

MASTER'S THESIS

Value-creation and multilevel boundary crossing in PLCs.

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Value-Creation and Boundary Crossing in PLCs

THESIS

Value-Creation and Multilevel Boundary Crossing in PLCs
Waardecreatie en Multilevel Boundary Crossing binnen PLG'en

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Abstract

The complex process of learning in Professional Learning Communities can be analyzed with several theories and frameworks. To fully understand learning in PLCs, theories need to be integrated. The overall research question of this thesis is: How do the mechanisms and processes of multilevel boundary crossing relate to the cycles of value-creation in professional learning communities, consisting of professionals from diverse educational backgrounds? Knowledge about those relations will offer leads to optimizing the learning processes and the innovative capacity of a PLC. For this qualitative case study, two PLCs each consisting of participants from two educational organizations were followed three years, from start to end. Semi-structured interviews were conducted yearly with all participants about the Value-Creation experienced by participants, and the occurring learning mechanisms of Multilevel Boundary Crossing. Thus, insights were gained into the relations between these two theories. Indications have been found for consistent combinations of values and mechanisms such as strategic value and identification. Sequel tendencies of both values and mechanisms are also reported, starting with strategic, enabling, and immediate value, and with identification and coordination. In particular, the way strategic and enabling value were experienced seemed to influence the course of PLCs. Nevertheless, strategic, enabling, and orienting value need further research as they are newer parts of the Value-Creation Framework.

Keywords: PLC, Multilevel Boundary Crossing, Value-Creation

Samenvatting

Het complexe proces van leren in PLG'en kan met verschillende theorieën en kaders worden geanalyseerd. Om het leren in PLG'en volledig te begrijpen, moeten de theorieën worden geïntegreerd. De algemene onderzoeksvraag van deze thesis luidt: Hoe verhouden de mechanismen en processen van multilevel boundary crossing zich tot de cycli van waardecreatie in professionele leergemeenschappen, bestaande uit professionals met diverse onderwijsachtergronden? Kennis over die relaties biedt aanknopingspunten om de leerprocessen en het innovatievermogen in een PLG te optimaliseren. Voor deze kwalitatieve casestudy werden twee Professionele Leergemeenschappen drie jaar gevolgd, van begin tot eind. Deze bestaan beide uit deelnemers van twee onderwijsorganisaties. Met alle deelnemers werden jaarlijks semigestructureerde interviews afgenomen over de door de deelnemers ervaren waardecreatie en de optredende leermechanismen van Multilevel Boundary Crossing. Zo werden inzichten verkregen over de relaties tussen deze twee theorieën. Er zijn aanwijzingen gevonden voor consistente combinaties van waarden en mechanismen zoals strategische waarde en identificatie. Trends in het verloop van beide waarden en mechanismen worden ook gerapporteerd, te beginnen met strategische, faciliterende en onmiddellijke waarde, en met identificatie en coördinatie. Met name de manier waarop strategische en faciliterende waarde werden ervaren lijkt het verloop van PLG'en te beïnvloeden. Voor waardecreatie moeten strategische, faciliterende en oriënterende waarde verder worden onderzocht, aangezien deze cycli nog relatief nieuw zijn binnen het raamwerk.

Keywords: PLC, Multilevel Boundary Crossing, Value-Creation

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Value-Creation and Multilevel Boundary Crossing in PLCs

1. Introduction

1.1 Professional Learning Communities

Collaboration and co-creation between organizations are crucial in solving the complex problems of present times (Van Meeuwen et al., 2019; Huijboom et al., 2021). Educational professionals are no exception here, they increasingly participate in teams, networks, and communities (Vrieling et al., 2019; Wenger-Trayner et al., 2019). A *Professional Learning Community* (PLC) is a mode of professional development appropriate to this increasing focus on participation in social practices (Vermeulen, 2016). The present interest in PLCs is due to their ability to increase innovative capacities and problem-solving in schools (Van Meeuwen et al., 2021). PLCs can consist of several colleagues, an entire team, an organization, or participants from multiple organizations (Verbiest, 2011). According to Schechter (2013) and Vermeulen (2016), the core process of a PLC is collective learning. Collective learning is a core process of workplace learning (Simons & Ruijters, 2001; Tynjälä, 2013).

