

Leading and Facilitating Professional Learning Communities – Mapping the Theoretical Foundation by an International Literature Research



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1 Preface to the International Report

In most of the European school systems the continuous professional development of school principals and teaching staff - teachers and other pedagogical professions - is highly called for since their professional actions lead to successful learning and development of the pupils and can be seen as an investment in the future. Thus, the quality of school leadership and the quality of teaching are an internationally broadly discussed issue. Meanwhile, there is a lot of knowledge about how the learning of professionals can be promoted (e.g. Imbernón, 2021; Lipowsky & Rzejak, 2021; Avgitidou et al., 2024).

Collaborative and collegial learning is one of the main principles in a lot of adult learning settings (e.g. Yorks & Kasl, 2002). One of the highly appreciated approaches of pre-structure collaborative professional learning is the so-called *Professional Learning Community (short PLC)* (e.g. Hirsh & Hord, 2008; Wei et al., 2009; Owen, 2014). If the characteristics of a PLC are utilized in the various cooperation groups, – in a single school and beyond in a regional educational network – learning benefits and assistance to development in teaching or leadership practices can be achieved. PLCs have been discussed as an efficient approach towards enhancing the quality of professional decision-making in (a) teaching (Avgitidou, 2019; Vescio & Adams, 2015; Grosche, Fussangel, & Gräsel, 2020) and (b) likewise support leadership development (Rittenour, 2017; Rist et al., 2020). Additionally, in initial teacher education, the collaborative practice of student teachers benefits from PLC-like work and can be seen as a preparation for the later teacher collaboration they face once they enter school as teaching peers (Kansteiner et al., 2022; Theurl et al. 2023; Theurl & Frick, 2024).

Based on the international literature and the authors' longstanding experience in setting up PLCs and guiding PLCs of any kind¹, the need for facilitation for more efficient collaboration has been identified in order to direct the group processes closer to learning professionally and to innovative practices in teaching (or leading). To achieve this high-quality collaboration, we especially emphasize the need to involve professionals in thorough processes of inquiry and deep reflection. Both are characteristics of a professional habitus (Schön, 1983; Kansteiner, Welther & Schmid, 2023) but often not well enough pursued in teacher (or leadership) collaboration (e.g. Trumpa, Franz & Greiten, 2016; Gray & Ward, 2019).

Therefore, we see it as one of the next steps of development in teacher (and leadership) collaboration to address the qualities of a reflective and learning-oriented exchange. Along with it, we recognize that teaching staff and school leaders nowadays need to be capable of cooperating effectively in online settings since the digital age has opened up new technical possibilities to pursue collegial communication virtually. Additionally, with the perspective of a more deeply aligned exchange, we also consider heterogeneity not only as a meaningful condition in PLC collaboration but also as a PLC issue to which too little attention is usually paid (Kansteiner & Schmid, 2022).

The kind(s) of facilitation that may better support PLCs can be deduced both from the literature as well as from practical arrangements with the objective of elaborating new findings and developing conceptual amendments to the concept of PLCs. This will provide the opportunity to enrich in-service arrangements for PLCs that give the teaching (and leadership staff) the chance to further develop their pedagogical and didactic competencies and skills to carry out school development.

We also suggest that the idea of support or facilitation is often mentioned but seldom presented in such a precise conceptual way that it may explain the particular understanding, justify why, and describe how it can be carried out productively. Thus, a new contribution towards that direction to the international literature is of high importance as much as a guideline about practical support of PLCs, both seeking to achieve high quality in personnel development in the service of successful learning of the pupils and a for a satisfying daily work situation for the professionals.

2 Purpose and Design of the Literature Review

The following summary presents the international perspective on leading and facilitating PLCs as part of the activities in the *LeaFaP project (short Project)* and with the goal to develop a “Theory- and needs-based conceptual framework for PLC leadership & facilitation for inquiry and reflection (PLC L&F)” (<https://www.leafap.eu/>). The basis of this *International Report (short IR)* are six National Reports (short NR) that cover a wide range of European perspectives about PLCs in papers plus some of the

¹ In chapter 21 you may find information about the kinds of PLCs the authors have previously facilitated.

frequently-quoted US-American positions. In the IR we reflect the state-of-the-art of how *PLC Leading & Facilitating for inquiry and reflection* is laid out in the international literature.

With an emphasis on the quality of inquiry and reflection in PLCs, we have developed this report putting together knowledge about concepts, effects, actors, resources, needs, and actions of successful PLCs. Through this process, we were able to also identify critical aspects in the context of inquiry and reflection in PLCs that require more research attention. In the literature reviews, we also searched for PLC-related perspectives on diversity, democratic processes, and digitality because they are as important to the discourse about further characteristics of PLCs as they are to the EU policy for improvement in the educational systems.

Working towards the goal of putting together a broad spectrum of the literature about the issue of inquiry and reflection in PLCs, some of the NRs cover the particular PLC debate in the respected countries, others cover beyond the research in that particular country and include literature of a particular language, and again others cover discourses in other countries. The NRs can be found in single appearance on the webpage <https://www.leafap.eu/results/>. The collection comprises:

- Spain NR: Spanish literature and papers from South America/Spanish-speaking countries
- Greece NR: Greek literature
- Norway NR: Norwegian literature
- Austria NR: German-speaking literature from Austria, Germany and Switzerland
- Cyprus NR: English literature from the US-American discourse
- Germany NR: English literature from European countries (Finland, Netherlands, England, Sweden)

By describing the main ideas of the respective literature, we provide an overview of the main international strands of discussion and how they estimate the opportunities and weaknesses of PLCs and PLC practice. We additionally identify gaps of knowledge in the literature which lead to the necessity to fill in with the follow-up activities in the project – conceptual framework and learning outcomes and a learning arrangement with activities and a modular training program (online) for leaders and facilitators².

3 Methodology followed for the Literature Review

The following summary combines the findings of the six NRs as a condensed overview. Each NR was done by a team of authors, all being researchers at the respected partner institution³. They extracted information from at least 7 journal articles, mostly scientific oriented, partly with conceptual discussions, and only a few with practical implications. Since this has been done with the objective to develop a scientific basis for the Project's oncoming conceptual and practical deliverables, this international report does not cover ideas from possible practical teaching strategies and materials that might be provided by in-service trainers but have not been published.

All NRs have been put together based on a set of guiding questions that were jointly developed by the Project's consortium based on the PLC discourse and the Project's proposal. Its dimensions were:

- The concept and settings of PLCs
- PLC and inquiry & reflection
- Support for PLCs and helping roles
- The external supportive role
- The internal supporting role
- Difficulties helping roles face and reported solutions
- Supporting roles and their connection to the school setting
- Additional aspects according to Democratic processes, Heterogeneity, Digitality.

The papers we reviewed were mainly found by searching in common databases using the following keywords and their combination: PLC, learning community, collaborative learning, teacher learning, initiation, facilitation, leadership PLCs, moderation, coordination, reflective dialogue, reflective practice, educational inquiry, school improvement, school development, school leadership (e.g. Austrian NR, p.1; Cyprus NR, p.1).

² <https://www.leafap.eu/about/>

³ <https://www.leafap.eu/partners/>

Each paper included in a review is presented in a short summary at the beginning of each NR to make the knowledge base transparent. By having a team of researchers working jointly on the different NRs validation was partly met.

The IR below compiles the findings from the six NRs according to the main dimensions that emerged which are presented under the following report chapters.

These include next to the description of the review design and the scientific basis:

- description of the PLC-concept, types of PLCs and their link to other learning arrangements
- plc as means for school improvement and professionalization
- requirements for successful PLCs
- multiple roles of school principals for PLC-activities
- facilitation of PLCs and challenges a facilitator faces
- leading PLCs by members from within the group
- establishing PLCs and challenges PLCs face
- reflection in PLCs and about plc work
- inquiry in PLCs
- topics of PLCs and the role of the PLC members and their expected activities
- aspects of democracy and heterogeneity in PLCs.

Quotes in the IR below refer only to the NRs and not to the original sources but may include some pieces of them. At the end of the IR, conclusions are presented and lacks identified (chapter 19) that lead to the next steps in the progression of the project. With figures in most of the chapters we summarize main results on the particular aspect for an easy overview.

4 Scientific Basis of the Findings in the National Reports

A lot of findings are derived from research in project settings with a developmental interest and as accompanying research, often embedded in a case study research design (for case studies see e.g., Schwandt, 2017). The findings originated from a small number of participants or subjects mostly with teachers practicing in PLCs either at a single school or attached to a regional school network. Thus, the research methods often followed the qualitative paradigm (Germann, 2023), e.g., with data collection done by (group) interviews or observations of PLC meetings. In some of the cases, the study followed a mixed-methods design (Hesse-Biber & Johnson, 2015), with observations and a quantitative questionnaire. In very few cases, some research studies used inferential statistics (Sutanapong & Louangrath, 2015). Lastly, some findings benefit from described experiences, documented and summarized. Although some cannot be characterized as empirical data, they allow insights into PLC practices that are helpful when we investigate PLC practices.

Mostly the research designs of the studies reviewed focused on collecting the PLC practitioners' experiences, but seldom did they reach the actual classrooms and gather the respected pupils' learning results. Thus, the reported effects mainly build on the self-view of the PLC practicing people and their interpretation of their PLC practice and achieved results. A lot of studies inquire about the benefits members of PLCs gain from their participation in this specific cooperative form or which aspects external observers perceived and estimated as benefits according to good schooling and professionalization. Deeper insights into the actual exchange processes within a PLC or actual transfer processes to practice and the effects on the pupils are rarely covered in the research papers we reviewed. Most papers we reviewed point out the conceptual side of PLCs, some argue in a prescriptive way or summarize pieces of other research and give insights into a piece of the discourse.

The following Figure 1 shows the approximate shares (a bigger size of arrow relates to more papers of that kind without exact measures).

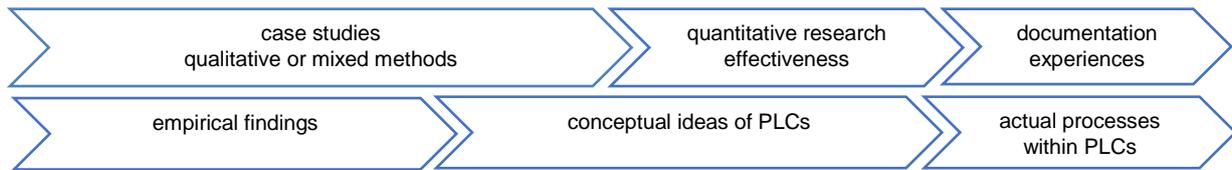


Figure 1: Scientific designs and area of information of the included papers

5 Describing the Concept of a Professional Learning Community

Across the papers, there is a common understanding of a Professional Learning Community (PLC), in the sense that professionals (mainly teachers) collaborate in order to learn to improve their teaching for better pupils' learning results.

