collaboration, Innova's leaders asked the research team to also incorporate the concept of **autonomy** into the work. Rather than representing a major shift in research focus, the concept of autonomy complemented and was in many ways already embedded in our existing interest in promoting inquiry and collaboration among educators and students. Indeed, autonomy and deeper learning are intimately connected: deeper learning requires that educators enjoy at least some autonomy in their practice so that they can be responsive to students' emerging questions, needs, and interests. In turn, educators need to offer students at least some autonomy so that they can grow as learners and get beyond shallower forms of learning, such as memorizing or replicating content (Padilla Beltrán et al., 2013). Interestingly, we saw a type of autonomy emerge among our participants and the teachers with whom they worked that was deeply tied to the process of collaboration—a phenomenon we did not anticipate but which resonated with Little's (1990) concept of collective autonomy. Collective autonomy is not just about teachers and students enjoying greater individual freedom; it involves a distributed form of autonomy that frames teaching as a shared responsibility and learning as collaborative and interdependent (Sandoval Mena et al., 2021).

Each of these three "threads" (inquiry, collaboration, and autonomy) can be found interwoven throughout both the design of the



Inquiry, collaboration, and autonomy can be fostered simultaneously to promote deeper learning across a system.

research and the resultant findings presented in this white paper.

A look at the pages ahead

Rather than presenting a framework or a series of steps to "arrive at" deeper learning, this paper aims to recognize the complexity of charting pathways toward an ongoing pursuit of deeper learning. It also offers something new by presenting findings from a Latin American context that has attracted international attention but has not yet been formally researched, and from which there is much to learn. **Part 1** defines the key terms of inquiry, collaboration, and autonomy, describes the background for the work, and lays out the research rationale and research methods. **Part 2** of the paper discusses some of the favorable conditions and challenges for promoting inquiry, collaboration, and autonomy that surfaced as our participants worked to create pathways toward deeper learning. While many of the challenges in particular have been encountered elsewhere, we hope that naming them will provide a starting place for others to recognize similar elements within their own contexts, and help them grapple with the complexity and nuance involved in this type of work. **Part 3** distills in a usable format what we found to be the most impactful approaches and tools in this work; some of these approaches and tools are new, while some have been adapted or borrowed from other sources. In **Part 4**, we take a look at the types of growth and development experienced by participants, highlighting the positive impacts that working toward deeper learning can have not just on students, but also on teachers and those who support them. We hope that calling out the ways in which participants developed through this journey will reveal opportunities for the growth and development of educators in other contexts. Finally, **Part 5** offers thoughts on some limitations and puzzles of this work, as well as future avenues for building on this research.

While this work is in some ways specific to Latin American educational contexts and the Innova Schools model in particular, the findings (and the work and processes that led to them) will likely have relevance for educators in a wide array of contexts and in different-sized

Innova participants engaging in collaborative inquiry at different points in the four years of the research project.

systems, ranging from single classrooms to entire districts or networks. Our findings can be used to enhance existing strong practices among educators or to help plan for ambitious and long-term change, with the ultimate goal of improving the educational experiences and outcomes for all students and the communities to which they belong. Supporting the development of autonomy, inquiry, and collaboration can open pathways to identifying and developing powerful teaching and learning approaches *and* to nurturing the professional growth of the educators involved. Further, our research suggests that developing greater autonomy and inquiry in one's educational practice needs to be promoted and experienced in ways that are culturally- and contextually-grounded, and experienced collectively rather than as a solo effort. The findings also imply that the inevitable puzzles and questions encountered along that journey may be important for promoting growth and development, both individually and collectively. Cultivating collective autonomy, inquiry, and collaboration to advance deeper learning in educational contexts is ultimately about going "deeper, together."

To begin to situate some of these ideas in larger contexts, we will now explore some key language and concepts that underpin the study.

PART 1: The study explained

Defining key terms

DEEPER LEARNING

Deeper learning is a variously-defined yet increasingly common term in the field of education. It is typically used to distinguish meaningful, engaged learning that prepares students for 21st century life (William and Flora Hewlett Foundation, 2013) or "human flourishing" (Fullan & Langworthy, 2014) from the more superficial or rote forms of learning that often prevail in K-12 classrooms, including resource-rich ones (Mehta & Fine, 2019). Superficial forms of learning tend to be "transitory" (Fullan et al., 2017) because students retain little of what they learn and are not supported to transfer what they learn to other contexts (Pellegrino & Hilton, 2012). In contrast, deeper learning involves students "productively struggling with complex ideas that are important to them given their lived experiences. Students explore these ideas with voice, inquisitiveness, imaginativeness, and collaboration" (Mintrop et al., 2022).

Deeper learning generally refers to a combination of students gaining deeper understanding of core academic content, applying that understanding to novel problems and situations, and developing a range of competencies and skills including collaboration, connection-making, critical thinking, reflection, and regulation of their own learning (Bitter & Loney, 2015; Mehta & Fine, 2019; Vanegas Ortega et al., 2021; Wiske, 1998). These aspects of learning, which all

imply autonomy of some kind, were ones we sought to promote through our research project.

INQUIRY

As outlined in the Introduction, the initial impetus of this research was to explore how and to what end inquiry might be promoted in a highly-centralized, resource-constrained context. We found that some of our Innova colleagues understood the word "inquiry" in ways that led them to misunderstand our general use of the term, such as narrowly equating it with the network's science curriculum methodology or with dry, academic research products that are disconnected from day-to-day practice. Through an iterative, collaborative process that involved the participation of people playing different roles at Innova, we developed our own definition of inquiry for the project—one that other educators or networks could potentially use as a starting point for developing their own definition. We defined inquiry as both a *stance* toward the world and a *process* for trying to understand and transform the world through asking questions, observing carefully, reflecting, experimenting, and developing ideas, products, or solutions—with the overall goal of nurturing critical, reflective, empathetic, and empowered learners. Curiosity, attentiveness, and reflection emerged as the core qualities of inquiry. We later also foregrounded intentionality, in order to recognize the importance of educators being purposeful in their use of inquiry-based practices. Autonomy or learner agency is implicated in all aspects of this definition of inquiry.

COLLABORATION

Collaboration goes beyond merely communicating, coordinating, or cooperating with other people: in schools it involves groups of educators working on an aspect of their practice in such a way that the learning outcomes for educators and/or their students could not have been arrived at by any one of the group's members working alone (Allen & Blythe, 2015; Parrilla Latas, 2021). When we started working with Innova, teachers and coaches were used to cooperating amicably with one another but had few opportunities to engage together in "joint work" (Little, 1990). Vangrieken et al. (2015) claim that "proficient collaboration" among educators is found among the highest performing school systems in the world and is a necessary (though not sufficient) condition for promoting innovative learning and student-centered learning methods—potential markers of deeper learning.

Collaborative inquiry, meanwhile, involves intentionally focusing collaborative efforts to pursue an inquiry, even if exact approaches toward collaborative inquiry vary (Deluca et al., 2014). Combining collaboration and inquiry, it essentially involves educators engaging in action research within the context of study groups or Professional Learning Communities (PLCs), with participants learning with and from one another as they try out changes in their daily practice, investigate how those experiences went, and reflect on and learn from those experiences. As we describe below, we found collaborative inquiry to be an effective vehicle for promoting *collective autonomy* in this context, especially when groups were given authentic opportunities to set their own agendas rather than find

themselves engaged in "forced" collaboration or "contrived collegiality" (Hargreaves & Fullan, 2012; Rivera Medina & Aparicio Molina, 2020).

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AUTONOMY

We did not set out with a tight definition of autonomy on this project, especially as it emerged over time as a research focus. Within Innova, autonomy was generally referred to as being both desirable and necessary. However, it was unclear what it signified, and in reality there were limited opportunities for autonomy, regardless of the definition. We found Vangrieken et al.'s (2017) distinction between reactive and reflective autonomy to be clarifying. "Reactive autonomy" is characterized by notions of independence, a non-reliance on others, and individualism—that is, the freedom to do what one wants. "Reflective autonomy" (Deci and Ryan, 1991), on the other hand, involves interdependence, feelings of agency, and the capacity to make informed choices based on an awareness of one's needs, interests, values, and connectedness to others. We were drawn to the concept of reflective autonomy because of its compatibility with collaboration.

The related concept of *collective autonomy* (Little, 1990) also came to resonate strongly with our project because it captured our participants' experiences of developing autonomy through a process of collaborative inquiry and in relationship to one another (Jaramillo, 2021). We intentionally offered our participants authentic choices regarding how they wanted to participate in the project; we also listened closely to their opinions and feedback and showed them how we were using their input to shape our collective work. As Juan, the coach whose words opened this paper, described it, making decisions for yourself is relatively straightforward; working in a team requires weighing up different ideas and reaching consensus: "An autonomous person doesn't depend on others. If you're autonomous you make decisions, but when you're working in a team it's a bit more—not complicated, but more of a responsibility. Why? Because we have to take everyone's ideas and reach a consensus."

Each of these key terms offers both language and conceptual frameworks with which to help parse out the complexity and better understand the uniqueness of the research context for this work. However, gaining a better view of the setting and time period in which the work took place is also critical. We now turn our attention to some of these key contextual factors.

Background to the research collaboration

Formal education takes place in systems, from the micro-system of an individual classroom, to school-level systems such as curriculum management or family-school connections, to macro-systems like whole school districts or even entire countries or regions. Innova Schools, our research context, is situated within and among many such systems, each of which come with their own histories, norms, and cultures. Here, we focus on just a few of those systems in order to establish some historical background and context, beginning with a broad overview of education in Latin American countries (LACs).

For decades, there have been a variety of ways of providing schooling to young people across LACs that range from tightly-controlled systems whose curriculum and administration is run by the state, to decentralized systems that are managed more locally or by private providers. Inequities abound across Latin America in terms of educational options, and Peru is no exception. Nevertheless, there have also been some recent gains in the number of children accessing education, both across LACs and in Peru in particular. Hunt (2014) notes that during the 20th century, Peru's literacy rate and years of schooling increased significantly. However, it is noted by many that increased access does not equate with increased educational quality, which continues to remain low for the vast majority of students in LACs, as measured by international assessments and some internal assessments as well. Zooming in on Peru, a 2007 World Bank report proposed that Peru had an educational "quality problem," and summarized: "On PISA [Program for International Student Assessment], Peru's scores were the lowest in Latin America… and were far behind those of other middle-income countries with growing educational achievement… Only about 5 percent of Peru's students perform at the OECD average. Peru's own national student assessments yield disappointing results, with only some 20 percent of students performing at the desired level" (p. xiii). Specific historical challenges in terms of political and economic conditions in Peru have undoubtedly been a key part of this story, and such statistics have limitations and are by no means the only indicator of an education system's health.

Nevertheless, it is fair to say that there is considerable room for growth in the quality of Peru's education system, in no small part because of systemic challenges with recruiting, developing, and retaining high-quality teachers. Hunt (2014) recalls the context in Peru in the early 1990's, with Peru just starting to recover from a period of extreme political upheaval and economic depression. Many teachers were fleeing the educational system and working multiple jobs to support themselves. Since the 1990s, a significant private sector has sprung up in response to the perceived inadequacies of the country's public education system: pre-pandemic, approximately a quarter of Peruvian students attended such private schools, with even relatively low-income families feeling compelled to pay for their children's education. However, by a variety of criteria, most of these private schools have struggled to offer higher-quality education than their public counterparts (Balarin et al., 2019). Figuring out ways to effect significant

change in this context—and quickly—is where the story of Innova Schools begins.

THE INNOVA SCHOOLS OF PERU

Innova Schools was founded by Jorge Yzusqui Chessman and businessman Carlos Rodríguez Pastor in 2011, with the US-based design group IDEO commissioned to design the overall system and physical school buildings (IDEO, n.d.; Martin, 2014). This network aims to offer low-cost, "world-class" educational opportunities to middle-class families in Peru and, more recently, to those in other Latin American countries. After initial rapid scaling, Innova (at the time of writing) operates 65 schools in a variety of locations, including most regions of Peru. The schools have a distinctive look and architecture and have been designed to facilitate inquiry-driven, collaborative learning and a nurturing learning environment for students.

