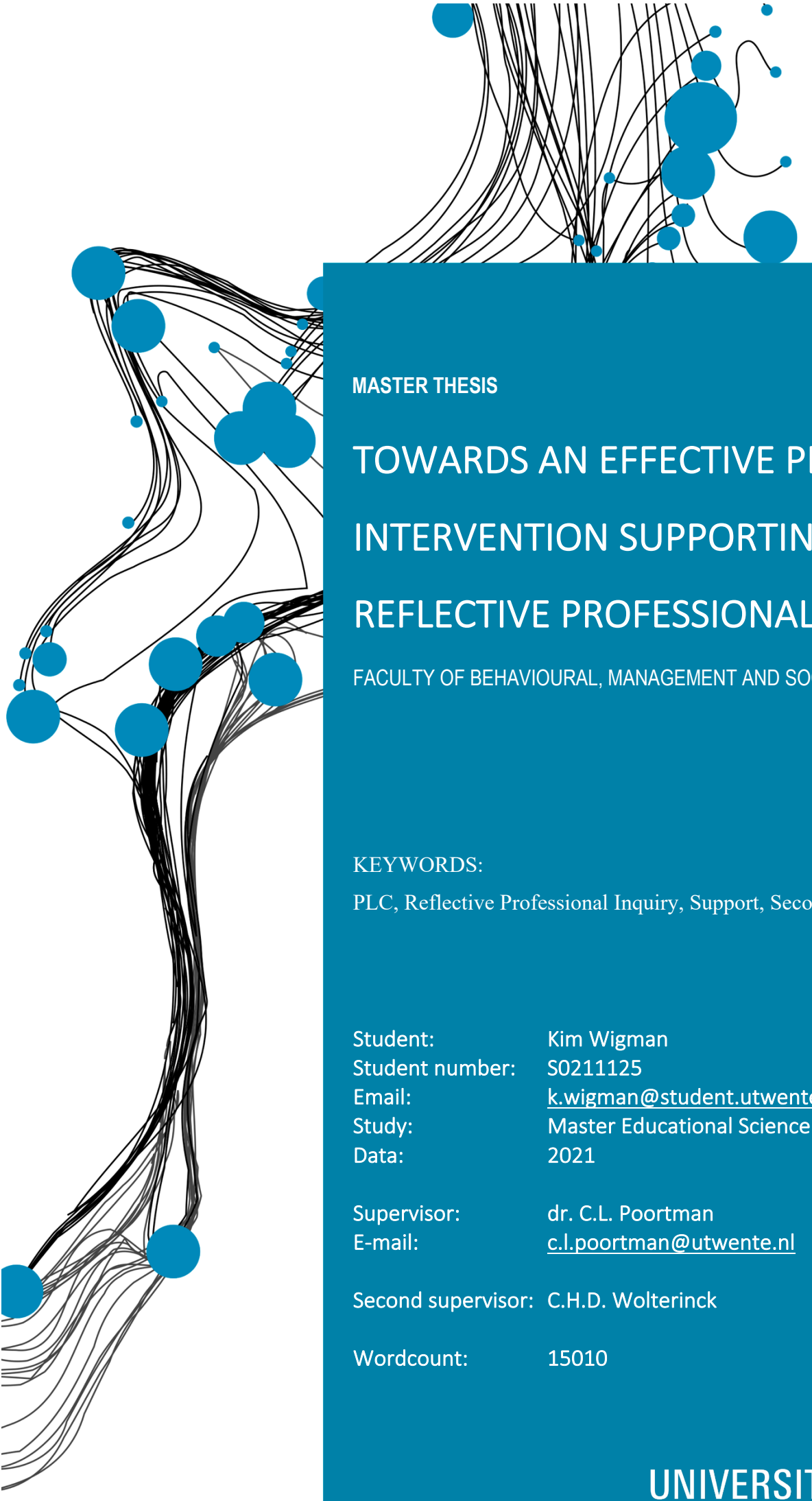

MASTER THESIS

TOWARDS AN EFFECTIVE PLC: AN INTERVENTION SUPPORTING REFLECTIVE PROFESSIONAL INQUIRY

FACULTY OF BEHAVIOURAL, MANAGEMENT AND SOCIAL SCIENCES

KEYWORDS:

PLC, Reflective Professional Inquiry, Support, Secondary Education

Student: Kim Wigman
Student number: S0211125
Email: k.wigman@student.utwente.nl
Study: Master Educational Science and Technology
Data: 2021

Supervisor: dr. C.L. Poortman
E-mail: c.l.poortman@utwente.nl

Second supervisor: C.H.D. Wolterinck

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Content

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Summary

Professional Learning Communities (PLCs) are promising because teachers who are part of them seem to reflect more on their practice and therefore adapt their professional behaviour in the group as a result. This can have a positive effect on school and student performance. Using PLCs as a model for school improvement, it is assumed that the professionals can build new knowledge and ideas together from a reflective capacity. This so called Reflective Professional Inquiry (RPI) is a collaborative, dialogic process in which educators both consider and aim to address pressing educational issues or problems. The relationship between RPI and student learning has not yet been clearly established, however more seems to be needed to promote RPI than existing interventions. This study, therefore, aimed to provide for an intervention that can be helpful to support professionals in a PLC to inquire and innovate and improve school and system performance through RPI. For this purpose, two research questions were formulated:

- What is needed to support professionals in a PLC to enquire and innovate and improve school and system performance through reflective professional inquiry?
- How do professionals in secondary education perceive the quality of the supporting intervention in terms of relevancy, consistency, usability and effectivity?

A literature review and field-based investigation answered the first research question. For the field-based investigation, a document analysis was conducted by analysing data from already recorded focus group interviews. Data from this phase led to a revised problem definition, a long-range goal and an initial design proposal. This was further elaborated into a a placemat with an inquiry model to provide visual support for the participants and a manual in which the steps are further elaborated. When the intervention is used to its full extent it was expected to structure the learning activities within and between PLC meetings, to encourage collaboration, feedback, reflection and experimentation from a shared focus on teacher learning to improve student learning. Although promising, a try-out showed that it seemed difficult to use the intervention to its full extent. Respondent reported that the parts used, seemed to make the conversation more structured and focused on learning. More support seemed to be needed to use all parts of the intervention. It is therefore recommended to try the intervention in several PLCs, with additional support regarding the use of all parts of the intervention, to draw conclusions about the reflective dialogue within PLCs in general. When it can be concluded that the intervention has the intended effect on RPI, it can be examined whether the intervention also has an effect on teacher and student learning.

1. Introduction

There is lot of research that shows that teachers' professional collaboration is a prerequisite for achieving better school and system performance (Stoll et al, 2006; Harris & Jones, 2017). According to Harris & Jones (2017) Professional Learning Communities (PLCs) are promising because teachers who are part of it, 'tend to be more reflective on their professional practice and more willing to innovate in the classroom' and beside that it 'can improve teachers' professional practice and make a positive contribution to improved student and school performance'(p24). However, PLCs do not always function well. According to Hord & Hirsch (2008), 'PLC expects that individuals will have voice and choice in their work together, but they will need guidance in how to exercise their new opportunities' (p33). For PLCs to be effective and successful it is for example important that professionals are open to learning and working together, on a base of trust and cohesion. They must feel the space and time to learn, feel responsible for their development. Besides that, an effective PLC characterizes itself by making decisions based on data. It is therefore important to know how to collect and use this data (Stoll et al, 2006; Hord, 2009; Decuyper, Dochy & van den Bossche, 2010, Dogan & Adams, 2018).

For the comprehensive schoolboard Stichting Carmelcollege it is important to work on a professional school culture where all employees work and learn together on professional- and school development. They believe in the power of networking and stimulate sharing developments, learning from and with each other and giving feedback that contribute to growing together towards a learning organization (Hoogendijk, 2021). The board first stimulated the development and innovation through the use of so-called networks. Professionals from different schools with the same expertise attended to these network meetings. They exchanged ideas and inspired one another, but it did not seem to contribute to constructive development and innovation within the schools. Therefore, PLCs within the different schools were introduced in order to structure the process of learning and developing together, improving the basic quality of their education and moreover realizing ambitions based on research. The PLCs are responsible for leading an innovation trajectory within the whole school or a department such as, for example the team HAVO/VWO. Using PLCs like this is a 'within school interpretation where PLCs are responsible for leading research, improvement and innovation' (Harris & Jones, 2017). It is '*a group of practitioners who work together using a*

structured process of enquiry to focus on a specific area of their teaching to improve learning outcomes and so raise school standards' (Harris & Jones, 2017, p27).

There are now eight PLCs in different school locations. Each PLC consist of six to eight participants and focus on an innovation topic concerning its own school context, for example formative assessment, the use of Virtual Reality to increase the student motivation during the lessons, or flexibility in the timetable in order to make students more responsible for their own learning. The participants are teachers of different subjects. One participant is the leader of the PLC. Team leaders are also involved in the PLC as driving force.

To support the different PLCs a platform has been set up. Meetings are organized by the platform four times a year. Two participants from each PLC join these meetings. A steering group of four people gives shape and content to the meetings. Attention was paid to the PLC concept and awareness was created on the importance of working together on developments. Unfortunately, despite the efforts, constructive efforts are not yet being made towards a clear goal. It seemed difficult for PLCs to start and in already started PLCs it looked like the professionals' shared ideas with each other, but the intended ambitions were not yet sufficiently shaped from a structured process of inquiry. Team leaders and teachers were motivated to initiate developments together, but it seemed that they needed and also wanted some structure in the process of doing so.

This study aimed to design an intervention to support the professionals in the PLC to enquire and innovate in order to improve school and system performance, by following the steps of Educational Design Research (McKenney & Reeves, 2019). Within this research method there are three phases: analysis & exploration, design & construction and evaluation & reflection. The existing PLCs were analysed on the basis of literature review and document analysis. For the document analysis focus discussions on the current state of affairs were recorded and made available for this purpose by the coordinators of the platform. These interviews gave insight into the opportunities and obstacles within the PLCs. Based on the conclusions of this analysis and exploration phase, an intervention was designed, evaluated and refined. By evaluating during this process more theoretical understanding in how professionals can be supported in PLCs is produced.

2. Theoretical framework

2.1 Definition PLC

In this study a PLC is described as '*a group of practitioners who work together using a structured process of inquiry to focus on a specific area of their teaching to improve learning outcomes and so raise school standards*' (Harris & Jones, 2017, p17). A PLC is more than just teachers talking together in a group. A PLC is a form of collective learning in which practitioners are expected to act as learners and cooperate together, using experience, data and literature to improve and innovate. It is more than a group of practitioners exchanging ideas and collaborating, they are continuously learning together through a cycle of reflection, discussion and evaluation. In course of time-shared knowledge bases are build, which contribute to a shared vision of educational practice (Hord, 2009; Harris & Jones, 2010).

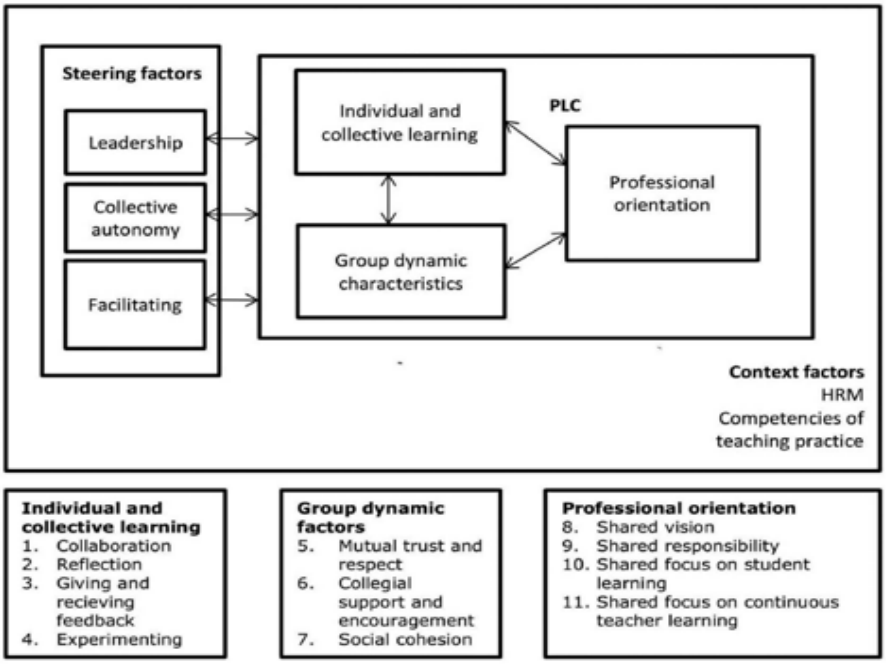
2.2 Characteristics of a successful PLC

A successful PLC grows overtime and becomes more successful in showing characteristics of an effective PLC (Chen & Wang, 2014; Owen, 2014). Support for teachers seems necessary to keep the process going, to allow teachers to learn from and with each other and to develop and innovate together from research (Hord & Hirsch, 2008). Giving support to a PLC, can thus help the PLC in becoming more effective. In order to give support, it is important to know what an effective PLC looks like, which characteristics are determining the effectiveness and successfulness of the PLC and which factors influence the process of becoming more effective.

Much research has been done on PLCs in recent years. Literature reviews show that the most common characteristics of a PLC are shared vision, shared responsibility, professional reflective inquiry, collaboration, learning, both at the individual and group level, shared values, and a focus on student learning (Stoll et al., 2006; Vescio, Ross & Adams, 2008). More recently, Dogan & Adams (2018), based on a critical analysis of PLC research, presented a model that brings together the characteristics that influence student achievement and teacher practices: leader support, collaboration, active learning strategies, focus on instruction and students and reflective dialogue.

Van Meeuwen, Huyboom, Rusman, Vermeulen, & Imants (2019), clustered these characteristics, based on reviews such as Stoll et al.'s and Vescio et al.', aiming to develop through an iterative process a dynamic and comprehensive framework which consists of a PLC

concept, influencing factors and interacting processes. The advantage of this is that instead of a list of characteristics, it is about a system in which characteristics, which can change over time, interact with each other. Developing a successful PLC goes beyond a list of characters, it is a '*complex entity of multiple interactions, features, which change over time'* (p. 406). Eleven characteristics were distinguished and categorized into three clusters: individual and collective learning, group dynamic characteristics and professional orientation.



Note. Reprinted from "The three PLC clusters with their characteristics and three steering factors.", by Huijboom, Van Meeuwen, Rusman & Vermeulen, 2020, *Professional Development in Education, 47(4)*), p.3.

The different clusters interact with each other and are influenced by so called steering factors. These steering factors can make the characteristics more visible and leaders can deliberate stimulate them. They validated the framework in practice by education researchers, school leaders and education inspectors. This framework can help determine which characteristics are clearly present and which need improvement. It is therefore also important what is needed to support and improve the different characteristics.

2.3 Support for an effective PLC

In order to create an intervention that supports an effective PLC, it is important to have theoretical understanding about the different clusters and characteristics and what is needed to support and improve the different characteristics. To clarify this, the different clusters and

characteristics and what is needed to support and/or improve them will be described in this section.

Individual and collective learning

Using PLCs to promote school development, it is assumed that professionals can develop new knowledge and ideas together. Reflective capacity is necessary for this. One's own perspective must be let go, in order to subsequently develop a new perspective with new knowledge and experiences. Professionals must let go of their own familiar actions, dare to try something new and thus improve their own actions. It is about continuously learning together through a cycle of reflection, discussion and assessment. These discussions go beyond merely discussing teaching practices. In an effective PLC, the professionals conduct research in a cyclical manner to improve their teaching. They make use of available data. In an effective PLC there is willingness to accept feedback and to work on continuous improvement through continuous critical inquiry (Brown etal, 2021; Valkx etal., 2018; Harris & Jones, 2010). In the model of van Meeuwen et al., this is described in the group of individual and collective learning. It is about joint learning activities and the creation of new knowledge. It includes the characteristics *collaboration, reflection, giving feedback and experimenting*. It is important to get this process right, because whether a team, in this case a PLC, becomes successful depends on whether team members are willing and able to share their knowledge and experience, but also listen to other team members and are willing and able to change their perspective to create new knowledge together. This process goes beyond just helping each other, listening to each other's examples and trying each other's ideas. Professionals need to use higher level thinking skills, such as analysis, synthesis, goal setting and reflection. (Ellis, Porter & Wolverton, 2008; Brown et al, 2021). Brown et al. (2021) call this process *reflective professional inquiry* (RPI) They define it as: ‘a collaborative, dialogic process in which educators both consider and aim to address pressing educational issues or problems’ (p9). In education teachers who demonstrate these skills are more able to investigate, assess and change their own performance for the benefit of student learning which increases the quality of their education. By using available information, it leads to evidence-based choices (Schildkamp etal., 2015). This high ‘depth of inquiry’ is an important characteristic of an effective PLC (Dogan & Adams, 2018). To make sure professionals develop this reflective practice over time, it is important to foster interactive learning conversations with a high depth of inquiry (Kuh, 2016; Brown etal. 2020). Support on collectively analysing student work, formulating a research question, working collaboratively on teaching materials, experimenting and reflecting on the results, and promoting a willingness

to wonder and ask critical questions about decisions, reasons, evidence, practices and student learning to foster cognitive dissonance in a way that evidence, data and new perspectives are considered seems necessary (Nelson, 2009; Earl & Timperley, 2008; Brown etal., 2020; Valkx etal., 2018;). Using tools, for example a model or protocol, can help support this (Nelson, 2009; Nelson etal., 2010; Thompson etal., 2019; Alzeyed & Alabdulkareem, 2020; Prenger, 2020).

In literature there are some examples of models that proved to be helpful in structuring the process. Hansen & Wasson (2015) designed for example the 'Teacher Inquiry into Student Learning (TISL) Heart Model and Method' and Kaser & Halbert (2017) designed a model called the 'Inquiry Spiral'. Both models were developed in order to support teacher inquiry and are based on the model of Timperley etal. (2007). The models focus on improving the professional's actions by making use of the wealth of data from their own practice.

Group dynamic factors

The group dynamic characters, *mutual trust, collegial support and encouragement and social cohesion,* is about developing a team and promoting a sense of community. Learning mainly involves experimenting and then assessing together whether an intervention is helpful. When it is experienced that an intervention is helpful, perception and behaviour change. In a group it is important that there is openness to share these experiences and to experience that making mistakes is allowed (Stoll etal., 2006). Trust is a very important factor in ensuring that professionals learn by experimenting instead of convincing each other form their own perceptions by sharing anecdotes and experience (DeCuyper etal, 2010; Hallam etal., 2015). To develop trust in teams, it is important that team members work towards the same goal, take responsibility for their tasks and activities and are patient and kind when something proves difficult (Owen, 2015; Hallam et al., 2015; Nelson etal, 2010). Working together on shared goals and activities stimulates a high level of interdependency between teachers and helps to promote sharing knowledge and supports reflective dialogues. By having the idea that they belong to a group and their input is important, members will be motivated to put effort in collaboration and are more willing to change their beliefs about teaching and learning (Meirink etal., 2010; Roblin & Margalef, 2013; Schaap & De Bruin, 2017). Structured activities with a relation to practice are important to support this process (Prenger etal., 2020). Professionals often do everything they can to avoid conflicts that involve emotions. As a result, the conversation quickly turns to anecdotes and experiences (Nelson etal., 2010). It therefore seems necessary for a group to be supported in goal setting and structuring activities that support

experimentation. It is important that they dare to take risks in order to learn. For this it is important that they feel supported and seen. This supports trust and social cohesion.

Professional orientation

The professional orientation cluster is about shared mental models and common attitudes, which are specific to their teaching practice and students' learning. Characters associated with this cluster are *shared vision, shared responsibility, shared focus on student learning and shared focus on continuous teacher learning.* As mentioned above having a shared goal and working on structured activities related to practice helps to stimulate a high level of interdependency between professionals. When goals are shared and discussed explicitly, teachers are more positive about the outcomes. Also, when the goals are directly linked to students' learning, teachers feel more responsible (Binkhorst etal., 2018; Valkx etal, 2018). A PLC can be successful if there is a collective focus on student learning (Van Meeuwen etal., 2019). As Harris & Jones (2010) described it: '*A professional learning community is a group of connected and engaged professionals who are responsible for driving change and improvement within, between and across schools that will directly benefit learners*' (173) and '*The focus is not just on individual teacher learning but on professional learning within the context of a cohesive group that focuses on collective knowledge'* (p175)

Figure 1: Order of improvement

To support this professional orientation, it therefore seems necessary to make sure there is a shared focus on teachers learning to improve student learning. The question *'What do **we** need to learn in order to improve students learning and outcomes?'* needs to be answered before PLC team members take action (Timperley etal., 2007; Kaser & Halbert, 2017).