Throughout the European and US-American papers, a PLC is conceptualized in two ways:

- a) a group made up of the whole school staff which is described as learning and improvement oriented, which underlines the idea of a general learning culture that follows special principles and requires a supportive structural arrangement.
- b) a single small group of 3-10 teachers within a single school or across schools cooperating in order to work on joint topics and professionalize (Germany NR, p. 6).

Either way, the final benefit is for the pupils' learning as we find it well expressed in the Norway NR:

The teachers are gathered in PLC groups as a part of school development projects. The projects aim to promote pedagogical, or subject-related competence, for example, in-depth learning for the student, an inclusive practice, or improve teaching in specific subjects like math, science, etc., developed by/or together with external partners. The ultimate goal is to enhance student learning.

In terms of a learning culture or specific characteristics of a cooperating group, certain quality aspects like "trust" or "collective efficacy" and "collective responsibility" as much as "collaborative learning" have been found (Cyprus NR, p.2, Greece NR, p.5). Furthermore, the idea of "sharing experiences and tacit knowledge" as much as sharing "best practice" are also characteristics of PLCs (Spain NR, p. 4, Austria NR, p. 6). The PLC main activities include good communication and discussion of teaching material often gaining ideas from the other PLC members. The need to open up to the others and allow to show insecurity in order to turn to new learning is also often mentioned.

The Germany NR with a review of other European Countries' contributions to the discourse quotes a Dutch and an English definition which show the connection between group learning of the teachers and the improved learning of the pupils in a continuously practiced cooperation with a planning focus on improvement:

A PLC can be regarded as a group of teachers who, in a culture of collective learning, cyclically, collaboratively, and reflectively examine teaching practices to improve and renew them to achieve better student learning outcomes. (Huijboom et al, 2023, p. 1f.)

In these small, building-based groups, each participating teacher develops a specific plan for what he or she wants to change in his or her classroom practice. The groups meet regularly to support team members in carrying out and refining their plans. (William, 2007, p. 38)

Some papers refer to organizational arrangements in which PLC activities are embedded (small group) or pre-structured (whole staff). Some papers draw back to an early description by Shirley Hord compiling preliminary discussions. Hord presented 1997:

The literature on professional learning communities repeatedly gives attention to five attributes of such organizational arrangements: supportive and shared, leadership, collective learning, shared values and vision, supportive conditions, and shared personal practice (Hord, 1997, p.2)

Due to our interest in PLC practice involving inquiry approaches and reflection processes, it is helpful to recognize that most of the papers point out the characteristic of the exchange between members of the PLC groups as a reflecting dialogue. But seldom it is explained what exactly turns an exchange into a reflected dialogue. The Spain NR includes an explanation focusing on the challenging or not satisfying aspects of the classroom arrangement:

... characterize the collaboration within PLCs as based on what Louis and Kruse (1995) label as reflective dialogue, in which teachers hold conversations and identify problems about students, teaching, and learning (Spain NR, p.4)

Additionally, in some of the reviewed papers and in all NRs we have found the term 'inquiry' which addresses a more questioning attitude of the exchanging members by which they screen and analyse critically their teaching reality and search for a professional explanation – rather than giving a quick practical tip for handling which is often criticized about teacher exchange (Austria NR, p.7). We also discuss this in chapter 15.

Sporadically, an author mentioned ethical standards as an orientation for a PLC like the one we found in the literature review of the US studies (Cyprus NR, p.7).

The possibility of practicing PLC in an online version is often mentioned, and in this sense, this comprises digital technology for communication and collaboration (Cyprus NR, p.6). Some of the NRs also mention that the reviewed papers recommend a platform for the exchange of ideas, readings, and other materials (Greece NR, p.9). Figure 2 shows the rough shares of the nominations.

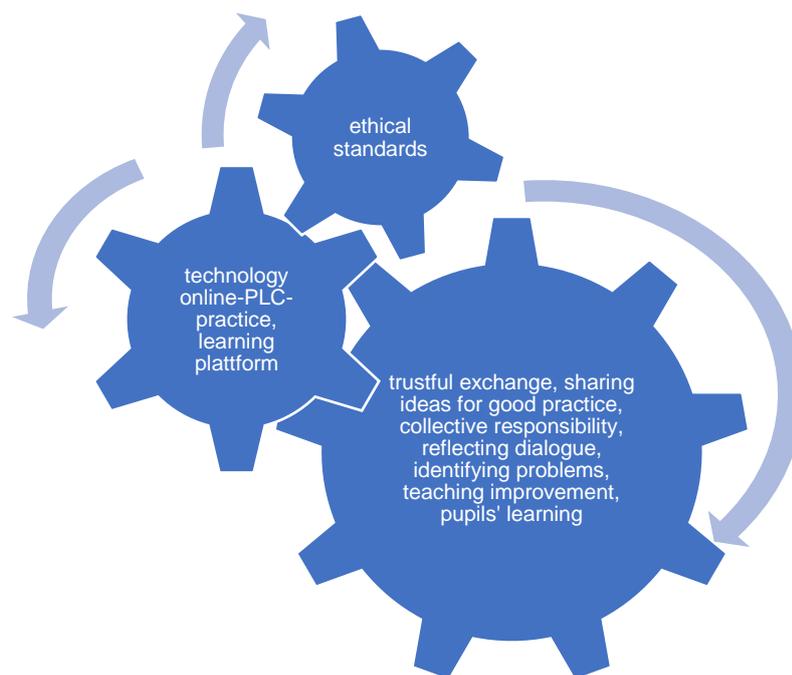


Figure 2: Characteristics of the concept of a Professional Learning Community

6 Types of PLCs and their Link to other Learning Arrangements

A lot of papers refer to teacher PLCs and among those groups are teachers of different types of schools including pre-school teachers – which in a few countries like Germany or Austria are not educated in the same initial teacher education system as other school teachers⁴. Some of the PLCs come into being because the professionals teach in the same class and want to cooperate more intensely, others because they work on an innovative project for a certain time, and again others because they belong to the same subject group. Thus, some groups exist on a formal basis and others come together rather informally, some cooperate temporarily and others permanently.

In some examples, we learn about teachers and school heads cooperating in a PLC (Spain NR, p.5.). Some papers look at teacher PLCs across a region or school county (Greece NR, p.3; Austria NR, p.2). Once more, some teacher groups are part of an arrangement of PLC newly set up because of the interest of initiators to improve a single school (school principals, school supervisors) or for the exploration of PLCs in cooperation with external partners (university, in-service training) (Germany NR, p.7).

Regarding teacher PLCs, some papers present the adaption of the original PLC concept to other groups. If papers present findings about PLCs of school principals (we also call them school heads) they refer to the concept of a PLC as a small group and adapt the teacher PLC version to the leadership situation with the focus on learning through collegial exchange for the development of their leadership skills and school development (Spain NR, p.5) – sometimes connected with further training arrangements (Norway NR, p.6).

In addition to school heads, we learnt about PLCs in which pre-school teachers and primary school teachers learn together (Austria NR, p.4). Also, the exploration of a PLC across regions with consultants from the in-service training is covered in the Austria NR (p.4). We also get presented with the exploration of PLCs of university staff like lecturers (Spain NR, p. 6) or supervisors (ibid).

Some of the PLCs are embedded or connected to in-service training arrangements (Norway NR, p.6), others are independent, and again others connect their PLC practice with single participation at in-service training courses or programs (Spain NR, p. 3-4).

Although the set is very different (see Figure 3), most of the PLCs that the papers report about follow the main idea of bringing problems or challenges of the members' practical work experience into the PLC exchange, learning from one another, and gathering ideas for an improved or even innovative practice. Some papers expand the description of the characteristics of inquiry and reflective dialogue (see chapter 14/15).

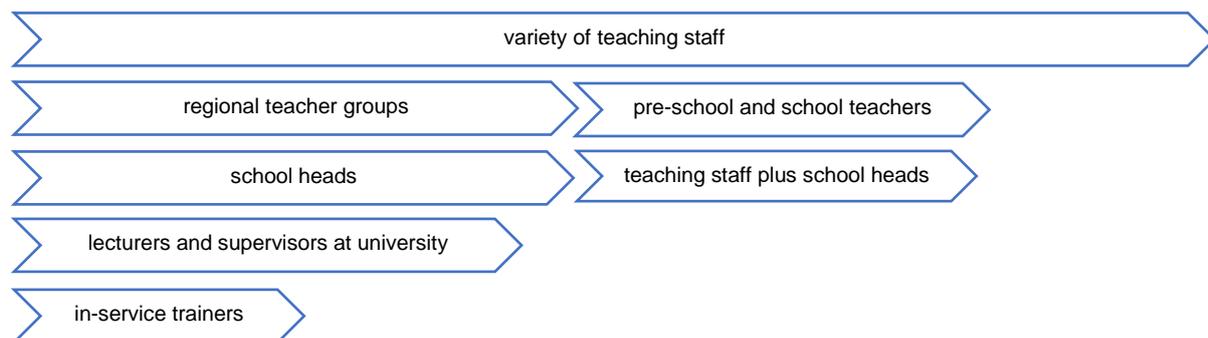


Figure 3: Types of PLCs according to professional groups

⁴ Germany: https://kindergaerten.kultus-bw.de/Lde/Startseite/Aus_+und+Fortbildung; Austria: <https://www.bakip-linz.at/ausbildung-zum-kindergaertnerin-in-oesterreich-dauer-kosten-voraussetzungen/>

Interestingly, except in the case of Norway (Norway NR) in which all teaching staff is obliged to join a PLC, the other NRs mainly identified voluntary membership in PLCs. Even within the range of papers recalling the possibility of the members to decide about their participation we also learn about some push factors like external actors from within or outside of the school systems. Often these initiating activities take place because of explorational settings, project activities, and funding opportunities. And to better understand the mandatory approach reported in the Norway NR one has to know that the current Norwegian school governance approaches professionalization through a system of in-service training in which PLCs have become one main structural element.

