



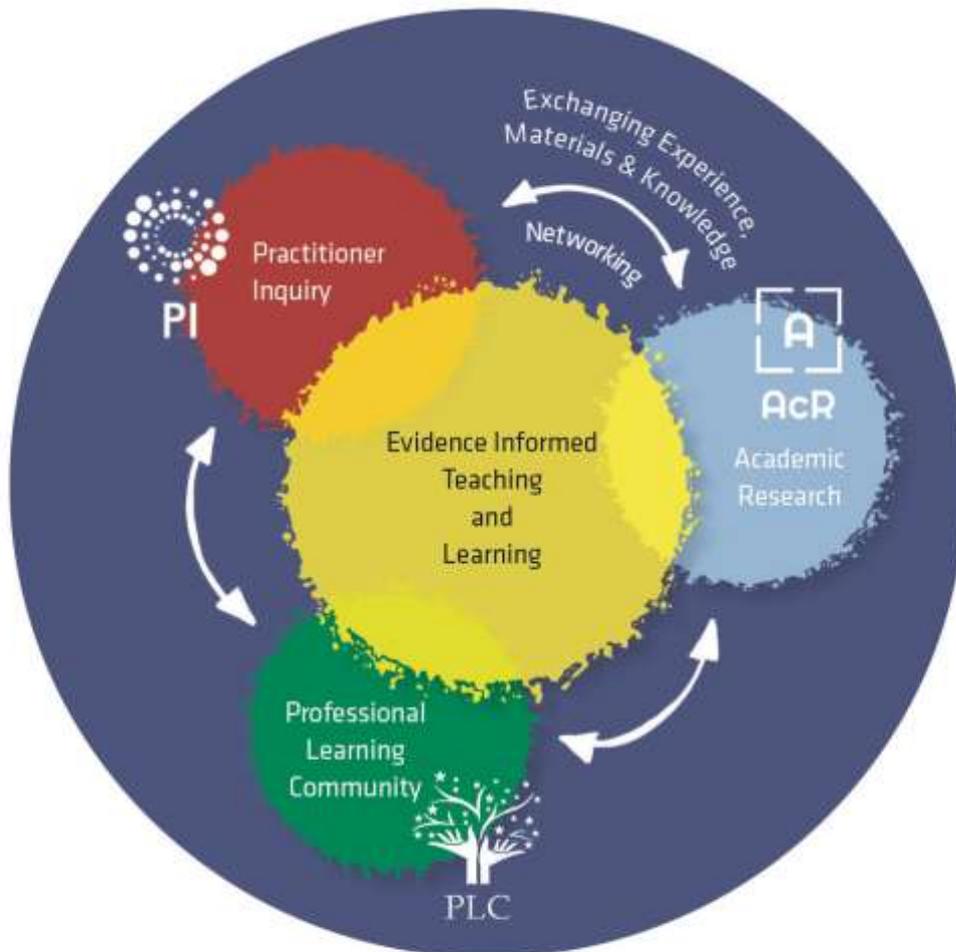
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2014-1-BE02-KA201-000432

‘Thinking through practice’

The common conceptual frame of reference





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1. Preface

Dear Colleague,

In this document, you will find the Conceptual Frame of Reference of Project LINPILCARE.

Project LINPILCARE is a European Erasmus+ KA2 strategic partnership for innovation in education. The project aims to support teaching and learning in schools by linking practitioner inquiry, via professional learning communities, with the results of extant academic research.

Project LINPILCARE works on a 'better knowledge' society where flexibility and innovative thinking are viewed as essential. The project aims to promote a 'bottom up' model of development. This will lead to more flexibility in schools and real innovation in education, in general. But, real innovation in education only happens if students & teachers become better learners and that requires effective teaching practices. So, in establishing the pivotal role of the teacher, the purpose of Project LINPILCARE will be to recognise the professionalism of practitioners and foster the development of a 'bottom up' model of innovation and change, starting with the real problems of teachers and students themselves. Linpilcare asserts that recognising and fostering the professional development of teachers will be an essential feature in developing innovative practice leading to a better society in the 21st century.

Project LINPILCARE will support teachers with a concern to improve their practice and to establish inquiry as an integral feature of their work. Moreover, the project will support teachers in establishing collegial and productive professional learning communities. Project LINPILCARE will invite teachers to share their research findings and link these with the results of extant academic research. To facilitate this, Project LINPILCARE has developed 'Thinking through practice', an innovative Conceptual Frame of Reference, practical tools for teachers and guidelines for the development and running of professional learning communities to support teachers' research.

The consortium of Linpilcare consists of 6 European partners: the Catholic Education Flanders (Belgium), the University of Tartu (Estonia), the National Education Institute of Slovenia (Slovenia), Fontys University of Applied Sciences (the Netherlands), a group of schools from Caparica (Portugal) and the Dene Magna School (United Kingdom).

Thanks to all consortium partners for the collaboration in realising this project. I especially want to thank Prof. Helen Timperley, University of Auckland, Prof. Nancy Dana, University of Florida and Gene Thompson-Grove, Board Member the School Reform Initiative, Denver for the inspiration that they gave me in realising Project LINPILCARE;

I hope that this Project LINPILCARE Conceptual Frame of Reference inspires you to realise the potential of innovative 21st century education in which teachers will be the real professionals in and of education.

All the best and become the best professional in education you can be!



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Rik Vanderhauwaert, Coordinator of Project LINPILCARE



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3. Evidence-informed teaching

3.1. Prelude

A conversation between three teachers during lunch break...

