

# Leafap

## Literature Review on Leading and Facilitating Professional Learning Communities – in the German Speaking Area



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## 1 Introduction

Since the 1990s, professional learning communities (PLCs) as a cooperative form of work have been a widespread and recognized instrument for school and classroom development and for the professionalization of teachers, initially in the USA and Canada, but now also in German-speaking countries (Bonsen & Rolff, 2006).

This report is the result of a comprehensive and systematic literature search for specialist literature and studies on the management, moderation and support (*facilitation*) of PLCs and PLC-like cooperation formats in German-speaking countries. The search engine "Google Scholar" and three other databases (SpringerLink; Ebsco Academic Search Elite; DACH-Informationen) were used for the research. To ensure a thorough investigation, a combination of keywords was used. These keywords include "professional learning community", "leadership", "facilitator", "moderator", "leader", "spokesperson", "coordinator", "initiator", "reflective practice" and "inquiry".

The research revealed that, within the German-language literature, many studies deal with the impact and benefits of PLCs in general, but very little data is available that focuses specifically on the management, support and monitoring of PLCs. The initial phase of the research focused on the "classics" of German-language PLC research. Works by *Bonsen & Rolff (2006)* and *Buhren (2020)* were given particular consideration. These sources offer general insights into the conditions and effectiveness of PLCs through meta-analyses and our own studies. They also provide recommendations for implementation. A recurring theme in these studies is also the role of leadership, management and support, especially from the school principal. However, they do not provide any new, empirically supported data on the relevance of these aspects.

The expansion of the research also revealed that the focus on leadership and management within the PLC as well as on *facilitation* from outside is still a very under-researched area in German-speaking countries. For this reason, two Master's theses by student teachers (Reichly, 2022; Türtscher, 2022) were also included in the report. Finally, the selected literature was analyzed and excerpted using pre-formulated key questions. This report first addresses the general understanding of PLCs and the framework conditions under which the PLCs in the analyzed articles were initiated and carried out. A special focus is placed on research-based learning and reflection as the core of the CPC work. The main part of the report deals with the external and internal support of the PLCs through various leading, advisory, moderating or coordinating roles, with particular attention being paid to the school management. Finally, it is shown to what extent a connection can be established in the analyzed sources between the management and support of PLCs (by the school management) and the concept of the school as a learning organization.

## 2 PLC understanding and framework conditions

### 2.1 General conditions and objectives of the PLCs

The founding of the PLCs as part of the *KidZ Vienna project* was initiated and supported by the Vienna University of Teacher Education. The main purpose was to promote network-based teaching development at the participating schools. Teacher teams at the individual schools formed PeLCs (Professional e-Learning Communities, hereinafter referred to as PLCs), and in addition, Cluster Learning Communities (PCLCs) were established for cross-school collaboration, in which the coordinators of the respective school PLCs participated. The objectives of the PLCs included the development and improvement of teaching, the promotion of exchange and collaboration, and the enhancement of teaching quality through reflection and joint planning (Steiner, 2017).

In the article by *Stegmann et al. (2022)*, PLCs were set up at three secondary schools as part of the *DigitUS project* as a pilot study to facilitate the digital transformation of STEM lessons. The PLCs consisted of a multiplier, subject leaders and teachers from the mathematics and biology departments,

the school management and the school's system support team and comprised between five and seven people. The main activities of the PLCs consisted of continuous research and improvement activities with a focus on the digitalization of STEM teaching. This form of teacher collaboration was intended to promote the effective implementation of innovations and demonstrably support positive effects on student learning. The PLCs served as a means to promote this cooperation and at the same time enable the professional development of teachers. A specific aim was to explore the extent to which trained multipliers could replace intensive collaboration with science representatives and promote work within PLCs. The PLCs were supported by the multipliers over the six-month period, with the primary aim being for the PLCs to continue their work beyond the duration of the project.

In *Reichly's* master's thesis (2022), the foundation of the PLC was initiated by the school management, which was looking for a meaningful opportunity for internal further training. The decision in favor of a PLC (in connection with *Lesson Studies*) was made because the school management was intensively involved with forms of cooperation in the teaching team and the topic of working in professional learning communities as part of a university course in school management. The PLC work should aim to strengthen pedagogical competence through the exchange of experiences, in particular to offer support to young teachers. It should focus on strengthening the music department at the school and promote change processes and the development of effective learning concepts for pupils. PLCs should also enable fast and cost-effective internal training to increase the professionalism of the teaching staff. In addition, PLC work should support team building, enable collegial feedback and further development of one's own teaching reflection in order to promote both methodological competence and a positive school culture.

*Türtscher's* master's thesis (2022) deals with cooperation at so-called small schools in Tyrol. The focus is on self-directed forms of cooperation within the school, between the school and the local kindergarten and with other small elementary school in the region as part of a PLC. The PLC in the small school network arose from the desire for closer cooperation between small elementary school. The foundation was initiated when several small schools from the district contacted a school quality manager to form a school alliance. This association later developed into a PLC. In this way, a framework was to be created for a short-term exchange on current topics in the school partnership. The main aims of the PLC were to develop joint projects, improve teaching practice and promote school quality. The value of mutual exchange and collegial support was emphasized, especially for dealing with current issues and challenges that arise in their respective schools.

PLCs are seen as a suitable tool in the various contributions because they are based on cooperation, joint goal setting, reflective dialogue, continuous professionalization and the exchange of best practices. These elements contribute to the development of a learning-promoting culture that improves the quality of teaching and school development as a whole (Stegmann et al., 2022; Steiner, 2017; Türtscher, 2022; Warwas et al., 2019).

PLCs in conjunction with *Lesson Studies* have proven to be particularly suitable for achieving school development goals in the master's thesis of *Reichly* (2022). PLCs promote the development and change of subjective attitudes, perspectives and patterns, which is essential for breaking up traditional systems and initiating school development processes. A positive relationship between school management and teachers, as promoted in PLCs, also increases the willingness to learn and enables development. It also increases the likelihood that teamwork will be perceived as enriching. With PLCs, lesson content and methodological approaches can be further developed in a sustainable way, which has a positive effect on the school climate and school development. 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 (Reichly, 2022).

In the context of cross-school small school PLCs, PLCs were seen as an appropriate vehicle as they provide a platform for professional development, idea sharing and collaborative problem solving. Members valued the opportunity to hear different perspectives and expand their own views. PLCs

allowed specific needs of small schools to be addressed and promoted collaboration and professional growth (Türtscher, 2022).

## 2.2 Existing management and support structures

*Bonsen and Rolff* (2006) assign the school management the role of initiating PLCs and supporting them in the sense of facilitation (symbolically and organizationally). Their tasks range from the creation of timetable requirements (time resources) and organizational relief to coordination with the (internal) PLC spokespersons or heads via target agreements and the necessary coordination and agreement in the case of several parallel school-internal PLCs (creation of a coherent system). For larger schools with several PLCs, it is also suggested that coordination is not carried out by a single person, but by a PLC steering group.