Next to the question of mandatory or voluntary participation throughout the countries the decision about the content might be predefined by a common topic for school improvement but can be focused specifically by the members according to their developmental needs – also in Norway. That turns out to be apart from a possible mandatory frame a quite participatory approach.

7 PLC as Means for School Improvement and Professionalization

PLCs are expected – and in most papers honoured – to be in service of five main objectives. First, a lot of papers conceptualize PLCs in the context of the school as a learning organization (Greece NR, p.3). Some just name it, and others work out how this is connected for example with initiatives by the school heads (Austria NR, p.16):

In the KidZ Vienna project, the school management is described as a "change agent" that plays a decisive role in coordinating innovation goals, promoting innovation processes, and securing innovation results and thus actively contributes to a culture that determines the school as a learning organization.

The Austria NR (p.4), referring to Reichly, 2022, also points out that PLCs not only promote team development within a single group but are well connected with the whole arrangement contributing to school development because the exchange among colleagues in the single school is pushed ahead:

PLCs also help to strengthen cooperation within the teaching team and the desire for increased collegial exchange. As the school management must focus on student learning and ensure that the framework conditions are improved as part of PLCs, a dialog with teachers is necessary to promote school development.

With most papers trusting PLCs to contribute to school improvement, they also cover aspects like the learning culture and the positive school climate at single schools. This is pointed out more clearly when PLC is meant to be the whole teaching staff (Germany NR, p.4).

Overall, the improvement of members of a PLC – whether it is the whole staff or a single group – decisively turns to better teaching and thus more successful pupils' learning in subject knowledge but also in developing their personality. There is hardly any paper that doesn't refer to this originally highlighted PLC target and mainly aspired effect. PLC is regarded as a structured approach towards improving the pupils' learning. In some papers, this is accomplished by trying out new methods in teaching and learning and reflecting on the results, while in other papers it is accomplished through a more complex process based on data-driven decision-making and an emphasis on inquiry and reflection (see chapter 14/15).

Of course, this revised teaching practice takes place according to the development of professional attitudes, knowledge, and skills which a lot of papers refer to in various ways. The expectation for personnel development on behalf of school improvement achieved by PLC-collaboration ranges from teachers, leaders, or others to be able to form a vision, exchange with efficacy, up to develop the skills to draw conclusions out of data for innovating school practice. The process of professionalization is furthermore connected to the attitudinal change from perceiving oneself as a single teacher to, as the Cyprus NR quotes a paper describing the shift teachers make towards an "*integrated and transformative practice*" (p.3). In the end, a PLC is put into the hope to help the professionals to a more satisfying daily business and particularly a more beneficial collaboration.

Occasionally PLCs are embedded in the idea of life-long learning (Norway NR, p.6).

Taking into consideration the structural elaboration that makes a PLC a particularly focused and professionally run meeting (compared to usual and rather informal meetings), there is a further level of improvement and professionalization towards an efficient exchange that quite a lot of the papers sketch. Figure 4 shows the main areas in school for which results of PLC-work is has been experienced (and is supposed to contribute to)

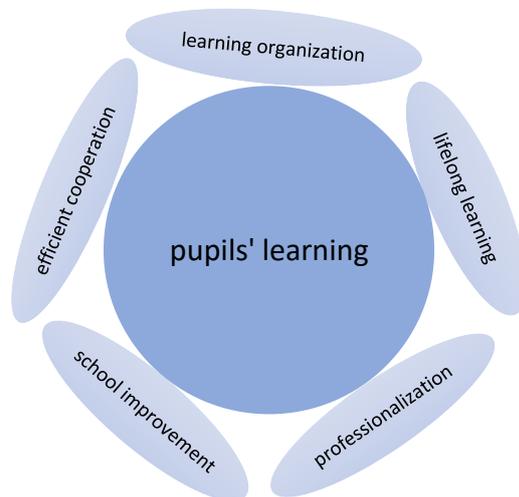


Figure 4: Areas of expected results of PLCs

8 Requirements for Successful PLCs

In the papers we reviewed there are constant reports of successful PLCs, and along with them the requirements for successful PLCs. We acknowledge that this is partly due to our focus on the literature research, but also partly due to the characteristics of the international PLC literature.

One important aspect of success that we have found is to give PLCs time to develop (or a group to become a PLC). When time is mentioned, it is not only meant in a temporal dimension but also in the sense of working hours applied for in-service training as engagement in personnel development to establish PLCs as job requirements and not as activity in the spare time. Along with it, sometimes papers recommend showing appreciation for this innovative engagement that members of PLCs show (Austria NR, p.4).

Another important aspect is to make sure members of a PLC get to know and cooperate based on an efficient structure. That concerns time aspects as much as keeping the focus during a meeting and planning developmental changes over a longer period with an action plan (Spain NR, p.7; Norway NR, p.5)

Further requirements relate to the internal engagement in and external support for a PLC as much as the sense of a tight relationship in the developmental activities to the actual classroom work of the teachers (or leading job of the heads). Overall, some general conditions for a successful operation of a PLC are put together in the Greece NR (p.13):

- *to be organised as a voluntary, collective educational experience*
- *to have a direct relationship to the educational work and teachers' needs/issues that are meaningful to them*
- *to be school-based, however supported by different people*
- *to be focused and systematic*
- *to make available an easy-to-use online platform for the encouragement of knowledge sharing and communication*

All NRs state that there should be a general supporting framework in the single school but also around its context like the level of the school district: to initiate PLCs, to stabilize them during the establishment

process, and to connect the innovative impulses of a single PLC to the surrounding system(s). As framework requirements, the authors throughout the reviewed papers mentioned, for example, smart job division in schools with a smart teaching timetable, that allows cooperation times. Furthermore, there are structural aspects mentioned like providing meeting rooms or technical support. Moreover, recommendations are about materials to structure the exchange well and to provide new learning, as much as to care for and include experts from a wider network (Greece NR, p. 11; Austria NR, p.5). By naming these requirements, the authors give quite some responsibility to school leaders in most of the papers throughout the international discourse as we show in Figure 5 below.

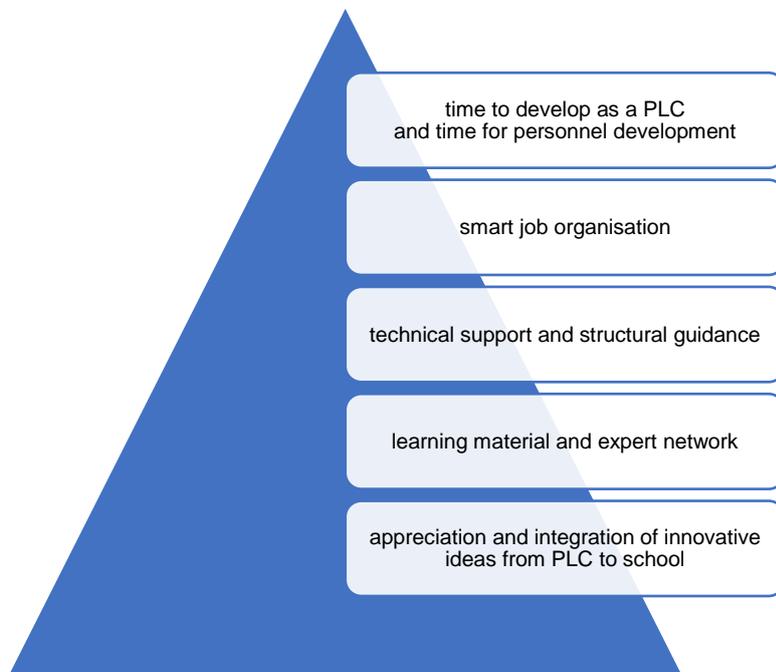


Figure 5: Requirements for successful PLCs

9 Multiple Roles of the School Principals for PLC Activities

In the international leadership literature school principals or school heads are seen as change agents because their influence on school development and improvement is widely proven (e.g. Acton, 2021). This perspective appears again when we summarize the perspectives of the reviewed papers. All NRs identify different roles of the school head when it comes to professionalization and school improvement through PLCs. Lately, the leadership approaches focus even more on the idea of pursuing school development by focusing on the learning side of the school staff and setting up specific structures for collegial learning (Tulowitzki & Pietsch, 2020).

We could systemize the findings about the importance of leadership in the NRs chronologically along the steps of initiating, implementing, and enhance PLCs. But with our interest in exploring the literature regarding leading and facilitating PLCs and especially inquiry and reflection processes within a PLC, we have identified activities of school heads that address more the leading task, running the school, being responsible for the overall good school work and others that address more the facilitating part, stabilizing people in their engagement for professionalization and good teaching.

The main similarity across the NRs is viewing the school leader (head) in their function to structure school work and collegial cooperation towards a reliable, stable, and engagement to contribute to the development of the school. This includes activities of the leading person (and sometimes explicitly leading team) that strengthen coherence and trust in the school and lead to setting up structures for a learning culture. The expectation also includes leadership activities that not only structure settings but also raise the quality of communication (Spain NR, pp. 8-9). The Cyprus NR (p.6) underlines that school leaders should live their leadership in a shared approach in order to contribute not only to single PLC work but also to an overall learning culture.

Effective leadership depended on trust which was essential for developing, sustaining, and expanding PLCs as well as connecting to the broader idea of school leadership in an educational framework. Tipping and Dennis (2022) explored how shared leadership contributed to forming PLCs by discussing its role in building a positive school culture nurtured through trust generated by leaders' actions and interactions. Their focus on flexible school leadership especially during Covid-19's challenging period demonstrated the importance of adaptability in leadership for supporting student learning outcomes and educators' professional development.

Thought to be familiar with the idea of the learning organization, school heads are supposed to be visionary, empower the collaborative dynamics, and promote decisively, next to other learning-oriented approaches, PLCs. School heads mainly hold in their hands the power to ensure some of the requirements like the supporting framework which allows enough time for PLCs to establish and elaborate and count the engagement as working time (not spare time, see above). Capacity building should be one of their main goals and is part of one of the main leadership responsibilities, namely the personnel development. For this task initiating learning arrangements is foreseen (Greece NR, p.8).

School heads are well-bonded into a network where experts can be found and asked to add new learning to the PLC exchanges. Also, school heads' structure work plans and are responsible for the architectural development of a school (e.g., can take care of team meeting rooms).