- Rik: "Why is it that every time I give homework to my students, about half of them won't do it? I can't remember having had this problem a few years back. At least not to this extent."*
- Barbara: "I know. It's the same for me. School just doesn't seem so predominant in students' lives anymore. I blame social media: they're just too much of a distraction."*
- Rik: "I never thought of that; always assumed it had something to do with lack of support from the parents."*
- Cristina: "I read something about how homework enhances student learning. If I remember correctly, it was a scientific study that concluded that the difficulty of homework assignments was quite important to take into account: kids generally just won't do their homework if it's too hard."*
- Barbara: "That makes sense actually: when lumbered with an assignment that is really hard to complete, a student might give up on it before he's even started."*
- Rik: "Okay.... But how can you be sure this 'scientific study' is true for how things work for your students?"*
- Cristina: "It's scientific; I think that means it should be valid for all students... Right?"*
- Barbara: "I'm pretty sure these researchers never visited my classroom! I think scientific research is about averages and is only useful when you're teaching average students. I never met an average student in my life!"*
- Rik: "Maybe I could set up a little experiment myself! I could ensure that I only give students relatively easy homework - so they can practice what they learned in class - and then count the number of students that actually did it each time to see if the number goes up."*
- Barbara: "Hmmm... Shouldn't take too much extra time if you do set it up like that. But maybe it would be even better if we started by simply asking these students why they won't do their homework."*
- Cristina: "I think the principal would probably be willing to support our efforts and give us some time to do this as a team. Maybe even change our teaching schedules so we can meet regularly. I'll ask her."*

Introduction

Teachers, like the ones in the prelude, are continuously faced with questions about the adequacy of their teaching. However, finding out *systematically* what works in one's professional practice is generally not regarded as a part of the teaching job description, let alone reading scientific publications about teaching strategies and the like. Moreover, working as a teacher also means struggling with different tasks fighting for priority.

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‘Evidence-informed teaching’, in the way we propose it in project Linpilcare, presents a way of working for teachers that takes these issues into account, and helps them to become better teachers who are systematically engaged in improving their teaching practices, together with their colleagues. The main objective of the project is to help teachers make their practices more evidence-informed by linking practitioner inquiry on the one hand and academic research on the other, through professional learning communities. In this introduction we will explore these concepts, and give a concise overview of how they are related.

3.2. Evidence-informed teaching?

In project Linpilcare, we believe that knowledge of the findings of educational research can, in a variety of cases, help teachers’ decision making in and for their daily practice. Moreover, it is the project’s belief that research evidence could guide teachers in improving their practice. Furthermore, we would like to emphasize that teachers are professionals and therefore should be (left) in charge of making decisions for their specific educational practice. These two ideas are combined in what is generally called ‘evidence-informed teaching’. It is usually contrasted with the notion of ‘evidence-based teaching’; a concept that typically embodies a view of teachers applying findings from research in their classrooms, and therefore as a stance that teaching should be directed by research evidence.

In the prelude, Rik and Barbara displayed evidence-informed stances by asking themselves if the findings of an academic study were valid for their own students. Cristina perhaps seemed to hold more of an evidence-based stance. Asked about the validity of the study, she hesitantly replied: “It’s scientific; I think that means it should be valid for all students... Right?”

Both evidence-based and evidence-informed teaching differ from notions that refute the value of research findings for improving educational practice. They could, for instance, exclusively emphasize a teacher’s intuitions (i.e. his/her teaching expertise, originating from teaching experience or talent) as a decisive factor of teaching quality. The latter stance, in other words, refutes the potential of scientific evidence as a lever for improving education and adheres to the notion that teachers should be perceived as (nascent) artisans. These three stances (i.e. the stances of evidence-based and evidence informed teaching, and the intuitions-based stance) are contrasted in figure 1.



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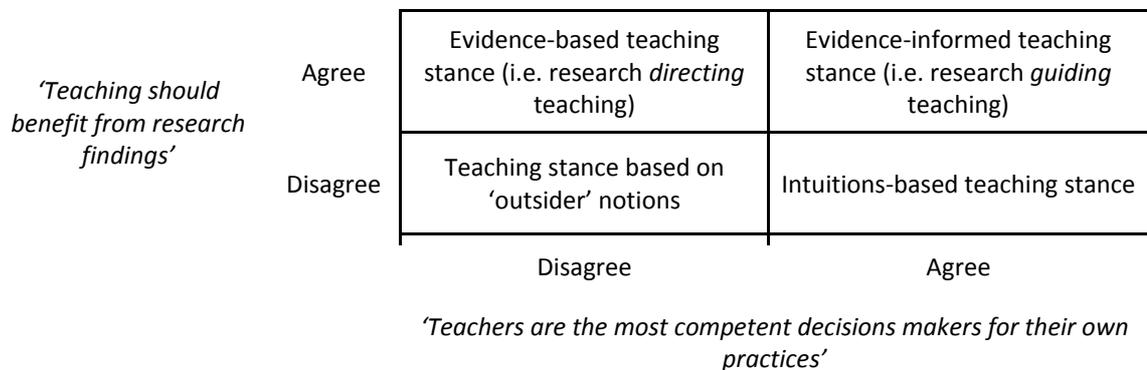


Figure 1: Contrasting teaching stances in relation to beliefs about the value of (a) research evidence and (b) teacher competence

To complete this diagram, the disagree/disagree cell has been described as an 'outsider notions-based teaching stance', rejecting both teacher competences and research findings as valuable for teaching quality, and therefore relying on the ideas of others, (e.g. policy makers, textbook authors).

Please note that we realize that the division into these four teaching stances is rather simplistic and certainly doesn't take into account all kinds of nuances in teachers' belief systems. It is not our intention to polarize discussions, but rather to make clear what is, and what isn't, meant by evidence-informed teaching in project Linpilcare, and also that, in general, teachers can have different opinions on who should decide on how to improve educational practice.

3.3. What counts as evidence and what is meant by research?

To be working from an evidence-informed teaching stance, it is crucial to establish what is considered evidence. When talking of evidence in daily life, we mostly refer to facts collected as a result of research efforts, and that, when combined, direct or guide us in answering a question. In evidence-informed education, these questions are primarily about 'what works in the classroom?', or, to be more precise: 'Too what extent, and under what circumstances, do certain teaching methods or approaches facilitate (or hinder) student learning?'

Please note that this doesn't mean that other types of questions that teaching professionals ask themselves are any less relevant. For example, questions about what should be taught in schools and for what reasons are no less important than questions on what works. The latter questions are, however, not questions you can answer without the help of research evidence.



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So what does research evidence on what works in the classroom look like? The answer to this question can be derived from the answer to another question, namely: What is meant, from the viewpoint of project Linpilcare, by 'research'? We will start by answering this second question from the framework of project Linpilcare and then come back to the first one.

3.3.1. What do we consider 'research'?

In project Linpilcare, we distinguish two types of research that are valid and functional in the face of evidence-informed teaching: academic research and practitioner inquiry.