In his overview article, *Buhren* (2020) also emphasizes the role of the school principal in initiating/establishing PLCs at the school site by introducing the staff to the PLC format in a general input and continuing to work with interested teachers. In this context, it assigns the school management an external mediation and support task, for example in an advisory capacity or in the form of relief (support; credit for PLC work as further training). Finally, PLC-experienced colleagues could subsequently act as multipliers/facilitators for other PLCs. In connection with the effectiveness of PLCs, *Buhren* (2020) points out in his meta-analysis of various PLC studies that a leading role as support in the establishment of PLCs and a moderating role as support in reflection are extremely useful. External expertise can also enrich the PLC process with knowledge, provide new impetus for reflection and support goal orientation:

*"We also experience many positive findings about L-PLCs where ... external partners are involved, promoting, developing, accompanying, evaluating. They provide moderating or expertise-enriching support or stimulate the exchange of further methods. This underlines that the impact of L-PLCs benefits from support in terms of feeding new knowledge into the PLC and making the process more goal-oriented."* [translation] (Buhren, 2020, p. 44)<sup>1</sup>

Based on school leadership research, *Warwas et al.* (2019) provide a systematic overview of school leadership support measures for PLCs, identifying four support options that are suitable for keeping PLCs effective and able to work over a longer period of time. (1) Creating favourable work organization conditions, (2) Creating working climate conditions, (3) (Micro)political interventions such as recognition of the professional expertise of PLC members and involvement in internal school decision-making and design issues, (4) Monitoring and feedback.

The school management or another external person who moderates or provides guidance can fulfill the following functions as a facilitator: Moderation as support for the course of the discussion; support with organization and implementation; provision of planning and process templates; management of the PLC if support and/or decision-making power of a manager is necessary; support with reflection (critical friend); mediation of network and cooperation partners; offering knowledge, materials and resources (Buhren, 2020).

In the *KidZ Vienna project*, too, the PLCs do not function in a grassroots democratic manner, but are continuously supported and coordinated within the school by the school management and a steering group as well as support from the Vienna University of Teacher Education. This is intended to create islands of reflection and to structure and visualize processes: *"Professional, process-oriented support helps to accompany innovation processes at the individual schools and transfer processes among the*

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<sup>1</sup> „Viele positive Befunde über L-PLGs erfahren wir auch dort, wo ... externe Partner mitwirken, werbend, aufbauend, begleitend, evaluierend. Diese leisten moderierende oder mit Expertise anreichernde Unterstützung oder regen den Austausch über weitere Methoden an. Dies unterstreicht, dass die Wirkung von L-PLGs von Unterstützung im Hinblick darauf profitiert, dass neues Wissen in die PLG eingespeist und der Prozess zielführender gestaltet wird.“ (Buhren, 2020, p. 44)

*schools in an advisory and coaching capacity*" [translation] (Steiner, 2017, p. 336)<sup>2</sup>. The process support consisted of structured support for the implementation of the PLCs and the overall process, advice and support for the PLCs at the individual schools, *"Professional Team Coaching"* for the PCLCs, the organization of exchange and networking opportunities, support for the reflective documentation/visualization of the processes at the schools and among the schools, and networking of the PLCs by PCLCs (Steiner, 2017). Advice and support at individual schools aims to optimize the team's learning and development processes and, as Table 1 shows, is divided into different phases:

| Phase       | Type of support  |
|-------------|--|
| Orientation | Support from school developers and e-learning didactics experts  |
| Analysis    | Schools' concerns are analyzed online by PH Vienna and support offers are developed from this (further training, team and school development offers within and across schools) |
| Contracting | The support package is finalized and confirmed together with the coordinator and school management   |
| Module      | Implementation of the support services   |
| Reflection  | Moderation of reflection and review, review of priorities and formulation of next steps  |

Table 1: Phases of support in the KidZ Vienna project (Steiner, 2017)

The cross-school PCLCs are supported by *"Professional Team Coaching"* and includes: the promotion of transfer-effective exchange, goal formulation and design of innovation processes; help with reflection; promotion of a resource-oriented perspective and communication; clarification and analysis of framework, goals, needs and resources. Finally, the teams are supported in the implementation and testing of innovation (Steiner, 2017).

To support the PLCs in theory- and evidence-based lesson development, the *DigitUS project* also trained multipliers from the "Digital Education" group of advisors to establish and promote PLCs and created an implementation guide for working in PLCs. The school management supported the PLCs by providing resources and internal school support and was also part of the PLC. Although the PLCs have elements of a grassroots democratic structure, there are also clear leadership and support structures aimed at ensuring the effectiveness and continuous improvement of the groups (Stegmann et al., 2022).

In *Reichly's* study (2022), the head teacher also acts as the coordinator or group leader of the core group. This role is crucial to the organization and leadership of the group, indicating that the PLC has a clearly defined leadership and support structure. This support structure also includes an external knowledge partner from the teacher training college who is seen as part of the PLC's inner circle.

In the cross-school small school PLCs researched in *Türtscher's* master's thesis (2022), the internal function of leadership and moderation plays an essential role. Each PLC meeting was led by the head teacher of the host school, who was also responsible for the invitations and organization of the meeting. A teacher from this school took the minutes. At the end of each meeting, the location and date of the next meeting was determined. This structure ensured that the meetings were managed professionally and purposefully. Again, it is clear that the leadership structure of the PLC, which was characterized by a facilitator or leader, enabled effective and focused work. This contributed to positive outcomes such as improved teaching practice and school development. The professional and well-organized structure of the PLC meetings was appreciated as it provided space for discussion, evaluation and professional development.

<sup>2</sup> „Eine professionelle, prozessorientierte Begleitung hilft, Innovationsprozesse an den Einzelschulen und Transferprozesse unter den Schulen beratend und coachend zu begleiten“ (Steiner, 2017, p. 336).

### 2.3 Inquiry-based learning and reflection (I & R)

According to *Bonsen and Rolff* (2006), teachers must be able to practice "reflection in action" and "reflection on action". This means that they must reflect during action and after action in order to master complex situations and improve their own knowledge and practice:

*"In order to master the complex situations of professional practice in a qualified manner, professional practitioners must have the ability to reflect in action. They must be able to reflect on the specificity of the developing situation and their own actions without stepping out of the flow of action. For full professional competence, this form of reflection ... must be supplemented by reflection on action (corresponds to our everyday concept of distanced reflection stepping out of the action) if a larger problem is to be solved or one's own knowledge is to be formulated in discussion with colleagues."* [translation] (Bonsen & Rolff, 2006, p. 180)<sup>3</sup>

Reflection is described as thinking about one's own actions, which increases awareness of one's own actions and their consequences. This requires constant professional dialog with colleagues - ideally data-based in the sense of an evaluation (Buhren, 2017). *Kansteiner et al.* (2023) describe the instrument of reflective dialog as equal-ranking communication with depth of content and a questioning of one's own practice in a research-based attitude. It is about reflecting on a data-based basis, including scientific findings in the reflection and, if necessary, obtaining expertise from outside: *"Expanding knowledge by adding scientific references (not just sharing experience), reflective and reflexive penetration of one's own practice (not just giving tips and locating problems with the students), reflecting on system and social references (not just making 'my teaching and I' the basis)." [translation]* (Kansteiner et al., 2023, p. 24)<sup>4</sup>

Teaching practice is not a private matter, but is openly or publicly discussed in PLCs about deprivatization as a basic condition. This sharing of professional uncertainty and the simultaneous use of colleagues as a source of insight and feedback serves the personal understanding of one's own practice and can be seen as a tool for research-based learning and reflection (Buhren, 2020; Steiner, 2017). In PLCs, new knowledge is generated through collaborative processes, mutual support and reflection on teaching practice (Reichly, 2022). *Türtscher* (2022) also emphasizes that reflection and research are an integral part of PLC meetings, where topics are discussed, evaluated and reflected upon. Members, especially teachers and, if applicable, the school management, carry out these processes and are actively involved in the reflection process. The leadership and management by the respective school principal or another leading or moderating person supports the I&R process by ensuring a structured organization and implementation of the PLC meetings. Outside expertise, such as guidance counselors, are also brought in to provide professional help and advice and to support the process of inquiry and reflection.