Meanwhile, in an effort to work around the shortage of highly trained teachers in Peru, a centralized organizational model was developed at Innova in an effort to maintain uniform and consistent educational standards across schools. All schools are overseen by Innova's Back Office, which distributes detailed lesson plans and assessment criteria to teachers via a customized online platform called the Teacher Resource Center (TRC). Subject-specific coaches work across schools to mentor and evaluate teachers, while academic coordinators are responsible within schools for monitoring student achievement, supporting teachers, and carrying out certain administrative tasks.

Images from select Innova Schools that were involved in the research cohort over the course of four years. Each school in the network is designed to have a similar look and feel, as well as learning spaces that support the network's educational goals.

The figure below shows how the coaches and academic coordinators, whose central position within the structure is highlighted in green, serve as a kind of intermediary between the Back Office and teachers in schools.

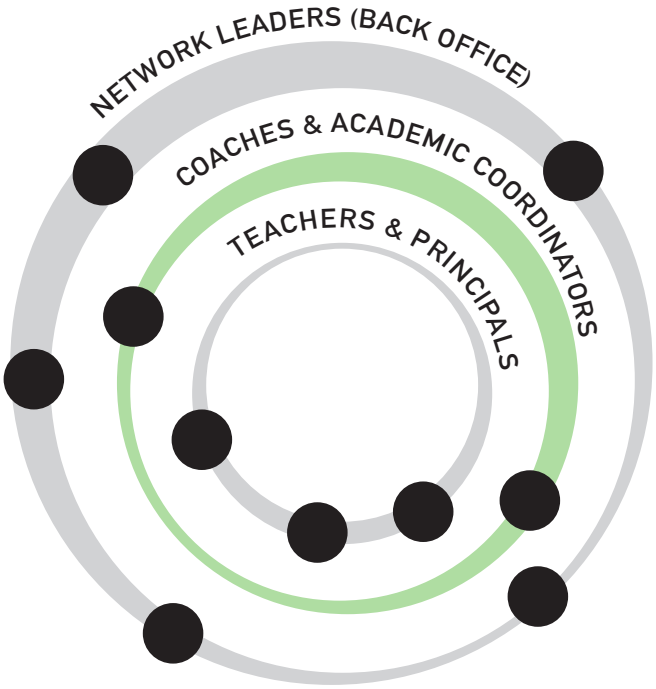


Figure: *Three levels of the Innova Schools system.*

Innova's achievements to date are impressive: they have created safe, positive learning environments for many Peruvian families who did not previously have access to the kinds of educational options they wanted, their test scores from very early on have been notably higher than most other schools in Peru, and their model has attracted significant international attention (Martin, 2014; Weller, 2017). We were impressed from the outset at the warm and friendly working culture within Innova, and teachers' comfort with having observers in their classrooms. It was also clear that teachers cared deeply about their students and were attentive to their socio-emotional needs as well as their academic progress. However, Innova faces challenges in terms of realizing their vision of offering what could be described as deeper learning at scale. Indeed, there is an inherent tension at the heart of Innova's structure: while a highly centralized model has arguably been necessary to support inexperienced teachers and introduce them in a short timeframe to new pedagogic practices, it has in many ways limited teachers' abilities to innovate and adapt to meet the needs of students in their classrooms. Furthermore, there has been little room for students to experience autonomy in their learning, with students producing very similar work to one another in what has generally been a content-heavy curriculum.

Innova was actively addressing this situation at the time of this study by creating new, interdisciplinary Project Based Learning (PBL)-style units of work designed to give students more choice and opportunities to collaborate with one another. These curriculum innovations were part of the *Innova 5.0* blueprint: a bold plan designed to overhaul and deepen teaching and learning within Innova. Innova 5.0 started to take effect during the period that is the focus of this white paper (March to December 2021), and involved loosening the control of the Back Office and promoting more authentic opportunities for inquiry, collaboration, and autonomy at all levels of the Innova system. Unfortunately, Peru was hit particularly badly by the Covid-19 pandemic and as of the time of writing, much of the work of Innova 5.0 has been put on hold as Innova focuses on stabilizing its network after significant drops in student enrollment

as a result of the pandemic. The near-future plan, however, is to make a concerted effort to take Innova Schools "to the next level," with the coaches and academic coordinators we worked with in our research collaboration slated to play an important role.

Project Zero's collaboration with Innova Schools

As noted, the work reported on here was the culmination of a four-year research collaboration between Project Zero and Innova Schools called Creando Comunidades de Indagación (Creating Communities of Inquiry, or CCI). The overall remit of this project was to investigate ways to shift pedagogic practices at all levels of the network to incorporate more inquiry and promote deeper learning. While this paper focuses on the work we did with coaches and academic coordinators during the fourth year of the project, that work built directly on what was learned during the preceding three years of the collaboration. We therefore offer a brief overview of the entirety of the four years of the project to provide additional context and to show how we purposefully worked at different levels of the system to promote system-wide change.

In Year 1, our research team worked with five school-based study groups to explore what inquiry-based teaching and learning could look like in the Innova context: study groups were composed of four teachers and the school principal or academic coordinator and followed a collaborative inquiry-style professional development sequence. This sequence involved both Project Zero-led whole-group workshops and self-facilitated school-based sessions that introduced various strategies or practices designed to

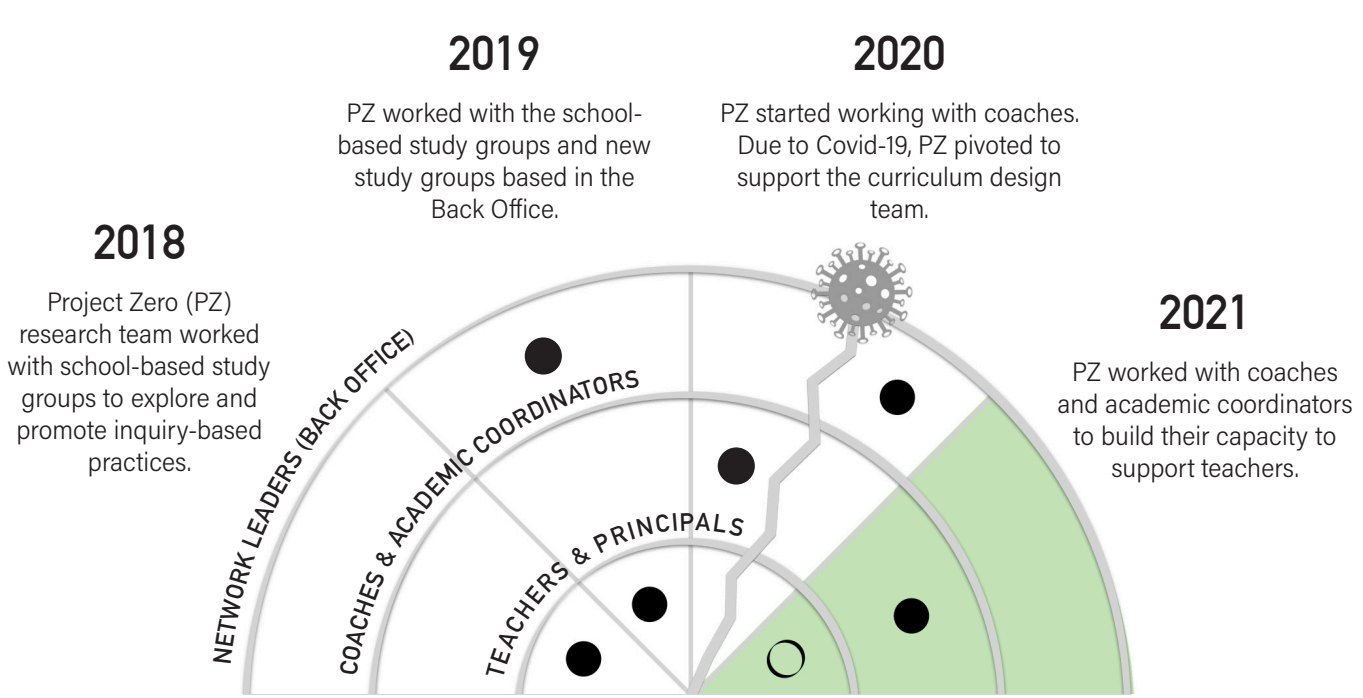


Figure: Overview of Project Zero's collaboration with people in different parts of the Innova system.

promote inquiry. The participants then tried out these practices in their daily work and reflected collectively on what they learned. In Year 2, participants built on this work by developing, implementing, documenting, and sharing individual projects that investigated more deeply what it could look like to incorporate inquiry into an aspect of their practice—for example, by regularly using one or more Project Zero Thinking Routines to promote student curiosity, questioning, and voice. In parallel, new study groups made up of colleagues from Innova's Back Office participated in a condensed professional development sequence and developed their own projects to explore how inquiry could be incorporated into their roles as coaches, curriculum designers, or regional managers.

Year 3 was initially intended to involve working more closely with the network's coaches, with the idea that they were best placed to "lead from the middle" in terms of shifting pedagogic practices within Innova (Rincón-Gallardo & Fullan, 2016)—that is, by extending their influence both 'up' and 'down' within the system. However, the abrupt onset of Covid-19 and related pivot to online learning led instead to us working with the curriculum design team who were tasked with developing Innova's centralized curriculum. Specifically, we supported the development of PBL-inspired curricula that were intended to offer Innova students opportunities for deeper learning. Finally, in Year 4, we worked with the 28 coaches and academic coordinators in ways that built on the preceding three years of work, with the goal of exploring how they could incorporate more inquiry and autonomy into their practice and enable others to do the same.

While the research approach and methods remained mostly consistent across four years of work, the areas of focus emphasized in our research questions did go through an evolution in Year 4. Below, we explain our research focus in 2021 and offer further background on the research methods, participants, design, and activities in regard to gathering and analyzing data.

Research rationale (Year 4)

Our remit in 2021, when we began work with the coaches and academic coordinators, was to support them to become more autonomous and inquiry-driven in their own practice so that they, in turn, could support teachers to become more autonomous and inquiry-driven in their practice with students. Innova's leaders recognized that it is difficult to promote inquiry or deeper learning within a centralized system with little space for individuals to maneuver, and that they needed to work out how much autonomy was possible or desirable for individuals within their system, without losing the most important benefits of the structure they had created. Nevertheless, despite this important policy development at Innova, it was understood that a substantial shift in thinking or mindset was going to be demanded of our participants if they were to become more autonomous and inquiry-driven, and that such a shift would require building on participants' existing strengths as practitioners and knowledge of their teachers and students.

With the understanding that this work would contribute to longer-term, system-wide change within Innova, the research questions guiding our study were:

- How can Innova coaches and academic coordinators be supported to experience and develop autonomy and inquiry in their own practice?
- How can Innova coaches and academic coordinators be supported to develop their capacity to help teachers experience and develop autonomy and inquiry in their practice?

It was understood that learning to collaborate effectively with one another was integral to this endeavor. Subsidiary questions included:

- How can existing structures and resources be adapted to advance this work?
- Which tools and strategies are most effective in this context, and why?
- Which aspects of this work are particularly challenging, and why?
- What is an appropriate balance between giving people sufficient space to develop these capacities and providing them with enough structure and guidance to ensure minimal standards and a coherent pedagogical approach? How can individuals determine how much autonomy and inquiry to promote at any given time?