In the Spain NR (p.11) three dimensions of effective school leaders that cover the mentioned expectations well are put together:

- *Trustworthy leadership: Both headteachers in the study by Krichesky (2017) are acknowledged to inspire trust and, at the same time, they trust their teachers. This generates a virtuous circle of high expectations, support, and mutual help. They build a climate of trust that encourages teachers to deprivatize their practice, implement innovative strategies, and lead projects.*
- *Exemplary leadership: Both headteachers model the school culture they want to promote through being themselves an example of behaviors, attitudes, and verbalizations that illustrate the values and the actions they want to foster.*
- *Sustainable leadership: The needs of the school are prioritized within the parameters of what is possible so that improvement projects are viable and promote the well-being of the participants.*

We also detected that PLCs of school heads are seen in relationship of accountability to the district or school authority. Ensuring progress in the service of better pupils' learning is not only an expectation that school heads and teachers are professionally confronted with, but explicitly a strong request by the school supervision (Austria NR, p.16).

We furthermore identify that PLCs of school heads are related to the particular leadership model 'distributed leadership' which often is synonymous with the idea of shared leadership. Hardly any paper explains how they understand this quite variable leadership model (see papers in Strauss & Anderegg, 2000), but the main aspects mentioned are the following: There needs to be a scope of decision for the single teacher about the fitting of the joint teaching development and what is necessary for the respected pupils. A smooth merging of single PLCs' innovative impulses to the overall school development needs to be secured. PLCs need to have a speaking person (who sometimes is the leader of the group) and connects one PLC to the others for that reason.

In the Austria NR, we find the previous expectation put together into four main perspectives (p.16):

Warwas et al. (2019) emphasize the importance of school leaders supporting school PLCs as facilitators. According to the authors, successful support services must be provided on several levels; in their synopsis of relevant research, they were able to identify four effective support strategies:

- *Creating favourable conditions for the organization of work, such as providing time and space resources, relieving administrative tasks, etc.*
- *Creating working conditions such as trusting communication within the group*
- *(Micro)political interventions in the sense of shared leadership*
- *Monitoring and feedback on both content and group dynamics.*

At the same time, it becomes obvious that it is not easy to distinguish when core leadership activities turn into activities that we view as facilitation. We detect, though, that the school leaders' role in some papers throughout the countries turns more concisely towards engaging as a facilitator when activities like the following are expected: being well-informed about issues of school improvement and more successful teaching – almost like (scientific) experts or in-service trainers (in the Norway NR is quoted that school leaders are not the ones to know it all and therefore need to call external experts, p.11). They also are brought into play when it comes to providing tools or supportive actions, activities that we will present in more details in the next chapter. In some papers, school heads become part of a PLC and then they mostly act as the leader of a single PLC.

Throughout the papers, in addition to the more traditional school leadership role, we find it helpful to distinguish between being an outside helper of the PLC (the facilitator) and being an inside member with the moderating role in a PLC (the leader). In any case, the motivational power is often on the school leader's side, and he/she is furthermore expected to assist PLCs adaptively in their group work and development, according to their particular needs. That includes that they empower that the PLCs address school practical challenges as much as they are to help when a PLC faces challenges in members' cooperation. With Figure 6 we differentiate the roles of the school leaders for PLC-related development mentioned in the papers.

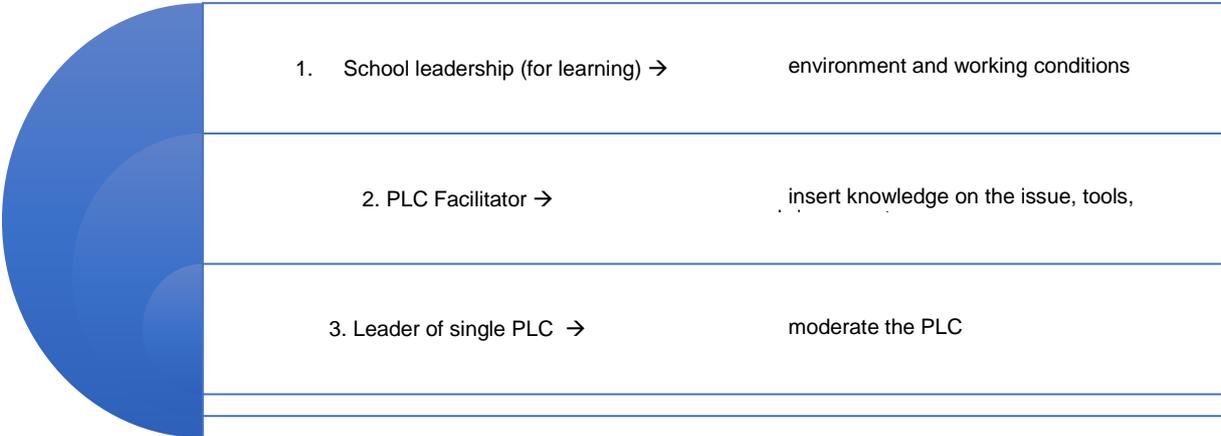


Figure 6: Roles of the school leaders for PLC-related development

10 Facilitation of PLCs

Regarding the facilitation of a PLC, there is no clear number of activities in the international literature, but quite some range of people and tasks with one main characteristic: to support a PLC. Some papers only mention that facilitation by a person or support structure is beneficial without any proof or further information, others list detailed activities that carry out facilitation. Additionally, from an overall perspective, we also noticed that facilitation is not always explicitly linked to our focal interest of inquiry and reflection.

Some papers see facilitation already done by structuring PLC meetings well or motivating members when the PLC faces demotivating challenges either in the PLC dynamics or about the practical teaching (leading) issue. Others talk about providing tools and material that serve either the progress in PLC work (e.g., SWOT analysis for meta-reflection) or learning about the issue (professional readings). Some papers seem to expect or point out clearly that the facilitation secures transformative processes. That can include feedback given from the facilitator to the PLC on the issue or the PLC dynamics.

Within the list of responsibilities of a facilitator that the Greece NR (pp.8-9) puts together, there are further aspects that show a more detailed picture of the activities. Here facilitation also addresses better communication within opposing discussions:

...creating a climate – even artificial – of cooperation between teachers, through the normalization of their disagreements/conflicts and highlighting the points where it could be a convergence of opinions and actions, giving information and to some extent educating the participants through informal forms of education on key issues for the continuation of the intervention...

Throughout the NRs, several papers can be found that expect from whatever facilitation there is to get PLC members familiar and well-engaged in the usage of empirical data, data interpretation, and data-based development (e.g. Cyprus NR, p.3).

Occasionally we found the expectation that a facilitator connects PLC-work with other forms of in-service training. In Figure 7 we give an overview on the main activities of the facilitation we found.

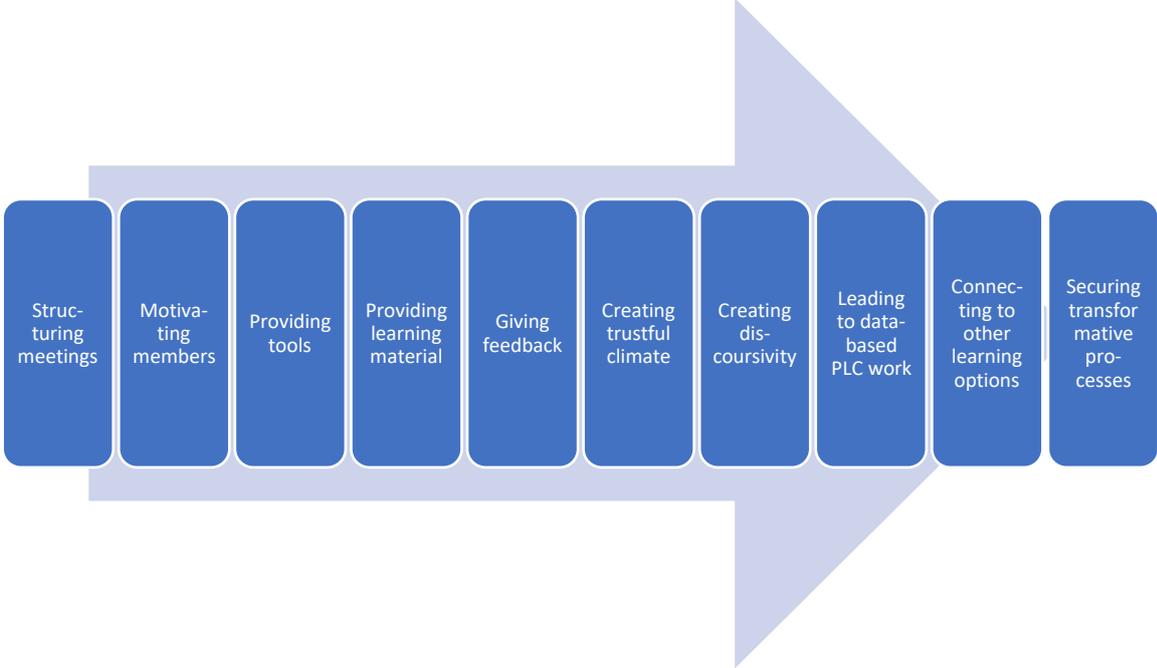


Figure 7: Activities of the facilitation

As we pointed out already, facilitators may include school leaders, external colleagues from other schools, or staff from the in-service training institutions in the region. Sometimes even colleagues from the same school function as critical friend facilitators. Additionally, facilitators in a lot of papers are members of universities since a lot of findings come from exploring projects in cooperation with partners from universities. Finally, in some papers, the facilitators are members from different school authority levels (e.g. Spain NR, p.8). Figure 8 gives an overview.

Along with the different actors from different areas of the particular educational system who can take the role as facilitators, there is hardly any discussion of the potential factor of hierarchy besides the support issue.

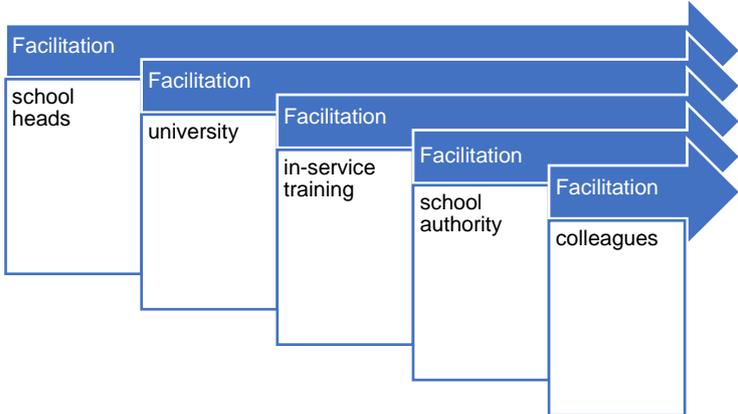


Figure 8: Potential facilitating actors

Hardly ever we found a distinct description of how a facilitating person approaches, interacts, or plans the PLC processes or the cooperation in the PLC. We also don't know about time dimensions or practical doings. Also, we hardly know about how the facilitating people are financed. Since a lot of papers state experiences from project settings and cooperation with universities we assume that facilitators bring in their working hours from their employment situation and are not paid extra.