*Steiner* (2017) considers it an "important task of process-oriented support in the KidZ Vienna project ... to create islands of reflection" [translation] (p. 332)<sup>5</sup>. This is though in accordance to a reflective dialog in the sense of the "reflective practitioner" according to *Donald Schön*<sup>6</sup> (2016), which results in the continuous development and improvement of teaching practice. Reflection also serves to characterize the process of collaboration within PLCs and is a key element for the accompanying monitoring and

<sup>3</sup> „Professionelle Praktiker müssen, um die komplexen Situationen beruflicher Praxis qualifiziert zu meistern, über die Fähigkeit zur Reflexion in der Handlung (reflection in action) verfügen. Sie müssen in der Lage sein, auf die Spezifität der sich entwickelnden Situation und der eigenen Handlung reflektieren zu können, ohne aus dem Handlungsfluss herauszutreten. Für volle professionelle Kompetenz muss diese Form der Reflexion ... durch reflection on action (entspricht unserem alltäglichen Begriff von distanzierter, aus der Handlung heraustretender Reflexion) ergänzt werden, wenn ein größeres Problem gelöst oder das eigene Wissen im Gespräch mit Kolleginnen und Kollegen formuliert werden soll.“ (Bonsen & Rolff, 2006, p. 180)

<sup>4</sup> „Wissensausbau unter Hinzunahme wissenschaftlicher Bezüge (nicht nur Erfahrung teilen), reflektierendes und reflexives Durchdringen der eigenen Praxis (nicht nur Tipps geben und Probleme bei den Schüler\*innen verorten), System- und Sozialbezüge mitreflektieren (nicht nur ‚mein Unterricht und ich‘ zur Grundlage machen).“ (Kansteiner et al., 2023, S. 24)

<sup>5</sup> „wichtige Aufgabe der prozessorientierten Begleitung ..., Reflexionsinseln zu schaffen“ (Steiner, 2017, p. 332)

<sup>6</sup> Schön, Daniel (2016). *The Reflective Practitioner: How professionals think in action.*

development of teaching practice. Inquiry-based learning is implicitly represented by the engagement of teachers in developing both their own learning and that of their students. In the *KidZ Vienna project*, the process of research-based learning and reflection is supported by the University College of Teacher Education within different phases (orientation, analysis, module and reflection phase). The processes of PLCs and PCLGs are accompanied in a structured manner and the development of teaching quality and innovation processes are promoted. Overall, research-based learning in the PLCs is presented as a cyclical and cooperative process characterized by collaborative reflection and continuous improvement, with professional guidance playing a key role.

*Stegmann et al. (2022)* state that PLCs need support in the areas of research-based learning and reflection, especially in the initial phase, and that cooperation with representatives from the scientific community could be helpful here. The understanding of inquiry-based learning in this paper emphasizes the importance of continuous improvement and collective learning. Inquiry-based learning manifests itself through the active participation of all members in collaborative theory-driven research and practice-oriented application of new knowledge in the classroom. Reflection is encouraged through regular, reflective dialog and an open feedback culture. Teachers share experiences, discuss challenges and reflect together on their teaching. These processes enable members to learn from the experiences of others and continuously improve their own teaching methods. The *DigitUS project* uses various mechanisms to support and implement these concepts. Trained multipliers play a crucial role by guiding the research process, stimulating discussions and providing relevant materials. In addition, resources provided by the project and the involvement of external experts support PLCs in their efforts to effectively integrate inquiry-based learning and reflection into their practice.

In *Warwas et al. (2019)*, one of the support tasks for PLCs is to provide impulses for lesson development, for example in the form of content-related impulses, without intervening in detail in the PLC work. The authors explicitly mention initiating a reflective dialog about teaching.

*Reichly's* master's thesis (2022) explains several aspects of research-based and reflective knowledge generation in PLCs, especially in the context of *Lesson Studies*:

- The collaboration in the core team, characterized by mutual motivation and support, led to the testing and further development of teaching methods based on the teachers' own initiative and commitment.
- Each participant in the *Lesson Study* group contributed their perspective, interests and knowledge. The knowledge partner provided their professional expertise and thus contributed to the generation of knowledge.
- The knowledge partner motivated the core group to think intensively and provided new impetus through interposed questions in order to keep the reflection going.
- In addition to joint planning and reflection discussions, individual discussions took place between the group members, which complemented the dialogical relationships and interactions within the college.

The master's thesis of *Türtscher (2022)* focuses on the collaboration between schools within the small school network, whereby the PLC is seen as the core of the research. Inquiry-based learning is represented here by the joint exploration and adaptation of new methods and concepts within the group. This type of collaboration and collaborative learning could be understood as inquiry-based learning as it is a process where teachers learn through sharing, testing new approaches and reflection. Reflection is emphasized as an important part of PLC work. It is emphasized that joint evaluation, i.e. reflecting on the achievement of objectives and their implementation in practice, plays an essential role. These reflection processes are an integral part of meetings and professional development within the researched PLC.

### 3 General support of PLCs and supporting roles

#### 3.1 General support

As already described under point two, the school management has a special responsibility in the implementation and support of PLCs. It takes on organizational and symbolic tasks such as scheduling, coordinating several PLCs, agreeing on goals and providing resources to facilitate PLC meetings (Bonsen & Rolff, 2006; Buhren, 2020; Kansteiner et al, 2023; Reichly 2022; Steiner, 2017; Türtscher, 2022; Warwas et al, 2019). Within the PLCs, there are leaders or spokespersons who coordinate with the school management and act as "*middle management*". They are an integral part of the PLC and contribute to structuring and pursuing goals (Bonsen & Rolff, 2006). Kansteiner et al. (2023) also see the head teacher as a key support in various roles: leading role in the establishment of PLCs, moderating role as an aid to reflection and discussion, coordinating role (situational knowledge about the status/needs of PLCs) in several PLCs and as a facilitator from outside (promotion of PLCs through organizational support, factual suggestions, conducive conditions and the expansion of internal school participation rights). The same functions are also assigned to school leaders in the work of Warwas et al. (2019). School management can therefore be both: Facilitator from outside and moderator or leader within a PLC.

The *KidZ Vienna project* is an example of external support in which the Vienna University of Teacher Education provides network-based support, coordination, moderation and inter-school networking. This support includes general support (promotion of exchange and cooperation) as well as specific support steps in several phases (orientation, analysis, contracting, module and reflection) in order to offer the PLCs targeted and structured support. Thus, support for PLCs in the *KidZ Vienna project* is systematic and process-oriented, focusing on personal contact, context-related advice and the creation of opportunities for reflection. This support is designed to strengthen not only the individual school, but also the entire network of PLCs (Steiner, 2017).