COLLABORATIVE DESIGN-BASED RESEARCH

This project followed collaborative design-based research principles. That is, rather than "testing" pre-existing ideas, this work involved researchers and practitioners building new, usable knowledge alongside one another in ways that took into account and even embraced the messiness and complexity of the real world and the specific context of Innova (The Design-Based Research Collective, 2003). Given the apparently enduring and widespread nature of the challenges involved in promoting deeper learning in schools, this project explored what might be possible—with the hope of advancing practice both at Innova and in other contexts. An initial design for the professional development arc for the coaches and academic coordinators was informed by prior theory and research, including work previously carried out by Project Zero during earlier phases of this project and in schools in other countries. The research team then investigated on an ongoing basis what seemed to be working well or not, with this process including gathering input and ideas from the research participants. The professional development design was then adapted over time, with the goal of promoting autonomy, inquiry, and collaboration as effectively as possible at Innova, both throughout the project and into the future. At the same time, the research sought to generate new theory and tools that could be useful in contexts beyond Innova.

*This research involved investigating **structures, resources, and tools** that were effective for promoting **autonomy, inquiry, and collaboration** among coaches, academic coordinators, and the teachers they supported. It also involved examining **changes in their thinking and practice**, as well as **challenges** they encountered.*

TAPPING INTO RESEARCH ON EFFECTIVE PROFESSIONAL DEVELOPMENT

This project was directly informed by an earlier "sister" project called Creating Communities of Innovation that involved promoting collaborative inquiry among American, British, Indian, and International Baccalaureate-curriculum schools in the United Arab Emirates (Dawes Duraisingh & Sachdeva, 2021) and which led to the development of a framework, roadmap, and toolkit for promoting *inquiry-driven innovation* in schools. A similar roadmap for collaborative inquiry was followed by the coaches and academic coordinators and some of the tools were incorporated into their workshop materials. There are also resonances between this work and the "spirals of inquiry" framework (Halbert & Kaser, 2022), which similarly leverages collaborative inquiry as a tool to improve practice in ways that honor local contexts, expertise, and interests. Empowering educators on the ground to pursue inquiries that are meaningful for their communities involves them experiencing and developing autonomy, inquiry, and collaboration and is reflective of a general shift away from one-time workshops by outside experts which typically do little to promote meaningful intellectual growth and improvement in practice (Breakspear & Ryrie Jones, 2021; Nelson et al., 2008; Weinbaum et al., 2004).

Project participants working together in professional learning sessions led by the research team.

Indeed, several studies have shown that collaborative inquiry-style professional development can improve teachers' skills and knowledge of teaching and learning, enable them to find community, and support them to develop greater autonomy or leadership (Butler et al., 2014; Nelson, 2009). Teachers are also more likely after this kind of professional development to take risks and persist in trying out innovations to their practice—a marker of autonomy—although this is by no means guaranteed (Nelson, 2009; Wood, 2007). Other studies have noticed a shift in teachers' dialogue through engagement in collaborative inquiry, with a shift towards "collegial dialogue" that involves them "actively inquiring, critiquing and engaging in each other's learning and work" to advance students' learning rather than merely sharing received information (Deluca et al., 2014). Relatedly, the concept of *teaching sprints* has been gaining traction as a way to promote incremental yet powerful professional development and positive change in schools through inquiry and collaboration—but in ways that are realistic given the very real pressures teachers face (Breakspear & Ryrie Jones, 2021). While some of the teaching sprint "phases" or practices resonate with ones we used in this collaborative research, we were arguably doing deeper work that required a more sustained and steady— indeed at times *slow*—pace, at least at the outset. At the same time, there is growing interest in

professional learning networks (PLNs) that connect educators both within and across schools (Brown & Poortman, 2018). While the coaches in this work were all part of the same network of Innova Schools, they were situated in different regions of Peru and had different subject specialties and roles, thereby allowing them to benefit from the different experiences and perspectives that are a hallmark of PLNs.

Research methods

RESEARCH PARTICIPANTS

Our participants were composed of coaches (n=20) and academic coordinators (n=8). Coaches play an important role at Innova in terms of disseminating the curriculum and pedagogical ideas emanating from the Back Office. They are subject specialists. Almost all of them were previously teachers within the Innova system and were promoted because they were recognized to be particularly effective in the classroom. While their roles shifted due to necessity during the pandemic to support online learning and even to design new curricula, they typically travel between schools in their designated geographic region, observing lessons and holding one-on-one consultations with teachers. Not all Innova teachers have regular access to a coach; for the most part, coaches only work with teachers in their first or second year at Innova. In 2021, there was an effort to reframe the work of the coaches to that of "accompanying" or "learning with" teachers rather than merely evaluating them or enforcing Innova policy; however, it is fair to say that coaches were viewed as experts within the system and that teachers looked up to them for advice and assurance that they were doing things "right." This phase of the research focused on working with coaches because of their potential to lead pedagogic change "from the middle" (Rincón-Gallardo & Fullan, 2016) and to serve as a bridge between the Back Office and day-to-day practice in schools.

*In Year 4, researchers worked with **20 coaches** and **8 academic coordinators** in the Innova Schools system.*

The academic coordinators, in contrast, were situated in particular schools. While they were also tasked with implementing pedagogical policies at the local level, their role was largely administrative and they closely supported the school principal in running the school. They supported all teachers rather than teachers from specific subject areas, although as former teachers they themselves had received specific training. Coaches and academic coordinators rarely had direct contact with one another before this project, so they were interested to learn about one another's roles and explore what they could learn from each other.

The majority of the project participants were women (n= 23 of 28), reflecting the gender breakdown of Innova's overall workforce. The participating coaches specialized in science (n=7), communications (Spanish) (n=8), or social studies (n=5), with social studies being the loose equivalent of history, geography, and economics, with the additional incorporation of civic and wellbeing education. These three subject areas were integrated into the new PBL-inspired curricula that were developed

Study groups served as a space for asking questions, looking closely at evidence, problem-solving, building knowledge, reflecting, and supporting one another.

during the height of the pandemic, and coaches from these subject areas were selected for the research collaboration because teachers were viewed as needing particular support in implementing these new curricula. Furthermore, these curricula were perceived both as an important vehicle for promoting inquiry or deeper learning at Innova and as a prototype for future Innova curricula. From this point on, this paper will use the following abbreviations to denote the specific roles played by individuals: academic coordinator (AC); science coach (C, Sci); communications coach (C, Comm); and social studies coach (C, Soc). In addition, Mariale, who was located in the Back Office and is cited below, served as our project liaison and supported the day-to-day running of the project.

RESEARCH DESIGN

Due to the design-based nature of the research, we developed a collaborative inquiry-style professional development arc for the coaches and academic coordinators. The details of the arc were developed iteratively in conjunction with our participants and with other colleagues at Innova. The research team's work involved:

1. **Establishing seven study groups of four people each.** At least one academic coordinator was included in each group. We also strived for diversity in terms of the subject areas coached and participants' geographic locations. For logistical reasons, one group later split into two groups of two, meaning there were eventually eight study groups in total.
2. **Modeling practices and strategies for promoting inquiry, autonomy, and collaboration through the design and facilitation of weekly online sessions.** These sessions loosely alternated between whole-group Zoom workshops facilitated by the research team (with breakout rooms organized by study group) and independent study group meeting sessions self-facilitated by the participants, which followed light guidelines provided by the research team. Early sessions focused on the practice of "slow looking" (see page 28 for more information), the use of thinking routines (see page 28) and feedback protocols (see page 31), and the practice of documentation (see page 30).
3. **Supporting the study groups to develop and implement inquiry projects.** Following a collaborative inquiry model, the study groups focused on developing and exploring particular practices introduced by the Project Zero team. Working in small

groups, participants chose an "inquiry project" focus and developed a theory of action for promoting inquiry and autonomy at Innova. These group inquiry projects involved both trying out practices and gathering evidence of their impact through documentation.

4. **Organizing an end-of-year online exhibition.** This celebratory online event allowed participants to share insights, challenges, and possible next steps from their inquiry projects with the wider Innova community. Each study group developed a short video that distilled their work for the exhibition.

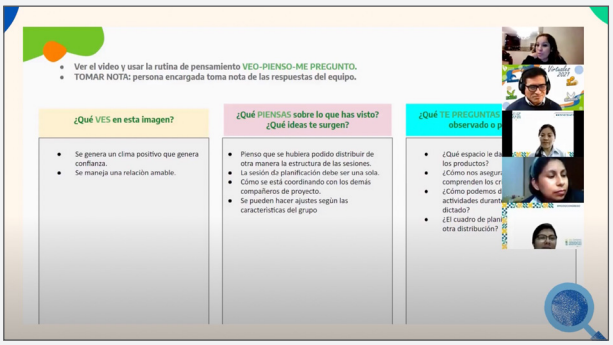
DATA COLLECTION AND ANALYSIS

The findings reported here are distilled from a variety of data collected from March to December, 2021: periodic surveys and check-ins with all 28 participants; semi-structured interviews which invited participants to talk about their survey responses in greater detail (n=14); documentation from workshops and other learning sessions; and participants' group inquiry projects (n=8). An interview protocol can be found in the Appendix.

The data were analyzed on an ongoing basis over the course of the year as part of the practice of documenting and making visible group learning (Krechevsky et al., 2013): the process of modeling involved soliciting regular feedback from participants, distilling and sharing highlights from the feedback, and showing how we were adjusting our collaborative work in response to this feedback. The final surveys and one-on-one interviews, conducted at the end of the year, asked participants to reflect on what they had learned or how their thinking or practice had changed. These data were analyzed abductively (Deterding & Waters, 2018) with particular attention paid to the following

VIGNETTE OF THE WORK IN PRACTICE: GROUP INQUIRY PROJECT

Coaches and academic coordinators from one study group sought to strengthen inquiry and autonomy in the practice of a group of teachers by promoting the use of a Project Zero thinking routine called "See - Think - Wonder". This short protocol is designed to be used routinely to support thinking and learning and involves three questions: What do you see? What do you think about that? What does it make you wonder?. In this group project, See - Think - Wonder was used to look carefully at an extract of a class recording. Based on the observations, thoughts, and wonders that surfaced through use of the routine, teachers identified areas for improvement and developed related plans to change or improve their practice. After trying out these changes or improvements, teachers went back to their colleagues and again used the thinking routine to reflect on the new action that was implemented, which led to a new cycle of reflection and ideas and solutions to improve their practice. The study group was excited to observe how teachers using the thinking routine started to become more autonomous, both in using the routine with their students, and in making decisions about their own practice.



themes: shifts or developments in participants' thinking about inquiry, autonomy, and collaboration; aspects of the collaborative inquiry-style professional development sequence they had found particularly useful or challenging; and evidence of changes in their behavior or practice, especially ones reflective of increased autonomy. A parallel reading of existing literature also informed our analysis, such as literature on collective autonomy and different types of collaboration.

Six interview transcripts were initially analyzed and emergent thematic categories were developed that reflected our research interests; these transcripts and the remaining transcripts were then re-analyzed, with further tweaks made to the categories. Next, all participants were invited via a Qualtrics survey to give feedback on what we had identified as important themes with regard to opportunities and challenges they encountered and changes to their thinking and practice over the course of their participation in the project. Nineteen participants responded. This feedback led to some further adjustments, such as merging the categories of lack of time and ambiguous priorities, and drawing greater attention to the importance of critical reflection.

Below, the learnings that emerged are presented in terms of favorable conditions and challenges for developing autonomy, inquiry, and collaboration on the journey toward deeper learning at Innova, effective tools, activities, and practices for promoting autonomy, inquiry, and collaboration, and the resultant advances in participants' thinking and practice.