In some cases, there is specific funding for school improvement initiatives by the school system (e.g. Germany NR, p.11) or the institution (university) (Spain NR, pp. 3-4) which means, facilitation is given as a specific resource for several months. Lastly there is the notion of facilitation by colleagues from the staff who serve each other as critical friends. This arrangement is probably without any funding (Spain NR, p.5).

Of interest to us but hard to cover is, whether school heads engagement for PLCs somehow gets covered by extra resources or is being done within their job.

Although facilitation is highlighted across all NRs there is little information about detailed competencies facilitators should have. Summarizing the expectations, facilitators should have knowledge about the topic of school development/improvement, system thinking and skills for networking, PLC development, and about team building and moderating groups which includes knowledge about communication and efficient cooperation.

In the Greece NR (p.9), we find a list of skills that can be found in cluster in Figure 9:

- *be able to promote collaborative creation of learning as well as self-directed learning*
- *know how educational change occurs*
- *develop honest and trusting relationships with teachers*
- *cultivate a trusting and cooperative climate among teachers*
- *be able to introduce or discuss tools for inquiry and reflection with teachers*
- *be flexible to adapt to the setting and conditions*
- *be firm in the accomplishment of the PLC aims*
- *be available for personalized support, if needed*
- *be receptive to teachers' comments*
- *gradually build teachers' autonomy and empowerment of their roles in the PLCs*
- *research the course of actions/processes and reflect to make decisions that adapt to the specific learning context*
- *collaborate with the head teacher or/and external school experts*
- *if an asynchronous or distant learning process is entailed in the PLC, adequate knowledge of platforms as well as how to promote distant learning is required.*

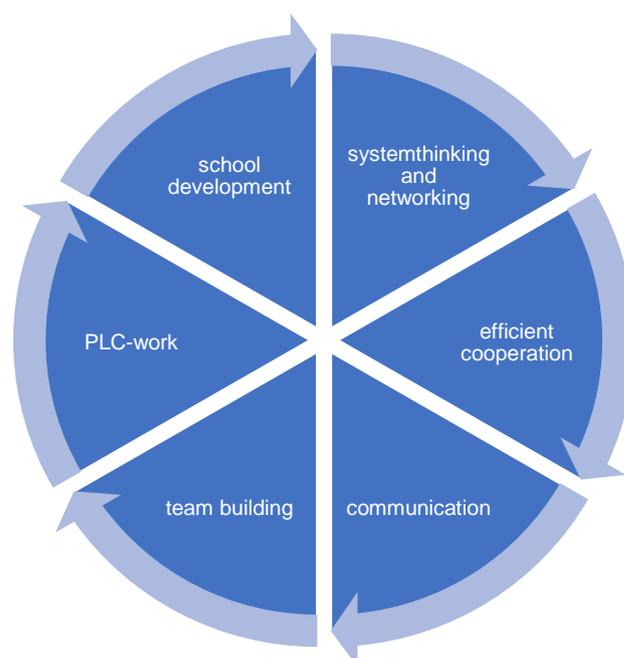


Figure 9: Skills that the role of a facilitator requires

11 Challenges a Facilitator faces

Firstly, we have to state that all tasks facilitators are expected to perform can be challenging if circumstances are unclear, if they are badly equipped, or if PLC members are not well-engaged. Only a few papers mention particular challenges or obstacles.

In a few cases, authors pointed out the need for a good and trustful relationship between facilitator and PLC members and that should be characterized by equity and a professionally engaged but distanced attitude from the facilitator's side. Additionally, it is expected that a facilitator is capable of stepping back and leaving the floor to the PLC members and their exchange. The idea is to help, not to dominate the group work, thus the facilitator is expected to keep a critical distance from the situation and be clear about his/her role.

The Germany NR (p.10), referring to Malone & Smith, 2010, draws attention to the possible field of tension of facilitation that leads others to reflect on their practice critically affects professional autonomy, also that a facilitating person might not be suitable for all members of a PLC. This can lead to a possible imbalance of power and might cause tension:

At the same time, the Irish article raises awareness of the fact that personal conflicts with the critical friend providing advice can also arise due to different power relationships and that this can be mitigated by changing the leadership role.

Through a few papers we learn that a challenge for the facilitator can be that theoretical inputs must be really suitable for the PLC members' needs in order to be accepted. He/she also faces the very sensitive situation of how to address and challenge single members within a joint progression – one of the few aspects that we define as a link to heterogeneity. The balance he/she has to hold is visualized in Figure 10.

Following Margalef (2011) and Margalef & Pareja Roblin (2016), the Spain NR systemizes three main strategies a facilitator should follow next to the overall coordinating and organizing tasks (p.10): group work strategies, knowledge-building strategies, and reflection strategies. The papers we reviewed also differentiate when facilitation is done with more experienced and advanced PLCs. Then it *“becomes more focused on tasks and related to creating learning contexts...”* (ibid.)

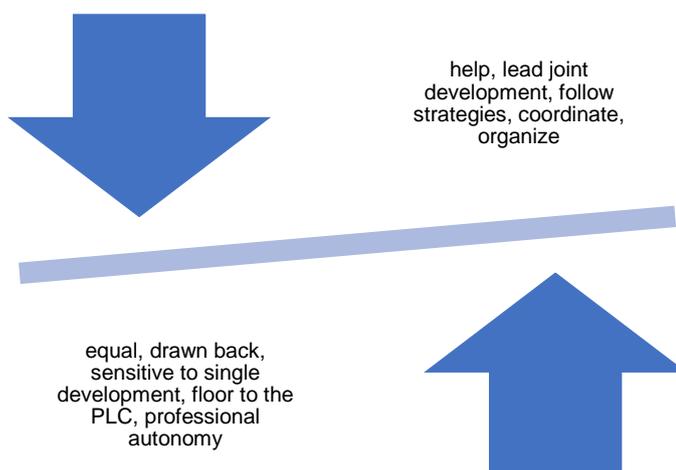


Figure 10: Balance a facilitator may hold

12 Leading PLCs by Members from within the Group

In our former PLC-exploring project *HeadsUP – Heads Using Professional Learning Communities* (see Manual HeadsUP⁵) we got to know the idea of a person from within the PLC who leads the group. Thus,

⁵ <https://sites.google.com/site/plcheadsup/deliverables>

we also inquired about ideas of that kind of facilitation as internal lead or moderation of a PLC. There was hardly any distinct information though about this particular role and little possible expectations or needs on how to fill it out.

A few times this internal role was mentioned in the context of having not only supporters to the inside but also speakers to the outside for example when PLCs had to be connected to the project lead in cooperation projects with universities. In the Germany NR, quoting Oppi & Eisenschmidt 2022, we recognize a helping understanding of that role (p.12):

This function and person "surrounds the PLG with a three-step process: (1) she analyses what was successful in a PLG and what needs improvement, (2) she then takes care of the professionalization of the deepening (reading) and ensures that everyone brings something to the group from this preparation and (3) clarifies the responsibility for the meeting design, decides who will take over the moderation in the meeting, to be stringent in terms of time and to involve everyone" (Oppi & Eisenschmidt, 2022, p.7)

The Cyprus NR which covers papers from the US literature also mentions a so-called 'teacher leader'. The role though was mainly connected to ideas that have already been presented about school leaders and the particular concept of distributed leadership; e.g., being supporters, empowering staff, helping to build up a positive social climate, and providing structure for learning groups. In a few papers we detected the idea that the school head is part of the PLC and then also the moderating or leading person in the group (see above).

This position that resembles a 'middle management' can also be found in the Austria NR (pp.11-12):

As already mentioned above, Bonsen and Roff (2006) refer to various roles within and outside the PLC such as the head teacher as a coordinator from the outside and the head, or spokesperson of the PLC as a form of middle management from the inside. Buhren (2020) also speaks of the head teacher or another moderating or guiding person (specialist advisor; process facilitator; expert) who supports the PLC process as a facilitator.

Next to the mission to secure enough time to discuss and to help the group to keep up the motivation we found in a paper (Greece NR, p.9) that if the school head is the leader of the PLC he/she is supposed to have the necessary content knowledge and share the discussion on the topic. We also found a more critical aspect in the Norway NR (p.8) that being a leader from the inside and at the same time participating partner can have disturbing effects. Figure 11 lists the roles of the internal teacher leader of a PLC.

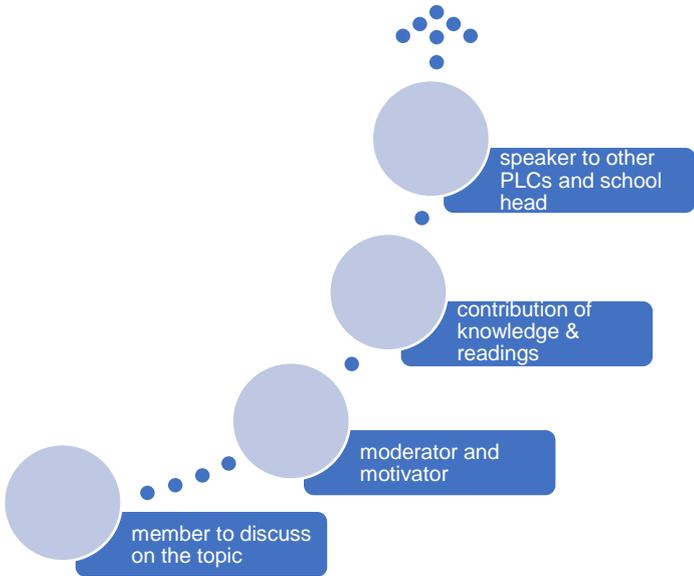


Figure 11: Roles of the internal teacher leader of a PLC

13 Establishing PLCs and Challenges PLCs face

In some papers of the Cyprus NR and the Greece NR the authors underline the importance of facilitation on the one hand to start a PLC and on the other hand to maintain a PLC over a longer period. The establishment benefits from a facilitating person who takes care of a supportive environment, leads the group into processing after agreed on structures (meeting 'rules'), provides protocols, study plans, media, and tools for communication, interaction, and serious exchanges and helpful documentation.