In the field of education as well as in other disciplines, research is a concept that is often reserved exclusively for the *academic (or scientific)* world: a type of research conducted by scientists, whose job it is to add to the academic body of knowledge in a certain field. They do this primarily by publishing their work and findings in peer-reviewed academic journals, that are available to other academics, but mostly not to practitioners, e.g. teachers. Academic research can take place in laboratory settings or *in vivo* (i.e. in schools). Teachers, students, and other actors in school practice serve as sources of data and/or actors in the implementation of research plans. In most cases, academic research is designed in ways that enable the researcher to generalize conclusions to different schools, teachers, or (groups of) students. It is important however to notice, that this not always the case. Academic research can sometimes also be aimed at describing very specific individual practices.

Like many others have done before us, we consider 'practitioner inquiry' a different, but certainly no less valuable, type of research. Practitioner inquiry (or 'teacher inquiry', 'action research', 'lesson-study', 'self-study', etc.; for a more elaborate description of practitioner inquiry, please refer to chapter 3 of this document) is conducted by practitioners (mostly teachers), whose job it is to facilitate student learning as well as possible. Practitioner inquiry refers to strategies these practitioners employ mainly to systematically help them (a) gain better information about their practice and (b) improve their practice in line with this information. Practitioner inquirers share their findings with other stakeholders in their practice (colleagues, school leaders, students, parents, etc.) as an inseparable part of their work. Practitioner inquiry always takes place in the specific educational practice of the inquirer(s). The validity of findings following from practitioner inquiry are therefore in principle also restricted to this practice, although it can serve as a source of inspiration for other practitioners.

In the prelude, both Rik and Barbara spontaneously come up with activities that could very well be viewed as parts of practitioner inquiry. Firstly, the 'experiment' that Rik mentions as a way to test if the approach of giving students relatively easy homework would pay off. Secondly, Barbara's idea to ask students why they won't do their homework. In an inquiry cycle, these activities could become parts of plans that could also include: narrowing down what this issue is really about and what the



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objective of the inquiry would be, reading more about this specific issue, consulting other colleagues and asking their feedback, etc. Chapter 3 will describe practitioner inquiry in more detail.

In table 1 you will find a summary of how academic research and practitioner inquiry are different on seven key characteristics.

Table 1: Comparing academic research and practitioner inquiry (based on tables from Fichtman Dana & Yendol-Hoppey, 2014; Bolhuis & Kools, 2012)

	Academic research	Practitioner inquiry
<i>Goal</i>	Expand academic body of knowledge in a certain field	Provide insight into teaching in an effort to make change
<i>Conducted by</i>	Scientists	Practitioners
<i>Conducted in</i>	Controlled settings (labs) or in vivo (in schools)	A specific educational practice
<i>Impact on the academic community</i>	Broad on the academic community through publications in peer-reviewed journals	Very limited
<i>Impact on educational practice</i>	Very limited	Profound on the practice at hand
<i>Scope of findings</i>	Generalizable; valid for and transferable to different contexts	Limited to specific practice at hand.
<i>Involvement of practitioners</i>	Source of data and/or actor in implementation of intervention	As researcher or as critical friend in practitioner inquiries of colleagues

3.3.2. To what extent can findings from both types of research serve as evidence?

Following from table 1, different types of evidence can be distinguished in the face of evidence-informed teaching. Please note that we will be looking from the perspective of the practitioner: to what extent is a certain type of evidence valid for him/her to take into account when rethinking his/her practice? As indicated, we consider a practitioner the most competent decision maker for his/her own specific professional practice. Therefore it seems obvious to what extent different kinds of research findings could serve as valid evidence for that practice.

From this perspective, we discern three types of evidence:



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a. Findings from a practitioner's own inquiry

When a teacher has conducted practitioner inquiry, the findings of that study are by definition valid for his/her future inquiries. S/he has established new understandings of his/her professional practice, with the help of critical friends and other stakeholders.

b. Findings from academic research

In the case of findings from academic research the validity of findings is not so self-evident. On the one hand, academic research is designed (in most cases) to ensure that generalizability of the results and conclusions is justifiable. This means that the findings are in principle valid for a variety of situations. However, to ensure this generalizability, academic studies have to fall back on the analysis of statistical data. By doing this academic studies necessarily lose specific details of individual practices. Therefore findings of academic studies are not to be interpreted as guarantees for success (or failure). More adequately, they should be perceived as indicators on how promising a certain type of intervention would be in a specific educational practice.

In the prelude, Barbara raises this issue when she responds Cristina's mentioning an academic study: "I think scientific research is about averages and is only useful when you're teaching average students. I never met an average student in my life!". Please note however, that academic research is certainly not always about averages and statistics. On the other hand, Barbara certainly makes a good point in being skeptic about the validity of these findings for her own practice.

c. Findings from inquiry conducted by other practitioners

As is the case with academic research, findings from inquiries conducted by practitioners is not tailored to the specific practices of (other) practitioners. However, where academic researchers tend to conduct studies with a sample size (number of teachers and students involved) that transcends that of a single practice, in order to accomplish a certain degree of generalizability, this is of course not the case for practitioner inquiries. The nature of the practitioner inquiry limits it to a specific practice. Generalizability is in no way part of what quality in practitioner inquiry constitutes. However, practitioner inquirers could use the colleagues' inquiries as a starting point for the own reflections by comparing practices and subsequently assessing how promising the approach studied looks for his/her own practice: do I think this could work out similarly in my teaching practice?

3.4. Evidence-informed teaching in practice: practitioner inquiry in professional learning communities

3.4.1. Practitioner inquiry as a strategy for implementing evidence-informed teaching

From an evidence-informed teaching stance, teachers' knowledge of research findings is of course important, but certainly not sufficient to improve daily teaching practice. Teachers need to reflect on this information, decide to what extent it seems promising in the context of their own particular



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practice, redesign this practice, implement this redesign, and monitor and evaluate their experiences. In other words, teachers need to use some kind of inquiry cycle to make evidence-informed teaching happen in practice. Many of these cycles have been developed over the years and a lot of experience has been gained with them in practice by teachers. These inquiry cycles form a backbone of practitioner inquiry. Moreover, over the course of the last few decades, academic researchers as well as teaching professionals have developed quite a few tools, and written a substantive number of publications and books devoted to the subject of practitioner inquiry, in order to guide teachers in conducting their own inquiries. As a result, teachers from different disciplines, and varying sectors of education have established quite an impressive track record on teachers' conducting of practitioner inquiry.