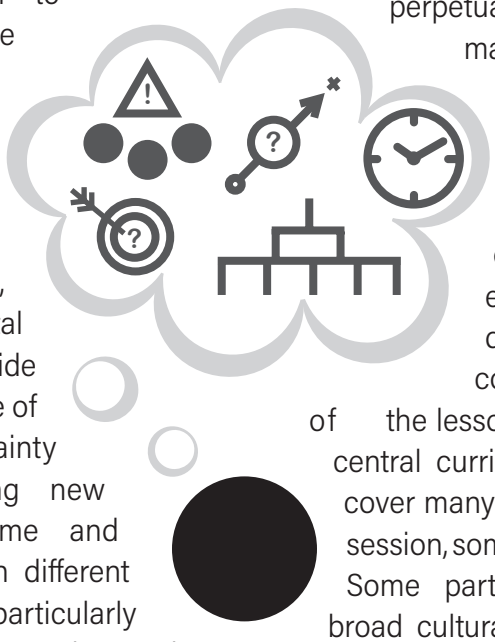
PART 2: Favorable conditions and challenges for developing autonomy, inquiry, and collaboration

Favorable conditions for pedagogic change

Specific conditions at Innova were conducive for promoting pedagogical change. The very existence of our project spoke to a desire among Innova's leaders to strive for deeper learning within their organization: having established a structure aimed at replicating certain standards of teaching and learning across schools, they were now ready to 'take things to the next level'. Furthermore, the Innova 5.0 blueprint was compatible with our efforts to promote inquiry, autonomy, and collaboration system-wide and meant that individuals now felt they had permission to change things in their practice, especially given the recent development of PBL-style units within the centralized curriculum. The research team's familiarity with different parts of Innova's system was also valuable: we had already tried out various tools and strategies with different stakeholders and could anticipate some opportunities and challenges. Furthermore, there was a notable cohesiveness and strong sense of mission amongst the educators with whom we worked—something also reported on by a researcher into positive organizational psychology (Pino Benites, 2022), who

conducted a survey among 75 randomly selected Innova teachers.

However, promoting deeper learning or going deeper in one's practice is not easy, even in already "strong" or well-resourced contexts (Mehta & Fine, 2019; Mintrop et al., 2022) and especially in less well-resourced ones (Reinish, 2020), particularly if engrained systems and practices are not conducive for promoting it. Because all practitioners, regardless of their level of expertise, can expect to encounter challenges such as the ones encountered in the Innova context, we believe it is helpful to name them. Most of these challenges were reported to us by participants; others were observed by us. The challenges were interconnected and situated at the individual, organizational, and societal level; the context of a worldwide pandemic exacerbated some of them by increasing uncertainty for everyone and making new demands on people's time and energy. While we report on different types of challenges, we particularly focus on the participants' perspectives and experiences, which often included comments on the challenges faced by the teachers they supported. Notably, even while we describe the challenges they encountered in terms of incorporating more autonomy, inquiry, or collaboration into their practice, they were grateful for the level of training and support they received from Innova as an organization. Indeed, they cited the opportunity to work on this project as evidence of why they appreciated working at Innova. Although there were some challenges specific to the pandemic and the need to do everything online, this paper focuses on more enduring challenges.



1. Pressures of time

Many, if not most, educators around the world feel the pressures of time, and this was particularly true at Innova, where a key part of its mission was trying to improve teaching and learning in Peru as quickly as possible. Indeed, the phenomenon of feeling perpetually rushed is endemic in many contemporary societies (Szollos, 2009). We noticed a norm of long work hours and multiple initiatives being implemented at any one time, with educators expected to juggle many different activities. Some of the coaches mentioned that most of the lesson plans provided by Innova's central curriculum expected teachers to cover many different activities in a single session, something that we also observed. Some participants pointed too to a broad cultural tendency to judge people according to how much work they appeared to be doing. Parents, for example, expected their children to receive substantial amounts of homework every night and wanted them to have as much contact time as possible with teachers—in no small part because for many families this was their first experience of paying for their children's education and they needed to be reassured that their investment or sacrifice was worthwhile.

It is difficult to foster deeper learning in a fast-paced work culture where educators and students feel that they already have too many things to do, including rushing to cover swathes of content (Mehta & Fine, 2019). We found that some educators were nervous about taking on more work or responsibility because they already felt overloaded; Milagros (AC) noted: "among professionals it's a bit difficult because they interpret it as 'It's more work. You're giving me more work than I already have.'" Furthermore, educators at Innova were used to completing tasks as quickly as possible—something that was at odds with the time that is usually needed to develop the necessary understanding and capacity to promote inquiry and autonomy, and to establish a sufficient level of trust to feel comfortable taking risks. Juan (C, Comm) noted that despite signs of greater inquiry and autonomy among teachers, they often went with the easiest option of just following available materials when they were busy: "sometimes because there is no time, [they] make the least effort and stay with what's here, and don't take the other step of trying new things." Concomitantly, when thinking routines—light protocols designed to promote careful observation, generate new ideas, and allow for a range of perspectives—were first introduced to the coaches and academic coordinators, their first instinct was to rush through them as quickly as possible. And they were initially anxious about what they perceived to be the slow pace of the project, expressing a desire to quickly implement their inquiry projects to get immediate results. Creating moments where they could pause and reflect was an essential, but not easy, task.

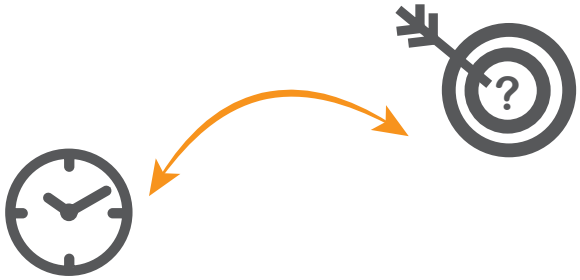
> *"Sometimes because there is no time, [teachers]... stay with what's here, and don't take the other step of trying new things."*
>
> - Juan, Coach

A closely linked and common challenge involved educators feeling unclear about what they should prioritize in their work—a challenge that was exacerbated by the lack of time to think about what they were doing, or why. In the surveys completed by the coaches and academic coordinators at the end of the year, several of them said that competing demands and initiatives had inhibited their ability to promote inquiry-driven practices. When we first started working with them, there was little sense of how overarching goals such as promoting inquiry and autonomy should or could help shape their own practice or the practice of the teachers they supervised, or why it was important to find time to reflect on their work or look closely at documentation or evidence to inform next steps. We also noticed that the coaches and academic coordinators found it much easier to talk about their teachers' lack of clarity regarding goals and priorities than they did about their own goals and priorities.

Diana (C, Comm) and Lorena (AC) commented on the challenge of teachers proceeding

through their classes on automatic pilot, without pausing to inquire or consider how a lesson was going. Diana said: "sometimes teachers don't take the time to consider how their class went, they move on to another session and the day is over and there wasn't space to reflect." Piero, (C, Comm) noted that sometimes it simply wasn't possible for teachers to pause to inquire or reflect and that "if you're running on automatic pilot it's very difficult to be curious or reflective." Teachers who participated in a similar research project in the UAE commented that they typically found themselves bogged down in completing to-do lists and the busyness of school life, with little time for reflection (Dawes Duraisingh & Sachdeva, 2021).

The challenge of feeling a lack of time to do one's work seemed to be tightly linked to the challenge of feeling unclear about goals and priorities.



Gabriela (C, Sci) mentioned that sometimes time was explicitly scheduled for teachers to reflect on their work or to look at student work or results together; however, they didn't always use the time accordingly. Gabriela concluded that they needed someone to guide them and that "we now need teachers to be autonomous." She also mentioned that while it was true that teachers had a lot to do, space could be found in their schedules to include more reflection or inquiry: "Yes they had a ton of work and no time for anything. But when I looked at their schedule, their workload wasn't quite as heavy as I expected, there were spaces that could be taken advantage of." That is, there was a *perception* that everyone was too busy to reflect, when in fact it was a case of needing to make or find the time. Below we show how reflecting on priorities and goals, for example, and trying out the principle of "less is more," helped participants to reframe the issue of time.

2. Top-down culture and preference for adhering to known plans

As noted above, Innova's system is highly centralized, with classroom teachers receiving a standardized curriculum with detailed guidelines. Even though it had recently been made clear to teachers that these curriculum materials were meant to be used as a loose point of reference, many continued to feel beholden to them or, as Amalia (C, Sci) put it, "they act as if it was the Bible." Diana (C, Comm) noted that breaking with the TRC curriculum was particularly difficult for veteran Innova teachers who were used to following instructions without questioning or reflecting on them: "I think it's more complicated for [experienced teachers at Innova] because they're used to doing the same thing and there isn't this process of reflection... sometimes proposing changes is a little more complicated because they're very reluctant." This reluctance to assume more autonomy over the curriculum was understandable given that educators were used to being told what to do and had themselves been educated

within a hierarchical system where there was little time for students to reflect, consider their own ideas, ask questions, create something new, or have opportunities to find answers in themselves, others, or their environments.

There was an associated fear of making mistakes. Milagros, for instance, saw it as the most fundamental problem, especially as teachers were constantly evaluated and receiving a "puntuación" ["score"] for their performance: "I feel that [being wrong] is the main difficulty that teachers have. That they are going to make a mistake, that they are afraid of making a mistake or that someone will tell them 'that's not like that, there is that, and that lowers your score.'" Milagros described how she tried to support teachers to feel that they could make mistakes in order to learn from those mistakes. However, her comments reflected her own sense of a hierarchical system where she is ultimately responsible for what her teachers do, even as they work together: "Are you going to do something wrong? Sometimes yes, but from every mistake you learn. I'll always be there to help and guide you on how we're going to move ahead together, because if you fall, I fall too. If you make a mistake, together we will get ahead." Mariale (the project liaison) also saw Innova's strong emphasis on teacher and student evaluation as contributing to a widespread fear of making mistakes. She heard one teacher say that she was scared of losing her job if she did the wrong thing. Mariale realized that despite recent shifts in evaluation practices, the teacher was used to being observed and evaluated in a restrictive way, where things were deemed either right or wrong.

Given the top-down or highly centralized culture, individuals with authority were expected to have all the answers. Parents, teachers, and colleagues viewed the coaches as experts, for example, who should know and give the right answers to people "below" them in the Innova structure; it was therefore difficult for the coaches (and the teachers in turn) to put themselves in a position where they could say that they didn't know something or to express an interest in learning something from their colleagues. This challenge is by no means confined to Innova or Peru. For example, McLaughlin et al. (2015) found in their work in Kazakhstan that collaboration among educators was hard to achieve within a hierarchical and competitive system where senior educators did not expect

> *"I feel that [being wrong] is the main difficulty that teachers have. That they are afraid of making a mistake... Are you going to do something wrong? Sometimes yes, but from every mistake you learn."*
>
> - Milagros,
> Academic Coordinator

to receive input or suggestions from junior members and where teachers were expected to be experts rather than learners continually striving to improve their practice. Below, we show how reframing their work to that of *learning* rather than instructing, and *inquiring* into effective practices rather than merely executing known plans, were helpful shifts in thinking and practice for our participants.

3. Little personal experience of deeper learning

Most teachers, coaches, and others in charge of carrying out Innova's vision had had little prior opportunity to experience powerful learning experiences for themselves—whether in their own education or in their professional life. For this reason, it was difficult for them to fully understand or promote teaching and learning theories that differed profoundly from the more traditional ones they had experienced. As in many types of work, it can be hard to break engrained ways of doing things; Mehta (2015, Jan) would go so far as to say that significant "unlearning" often needs to be done to promote deeper learning, which involves emotional as well as intellectual costs. Lorena (AC), talked about the challenges that experienced teachers face when they join Innova and are asked to change their ways of working: "It's difficult for them because changing that way of working that got them through many years in their work experience, it's very difficult."

We also noticed that the coaches and academic coordinators found it difficult, at least initially, to go deep in their reflections. For example, when we asked them to share an insight or something interesting they had learned at the end of a workshop session, their answers were often very vague and non-explanatory, such as "the importance of reflection" or "documentation is very valuable for learning," perhaps to avoid saying something that would be deemed wrong. We also saw examples of them understanding resources or approaches we shared with them through their own interpretive lenses (Coburn, 2004). For instance, some participants initially reworked the thinking routines so that they resembled worksheet templates that kept them as the facilitators very much in control of any discussion. The lack of examples of practices they could relate to and learn from was also challenging: they preferred to see an example of something in action in a relatable context before trying it out themselves or asking their teachers to do likewise. This challenge points to the importance of building up a body of Spanish-language case studies, vignettes, and videos that show effective practices embedded in recognizable and realistic daily practices. In this case, a necessary reframing involved them actively seeking to experience deeper learning firsthand—rather than merely learning 'about' best practices—so that they in turn could facilitate deeper learning for their teachers, who could then do so for their students.