Steering factors

Steering factors include: *leadership, collective autonomy* and *facilitating group dynamic processes.* The formal leader of the school or department should have a positive attitude towards PLC and contributes to its success by influencing in a positive way (Moore, 2010). Professionals must feel responsible for the change and experience that they are allowed to make choices in the process.

An effective PLC starts with professionals being aware of the need for change and innovation. When there is awareness, it can develop into collaboration on actual improvement. Within PLC this happens when interactive learning conversations take place that go beyond the exchange of anecdotes and experiences. When it is focused on learning. As said before, learning is also about daring to admit that something is not yet successful and experiencing that something can still be difficult. It is important to realize that various emotions can arise and that professionals prefer to avoid it. Professionals need support during this process and leadership is indispensable in this process (Chen & Wang, 2015). A good mix of vertical and shared leadership is necessary (Binkhorst etal. 2017). Vertical leadership provides direction in the process and clarity with regard to focus and actions, while shared leadership ensures shared responsibility, involvement, ownership and safety. By jointly taking actions between meetings, in addition to collecting valuable observations and other data that are helpful for follow-up discussions, colleagues from the organization who are not part of the PLG are also involved. This maintains focus and creates support.

Leaders can facilitate groups in the use of tools, protocols and asking feedback through the use of critical questions. This builds the capacity of using conflicting views as starting point for shared meanings and also provide clarity and focus during the process. The leaders need to model strategies for productive conversations and help the group reflect on results. The better leaders do this, the more teachers tend to engage in reflective dialogues and the more they report the presence of collective responsibility (Vanblaere & Devos, 2018; Binkhorst etal., 2018; Valkx etal., 2018). By guiding meetings, forming the group and motivate to participate in a coaching way, leaders facilitate group dynamic processes. Nelson etal. (2010) made a sample question that can be used for framing deeper conversations. These questions can be used by departmental leaders to guide the professionals through the levels of inquiry and to make them feel seen and reflect in order to learn.

2.4 Design

Design principles

The previous section extensively discussed the characteristics of an effective PLC and what is needed to support or improve these. In summary, to foster reflective professional inquiry it is important that there is a focus on learning conversations, professional orientation and group dynamic factors. Leaders should be able to give support in this process. Figure 2 shows an overview of the characteristics that can be used for design.

Form of delivery

In summary, it can be concluded that the intervention needs to structure the process, should be easily understood by the practitioners and leadership should be an important factor to focus on. It is important that the intervention will make the steps in a model explicit. A guideline, manual or roadmap can thus be helpful.

2.5 Evaluation

In educational design, an instrument is designed for a complex problem. The quality of the product determines whether the product is used to actually tackle the problem. Evaluation of the instrument is therefore necessary. An intervention of good quality meets a number of criteria in which the ultimate goal is the effectiveness of the intervention. Four evaluation criteria can be distinguished for assessing the quality of the instrument: relevance, consistency, practicality and effectiveness (Nieveen & Folmer, 2013). *Relevancy* implies that there is a need for the intervention and the design is based on scientific knowledge. *Consistency* is about the logical design of the intervention. When the intervention is designed, evaluation on practicality and effectiveness can be looked into. *Practicality* says something about the usability of the instrument. Is the instrument usable in the setting for which it has been designed? *Effectiveness* concerns the effect of the intervention with regard to the intended results. Is the instrument a solution to the problem? A distinction can be made between expected and actual practicality and effectiveness. Expected is about how it would be, for example according to the target group's expectations, and actual is about how it actually is.

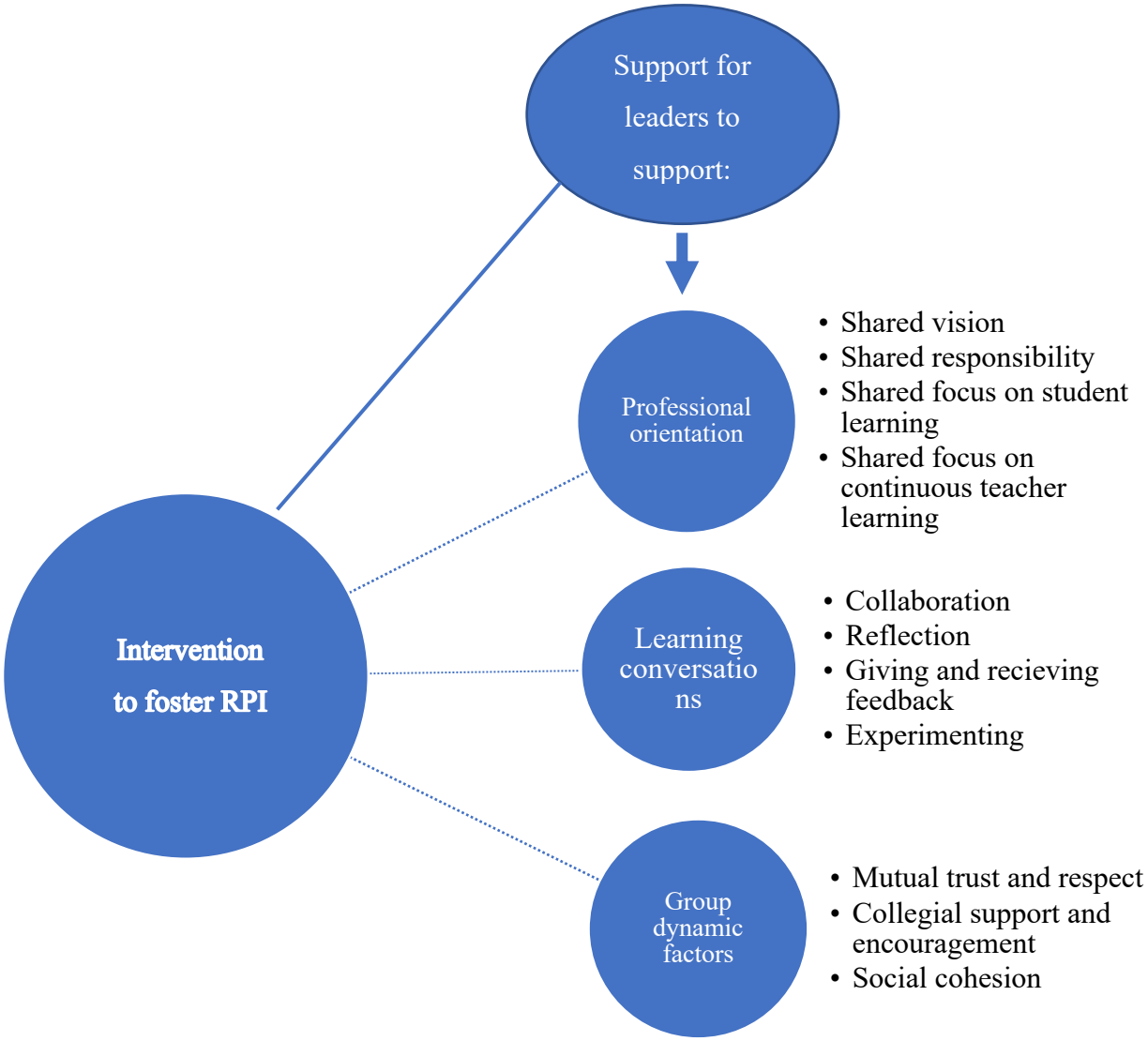


Figure 2: Schematical overview of indicators for design and evaluation

3. Research Question

The aim of this study is to determine what kind of support in the form of intervention and supporting materials can be given to support professionals in a PLC to develop from a group of people who learn from sharing ideas into a group of practitioners who innovate through the use of reflective professional inquiry. From their review, Brown et al (2021), argue that there are promising ideas on how RPI can be facilitated, but that this first should be incorporated as a part of an intervention that is tested. This study creates a design that is therefore relevant for theory and research. The practical relevance of this study is in providing an intervention that helps enhancing professional inquiry within a PLC in educational context (and more directly the PLCs in schools belonging to Stichting Carmelcollege), in order to develop to an effective PLC in which practitioners innovate and improve school and system performance through reflective professional inquiry.

The need to get more insight in how RPI can be facilitated has led to the following research questions:

RQ1: What is needed to support professionals in a PLC to inquire and innovate and improve school and system performance through reflective professional inquiry?

RQ2: How do professionals in secondary education perceive the quality of the supporting intervention in terms of relevancy, consistency, usability and effectivity?

4. Research design and methods

This study provides for an intervention as solution to a complex problem by conducting educational design research. Educational design research can be defined as: '*a genre of research in which the iterative development of solutions to practical and complex educational problems also provides the context for empirical investigation, which yields theoretical understanding that can inform the work of others*' (Mckenney & Reeves, 2018, p6). Within this research method there are three phases: analysis & exploration, design & construction and evaluation & reflection. In the first phase of design the emphasis is on relevancy and consistency. In the next phases the intervention should address practicality and effectiveness (Nieveen, 1999; Plomp 2013; Nieveen & Folmer, 2013). Figure 3 shows the sequence, associated criteria, tasks and products schematically. In the next section a description of the respondents, instruments, procedure and data analysis per phase is given.

Figure 3: Sequence of design, associated criteria, tasks and products.

<table>
<tr><td></td><td colspan="3">Phase 1
Analysis & Exploration</td><td>Phase 2
Design and construction</td><td>Phase 3
Evaluation & reflection</td></tr>
<tr><td>FOCUS</td><td colspan="3">RELEVANCE & CONSISTENCY</td><td colspan="2">PRACTICALITY &
EFFECTIVENESS</td></tr>
<tr><td>Process</td><td>Initial orientation</td><td>Literature review</td><td>Field-based investigation</td><td>Expected</td><td>Actual</td></tr>
<tr><td>Task

Strategy (method)</td><td>Conversation with expert</td><td rowspan="2"></td><td>Document analysis (Transcribing and coding previously recorded interviews)</td><td>Perception poll (Focus group)</td><td>Evaluation Try-out (Observation & Focus group)</td></tr>
<tr><td>Products</td><td>Problem statement</td><td>Focus data collection
Design principles</td><td>Problem definition, long range goal and an initial design proposition</td><td>Detailed product</td><td>Final design</td></tr>
<tr><td></td><td colspan="3">RQ1: What is needed to support professionals in a PLC to inquire and innovate and improve school and system performance through reflective professional inquiry?</td><td colspan="2">RQ2: How do professionals in secondary education perceive the quality of the supporting intervention in terms of relevance, consistency, practicality and effectivity?</td></tr>
</table>

4.1. Analysis & Exploration

During the first phase, a better understanding of the problem to be addressed was shaped. It leaded to answering the first research question: what is needed to support professionals in a PLC to enquire and innovate and improve school and system performance through reflective professional inquiry? It is important to have this analysis because the intervention needs to address the need of the stakeholders and target group and it must be consistent through time and respondents. According to McKenney & Reeves (2019) three main activities are undertaken to conduct analysis: initial orientation, literature review and a field-based investigation. Data collected in this phase resulted in a problem definition which describes the discrepancy between existing and desired situation, a long-range goal, a focus on data collection, design principles and an initial design proposition. The products of this phase gave insight into the existing problem and how to improve and innovate this problem (relevance). Furthermore, it specified the features of the intervention and how these can be developed (consistency) (Nieveen & Folmer, 2013, McKenney & Reeves, 2019).

Respondents

Before collecting data, first approval of the ethics committee of the University of Twente was obtained (request number 210200, see Appendix A, p.50). Participants were informed by the chairman of the network about the research in advance. All data collected was processed anonymously. The respondent in this first phase was the program leader of education and research within Stichting Carmelcollege. Together with other experts, she gives substance to the platform that contributes to the creation of effective PLCs within schools belonging to Stichting Carmelcollege.

Instrumentation

In addition to the conversation with program leader of education and research, information was collected from documents on the website in order to get a good idea of the purpose of the intervention. In the same phase the literature review was conducted. First the searching terms ‘PLC’ and ‘Reflective Professional Inquiry’ were used. From there using a snowball method was used to find more articles. Most-cited and key articles and peer reviewed articles of the past ten years were analysed to get insights in the characteristics of an effective PLC.

The field-based investigation gave insight into the existing problem and stakeholders' needs. For this a field portrait was made using document analysis. This document analysis was conducted by analysing data from focus group interviews that had previously been held. For these interviews, seven participants of PLCs that had joined the network-meeting in January were clustered into four groups and interviewed by the coordinators (experts) of the meeting. These focus group interviews were recorded via MS Teams and made accessible for analysis.

4.2 Design & Construction

The findings from the analysis and exploration phase were further elaborated and refined in the phase of design and construction. After analysing the problems and needs, tried interventions and possible support were sought in literature to formulate design and evaluation principles. Based on the results of the analysis and exploration phase and extension of the theoretical framework on possible support, a proposition for an intervention was made and checked on expected usability and expected effectivity (see 'Evaluation & Reflection'). With the results of this evaluation and further extension of the theoretical framework on using a model and the role of the leader, the intervention was further designed. Every stage of the product was evaluated by the researcher with the target group on expected usability and effectivity based on theory and evolved eventually into a detailed product, ready to be tested on actual usability and effectivity in a real setting.

4.3 Evaluation & Reflection

Evaluation and reflection took place throughout the development process. Through evaluation and reflection, more insight is gained into the intervention: the intentions, what it looks like, what is still needed after or during implementation and the effects on the problem. (Nieveen & Folmer, 2013). Data collected throughout this phase gave answer to the second research question about the quality of the intervention. For this evaluation focus group interviews and a try-out were conducted. The quality was measured using the components of the SLO matchboard (Nieveen, Folmer & Vliegen, 2012). Questions used in the focus group interviews and observation criteria were focused on the four components of the matchboard: relevance, consistency, practicality and effectiveness. When there is a need for the intervention (relevance), the intervention is logically designed and in line with theory (consistency), can be used in the setting for which it is designed (practicality) it should be a solution to the problem (effectivity). In the context of Stichting Carmelcollege the intervention should lead to professionals who are engaging in reflective professional inquiry in order to innovate and

improve school- and system-performance. The components of the matchboard were therefore related to the characteristics of an effective PLC as shown on p. 16: learning conversations, professional orientation and group dynamic factors.

Respondents

Respondents for the evaluation on relevancy, consistency, expected usability and effectiveness were five participants of PLCs and four coordinators (experts) of the platform, attending to the network meeting in March. For the evaluation of the detailed intervention, team leaders and leaders of the PLC could sign up for a try-out of the intervention. One PLC signed up and was able to organize a meeting within the period of research. This PLC consisted of a team leader, a leader of the PLC and four participants. For reflection on the final product participants of the network meeting in June were able to comment on the final product. There were seven participants of PLCs joining and three coordinators.

Instrumentation

In the first phase emphasis of evaluation was mainly on relevance. Relevancy implies that there is a need for the intervention and the design is based on scientific knowledge (Nieveen & Folmer, 2013). To check on relevance a perception poll was done, using focus group. Focus groups are a form of interview, whereby participants can react to each other instead of just answering questions from the interviewer. These discussions allow for opportunities to gather more insight about the problem, because participants can respond to each other (Cohen, Manion & Morrison, 2011; Basnet, 2018; McKenney & Reeves, 2019). A summary of the existing problem in relation to theory was given in the network meeting of March. After that, the respondents could first react individually by using *Mentimeter.* Main question here was ‘Do you recognize the problem?’. A short conversation about the shown reactions and opinions was facilitated. Notes were made and together with the individual answers it gave insight into discrepancies between perception and practice and how the professionals perceived the problem.

After this the presentation continued with a recommendation and initial design proposition that were presented as possible solution. These were checked on consistency (‘Is it logically designed?’) and expected practicality (‘Is the instrument usable in the setting for which it has been designed?’) and effectivity (‘Is the instrument a solution to the problem?’) (Nieveen & Folmer, 2013). This was done by using a *Padlet* where the participants had the opportunity to give feedback by answering questions first individually in text and thereafter

were given the opportunity to explain the written comments orally, so discussion and explanation could take place. Questions asked were for example: 'To what extent does this proposal meet the need?', 'Is the tool sufficiently structured?', 'Can a next step in the process be made?' and 'To what extent does this tool create a focus on learning?'. The procedure and questions of these focus group interviews are depicted in Appendix B, p.58.

For evaluation on actual usability and effectiveness, the detailed version of the intervention was tested by participants of one PLC in June. For this, a try-out was organized which was observed and followed by a short interview. By performing an observation in a real setting, it is possible to see how the intervention actually works in practice. This generates more data about actual usability and effectiveness than a method in which participants can share their experiences, such as a questionnaire or interview (Cohen etal., 2011). The observation was done in a PLC in which the intervention was used during a meeting via Teams. This meeting was observed live and recorded for further analysis. The observer joint in the first phase and helped explaining the intervention. After that, the observer was more on the background to see how the intervention might support the meeting. It was a natural setting; the participants were already known to each other and had had several PLC meetings before. The observation focused on the actual practicality and effectiveness of the detailed intervention. Observation criteria for practicality were for example:

- To what extent are the questions as included on the placemat used?
- To what extent are the possibilities to collect data used?

Observation criteria for effectiveness were categorized in the three characteristics of an effective PLC and were per character for example:

- Learning conversation:
    - To what extent is feedback given and received from within the organization?
    - To what extent is there talk about experimentation?
- Professional orientation
    - To what extent is the goal focused on student learning?
    - To what extent is the goal focused on continuous teacher learning?
- Group dynamic factors
    - To what extent do colleagues support each other and encourage each other to move on?
    - To what extent do people ask each other critical questions aimed at learning (how do we know that? And do we know enough?)

-

The questions in the short interview after the observation were also about actual practicality and effectiveness. Participants were invited to react for example on questions as 'To what extent were the instruments usable?' (practicality) and 'What similarities and differences do you see between the meetings with and without this support?' (effectiveness). The elaborated procedure of this meeting can be found in Appendix C, p.59.

4.4. Procedure

In figure 4, an overview of the procedure is presented.

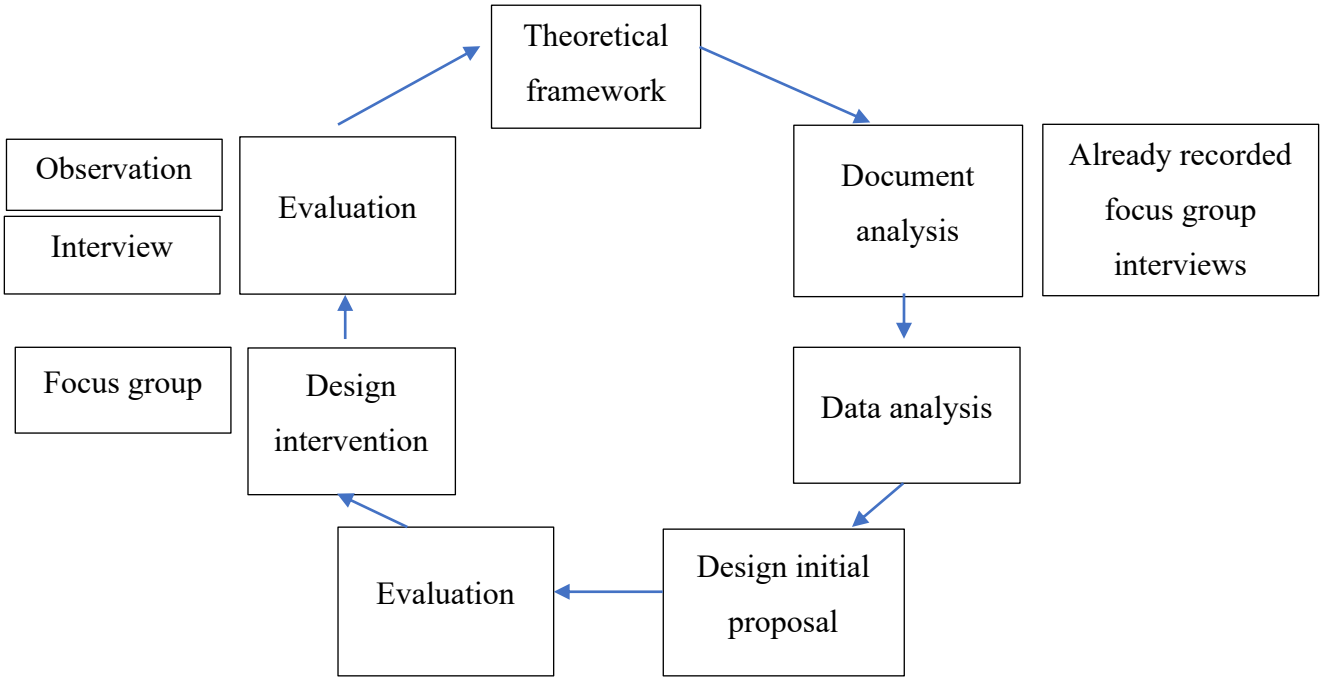


Figure 4: Overview of procedure

4.5 Data analysis

All data generated in this study is qualitative. Data triangulation and methodological triangulation was used to check and establish validity in this study (Guion, Diehl & McDonald, 2011). Data triangulation refers to using different sources. In this study, different stakeholders are involved: participants of different PLCs throughout multiple schools and experts who coordinate the network. Methodological triangulation refers to the use of multiple data

collection methods, within this study: document analysis, focus group interviews and observation.