Processes in PLCs and the elements which influence them were often studied in PLCs within one organization (Van Meeuwen et al., 2019; Huijboom et al., 2021). Research on the more complex cross-organizational PLCs often considered only one perspective so far, one framework (Akkerman & Bruining, 2016; Schaap et al., 2019). However, solutions to complex problems emerge from multiple perspectives (Ader et al., 2023). Consequently, studying complicated processes with the possibility of multiple open-ended solutions equally is a demanding endeavor. Thus, using various perspectives could offer a better understanding. Whereas solving complex problems tends to take more time than one or two years (Ader et al., 2023), longitudinal research is necessary but scarce. Similarly, PLC development takes time (Castelijns et al., 2013).

This thesis is in line with research by Vermeulen and Nijland (2020, 2021, 2023). They used multiple theories and concepts to gain insights into the learning processes that occur during the co-creation of knowledge at individual, group, and organizational levels by following two cross-

organizational PLCs for three years. Both participating PLCs started in September 2019 and wanted to co-create knowledge that can improve education.

Two of the concepts that match the research goal are *Multilevel Boundary Crossing* (MBC) and *Value-Creation* (VC). MBC occurs when one is confronted with multiple practices and the boundaries between involved individuals or organizations. Four learning mechanisms were identified (Akkerman & Bakker, 2011). The VC framework with five cycles enables mapping the proceeds from participating in a PLC for an individual (Wenger et al., 2011). Both theories separately proved useful for learning between organizations and processes in learning groups (Van Amersfoort et al., 2019; Akkerman & Bruining, 2016). However, concerning cross-organizational PLCs, a combination can lead to more comprehension of the processes at stake. This research offers insights into possibilities for compatibility and integration. Thus, learning processes in PLCs can be optimized.

1.2 Multilevel Boundary Crossing

When two or more organizations form a PLC together, then their identities, perspectives, and practices will meet. As socio-cultural differences occur between organizations, these differences can lead to discontinuity in action and/or interaction, a so-called boundary. Boundaries between practices often create the opportunity to learn (Akkerman & Bakker, 2011).

Interprofessional co-creation processes involve multiple perspectives from multiple organizations that are constantly interacting with each other. Akkerman and Bakker (2011) identified four learning mechanisms and fourteen underlying learning processes that can take place around boundaries. Akkerman and Bruining (2016) argue that these mechanisms and processes can also take place at three levels separately or even simultaneously.

Akkerman and Bakker (2011) emphasize that the four mechanisms of boundary crossing are dialogical. For example, the *identification* mechanism is concerned with renewed sensemaking to one's own identity because differences and similarities in nature, roles, and tasks of the participating organizations are explicitly discussed, the so-called *othering*. This can be a political and sensitive

process, as all parties involved want to justify their own existence as well as confirm that the cooperation is meaningful. In doing so, they *legitimate coexistence*.

The *coordination* phase is more practical. It involves characteristic practices such as the search for instruments and information structures that can be used jointly, *communicative connection*, and ensuring that cooperation runs smoothly to *increase boundary permeability*. This also requires the *effort to translate* content from one practice to another. Ultimately, procedures and rituals can become automated and operationalized, so it becomes and remains easier for participants to switch between different practices, so-called *routinization* (Akkerman & Bakker, 2011).

At first glance, identification and *reflection* may seem similar, but the focus is different. Where identification is about knowing your existing perspective and that of others, reflection is about expanding one's perspective, it is about enrichment, broadening your horizon, about *perspective taking*. As a result, through dialogue and creativity, a new identity can arise. This goes hand in hand with *perspective making*, with making existing knowledge explicit (Akkerman & Bakker, 2011).

While coordination focuses on being able to switch easily between different practices, *transformation* has to do with changing practices, possibly even creating entirely new practices. This requires *confrontation* with a defect or problem that the individual organizations cannot address with their practices. The fact that approaches fall short or are non-existing must be recognized by all parties, referred to by Akkerman and Bakker (2011) as *recognizing a shared problem space*. Subsequently, using various aspects from existing practices, a new practice can be constructed, *hybridization*, and in the ideal situation, this new practice is also incorporated, *crystallization*. The old practices should not be abandoned, it is necessary to *maintain uniqueness of intersecting practices* in addition, under the new practice must lie a solid foundation. Finally, all parties must continue to work together at the boundaries of their practices, so-called *continuous joint work at the boundary*, transformation is only permanent if those involved continue to put energy into it and, above all, always keep the dialogue going (Akkerman & Bakker, 2011).