Reichly (2022) mentions the *knowledge partner* as another support role for PLCs. This person plays a central role by helping PLC members to reflect on and improve their practice and by promoting appreciative attitudes. The integration of the lesson study method into the PLC can be seen as another form of internal support for inquiry-based learning and reflection (I & R).

The *DigitUS project* provides PLCs with a wide range of support to increase their effectiveness. Trained multipliers act as mediators between scientific knowledge and school practice, while extensive resources and materials support teachers in developing their teaching. In addition, external experts enrich the PLCs with specialist knowledge and new perspectives. School leadership plays a central role by providing necessary resources, offering structural support, and prioritizing and recognizing the work of PLCs within the school. This comprehensive support promotes continuous improvement and professionalization within the PLCs (Stegmann et al., 2022).

In Türtscher's master's thesis (2022), various aspects of supporting PLCs are presented:

- School leaders take on an important organizational role, which ensures the professionalism and structure of PLC meetings.
- Training sessions in which external experts are invited support professional development.
- Minutes of PLC meetings support the documentation and follow-up of discussions and decisions.
- The PLC sets objectives and records them in writing. This goal setting is a central part of the process and helps members to focus their efforts.

In summary, it is clear that support for PLCs in the small school network is provided both by people (especially principals and external experts) and by structured processes and tools (such as further training and record keeping). These elements contribute to the effectiveness of PLCs by promoting professional development, the exchange of experiences and the achievement of objectives (Türtscher, 2022).

### 3.2 Definition and differentiation of the various roles

As already mentioned above, *Bonsen and Rolff (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.

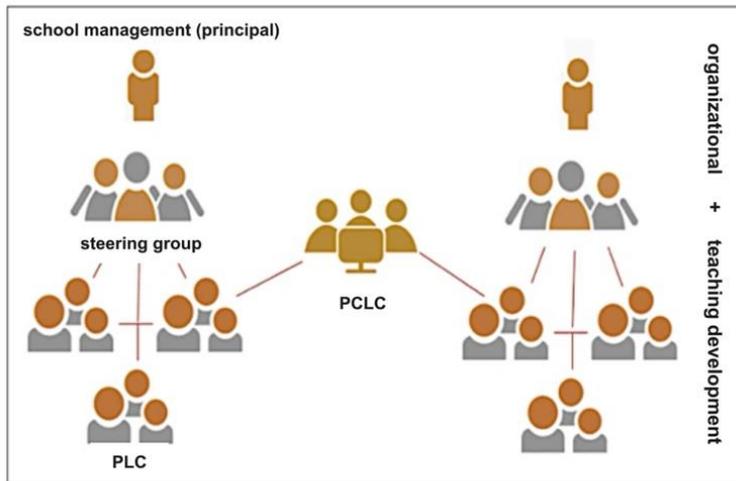


Fig. 1: PLC-PCLC architecture in the Kidz Vienna Project (Steiner, 2017)

Teams of teachers from various schools took part in the *KidZ Vienna project* and different project teams were formed as PLCs. The PLCs were supported by professional guidance (*coordination, moderation, support*), which created spaces for reflection, structured and visualized processes. The *school coordinators* in the professional cluster learning communities (PCLG) play the role of *"transfer agents"* who contribute experiences from the PLCs and organize the transfer of co-creative knowledge to their own school. In this sense, they act as *multipliers*,

whereby teaching-related innovation processes are particularly promoted by the school management and a *steering group*, which coordinate the innovation goals and support the innovation processes with appropriate structures (see Fig. 1): "A special role is assigned to the school management as a change agent for the coordination of innovation goals, the promotion of innovation processes with corresponding structures and the safeguarding of innovation results" [translation] (Steiner, 2017, p. 335 – 336)<sup>7</sup>

In the PLCs within the *DigitUS project*, there are a number of roles that are divided into internal and external actors. Internal roles include teachers and department heads who are core members who actively reflect on and improve their teaching. They are supported by multipliers who act as trained educational experts, leading discussions and introducing innovative methods. School leaders play a hybrid role by being an active part of the PLC while supporting it by providing resources and ensuring a supportive environment (Stegmann 2022).

Table 2 shows the internal and external roles that make up the lesson study PLC:

|  |  |
|--|--|
| <b>Core Group</b>                      | Consists of teacher A (young teacher who describes herself as inexperienced in music and is the class teacher of one of the two second classes) and teacher B (experienced teacher who teaches music in the combined second class). The head teacher is also part of the core team and takes on the role of coordinator or group leader. |
| <b>Knowledge partner</b>               | Teachers from the PH Vienna act as part of the inner circle of the PLC.  |
| <b>Pupils</b>                          | They are central to the PLC and ultimately everything revolves around their learning.  |
| <b>Peripheral (people on the edge)</b> | Teachers who teach in the researched classes.  |
| <b>Outsiders</b>                       | All other teachers and school staff.   |

Table 2: External and internal roles of the Lesson Study PLC (Reichly 2022)

<sup>7</sup> „Eine besondere Rolle kommt dabei der Schulleitung als Change Agent für die Koordinierung der Innovationsziele, der Förderung der Innovationsprozesse mit entsprechenden Strukturen und der Sicherung der Innovationsergebnisse zu“ (Steiner, 2017, p. 335 – 336)

| <b>Internal role (active participation in the PLG)</b>                          |   |
|---|---|
| PLC-member <sup>2 3 4 5 6 7 8</sup>   | - Cooperation in the PLC  |
| school management (principal) <sup>2 3 6 8</sup>                                | - Moderation for successful communication<br>- Leading/managing/coordinating the PLG meeting (in general or if the leader's decision-making power is necessary)<br>- Providing impulses for reflection (Critical Friend)<br>- Support in finding solutions  |
| coordinator <sup>4 6 7</sup>  | - Management and control of the PLG process<br>- Coordination with school management and/or other PLGs  |
| school coordinator <sup>5</sup>   | - Knowledge transfer from school-internal PLG to cross-school cluster learning community (networking/exchange of innovation)<br>- Transfer of co-creative knowledge (transfer agent)  |
| moderator <sup>4</sup>  | - Moderation as a discussion/reflection aid   |
| speaker <sup>2 3 6 7</sup>  | - Coordination with school management and/or other PLGs<br>- "middle management"  |
| leader <sup>2 3 6 7</sup>   | - Moderation, management/leadership of the PLG meeting<br>- Coordinate progress/activities; ensure target orientation   |
| minutes maker <sup>7</sup>  | - Recording objectives, agreements and meeting content  |
| knowledge partner <sup>6</sup>  | - Support/advice from specialist expertise, providing impetus for reflection  |
| multiplier <sup>8</sup>   | - Preparation, coordination and moderation of the meetings<br>- Professional expert and contact person  |
| <b>External role (external support, but no active participation in the PLG)</b> |   |
| school management (principal) as facilitator <sup>2 3 4 5 7 8 9</sup>           | - Initiate PLGs (bring knowledge about the PLG format to the teaching staff; encourage/support the establishment of new PLGs)<br>- Support them symbolically and organizationally (e.g. timetable)<br>- Coordinate and harmonize several PLGs (coherence)<br>- Send out invitations and organize meetings<br>- External advice/support for PLGs<br>- Assistance with organization/implementation (provide planning/process templates)<br>- Support in agreeing objectives and finding solutions<br>- Arrangement of network/cooperation partners<br>- Provide own expertise, resources or materials<br>- Manage, coordinate and support innovation processes (change agent) |
| (process) facilitator or consultant <sup>4 5 9</sup>                            | - Inter-school networking (promotion of exchange and cooperation)<br>- Clarification of goals and support needs, provision of resources<br>- Development of school-specific support services<br>- Support with reflection/evaluation<br>- Optimizing development processes in the team (professional team coaching)   |
| expert <sup>4 7 8 9</sup>   | - Bring in specialist knowledge/expertise from outside (input/training)   |
| subject consultant <sup>4</sup>   | - Contribute knowledge/expertise from a specific subject area   |
| multiplier <sup>4</sup>   | - Members of experienced PLGs<br>- Act as facilitators or multipliers for other PLGs  |
| steering group <sup>2 5</sup>   | - Coordination/coordination of several PLGs within a school<br>- Control, coordinate and support innovation processes   |
| <b>Hybrid role (active collaboration + external support)</b>                    |   |
| school management (principal) <sup>3 4 6 7 8 9</sup>                            | - Facilitator from outside and moderator or leader from within<br>- Dual role through responsibility for content and organization   |