For the document analysis codes were derived from the theoretical framework and listed in a codebook, using the deductive coding method from Strauss & Corbin (1990) (see Appendix D, p.61). The recorded interviews were transcribed verbatim. The initial data were reviewed paragraph by paragraph. A second independent coder coded 10% of the interview fragment to establish the inter-rater reliability of the codes, yielding a Cohen's kappa of 0.63.

After coding the data, a code was selected and a summary was made of all that the participants of the PLC said during the focus group interviews relating to that specific code. This was done with every code. The quotes from the respondents were translated into English for this study, since all the focus group interviews were conducted in Dutch. Based on the summaries of the interviews and the theoretical framework, a problem definition, a long-range goal and an initial design proposition were given. This provided an answer to the first research question.

With regard to the second research question about the quality of the intervention, focus group interviews and an observation was conducted. Therefore, the four components of the evaluation Matchboard from SLO (Nieveen, etal., 2012) was used. Specific questions and observation criteria about relevance, consistency, practicality and effectiveness were drawn. During the focus group interviews notes were made. Because of COVID measures the meeting for the Try-out took place digitally via MS Teams and could therefore be recorded for further analysis. Notes of this meeting were made afterwards. Data derived from the focus group interviews and the Try-Out were ordered based on the four components and described in the evaluation.

5. Results

In this section first a refined problem analysis is given based on the results of the first phase: analysis & exploration, to answer the first research question. Second, the results of evaluation are given to answer the second research question.

5.1. Analysis & exploration

First a summary is given of the document analysis. This is done by using the structure of Van Meeuwen et al. (2019) as used in the theoretical framework. After the description of the different characteristics, a conclusion is drawn which results in a more detailed problem definition, a long-range goal and initial design proposition. The analysis was structured using the schematical overview of indicators for design and evaluation (p.16) All relevant information derived from the document analysis are incorporated and placed under the corresponding cluster. Literal quotes from the interviews are shown in lowercase and italics and support the summary.

Summary document analysis

Professional orientation

Shared Vision All participating PLCs reported to work from the vision that is described in the Course Plan of Stichting Carmelcollege: '*Our students have a broad education (qualification, socialization and personal development) and have 21st century skills: are the owner of their learning process, set goals, make motivated and responsible choices, take responsibility, are accountable, are flexible, reflect on own actions'* (Hogendijk, 2020). Respondents reported that School Plans have been written based on these objectives, whereby the general objectives are translated to the specific location. During the writing of this document, there seems to be constant consultation with various stakeholders within the schools. Respondents mentioned for example that they "*notice that formative learning and a goal-oriented practice in lessons is really something that practically every school within our school group and even Carmel wide is involved in*" and "*Formative learning takes up an important section in the new school plan, in which we ultimately want to work towards a formative learning culture within the school. Initially aimed at teaching in the classroom, but in the end we want this way of working to become part of the DNA of the entire school*."

Shared responsibilities It was not very clear from the interviews that people feel jointly responsible for the learning and learning performance of all pupils and that they behave accordingly. Occasionally they talked about working together and making use of each other's knowledge with the aim of improving something at student level. These answers gave the idea that there is an aim to collaborate and learn from each other in order to improve. A respondent said for example: *"Last year we started with that we wanted to look at improving the learning results.*" However, the answers to the questions related to this subject pointed to many indications that the developments that need to be initiated often seem to be derived from what is described in plans made by management. For example: *"The development agenda is written by the director. In this regard, assessment policy and formative learning are an important point",* and: *"It is an assignment from the school management, we will use that assignment as a basis for our PLG"*. It is therefore questionable whether the PLC participants feel that it is their problem and whether they subsequently see the need to do something about it.

Focus on student learning At first glance, answers to questions about the why and the purpose of the PLC seemed often aimed at the organizational level: *"We are thinking of increasing the ownership of the students. The organization is holding back educational developments at the moment".* Participants talked about using digital resources an making a schedule flexible. After probing questions, participants said something about the goal for students. These probing questions seemed necessary to get the goal towards the students' learning. Most goals were about ownership, motivation and commitment of students, but is seems not clear why they want to improve on these subjects. As respondents mentioned: *"We want to invest in increasing the ownership of the students. And we think you can achieve that with formative assessment"*. Less is mentioned about the current situation, possible explanations and possible improvements.

A number of PLCs still seem to be looking for a concrete focus. One respondent indicated that in this orientation phase, prior to the start of the PLG, the results of the students and possible improvements are first discussed. It seems as if they first want to further translate the goal as described in the school plan. This goal focuses on student learning; it is largely about increasing intrinsic motivation, student engagement and ownership through formative evaluation and assessment. However, again it seems unclear why it is necessary to work towards these goals. What does it mean for the students?

Focus on continuous teacher learning Because of the different stages the PLCs are in (some already started; some will start later on) there is a difference in how they discussed this subject. In the already started PLCs the respondent talked about the goals they are working on, while in the not yet started PLCs there seemed just some wishes. There seemed to be one PLC that focuses on teacher learning. The respondent of this PLC indicated that it is difficult to get 'it into peoples' head'. This respondent mentioned in passing that not everyone is at the same level and that teachers do not all speak the same language yet. This respondent also said that within the PLC it is being considered what activities can be undertaken to bring it to the attention of colleagues in order to take the first step with the entire school: *"We had a lecture last Monday… With that lecture we put it back on everyone's mind. The goal was to pull everyone to a certain level that at least they know what we're talking about. This raised from the need that exists among teachers who are less experienced in using elements of formative evaluation in their lessons. And the uncertainty that people also openly call: 'I don't know how to do that', and 'how do people expect me to do that?*"

Besides this PLC, there was another PLC which was already running. Within this PLC they talked about helping teachers in order to ensure new materials are used. At the same time, the respondent stated that learning first must done by participants within the PLC. The participants of the PLC must, according to the respondent, first become experts themselves, before they can motivate others to use the materials as well.

In the PLCs that have yet to start, it seemed that teacher learning had not yet been addressed. There are a few indications that there are wishes in this area. One participant for example mentioned that teachers need to find a way in preparing a good lesson within the new schedule: "*But it is also about the organization of your lessons …. And some teachers deal with this better than others, but you have to be able to find a good way to do that."* This indicates that everyone has somewhat to learn, but can be somewhere else in the learning.

Learning conversations

Collaboration Probably because the majority of PLCs have yet to start, there was little information about actual collaboration within the PLCs from the interviews. There were a few notes about task and work appointments. This mainly concerned planning the meetings and dividing the tasks and roles during the meetings. Overall questions such as 'What is the purpose?', 'What are our expectations of the PLC?', 'What exactly are we going to do?' and 'What do the meetings look like?' keep recurring. It seems as if the participants are still looking for an answer to how the PLC can be set up and what exactly is the intention. One respondent

mentioned for example: *"So I really want to get started with the PLC itself. But what that will look like…, I do have some ideas. First our assignment again, of course, that's just where it starts again. Set dates and then also discuss that schedule, which different goals per month or per lesson, also with each other. … Ideas and then just go and do it. And make very concrete agreements."*

From the already started PLCs one respondent talked about the current phase of the PLC and that they are now mainly involved in brainstorming about how the knowledge is introduced into the organization and designing materials that can help with this, such as posters and meetings. In the first phase of the PLC, this respondent said that the participants had taken courses and attended lectures: "*If you ask me what are you working on, it is mainly in the third block; really design. What are we going to use in the school, what steps are we going to take, how are we going to deploy experiences, what actions are we going to take?"*

Furthermore, it was mainly about ideas regarding possible collaboration with other schools, or PLCs. Respondents mentioned that they have the intention to work together by sharing and gathering knowledge. One respondent mentioned that is about sharing and implementing ideas: "*I do indeed think that sharing knowledge, or gathering knowledge, is a very important one. Because yes, that school group is large, so you can really learn from each other there*." Another respondent said that: *"Within the school group many schools are engaged in formative action, but it all seems to be happen side by side. You could join forces. By working together, you can strengthen each other and seek connections".* However, nothing was mentioned about possible ways to do this.

Reflection This characteristic is about considering and questioning daily teaching practice individually or together in order to improve it. A few examples of reflection were mentioned, however this seemed to be happening because of organisational aspects or the subject of the PLC rather than planned for. Within one PLC, trying out materials could contribute to reflection. When the interviewer gave an example about this, the respondent was positive about it, but also mentioned that this was not happening yet. Another example emerged from one of the interviews that if the group composition is mixed, this could also lead to joint reflection: "*And then it's nice to have those different people in your group. Because that also helps that you don't go in a certain direction, but that the conversation about that continues. And that in the meantime you are looking for a common denominator*." The participants did not seem to plan for reflection during the meetings.

Little other information about reflection emerged in the interviews. This could be partly due to the fact that the PLCs largely still in the start-up phase. The focus initially seemed to be on the composition, determining the goal and setting up the organization.

Feedback Within this cluster it is about getting and giving information about teaching practice with the aim of improving it. It seemed as if a distinction can be made between the PLC that has already started and the PLCs that are still in the preparatory phase. The participant from the PLC which had already started, said that they mainly provide information based on the question: 'How do you ensure that people are aware of the knowledge and how do you activate people to get started with this knowledge?'. They do this, among other things, by making posters and initiating a lecture and courses. There was also an example of organizing a study day and creating an open learning space where knowledge could be gathered.

At the PLCs in the preparatory phase, the images that exist regarding this theme were also considered. These images seemed to be mainly about sharing of PLCs activities. The question 'what is the PLC doing?' seemed to be the central question in this. One respondent talked about having a weekly bulletin, e-mail, a screen in their staff room and study days to provide the possibility of letting know what is going on. Another respondent complemented this by saying that they simply expect participants to discuss the subjects in the departments as well so everyone knows about it and ideas are asked and good practices are shared.

The participants within the PLCs seemed to be expected to have a lot of knowledge about the subject. Many times, respondents reported that participants in the PLC are expert in the field, know their business and can have a say on the subject. One respondent said: *"We mainly focus on how to share our experience and expertise with the others, so we are less occupied with the theoretical aspect of how we function ourselves".* Also, there was a respondent who told that they "*not yet delved into literature".*

There are no examples of InterVision, peer consultation and class visits from the PLC. One participant of a PLC that yet has to start, talked about his experience of looking at colleagues in the group. As a result, he got a different view of education and what was needed. This feedback leaded to a reflective moment for him and his colleague. However, this initiative was created from another trajectory within the school, apart from the creation of PLCs. One respondent talked about the wish to ask students about their perceptions: *"Then we can also do measurement in which we ask the students how they experience it."*

Experimenting There was one concrete example of experimenting. The respondent of this PLC mentioned that the materials were tried out by participants of the PLC. He also mentioned that "*The members (of the PLC) should see it from each other, that is the intention".* He said that the participants first had to be experts in using the materials, before motivating other colleagues. By experimenting they could learn how to use the materials and also discuss the possible problems or difficulties.

Furthermore, there were no concrete examples of experimenting with new materials and approaches. The questioners consciously paid attention to this subject by explicitly asking questions and giving examples. Based on this a few wishes to measure more were put forward. One respondent for example said: *"Yes, you do something and what are the results in terms of output? You also want to measure that yourself. If we want ownership of the student to be increased, well then, we must also do a measurement from start. And then later on in the process another measurement, to determine the outputs".* It seemed from the answers that it was not really clear how this should be done: *"I also think we need to measure more of the developments that are happening everywhere. What matters is whether it actually happens. We are very good at talking, the most beautiful terms are used."*

Group dynamic characteristics

Probably because most of the PLCs did not start yet, characteristics belonging to this cluster were rarely discussed within the conversations. The few things that were said are summarized below.

Mutual trust and respect Based on the composition, respondents seemed to expect that there will be sufficient trust and mutual respect and participants should talk freely and share experiences without hindrance. A respondent said it as follows: "*Uhm, the people who are in it, from the school management and the teachers, I think they can talk openly with each other almost without any barriers or boundaries.*"

Collegial support and encouragement No questions are asked about this character It seems as if there is no reason for this and it is assumed that this will happen. One respondent mentioned that "*these people are not there for personal gain. They, who have a heart for the school, a heart for education, a heart for student."*

Social cohesion At a number of PLCs, participants will be or were approached to participate from a specific role, expertise or involvement on the subject. A number of other

PLCs was or will be composed of mainly people with an affinity for the subject. In general, the assumption is that participants are involved in the group and also feel part of the group.

Steering factors

Leadership Respondents in general seemed to feel that the formal leaders support the developments within the PLCs. Overall, they were positive about their leaders and about their own role if being a leader. For example, they said *"You can also see how important the management considers this. That's also good. We also worked hard to ensure that such a person really gets the space to make something out of it, because otherwise you shouldn't do it."*

Where PLCs have been started or are now being formed, the team managers involved in the PLC seems to have a clear leading role. Respondents reported that their focus is mainly on keeping progress and monitoring the division of tasks during the meeting or in the preparation of a meeting. But they also wonder if they should take this role or someone else within the group could do that.

Collective autonomy Respondents indicated on the one hand that sufficient ownership is experienced and that there should be sufficient space for their own interpretation. There seems to be certain frameworks and expectations, but as one respondent mentioned: "*there is quite a lot of room*". On the other hand, it seemed like they are waiting for approval of the formal leaders. Respondents mentioned that *"you always have certain frameworks in which you work, you cannot avoid that"* and *"it also depends a bit on what the school management wants, how fast they want to go"*.

Facilitation One of the goals of Stichting Carmelcollege is to realize a learning and professional culture in which people act from involvement, reliability, respect and care for each other and the community. Respondents spoke in varying ways about facilitation. Meetings were planned at one PLC, at another PLC this has yet to be done and this turns out to be difficult with regard to available hours. One of the respondents talked about facilitation in hours: *"...you also have to feel space in time. And of course, if you have a meeting, sometimes you have to say at the end of the day we're scheduling an 8th hour because we're sitting together. So, uh... that. Facilitate in time then. Time for a study afternoon. So, you have to look at that."* Other respondents indicated that this was already included in the function of the participants. In general, it seemed that the preconditions are being considered, discussions at school level are also about this and that there are possibilities for the problems to be solved: *"Look if it doesn't work at all, then at some point on a Monday, for example, you will have to schedule a seventh*

hour every so often. If there is no way around. Or you make a schedule, that's the most convenient."

Revised problem definition

Within Stichting Carmelcollege there is an explicit wish to work on innovation with a PLC. Working with a PLC means that a group of professionals encourage professional learning together to improve the behavior of professionals in the school and by doing so improve student learning on school level. However, these PLCs do not yet appear to achieve this in the current stage.

Overall, the results show that many of the enabling factors to create and support PLCs appear to be met. This mainly concerns the clusters group dynamic factors. Team leaders seem to think about facilitation in time and support, ownership and collective autonomy, have discussions about these factors and seem to make it suitable. There seems to be some differences about facilitation in time and support, but overall, it seems to be possible to discuss these matters. The participants also mention based on previous experiences sufficient ownership and collective autonomy and they think positively about the group characteristics such as trust and respect, social cohesion and collegial support and encouragement.

Improvement appears to be required in the clusters of professional orientation and individual & collective learning. In both the PLCs that yet have to start and PLCs already started, activities as part of learning concerning feedback, reflection and opportunities to work together that go beyond task and work agreements, exchanging materials and ideas, do not seem to be included. To actually learn together it is necessary that participants are continuously learning together through a cycle of reflection, discussion and assessment. There seems to be little consideration about learning activities in and between the meetings. In PLCs not yet started nothing is mentioned about this cluster, which could indicate that they don't know how to stimulate this learning process. In PLCs already started, the main focus is on how to ensure that everyone uses supplied materials or getting people aware of the concepts. Nothing is mentioned about getting feedback through the use of visiting classrooms, peer consultation or InterVision in order to know where the professionals are in the learning process and what is needed. Questions such as "What do we (the organization) want to achieve?", "Where are we (the teachers and students) now and what is needed in our (the teachers) actions to achieve the desired situation?" seems to be insufficiently explored together. As a result, no appeal seems to be made to reflect on one's own actions through discussions with others, new knowledge and experimentation in order to improve their own actions and thereby initiate innovations.

A learning cycle starts with the right focus. This focus, as most respondents indicate, currently seems to be translated from the broader school vision and in general is broadly formulated. It is necessary to make this focus more explicitly about learning of students and teachers, so questions arise that need to be explored through the use of collaboration, feedback, reflection and experimenting.

Long range goal

The intervention should aim at structuring the learning activities within and between meetings, to encourage collaboration, feedback, reflection and experimentation from a shared focus on teacher learning to improve student learning. Because leaders are involved in the PLCs and play an important role within the preparation and development of the PLCs, this intervention should be developed to help them start and develop towards an effective PLC.

5.2. Design & Construction

Initial design proposition

The initial design proposition consists of a placemat with a step-by-step plan for participants of the PLC (see Appendix E, p.66). This step-by-step plan was derived from the inquiry circle of Kaser & Halbert (2017). Within the step-by-step plan, the different steps of the learning cycle are explained and boxes per step could be filled-in by the participants before moving on to the next step. When necessary, a step back can be made. This step-by-step plan could structure the meetings and learning activities. It could help visualize when participants 'jump' from an idea to action, without asking feedback, reflection and experimenting. And also, it could help to have a focus on student and continuous teacher learning.

Detailed product

The detailed product consists of a placemat with an inquiry model at one side and on the other side an overview of the different phases in learning, questions to be asked and answered during the meetings and possible activities for in between the meetings that support feedback and experimenting. The placemat is intended for participants of the PLC to provide visual support in the process.

The model, as shown on the placemat, is based on the Teacher Inquiry into Student Learning (TISL) Heart Model (Hansen & Wasson, 2015) and Method and the Inquiry Spiral (Kaser & Halbert, 2017) and has four phases: scan, idea, action and check. Each phase always contains a 'loop'. Ideas that arise during the conversation should be supported with data from

practice. The questions 'What's going on?', 'How do I know?' and 'Why is it important?' are always central. As a result, the conversation goes beyond exchanging anecdotes and experiences. It is about beliefs in the field of learners, learning and teaching (Nelson, 2008). By examining these convictions together, a shared vision and focus is created within the PLC. By using the time between meetings to examine what students and teachers experience and what everyone wants to learn, in addition to literature and test and research data, everyone is involved in learning and there will be greater support for change within the organization. The four phases are always connected to each other. It is important during every phase to jointly assess whether the focus is still correct. Do our actions have the intended impact? By regularly assessing this jointly, it is prevented that people are going astray and/or that actions are taken that will not affect the results.