Each of the four mechanisms can take place on an intrapersonal, interpersonal, or institutional level. Not every level will be involved in the same mechanism at the same time. An individual participant for example can be involved in transformation, whereas the PLC at an interpersonal level is occupied with reflection and the institutions are occupied with a third mechanism (Akkerman & Bruining, 2016). The three levels are recognized in several other studies (Martinez-Alvarez et al., 2021; Rosalina, 2017; Ryymin & Lamberg, 2022). There is no agreement yet on the relations between and the importance of the different levels. The combination of learning mechanisms and levels is detailed in Table 1.

Value-Creation and Boundary Crossing in PLCs

Table 1

Multilevel Boundary Crossing Framework

Learning mechanism	Learning process	Intrapersonal level	Interpersonal level	Institutional level
Identification	Othering	A person comes to define his or her own simultaneous but distinctive participatory positions.	People come to (re)define their different and complementary roles and tasks.	Organizations or units come to (re)define their different and complementary nature.
	Legitimizing coexistence			
Coordination	Communication	A person seeks means or procedures to distribute or align his or her own participatory positions in multiple practices.	People seek shared means or procedures for exchange and cooperative work.	Organizations or units seek means or procedures for institutional exchange and cooperation.
	Efforts of translation			
	Increasing boundary permeability			
	Routinization			
Reflection	Perspective making	A person comes to look differently at his or her own participatory position because of the other participatory position.	People come to value and take up another's perspective.	Organizations or units come to value and take up another's perspective to look at their own practice.
	Perspective taking			
Transformation	Confrontation	A person develops a hybridized position in which previously distinctive ways of thinking, doing, communicating, and feeling are integrated.	People face a shared problem, start collaborative work, and may build group identity.	Units face a shared problem space and start collaborative work or merge institutionally.
	Recognizing a shared problem space			
	Hybridization			
	Crystallization			
	Maintaining uniqueness of intersecting practices			
	Continuous joint work at the boundary			

Note. The definitions in this table are based on Akkerman and Bakker (2011), and Akkerman and Bruining (2016), as exemplified in the text.

Brokers and *boundary objects* play a crucial part in this multilevel construction according to Veltman et al. (2019). Brokers are the people who cross the boundary between two practices, they encounter the discontinuities in practices, perspectives, and identities and they can transfer elements from one practice to another. Boundary objects fulfill the same role of bridging intersecting practices in the form of a shared process, a discourse, or an artifact (Akkerman & Bakker, 2011; Veltman et al., 2019). Especially identification, coordination, and reflection appear to gain from the intensive use of brokers and boundary objects (Veltman et al., 2019).

Transformation can also be stimulated; both Martinez-Alvarez et al. (2021) and Ryymin and Lamberg (2022) report interventions by workshop leaders or planned collaborative experiences that reinforced transformation. Other helpful elements are the room for volitional actions (Martinez-Alvarez et al., 2021) and a balanced, leveraged tension experienced by the participants (Veltman et al., 2019); the challenge must be serious and complex, but doable in the end.

The most frequently occurring mechanism so far is coordination (Akkerman & Bruining, 2016; Rosalina, 2017; Ryymin & Lamberg, 2022), closely followed by identification (Rosalina, 2017). More specifically the processes of othering, communicative connection, and efforts of translation contain learning potential as these involve crossing a boundary (Rosalina, 2017). Akkerman and Bruining (2016) claim that the mechanisms are non-hierarchical, but Ryymin and Lamberg (2022) found suggestions for a sequel tendency. They argue that identification and coordination come first, followed later by reflection and transformation. If Ryymin and Lamberg (2022) are correct, this might explain the dominance of coordination and identification, considering that most studies lack an actual longitudinal research design.

A longitudinal research design is important to gain new insights regarding the sequel tendency of the learning mechanisms. Increasing the learning potential of boundary crossing by stimulating the appearance of the learning mechanisms and processes is also a topic of interest, whether through brokers, boundary objects, or other interventions.