Table 3: Internal, external and hybrid roles within a PLC.

<sup>2</sup> Bonsen & Rolff (2006)

<sup>4</sup> Kansteiner et al. (2023)

<sup>6</sup> Reichly (2022)

<sup>8</sup> Stegmann et al. (2022)

<sup>3</sup> Buhren (2020)

<sup>5</sup> Steiner (2017)

<sup>7</sup> Türtcher (2022)

<sup>9</sup> Warwas et al. (2019)

The PLC in *Türtscher's* master's thesis (2022) consists of four small elementary school, represented by their head teachers and two additional teachers per school. This composition remained fairly constant over time, apart from changes in the teaching staff of the member schools. The roles within the PLCs were clearly defined. Each head teacher took it in turns to chair the meetings and a teacher from the host school acted as *minute taker*. This ensured that all members were actively involved in the organization and implementation of the meetings. The PLCs were professional and well organized, with a clear structure for conducting the meetings. The focus was on discussion of common issues, evaluation and professional development. This structure enabled targeted and efficient collaboration.

In the contributions examined, the roles within the PLCs vary, with different terms being used to describe their functions. The school management takes on various roles, from leading to moderating to coordinating. They act both as a facilitator from outside with a focus on organizational and content-related support and as a moderator or leader within a PLC (Kansteiner et al., 2023). PLC spokespersons or leaders as internal roles are directly involved in the PLC and work closely with the school management. They contribute to internal structuring and coordination and represent the PLC to the school management (Bonsen & Rolff, 2006; Buhren, 2020).

The differentiation of roles is based on their positioning within or outside the PLC. Table 3 on page 11 provides an overview of the designations found in the sources analyzed and their classification into an external, internal or hybrid (dual role: internal and external) role.

### 3.3 Role of external support/leadership (facilitator):

*Bonsen and Rolff* (2006) make it clear in their article: *"If PLCs are to develop and have a lasting and sustainable effect, they need an institutional basis"* [translation](p. 181)<sup>8</sup>. This basis can and must be ensured by the school management or another supporting, external person.

Another important factor for the success of a PLC is the ability of PLC members to integrate new methods, content, materials and theories of action and to adapt their own teaching practice accordingly. This implies that PLC members need to support and encourage continuous change in teaching practice. *External support or guidance* plays an important role in supporting and promoting this adaptation process. For example, they act as a *multiplier*, transferring innovations and best practices and stimulating exchange between different PLCs. They also help to support the flow of communication between PLCs and to the college, thus promoting organizational development. If they are an external person, they work closely with the school management to create a supportive environment for PLC work (Steiner, 2017).

As already mentioned several times, the school management plays a special role in the PLC process by supporting, accompanying and advising it both from within as part of the PLC, but above all from the outside (Bonsen & Rolff, 2006; Buhren, 2020; Kansteiner et al, 2023; Reichly 2022; Steiner, 2017; Türtscher, 2022; Warwas et al, 2019). It is also their task, in the case of several school-internal PLCs, to coordinate and harmonize them. In the case of large schools with many PLCs, this task should not be taken on by a single person, but by a *steering group* (Bonsen & Rolff, 2006). In the KidZ Vienna project, the school management is also supported in this way: *"As middle management for organizational development, steering groups can support the flow of communication among the PLCs and, together with the school management, provide appropriate impulses and supportive framework conditions for the work in PLCs and among PLCs"* [translation] (Steiner, 2017, p. 328).<sup>9</sup>

<sup>8</sup> „Wenn PLGen entstehen und dauerhaft und nachhaltig wirken sollen, benötigen sie eine institutionelle Basis“ (Bonsen & Rolff, 2006, S. 181)

<sup>9</sup> „Steuergruppen können als mittleres Management für die Organisationsentwicklung den Kommunikationsfluss unter den PLGen unterstützen und mit der Schulleitung entsprechende Impulse und fördernde Rahmenbedingungen für die Arbeit in PLGen und unter PLGen bereitstellen“ (Steiner, 2017, S. 328)

After comparing various studies, *Kansteiner et al. (2023)* summarize the following points as useful for facilitation by school management:

- **Binding structural requirements:** Establishment and facilitation of conducive organizational, temporal and spatial structures.
- **Group composition:** Targeted consideration of the composition of groups, e.g. with regard to the participants' professional experience.
- **Methodological diversity:** Integration of different methodological approaches from the training pool to promote the learning process.
- **Openness of content:** Flexibility in the choice of topics and adaptation to current pedagogical developments and the needs of teachers.
- **Needs-oriented support:** Provision of process support, coaching and moderation, tailored to individual needs.
- **Integration or provision of external expertise:** inclusion of specialist knowledge through materials and external experts.
- **Conceptual process design:** development of a structured concept for the learning process (e.g. cycle of research-based learning or data-led exploration)
- **Training cooperation and communication skills:** Implementation of measures to improve cooperation and conversation skills.

*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.

In addition to the school management, other external persons can also support and accompany the PLC process and thus the effectiveness of the PLC as *(process) facilitators, consultants, experts and specialist advisors*. They help with goal setting and reflection, provide organizational support, contribute external knowledge in the form of specialist expertise, promote the ability to cooperate and support the PLC in process design. (Kansteiner et al., 2023; Steiner, 2017; Türtscher 2023).

In the *KidZ Vienna project*, the role of the *external facilitator* is also referred to as an *accompanying person or advisor* and includes the following objectives and activities:

- Implementation of PLCs and PCLGs
- Supporting the development of PLCs and PCLGs and the overall process.
- Advice and support for PLCs at the individual school.
- Professional team coaching of cross-school PCLGs, including the planning and rhythmization of transfer processes.
- Organization of exchange and networking opportunities.
- Support in the reflective documentation and visualization of processes at the schools and within the network.
- Creation of reflection islands and structuring of processes at various levels.
- Moderation of reflection afternoons and review of the (school) year's priorities.
- Promotion of a resource-oriented perspective and implementation of models of appreciative communication (Steiner, 2017).