3.4.2. *Professional learning communities as platforms for practitioner inquiry*

Experience with practitioner inquiry teaches us that one of the major challenges is to merge inquiry with other teacher activities. A general characteristic of teaching is that time for contemplation is very limited. Because of this, teachers mostly have to rely on their routine knowledge and intuition when making decisions in and for their professional practices. Teachers can therefore have difficulties taking up and embedding inquiry as part of their daily routines. This could make it problematic for teachers to make practitioner inquiry a sustainable endeavor in their schools.

As stated by a substantive number of authors, establishing a 'professional learning community' (PLC) in school as a platform for practitioner inquiry could help to counter this problem. Professional learning communities are defined by Hord (1997) as: "[...] a place where teachers inquire together into how to improve their practices in areas of importance to them, and then implement what they learned to make it happen." Consequently, professional learning communities help teachers to collaborate in realizing their inquiries.

In the prelude, the teachers quite spontaneously come up with the idea of starting something that could become a professional learning community. Quite cleverly, Cristina thinks of talking to the school principal about their plans, so she can help them realize their intentions.

1.6. **In summary: what is evidence-informed teaching?**

In this chapter, we explored the concept of evidence-informed teaching as the scope of project Linpilcare. As can be inferred from the texts above, we consider three fundamental pillars underlying this concept, for successful implementation of evidence-informed teaching in school practices: (1) teachers' easy access to relevant research findings; (2) practitioner inquiry as a strategy for professionalization and curriculum improvement; and (3) professional learning



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communities as sustainable platforms for inquiry in schools. The remainder of this document (chapters 2, 3 and 4) will be devoted to a more in-depth delineation of these three pillars.

From a teacher's perspective, it seems to make more sense to do this in reverse order compared to how the pillars were discussed in the introduction. So we will start discussing the usefulness of professional learning communities as platforms for teacher professionalization, then move on to practitioner inquiry as a preferred professional learning strategy, supported by PLC's, and finally go into how results of academic research help guide practitioner inquiry.



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4. Professional learning communities

4.1. Prelude

The teachers from the first prelude, come together for their first meeting

Cristina: I think everyone's here now, so let's start our meeting.

Willem: Can I ask a question first? I heard that you're going to tell us something about how you can make students do their homework?

Cristina: Well, not exactly... It's not like I'm teaching you. We want to learn about this together.

Tomaž: And how do we do that? I think we should be really clear on how we're going to spend our time. For me it's busy enough as it is.

Rik: That's why we invited Marleen from the teacher training centre to help us get on track and make these meetings as effective as possible.

Marleen: Thanks for inviting me. Maybe discussing how you want to work during, and in between, these meetings would be a good starting point. That way, you all know what to expect and what you want to accomplish.

Barbara: I thought that we could use the meetings to share what we have learned about our experiments with increasing the number of students that do their homework and ask each other for ideas on how to proceed.

Rik: Zooming out, I would like us to agree on the goals of our projects. If you'd ask me, I'd say that the most important thing is to improve our students' learning, and that we are using homework as a lever in achieving just that. Do you agree?

Tomaž: I think I do. Am I right that you said 'projects'? Plural? Does that mean that each participant undertakes his or her own experiment? Or are we working on one joint project?

Marleen: When I talked to Cristina before the meeting, I understood that you intent to conduct individual inquiries – if that's the right word to use – but all circling a joint theme: homework.

Willem: So what we're doing here will be more like a learning community, not a course.

Cristina: Right! And I think Marleen's suggestion of deciding on how to manage our meetings and projects would be a good way to start. It will probably cost us some time at this point, but save us time later on.

Barbara: I've written down the questions that were already asked. Let's go through them and see how far we'll get.

4.2 Introduction

Innovations in education can follow a top-down approach (i.e. starting from school management or from policy makers) or a bottom-up approach (starting from teachers). As can be concluded from chapter 1, more specifically from the stances presented in figure 1, we think that teachers are the most competent decision makers for their own practices. In project Linpilcare, we consequently

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prefer bottom-up approaches to curriculum innovation and teacher learning. We consider teachers change agents of their own practices. This preference is supported by educational specialists like Fullan (2006) and Van den Berg (2009) who are in general rather sceptical about top-down approaches to innovation in schools. From this line of thought, it seems logical to avoid having teachers working in isolation by creating platforms where teachers share their individual innovation activities, much like design professionals work in what are called 'design studio's'. From the field of software development, Warfel (2009) defines a design studio as "a process, not just a physical place" where "you design or prototype and present to your peers. Your peers critique your work, highlighting the strengths and areas that still need some work." In education, such platforms where teachers meet to share ideas and collect peer feedback, with slight variations in goals and ways of working, can have different names, e.g. communities of practice, professional development communities, teacherlabs, (collaborative) data teams, knowledge communities, etc. In general, these platform can be characterized by a focus on developing professional culture in schools, on teachers' professional development, and on teachers' learning in connection with colleagues (KPC groep, 2011).

In project Linpilcare we prefer talking about 'professional learning communities' (PLC's). Hord (1997) defines a PLC as "a place where teachers inquire together into how to improve their practices in areas of importance to them, and then implement what they learned to make it happen."

For some teachers, the idea of taking charge of their own professional development and curriculum development can be something they're not used to. Willem's initial question in this chapter's prelude suggests that he is expecting Cristina to teach him what he should know. Managing teachers' different expectations from a PLC is obviously something necessary paying attention to.

4.3 Working in PLC's: Shared norms and values

Besides this general description, there is more to say about the typical way of collaborating together in PLC's. Working successfully in a PLC asks for *shared norms and shared values* among the PLC members, at least to a certain degree. The norms (i.e. agreement on aspects of the way of working of the group: starting on time, preparing meetings, etc.) should be discussed in the first meeting(s) and reconsidered later on if necessary.

In the prelude, the members of the newly founded PLC struggle with lots of questions; they are trying to grasp what to expect from the meetings they will have together. They decide to dedicate some time to share these expectations, thereby exploring and setting their shared norms as a PLC.