The placemat comes with a manual and a PowerPoint presentation in which the steps per phase are further elaborated. The manual describes possible activities for each phase during and after meetings to determine and maintain focus. A good balance in leadership styles is also a determining factor for the success of the PLC (Binkhorst et al, 2018). That is why tips for support for the team leader are also included in the manual. The PowerPoint can be used during the PLCs' (online) meetings. It always makes clear to participants in which phase they are and what the focus is on. When using the presentation mode, tips will be visible to the team leader to guide and direct the process and to increase shared leadership. As a result of meetings, it is possible to supplement the PowerPoint presentation with focus, goal, plan and planned actions. This makes it possible to come back to the previous meeting and the actions taken in the intervening period.

Because the design is made for a secondary school in the Netherlands, the product has been developed in Dutch. The complete product is included in Appendix F, p..67 The placemat and PowerPoint are included in the manual as an appendix.

5.3. Evaluation & Reflection

Relevance

Relevance is high when stakeholders in general recognize themselves in the problem to be solved and agree on the long-range goal (Nieveen & Folmer, 2013). The problem definition and long-range goals were described and presented during a network meeting in March 2021 to which the participants present could respond. First individually using Mentimeter (see Appendix G, p.91) and thereafter they were able to elaborate on their answers in a conversation. The conclusion was based on recent insights, since it is based on recent data. The problem

definition was based on data derived from interviews. Quotations from the interview made it clear that this conclusion stemmed from what the participants themselves had said. In general, respondents indicated that they recognized the problem. Examples of individual answers were: *"Our PLC does not develop because no learning demand is experienced."* and "*In the PLG we often overlook the research part. We think we know it already. Indeed, this is too reactive"*. In the conversation that followed, participants elaborated on their answers and agreed on the need to have a focus on learning of students through learning of teachers. One respondent said that it was an "*eye-opener that learning involves both the student and the teacher*". He elaborated on this answer by asking questions about why and what is necessary and stated that these questions are rarely about students. Respondents generally indicated that they do not know how to approach this. Questions as 'How do we ensure that the PLC is about learning?', 'How do we create support?' and 'How do we ensure that we take the right steps in the process?', were asked and difficult to be answered by all the respondents, what indicated that there was a need for a step-by-step plan. The participants mentioned that a step-by-step plan could be helpful to structure the process. One of the comments was: "*Within education, there is a rapid transition from intention to action. The why and the focus are often skipped here. A step-by-step plan can structure the process more and help prevent it from acting too quickly, without creating support*."

Consistency

The initial proposition was evaluated on consistency during the same network meeting in March 2021. Participants were asked about the intervention being logically designed by using Padlet (see Appendix H, p.92) followed by a focus group interview in which the respondents were able to elaborate on the answers. The steps as presented in the placemat seemed still somewhat unclear in this initial proposition. There were questions about the steps to be taken and also when the intervention will be used; prior to the start and composition or as the first step? It seems to stick with talking about wanting a PLC, rather than actually starting it. There were also questions about what is needed in order to collect feedback and how to structure the meeting in order to reflect together on learning. Based on this evaluation it seemed necessary to make fundamental changes on the initial proposition. By making the steps clear from the start and more explicit in possible tasks and activities, this could provide participants with structure in the process as well from the start of the PLC.

The team leader and leader of the PLC that tested the detailed product concluded that the steps in this product were logical organized. The placemat was helping in making it visual,

and gave enough possibilities to create their own process. They said that the manual helped to understand the process so the right questions could be asked. The parts can be used separately in the process; however, they reinforce each other when used together. In that way they are part of each other.

Practicality

The expected practicality was also evaluated in the network-meeting in March 2021. Respondents present seemed overall positive about the idea of the initial design proposition. Respondents indicated that it seemed nice to assess together which step has been taken and which next step will follow to prevent steps being skipped and the effect being less than hoped for. One respondent said it was clearly defined and that the idea is reflected in the design. Another respondent indicated that the instrument is concrete and usable but, the layout however seemed somewhat unclear and therefore less user-friendly. Participants mentioned that they were a bit confused about the arrows and that the arrows and steps were not totally clear. Therefore, they expected this initial design being less practical. One of the respondents proposed to create a model instead of the fill-in boxes on the placemat, so this could visualize the structure of the process. Other participants agreed. The placemat was changed into visual support and supplemented with a manual, with the steps worked out in detail.

The detailed product was evaluated on actual practicality by a try-out in one of the already started PLCs. In the try out session, the participants used the placemat with the model for visual support during a PLC meeting. The team leader read the manual beforehand and prepared the meeting. Only one side of the Placemat, the side with the model on it, was presented to the participants during the conversation. During the conversation the team leader took a leading role. He asked questions and summarized what had been said. He made sure that alle participants had a part in the conversation. It could be observed that he made use of the tips as described in the manual. Probably because the other side of the placemat was not been shown, the participants did not make use of the questions and possible activities to collect data. Also, the PowerPoint presentation in which the participants can make notes about agreements and activities was not used.

After the meeting a short interview was held with the participants and the team-leader. The team leader acknowledged that he had not included the PowerPoint now. He pointed out that is a nice way to set up actions together and to make clear agreements about this. He said that as soon as the focus is clear, he plans to make agreements about possible actions. When questioned, it seemed that the name of the phase of action and actions between the meetings

caused some confusion. The team leader indicated that he certainly intended to use the PowerPoint at future PLC meetings. He read the manual and said that it was easy to read, gave insights in the way of working and that was very helpful in preparing the meeting. The other participants were enthusiastic about the model presented. Because it was constant on the screen during the conversation, they stated that it helped creating focus. They all said that all the materials shown were good to use, but in the short time they had for preparing the meeting, and due to other organizational factors, it was not completely used.

Effectiveness

The goal of the intervention was to structure the learning activities within and between meetings, to encourage collaboration, feedback, reflection and experimentation for a shared focus on teacher learning to improve student learning. Whether the intervention is effective can be inferred from the extent to which learning conversations take place and if there is a focus on teacher- and student-learning. Because group dynamic factors play an important role in learning, it is also important that there is a focus on these aspects during the meetings.

The expected effectiveness of the initial design proposition was evaluated in the network-meeting of March 2021. The respondents mentioned that the initial design proposition could help to collect data to determine whether there is a problem and if so, what this problem means. Furthermore, they think that this instrument can provide structure, as a form of blueprint. One respondent was positive about the steps, but wondered however about the underlying processes. Respondents indicated that it is nice that the instrument reminds that the focus should be on learning. However, they indicated that it is now a fill-in exercise, which makes it feel less supportive with regard to the activities in and between the meetings. A manual with concrete steps instead of step-by-step plan on a placemat was suggested to be more effective. This could also give structure to the process and gave according to the respondents more opportunities to create their own process.

For the actual effectiveness the final product was tested in the same PLC meeting in which the actual practicality was evaluated. Before the meeting the team leader asked for feedback on the steps they were intended to make. Starting from a short conclusion from the previous meeting, they wanted to continue with the action step. Based on feedback they changed their initial plan and started the meeting by checking whether the conclusion drawn in previous meetings was correct and whether there is a focus on the learning of both students and teachers. The effectiveness of the instrument per component that has been observed will be briefly discussed below:

Learning conversations The conversation started with questions about the successes and challenges. The participants reacted first individually on the questions by talking about their experiences. Then they reacted on each other and concluded that the focus had not been specific enough. In particular, the subject of public support was discussed for a long time. What is needed to create support? The participants discussed the effect on students and that it would be important to talk to other colleagues about the arguments for acting differently. However, participants still talked a lot from 'I think' and 'I expect', with their own perspective being paramount. The question "How do I know?" was not asked. The meeting was ended without any agreements about possible actions to be taken.

After the meeting the participants noticed that the instrument as used did not make a difference to the conversations and also concluded that this was due to not using both sides of the placemat. The explanation of the Placemat gave insight in wat is expected that participant should do during and in between meetings. The participants responded positive to this and said to expect more effect on this when using the total intervention.

Professional orientation By describing successes and challenges the participants also talked about the effects of using the materials in their lessons. By using the materials, the lessons could be more attractive for the students, which could create a greater involvement, they said. At the end of the meeting, the participants jointly described two new goals: creating support by including team members in the development and gaining more experience themselves to be able to work more from an expert role. Both sides of the conversation were focused on the learning of student and teachers.

At the end of the meeting, the participants responded that this meeting had been different from previous meetings. They had dwelt more on the focus; what is the intention and what is the effect? It was said that the conversation was more structured. Before it was more about 'what are we going to do?', while now it seemed more about 'why are we doing what we are doing?

Group dynamic factors The team leader asked questions and summarized what was said. The participants responded to these questions and summaries as well as to each other. `They were open to each other and stimulated each other to go on with their actions and ideas. They asked each other about experiences. The team leader promoted to ask further questions and helped asking for support.

After the meeting the team leader said that he was enthusiastic about using this part of the instrument. It structured the process and helped him to keep the focus on learning by following the steps and asking questions. According to him, the manual in particular provided a nice theoretical framework to work from. It gave him insights in what helps to have an effective PLC, what then helped to prepare for the meeting and ask the right questions during the meeting. He argued that in education people tend to proceed directly from an idea to action. This systematic way of working could help to create more support and allows the change to really take place in the workplace.

To summarize, based on the evaluation on relevance, consistency, expected practicality and effectiveness the initial design was re-designed. The placemat with a step-by-step plan and fill-in boxes was not clear to the participants. Besides that, it seemed to only help structuring a PLC already started. It missed the steps leading up to starting a PLC.

The placemat with a step-by-step plan was changed to a placemat with an inquiry model at one side and on the other side an overview of the different phases in learning, questions to be asked and answered during the meetings and possible activities for in between the meetings that support feedback and experimenting. The placemat is intended for participants of the PLC to provide visual support in the process. This Placemat is supported with a manual and a PowerPoint presentation in which the steps per phase are further elaborated. After evaluating the instrument in a real setting, there were no further adaptations on the instrument. There are, however, recommendations for the use of the instrument and possible guidance. This is discussed further in the next chapter under the heading discussion. This follows after a conclusion, in which answers are given to the research questions.

6. Conclusion & discussion

6.1 Conclusion

Working with PLCs can be promising to achieve a better school and system performance (Harris & Jones, 2017). There is lot of research on characteristics of PLC and the effect on students learning. The most common are shared vision, shared responsibility, professional reflective inquiry, collaboration, learning, both at the individual and group level, shared values, and a focus on student learning (Stoll et al., 2006; Vescio et al., 2008). However, to have an effective PLC in which teachers reflect on their professional practice and are willing to innovate the classroom, support seems needed (Hord & Hirsch, 2008). It seems difficult to form a PLC, to take a first step, to begin with. Professionals share ideas with each other, but the intended ambitions are not yet sufficiently shaped from a structured process of inquiry. Brown etal. (2020) argued based on other research that in order to have an effective PLC, Reflective Professional Inquiry (RPI) is perhaps one of the most important things to get right. Therefore, the aim of this study was to design an intervention to support professionals in a PLC to enquire and innovate in order to improve school and system performance. Two main questions were central in this study: "*What is needed to support professionals in a PLC to inquire and innovate in order to improve school and system performance through reflective professional inquiry?*" and "*How do professionals in secondary education perceive the quality of the supporting intervention in terms of relevancy, consistency, usability and effectivity?*"

What is needed to support professionals in a PLC to inquire and innovate?

For the design of the intervention an analysis of already recorded focus group interviews with several people from different PLCs in different secondary schools was done for the needs assessment. Characteristics of an effective PLC as described in theory, were compared with what was said about these characteristics in existing PLCs. Based on this analysis it was concluded that improvement could be made in the clusters of professional orientation and learning conversations. Activities as part of learning concerning feedback, reflection and opportunities to work together that go beyond task and work agreements, exchanging materials and ideas did not seem to be included or thought about before starting and during meetings. There seems to be little consideration about learning activities in and between meetings. To actually learn together it is necessary that participants are continuously learning together through a cycle of reflection, discussion and assessment. Such a learning cycle starts with a focus on student and teacher learning, so questions arise that need to be explored through the

use of collaboration, feedback, reflection and experimenting. It is important that this focus is determined by the participants of the PLC themselves and is explicit on the learning of students and teachers (Timperley etal., 2007; Kaser & Halbert, 2017). The intervention therefore aimed to structuring the learning activities within and between meetings, to encourage collaboration, feedback, reflection and experimentation from a shared focus on teacher learning to improve student learning. Because leaders are involved in the PLCs and play an important role in the preparation and development of the PLCs, this intervention was developed to help them start and develop towards an effective PLC. Using tools for example a model or protocol, can help support this (Nelson, 2007; Nelson etal., 2010; Thompson etal., 2019; Alzayed & Alabdulkareem, 2020; Prenger, 2020).

The intervention designed in this study (see Appendix F, p. 67) goes further than just another iterative, evidence-based inquiry cycle. It includes as Brown et al. (2020) suggested from their review, learning conversation by creating a focus on evidence and ideas, experience and external knowledge and using protocols. Furthermore, it fosters cognitive dissonance and takes emotions into account. A placemat with an inquiry model on one side and the different phases in learning, questions to be asked and answered during the meetings and possible activities for in and between meetings that support feedback and experimenting provides visual support for the participants. The inquiry model, based on the model of Hansen & Wasson (2015) and Kaser & Halbert (2017) has four learning phases: scan, idea, action and check. Each phase contains a 'loop'. Ideas that arise during the conversation should be supported with data from practice and as a result, the conversation goes beyond exchanging anecdotes and experiences. It is about beliefs in the field of learners, learning and teaching (Nelson, 2008). This placemat comes with a manual, in which the steps per phase are further elaborated. The manual describes possible activities for each phase during and after meetings to determine focus. This manual can be helpful from the start of a PLC and for preparing each meeting. Because participants tend to just exchange their own ideas and materials during the meeting, a PowerPoint was made with all the steps and the possibility to write down the conclusions drawn during the meetings and actions for between meetings. This corresponds to the need of support on collectively analysing student work, formulating a research question, working collaborative on teaching materials, experimenting and reflecting on the results, and promoting a willingness to wonder and ask critical questions about decisions, reasons, evidence, data and new perspectives that considered to be necessary ((Nelson, 2007; Earl & Timperley, 2008; Brown etal., 2020; Valkx etal., 2018).

What is the perceived quality of the supporting intervention?

To answer the second research question about the quality of the intervention a focus group interview and a try-out were organised to evaluate the initial design proposal (see Appendix E, p.66) and detailed product (see Appendix F, p.67). This evaluation focused on evaluation criteria of the SLO Matchboard. These are relevance, consistency, practicality and effectiveness (Nieveen et al., 2012) The focus group was used to evaluate on relevance, consistency and expected practicality and effectiveness of the refined problem definition, the long-range goal and the initial design proposal. The actual practicality and effectiveness were evaluated in a try-out with the detailed intervention, followed by a short interview afterwards.

Respondents were positive about the relevance. Overall, they recognized the problem. Questions as 'How do we ensure that the PLC is about learning?', 'How do we create support?' and 'How do we ensure that we take the right steps in the process?', were asked and difficult to be answered by all the respondents. The participants mentioned that a step-by-step plan could be helpful to structure the process. They indicated that when it comes to the learning of all students, teachers are often not included. It would help to have support in determining focus. Furthermore, they recognized when the focus is on learning of students and teachers, data should be collected about this learning in order to make discissions about this learning of students and teachers. The conclusion also supports the findings in earlier research that support to foster cognitive dissonance in a way that evidence, data and new perspectives are considered seems necessary (Nelson, 2007; Earl & Timperley, 2008; Valkx etal., 2018; Brown etal., 2020). This makes the design relevant and consistent.

There were some critical remarks about the consistency and expected practicality and effectiveness of the initial design proposition. The steps were somewhat unclear and it seemed not to support from the start of a PLC. Concerning expected practicality and effectiveness the respondents were positive about the idea to have a step-by-step plan to structure the activities and meetings. However, the lay-out was not clear and therefore less user-friendly and also the respondents reported that the fill-in boxes as presented gave too little space to their own process. This evaluation leaded to fundamental changes. The Placemat with the step-by-step plan was turned over into visual support complemented with a manual which described the steps clear from the start and more explicit in possible tasks and activities, which could provide participants with structure in the process as well from the start of the PLC.

Respondents were positive about the actual practicality and effectiveness of the adjusted version. They concluded that the detailed product was logically organized and meets their needs. The manual was considered to be helpful in giving a nice theoretical framework to work

from. From observation it can be concluded that the intervention gave structure to the meeting. They had dwelt more on the focus of why and what and made this focus about learning. However, the participants did not make agreements about actions between the meetings. Furthermore, they spoke in terms of “I think…”, and “To my opinion…”. The question “How do we know?”, was insufficiently explored together. The role of the leader to structure this and ask questions is very important (Vanblaere & Devos, 2018; Binkhorst etal., 2018; Valkx etal., 2018). The team leader structured the conversation by summarizing and letting everyone speak. However, no critical questions were asked about 'how do we know?' and no clear agreements about possible activities to collect data after the meeting. This structure and possible support from the team leader was included in the manual and in the PowerPoint presentation. They did, however, not make use of this due to the short time they had for preparing the meeting and other organizational factors. The participants and team leader indicated that they expected the manual and PowerPoint presentation to be practical and effective. It can therefore be concluded that the supporting intervention, used as intended, is perceived by professionals as relevant, consistent, practical and effective.

6.2 Discussion

Practical implications

When the intervention is used to its full extent it is expected to structure the learning activities within and between PLC meetings, to encourage collaboration, feedback, reflection and experimentation from a shared focus on teacher learning to improve student learning. In this way it contributes to an effective PLC in which professionals enquire and innovate in order to improve school and system performance. Although promising, the try-out showed that it seems difficult to use the intervention to its full extent. The deployment requires knowledge of the initiators and team leaders about the concept of PLCs. There is a role for them to ensure that conversations during the meetings are structured and activities for reflection are determined for between the meetings. In addition, they should ask good questions that will take reflection to a higher level. In doing so, they must take into account the emotions that arise in this regard. The manual and the PowerPoint provide support for this. It seems important that team leaders or/and initiators prepare the meetings sufficiently and get support in doing so. This support should concern the use of the intervention, the questions that can be asked during the meetings, the degree of guidance that can be given and the various activities that are set up between the meetings.

Because this way of working may require something different in the behavior and attitude of the team leaders and initiators, it is recommended to pay attention to this attitude and behavior. By preparing the meetings for example together with team leaders or initiators from other PLCs, professionals can learn together how PLCs can be effectively designed. Network meetings in which different PLCs are represented can be useful. Experts in the field can help using the intervention. Within Stichting Carmelcollege these network meetings already exist.

Limitations & implications for further research

This study has several limitations. Most design research involves the sub cycles of design, evaluation and reflection multiple times (McKenney&Reeves, 2019). The evaluation of the intervention was not very elaborated. The initial design was evaluated on relevancy, consistency and expected practicality and effectiveness. After this evaluation, fundamental changes were made to create a detailed product. This adjusted version of the product was not again evaluated on these components and was directly used in one of the PLC meetings. The conclusions would have been more reliable when an extra sub cycle of evaluation after re-design was added.

Furthermore, the detailed product was tested partly on actual practicality and effectiveness in only one PLC. Therefore, the conclusions about practicality and effectiveness are not yet complete and can also not be translated to other PLCs in this context, let alone PLCs in general. Moreover, the intervention was evaluated in a PLC which was already running. Because the steps also described how to start with a PLC, it would be interesting to also try the intervention with PLCs during the entire process. Can they move forward and start forming a group of people who actually determine a focus as start of a learning process? It is recommended to test the entire intervention in several PLCs to draw conclusions on practicality and effectiveness.

Finally, the effectiveness is evaluated by observation of a PLC meeting and a short interview afterwards. The observation criteria were about the reflective dialogue in general. After the observation and short interview conclusions could be drawn about the conversation; to what extent the conversation was about experimenting and giving feedback and if there was a focus on learning. Nothing can be said about the effects of these conversations on actual teacher learning and student learning, one of the main goals of working with PLCs (Harris & Jones, 2017). When it can be concluded that the intervention really has the intended effect of RPI, it can be examined whether it also has an effect on teacher- and student learning.