As in many types of work, it can be hard to break engrained ways of doing things; Mehta (2015, Jan) would go so far as to say that significant ***"unlearning" often needs to be done to promote deeper learning****, which involves emotional as well as intellectual costs.*

4. Lack of confidence and trust

Despite individuals' apparent confidence and trust in Innova as an organization, they did not necessarily have confidence or trust in their colleagues or themselves. For example, the culture and structure of Innova meant that it felt unusual at first for coaches and academic coordinators, and the teachers they supported, to listen closely to their colleagues' perspectives or to actively seek to build on one another's ideas—challenges that have been documented in other school systems (e.g., Mehta, 2015; Mintrop et al., 2022). Lorena (AC) talked about teachers' initial discomfort receiving feedback from peers: "it's very difficult sometimes for teachers to accept feedback from another teacher." In fact, despite an aspiration within Innova to promote collaborative learning, the fast-paced, top-down culture meant that there was little time for meaningful collaboration within the organization, including in classrooms. Lorena noted that students found it hard to collaborate or offer constructive feedback to one another. To make progress on this front, Innova teachers first needed more experience in collaborating and giving constructive feedback to one another.

Teachers also seemed tentative about teaching in ways aimed at fostering inquiry, autonomy, and collaboration. Gabriela (C, Sci) noted that it could be intimidating for teachers to promote deeper thinking or learning in their classrooms because it might lead to students asking questions they couldn't readily answer. She described one teacher she coached: "there was a lot of fear and insecurity due to the content she had to cover and about the questions the students asked. So she preferred not to go deeper so as not to generate more questions and just leave it there." Mariale noted that being asked to shift one's mindset about teaching and learning could be "shocking", leading teachers to "question their own competence" and become more resistant, like a "defense mechanism" kicking in.

Gabriela described one teacher she coached:

> *"There was a lot of fear and insecurity due to the content she had to cover and about the questions the students asked. So she preferred not to go deeper so as not to generate more questions..."*

It was difficult for us to interpret what was going on in the context of online sessions where nobody was in the same physical space. But some study groups seemed to struggle with working collaboratively, at least initially—with one person assuming a leadership role, for example, or group members dividing up the work and trying to paste the work together without closely listening to or learning from one another. Over time, however, participants became comfortable exploring and experimenting with ideas in small group contexts. Indeed,

the opportunity to collaborate meaningfully with colleagues was viewed by participants as one of the most important aspects of their professional growth. The reframing here was that the power to promote deeper learning lay in *themselves,* and that with the right tools and resources they were best placed to judge how exactly to advance meaningful pedagogical change for Innova learners.

Overall, despite a range of challenges that will likely be recognizable to educators working in many different contexts, the coaches and academic coordinators were able to start moving beyond these challenges and even think differently about what they were doing. The next section describes some of the most effective tools, activities, and practices for promoting inquiry, autonomy, and collaboration in their practice.

PART 3: Effective tools, activities, and practices for promoting inquiry, autonomy, and collaboration

In this section we highlight concrete tools, activities, and practices that we found helped the 28 coaches and academic coordinators to integrate more inquiry, autonomy, and collaboration into their everyday practice, and in turn to support the educators they worked with to do likewise. These are tools, activities, practices, or opportunities that the coaches and academic coordinators highlighted as particularly helpful and/or ones which we (the research team) felt advanced our collective work in important ways. In many cases we provide hyperlinks to resources which can be used or adapted in different contexts. We have grouped these tools, activities, practices, and opportunities into three broad categories: (1) modeling core practices and values; (2) providing scaffolds to promote observation, analysis, and reflection; and (3) creating opportunities for sustained inquiry and collaboration.

1. Modeling core practices and values

Throughout our collaboration with Innova's coaches and academic coordinators, we tried

to model ways to deepen learning across the entire Innova system. The very premise of collaborative inquiry-style professional development is that teachers should be given the kinds of powerful learning experiences that will invigorate their practice and which they can go on to facilitate for their students. Ritchhart (2015), citing Vygotsky, talks about "learning to learn" as "an apprenticeship in which we don't so much learn from others as we learn with others in the midst of authentic activities" (p. 20): we assumed that effective professional development shouldn't just be *about* inquiry and collective autonomy but should *embody and naturally involve* inquiry and collective autonomy. However, as a research team we also modeled various practices and stances more explicitly. At the end of the project, several participants noted that the *way* in which we facilitated workshops and the project as a whole had made one of the biggest impressions on them, and that our modeling had been instrumental in advancing their understanding of what inquiry and autonomy could look like in practice. Some of this modeling involved incorporating specific tools and practices into workshops, such as making space for reflection, documenting our collective learning, and offering constructive feedback—strategies outlined below which we hoped participants would then use with teachers, who would then use them with students. We also found it important to more broadly model the kinds of values, principles, or practices that we were trying to promote through our collective work, which participants could incorporate into their own work with teachers. The table below summarizes some of those values, principles, or practices, and the related modeling actions carried out by members of the research team.

Overview of Research Team Actions to Model Core Practices and Values

Value, principle, or practice	*Modeling actions*
Attending to purpose	▪ Being explicit and transparent about the purpose of the project and specific workshop sessions and activities ▪ Curating, adapting, and developing resources to help participants understand the potential value and purpose of various strategies ▪ Inviting ongoing reflection and probing about the purpose of participants' practice and inquiry projects
Slowing down; "less is more"	▪ Demonstrating in real time how to use strategies that promote slow looking and careful listening ▪ Attending to the pace and flow of workshops to avoid making them feel rushed, and adjusting accordingly ▪ Slowing down to focus on learning and reflection, rather than completing tasks or getting through an agenda ▪ Giving people enough space and time to reflect about what they were thinking and learning

Overview of Research Team Actions to Model Core Practices and Values *(cont.)*	
Documenting our collective learning	▪ Gathering documentation from each workshop session and reflecting on it to inform next steps ▪ Sharing our documentation process, and how we used it to advance collective learning, with participants
Being responsive to participants' ideas, needs, and opinions	▪ Seeking ways to hear as many voices as possible during sessions ▪ Using regular check-ins and surveys to monitor participants' experiences ▪ Showing how decisions we were making on the project were informed by participants' voices ▪ Building on understandings or clarifying misconceptions as they emerged rather than sticking rigidly to a set plan
Attending to wellbeing	▪ Incorporating warm-up activities that encouraged participants to connect as human beings ▪ Checking in regularly on people's wellbeing ▪ Offering plenty of time in small groups to forge bonds with one another
Showing intellectual humility and uncertainty	▪ Acknowledging our mistakes or missteps and showing how we were learning from them ▪ Using language and a tone that emphasized that we were building understanding *with* participants, not just training them to do things our way ▪ Sharing our questions and uncertainties
Creating opportunities for autonomy	▪ Giving participants the freedom to try out strategies in ways that made sense given their roles and existing practices ▪ Offering study groups choice over the focus and format of their inquiry projects ▪ Building in time for participants to work on their own or to determine how they used their time
Offering constructive feedback	▪ Refraining from giving feedback that was too directive; asking questions to help participants develop their own thinking ▪ Modeling how to use the Ladder of Feedback in our feedback to participants ▪ Creating opportunities for participants to engage in peer-to-peer feedback

2. Providing scaffolds to promote observation, analysis, and reflection

The following tools or practices were introduced to the participants through workshops and then integrated, according to their needs and interests, into their daily work.

SLOW LOOKING

Our colleague Shari Tishman (2017) has developed the practice of *slow looking*—that is, bestowing lavish attention on something in order to see it with fresh eyes and perceive new richness and complexity that might lie beyond immediate impressions. Prior to working with Innova, we had adapted the concept of slow looking to promote collaborative inquiry practices in schools (Dawes Duraisingh & Sachdeva, 2021). Standing in contrast to the rushed pace of schools and the ways in which educators are conditioned to quickly assess what is going on in a classroom or school (Kahneman, 2011), slow looking—even if done for short bursts of as little as ten minutes—proved very helpful to Innova educators. The practice allowed them to notice new things and check themselves from jumping too quickly to assumptions; develop curiosity about aspects of teaching and learning; call into question purpose and priorities in their practice; and lay foundations for further inquiry.

Link to a protocol for trying out slow looking in your own practice.

THINKING ROUTINES

We repeatedly used the Project Zero thinking routine See - Think - Wonder as a means to develop the practice of slow looking, and to encourage educators to listen carefully to one another and to learn to build on one another's ideas. We found it important to model this thinking routine in the spirit in which it was developed—for example, by initially suspending judgment to avoid jumping to conclusions during the "See" step, and keeping the conversation genuinely open-ended rather than trying to steer it in a particular direction or towards "the right" answer. Participants also found it helpful to consider the example of an Innova teacher, Vanessa (from Year 1 of the project), who used the See - Think - Wonder thinking routine in her third grade classroom. They were asked to identify where Vanessa used the routine to create opportunities for her students to experience autonomy and inquiry, and what she might do next to further develop her practice.

See a vignette of practice from Vanessa's classroom on the following page.

Ten participants cited learning about thinking routines, such as See - Think - Wonder, as the most important thing or one of the most important things they gained from the project. Piero, (C, Comm) said he had noticed a shift in himself from looking at thinking routines as mere activities to understanding their purpose and how to use them. To this end, we shared an existing resource (see the following

(text continues on p. 30)

VIGNETTE OF THE WORK IN PRACTICE: VANESSA'S 3RD GRADE CLASSROOM

Vanessa Garcia, a 3rd grade teacher at Innova schools, used the slow looking tool in her classroom. She observed that despite being curious and engaged, her students tended to share ideas rapidly without reflection or questioning. She also observed that they were most comfortable working individually and would quickly turn to her when they had questions or problems. She wanted them to become more reflexive and critical about what they were learning, and to work more collaboratively with their peers. Over several months, she explored ways to implement Project Zero's thinking routine "See - Think - Wonder" as a way to promote more inquiry in her classroom.

In one of her classes, instead of following the predefined curriculum which asked her to talk about the causes and consequences of several natural disasters in Peru, she tried something new. She wanted to give her students the opportunity to experience a collaborative space where they would explore, think, question, listen to each other, and build ideas as a group. Each group of students received one picture of a natural disaster and was asked to look carefully at the picture and use the See - Think - Wonder routine to think more deeply about the natural disaster. This thinking routine asks students to first describe carefully what they see or notice; to then comment on what those observations make them think; and, finally, to generate a list of questions or wonders that they now have about the image. Here is one of the conversations that took place between the students who were using the thinking routine to look closely at a picture of the aftermath of an earthquake:

- **Student 1:** "I see a fallen building, look at the bricks!"
- **Student 2:** "What is it, do you think it's a school?"
- **Student 1:** "I don't know, maybe it is … what could it be?"
- **Student 3:** "I see that behind the fallen wall, there is another wall that had already fallen"
- **Student 2:** "How do you know? "
- **Student 3:** "Do you see that the two fallen walls have different colors and that they look different? One looks older than the other.
- **Student 2:** "Looks like this building fell before…"
- **Student 1:** "Why would they build a building in the same place where another one had already fallen? Why is the mayor allowing this?"

At the end of the class, students had time to share with one another what they had learned from looking closely at a picture of a natural disaster. Vanessa used some moves from Project Zero's Dialogue Toolkit to help students comment on each other's ideas and give feedback via sticky notes.

At the end of the year, Vanessa shared these reflections:

"My work before was based on completing assigned activities to reach the determined goals… Everything was done in a structured way, without incorporating moments for inquiry or encouraging active listening or student curiosity."

"I learned to feel free, to enjoy my classes, not to live waiting for something but to let myself be surprised by something new. Now I enjoy what my students share with me and my teaching load has dropped considerably, as they are more autonomous. They question each other, and they also support each other a lot. Learning is generated by them, according to their needs."