The support is process-oriented and is adapted to the respective needs of the PLCs and PCLGs, which indicates that the role is handled flexibly in order to respond to the different requirements and contexts

of the groups (Steiner, 2017). The analysis of the data material with regard to the evaluation of the project showed:

*"... that the appreciation of individuals and their achievements through network-based support is important. The support of PLCs at the individual school through targeted, context-related team and school development offers is also emphasized and personal contact with the facilitators is seen as beneficial. An important task of process-oriented support is to create islands of reflection and to structure and visualize the processes at different levels" [translation] (Steiner 2017, p. 332)<sup>10</sup>*

In the article by *Stegmann et al. (2022)*, external support is primarily provided by the school management, which, however, is also part of the PLC in its hybrid role. It contributes significantly to the success of the PLCs by providing resources, organizational support and the creation of time and space for the PLC meetings. The school management sets priorities, promotes the recognition and appreciation of the work of the PLCs within the school and ensures that the efforts of the PLCs are in line with the general goals of school development. The *multipliers*, although coming from outside, are explicitly mentioned in the article as part of the PLCs and can therefore not be regarded as an external role in the narrower sense.

In *Türtscher's* master's thesis (2022), the school management has a dual role, on the one hand acting as an internal PLC member and on the other hand promoting PLC work at the school in its *external facilitator* role and providing the necessary framework conditions and resources. For this reason, the explicit role of external persons is mainly addressed in the context of further training and guidance. The external persons, such as *guidance teachers and experts*, are invited to provide professional help and specialist expertise and thereby support the members of the PLC in their efforts to achieve school and pedagogical improvements.

In the available literature, there are hardly any references to the skills that the external support or leadership of a PLC should have. *Kansteiner et al. [translation] (2023, p. 59)<sup>11</sup>* recommend an *"attitude of equality"*, a *"reserved habitus"* and *"a good sense of what type and extent of PLC management is appropriate at what times"* with regard to facilitation by leaders such as school principals. They cite skills in personnel management, pedagogical management, data management and administration as further necessary competencies.

### 3.4 Role of internal support/management

The contributions repeatedly refer to a *spokesperson or coordinator* as an *internal leadership* or support role. This role can be assumed either by the school management itself (as part of the PLC) or by a PLC member. In this role, the person usually works actively in the PLC, steers and manages the PLC process and coordinates with the school management and/or other school-internal PLCs (*Bonsen and Rolff, 2006; Buhren, 2020, Reichly, 2022, Türtscher, 2022*). *Bonsen and Rolff (2006)* see this role as a level of *"middle management"*. The *KidZ Vienna project* uses school coordinators who fulfill a similar function, whereby in the role of a *"transfer agent"* they are primarily responsible for the transfer of knowledge to the cross-school cluster learning community in addition to working in the school's internal PLC and are thus responsible for networking and exchanging innovation as *multipliers* (Steiner, 2017).

When a *PLC leader* is mentioned in the literature, they usually also have the function of the spokesperson/coordinator described above. In addition, it is their task to lead the PLC meetings, to

<sup>10</sup> „... dass die Wertschätzung der Personen und ihrer Leistungen durch eine netzwerkbasierete Begleitung wichtig ist. Ebenso wird die Begleitung von PLGen an der Einzelschule durch gezielte, kontextbezogene Team- und Schulentwicklungsangebote betont sowie der persönliche Kontakt mit den Begleiter/inne/n als förderlich eingeschätzt. Eine wichtige Aufgabe der prozessorientierten Begleitung ist es, Reflexionsinseln zu schaffen und die Prozesse auf den unterschiedlichen Ebenen zu strukturieren und zu visualisieren“ (Steiner 2017, S. 332)

<sup>11</sup> *Kansteiner et al. (2023, S. 59)* empfehlen im Hinblick auf Facilitation durch Führungspersonen wie Schulleitungen eine „Haltung von Gleichberechtigung“, einen „zurückhaltenden Habitus“ sowie „ein gutes Gespür, zu welchen Zeitpunkten welche Art und welches Ausmaß der Steuerung der PLG angebracht ist“.

ensure successful discussion and communication during the meetings through moderation, to keep an eye on the goal orientation and to coordinate the progress and activities of the group (Bonsen & Rolff, 2006; Buhren, 2020; Reichly, 2022; Türtscher, 2022). If the school management is part of the PLC, it consistently assumes this function in the analyzed literature. They also have the function of acting as a *Critical Friend*, providing impetus for reflection, supporting the group in setting goals and finding solutions, organizing regular meetings and sending out invitations (Bonsen and Rolff, 2006; Buhren, 2020; Reichly, 2022). The head teacher can also only become an internal part of the PLC at certain points, where they are only present when, for example, their power as a leader is needed for important decisions (Bonsen and Rolff, 2006). In the sources analyzed, there is little indication of whether the leadership role within the PLC is held by several people on a rotating basis or is constantly held by the same person. Only in the cross-school small school PLCs in Tyrol does the leadership rotate, in which the head teacher of the host school always takes over the organization and leadership of the meeting and a teacher from this school takes the minutes (Türtscher, 2022).

The *DigitUS project* highlights two key support roles within PLCs that act as internal support: *Multipliers* and the school management. *Multipliers* are trained teachers or experts who play a key role in the PLCs in that their central task was the preparation, coordination and moderation of the PLC meetings and they were available as a contact person (Stegmann et al., 2022). The *multipliers* introduce new pedagogical content and methods, lead the discussions and support the teachers in their continuous development and implementation of innovations in the classroom. Their role is crucial to strengthen the link between scientific research and practical application in schools and to ensure the quality of collegial collaboration. The analysis of the interviews showed that they also played a special role in the PLC feedback process:

*"The work in the learning communities, especially the mutual feedback, requires initial external support. The task of the multipliers is to encourage the members of the professional learning communities to exchange ideas and to reduce uncertainties in mutual feedback within the learning community until the participants become more experienced in their tasks"* [translation] (Stegmann et al., 2022, p. 264).<sup>12</sup>

In addition to their external role as a *facilitator*, the school principal also has an internal role within this project as a PLC member who, through his/her active participation alone, was able to show how important the work of the PLC is to him/her (Stegman et al., 2022).

*"Another aspect that could hinder the establishment of a PLC is a lack of prioritization by the school management. ... It is perceived as favorable if the school management is committed to dealing with the concerns and problems of the staff, tries to avoid them and, if necessary, mediates"* [translation] (Stegman et al., 2022, p. 264).<sup>13</sup>

In the master's thesis by Reichly (2022), the PLC is supported by a *knowledge partner* from the university of teacher education in the *Lesson Studies* integrated into the PLC. Similar to the multipliers in the article by Stegmann et al. (2022), this partner is also brought in from outside as an expert, but is nevertheless described as part of the *"core team"*, which means that he ultimately takes on an internal role. He has the task of collaborating in the PLC, advising the group with his technical expertise and providing impetus for reflection.

### 3.5 Challenges and difficulties

<sup>12</sup> „Die Arbeit in den Lerngemeinschaften, insbesondere das gegenseitige Feedback benötigen eine anfängliche externe Unterstützung. Die Aufgabe der Multiplikator:innen ist dabei, die Mitglieder der Professionellen Lerngemeinschaften zum Austausch zu ermutigen und Unsicherheiten beim gegenseitigen Feedback innerhalb der Lerngemeinschaft zu reduzieren, bis die Teilnehmenden routinierter in ihren Aufgaben werden“ (Stegmann et al., 2022, S. 264).