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8. Appendix

Appendix A: request for ethical review

UNIVERSITY OF TWENTE.
FACULTY BMS

210200 REQUEST FOR ETHICAL REVIEW

Request nr: 210200

Researcher: Wigman, K.

Supervisor: Poortman, C.L.

Reviewer: Walma van der Molen, J.H.

Status: Approved by commission

Version: 2

1. START

A. TITLE AND CONTEXT OF THE RESEARCH PROJECT

1. What is the title of the research project? (max. 100 characters)

Towards an effective PLC: an intervention supporting reflective professional inquiry

2. In which context will you conduct this research?

Master's Thesis

3. Date of the application

04-03-2021

5. Is this research project closely connected to a research project previously assessed by the BMS Ethics Committee?

No/Unknown

B. CONTACT INFORMATION

6. Contact information for the lead researcher

6a. Initials:

K.

6b. Surname:

Wigman

6c. Education/Department (if applicable):

M-EST

6d. Staff or Student number:

0211125

6e. Email address:

k.wigman@student.utwente.nl

6f. Telephone number (during the research project):

+31627863111

6g. If additional researchers (students and/or staff) will be involved in carrying out this research, please name them:

-

6h. Have you completed a PhD degree?

No

7. Contact information for the BMS Supervisor

7a. Initials:

C.L.

7b. Surname:

Poortman

7c. Department:

BMS-ELAN

7d. Email address:

c.l.poortman@utwente.nl

7e. Telephone number (during the research project):

+31534896675

8. Is one of the ethics committee reviewers involved in your research? Note: not everyone is a reviewer. No

C. RESEARCH PROJECT DESCRIPTION

9a. Please provide a brief description (150 words max.) of the background and aim(s) of your research project in non-expert language.

The comprehensive schoolboard Stichting Carmel College, is working on professionalization and quality culture by implementing Professional Learning Communities. Unfortunately, despite the efforts, an effective PLC is not yet realized. It seems difficult for PLCs to start and in already started PLCs it looks like professionals share ideas with each other, but the intended ambitions are not yet sufficiently shaped from a structured process of enquiry. It is assumed that professionals need support in reflective professional inquiry in doing this. The aim of this study is to design an intervention to support the professionals in the PLC to enquire and innovate in order to improve school and system performance. The intervention will be realized by following the steps of Educational

Design Research. First a problem- and context analysis will be conducted from which criteria for a suitable intervention are derived. Second a partly detailed intervention will be designed, constructed and evaluated.

9b. Approximate starting date/end date of data collection:

Starting date: 2021-03-17

End date: 2021-06-29

9c. If applicable: indicate which external organization(s) has/have commissioned and/or provided funding for your research.

Commissioning organization(s):

Stichting Carmel College

Funding organization(s):

Not applicable

2. TYPE OF STUDY

Please select the type of study you plan to conduct:

I will be collecting new data from individuals acting as respondents, interviewees, participants or informants.

4. RESEARCH INVOLVING THE COLLECTION OF NEW DATA

A: RESEARCH POPULATION

20. Please provide a brief description of the intended research population(s):

The respondents are the participants of eight different PLCs of 'Stichting Carmel College'. The PLCs consist of six to eight participants and each PLC focus on an innovation topic concerning its own school context. The participants are teachers of different subjects. Team leaders are involved in the PLC as driving force. 21. How many individuals will be involved in your research?

Eight groups of two particpants during the network meeting and two groups of six to eight participants during the observation and interview. So approximately 25 - 35 participants.

22. Which characteristics must participants/sources possess in order to be included in your research? The respondents need to be a member of a PLC within Carmel College. There are no exclusions of participants.

23. Does this research specifically target minors (<16 years), people with cognitive impairments, people under institutional care (e.g. hospitals, nursing homes, prisons), specific ethnic groups, people in another country or any other special group that may be more vulnerable than the general population? No

24. Are you planning to recruit participants for your research through the BMS test subject pool, SONA No

B. METHODS OF DATA COLLECTION

25. What is the best description of your research?

- Observation research
    - By researcher in person
    - By photo, video or audio recording
- Interview research

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26. Please prove a brief yet sufficiently detailed overview of activities, as you would in the Procedure section of your thesis or paper. Among other things, please provide information about the information given to your research population, the manipulations (if applicable), the measures you use (at construct level), etc. in a way that is understandable for a relative lay person.

Findings from the exploration and analysis phase will result in a revised problem definition, long-range goals, partial design requirements and initial design propositions. From this a checklist will be conducted which will be used to evaluate the design proposal. During a network meeting of Carmel a short pitch will be given about the findings and the global design of the intervention. After this the participants of the meeting will discuss the use of the product in smaller groups. They will have the opportunity to give feedback on relevancy, consistency and expected utility and effectiveness by simulating the use of the product and using the checklist. The checklist has been drawn up in such a way that the participants can complete it independently together. No guidance is required here. The filled in checklist will be used to evaluate the global design and to develop further into a partly detailed product. After the smaller groups all the participants will join the central meeting and get the opportunity to give some oral and written feedback. The written feedback will be collected through the use of a digital tool like paddle. Notes will be made by the researcher from the oral feedback. The micro evaluation of the partly detailed product will be done by an observation and interview in two PLCs which are already composed. During the network meeting of march 18th 2021 participants are asked who is open to an observation and short questionnaire while using the elaborated product. They are also told that this is helpful in the further development of support appropriate to the organization. In addition, it gives the PLC the opportunity to learn and influence the final proposal. Based on the responses, in consultation with the coordinators of the network, two PLCs will be approached for further coordination. The procedure will be explained and it is checked whether all participants in the PLC agree with the observation and the interview for data collection. They also consent to the video recording of the meeting and the interview. A subsequent meeting of the PLC will be followed for observation, followed by a short interview. Due to the measures of COVID-19, the meetings take place digitally via Teams. The researcher will invite the participants in a meeting so the researcher is able to record and safe the

meeting. The meeting is recorded via Teams. The footage will be removed after transcribing by the researcher. The observation as well as the interview will be transcribed and then analyzed. It will be about communication that reflects professional reflective inquiry. A

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transcript of the observation will be made and analyzed. After this recommendations and advice will be given towards a fully elaborated product. The results will be presented in a short presentation during a network meeting in June 2021.

How much time will each participant spend (mention the number of sessions/meetings in which they will participate and the time per session/meeting)?

In the first evaluation phase there will be one session. The presentation will take no longer than 15-20 minutes. The evaluation of the product by discussing in smaller groups wil take max 45 minutes. The observation is during their own meeting, so this costs no extra time. The interview afterwards will be of maximum 15-30 minutes.

C: BURDEN AND RISKS OF PARTICIPATION

27. Please provide a brief description of these burdens and/or risks and how you plan to minimize them: It may happen that through the interviews and the observation participants discover that they find something difficult or that they are not (yet) able to do something, which might make them feel uncomfortable. It is important that the information is processed anonymously in the report and data is treated confidentially. The video material will be destroyed once the investigation is closed and will not be shared with third parties. In addition, is important that it is stated that the information is helpful for the product and can not be used by managers in follow-up discussions.

28. Can the participants benefit from the research and/or their participation in any way? Yes

Please Explain:

They give input the final product that can help them to stimulate personal development and developments within the organization 29. Will the study expose the researcher to any risks (e.g. when collecting data in potentially dangerous environments or through dangerous activities, when dealing with sensitive or distressing topics, or when working in a setting that may pose ‘lone worker’ risks)?

No

D. INFORMED CONSENT

30. Will you inform potential research participants (and/or their legal repsentative(s), in case of non competent participants) about the aims, activities, burdens and risks of the research before they decide whether to take part in the research?

Yes

Briefly clarify how:

In the network meeting all the participants are informed about the aim, the nature and purpose of the investigation. The information gathered during the first phase will be treated confidentially. In the

second phase of the research the participants will be informed by e mail about the nature and purpose of the investigation, the right to decline to participate and withdraw from the research at any time, without any negative consequences, and without providing any reasons; any recording of voices and images (where applicable); confidentiality protection and the limitations thereof; period of time to which the consent applies; time and nature of data storage; incentives for participation; names and details of the responsible researcher and contact person(s) for questions about the research and rights of research participants. After that all participants will give oral consent prior to the observation. This consent will be recorded. Without this consent the recording of the observation and interview can not proceed.

32. How will you obtain the voluntary, informed consent of the research participants (or their legal repsentatives in case of non-competent participants)?

Oral (recorded) consent

33. Will you clearly inform research participants that they can withdraw from the research at any time without explanation/justification?

Yes

34. Are the research participants somehow dependent on or in a subordinate position to the researcher(s) (e.g. students or relatives)?

No

35. Will participants receive any rewards, incentives or payments for participating in the research? • No

36. In the interest of transparency, it is a good practice to inform participants about what will happen after their participation is completed. How will you inform participants about what will happen after their participation is concluded?

- Participants will receive the researcher's contact details, so that they can contact the researcher if they have questions/would like to know more.
- Other (Please specify):

The research results will be presented during a network meeting.

E. CONFIDENTIALITY AND ANONYMITY

37. Does the data collected contain personal identifiable information that can be traced back to specific individuals/organizations?

Yes

38. Will all research data be anonymized before they are stored and analysed?

Pseudonymazation

39. Will you make use of audio or video recording?

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Yes

• What steps have you taken to ensure safe audio/video data storage?

The video will be recorded via Teams, the video will not be downloaded from this drive and not shared with third parties. After transcription the videolink will be removed.

• At what point in the research will tapes/digital recordings/files be destroyed?

after transcription of the video's, all video's will be destroyed.

5. DATA MANAGEMENT

• I have read the UT Data policy.

• I am aware of my responsibilities for the proper handling of data, regarding working with personal data, storage of data, sharing and presentation/publication of data.

6. OTHER POTENTIAL ETHICAL ISSUES/CONFLICTS OF INTEREST

40. Do you anticipate any other ethical issues/conflicts of interest in your research project that have not been previously noted in this application? Please state any issues and explain how you propose to deal with them. Additionally, if known indicate the purpose your results have (i.e. the results are used for e.g. policy, management, strategic or societal purposes).

no other issues/conflicts

7. ATTACHMENTS

–

8. COMMENTS

–

9. CONCLUSION

Status: Approved by commission

The BMS ethical committee / Domain Humanities & Social Sciences has assessed the ethical aspects of your research project. On the basis of the information you provided, the committee does not have any ethical concerns regarding this research project. It is your responsibility to ensure that the research is carried out in line with the information provided in the application you submitted for ethical review. If you make changes to the proposal that affect the approach to research on humans, you must resubmit the changed project or grant agreement to the ethical committee with these changes highlighted. Moreover, novel ethical issues may emerge while carrying out your research. It is important that you re consider and discuss the ethical aspects and implications of your research regularly, and that you proceed as a responsible scientist.

Finally, your research is subject to regulations such as the EU General Data Protection Regulation (GDPR), the Code of Conduct for the use of personal data in Scientific Research by VSNU (the Association of Universities in the Netherlands), further codes of conduct that are applicable in your field, and the obligation to report a security incident (data breach or otherwise) at the UT.

Appendix B: Procedure focus group interviews (evaluation)

Focus group interviews – netwerkbijeenkomst maart 2021

Evaluatie op relevantie, consistentie, verwachte bruikbaarheid en effectiviteit

Procedure

1. Dank voor aanwezigheid
2. Uitleg procedure tot nu toe en vervolg
3. Presentatie van de bevindingen: theorie en analyse groep interviews.
4. Mogelijkheid tot individueel reageren via Mentimeter
5. Kort gesprek over de reacties
6. Presentatie aanbeveling en voorstel mogelijk ontwerp
7. Mogelijkheid tot reageren via Padlet
8. Kort gesprek over de reacties
9. Bedanken en uitlijnen vervolg onderzoek

Vragen:

Relevantie

- In hoeverre vind je de resultaten herkenbaar?
- In hoeverre sluit dit voorstel aan op de behoefte?

Consistentie

- In hoeverre vind je dat er voldoende theoretische inzichten zijn meegenomen?
- Zit het ontwerpvoorstel logisch in elkaar?

Bruikbaarheid

- Is het ontwerpvoorstel concreet genoeg?
- Is het ontwerpvoorstel voldoende gestructureerd?
- In hoeverre lijkt dit ontwerpvoorstel bruikbaar?

Effectiviteit

- Kan een volgende stap worden gemaakt?
- In hoeverre helpt dit ontwerpvoorstel om de focus op leren te krijgen?

Overig:

- Is er nog iets extra's nodig?
- Zijn er nog tips/aanvullingen ter verbetering?

Appendix C: Procedure Try-out (evaluation)

Try-out - observatie PLC tijdens gebruik interventie

Evaluatie werkelijke bruikbaarheid en effectiviteit

Procedure:

1. Vooraf contact met teamleider over het instrument.
2. Deel 1 van de bijeenkomst (interviewer actief aanwezig)
    a. Dank voor aanwezigheid
    b. Uitleg van procedure tot nu toe en waar staan we nu?
    c. Uitleggen doel aanwezigheid en verzamelen data
    d. Korte uitleg van het instrument door teamleider
    e. Mogelijkheid tot stellen van vragen
3. Starten van de bijeenkomst met behulp van het instrument (Interviewer op de achtergrond)
4. Kort interview met de aanwezigen
5. Bedanken en uitlijnen vervolg

Observatiecriteria (kijkvragen)

Bruikbaarheid

- In hoeverre wordt gebruik gemaakt van de vragen zoals deze op het placemat zijn opgenomen?
- In hoeverre wordt gebruik gemaakt van de mogelijkheden om data te verzamelen?
- In hoeverre worden afspraken gemaakt over de acties tussen de bijeenkomsten?
- In hoeverre wordt gebruik gemaakt van de tips voor de leidinggevende om te werken aan de groepsdynamische factoren?

Effectiviteit

- Learning conversations
    - In hoeverre is er sprake van geven en ontvangen van feedback vanuit de organisatie?
    - In hoeverre wordt er gesproken over experimenteren?
    - In hoeverre wordt er gesproken over besluiten, beweegredenen, bewijsmateriaal, de praktijk en het leren?

    - In hoeverre stelt men elkaar kritische vragen gericht op het leren (‘Hoe weten we dat?’ en ‘Weten we genoeg?’)
- Professional orientation
    - In hoeverre is er sprake van een gedeelde visie?
    - In hoeverre voelen alle deelnemers zich verantwoordelijk voor het leren?
    - In hoeverre is het doel gefocust op het leren van leerlingen?
    - In hoeverre is het doel gefocust op het leren van docenten?
- Group dynamic factors
    - In hoeverre ondersteunt de leidinggevende ten aanzien van vertrouwen en respect
    - In hoeverre ondersteunen collega’s elkaar en moedigen ze elkaar aan om verder te gaan?
    - In hoeverre stelt men elkaar kritische vragen gericht op het leren (hoe weten we dat? En weten we genoeg?)

Vragen tijdens interview

Bruikbaarheid:

- Waren de materialen goed bruikbaar?
- In hoeverre verwachten jullie dat dit voor iedere PLG bruikbaar is?

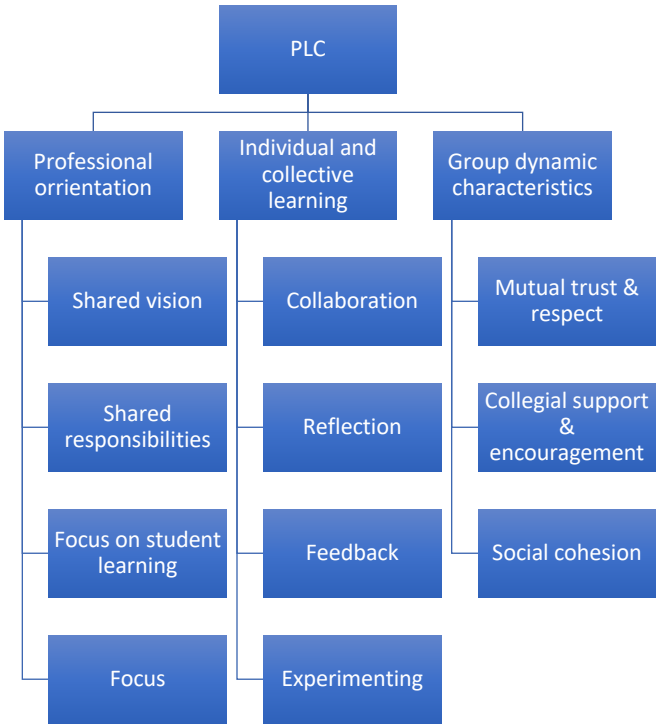
Effectiviteit:

- Welke overeenkomsten en verschillen zien jullie tussen de bijeenkomsten zonder en met deze ondersteuning?

Overig:

- Zijn er nog tips/aanvullingen ter verbetering?

Appendix D: Coding scheme problem analysis

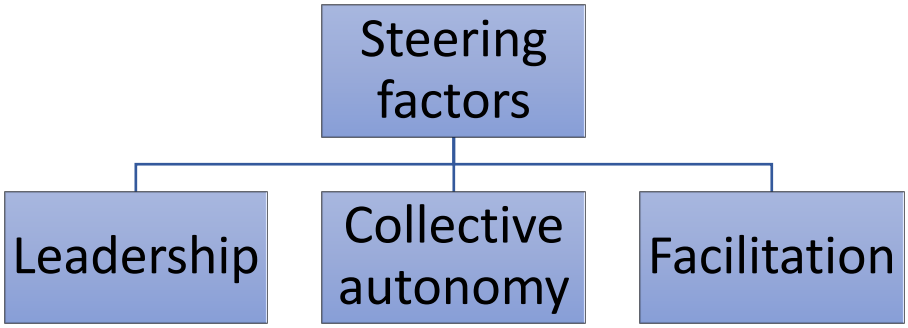


PLC		**Code**	**Definition**	**Example**
Professional orientation	Shared vision	PO1	A common vision of teaching and learning that serves as the basis for goal setting, execution and decision-making within the PLG	'But what I do notice is that formative learning and a goal-oriented practice in lessons is really something that practically every school within our school group and even Carmel wide is involved in.' 'Every team has its own team plan and that doesn't mean we all go for the same thing'
	Shared responsibilities	PO2	Teachers feel jointly responsible for the learning and learning outcomes of all students and act accordingly.	'When I speak to different colleagues from different schools, it is often about working in a more learning-goal way and acting in a formative manner. And I think you can learn a lot from each other there' That's also because teachers don't speak the same language, don't do similar things.