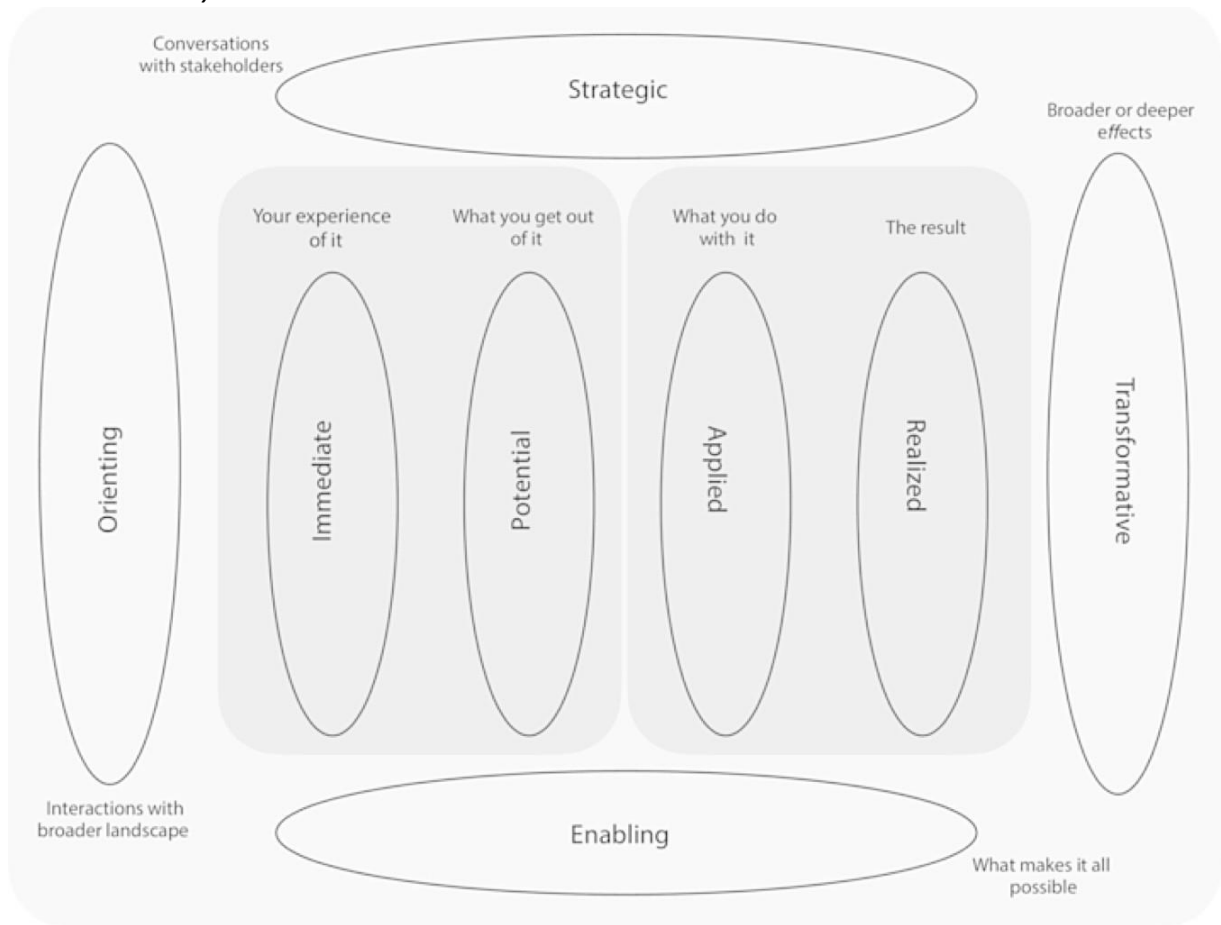
1.3 Value-Creation

Wenger et al. (2011) were the first to make the proceeds of social learning visible. Initially, their VC framework was used to establish the created and perceived values of a network or community in retrospect. Soon the framework was also used to plan and direct activities or to redirect and guide a community to optimize the creation of value (Wenger-Trayner et al., 2019). Originally, values were not defined by any external criteria or standards, all participants should attribute the value themselves (Dingyloudi et al., 2019). In their recent publication, Wenger-Trayner and Wenger-Trayner (2020) see learning as VC and valuation is not so much an individual process but involves communities and society. The definition of value on which the framework is built is stated as “importance, worth, usefulness, rather than moral standards” (Wenger-Trayner et al., 2019, p. 323).