The challenges we learn about derive from structural aspects like the lack of time and resources and from missing aspects of quality in the exchange. When it comes to time, there is a lack of time to develop and promote innovation if the period to collaborate in a PLC is only a few months. Learning, trying out something new, reflecting, and revising takes time that some PLCs are not given because of the circumstances of a project setting or because facilitation is not secured for a longer period.

We also identified the lack of openness to more challenging ways of exchange, and missing skills to exchange critically but in a supportive way. In the Norway NR, referring to Korsager et al, 2023a, is stated (p.7):

In some of the studies, it emerges that some PLCs struggle to make progress in learning and development, because they are unable to promote critical reflection. They struggle to critically reflect and think in teams, rather than unilaterally exchanging experiences. In further education content of modules and structure guided the teachers' conversations and contributed that the professional learning community didn't becoming a place of unstructured conversations, simple exchange of ideas, or helping to reinforce established attitudes and habits rather than developing practice. Still, the module wasn't enough to promote critical reflection and constructive conversations.

Also, we found the challenge that teachers first need to build up innovative perspectives and be open to necessary change in practice.

In the Greece NR, a long list of detailed aspects can be found that gives an overview of challenges. Clustered they can be systemized to the following dimensions (p.12):

- (1) Structural challenges which derive from missing school structure, lack of supportive leadership, or short duration of the program as much as missing external support, funding, or in-service learning opportunities. They also detect that *"non-permanent school staff affect the possibilities for a school to operate as a PLC"* (p.12.).
- (2) School culture and school climate stand against successful PLC work [...] because of mistrust, tensions, limited joint commitment and limited engagement in learning groups as much as *"Teachers' reluctance to exchange visits for mutual peer observation..."* (p.12.).
- (3) Lack of the necessary knowledge to engage in PLCs which in turn challenges not only teachers as possible PLC members but also school leaders.

Figure 12 shows categories of challenges for the establishment of PLCs.

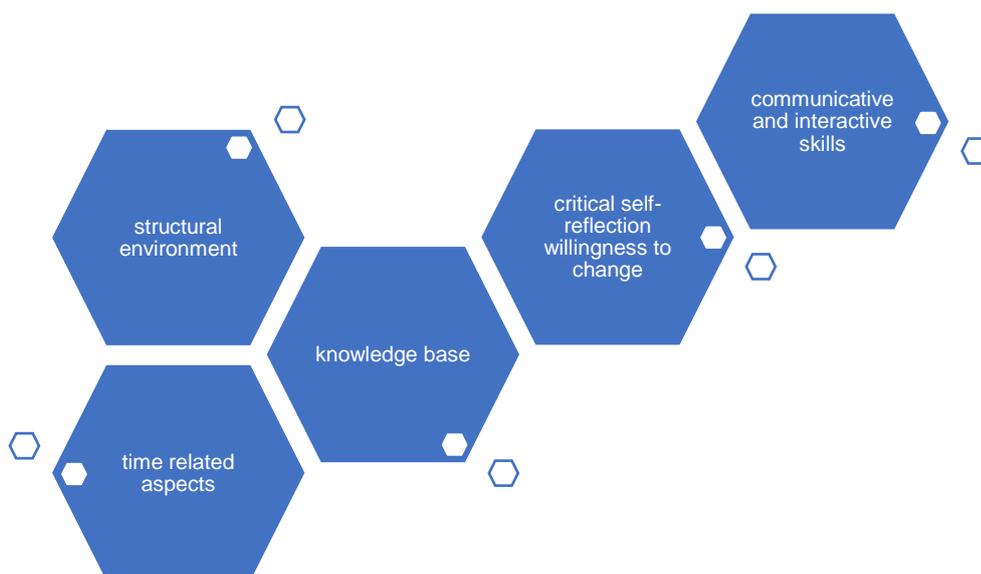


Figure 12: Challenges for the establishment of PLCs

Next to drawing back on help by suitable facilitation, as the Greece NR (p.12) suggests, we find the suggestion in some of the papers that the school staff should be led into PLC activities by their school head serving first with deep insights into the benefits of a PLC. Also, the school head could promote their voluntary participation by providing the opportunity to choose the PLC members and support adaptively each group separately. Finally, the school head is supposed to provide the opportunity that those teachers who got into the PLC inform the other colleagues about their gains by practicing PLCs.

14 Reflection in PLCs and about PLC-work

Two important considerations arise regarding how the concepts of reflection and inquiry are addressed in the reviewed papers. Firstly, when these two concepts are mentioned, there is often a lack of clear differentiation between them and how they relate to each other. Secondly, although reflection is often mentioned as a consequence or a process implied in teacher collaboration in PLC or PLC-like structures, there is often an implicit assumption that everyone understands its meaning, yet the model or understanding of reflection and inquiry is often lacking. In most papers, despite the fact that reflection is portrayed as something that happens during teacher meetings, the content, direction, and support of these reflective discussions are not clearly specified. At most, some papers reference to the concept of the reflective practitioner by Schön (originally from 1983), as found in the Austria NR (p.9), when they authors point out the idea of PLCs as being islands of reflection:

This is though in accordance to a reflective dialog in the sense of the "reflective practitioner" according to Donald Schön (2016), which results in the continuous development and improvement of teaching practice. Reflection also characterizes the process of collaboration within PLCs and is a key element for the accompanying monitoring and development of teaching practice.

Reflection is often combined with the requirement of trust and openness. It is expected as an activity that marks professionals and lies within their professional responsibility. As PLC members should turn their reflection focus on both, the quality of exchange within the PLC and the quality of their teaching.

Additionally, it is worth mentioning that the reviewed papers contain valuable tools and strategies aimed at fostering reflection. For instance, collaborative discussions among teachers who observe each other's teaching, consultation, and feedback sessions, and external expert assistance are highlighted as

effective methods. Some papers also suggest that structuring reflection can be facilitated through documentation methods, such as learning portfolios or reflective journals. Figure 13 shows aspects of how reflection in PLCs can be promoted.

In the Austria NR (p.7) there is, as further findings from the reviewed papers, the expectation set up that reflection is pursued also with links to scientific knowledge and the social systems around.

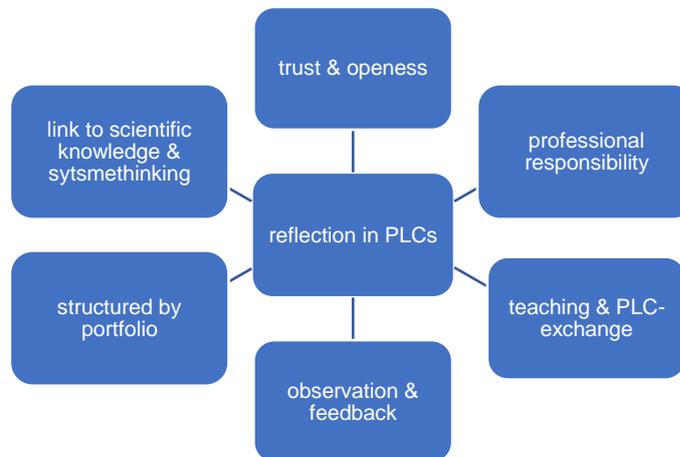


Figure 13: Aspects of how reflection in PLCs is promoted

Whereas several ideas can be collected throughout the countries on how to promote reflection about practical issues in a PLC, little is said about reflective processes in the sense of meta-reflection. In the Norway NR (p.9) we find a critical hint that PLCs need to reflect not only on the teaching issues but also on their communication – which can be seen as a suggestion for meta-reflective activities.

15 Inquiry in PLCs

In some NRs, there is a greater emphasis on inquiry compared to others. For instance, the NR of Spain highlights a lack of attention to inquiry in most of the reviewed papers. However, this report also recognized the handbook edited by the Ministerio de Educación (2028) of Ecuador as a detailed and comprehensive account of how reflection and inquiry are integrated into their PLC model. A quote citing Pino et al. (2018, p. 20) reveals this strong association between the two notions:

Collaborative inquiry is a type of collective and participatory research focused on the professional practices of teachers and headteachers, whose purpose is to understand and improve teaching and learning processes. Collaborative inquiry, as a methodology, offers important advantages when it comes to promoting the articulation of collaboration and network learning, as dialogue that mobilizes people's convictions must be promoted so as to improve and innovate teaching-learning processes. These dialogues must be translated into concrete actions, which go from school networks to classrooms and vice versa, so that these actions serve as the basis of reflective processes with a pedagogical orientation, with a focus on teaching and learning processes. This means moving from an individual improvement to a systemic improvement.

As requirements to pursue inquiry successfully, some authors mention trust and respect between the members of a PLC and mutual encouragement to follow a deepening path to understanding. another requirement concerns self-run and democratic decision-making possibilities and identification of issues to turn to for the innovation of one's own practice. We understand that some papers expect engaged inquiry processes along with moments of autonomy and equality.

Inquiry relates to capacity building of the teaching staff, and goals of inquiry range from understanding the practical situation and its context in order to do planning for a revised teaching or, if it is a PLC of school heads, leading. Gaining knowledge before decisions for development are made is significantly underlined in a lot of the papers that address this PLC quality. In the Germany NR "joint reading" (p.4) is one possible approach to it.

The Cyprus NR explains the concept of inquiry (p.5):

According to Nelson et al. (2008), inquiry in PLCs is a collaborative ongoing process involving teachers mutually negotiating understanding. To improve teaching and student learning, this approach entails a critical examination of perspectives, co-constructing understanding, and engaging in meaningful dialogue.

Quite often papers also refer to evidence-based decision making and emphasize collecting data or reviewing data. Sometimes the inquiry process is lined out as a specific cyclic process in which data analysis and interpretations are set at the beginning and again at the end once the new practice has been applied and needs to be evaluated for success. Some papers seem to have a typical research cycle in mind when they claim for inquiry. Then the logic of a research design marks the beginning of the reflective processes which in a few papers is also connected with the idea of a theory-driven development process. Thus, inquiry in some papers starts with the expectation of a research question that leads the whole exploration. In the Norway NR inquiry is also related to the individual needs of the teacher (or leader) who participates in a PLC. Referring to Bratseth, 2018, Korsager, 2023a and Nordahl & Hansen, 2016, they state (p.6):

... the participants plan practice changes after inquiring into their own practice, and then plan, implement, and evaluate. This refers to trying out new measures in their teaching and then participating in collective reflection on the results afterwards, also based on data. In short – in the studies it is emphasized that teachers must work with learning objectives that they themselves have helped to select; the learning objectives must be based on their own development needs...