	Focus on student learning	PO3	The teacher's work is permanently and consistently aimed at learning and improving the learning outcomes of students.	'Uhm, last year we first started with the wish to improving the results and more ownership of the student' 'You want to increase intrinsic motivation in students and you want to achieve a proactive learning attitude'
	Focus on continuous teacher learning	PO4	The teacher continues to develop in order to improve the learning and learning outcomes of students.	'The people who are already in the PLG have been working on it for three years, they are also the first group to join, enthusiastic about it. Did courses, attended lectures, so they are now more in a kind of expert role and how are we going to help the others in the school too?' 'Primarily focused on teaching in the classroom, but ultimately we want this way of working to become part of the DNA of the entire school. So from everyone, that we not only want to consciously let those students walk through that learning cycle, but that we all do that ourselves'
Individual & collective learning	Collaboration	L1	Collaboration with colleagues that offers the opportunity to learn from each other, that goes beyond dividing tasks that can be performed separately	'If you had asked me, what are you working on, it is mainly the third block. Real design. What are we going to use in the school, what steps are we going to take, how are we going to deploy experiences, what actions are we going to take?' 'And that's nice when you have those different people in that group. Because it also helps that you don't go in a certain direction, but that the conversation about it continues'
	Reflection	L2	Considering and questioning the daily teaching practice individually or together in order to improve it.	{no examples found}
	Feedback	L3	Giving or receiving information about	'We go into the school to attend classes. Really looking from the bottom up, where can we find

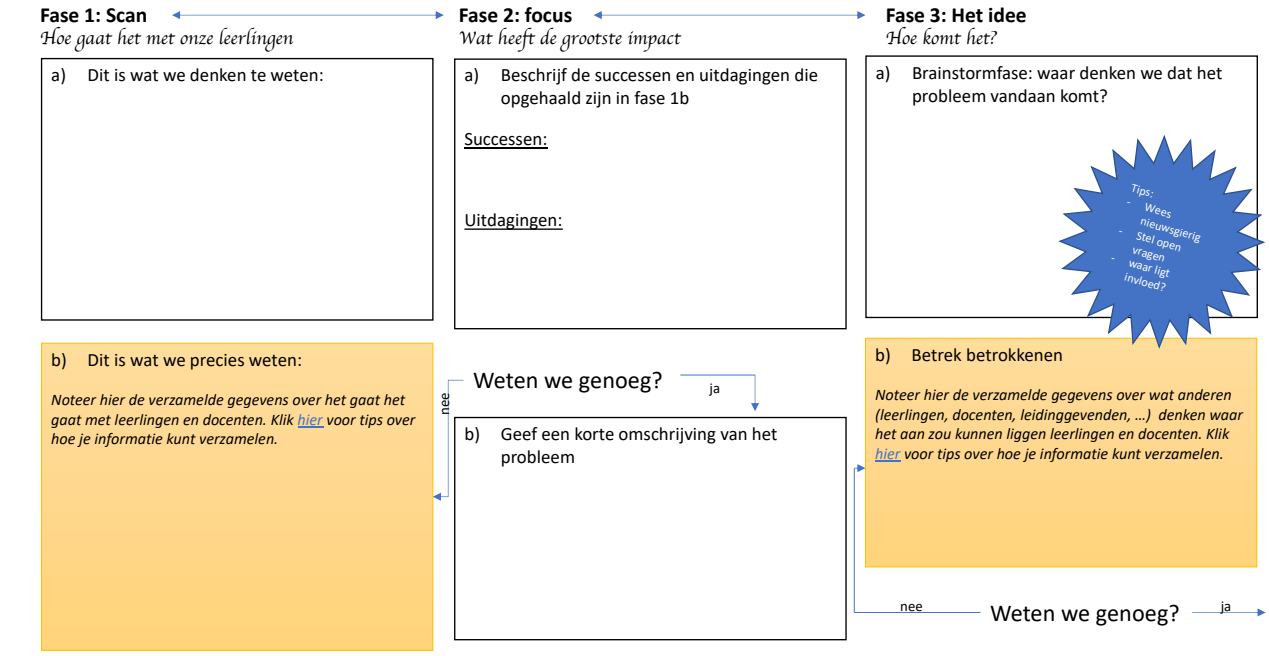
			teaching practice in order to improve it	improvements. I was also allowed to visit classes from other colleagues for a whole day. Not to look at the colleague, but just how a day like this works for the students. And what doesn't work. Last Monday we had a lecture which is also recommended for others, really nice and concrete, she explains what it exactly means and what works and what doesn't work.
	Experimenting	L4	Cyclic research and experimentation with new, changed or modified views, approaches, materials	I mean I literally saw students welding with VR glasses and a forklift simulation... and they really like that. And then you really see them ... there they are with a few men around and then they are working on that. So in that sense it also offers new possibilities, literally new experiences, but also new opportunities to learn. That you also want to measure. If our goal is that we want the ownership of the student to be increased, well then we also have to do a measurement at the beginning and then another measurement later, otherwise you cannot measure. We want to do that.
Group dynamic characteristics	Mutual trust & respect	GD1	Supportive social and safe climate in which people dare to question problems and beliefs.	I hear you say that's nice, isn't it, they differ. Are you also referring to the critical friends? Being able to ask each other critical questions? D2: Yes. And the uncertainty that people also openly call: 'I know a lot about how to do that', 'how do people expect me to do that?' Or something like that.
	Collegial support & encouragement	GD2	Having care and attention for each other in the workplace.	{no examples found}

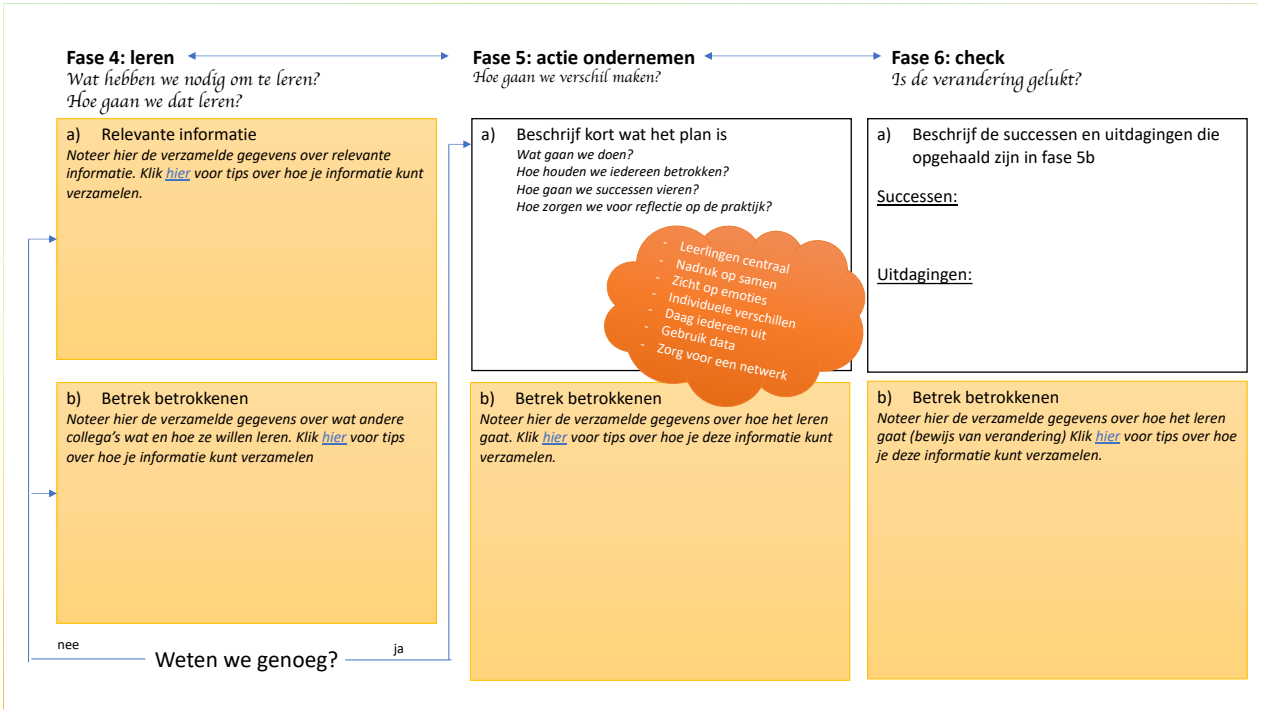
	Social cohesion	GD3	The desire and the feeling of belonging to the group (PLG)	'yes, it is mainly people who have entered it because of their own affinity with the subject. Who are also uh, yes, really involved.'



Steering factors	Code	Definition	Example
Leadership	SF1	Exerting influence by formal leaders to promote learning within the PLG, teaching behaviour and ultimately student learning and learning outcomes.	yes, so if I understand you correctly, you say, the management, right up to the central management, is involved in this, the team leaders at the local schools are involved and teachers are involved who, based on their own needs, develop their theme have contributed. We have a development agenda at our school, which is written by the director of education.
Collective autonomy	SF2	Teachers' say in the design and implementation of the school's educational and quality policy and the ability to utilize this individually and collectively experienced space.	'every team has a small committee looking from the direction from Carmel and from the school management, what does that mean for our team and how do we want that. Well actually a form of a team plan.'
Facilitation	SF3		I was also allowed to visit classes from other colleagues for a whole day

Appendix E: Design proposal





Schoolinnovatie bevorderen vanuit een Professionele Leergemeenschap

Een handleiding met tips voor teamleiders

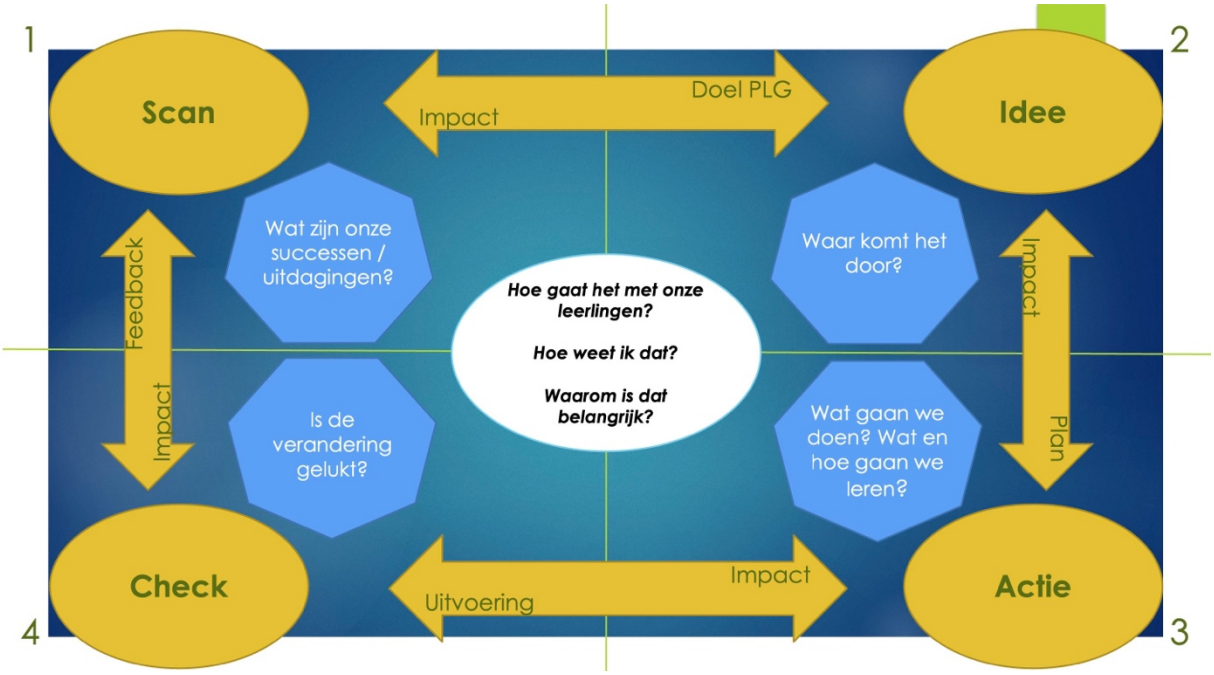
Inhoudsopgave

Inleiding

Stichting Carmelcollege wil docenten ondersteunen om onderwijsontwikkeling te bevorderen met Professionele LeerGemeenschappen (PLGs). Deze handleiding bevat een model met 4 fasen om deze PLGs te ondersteunen. Per fase zijn activiteiten tijdens en na bijeenkomsten beschreven om de focus te bepalen. Dit komt ten goede aan interactieve leergesprekken, het draagvlak en daarmee de beoogde verandering. Hierbij is een goede balans in leiderschapsstijlen medebepalend voor het succes van de PLG. In deze handleiding zijn daarom ook tips ter ondersteuning beschreven. Eerst wordt het model uitgelegd. Daarna volgt per fase een korte beschrijving van het doel en zijn mogelijke activiteiten tijdens en tussen de bijeenkomsten beschreven. Aansluitend volgen tips voor ondersteuning vanuit de teamleider.

Bij deze handleiding is ook een placemat ontwikkeld met daarom het model en een overzicht van de verschillende fasen. Deelnemers kunnen deze ter ondersteuning tijdens het proces gebruiken. Daarnaast is een PowerPoint presentatie ontwikkeld die gebruikt kan worden tijdens de (online) bijeenkomsten van de PLG. Hierdoor is voor deelnemers steeds duidelijk in welke fase ze zijn en waar de focus op ligt. Bij gebruik van de presentatiemodus zullen voor de teamleider (de presentator) tips zichtbaar zijn om sturing en richting te geven aan het proces en gedeeld leiderschap te vergroten. Het is mogelijk om naar aanleiding van bijeenkomsten de PowerPoint presentatie aan te vullen met focus, doel, plan en uitgezette acties. Hierdoor is het mogelijk om steeds terug te komen op de vorige bijeenkomst en de uitgezette acties in de tussengelegen periode. De placemat en PowerPoint zijn in de bijlage opgenomen. Tevens is in de bijlage achtergrondinformatie te vinden over PLGs.

1. Het model



Het model voor de stappen is gebaseerd op het Teacher Inquiry into Student Learning (TISL) Heart Model and Method[1] en de 'Inquiry Spiral'[2]. Beide modellen richten zich op het verbeteren van handelen van de professional door gebruik te maken van de rijkheid aan gegevens uit de eigen praktijk. Hiermee ligt de urgentie voor de verandering dicht bij de professional zelf, waardoor eerder sprake zal zijn van leren en verandering. Zogezegd: 'het doet ertoe'. Door te starten vanuit een wens om resultaten te verbeteren, is de wil groter om zelf het handelen te verbeteren.

Het onderzoeken bevat steeds een '*loop*'. Ideeën die tijdens het gesprek naar voren komen, moeten ondersteund worden met gegevens uit de praktijk. De vragen '*Wat is er aan de hand?*', '*Hoe weet ik dat?*' en '*Waarom is dat belangrijk?*' staan steeds opnieuw centraal. Hierdoor gaat het gesprek verder dan het uitwisselen van anekdotes en ervaringen. Het gaat over overtuigingen op het gebied van leerlingen, leren en lesgeven.[3] Door deze overtuigingen met elkaar te onderzoeken, ontstaat er een gezamenlijke visie en een focus binnen de PLG. Door

[1] Hansen & Wasson, 2015
[2] Kaser & Halbert, 2017
[3] Nelson, T, 2008

tussen de bijeenkomsten naast literatuur en toets- en onderzoeksgegevens ook met elkaar te onderzoeken wat leerlingen ervaren, wat docenten ervaren en wat iedereen wil leren, worden ook anderen betrokken bij het leren en ontstaat een groter draagvlak binnen de organisatie voor verandering.

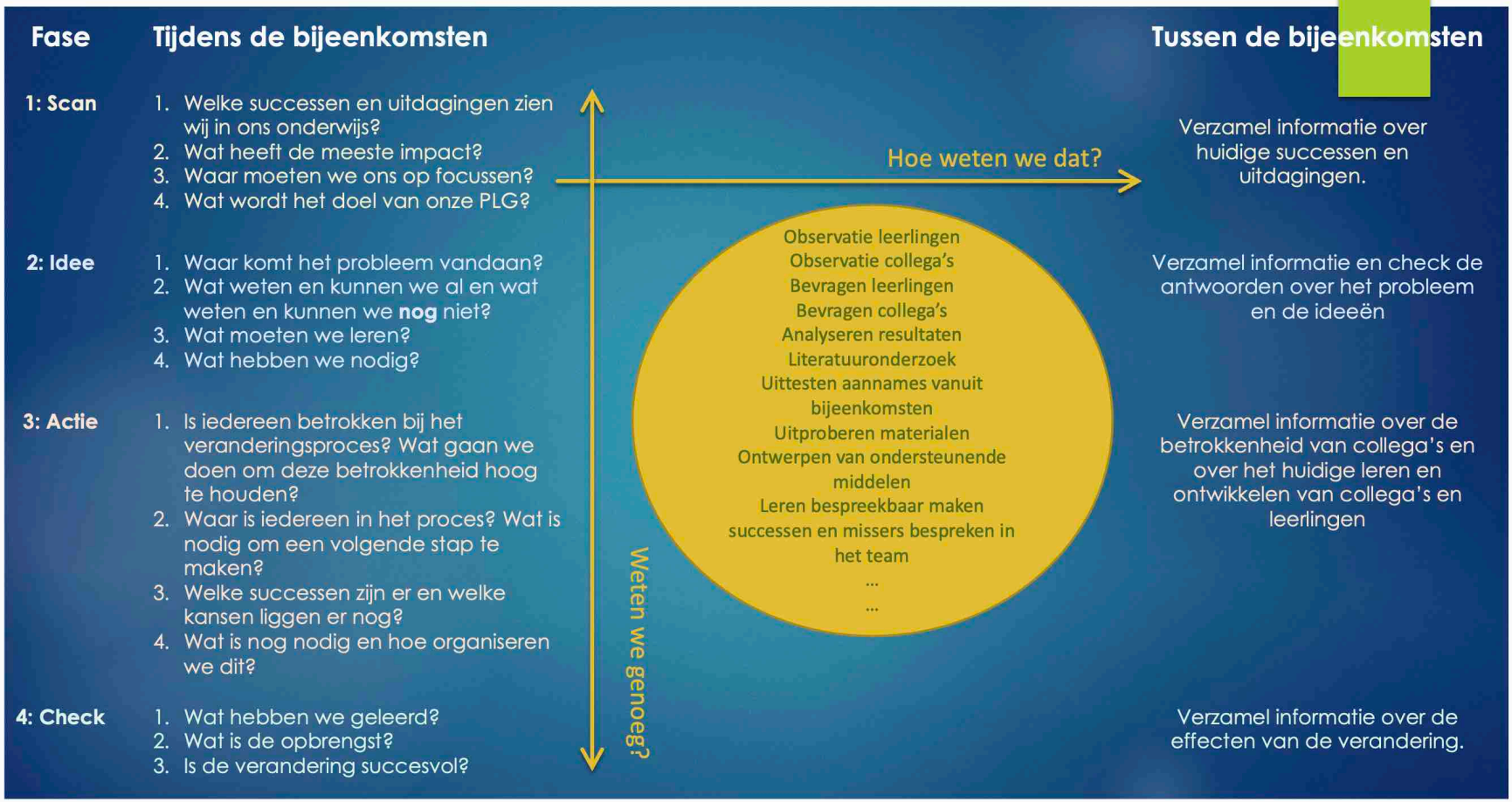
De vier fasen staan steeds met elkaar in verbinding. Het is tijdens iedere fase belangrijk om gezamenlijk te beoordelen of de focus nog juist is. Heeft dat wat we nu aan het doen zijn de beoogde impact? Of moeten we terug naar de vorige fase om de focus verder te verduidelijken. Door dit met regelmaat gezamenlijk te beoordelen, wordt voorkomen dat afgedwaald wordt en/of dat acties uitgezet worden die geen effect zullen hebben op de resultaten.

Het is niet nodig om te starten bij fase 1. Het is ook mogelijk om te starten vanuit een idee. Een degelijk idee komt ook vaak voort uit de lespraktijk en ligt dus dicht bij de overtuiging van de docent.[4] Nadat het idee is besproken, is het wel goed om terug te gaan naar de eerste fase om een duidelijke focus en doel te formuleren. Dit helpt ook om het draagvlak te vergroten en te beoordelen wat er nodig is om allemaal tot leren te komen.

De PLG is succesvol als het gezamenlijk is gelukt om verandering in gang te zetten die impact heeft op het handelen van **alle** professionals en uiteindelijk op de leeropbrengsten van **alle** leerlingen.

[4] Kaser & Halbert, 2017

2. De fasen en activiteiten



In onderstaande tabel kun je per fase lezen wat het doel is en wat je tijdens en tussen de bijeenkomsten kunt doen om samen succesvol te ontwikkelen en te innoveren.

Fase	Doel	Tijdens de bijeenkomst(en)	Na de bijeenkomst(en)
Start	Kennismaken met elkaar, het model en het stappenplan.	1. Bekijk het model en lees het stappenplan door. 2. Bespreek met elkaar hoe vaak jullie bij elkaar willen komen en hoeveel tijd tussen de bijeenkomsten moet zitten voor het verzamelen van informatie. 3. Plan gezamenlijk de bijeenkomsten voor de komende periode. 4. Bespreek wie welke rollen op zich neemt: o Notulist o Voorzitter o ? 5. Bespreek of een agenda nodig is en wie deze verzorgt.	Probeer antwoord te vinden op de vraag: 'Wat is er aan de hand?' *(Hoe gaat het met onze leerlingen en onze collega's)* Mogelijke acties: - Observatie leerlingen - Observatie collega's - Bevragen leerlingen - Bevragen collega's - Analyseren resultaten
Scan	In deze fase worden gegevens verzameld over successen en uitdagingen van de gehele afdeling of organisatie. *Bruikbare informatie wordt opgehaald en besproken over het leren.* Vervolgens wordt *de focus van de PLG bepaald*: waar gaan we ons onderzoek op concentreren om een zo groot mogelijk verschil te maken?	Bespreek en beantwoord tijdens de bijeenkomsten met elkaar de volgende vragen: 1. Welke successen en uitdagingen zien wij in ons onderwijs? 2. Waar kunnen we het grootste verschil maken? 3. Waar moeten we ons op focussen?	Verzamel informatie. Deze informatie zegt iets over de huidige successen en uitdagingen: Wat zijn de ervaringen van de leerlingen (ouders) en docenten? Waar zijn ze tevreden over? Waar lopen ze tegen aan? Wat willen leerlingen en docenten leren? Wat zeggen de cijfers (denk aan toetsgegevens en onderzoeken)?