In addition to shared norms, *shared values* are more than just rules. The members of the PLC must be convinced that working in a PLC offers an adequate approach to improving their practices. Furthermore, they need to establish a culture of trust and of collaboration and to be focused on improving their teaching practices and opening it up to their colleagues.

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Healthy PLC's have a *culture of trust*. Building trust takes time and requires special attention. Teachers must feel confident enough to talk openly about their own practice. Since many teachers are used to work alone in their classrooms most of the time, opening up their practice to colleagues is not part of daily routines. A second aspect of sound PLC's is that they have a *culture of collaboration*. Teachers who are members of the PLC must be willing to cooperate with the other members, becoming each other's critical friends. A culture of trust is a necessary requirement for a culture of collaboration to evolve. This also implies a high level of responsibility and engagement from all the members (Newmann & Wehlage, 1995; Stoll et al., 2006). To realize shared responsibility it is necessary that the members have influence on the process of the meeting and the outcomes. (Verbiest, 2003). While being a participant, or a member, of a PLC, teachers work on improving *their own teaching practice* and on helping the other PLC members improve theirs. In other words, working in PLC's is aimed at having an *impact* on practice. Because teachers share their professional ideas with their critical PLC friends, their individual practices are '*deprivatized*', i.e. opened up to the critical observations of their colleagues.

4.4 Added value of working in PLC's

Starting PLC's and giving teachers time and opportunities to join a PLC is an investment for schools so it must be clear for the potential PLC members as well as school management what the added value of PLC's are to school practice. Nancy Fichtman Dana (and Yendoll-Hoppey, 2008) mentions four benefits of professional learning communities:

1. They reduce isolation: Corresponds with the 'deprivatization' characteristic mentioned in the previous paragraph.
2. They lead to shared purpose: When teachers work together in PLC's they construct a better understanding of their work and of their students' learning. All the members of the PLC help each other to learn as much as possible.
3. They spark professional conversations: When colleagues are together during lunch breaks, conversations are not always about work. In teacher meetings, many topics are on planning and organization. A PLC adds, what Dana calls, 'real' conversations. A real conversation is about the authentic problems of teachers and about improving student learning. A real conversation is on professional matters and is aimed at digging deeper into a topic to gain a thorough understanding of the matter at hand. The use of 'protocols' can promote real conversations.
4. Making school data meaningful: Schools collect a lot of 'data' as part of daily practice. Student work, for instance, can be considered data about their performance. There are a lot of data that can be really helpful for teachers to gain insights into their teaching practice and triggering ideas to improve it. PLC meetings can help teachers in learning to use these data.



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4.5 Different Types of PLC

There are many ways for people to work and learn in a PLC. In project Linpilcare, we advocate 'inquiry-oriented' PLC's. Nancy Fichtman Dana (and Yendoll-Hoppey, 2008, p. 56) defines this kind of PLC as "a group of teaching professionals who meet regularly to learn from practice through structured dialogue and engage in continuous cycles of inquiry". Furthermore, she distinguishes three types of inquiry-oriented PLC's: PLC that are focused on:

1. A 'shared inquiry': all PLC members work together on conducting a single inquiry, they all have an interest in, because it concerns their professional practice.
2. An 'intersecting inquiry': when all PLC members have an interest in the same topics, but each conducts his/her own inquiry based on this topic. The topic is defined by all the members of the PLC group, the inquiry processes, outside the PLC meetings, are basically individual.
3. A parallel inquiry: when all PLC members conduct individual inquiries on individually chosen topics.

The type of PLC influences the collaboration of the PLC members. In a shared PLC all the members are involved in the same inquiry with the same inquiry question. It could be easier for the PLC members to contribute to the inquiry. All members could, for example, bring data to the PLC meeting from their own classrooms, consequently establishing rich images of the practices at hand, including their similarities and differences. By doing so, it is very easy to really get a grasp of the content of the inquiry during PLC meetings. There are however also some disadvantages of a shared inquiry: there is always a risk that the topic and inquiry process are not (fully) the concern of all the members. This could be harmful to the involvement and professional learning of these PLC members.

The advantage of parallel inquiry is that all the members of the PLC choose topics that they are (likely) really committed to. There is also a risk: the absence of involvement on the content of inquiry can cause a lack of interest in the inquiry of others and therefore less motivation to contribute.

An intersecting PLC, as a middle ground between the other types of PLC's, seems to be preferable in a lot of cases: there is a balance between engagement on content and distance to be a critical friend, there is a shared topic, but with individual corresponding questions.

The teachers in the prelude are about to decide on what kind of PLC they would really want. In answer to Tomaž' question ("Does that mean that each participant undertakes his or her own experiment? Or are we working on one joint project?"), Marleen describes an intersecting inquiry oriented PLC: "I understood that you intend to conduct individual inquiries – if that's the right word to use – but all circling a joint theme: homework."



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The choice of which kind of PLC you start is really a discussion between the PLC members. It's good to be open and transparent in discussing the pros and cons of the different types of PLC's and on deciding which type of PLC fits your situation best. It is of course essential that all the group members agree on the type of PLC to start.

4.6 Starting a PLC

A major resource in the process of starting a PLC is the confirmation of a PLC facilitator. It is advisable to nominate an experienced PLC member to plan and lead the meetings. The first step is to arrange the necessary resources for the teachers to meet each other. The teachers must have time to visit the meetings and there must be a physical space to meet. In between the meetings the teachers must be able to work on the inquiry.

Gathering the group

The ideal situation in forming a PLC is selecting teachers for a PLC who applied on voluntary base. Teachers who are forced to participate are not always willing to learn and can frustrate the professional dialogue and the learning process. There is also the risk the PLC will be known as a group of teachers who are not functioning very well. Focusing on willing people is one of the crucial factors in starting PLC's

Setting norms

When new groups are formed the group may be described as separate entities who have nothing very much in common. To promote real collaboration between the group members it is important to build a common frame of reference of working in PLC's. It can be helpful to start by setting norms together and to discuss and agree the ways of working together. Shared norms and values are important for the development of a culture of trust and effective PLC's.

Discuss the type of plc

When members are involved in the process of choosing the type of PLC where they are participating in, the expectations of the PLC meetings, the outcomes and the motivation of the PLC members will need to be managed.

Facilitating PLC's

Maybe the most crucial factor in making a PLC effective is a person who takes of facilitating the PLC meetings and has adequate skills to do this. In facilitating PLC's there are different choices that need to be made.