<sup>13</sup> „Ein weiterer Aspekt, der für die Etablierung einer PLG hinderlich sein könnte, ist eine fehlende Priorisierung durch die Schulleitung. ... Als günstig wird wahrgenommen, wenn sich die Schulleitung engagiert um Anliegen und Probleme des Kollegiums kümmert, diese zu vermeiden versucht und gegebenenfalls vermittelt“ (Stegman et al., 2022, S. 264).

*Kansteiner et al.* (2023) address the area of tension within the dual role of the school principal as facilitator, which is characterized by asymmetry (guidance AND supervisor function). They point out that school leaders must be aware of this difficulty, be mindful of it and ensure that they can separate supervision and guidance well. The degree of management and control must also be weighed up carefully so as not to restrict teachers' autonomy too much, which could have a counterproductive effect on the PLC process. It is recommended that the role of the head teacher with regard to steering and monitoring the PLC is well coordinated with the teaching staff.

This tension is also addressed in *Reichly's* (2022) master's thesis, as it proved to be a challenge for the school leadership to balance both the administrative tasks and the open, communicative aspects of the leadership role. In some cases, the *knowledge partner* coming from outside (but acting as part of the PLC) therefore took on the role of *moderator and leader* of the PLC, which contributed to constructive and solution-oriented communication within the PLC.

## 4 Support and leadership of PLCs with regard to school as a learning organization

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. In addition, the co-creative knowledge developed or learned in the school-internal PLCs is brought into the cross-school professional cluster learning community via *school coordinators*, who act as "*transfer agents*" or *multipliers*, reflected upon, further developed and finally made available as innovation to all participating schools. The learning of all participants, from each other and with each other, is at the heart of the cooperation efforts: "*In a PeLC, everyone learns not only about their lessons, but also about their own lessons and themselves, rationally and emotionally. Cooperation within a PeLG is characterized by phases of reflective dialogue and a deprivatization of teaching. The cooperation efforts are continuously supported by the support team*" [translation] (Steiner, 2017, p. 329).<sup>14</sup>

It is also clear in the other contributions that joint learning with the aim of school and lesson development and a resulting improvement in student learning are at the center of a PLC's cooperation efforts. In these cases, it was the head teacher who initiated and promoted the process and thus the learning and professional development within a PLC among the teaching staff (Reichly, 2022; Stegmann, 2022; Türtscher 2022). School leadership therefore plays a crucial role in improving teaching outcomes and creating a school as a learning organization.

## 5 Summary

The promotion and management of PLCs is a multi-layered process in which various stakeholders with different roles are involved. The school management plays a key role in this. It is not only responsible for initiating the PLCs, but also for providing resources, creating favorable working conditions, coordinating and integrating the PLCs into the overall school system and recognizing and appreciating the work of the PLC members. The school management acts as a facilitator, supporting and guiding the process, and plays a key role in creating a culture of trust and open communication, which is essential for the success of the PLCs. In addition to the external role as a facilitator, the school management can also take on an internal role as a PLG member, as was made clear in the various contributions, and moderate and lead the PLC process there if necessary. In addition to the school management, however, other roles are also crucial for the effectiveness and efficiency of PLCs:

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<sup>14</sup> „In einer PeLG lernen alle nicht nur über deren Unterricht, sondern auch über ihren eigenen Unterricht und sich selbst, rational und emotional. Die Kooperation innerhalb einer PeLG ist durch Phasen reflexiven Dialogs und einer Deprivatisierung von Unterricht bestimmt. Die Kooperationsbemühungen werden fortlaufend durch das Begleitteam unterstützt“ (Steiner, 2017, S. 329).

- **External experts/consultants:** They contribute specific specialist knowledge and new perspectives. They can act as a source of inspiration, present innovative approaches and help to improve the quality of PLC work through external evaluation. Their role is relevant in order to provide the PLCs with the latest scientific findings and best practices.
- **Internal teachers as PLG members:** Teachers are at the heart of PLGs. They contribute practical experience, professional expertise and personal perspectives. Their active participation, commitment and willingness to embrace new learning and teaching methods are fundamental to the success of the PLCs.
- **Multipliers:** These people often take on a dual role. On the one hand, they are part of the teaching staff and, on the other, they are able to transfer knowledge and practices from the PLCs to the wider school day. They act as bridge builders between theory and practice and promote the dissemination of innovations within the school.
- **PLC steering groups:** In larger school systems with multiple PLCs, these groups ensure coordination, alignment and coherence between the different teams. They ensure that the work of the individual PLGs is geared towards common goals and that synergies are utilized.
- **Internal school coordinators and PLC spokespersons:** They are often teachers who take on a leading or coordinating role within the PLCs. Their task is to facilitate communication between PLC members, school management and external partners. They ensure organizational implementation and are often the first point of contact for internal and external concerns of the PLCs.

Together, these different roles help PLCs to function as effective instruments for promoting the professionalization of teachers, improving the quality of teaching and supporting school development. Each role brings specific strengths and perspectives to the table, the interplay of which has a significant impact on the effectiveness and sustainability of PLC work.

## 6 Authors

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## 7 Used Sources

### 7.1 Academic Articles/Books

**Bonsen, M., & Rolff, H.-G. (2006). Professionelle Lerngemeinschaften von Lehrerinnen und Lehrern. Zeitschrift für Pädagogik, 52(2), 167-184.**

This paper begins by discussing the development of PLCs in the United States and their definition and defining criteria in contrast to other forms of teacher collaboration (reflective dialogue, de-privatization of classroom practice, focus on learning rather than teaching, collaboration, shared guiding goals). Research findings on the effectiveness of PLCs are also discussed (increasing student achievement; expanding professional knowledge; recognizing one's own importance for student learning; higher job satisfaction and motivation; multiplication of individual knowledge; feedback and recognition). With regard to "*Leading and Facilitation*", it is noted that an institutional basis is required for sustainable implementation. The school management has the task of initiating and supporting PLCs (symbolically and organizationally). If several PLCs exist at a school, they must be coordinated and integrated into a coherent overall system (by the school management or steering group).

**Buhren, C. G. (2020). Professionelle Lerngemeinschaften - Teamarbeit in ihrer produktivsten Form. In Kansteiner, K., Stamann, C., Buhren, C. G. & Theurl, P. (Hrsg.), Professionelle Lerngemeinschaften als Entwicklungsinstrument im Bildungswesen. (S. 112-127). Beltz Juventa.**

This article is not a study, but an overview article on the definition, functioning and effectiveness of Professional Learning Communities. At the end, 10 theses on the possibilities and limitations of PLCs are presented. With regard to roles within PLCs, the role of the head teacher is discussed in particular, who can initiate PLCs in the school, agree on objectives with the PLCs and support PLCs both structurally and symbolically in their work. The description of the determination criteria also addresses "*Inquiry and Reflection*".