		4. Wat wordt het doel van onze PLG? Ga pas verder naar de volgende vraag als het antwoord op de voorliggende vraag helder is. Vraag je steeds af hoe je dit weet. Weet je voldoende? Of is meer informatie nodig? Zorg altijd voor meer informatie dan alleen de eigen informatie en check de antwoorden binnen de organisatie. Maak aan het einde van de bijeenkomsten afspraken welke informatie verzameld moet worden, hoe je dit gaat doen en wie hiervoor verantwoordelijk is.	Mogelijke acties zijn: - Observatie leerlingen - Observatie collega's - Bevragen leerlingen - Bevragen collega's - Analyseren resultaten
Idee	In deze fase wordt *onderzocht waar de uitdaging mee te maken heeft*. Aan het einde van deze fase is een *plan uitgewerkt*, waarmee de beoogde veranderingen in gang gezet kunnen worden.	Bespreek de gegevens van de scan met elkaar. Zoek antwoorden op de volgende vragen: Welk probleem ligt er om op te lossen? - Waar komt het probleem vandaan? - Wat weten en kunnen we al en wat weten en kunnen we **nog** niet? - Wat moeten we leren? - Wat hebben we nodig? Samen worden indien nodig nieuwe materialen ontwikkeld. Aan de hand van de antwoorden en het uitproberen van de ontwikkelingen en ideeën wordt een plan ontwikkeld waarmee verandering in gang kan worden gezet.	Verzamel informatie en check de antwoorden op de vragen die tijdens de bijeenkomsten zijn gegeven. Mogelijke acties zijn: - Observatie leerlingen - Observatie collega's - Bevragen leerlingen - Bevragen collega's - Analyseren resultaten - Literatuuronderzoek - Uittesten aannames vanuit bijeenkomsten - Uitproberen materialen

		Beschrijf het plan en check samen met andere collega's of deze inzet de gewenste impact heeft (stap 1)	
Actie	In deze fase is het tijd om het plan tot *uitvoering* te brengen. In deze fase gaat het over doen en minder over praten. Collega's worden betrokken en iedereen binnen de organisatie wordt aangezet om iets anders te gaan doen, zodat verandering ontstaat. Tijdens deze fase is vanuit de PLG vooral aandacht voor *ondersteuning van de verandering*.	Bespreek met elkaar hoe het gaat met het leren. Dit kan aan de hand van onderstaande vragen: - Is iedereen (ook de collega's buiten het team) betrokken bij het veranderingsproces? Wat gaan we doen om deze betrokkenheid hoog te houden? - Waar is iedereen in het proces? Wat is nodig om een volgende stap te maken? - Welke successen zijn er en welke kansen liggen er nog? - Wat is nodig en hoe organiseren we dit? Is bijvoorbeeld extra kennis nodig? Weten we iemand die ons hierbij kan helpen? Wie kunnen we daarvoor uitnodigen voor een volgende bijenkomst? Wie pakt dit op? Etc. Ontwikkel of onderzoek indien nodig ondersteunend materiaal. Maak hiervoor gebruik van de opgehaalde informatie. Deze informatie helpt om te beoordelen welke ondersteuning nodig is en hoe dit beschikbaar gemaakt kan worden.	Verzamel informatie over de betrokkenheid van collega's en over het huidige leren en ontwikkelen van collega's en leerlingen. Mogelijke acties: - Observatie leerlingen - Observatie collega's - Bevragen leerlingen - Bevragen collega's - Analyseren resultaten - Literatuuronderzoek - Ontwerpen van ondersteunende middelen - Leren bespreekbaar maken: successen en missers bespreken in het team.

		Check steeds of de uitvoering nog overeenkomt met het plan en of de beoogde impact plaatsvindt.	
Check	Het doel van de PLG is een verbetering op schoolniveau in leerling resultaten. Dit wordt beoogd door verbetering van handelen van professionals. In deze fase wordt *gecheckt of verschil gemaakt wordt.* Is de PLG succesvol?	Bespreek met elkaar de volgende vragen: - Wat hebben we geleerd? - Wat is de opbrengst? - Is de verandering succesvol? Hiervoor wordt gebruik gemaakt van opgehaalde gegevens. Bij de start van deze fase wordt gezamenlijk bepaald welk bewijs verzameld moet worden om de impact te beoordelen. Neem hierbij mee dat de acties verschil moeten maken voor iedereen die leert.	Verzamel informatie over de effecten van de verandering. Dit kan als de veranderingen aan de gang zijn. - Observatie leerlingen - Observatie collega's - Bevragen leerlingen - Bevragen collega's - Analyseren resultaten

3. Ondersteuning door de teamleider

Voor het verloop van een succesvol proces is goed leiderschap van belang. Een goede mix van gedeeld en verticaal leiderschap kan het proces ondersteunen. Het kan uitdagend zijn voor teamleiders om dit op een juiste wijze te doen. Hieronder zijn tips beschreven die helpend kunnen zijn voor de teamleider om deze juiste balans te vinden en daardoor bij te dragen aan een succesvol proces. [5]

Tijdens alle fasen geldt dat de teamleider het goede voorbeeld geeft door zich nieuwsgierig op te stellen en open vragen te stellen over redenen, verwachtingen, argumenten, bewijs en de mate van invloed. De teamleider onderzoekt of er verschillen zijn in zienswijze en zorgt ervoor dat iedereen een bijdrage kan leveren. Denkt iedereen er hetzelfde over? Heeft iedereen dezelfde mogelijkheden. Heeft iedereen hetzelfde te leren.

De teamleider start de gesprekken met een check-in. Hoe zit iedereen erbij? Hoe voelt iedereen zich? Dit geeft ruimte aan gevoelens en emoties en draagt bij aan onderling vertrouwen en respect. De teamleider eindigt de gesprekken met vragen over het proces, zodat onderling vertrouwen, groepsgevoel en gezamenlijke verantwoordelijkheid vergroot worden. Daarbij staan steeds de volgende vragen centraal:

- Tot welke acties leidt dit gesprek?
- Heb je extra ondersteuning nodig in iets?
- In hoeverre heeft dit gesprek je uitgedaagd? Wat vond je prettig/fijn, wat wil je niet herhalen? Waarbij voelde je je op je gemak? Waarbij voelde je je oncomfortabel?
- Wat zou ons tijdens een volgend gesprek kunnen helpen?

Fase 1: Scan

Deze fase kenmerkt zich door een brainstorm. Het is van belang dat iedereen een bijdrage kan leveren. De teamleider stelt zich op als coach en begeleider van het gesprek. De teamleider zorgt dat het gesprek blijft gaan over leren.
Aan het einde van deze fase stelt de teamleider zich meer sturend op. Hij zorgt ervoor dat alle gegevens goed worden samengevat en dat een (realistisch) doel wordt geformuleerd.

[5] Binkhorst etal., 2018

Fase 2: Het idee

De teamleider zorgt ervoor dat het gesprek gaat over aannames en standpunten ten aanzien van het eigen onderwijs, het gesprek gaat over waar invloed ligt en dat aannames gecheckt worden in de periode tussen de bijeenkomsten. De teamleider waakt ervoor dat het gesprek gaat over acties in het verleden, mogelijke acties in de toekomst en een eventuele schuldvraag. Het gaat tijdens het gesprek over de diepere laag: wat vind jij belangrijk, waarom vind je dat en is dat ook zo?

De teamleider vat samen en verbindt. Wat is er nodig en hoe organiseren we dit? Is bijvoorbeeld extra kennis nodig? Weten we iemand die ons hierbij kan helpen? Wie kunnen we daarvoor uitnodigen voor een volgende bijenkomst? Wie pakt dit op? Etc.?

Aan het eind van deze fase stelt de teamleider zich meer sturend op. Hij zorgt ervoor dat alle gegevens steeds goed worden samengevat en dat uiteindelijk een (realistisch) plan wordt geformuleerd.

Fase 3: Actie

De teamleider vat samen en verbindt. Wat is nodig en hoe organiseren we dit? Is bijvoorbeeld extra kennis nodig? Weten we iemand die ons hierbij kan helpen? Wie kunnen we daarvoor uitnodigen voor een volgende bijenkomst? Wie pakt dit op? En ook: is iedereen (ook de collega's buiten het team) betrokken bij het veranderingsproces? Wat gaan we doen om deze betrokkenheid hoog te houden?

De teamleider zorgt dat de gesprekken gaan over leren. Waar is iedereen in het proces? Wat is nodig om een volgende stap te maken. Er is aandacht voor successen en missers. Onderzoek of er verschillen zijn in zienswijze. Denkt iedereen er hetzelfde over? Heeft iedereen dezelfde mogelijkheden. Heeft iedereen hetzelfde te leren?

Fase 4: Check

De teamleider vat samen en zorgt voor gezamenlijke conclusies. De teamleider stimuleert het leren. Wat hebben we geleerd? Wat heeft het ons opgeleverd? Onderzoek of er verschillen zijn in zienswijze. Denkt iedereen er hetzelfde over? Er is aandacht voor successen. Dit zorgt voor een veilige leercultuur, waar fouten maken mag.

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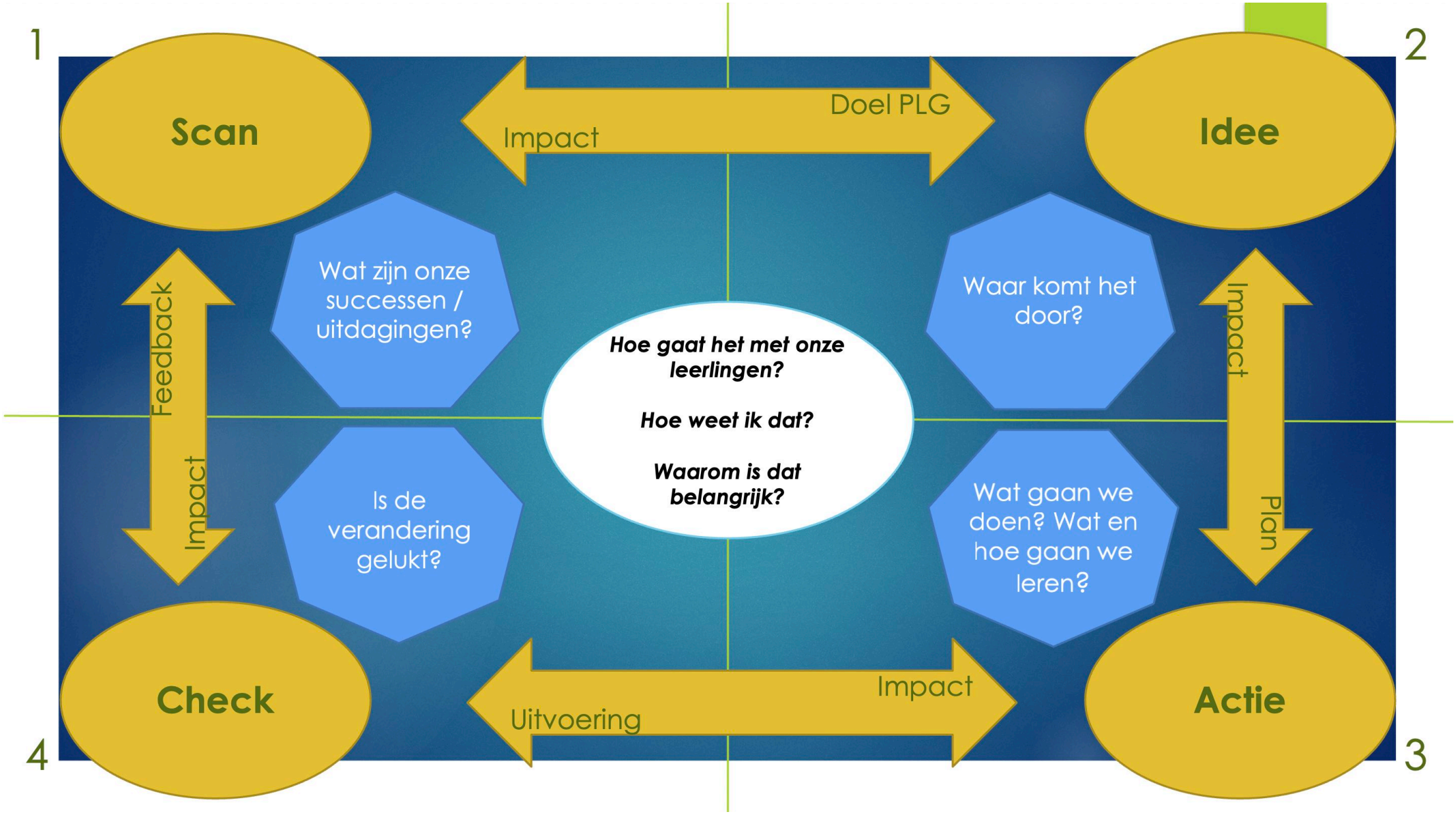
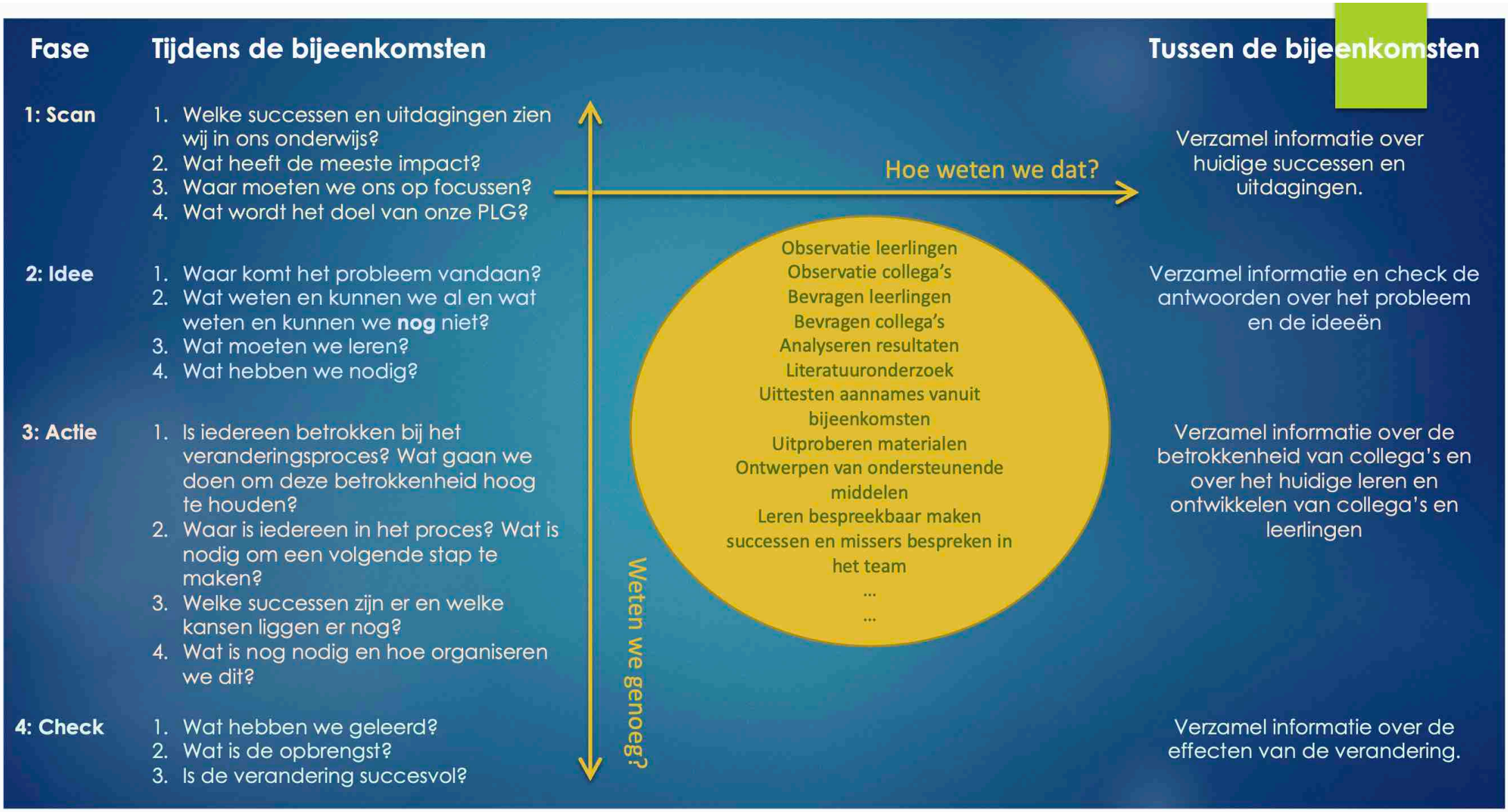
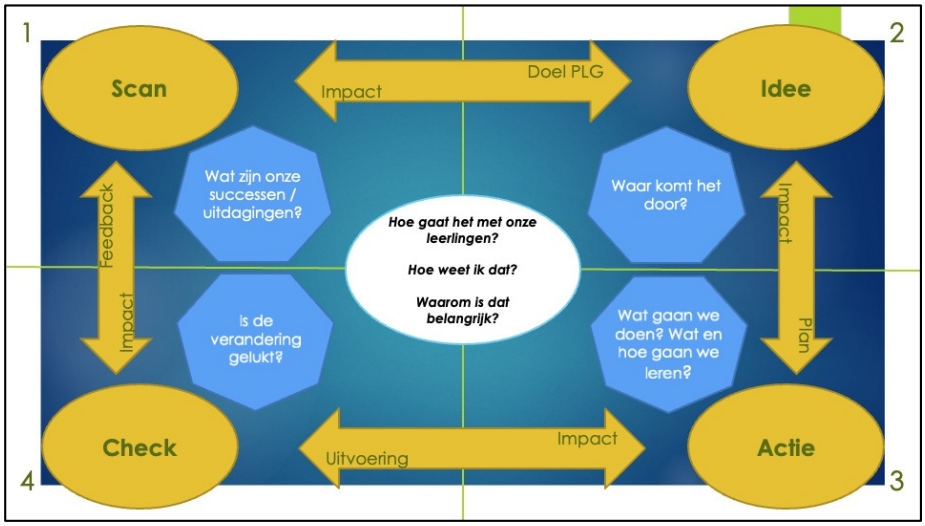
Bijlage 1: Placemat voor deelnemers


1
2
Scan
Idee
Doel PLG
Impact
Wat zijn onze successen / uitdagingen?
Waar komt het door?
Feedback
Impact
Impact
Plan
Hoe gaat het met onze leerlingen?
Hoe weet ik dat?
Waarom is dat belangrijk?
Is de verandering gelukt?
Wat gaan we doen? Wat en hoe gaan we leren?
Check
Actie
Impact
Uitvoering
4
3


Fase
Tijdens de bijeenkomsten
Tussen de bijeenkomsten
1: Scan
1. Welke successen en uitdagingen zien wij in ons onderwijs?
2. Wat heeft de meeste impact?
3. Waar moeten we ons op focussen?
4. Wat wordt het doel van onze PLG?
Hoe weten we dat?
Verzamel informatie over huidige successen en uitdagingen.
2: Idee
1. Waar komt het probleem vandaan?
2. Wat weten en kunnen we al en wat weten en kunnen we nog niet?
3. Wat moeten we leren?
4. Wat hebben we nodig?
Observatie leerlingen
Observatie collega's
Bevragen leerlingen
Bevragen collega's
Analyseren resultaten
Literatuuronderzoek
Uittesten aannames vanuit bijeenkomsten
Uitproberen materialen
Ontwerpen van ondersteunende middelen
Leren bespreekbaar maken successen en missers bespreken in het team
...
...
Verzamel informatie en check de antwoorden over het probleem en de ideeën
3: Actie
1. Is iedereen betrokken bij het veranderingsproces? Wat gaan we doen om deze betrokkenheid hoog te houden?
2. Waar is iedereen in het proces? Wat is nodig om een volgende stap te maken?
3. Welke successen zijn er en welke kansen liggen er nog?
4. Wat is nog nodig en hoe organiseren we dit?
Verzamel informatie over de betrokkenheid van collega's en over het huidige leren en ontwikkelen van collega's en leerlingen
4: Check
1. Wat hebben we geleerd?
2. Wat is de opbrengst?
3. Is de verandering succesvol?
Verzamel informatie over de effecten van de verandering.
Weten we genoeg?