Leadership

The PLC facilitator is a central person in the community. S/he plans and organises the meeting. An effective facilitator will be able to use different styles when needed and has the capacity to be a real leader. Some of the characteristics of such a leader: (s)he can inspire the PLC members, (s)he



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can motivate, (s)he has a vision on the effectiveness of working in PLCs, (s)he can take decisions, etc.

Engagement on the content or on the process.

There can also be a relationship between being an effective facilitator and the type of PLC. There are two types of PLC facilitators: facilitators that are really engaged in the process of how a PLC functions and facilitators that are really engaged in the content of the PLC. Both types of facilitators can be very helpful for the progression of the PLC but it is also important to understand the weaknesses of both types of facilitator focuses. Facilitators who are primarily focused on the *content* of the PLC inquiries are probably really committed to what is discussed in the PLC. On the other hand, the focus on content could also lead to paying less attention to the *process* of discussion in the PLC. This can be the other way round for facilitators focused primarily on the PLC process.

Structure time, use protocols, make planning

One of the main tasks of the facilitator in a PLC is to make a plan for the whole inquiry cycle e.g. a whole school year. In doing so they will structure the inquiry process by determining the main focus for the different meetings during the cycle. Another task of the PLC facilitator is managing the time during the PLC meetings. To bring meaning to a PLC meeting the facilitator can also use his/her leadership capacity by selecting and using appropriate protocols. A particular feature of protocols is that they specify interactions between the communicating entities. The entities in this case are the PLC members and the communication is about the inquiry process or the content of the inquiry. Protocols are a way of structuring the conversation during meetings with a fixed time path intended to deepen the analyses. Other benefits of using protocols are as follows.

- It helps members to stay on topic during discussions
- It helps members talk in a collegial, effective way
- it helps to use time effectively during meetings.



5. Practitioner inquiry

5.1. Prelude

The teachers have started their professional learning community and have been working together in it for some months now. What started out as basic ideas in the first meeting, evolved into actual inquiry projects.

- Rik: "So last time I told you about the start of my experiment with giving my students relatively easy homework to stimulate them to actually do it. Maybe you still remember that initially I planned to count how many students actually did their homework, in order to get a sense of how successful my approach was. I did this for a while and found out that in the beginning the numbers did go up, but they started to drop again after a few weeks. Here, this graph summarizes what happened."*
- Willem: "That's odd. Did you change anything in between that could have caused this?"*
- Rik: "I don't think I did. It looks like I temporarily raised their interest by changing the type of homework, but lost it again when they got used to it."*
- Cristina: "Can you say something about the students that – temporarily – were more conscientious in doing their homework?"*
- Rik: "Not yet. But I'll look into it right away!"*
- Barbara: "Maybe I can help. As we discussed last time, I interviewed small groups of my students on why they didn't do their homework. The things students stressed when talking about this are that homework has to be feasible and challenging: If it's too difficult, they'll give up, but if it's too easy, or if they don't feel they're learning anything from it, they'll also stop."*
- Rik: "So maybe the homework I gave them was too easy?"*
- Willem: "Could be, but maybe this means that the 'sweet spot' of home work difficulty is different for every student. How would you manage that?"*

5.2. Introduction

Establishing a professional learning community provides an excellent foundation for collective professional learning. As pointed out in the previous chapter, PLC's can be regarded as platforms within or between schools that facilitate participating teachers in reflecting on their own practices. These platforms contribute to their professional learning by reducing isolation, supporting a shared purpose, sparking professional (i.e. collegial) conversations, and connecting school data with daily practice.

Practice cannot be considered effective unless it is responsive to the participating students and promotes their learning. The worth of the co-constructed criteria in practice, therefore, needs to be judged in terms of how students are responding and learning (Timperley, 2011). Teacher inquiry and the knowledge-building cycle to promote valued student outcomes (Timperley, 2011) shows

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the connections between student and teacher learning: What knowledge and skills do our students need? - What knowledge and skills do we as teachers need? What has been the impact of our changed actions?

Students' involvement in inquiry makes teacher learning immediate, relevant, differentiated, self-directed, collaborative, active, and engaging, therefore it makes sense to share it with the students they teach (Dana et al., 2011). Teaching students through inquiry has the potential to help the cultivation of their critical-thinking skills.

The conversation in the prelude, gives us a nice example of how learning occurs through inquiry: Teaching experiences are captured with data, and these data lead to new questions and ideas. Furthermore, Barbara's approach of questioning students, shows the value of involving students in teacher inquiry.

Timperley (2011) emphasized four principles of teacher-student cooperation as follows: 1) engaging with prior conceptions of practice; 2) developing a deep foundation of knowledge in the context of a conceptual framework; 3) that knowledge construction occurs through the processes of interaction, negotiation and co-operation; 4) learners being pro-active and developing ownership and responsibility for learning and improvement through meta-cognitive and self-regulated learning processes. Self-directed (regulated) learning can be defined as the challenge to promote self-regulated learning requires the effectiveness of practice to be monitored in terms of learning goals. Goals on their own, however, are insufficient to ensure the learning of adaptive experts. The conversations, therefore, need also to promote monitoring of the goals and to help the teacher judge whether any changes in practice are more effective than what they were doing before (*ibid*).

Teacher learning - Teachers should experiment in teaching and try to explain the results of their experiments: "It is not enough to know what works, you need to know why!" (Petty, 2014). The importance of learning goals for students is well established; less so for teachers. The teachers themselves, therefore, need professional learning goals, linked to student achievement, against which to monitor the effectiveness of their practice (*ibid*).

5.3. The inquiry cycle

Inquiry has not to be understood as a linear process but more as a circle. The process is ongoing because as soon as we reach a provisional point where the educator feels the situation is satisfactory, that point itself raises new questions and it is time to begin again (McNiff and Whitehead, 2006). Dana (2013) describes the process as follows: develop a wondering – collect data – analyse data – take action – share. "Although one's particular action research project might appear to culminate with the presentation of it, one's inquiry stance continues to be a powerful force and source of knowledge for self and others throughout the professional lifetime – just like a circle, it has no end" (*ibid*: 82-83).

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Defining a research question begins simply with careful and critical reflection about a teacher's teaching process. Practitioner inquiry is about improving practice within the context of the school's development plan.