**Kansteiner, K., Welther, S., & Schmid, S. (2023). Professionelle Lerngemeinschaften für Schulleitungen und Lehrkräfte: Chancen des Kooperationsformats für Schulentwicklung und Professionalisierung. Beltz Juventa.**

The book begins by providing an overview of definitions, criteria, conditions for success and research findings on the effectiveness of professional learning communities at an international level and in German-speaking countries. One chapter looks at school leaders from two perspectives: on the one hand as *leaders for learning* and on the other as *learning leaders*. In particular, their role as *facilitators* of a PLC is also addressed.

**Stegmann, K., Kastorff, T., Poluektova, I., Berger, S., Kosiol, T., Reith, S., Förtsch, C., Rutkowski, A., Mohr, M., Lindermayer, C., Aufleger, M., Traub, D., Haldenwang, V., Ufer, S., Neuhaus, B. J., Bannert, M., Oechslein, K., Lindner, M., Nerdel, C., Fischer, F., & Gräsel, C. (2022). Digitaler Wandel des Schulunterrichts durch professionelle Lerngemeinschaften: Der Einsatz von Multiplikatoren zur Etablierung von Lerngemeinschaften. MedienPädagogik: Zeitschrift für Theorie Und Praxis Der Medienbildung, 49(Schulentwicklung), 250–270. <https://doi.org/10.21240/mpaed/49/2022.07.01.X>**

The article examines the promotion of digital change in the classroom through the establishment of Professional Learning Communities (PLCs) using trained multipliers. The study investigates three Bavarian secondary schools where PLCs were established to digitize STEM lessons. The results indicate that multipliers can successfully establish PLCs and support most of the functions of academic PLC members. However, subject-specific support requires the training of additional teachers. The study shows that PLCs are beginning to form common goals and positively engage in reflective dialog and collaboration, but need ongoing support and more real-world examples. Challenges include the time-intensive nature of establishing PLCs and the need for a clearer structure and focus on practical application in materials provided by academic partnerships.

**Steiner, Michael. (2017). Professionelle Lerngemeinschaften und Professionelle Cluster-Lerngemeinschaften als Modi und Strukturelemente für netzwerkbasierter Unterrichtsentwicklung und deren Begleitung im Projekt KidZ Wien. In Grünberger, N.; Himpl-Gutermann, K.; Szucsich, P.; Brandhofer, G.; Huditz, E.; Steiner, M. (Hrsg.): Schule neu denken und medial gestalten. Glückstadt: Verlag Werner Hülsbusch, S. 320-339.**

The article focuses on the role of the Vienna University of Teacher Education in the KidZ Vienna project, which is about network-based teaching development. The PH Vienna supported regional KidZ schools through process-oriented support, further training and scientific research. The focus was on Professional Learning Communities (PLCs) and Professional Cluster Learning Communities (PCLCs) as key elements for teaching and school development. The article examines how these communities developed, how they influenced the school and teaching development process and how the professional support provided by the PH Vienna promoted school development.

**Warwas, J., Helm, C. & Schadt, C. (2019). Unterstützendes Führungsverhalten schulischer Leitungskräfte für die Arbeit professioneller Lerngemeinschaften im Kollegium. Zeitschrift für Bildungsforschung 9, 37-70.**

Based on a synopsis of existing research findings, leadership and management practices are described that (can) contribute to the success of professional learning communities (PLCs). The work first examines "*core dimensions of PLCs within schools*" such as (1) the actional, (2) the ideal and (3) the structural dimension of PLCs, with the aim of "identifying categorical intersections between the heterogeneous systematization proposals (of PLCs) and thereby abstracting from more marginal characteristics" (p.41) Based on the demonstrable benefits of PLCs in terms of teachers' competence growth and the associated increase in students' learning success on the one hand and the equally well-documented fact that only a few groups of teachers actually meet the requirements of PLCs on the other, the question arises as to which internal school conditions favor the emergence of PLCs in the strict sense of the word. Initially, four supportive leadership strategies can be identified from the school leadership research:

- (1) Structural facilitation for the operational work processes of the PLC (making time, space and material resources available, relieving PLC members of administrative work)
- (2) Providing impetus for lesson development (giving impulses in terms of content - without being patronizing in detailed questions - e.g. initiating reflective dialogue about lessons)
- (3) Building trust and relationships: improving the quality of relationships within the teaching staff, respectful, error-friendly, solution-oriented interaction with the teaching staff, personal openness, the leader's willingness to learn and experiment, moderation in conflict situations, credible representation of the school's values and guiding principles, creation of a protected space in which it is possible to open up one's own teaching and question it critically without fear or reproach).
- (4) Participative leadership (participation rights for teachers, recognition of PLC members as experts, granting freedom of action and decision-making).

Study in Bavaria in summer 2011 (N = 395 vocational school teachers from various subject areas), questionnaire survey (self-created, well-validated questionnaire), question: to what extent does leadership behavior influence high-quality cooperative work in the sense of a PLC?  
 Hypothesis: high levels of the PLC core dimensions are found above all in schools with supportive leadership (in the sense of the four supportive leadership strategies mentioned above).  
 Results: The hypothesis can be accepted grosso modo. Conclusion: Successful support services for the work of PLCs are diverse and by no means one-sided:  
 (1) Creation of favourable work organization conditions  
 (2) Creation of working conditions that ensure a "serious, productive debate about high-quality teaching-learning processes in a trusting, fearless and reproach-free atmosphere on a permanent basis" (p. 55f)  
 (3) (Micro)political interventions such as recognition of the professional expertise of PLC members and involvement in internal school decision-making and design issues  
 (4) Monitoring and feedback in the form of relevant impulses and well-founded feedback to confirm or correct development steps.

## 7.2 Master's theses

**Reichly, Sabine (2022). Lehren und Lernen mit Musik in Professionellen Lerngemeinschaften in der Volksschule aus der Sicht der Schulleitung [Unpublished master's thesis]. Pädagogische Hochschule Niederösterreich.**

The master's thesis examines the role of school management in the implementation and promotion of PLCs in the context of music lessons at elementary school. It focuses on the possibilities of school leadership to influence teaching processes and examines the effects on the school and classroom environment. The work uses the *Lesson Study* methodology and refers to König & Volmer's Personal Systems Theory. It finds that a positive relationship dynamic between school management and teaching staff is essential for the successful development and learning of pupils. The master's thesis focuses on the role of school leadership in the development and support of PLCs in the context of music education in elementary schools. It emphasizes the importance of the school principal as group leader and coordinator within the PLC. Special attention is given to the ways in which school leadership fosters dialog and collaboration and initiates innovation. The work emphasizes the importance of a positive school climate and good relationships between teachers for the success of PLCs.

**Türtscher, L. (2022). Schulinterne und schulübergreifende Kooperationen an einer kleinen Grundschule in Tirol [Unpublished master's thesis]. Pädagogische Hochschule Tirol.**

The master's thesis, written at the University College of Teacher Education Tyrol, deals with cooperation at small elementary school in Tyrol. The focus is on self-directed forms of cooperation within the school, between the school and the local kindergarten and with other small elementary school in the region as part of a Professional Learning Community (PLC). The central research questions examine the characteristics of these collaborations, their benefits, the establishment of the inter-school PLC and their influence on school and classroom development. The work is based on qualitative research conducted through interviews and observations and emphasizes the benefits of physical proximity and shared values for successful collaborations. It shows that small schools, especially principals, benefit from collaboration and that it can be a driver for school and classroom development.