Bijlage 2: PowerPoint met ondersteuning teamleider

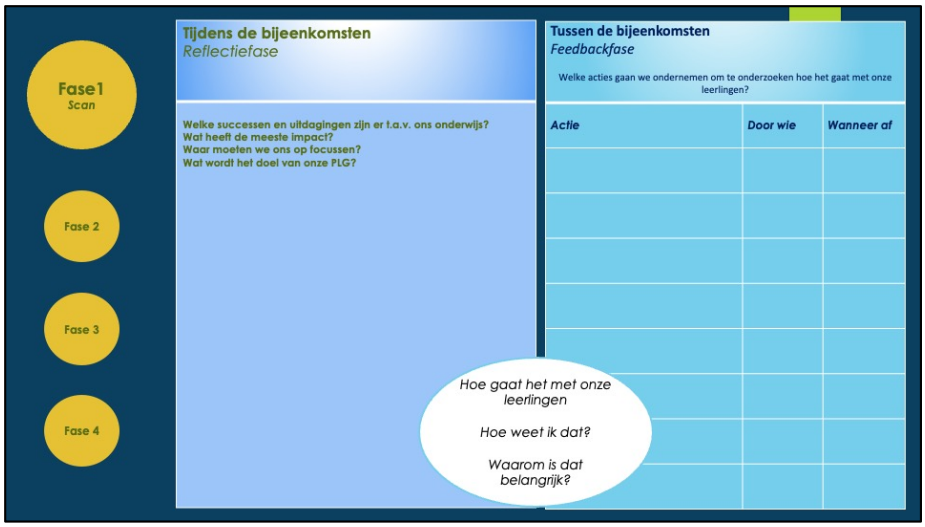
Het model



Ondersteuning door teamleider:

- Bespreek kort de fasen van het model
- In welke fase van het model bevinden we ons?
- Sta even stil bij de vragen in het midden: Hoe gaat het met onze leerlingen? (benadruk dat het hierbij gaat om iedereen die leert; dus zowel de leerlingen als de docenten) Hoe weet ik dat? (hoe kom ik aan deze informatie?) Waarom is dat belangrijk?
- Houdt iedere keer zicht op de impact van de acties.
- Start iedere bijenkomst met een korte check-in. Dit geeft ruimte aan gevoelens en emoties.
- Eindig de bijeenkomst met vragen over het proces op individueel niveau, zodat onderling vertrouwen, groepsgevoel en gezamenlijke verantwoordelijkheid vergroot worden:
    - Tot welke acties leidt dit gesprek?
    - Heb je extra ondersteuning nodig in iets?
    - In hoeverre heeft dit gesprek je uitgedaagd? Wat vond je prettig/fijn, wat wil je niet herhalen? Waarbij voelde je je op je gemak? Waarbij voelde je je oncomfortabel?
    - Wat zou ons tijdens een volgend gesprek kunnen helpen?

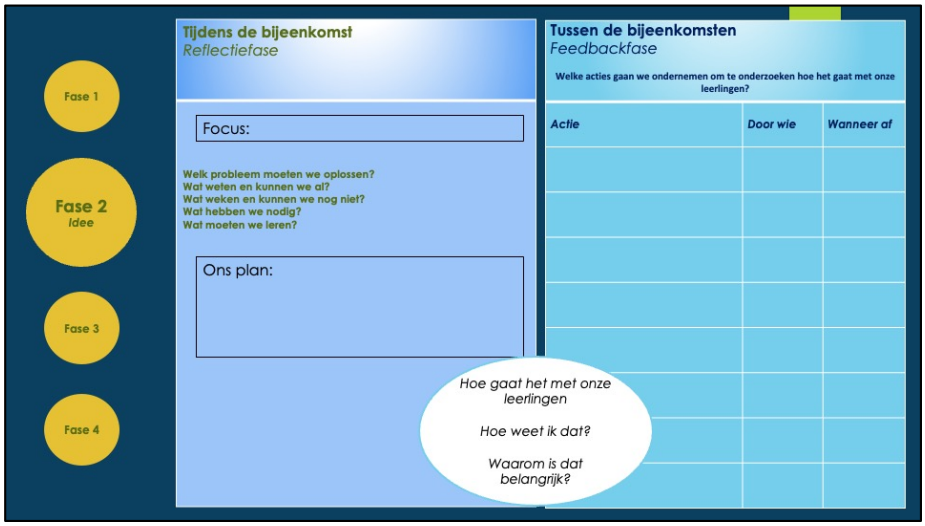
Fase 1: Scan



Ondersteuning door teamleider:

- Betrek alle deelnemers bij het gesprek
- Start de gesprekken met een check-in. Hoe zit iedereen erbij? Hoe voelt iedereen zich? Dit geeft ruimte aan gevoelens en emoties en draagt bij aan onderling vertrouwen en respect.
- Zorg dat leerlingen centraal blijven staan
- Wees nieuwsgierig naar en stel open vragen over
    - Redenen
    - Verwachtingen
    - Argumenten
    - Bewijs (data)
    - Waar ligt invloed?
- Onderzoek of er verschillen zijn in zienswijze. Denkt iedereen er hetzelfde over? Heeft iedereen dezelfde mogelijkheden? Heeft iedereen hetzelfde te leren?
- Stimuleer deelnemers tot nieuwsgierig zijn naar elkaar en het stellen van open vragen.
- Zorg dat tussen de bijeenkomsten ook acties worden uitgezet, waarbij ook deelnemers buiten de groep betrokken worden.
- Eindig de bijeenkomst met vragen over het proces op individueel niveau:
    - Tot welke acties leidt dit gesprek?
    - Heb je extra ondersteuning nodig in iets?
    - In hoeverre heeft dit gesprek je uitgedaagd? Wat vond je prettig/fijn, wat wil je

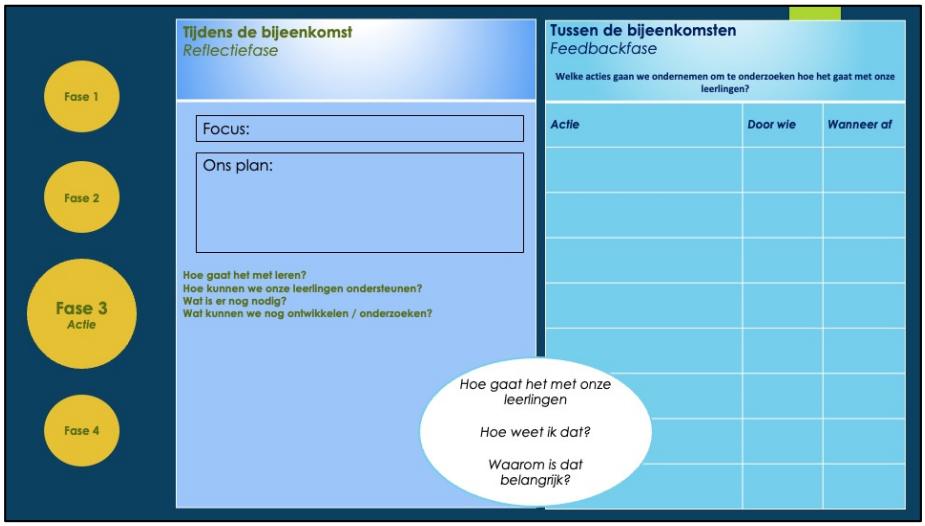
Fase 2: Het idee



Ondersteuning door teamleider:

- Start de gesprekken met een check-in. Hoe zit iedereen erbij? Hoe voelt iedereen zich? Dit geeft ruimte aan gevoelens en emoties en draagt bij aan onderling vertrouwen en respect.
- Vervolg de bijeenkomsten met aandacht voor de focus
- Betrek alle deelnemers bij het gesprek
- Zorg dat leerlingen centraal blijven staan
- Wees nieuwsgierig naar en stel open vragen over
    - Redenen
    - Verwachtingen
    - Argumenten
    - Bewijs (data)
    - Waar ligt invloed?
- Onderzoek of er verschillen zijn in zienswijze. Denkt iedereen er hetzelfde over? Heeft iedereen dezelfde mogelijkheden? Heeft iedereen hetzelfde te leren?
- Stimuleer deelnemers tot nieuwsgierig zijn naar elkaar en het stellen van open vragen.
- Zorg dat tussen de bijeenkomsten ook acties worden uitgezet, waarbij ook deelnemers buiten de groep betrokken worden.
- Eindig de bijeenkomst met vragen over het proces op individueel niveau:
    - Tot welke acties leidt dit gesprek?
    - Heb je extra ondersteuning nodig in iets?

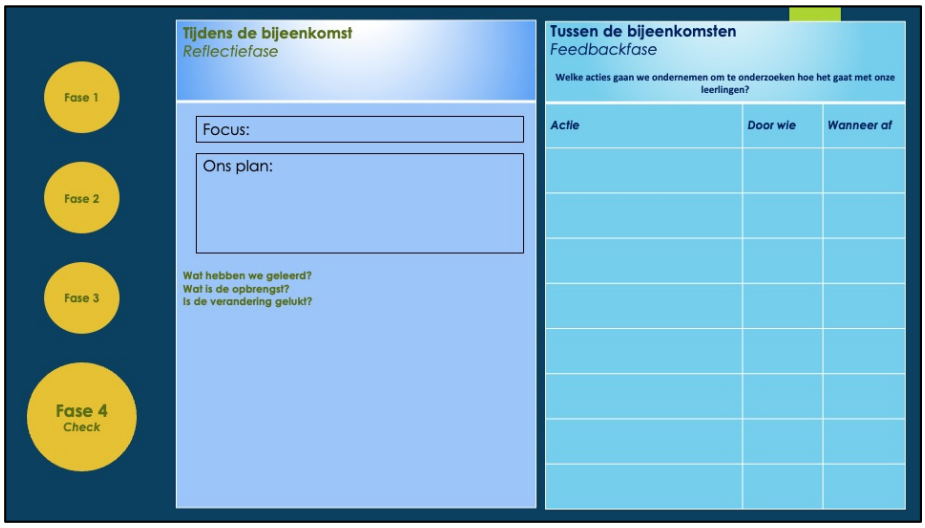
Fase 3: Actie



Ondersteuning door teamleider:

- Start de gesprekken met een check-in. Hoe zit iedereen erbij? Hoe voelt iedereen zich? Dit geeft ruimte aan gevoelens en emoties en draagt bij aan onderling vertrouwen en respect
- Vervolg de bijeenkomsten met aandacht voor de focus en het plan.
- Betrek alle deelnemers bij het gesprek
- Zorg dat leerlingen centraal blijven staan
- Wees nieuwsgierig naar en stel open vragen over
    - Redenen
    - Verwachtingen
    - Argumenten
    - Bewijs (data)
    - Waar ligt invloed?
- Onderzoek of er verschillen zijn in zienswijze. Denkt iedereen er hetzelfde over? Heeft iedereen dezelfde mogelijkheden? Heeft iedereen hetzelfde te leren?
- Stimuleer deelnemers tot nieuwsgierig zijn naar elkaar en het stellen van open vragen.
- Zorg dat tussen de bijeenkomsten ook acties worden uitgezet, waarbij ook deelnemers buiten de groep betrokken worden.
- Eindig de bijeenkomst met vragen over het proces op individueel niveau:
    - Tot welke acties leidt dit gesprek?
    - Heb je extra ondersteuning nodig in iets?

Fase 4: Check



Ondersteuning door teamleider

- Start de gesprekken met een check-in. Hoe zit iedereen erbij? Hoe voelt iedereen zich? Dit geeft ruimte aan gevoelens en emoties en draagt bij aan onderling vertrouwen en respect
- Vervolg de bijeenkomsten met aandacht voor de focus en het plan
- Betrek alle deelnemers bij het gesprek
- Zorg dat leerlingen centraal blijven staan
- Wees nieuwsgierig naar en stel open vragen over
    - Redenen
    - Verwachtingen
    - Argumenten
    - Bewijs (data)
    - Waar ligt invloed?
- Onderzoek of er verschillen zijn in zienswijze. Denkt iedereen er hetzelfde over? Heeft iedereen dezelfde mogelijkheden? Heeft iedereen hetzelfde te leren?
- Stimuleer deelnemers tot nieuwsgierig zijn naar elkaar en het stellen van open vragen.
- Zorg dat tussen de bijeenkomsten ook acties worden uitgezet, waarbij ook deelnemers buiten de groep betrokken worden.
- Eindig de bijeenkomst met vragen over het proces op individueel niveau:
    - Tot welke acties leidt dit gesprek?
    - Heb je extra ondersteuning nodig in iets?

Bijlage 3: Achtergrond

Wat is een PLG?

Innovatie in het onderwijs start altijd vanuit de wens om leerresultaten van leerlingen te verbeteren. Een van de mogelijkheden om tot innovatie te komen in het onderwijs is het starten van een proces waarbij docenten samen tot innovatieve ideeën komen en deze uitproberen ten behoeve van de verbetering van de eigen praktijk. Deze ideeën moeten gebaseerd zijn op bewijs in de vorm van literatuur en data. We noemen dit proces *reflectief professioneel onderzoeken*.[6] Een Professionele Leergemeenschap (PLG) kan een middel zijn om dit proces tot stand te brengen. In een PLG wordt door gezamenlijk te experimenten en te onderzoeken gericht gewerkt aan het verbeteren van het handelen van docenten, waardoor de leerresultaten op schoolniveau van leerlingen verbeterd worden.[7] Een PLG kan succesvol zijn indien sprake is van een collectieve focus op het leren van leerlingen door te focussen op professionalisering van de docent.[8] In schema ziet dit er als volgt uit:

[6] Brown etal., 2020
[7] Harris & Jones, 2017
[8] Van Meeuwen etal., 2019

PLG bij Stichting Carmelcollege

Uit een inventarisatie onder Carmel collega's blijkt dat er voldoende aandacht is voor het tot stand komen van een PLG. Over het algemeen is nagedacht over facilitering in tijd en ondersteuning en eigenaarschap. Iedere PLG heeft een teamleider die fungeert als kartrekker. Zij voelen zich gesteund door hun leidinggevende en er is sprake van afstemming over doelen van de PLG in combinatie met doelstellingen van de school in het algemeen. Teamleiders twijfelen niet aan onderling vertrouwen en respect binnen de teams. Zes keer per jaar wordt vanuit Carmel College een netwerkbijeenkomst georganiseerd om PLGs ook van elkaar te laten leren. Onder deze voorwaarden zijn een aantal PLG gestart en een aantal PLGs in voorbereiding.

Binnen het deel van de PLGs dat in voorbereiding is, wordt door de teamleiders al veel gesproken over organisatorische aspecten en een focus. Hierbij valt op dat deze focus nog weinig gericht is op het leren van leerlingen en docenten. In de PLGs die al zijn gestart lijkt het lastig om tot het professioneel reflectief onderzoeken te komen. Docenten lijken snel over te gaan op actie, zonder een duidelijke focus op het leren van leerlingen **en** collega's. Dit kan ertoe leiden dat de uitgezette acties los komen te staan van een collectief ervaren probleem, waardoor acties geen weg in de organisatie vinden en het onvoldoende lukt om tot innovatie te komen.

Ondersteuning

Een succesvolle PLG ontstaat niet door het bijeenbrengen van professionals in een team. Een PLG heeft ondersteuning nodig op verschillende vlakken: het bepalen van focus en gedeelde visie, ondersteuning in het professioneel reflectief onderzoeken en het bouwen aan een succesvol team waarin deelnemers elkaar vertrouwen, ondersteunen en aanmoedigen.[9]

Voor het ontwikkelen van succesvolle PLGs binnen Carmel college kan ondersteuning op het gebied van bepalen van focus en reflectief professioneel onderzoeken helpend zijn in de ontwikkeling naar een succesvolle PLG.

Reflectief professioneel onderzoeken kan ondersteund worden door zorg te dragen voor interactieve leergesprekken waarbij nieuwe ideeën uitgeprobeerd worden, waarbij bestaande aannames en mentale gedachten worden uitgedaagd met behulp van data, bewijs en nieuwe perspectieven en door ervoor te zorgen dat de focus van het probleem past bij wat echt

[9] Van Meeuwen etal., 2019

belangrijk is voor de docenten.[10] Deze interactieve leergesprekken vinden plaats tijdens een PLG bijeenkomst en gaan verder dan het uitwisselen van anekdotes en ervaringen. Het is gericht op leren. Bij leren gaat het ook om durven toegeven dat iets nog niet lukt en ervaren dat iets nog lastig kan zijn.[11] Belangrijk is om hierbij te realiseren dat diverse emoties kunnen ontstaan en die professionals liever uit de weg gaan. Professionals hebben tijdens dit proces ondersteuning nodig.[12] Hiervoor is een goede mix van verticaal en gedeeld leiderschap nodig. Verticaal leiderschap zorgt hierbij voor sturing in het proces en duidelijkheid ten aanzien van focus en acties, terwijl gedeeld leiderschap zorgdraagt voor gedeelde verantwoordelijkheid, betrokkenheid, eigenaarschap en veiligheid.[13] Door gezamenlijk steeds acties uit te zetten tussen de bijeenkomsten door, worden naast het ophalen van waardevolle observaties en andere gegevens die helpend zijn voor vervolggesprekken, ook collega's uit de organisatie betrokken die geen onderdeel zijn van de PLG.[14] Hiermee wordt focus behouden en draagvlak gecreëerd.

[10] Brown etal., 2020
[11] Nelson etal., 2010
[12] Nelson, T., 2008
[13] Binkhorst etal., 2017
[14] Binkhorst etal., 2015

Appendix G: Feedback on revised problem definition

Appendix H: Feedback on initial design proposal

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PLG Carmelcollege

Feedback op interventie

KFISCHER32 16 MAART 2021 21:00

het instrument lijkt heel bruikbaar, omdat het structuur geeft met een soort van stappenplan

is dit eigenlijk nog een stap voor de start en samenstelling van de plg? of kan het een stap zijn?

dit kan je dan ook gebruiken om je collega's mee te nemen in het proces?

Stapsgewijs kan het je helpen, maar waar zit hier onderliggende processen; de onderstroom?

Het wordt mij meer helder dat hier handvatten geboden worden om aan de slag te met een PLG, daarbinnen is de naamgeving van deze werkgroep voor mij wat verwarrend geweest.

Daarin ben ik dus telkens aan het schakelen mbt hetgeen wij al met een PLG doen, terwijl er tegelijkertijd (zeker met alle Corona-toestanden) er een wens ligt voor structurele veranderingen in ons systeem.

vertrekpunt lln. zo logisch en toch vaak niet het geval

dit is een goede stap, data verzamelen om te bepalen of er een probleem is en zo ja waar dan precies

verwarring bij mij: ik vind het best concreet toepasbaar, of wil het in elk geval uitproberen op onze PLG formatief handelen, maar ik vind het minder bruikbaar in de PLG onderwijs & innovatie.

Het kan een structuur bieden -> blauwdenken

Fase en stappen

Helder omschreven en duidelijk qua opzet. Lijnen ja/nee is even zoeken.

Het instrument vind ik bruikbaar. Qua opmaak vind ik het nog niet helemaal duidelijk/gebruiksvriendelijk.

Feedback

- Is het concreet genoeg?
- Is het voldoende gestructureerd?
- Kan een volgende stap worden gemaakt?
- Is er nog iets extra's in organisatie nodig (rollen / facilitering)?
- Tips / aanvullingen