Resources to work with can be audio- or videotaping one's practice, gathering data about pupils' results, observation of PLC members' practice, and systematically covering experiences in modes of a portfolio, e.g., by semi-structured learning plans. In the design phase, an action plan can be included, as we learn from a paper in the Greece NR (p.6). The action plan, on the other hand, is also a tool that structures the developmental goal achievement, as the Spain NR lays out (p.7). The Norway NR calls it a 'teaching plan' (p.8).

Furthermore, suitable methods can be complemented like lesson studies which are proposed in the Austria NR (p.6), or methods of self-evaluation as the NR Greece (p.4) suggests.

Lastly in the Germany NR, following Johannesson et al. (2022, p.415) quoting Kemmis, McTaggart, and & Nixon 2014, we find the inquiry approach connected to the concept of action research (p.8)

Among the many approaches to action research, the one undertaken by the teachers in this study could be best described as classroom action research, which is defined as 'involv[ing] the use of qualitative modes of inquiry and data collection by teachers (often with help from academic partners) with a view to teachers making judgments about how to improve their own practices' (Kemmis, McTaggart, & Nixon 2014, p.11).

In the Norway NR (p.8) we find the recommendation that there should be support for a productive inquiry process and adequate data analysis. This is for two reasons that we find occasionally across the NRs: on one hand some papers detect that real inquiry processes are seldomly done in PLCs and on the other hand the teaching staff might not have the necessary skills. As we indicated above, using data productively for development is, once again, a supportive job of the (external) facilitator.

In a wider understanding, the learning-oriented collaboration can, as we find in the Austria NR (p.10), benefit from monitoring PLC processes, also taking under inspection how well reflections and inquiry are pursued in PLC exchanges. The wide range of influencing factors and conceptual aspects of inquiry in a PLC is stated in Figure 14.

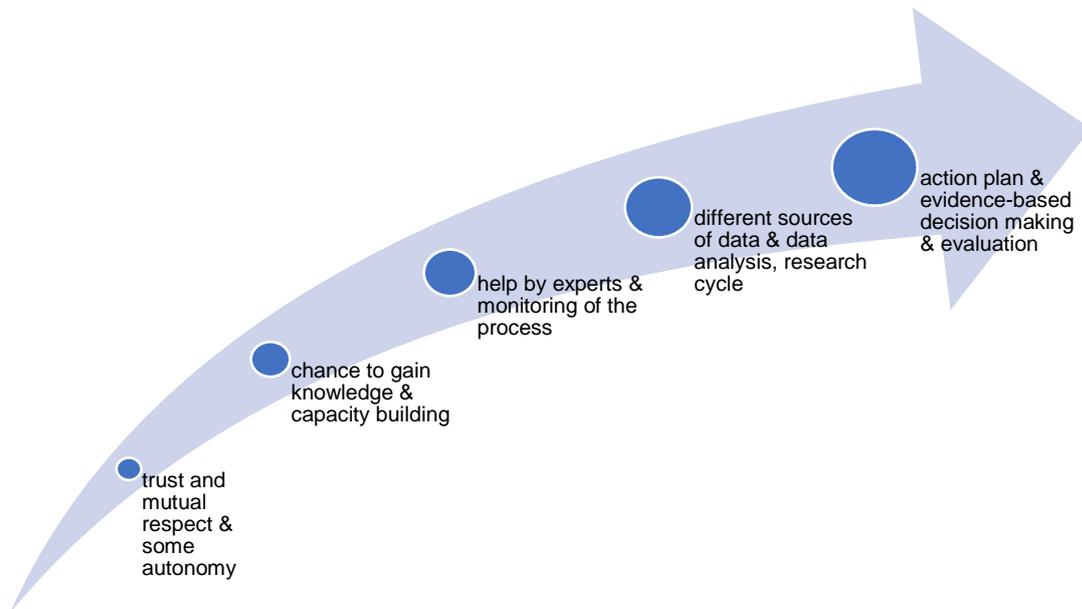


Figure 14: Influencing factors and conceptual aspects of inquiry in a PLC

16 Topics of PLCs

Across all NRs, there is only a vague discussion about challenges in school practice, better teaching, or school improvement which leaves open issues that are in the centre of the PLC exchanges in the reviewed studies. It is indirectly or directly said that there is always a link to better learning and development of pupils, but rather seldom aspects are named in detail. In the Greece NR we find a specific challenge of better school described: to help avoid dropouts (p.7).

According to the goal of new learning in a PLC we find suggestions how to promote: by a design-based research approach and the concept of self-/and peer-evaluation, or how to use data to come to founded decision-making. The topics of PLCs on behalf of new learning are clustered in Figure 15.

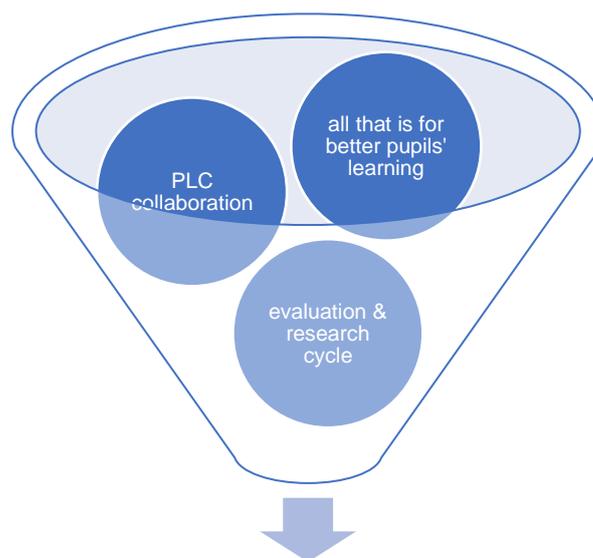


Figure 15: Topics of PLCs on behalf of new learning

17 The Role and Expected Activities of the PLC Members

The typical approach of the PLC-based discourse is to talk about the concept, its environmental setting, and structural aspects as much as personal options of support. The PLC members are supposed to practice an engaged and open-to-learning attitude. There is hardly any further information.

Only in the Greece NR, we find a list of expected doings of PLC members (p.11, here numbers with reference to sources left out):

- 1) *participate in meetings and undertake actions of decision-making, planning, and evaluating their work based on dialogue and negotiation,*
- 2) *collaborate in several processes:*
 - a. *decide about the focus of the PLC, about research or design tools to use, about their practices, and also present their practices to other colleagues*
 - b. *collaborate in the design of teaching or be involved in co-teaching*
 - c. *collaborate in peer observations*
- 3) *be involved in some kind of inquiry*
- 4) *support each other with comments, suggestions, and proposals*
- 5) *take part in in-service teacher education which they shape according to their needs and contexts*
- 6) *be expected to reflect on their practice.*

Figure 16 shows the expected activities of the PLC members.



Figure 16: Expected activities of the PLC members

18 Aspects of Democracy and Heterogeneity in PLCs

Our review also investigated aspects of democracy and heterogeneity in PLCs. Explicitly pointed out, there were only a few findings. The papers we chose to review rarely referred to categories of differences. In one paper, we learned about the challenge a facilitator faces. There is the hint that he/she has to be aware of a sensitive situation and how to address and challenge single members within a joint progression (see above).

The Spain NR refers once to the idea of democracy by pointing out that democratic processes can be seen as one requirement for successful PLC work (p.9):

One source (Mellado Hernández et al., 2020) reports that PLCs were more likely to succeed when they focused their work on pedagogical issues and manage to develop democratic and

challenging learning environments, with strong principles of trust and mutual respect for learning.

19 Summary and Conclusion

The international literature we reviewed and the subsequent NRs giving an overview of the specific findings according to the guidelines highlight the following main aspects:

- The importance of collaboration and its success lies in the learning opportunities influenced by structural factors, interpersonal group dynamics and facilitators'/leaders' competencies, and how much the quite sophisticated PLC concept (new learning and innovation of practice in schools) is pursued.
- All this is reported with tight links to the debate of school improvement and professionalization always in service of pupils' learning and well-being at school. Here PLC-like activities are seen as one of the main methods to succeed.
- The high estimation of PLC work that we identified in the examples of European and US literature is more often drawn out of qualitative research design and less inferential statistical approaches that control the pupils' learning results.
- PLCs are promoted and explored as an option for different collaboration groups of professionals within a single school and across schools and other educational institutions such as pre-schools. The PLC-concept is also applied to the professionalization of school leaders and university staff.
- The important and multiple roles of school leaders are emphasized across all NRs. In the range of facilitating actions are engaging in developing a learning culture in school, providing time and resources, and support single groups in their processes.
- The need for a competent facilitation by professionals who (except when it comes to school heads), join from outside is an overall request.
- The information of leadership within a PLC is limited, whereas the importance of the connection among PLCs for joint school development and improvement is underlined.
- Facilitation is widely described in tasks whereas partly in competencies, less information is available on time dimensions, financing, or preceding training.
- There is some information about certain activities and tools to apply in a PLC (action plan) or combination of methods (lesson studies). And we learned PLCs may be equally well run online.
- PLC members are supposed to practice a reflective exchange about practical issues with the goal to realize innovation. Obstacles for the transfer into practice are not described, except for the lack of time and support, and now and then lacking skills of the PLC members.
- We learned very little about expected equity and democratic, except that facilitation has to be very thoughtful not to cause asymmetric relations and that teacher leaders need to get familiar with their exposed position.