(text continued from p. 28)

link to the Thinking Routine Matrix) to help our participants be intentional in their selection of which thinking routines to try out.

Link to Project Zero's Thinking Routine Toolbox.

Link to the Thinking Routines Matrix (Ritchhart, Morrison, & Church, 2011) on the Project Zero website.

Other participants talked about deepening their understanding and use of thinking routines. Laura, (C, Soc) spoke of "getting to know thinking routines more deeply and how to use them in different contexts." Leyda, (AC) talked about using thinking routines in ways that furthered her broader understandings or goals as a coach: "I learned through this process to use thinking routines to more objectively understand how my teachers were thinking about their students' learning."

DOCUMENTING TEACHER AND STUDENT WORK

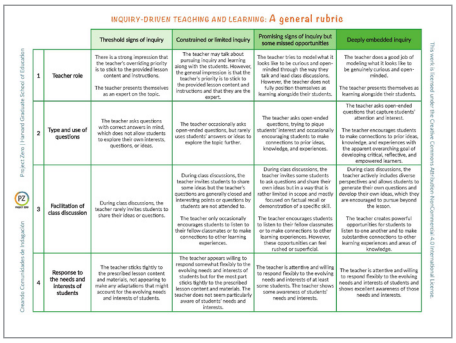
Inspired by practices within the Reggio Emilia Preschools of Italy, and developed by researchers at Project Zero over many years (Krechevsky et al., 2013), documentation is the practice of observing, recording, interpreting (either on one's own or, ideally, in a group), and sharing through different media the processes and products of learning in order to deepen learning. It is a fundamental practice for making learning visible and supporting further learning. While some participants were already familiar with the concept, we found that we had to proceed carefully and slowly to support participants to develop documentation as an effective practice, particularly because they initially associated the concept with tedious administrative duties—that is, they were used to collecting a lot of evidence in their daily work without knowing the purpose or having sufficient time to do anything with it.

We modeled using documentation and gave participants several opportunities to gather documentation that reflected something they would like to work on, share it with colleagues, and discuss its implications for teaching and learning. We emphasized the need to be clear about what they were hoping to learn through the process of documentation. Three of the 14 participants we interviewed specifically mentioned documentation as something particularly valuable that they gained from their involvement in the project. For example, Gabriela (C, Sci) said that she had come to use documentation to inform her next steps and generally improve her practice:

> *I've learned a lot but the most important for me was the theme of documentation. Before, I used to gather a lot of evidence so that I'd have it in case I needed it, but I often didn't look at it or use it. Understanding now that documentation isn't just about gathering evidence but should have a purpose has greatly helped me to improve how I support teachers and plan my next steps.*

INQUIRY RUBRIC

During the earlier phase of the project, we drew from lesson observations (and the wider literature) to develop a rubric to aid classroom


INQUIRY-DRIVEN TEACHING AND LEARNING: A general rubric

		Threshold signs of inquiry	Constrained or limited inquiry	Promising signs of inquiry but some missed opportunities	Deeply embedded inquiry
1	Teacher role	There is a strong impression that the teacher's overriding priority is to stick to the provided lesson content and instructions. The teacher presents themselves as an expert on the topic.	The teacher may talk about pursuing inquiry and learning along with the students. However, the general impression is that the teacher's priority is to stick to the provided lesson content and instructions and that they are the expert.	The teacher tries to model what it looks like to be curious and open-minded through the way they talk and lead class discussions. However, the teacher does not fully position themselves as learning alongside their students.	The teacher does a good job of modeling what it looks like to be genuinely curious and open-minded. The teacher presents themselves as learning alongside their students.
2	Type and use of questions	The teacher asks questions with correct answers in mind, which does not allow students to explore their own interests, questions, or ideas.	The teacher asks occasional open-ended questions, but rarely uses students' answers or ideas to explore the topic further.	The teacher asks open-ended questions, trying to pique students' interest and occasionally encouraging students to make connections to prior ideas, knowledge, and experiences.	The teacher asks open-ended questions that capture students' attention and interest. The teacher encourages students to make connections to prior ideas, knowledge, and experiences with the apparent overarching goal of developing critical, reflective, and empowered learners.
3	Facilitation of class discussion	During class discussions, the teacher rarely invites students to share their ideas or questions. The teacher only occasionally encourages students to listen to their fellow classmates or to make connections to other learning experiences.	During class discussions, the teacher invites students to share some ideas but the teacher's questions are generally closed and interesting points or questions by students are not attended to. The teacher only occasionally encourages students to listen to their fellow classmates or to make connections to other learning experiences.	During class discussions, the teacher invites some students to ask questions and share their own ideas but in a way that is rather limited in scope and mostly focused on factual recall or demonstration of a specific skill. The teacher encourages students to listen to their fellow classmates or to make connections to other learning experiences. However, these opportunities can feel rushed or superficial.	During class discussions, the teacher invites diverse perspectives and allows students to generate their own questions and develop their own ideas, which they are encouraged to pursue beyond the lesson. The teacher creates powerful opportunities for students to listen to one another and to make substantive connections to other learning experiences and areas of knowledge.
4	Response to the needs and interests of students	The teacher sticks tightly to the prescribed lesson content and materials, not appearing to make any adaptations that might account for the evolving needs and interests of students.	The teacher appears willing to respond somewhat flexibly to the evolving needs and interests of students but for the most part sticks tightly to the prescribed lesson content and materials. The teacher does not seem particularly aware of students' needs and interests.	The teacher is attentive and willing to respond flexibly to the evolving needs and interests of at least some students. The teacher shows some awareness of students' needs and interests.	The teacher is attentive and willing to respond flexibly to the evolving needs and interests of students and shows excellent awareness of those needs and interests.

The research team worked with project participants to create a general rubric for inquiry-driven teaching and learning.

observation and personal reflection about where inquiry might be happening in a given classroom and how it might be further developed. The idea, again, is to offer light structures to facilitate intentional spaces for observation and reflection. This rubric was used by some of the participants in their inquiry projects. It has also been used by educators in workshops in other contexts, who have found it to be a very useful reflection tool for identifying specific things they might alter in their practice to promote inquiry, or for considering their practice as a whole.

Link to "Inquiry-Driven Teaching and Learning: A General Rubric" from Project Zero's website.

GIVING AND RECEIVING CONSTRUCTIVE FEEDBACK

We draw special attention to the giving and receiving of constructive feedback in this report because it emerged as a particularly powerful promoter of deeper learning in our collaborative research. We introduced the Ladder of Feedback protocol for giving and receiving feedback and modeled it repeatedly. The Ladder of Feedback involves a series of steps which are primarily designed to be used in a group setting, with the group asking clarifying questions, sharing what they value, stating concerns, and offering suggestions for improvement or next steps. This feedback approach contrasted with prevailing feedback processes at Innova, which usually involved a single person in authority (such as a teacher or coach) pointing out what was wrong or needed to be corrected. Five of the 14 participants who were interviewed mentioned giving and receiving constructive feedback as the most important thing or one of the most important things they gained from the project. They found the clear structure of the Ladder of Feedback protocol helpful and readily adaptable to different contexts, such as among peers, coaches and teachers, teachers and students, and among students themselves. Both coaches and teachers were often surprised by the capacity of students to offer high-quality feedback. This protocol conveys the message that we can all shape and support one another's learning.

3. Creating opportunities for sustained inquiry and collaboration

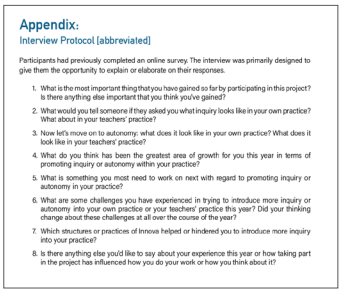
Drawing from a roadmap and professional development approach developed on a previous project (Dawes Duraisingh & Sachdeva, 2021), and in line with established collaborative inquiry approaches (Deluca et al., 2014), participants developed small group inquiry projects over several months to investigate how to introduce more autonomy and inquiry into their practice. In groups of four, they identified an aspect of their practice they wanted to improve or change;

developed a "Theory of Action;" tried out new tools and strategies; documented their own learning and that of teachers and students; reflected on this documentation; iterated on their practice; and developed a video to communicate their learnings to the broader Innova community. While the projects were abbreviated due to pandemic-related disruptions, they proved extremely important for promoting collective autonomy among participants: groups were given relative freedom but had to reach consensus and listen to one another in ways that promoted professional responsibility, rather than "contrived collegiality" (Hargreaves & Fullan, 2012).

One group, for example, explored ways to support teachers to be more responsive to students' needs and interests. They asked teachers to use a thinking routine to reflect on what students might think and feel at different moments of a class and how they might engage or motivate them more effectively. Then the teachers interviewed students and compared their assumptions with students' actual needs and interests, learning that students wanted greater involvement and autonomy in their own learning. They then tried out new strategies to promote student autonomy, documented learning and looked at the documentation together, used the Ladder of Feedback to offer feedback to one another, and used this feedback to develop their practice further. Another group focused on promoting a growth mindset in teachers and students by supporting teachers to incorporate student-to-student feedback in their classes. A third group used the See - Think - Wonder thinking routine in various ways to help teachers incorporate more reflection into their practice.

PART 4: Advances in participants' thinking and practice

This section turns to key developments in the coaches and academic coordinators' thinking and practice during the project, which emerged from a close analysis of what they told us in surveys and interviews and resonated with what we observed in the group sessions and in the study groups' final presentations. They are: (1) **learning to be learners** rather than experts possessing all the right answers; (2) **reflecting on purpose and practice** rather than merely completing tasks; (3) **accepting uncertainty and learning to adapt** rather than sticking closely to known plans; and (4) **developing trust and autonomy**—both in themselves and in other colleagues and students. While these categories are somewhat overlapping and of course relate to the opportunities and challenges outlined in Part 2, this distillation summarizes the changes experienced on a personal level by participants. These four broad developments were different for different participants, and individuals emphasized some of them more than others.



Appendix:
Interview Protocol [abbreviated]

Participants had previously completed an online survey. The interview was primarily designed to give them the opportunity to explain or elaborate on their responses.

1. What is the most important thing that you have gained so far by participating in this project? Is there anything else important that you think you've gained?
2. What would you tell someone if they asked you what inquiry looks like in your own practice? What about in your teachers' practice?
3. Now let's move on to autonomy: what does it look like in your own practice? What does it look like in your teachers' practice?
4. What do you think has been the greatest area of growth for you this year in terms of promoting inquiry or autonomy within your practice?
5. What is something you most need to work on next with regard to promoting inquiry or autonomy in your practice?
6. What are some challenges you have experienced in trying to introduce more inquiry or autonomy into your own practice or your teachers' practice this year? Did your thinking change about these challenges at all over the course of the year?
7. Which structures or practices of Innova helped or hindered you to introduce more inquiry into your practice?
8. Is there anything else you'd like to say about your experience this year or how taking part in the project has influenced how you do your work or how you think about it?

*See the **Appendix: Interview Protocol** for some of the questions that helped surface these advances in thinking and practice.*

Overview of Advances in Participants' Thinking and Practice	
Learning to be learners	Seeing themselves as learners, not experts
	Listening to and appreciating different perspectives
	Giving and receiving constructive feedback
Reflecting on purpose and practice	Establishing and focusing on goals and priorities
	Taking the time to observe, analyze, reflect
	"Less is more"
Accepting uncertainty and learning to adapt	Being open to exploring new practices and ideas
	Overcoming the fear of making mistakes
	Responding to emerging needs, desires, and opportunities
Developing trust and autonomy	Experiencing before facilitating
	Yielding control to let others experience autonomy
	Finding greater satisfaction and enjoyment in the work

1. Learning to be learners

A fundamental shift involved participants relinquishing a stance and practice of behaving as if they already knew what to do. This shift helped them to experience and model greater curiosity and openness to new ideas and perspectives.