Planning - cover aspects as:

- The purpose of the inquiry;
- The right question;
- How you will collect data;
- How you will analyse data;
- A timeline for your study

Questions - PI should deal with real questions, not the questions a teacher has already got answers to. It's about an approach of a researcher; an approach of challenging one's self and one's own practice; not an approach of being an external expert. Real questions articulate the passions of a teacher. Real questions connected to the context of the school, country and to literature. Real questions are focused on learning and they are genuine which means that it is about improving and changing an educator's practice.

5.4 Data and data collection

Educators must become comfortable with the process of practitioner inquiry as a means of using data and evidence in routinely and critically examining their own practice. Data should provide new lenses for thinking and present opportunities for examining and challenging existing beliefs. Data, however, is not synonymous with statistics. Data is an essential part of educators' work: educators collect data; they interrogate data; they transform data into information; they utilise the emerging knowledge as a stimulus to constructive action. Data must be used in a learning-oriented manner in order to realize any valuable improvement in the learning; mistakes have to be seen as a vital part of the improvement process. Data leads to an ongoing process of collecting, analysing, establishing new learning and bringing about changes in practice.

The prelude gives examples of numerical data (Rik's approach) and qualitative data (Barbara's approach). As the conversation fragment in the prelude shows, they both have their advantages and disadvantages.

Data collection - data capture the action, learning, and thinking that is occurring in the teacher's classroom and/or school. There will and should be a variety of data, both quantitative and qualitative: the data should closely reflect to the students and their learning experiences in the classroom. The rule is to look to the students for the data first.



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There are numerous strategies for collecting data: student work, test scores, notes, interviews, focus groups, pictures, journals. The teacher should begin by articulating what 'it' means to his/her, then use the tools to enable to explore the issue.

5.5 Different models for engaging in teacher inquiry

5.5.1 *Data wise*

This model is structured for towards establishing a priority question, a learner-centred problem or a problem of practice thereby narrowing the focus for data collection. In doing so, the model can be used for collaborative practitioner inquiry. The work starts by developing a collaborative culture to achieve a shared commitment on action. A system of teams, facilitated by strong leaders, are established and an inventory of all types of data available in the school is created. Different working styles are taken into account in building assessment literacy by negotiating key concepts and fundamental principles, ways of reporting performance and strategies for the interpretation of data. The focus area is found by analysing available data and identifying and formulating a priority question. The observation and analysis of teaching will become the focus of the inquiry action plan.

5.5.2 *Lesson Study*

Lesson Study works because it helps teachers to:

- See student learning occurring in much sharper detail than is usually possible.
- See the gaps between what they had assumed was happening when students learned and what it is actually happening.
- Find out how to plan learning which is better matched to the students' needs as a result.
- Do all this in the context of a supportive teaching and learning community which is strongly committed to helping students to learn and to the professional learning of the members of the group.
- Change their teaching to better support learning as a result.

The research lessons are jointly planned by the group of teachers and case study students are chosen for observation during the lesson and interviewed afterwards. Because the research lesson is jointly planned, it is owned by the group. This means the focus for the observers is less on the teacher and more on the learners – the case study students. They should alternate in the research lesson by spending some time as if 'zoomed-in' on a case study student while on other occasions panning back to allow a bigger group or the whole class to come into frame.

1.1.3. *'Prototyping'*

Over the last few decades, teacher inquiry (e.g. action research) has been established as a legitimate approach to both curriculum innovation and teacher professionalization. Its potential



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lies in the fact that teachers’ professional concerns are taken as a starting point of self-directed learning and innovation. Some teachers seem to struggle however with embedding inquiry activities into their daily practice. The teaching profession is traditionally dominated by programmed activities (teaching classes, staff meetings, etc.) and activities that require swift or even immediate response (grading tests, answering student questions, etc.). Fitting in inquiry-like activities, such as reflection and data collection, (however organic they are set up) that are not about dealing with ‘right here right now’, is certainly not an easy task for teachers.

Inspired by the fields of industrial design, architecture and software development a model for teacher inquiry is being developed at Fontys University of Applied Sciences in the Netherlands (one of the Linpilcare partners) that is trying to reshape teacher inquiry into a way of working that feels even more native to teachers: ‘prototyping’. The basic idea behind this approach is that in some fields, design is considered a form of inquiry (‘design as research’).

Prototyping as a more or less formal design strategy sprouted several decades ago in the fields of design, technology, and engineering. From these fields, Warfel (2009) defines a prototype as “a representative model or simulation of the final system” that can be further characterized as being “different from other works of the imagination, because it’s real. [...] This means that it can be tested [...]. Without a prototype, you can’t test your product until you have built it”. Prototyping is subsequently described as “practice for people who design and make things. It’s not simply another tool for your design toolkit – it’s a design philosophy.” Warfel considers the prototyping process “an iterative process. You generate design concepts. You prototype them. You test them. You discover what works, what needs to be refined, and opportunities for new ideas.” It is contrasted with design approaches that are largely separated from practice: “[Prototyping is] in direct opposition to ‘design in a vacuum’ or ‘design in an ivory tower’.”

The main advantage of prototyping over most other forms of practitioner inquiry seems to be that it promotes teachers to try out new ideas relatively quickly in their teaching practice, thereby gathering user (i.e. student) feedback that helps them develop new ideas: “Prototyping helps you get ideas out of your head and into something more tangible”. Moreover, “one of the fundamental values of prototyping is that it’s generative, which means as you work through the prototyping process, you’re going to generate ideas.” (*ibid*).