PLCs are settings for all forms of social learning: learning activities, insights, practice, and results. These activities all connect cyclically, and each element of this learning process can be seen as VC (Wenger-Trayner et al., 2019). Participants of PLCs want to make a difference in some way and if their participation helps them to do so, they find value in it. Creating value is never the goal, it is the process that is expected to lead participants to make their desired difference (Wenger-Trayner & Wenger-Trayner, 2020). For example, participants of the PLCs involved in this research each strive for some improvements in the field of education.

The created value can take different forms. In a recently updated and published framework, Wenger-Trayner and Wenger-Trayner (2020) distinguish eight forms of value. They each have a positive, negative, or missing variation, as shown in Figure 1 and described in Table 2. Negative values concern the undesirable effects of social learning, such as resistance or too many requests for advice. Absent values embody those not created, often maintaining the status quo.

Figure 1
Value-creation Cycles



Note. Adopted from Wenger-Trayner and Wenger-Trayner (2020, p. 97).

Table 2*Eight cycles of Value-Creation*

Value	Features and characteristics
Immediate value	Is created in the moment itself; it doesn't take in consideration what possible gains the experience can have in the future. People can enjoy activities and interactions or think they are boring.
Potential value	Is about something that might make a difference in the future, that is worth remembering, as a result of meaningful experiences in the PLC, like personal insights or collective innovations, but also increased networks or more confidence.
Applied value	Is created when potential value is applied and changes the practice. The applied value mostly consists of newly combined potential value from several sources.
Realized value	Is about the effects of the changed practice, it is about achieving the aspirations participants have, including diminishing or waiving negative, unwanted things.
Enabling value	Refers to all kinds of sources of support that increase the sustainability of the PLC, internally commitment and efficiency, externally resources and logistics e.g.
Strategic value	Members can come to a joint focus internally regarding the difference they want to make. Externally it is about the quality of mediating stakeholders' expectations through conversations and relationships with them.
Orienting value	On an internal level orienting value is created when members know and appreciate each other's backgrounds. Externally it arises if members look beyond the learning space; the direct stakeholders of the PLC, into the broader landscape.
Transformative value	Can occur internally, mostly because of changes in the environment, felt by the participants. It can also occur externally, outside the PLC, caused by an event or product from the PLC. This value can be recognized in a change of success criteria or identity. Transformative value does occur rarely.

Note. The descriptions in this table are based on Wenger et al. (2011) and Wenger-Trayner and Wenger-Trayner (2020).

Cycles can appear simultaneously or even entangled. Distinctions between the cycles are sometimes hard to make, but they are nonetheless useful theoretically for viewing the social learning processes, and practically for targeted improvement of learning capability (Booth & Kellogg, 2015; Bertram et al., 2017). Although the cycles are complementary, not all occur for each participant or PLC. Depending on the perspective, different participants and stakeholders can be more interested in different cycles. In short: the VC framework is a dynamic one (Wenger et al., 2011; Wenger-Trayner & Wenger-Trayner, 2020).

1.4 Possible Relations between MBC and VC

The importance of boundary crossing is acknowledged by Wenger-Trayner and Wenger-Trayner (2020). Creating internal orienting value for example is about social learning spaces like a PLC with participants from different contexts. They are advised to make boundaries discussable, e.g.,

through 'speed dates', or poster sessions (p. 134). Another recommendation is to recognize difficult boundaries, to address them optimally. People need to have cross-boundary experiences, but they also need time in their own context to process their newly gained experiences, this balance can only be achieved by recognizing the boundaries (Wenger-Trayner & Wenger-Trayner, 2020, p.197). Moreover: "What boundaries of practice and identity will we have to cross to learn together?" is an important question to discuss to frame the participation of the members, according to Wenger-Trayner and Wenger-Trayner (2020, p. 175). And last but not least: Transformative value can be found in reworked boundaries (p. 213).

Substantive resemblances between the cycles of VC and the learning mechanisms of MBC can be pointed out. MBC can take place on different levels, and so does VC. Members of the PLC can experience values individually or collectively (Wenger et al., 2011; Wenger-Trayner & Wenger-Trayner, 2020). Even the institutional level can become involved, through external strategic value or external transformative value e.g. (Wenger-Trayner & Wenger-Trayner, 2020).