SEEING THEMSELVES AS LEARNERS, NOT EXPERTS

By definition, the coaches and academic coordinators were viewed as experts within Innova, making it challenging for them to try new things out or share what they were finding difficult in their practice; this dynamic was also replicated among teachers with their students. Maria Flora (C, Comm) said she came to view "learning to learn" as the most important attitude that needed to be reinforced and developed among educators, and she reported trying to model humility and an openness to learning, telling her teachers: "I'm learning from you everyday." Piero (C, Comm), noted that he was actively trying to discourage the teachers he coached from seeing him as the fountain of all knowledge. Instead, he encouraged them to engage in a conversation with him so that they could come up with answers or solutions together. In their final presentations, participants portrayed themselves as trying to learn more about effective pedagogical practices rather than merely sharing their expertise; they also included footage of themselves working alongside their teachers as peers rather than telling them what to do. But it is also fair to say that being the expert is a hard habit to break: sometimes there was evidence of participants

lapsing into telling teachers how to do things or talking to teachers with "a certain idea in mind" towards which they hoped to steer the conversation.

Piero (coach) noted that he was actively trying to discourage the teachers he coached from seeing him as the fountain of all knowledge. Instead, he encouraged them to engage in a conversation with him so that they could come up with answers or solutions together.

LISTENING TO AND APPRECIATING DIFFERENT PERSPECTIVES

Relatedly, several participants emphasized the importance of learning to listen carefully to different viewpoints and the value of working in a group where people brought along different expertise and perspectives. Amalia (C, Sci), for instance, said "I've learned to listen, to know how to listen in order to understand." She also noted how much she had enjoyed bonding with other coaches and learning from their various strengths. Lorena (AC) thought collaborative spaces had helped her to extend her perspective, knowledge and thinking, and discover new ways of doing things. Leyda (AC) commented on the value of working in teams composed of people fulfilling different roles within the system who could offer different perspectives. These comments echo findings from previous work by the team where "openness" to new ideas and perspectives surfaced as a key driver of growth in educators' practice (Dawes Duraisingh & Sachdeva, 2021).

GIVING AND RECEIVING CONSTRUCTIVE FEEDBACK

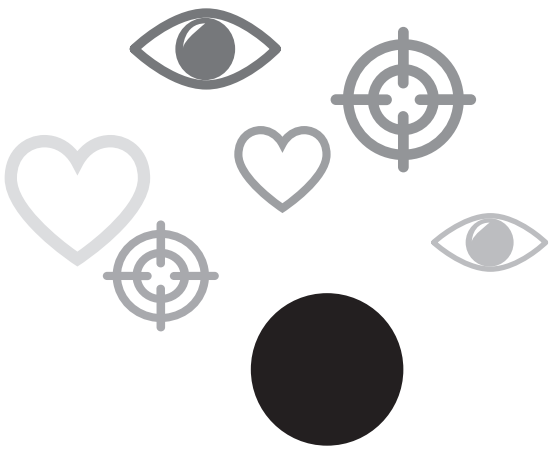
Giving and receiving constructive feedback was an important area of growth for participants.

Several participants talked about moving away from viewing feedback as just being about identifying what is wrong or could be improved to viewing it as a more constructive and positive experience that could lift everyone's understanding. The concept of a group giving feedback to an individual as part of their collective learning was also new to them, given their existing mental model of a single expert dispensing feedback. Piero (C, Comm) spoke about the Ladder of Feedback as an important tool for getting teachers and students to pause for a moment and reflect on what was being done well in addition to what needed to be improved. He viewed it as a tool for modeling for students the importance of truly listening and taking on board other people's perspectives: "So the student can also stop and see 'oh, they're not just evaluating me, the teacher's showing me, or my classmates are showing me aspects I could improve or strengthen. I hadn't seen that.'"

2. Reflecting on purpose and practice

The importance of being reflective or intentional about purpose and practice

came up frequently in our participants' comments—perhaps unsurprisingly given that we emphasized the importance of purposefulness in our workshops.



Participants' professional growth involved slowing down, focusing on core priorities, and reflecting on their surroundings—and encouraging the teachers they worked with to do the same.

ESTABLISHING AND FOCUSING ON GOALS AND PRIORITIES

Gabriela (C, Sci), like other coaches, emphasized the importance of focusing on priorities, including when documenting learning: "I feel like I liberated [my teachers] in the sense of 'look, there's no need to document everything if you're not going to end up using it.'" Mariale viewed learning to analyze documentation as vital for teachers to understand where they were going and why they were using particular practices or tools. Milagros (AC), on the other hand, spoke about the helpfulness of having clear goals for an inquiry project and moving towards them, while Amalia (C, Sci) referred to the importance of supporting teachers to develop their own sense of priorities and purpose, particularly with regard to navigating Innova's centralized curriculum: "I feel like I've been successful when the teacher doesn't just rely on the [centralized curriculum] but makes her own decisions and has a sense of where she's trying to go."

TAKING THE TIME TO OBSERVE, ANALYZE, REFLECT

We placed emphasis in our project on taking the time to observe, analyze, and reflect before moving on to the next thing. In some cases this meant creating spaces for reflection with teachers. Eva (C, Sci), talked about coming to value thinking routines as "an effective way of promoting and creating reflective spaces." Lorena (AC) spoke of the importance of supporting teachers to be "reflective" and to ask themselves if they had really reached students. Piero made a similar point, stressing the importance of building pauses for critical reflection into regular practice: "the teachers need to be empowered, by helping them reflect and ask questions, so that they're not limited to just listening and saying 'let's see the next one, OK good, now let's move on to another activity.'"

"LESS IS MORE"

In our workshops we borrowed the concept of "Big Rocks, Small Rocks," as framed by Stephen Covey (1989), and encouraged

participants to think about doing fewer things well. Many took this sentiment to heart. Diana (C, Comm), for example, said that it had helped her in decision making: "And the phrase that's stayed with me from the project and which I've used a lot in my practice is 'less is more' … that phrase helps me in making decisions, evaluating them and refining them." Project Liaison Mariale similarly pointed to the usefulness of this phrase for setting priorities and keeping on track. "'Less is more.' I feel that that phrase alone comes with something behind it, which, for example, is to have the vision of prioritizing what you want for your school or for your class, or for your day to day work."

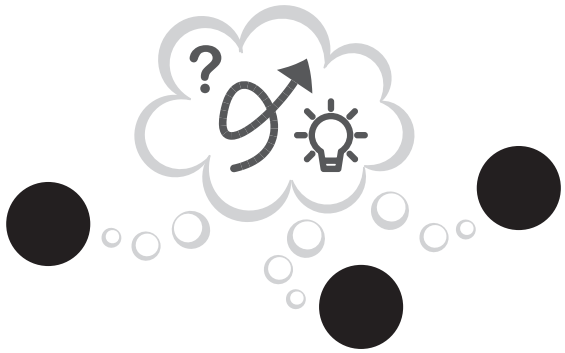
3. Accepting uncertainty and learning to adapt

A noted challenge for Innova educators was deviating from known plans, in part because of their learned reliance on Innova's centralized curriculum and concerns about how any innovations or changes in practice would be evaluated. Thus, this was an area ripe for participant growth and development.

BEING OPEN TO EXPLORING NEW PRACTICES AND IDEAS

All of our research participants expressed an interest from the start in improving their practice and trying out new approaches. However, this did not necessarily mean that they were prepared to explore more profound shifts in their practice. Project Liaison Mariale commented that at Innova—as in many other places—there was a mentality of receiving new ideas and immediately putting them into practice, in what we came to describe on the project as a "plug and play" approach. The participants over time became open to exploring new ideas in a way that called into question fundamental aspects of their practice. It quickly became apparent, for instance, as Mariale noted, that this project was going to demand a major shift in thinking: "It was more of a mindset that had to be incorporated into our day by day, on a continuous basis. It's not something that can be magically achieved."

> *"It was more of a mindset that had to be incorporated into our day by day, on a continuous basis. It's not something that can be magically achieved."*
>
> - Mariale, Project Liaison



OVERCOMING THE FEAR OF MAKING MISTAKES

Relatedly, Eva (C, Sci) described overcoming her fear of making mistakes and then in turn trying to support her teachers to similarly lose

their fear: "I try to transmit the same. 'Don't be afraid to make a mistake, do it, let's try. How did it go? What else can we do then?' … So what they also tell me is they've felt how much trust we've put in them, to the extent they feel more confident making decisions." Milagros (AC) now advocates moving away from evaluative practices that shut down teachers' openness to trying new things. In a similar vein, Juan (C, Comm) observes classrooms without using Innova's standard observation document because he notices new things and teachers feel free to make mistakes because they won't show up permanently on their teaching record.

RESPONDING TO EMERGING NEEDS, DESIRES, AND OPPORTUNITIES

Beyond overcoming fears, some participants also spoke about learning to listen more attentively to teachers' and students' interests and needs, and often being surprised by what they learned or discovered. Leyda (AC), for instance, spoke about teachers discovering that the students in their classrooms were not as unmotivated as they had imagined but instead needed an opportunity to tell the teachers how they wanted to learn: "they themselves were surprised that the students do have a lot of interest in learning. They thought that the students had no interest in learning, right? But when they began to listen to them … then they realized that what was lacking was the space so that they could tell them how they want to learn." Lorena (AC) similarly noted how enriched learning can be when teachers listen to and reflect on the students' realities and build on that, no matter how young the students are.

4. Developing trust and autonomy

Perhaps the most important change involved the participants developing greater trust or confidence, both in their colleagues and themselves. Relatedly, they became both more capable and inclined to exercise greater autonomy in their professional practice.

EXPERIENCING BEFORE FACILITATING

Piero (C, Comm) talked about how important it was for him to experience trying out the thinking routines and Ladder of Feedback with his colleagues. He then felt empowered and motivated to share these tools with teachers, who in turn could share them with students: "Because if I hadn't felt empowered, I wouldn't have shared these strategies with teachers." He added that being invited to experience "these small autonomous spaces" allowed him to then experience what it means to be trusted. Diana (C, Comm), whose voice

> *"[Teachers] thought that the students had no interest in learning… But when they began to listen to them… then they realized that what was lacking was the space so that they could tell them how they want to learn."*
>
> - Leyda, Academic Coordinator

was featured at the beginning of the paper, felt that the goal of incorporating more inquiry and autonomy into her practice was vague when she first started participating in the project. She wanted to know exactly how to develop autonomy. She then realized that she had to experience autonomy in order to understand it: "I came to understand that living the experiences was how we were going to understand it better."

YIELDING CONTROL TO LET OTHERS EXPERIENCE AUTONOMY

It is one thing to understand the importance of promoting autonomy; it is another to find it within oneself to give other people the space to experience and develop it. Milagros shared how she initially couldn't help herself from giving teachers step-by-step instructions on how to use thinking routines, but that she eventually learned to give them more freedom. Diana similarly noted how difficult it was to refrain from intervening or taking control, though she came to see that even if mistakes were made, those mistakes could be valuable learning experiences. She also came to feel that it was vital to cultivate trust in teachers, even if that doesn't mean thinking they will always get things right: "Trust in the potential of your teachers, trust and let them know, because trust implies recognizing them when they do things well, but also when perhaps they don't make good decisions."

FINDING GREATER SATISFACTION AND ENJOYMENT IN THE WORK

Ultimately, overcoming the fear of making mistakes and learning to trust colleagues, teachers, and students led to greater satisfaction and enjoyment of the work. Diana describes a moment of transition: "There was a moment in the year, when we were working on our project, that we stopped worrying so much if we were doing things right as long as we were enjoying what we were learning." Participants started trusting the process of learning and became less focused on immediate outcomes. Lorena spoke enthusiastically about the effects on students, pointing out that they responded positively and even joyfully to being given the responsibility that comes with greater autonomy: "And when we gave them that freedom, so to speak, they worked more happily and more contentedly. Indirectly, this developed other capacities as well like autonomy - they are giving me this freedom, but I also have a responsibility to use it."