Table: Comparing inquiry models

	<i>Data wise model</i>	<i>Lesson Study</i>	<i>Prototyping</i>



<i>Goal</i>	Promoting students' learning by collecting data and analyse one's own and other colleagues' practice to redesign and implement innovations.	Promoting students' learning through an individual approach to teaching and learning	Promoting student learning by trying out ('prototyping') new ideas and building experience and gathering feedback while doing this
<i>Involvement/size of group</i>	The whole pedagogical staff of the school	A pair or a small group of teachers	Teachers, collaborating and delivering critique of each other's work in a 'design studio'
<i>Starting point of the inquiry cycle</i>	Create a collaborative culture to achieve a shared commitment on action, assessment and adjustment by focussing on evidence.	Determine what the LS group wants to improve.	There's no real cycle; prototyping can be considered an iterative process where teachers decide on how to proceed after each activity.
<i>The process</i>	<ol style="list-style-type: none"> 1) choose focus area 2) dig into multiple data sources; identify a learner-centred problem 3) examine instruction 4) develop an action plan 5) assess the action plan 6) act and assess the progress 	<ol style="list-style-type: none"> 1) jointly plan the research lesson and select the focus students to observe 2) teach/observe research lesson 3) interview focus students 4) discuss the research lesson and plan next stage 5) after a series of research lessons and post-lesson discussions writing up and presenting the findings to other colleagues. 	<p>Possible activities:</p> <ul style="list-style-type: none"> - Coming up with teaching approaches ('sketching') - Developing a prototype - Gathering and discussing a source of inspiration ('trigger') - Gathering 'critique' from colleagues - Experimenting in practice - Reflecting on experiment



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<i>Next steps</i>	Continuing the inquiry cycle emanating from the results of the previous inquiry.	Establish a larger group or whole class to apply the results of inquiry.	Enhancing the prototype.
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6. Easy access to the results of academic research

The teachers are rounding up their first inquiry cycle. They have learned a lot from engaging in practitioner inquiry and acting as each other's critical friends in doing so. Reflecting on their experiences, they come back to the point of the relevance of academic research for teachers.

Barbara: "When looking at our inquiry projects, I think we did quite well!"

Rik: "I agree, but I think it's strange that we came to different conclusions than the scientific studies we read about."

Cristina: "Why's that strange? As we talked about when we started, academic research is mostly about means and averages, and we don't deal with average classes and students."

Rik: "So what's the use of reading these studies? They can't seem to tell us what works in our practices. Maybe we should stop paying attention to them: we have a hard time finding them, they're clearly not written for us, and it's difficult to figure out how they can help improving your practice!"

Marleen: "I understand your question. Maybe we need to view the findings of these studies not as facts that are valid in all situations, but more as general trends that tell us what measures are promising. They also help us find sound terminology."

Cristina: "Okay, but the terminology, also makes it very abstract, and hard to read."

Marleen: "So maybe we need to find a solution for that."

Willem: "Maybe we can invite academic researchers to our PLC to help us with finding and understanding relevant academic studies."

Barbara: "I know some researchers from our local university. Maybe we could invite them next time."

6.1. Introduction

As established, evidence-informed teaching could be viewed as a certain stance towards the usefulness of research findings in advancing teaching quality. We assume however, that in a majority of teaching practices, teachers are not automatically inclined towards such a stance, especially when it comes to taking into account the results of *academic* research. Our experiences tell us that most teachers predominantly hold a 'intuitions-based teaching stance'; relying mostly on their personal craft and what they have learned through practical experience.

In order to encourage teachers to reflect upon and improve their practice by taking account of academic research, a number of issues need to be addressed. They are, (a) getting access to academic literature, (b) reading academic literature and (c) relating academic literature to practice. It is also important to consider *why* teachers generally don't routinely make use of academic research.



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6.2. Why teachers mostly do not work in an evidence-informed manner

It seems that the issue of stimulating teachers to use academic research to enhance their practice hasn't received a lot of attention from educational researchers. Quigley stated almost twenty years ago that "...the majority of teachers, counsellors, and administrators spend their careers at the receiving end of "manufactured" research products produced in remote university "factories" by unseen research experts." (1997, p.3). There are, for instance, hardly any academic publications on how teachers' use of academic research affects teaching quality or, to go one step further, students' learning outcomes: "Although there are very many normative perspectives on what the relationship of research and practice *should* be, there are surprisingly few data about what it actually *is*." (St. Clair, 2004, p. 225). From what *is* written, we can conclude that teachers in general are very reluctant to read academic publications, let alone enhance their daily practice as a result of the information these publication provide. But even if teachers were able to access academic publications, the problem in most cases will be that the information contained will hardly be readable because of the rather hermetic nature of academic language¹. Research articles are evidently written for the academic community and not for teachers:

"The individual teacher engaging with a research report so that it can be applied 'in practice' must often wrestle alone with challenging levels of abstraction. [...] practitioners need to connect intellectually, practically and emotionally with the knowledge they are offered in the research accounts if they are to take it on board and use this to inform their practice. They are a particular audience and, as with all other audiences, their specific needs and contexts need to be taken into account if the texts are to "speak to" them." (Cordingley, 2008).

Another topic addressed in academic publications is a difference in views of academic researchers and teaching professionals on the usefulness of academic knowledge. Academics usually "want research studies that address global issues in a way that is broadly applicable to understanding", whereas teachers "want studies that will guide them through everyday problems of practice rather than studies that address broad areas of interest" (Fox, 2000, p. 239).

Following this observation, it could be concluded that a possible solution lies in directing academic publications more towards teachers (see e.g. NTRP, 2000; Kerr et al., 1998) That is, however, beyond the scope of this project, but whilst Linpilcare's concern has been to focus on teaching professionals the need for "short, evidence-informed, reflective activities" written by researchers seems compelling (Cordingley, 2008).

¹ An aspect of this language problem is of course also that most scientific publications are published in English, which gives non-natives English speakers a disadvantage in trying to understand what is written.



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6.3. Possible strategies

So far, the partners of project Linpilcare have considered several ideas and strategies in helping teachers bridge the gap between teaching practice and the results of academic research:

- *Making teachers familiar with relevant search engines* – In several countries projects were conducted to develop search engines that are connected to databases of academic research written for teachers. Sometimes these projects emphasize rewriting scientific publications to make them more accessible for teachers; others are more aimed at making available existing archives of professional journals and the like in which academic research is discussed.
- *Training teachers to read academic publications* – As part of working in a PLC teachers could discuss together how to read academic publications: How are journal articles structured? Which parts of it are usually the most relevant to teachers? In project Linpilcare we could develop tools that help teachers to become familiar with academic writings and the way in which to read them.
- *Questioning researchers* – In some cases, instead of (or in addition to) reading publications, teachers could engage in dialogue with the author(s). This could be done by inviting researchers with expertise on the subject at hand from a local university into their professional learning community, or for instance by contacting them by email. Most teachers probably feel hesitant to directly contact a researcher, whereas researchers may be very willing to explain their writings or the key points of their field of interest to teachers.

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