Another similarity is the claim of non-hierarchy, both Akkerman and Bruining (2016) and Wenger et al. (2011) mention it. Ryymin and Lamberg (2022) find suggestions for a sequel tendency in MBC, and Wenger-Trayner and Wenger-Trayner (2020) suggest something similar for the cycles orienting value, immediate value, potential value, applied value, realized value, and transformative value. They elaborate on the occurrence of immediate value and potential value as an often-connected pair that shows up early in the process (Wenger-Trayner & Wenger-Trayner, 2020), as Ryymin and Lamberg (2022) do for the mechanisms identification and coordination.

In the descriptions of the values and the learning mechanisms, there are more resemblances to be recognized. The mechanism transformation is like transformative value in the permanent changes that occur. The enabling value bears resemblances with the coordination mechanism, they both deal with the practicalities of making learning possible in and around a PLC. Stimulating to increase positive VC and make a difference may very well look the same as stimulating MBC learning mechanisms, due to their substantive resemblances.

1.5 The Current Study

Essentially, both VC and MBC relate to learning. VC is about learning within groups and MBC is about learning across boundaries. The VC framework can be seen as a possible boundary object (Wenger-Trayner & Wenger-Trayner, 2020). It can help become aware of the value already created and of the goals and directions participants want to pursue, especially when multiple perspectives are involved. The framework can also be used as a method to gain insights into the processes of creating value to achieve improvements. The PLCs involved want to improve the quality of education as much as possible. Here VC meets MBC too; enlarging the learning potential of boundary crossing also aims to achieve improvements.

The goal of this research is to gain insight into the relations between individual and collective values experienced by participants of a PLC and learning mechanisms that occur simultaneously in this PLC. Insights into those relations can lead to the deliberate design of constructive processes or stimulating interventions to increase achieving aspirations and improvements.

This study is in line with existing research into professional learning communities between two organizations by Vermeulen and Nijland (2021) and the associated thesis circle of the Open University. A qualitative case study fits the explorative nature of this research.

The overall research question is: How do the mechanisms and processes of Multilevel Boundary Crossing relate to the experienced cycles of Value-Creation in professional learning communities, consisting of professionals from diverse educational backgrounds? The sub-questions are: Which mechanisms of multilevel boundary crossing can be identified in the PLCs? Which cycles of value-creation occur in the PLCs?

Three rounds of semi-structured interviews will be used, which took place after about six months, one and a half years, and two and a half years of functioning. The questions will be answered for both PLCs on individual and collective levels.

2. Method

2.1 Design

This research is an instrumental case study. It concerns an in-depth exploration of events, activities, persons, or processes, to study, understand and describe a complex subject in the natural context (Creswell, 2014, p. 493). Within a case study, interviews, observations, and document analysis are used as the main tools. Studying two PLCs, a two-case study, makes it possible to gain insight into the differences, possible extremes, and similarities (Yin, 2018). Moreover, the results of both cases can be compared (Maxwell, 2004). The explorative qualitative research into two cases also matches with research questions concerning the understanding of experiences, feelings, and thought processes (Strauss & Corbin, 1998).

2.2 Participants

An educational university of applied sciences (UAS) and an educational consultants company are funding this research by the Open University, about studying PLCs in a heterogeneous composition. The core of the work of the UAS lies in the training and professionalization of primary education teachers at the bachelor's and master's levels. The core of the work of the company lies in realizing sustainable improvements in the field of learning and training in education, organizing high-quality education, and always collaborating with clients such as universities and colleges. Permission to conduct qualitative research was already granted by both managements and by participants forming the PLCs between the company and UAS. In a global assignment, the managing directors of both organizations formulated two main themes: "Self-Regulated Learning" and "Deep Learning" (Fullan et al., 2018). One theme per PLC formed a basis for achieving a common ambition and giving direction to this PLC (Vermeulen & Nijland, 2020). The two PLCs started in September 2019 with a total of 11 participants. One participant participated in both PLCs (see Table 3).

Table 3*Overview of PLC participants, their role and number of interviews.*

Name	PLC	Role	Interviewed in round	Course of participants
Karl	DL	Participant	1	Gets other tasks at work after 1 year
Gilian	DL	Participant	1, 2, 3	
Vincent	DL	Facilitator	1, 2	Stops due to health issues after 2 years
Boris	DL	Participant	1, 2, 3	
Simon	DL	Participant	1, 2	Stops due to health issues after 2 years
Nicole	DL	Participant	2, 3	Successor of Karl
Petra	DL & SR	Participant	1, 2, 3	
Vivian	SR	Facilitator	1, 2	No third interview due to family circumstances
Cindy	SR	Participant	1	Stops after 1,5 years; health issues and a new job
Brenda	SR	Participant	1, 2, 3	
Barbara	SR	Participant	1, 2, 3	Successor of Jordan after 6 months
Vera	SR	Participant	1, 2, 3	
Jordan	SR	Participant		Didn't participate due to other tasks at work

Note. Participants were given a pseudonym.