PART 5: Concluding Thoughts

Limitations, puzzles, and the need for further research

While we are excited by what we have learned from our collective work with Innova and its encouraging implications for real-world practice, we acknowledge that much work still needs to be done and that many questions remain unanswered.

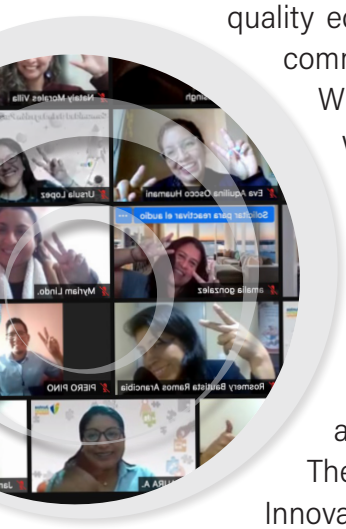
UNFINISHED BUSINESS

Promoting deeper learning in schools requires deep and ongoing work: there is no end point. That said, our project came to a close at a moment when the process of enacting pedagogic change was still very much a work in progress at Innova, both among our participants and across the wider network—which is not surprising, given the timeframe and demands involved. Participants were still developing their understanding of how to use thinking routines and feedback protocols effectively, for example, and the depth and longevity of some of the changes in their practice that we documented remain unknown at the time of writing. Overall, participants were more comfortable with some of the practices we introduced than others: for instance, they were more confident with using thinking routines than documenting teacher learning in a targeted way. Additionally, the rollout plans for Innova 5.0 (which were highly compatible with our project's goals) were temporarily put on hold in 2022 due to external conditions caused by the pandemic. It is also possible that Innova's priorities will evolve, especially given its propensity as an organization for new initiatives and change.

However, it was encouraging that all of the coaches and academic coordinators we heard from almost a year after the project's close (n=19) reported that they were still incorporating project-related principles and practices into their everyday work. They seemed to remain enthusiastic and motivated about promoting autonomy, inquiry, and collaboration to advance deeper learning. And the centralized structure of Innova has meant that there is hope for practices such as giving and receiving constructive feedback to catch on across the network, especially if modeled well by our participants and in the spirit of advancing collective learning.

UNIQUENESS OF THE INNOVA CONTEXT AND TIMEFRAME

We believe that many educators will recognize elements of the findings of this paper, including the challenges that our Innova colleagues faced in terms of promoting greater autonomy, inquiry, and collaboration to pursue deeper learning. Closely exploring the possibility space in one specific school system allows for a textured understanding of what it can look like to try to promote deeper learning on the ground, in a way that accounts for, rather than ignores, the messiness and complexity of day-to-day life in schools. Some of the practices we describe have already been shown to be effective in numerous locales and the broad approach of collaborative inquiry is generally considered to be the most effective type of teacher professional development (DeLuca et al., 2014). Nevertheless, the conditions at



Innova were in some ways unusual given the network's bold initiative in offering high-quality education at scale to families and communities with limited resources. While this paper zoomed in on the work we did with the coaches and academic coordinators, their efforts did not take place in a vacuum and it was vital that participants felt they had permission to experiment with promoting autonomy, inquiry, and collaboration in their practice. The strong sense of mission at Innova and general openness of participants to improving their practice were positive factors among others that cannot be assumed in all contexts. On the other hand, a complicating factor at Innova was that they already used terms like "inquiry" and "collaboration" in their everyday practice, in ways that sometimes caused confusion when we used the terms in different ways. We would therefore expect, as is always the case in education, that some of the structures and scaffolds we developed or used to support participants might need to be adapted to suit conditions in different contexts.

The time period in which we did this research was also unique, due to the unanticipated stresses and strains wrought by the Covid-19 pandemic. While in many ways the pandemic made our work more challenging because we were unable to meet our participants in person and they were working in unusually demanding and uncertain circumstances, it is also possible that the general disruptiveness of the pandemic made it *easier* for our participants to consider new ways of doing things or to rethink their assumptions. Since Innova has returned to in-person schooling, documentation practices, for example, will look different given that video recordings of classes are no longer readily available.

RESEARCH LIMITATIONS

As researchers, we took a collaborative, design-based approach to our work, which we deemed necessary for developing new practices that take into account the lived realities and perspectives of educators. This process entailed "building the ship at sea." This study does not therefore measure the impact of specific aspects of our design or prove its overall efficacy relative to other approaches. In any case, there were multiple initiatives and developments taking place at Innova at any one time so it would have been very difficult to isolate the unique effects of our collaboration in a conclusive way.

There were also limitations to our research, even considering the type of research we were doing. While the online workshop format allowed us regular contact with participants as well as opportunities to document their thinking over time, there were plenty of aspects of their work that remained unknown to us, especially when the documentation of their work with teachers was limited. While the variety of data we collected and our sustained engagement with the network and participants over time adds credibility to our findings, some of our data involves participants' self-reporting—with the risk that they may sometimes have told us what they thought we wanted to hear or overestimated the degree of change in their own thinking or

practice. However, the interviews in particular gave us an opportunity to probe their ideas and to explore possible inconsistencies or discrepancies.

AVENUES FOR FUTURE RESEARCH

There are many possible avenues for future research related to this work. Within the Innova context, it would be interesting to understand how the coaches and academic coordinators we worked with have continued to grow professionally and how they have shared what they learned with others. To what extent have they been able to lead pedagogic change across the network from the middle? How have they navigated the potential tension between offering sufficient structure and guidance to the teachers they support and allowing them enough space to develop the stances and practices of autonomy, inquiry, and collaboration? More broadly, how have inquiry-based practices, including an emphasis on slow looking, gained traction in a fast-paced work environment? It would also be interesting to investigate the degree to which the findings from this project, including the practices and approaches we developed, are useful in other contexts and school systems—both within and beyond Latin America. Building on this work in new contexts is what our research team hopes to do next.

Conclusion: Towards deeper learning

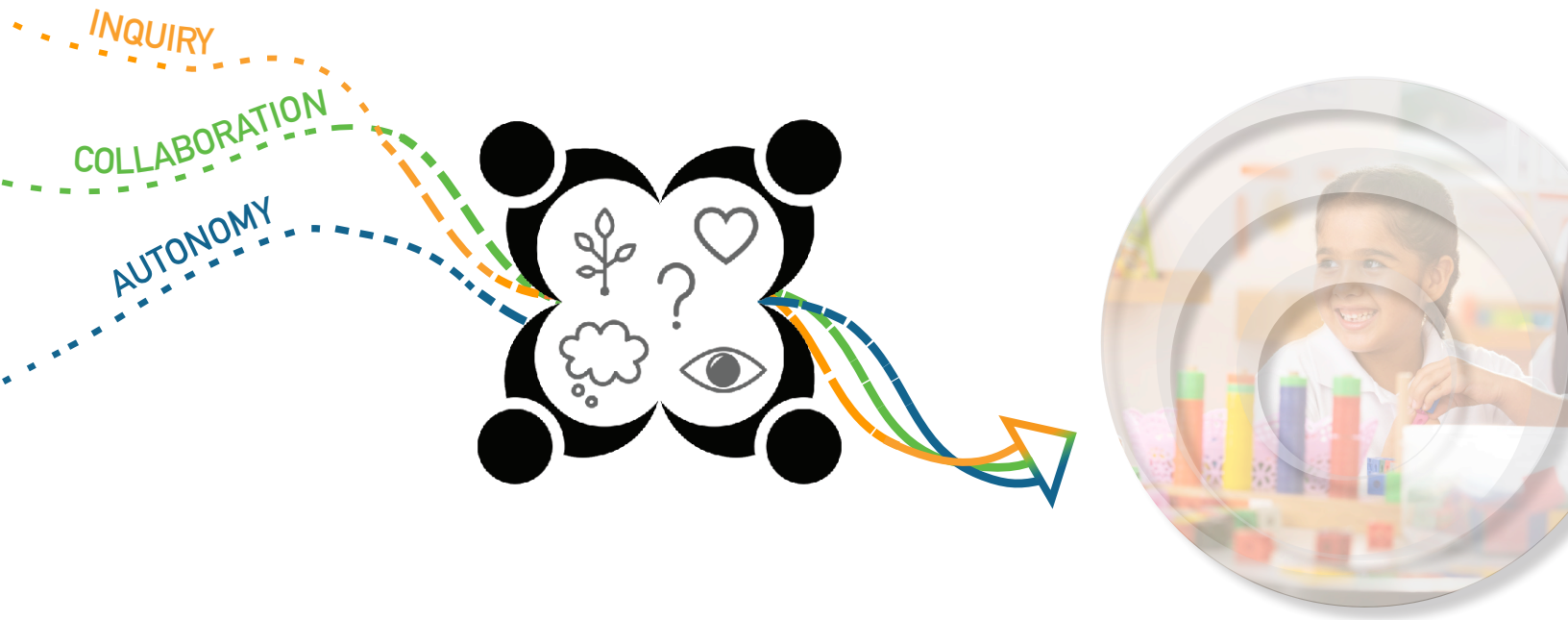
This work sought to promote deeper learning by promoting inquiry, autonomy, and collaboration at all levels of the Innova network, in this case by focusing on coaches and academic coordinators positioned at the middle of the system and able to serve as a bridge between different parts of it. Some of the opportunities and challenges that arose in that work were specific to this particular context—which is interesting in and of itself given that Peru is not typically represented in the education literature. However, many of the challenges we found are also commonly encountered elsewhere and help explain why deeper learning tends to be the exception rather than the rule in educational systems around the world. For example, as Diana noted at the outset of the paper, people cannot be expected to promote autonomy in others if they haven't authentically experienced it themselves—and they cannot simply be granted more autonomy and then be expected to know what to do with it. They need the "pathways for reflecting" that Juan refers to, as well as other kinds of scaffolds and supports.

People cannot be expected to promote autonomy in others if they haven't authentically experienced it themselves—and they cannot simply be granted more autonomy and then be expected to know what to do with it.

We found structured tools, such as thinking routines and the Ladder of Feedback protocol, to be helpful supports—if modeled carefully and repeatedly over time through a process of collaborative inquiry and in

ways that emphasized careful observation and reflection. The effort to promote more autonomy, inquiry, and collaboration at Innova was still very much a work in progress at the end of our collective work. And yet, relatively quickly, there was evidence of perceptible and meaningful shifts in participants' thinking and practice that set them up to support deeper learning in schools. These findings confirm that promoting deeper learning is not easy work. However, they should also inspire hope that there *are* constructive pathways forward and that significant challenges *can* be overcome—particularly through the work of questioning, collaborating, and cultivating trust in oneself and others. Given the needs of our contemporary moment and the need to overhaul the kind of teaching and learning happening in many schools around the world, there are important lessons to be learned from the work of these Innova educators.

These findings confirm that promoting deeper learning is not easy work. However, they should also inspire hope that there are *constructive pathways forward and that significant challenges* can *be overcome—particularly through the work of questioning, collaborating, and cultivating trust in oneself and others.*



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Appendix:

Interview protocol [abbreviated]

Participants had previously completed an online survey. The interview was primarily designed to give them the opportunity to explain or elaborate on their responses.

1. What is the most important thing that you have gained so far by participating in this project? Is there anything else important that you think you've gained?
2. What would you tell someone if they asked you what inquiry looks like in your own practice? What about in your teachers' practice?
3. Now let's move on to autonomy: what does it look like in your own practice? What does it look like in your teachers' practice?
4. What do you think has been the greatest area of growth for you this year in terms of promoting inquiry or autonomy within your practice?
5. What is something you most need to work on next with regard to promoting inquiry or autonomy in your practice?
6. What are some challenges you have experienced in trying to introduce more inquiry or autonomy into your own practice or your teachers' practice this year? Did your thinking change about these challenges at all over the course of the year?
7. Which structures or practices of Innova helped or hindered you to introduce more inquiry into your practice?
8. Is there anything else you'd like to say about your experience this year or how taking part in the project has influenced how you do your work or how you think about it?

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