In conclusion, we identify as main lacking aspects in the international discourse on PLCs and the particular area of facilitation we reviewed:

- limited information about detailed processes in a PLC and what exactly to do to handle the challenges and answer to the needs of PLC participants
- limited insights into how facilitators develop their competencies, whether there is any kind of training and what they exactly do when accompanying the PLCs, and when and how
- no sufficient distinction(s) and definition(s) of the possible moderator and/or the leading PLC-member who facilitates
- limited information about the tools and processes that enhance PLC members' reflection on their practice and lack of information about the orientation and types of reflection
- little information about how inquiry supports reflection and transformation of practice in a PLC

- collaboration is mostly described in terms of the exchange of ideas, plans, etc. but without detailed descriptions of how collaborative learning is enhanced and constructed within a PLC

Overall, except for the Spanish handbook, which includes a clear explanation of the interrelation between reflection and inquiry within PLC collaboration and provides a rationale delineating how reflection and inquiry contribute to the establishment and success of PLCs, the remaining sources refrain from addressing either their conceptualization of reflection or the presence and function of inquiry within PLC collaboration and reflection.

Since the LeaFaP project is focusing on the development of “Leading and Facilitating Professional Learning Communities” the international review acknowledges the necessity to expand the concept and the description of possible practical activities to support Leading and Facilitating PLCs.

The oncoming activities in the LeaFaP project will include the development of a conceptual framework that basis on this scientific International Report and by scientific information collected from focus group interviews about perspectives of people who practice or facilitate groups.

A further result will be a compilation of learning outcomes (knowledge, skills, attitude) which will be structures as a model of competencies. Thereafter the project team will engage in developing activities and training for practice.

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21 Authors and their Experiences Facilitating PLCs

The partners of the project consortium collaborate together for quite some years. Each of them has worked on aspects of PLCs in their scientific work and some have also facilitated groups practicing PLCs in schools, universities or pre-schools. These preliminary experiences led to the LeaFaP-project.



Katja Kansteiner is a Professor of educational science at the University of Education/Pädagogische Hochschule Weingarten (Germany). One of her fields of research is school leadership and personnel development. For three years now, she has facilitated student PLCs at the university every semester during the phase of their internship and additional student PLCs in other educational science courses. Furthermore, she has moderated and facilitated over a longer period of time two PLCs of pre-school leaders and their substitutes, and two PLCs combined pre-school teachers, leaders and school teachers. She says “It is very satisfying when people try out the specific collaboration along the characteristics of a PLC and experience their benefit.”



Elvira Barrios is an Associate Professor of English Language Didactics at the Faculty of Education of the University of Málaga (Spain). Together with language education, her research interest focuses on the role of reflection in teacher education and on collaborative teacher development processes. Over the past three years, she has been actively involved in fostering and investigating student-teacher PLCs and in presenting her experiences at international conferences. Currently, she is engaged in mentoring junior university instructors, coordinating an innovation project aimed at exploring student-teacher PLCs in the context of the school placement, and providing support to in-service teachers and leaders in establishing and maintaining PLCs.



Loucas T. Louca is a Professor of Science Education at the European University Cyprus. He has a longstanding interest in supporting professional teacher development. He has been involved in several nationally and EU funded projects focusing on student thinking in science, teacher professional development, professional learning communities, development of curriculum materials, promoting opportunities for gender balance in science education, STEM education, and promoting inquiry-based teaching and learning in science. Since the years of the pandemic Louca engaged in setting up and working with online-PLCs not only in schools or with student teachers but also with university staff in the educational department and beyond. He is familiar with diverse ways of evaluating PLC activities, events and digital usage.



Sofia Avgitidou is a Professor of pedagogy and teacher education at the Department of Philosophy and Education, at the Aristotle University of Thessaloniki (Greece). One of her main research interests is the support of teachers' professional learning through research, reflection and collaboration. She has supported as a facilitator a PLC of early years and primary school teachers for eighteen months with the aim to promote democratic, inclusive and participatory educational practices within a programme for the education of foreign and repatriated children, a PLC of mentors who supported student teachers during their practicum for one year, a PLC of early childhood education teachers in the pedagogy of play and a PLC of teacher educators. She says: “Inquiry of our practice and especially of our students' opinions/proposals is a precondition for our reflection as teachers and a basis for informed design of practice.”



Katharine Rümmele is a lecturer of educational science at the Institute for Primary Education and Learning Development at the Vorarlberg University of Teacher Education/Pädagogische Hochschule Vorarlberg (Austria). In addition to inclusive education, her research interests include the professionalization of teachers and student-teachers through participation in PLCs. For three years, she has been part of a research group that tests and evaluates the implementation of PLCs in the training of primary school students. In this context, she moderates and leads student-teacher PLCs within their internship at schools. Furthermore, she initiated, accompanied and evaluated student PLCs as a form of collaborative cooperation within the "Inclusive Pedagogy" specialization.



Anne Berit Emstad is a professor of educational leadership and head of innovation at the Norwegian University of Science and Technology (NTNU). She has extensive experience from the field of education in the municipal sector, but has since 2008 taught and researched in the field of leadership development, school development, cultural school and teacher education at NTNU. Since 2015, Emstad has worked with the development of PLC at leadership level in education. She herself has facilitated and led principals' PLC, but she has also supervised facilitators and managers of leadership-PLCs in both primary and secondary schools, kindergartens and cultural schools. Based on her own research, she has published a book on "learning leadership and the development of PLC"; which forms the knowledge base for all the participants in the PLCs she works with.



Eva Frick is vice rector for educational science and development at the university of education Vorarlberg, Austria. She is also a professor for early childhood education and primary education at the department of primary education and learning development. Her research interests lie, additionally to quality of interaction between pedagogical staff and children, in the field of professionalization of student teachers and PLCs. She has moderated and facilitated student teachers PLCs (S-PLCs) at the University for four years. In the context of research in the field of PLCs she is part of an international research group concerning the implementation of S-PLCs in the teacher training and development of a framework to support the collaborative work of students.



Gregor Frirdich is an academic assistant in educational science at Weingarten University of Education. His research interests lie in school development, heterogeneity and the professionalization of teachers. He is a project member of the FuN-Kolleg "Heterogeneity in Primary Schools" with a dissertation on the establishment processes of PLCs in the context of school development with a view to the management of PLC work (structure and implementation). He himself accompanies PLC meetings of a school leadership team and teacher teams as an external moderator. He summarizes, "PLCs offer a new perspective on thinking school development together".



Konstantina Iliopoulou works as special teaching and laboratory staff at the School of Philosophy and Pedagogy of the Aristotle University of Thessaloniki (Greece). She has a long experience as a teacher educator both in initial and in-service teacher education and is a member of the Centre for Research and School Support in issues of Management and In-service Education (KERYSD). Among her main research interests are the areas of teaching language, intercultural education, initial teacher education and professional learning. She has published books and articles on team-teaching practices as a means to encourage teachers working in mono/multicultural classes to cooperate, discuss their problems and learn to enhance their practices. Over the past two years, she has been involved in fostering student-teacher PLCs in the Greek context of secondary education. Currently she facilitates a student PLC at University during the phase of teaching practice at schools.



Kristina Joos is a master's student in Early Childhood Studies at the University of Education/Pädagogische Hochschule Weingarten (Germany). During her internship, she was involved in a PLC project and accompanied and researched two PLCs (one consisting of preschool leaders and one consisting of preschool teachers, leaders, and school teachers). In her master's thesis, she would like to gain insight into whether participants in PLCs are able to successfully transfer the knowledge they have gained into practice. She says: "PLC offers educators the opportunity to collaboratively explore substantive issues rather than just focusing on organizational issues."



Bård Knutsen is associate professor of science education at the Norwegian University of Science and Technology (NTNU). He has extensive experience from primary and lower secondary school, both as a teacher and principal. Knutsen has been employed at NTNU since 2007, where he teaches science education. He has been involved in and led major school development projects, and his research interests include school development and professional learning communities. In recent years, Knutsen has been involved in the development and guidance of PLC at leadership level in many upper secondary schools and a student PLC in teacher education. He also

participates in a PLC for researchers in teacher training. He describes the work as inspiring and educational.



Carmen Sanchidrián Blanco is Professor of Theory and History of Education at the University of Málaga. Her current research interests focus on inquiry learning in teachers' training/education and on new ways of teaching, learning, and presenting changes and continuities in the European History of Education. Her main teaching and research interests are the Public History of education, initial and teachers' professional learning. Over the past ten years, she has been actively involved in several Erasmus+ projects fostering and investigating initial and in-service teacher education and professional learning, and in presenting her experiences at international conferences. Three of those projects aimed at exploring leaders, teachers, and student teachers PLCs in the context of the school placement.



Theodosios Sapounidis is an assistant professor of Educational tangible technologies and educational robotics at the Department of Philosophy and Education, Aristotle University of Thessaloniki and teaches courses related to educational technology, STEM, and educational robotics. For many years, during his courses, he has facilitated student-PLCs at the university every semester to use the technology during the internship phase and in general in their career. Moreover, he moderates and facilitates one PLC group of Ph.D. candidate students and one larger PLC group of in-service teachers during a master's degree. For the Ph.D. candidates PLC group, he supports participants in the design and analysis of data as well as in collaborative writing of research articles. Similarly, in the in-service teacher PLC group he introduces participants to new technologies which he encourages them to use in the classroom and share their experience with others. He says: "It's amazing to see how easily a teacher describing a positive experience, may influence other teachers who are hesitant to try something new".



Mónica Torres is an Associate Professor of Educational Science at the Department of Theory and History of Education the Faculty of Education of the University of Málaga (Spain). In addition to vocational education and training, her research interest focuses on the professional teacher development. Over the past two years, she has facilitated student PLCs during the internship phase and investigated the role of the collaborative and communication processes. Currently, she is participating in a innovation project lead by Elvira Barrios aimed at exploring student-teacher PLCs in the context of the context of the school placement.



Peter Theurl is a Professor of educational science and Head of the *Department of Primary Education and Learning Development* at the University of Teacher Education Vorarlberg (Austria). One of his fields of research is professional development. For eight years now, he has been leading and facilitating student PLCs at the university every semester during their internship and additional PLCs of Mentors and Headteachers. He also leads a PLC of Faculty at his University. He has established PLC work in the curricula of his institute at the University and is currently leading the development of a new curriculum for both the Bachelor's and Master's programs with a special focus on the implementation of PLCs in various fields of study.



Sabine Welther is an academic employee in the field of educational science at the University of Education Weingarten (Germany). Since 2020, she has been working as a collaborator in several research projects on PLCs. The focus is on making the implementation of PLCs accessible to different groups of people from educational institutions (day-care centers and schools) and conducting accompanying research. In addition, she has run a course about PLCs for first-semester student teachers, where they work on their own practical problems and topics in PLGs. She says: "You have to try out professional learning communities for yourself and then realize - PLC is where professionalism meets community!"

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