2.3 Instruments

A step-by-step interview instruction was drawn up by Vermeulen and Nijland (2020, 2021, 2023) to be able to question the participants on both VC and MBC (see Appendix A). The interview instruction was based on the VC toolkit guidelines (Wenger et al., 2011), to cover each cycle and to meet the characteristics of a VC story. A good VC story makes the relationships between learning and outcomes more direct and can make it possible to claim causal attributions. It is very common to build the story from guided story-telling and follow-on conversations (Wenger et al., 2011; Wenger-Trayner et al., 2019). The consequent use of the interview instruction and the frequency of interviewing each participant three times with an intermission of about a year contributed to acquire well-formed stories.

Vermeulen and Nijland (2020, 2021, 2023) prepared questions for each VC cycle; they can be asked to further explore the input provided by participants. Potential value, for example, includes the question “What did you learn from the activities in the PLC?” to invite participants to tell their story and elaborate on it. Strategic value and enabling value (Wenger-Trayner et al., 2019; Wenger-Trayner & Wenger-Trayner, 2020) were added. In the context of this thesis, there was additional questioning

of certain aspects of each value in round three. Participants were asked to elaborate on roles and interactions for their answers regarding potential value, for example.

2.4 Procedure

Each organization sent three participants to join the PLCs. The PLC is not too small, as to avoid the risk of stagnation in the event of a single cancellation, and not too large for the organizations to be able to persevere (Vermeulen & Nijland, 2020). The PLC members were personally asked according to their affinity and expertise with the themes and their interest in entering a collaboration like this. Based on the procedure and approval of the ethical commission of the Dutch Open University, they were also informed about the research and asked for consent (Vermeulen & Nijland, 2020, 2023). The monthly held meetings were free in content, how, where, and when. The PLC members were facilitated in hours (80 hours per person) to be able to experience the opportunity to participate in the PLCs. The facilitator received 120 hours to support the learning processes in a practical sense by arranging agendas and giving direction to the group's dynamic processes.

The PLCs were kicked off in a working meeting in which the managing directors gave a presentation and the chairholder explained the purpose of the research, the practical implementation of the project, the phases of the research, and the development cycle (Castelijns et al., 2009). After this information, the PLCs were asked to start with the first step of the cycle and with formulating a common ambition. The research ethics were included in this working meeting. They will be repeated during the research process at each interview: the interviews will be anonymized and permission for recording is asked explicitly. After six months of functioning, after one and a half years, and after two and a half years, a series of semi-structured interviews were conducted. Each interview lasted one to one and a half hours and was conducted through *MS Teams*, online. After conducting the interviews, the verbatim transcripts from *MS Teams* were checked and stored.

2.5 Data-Analysis

Since verbal reports are the central part of the case study evidence and the collection is large (Yin, 2018), Atlas.ti (version 22) was used as an assistance tool. cETO prescribed this software to Vermeulen and Nijland (2020).

The relationships between MBC and VC were unknown; this asked for a grounded approach to the data, using open, axial, and selective coding, from the so-called coding paradigm (Strauss & Corbin, 1998). This was the case, for example, with the newly added orienting value (Wenger-Trayner & Wenger-Trayner, 2020). The already known VC cycles and learning mechanisms were analyzed thematically with theory-based categories; a concept-driven Qualitative Content Analysis (QCA) (Kuckartz, 2019). The MBC learning mechanism coordination is an example of a theory-based category.

The two researchers of the thesis circle used the codebook by Vermeulen and Nijland (2020, 2021). In Appendix B codes for VC based on Wenger et al. (2011), and for MBC are listed. The researchers were also provided with examples of coding from the first and second rounds of interviews. They each started with some interviews from the third round, then reviewed each other's work, and provided feedback regarding the analysis process. This included the suggestion to combine a few codes and create additional ones. For some quotes, micro-analysis was needed (Strauss & Corbin, 1998). Differences in coding were discussed until an agreement was reached, first by the researchers of the thesis circle, and subsequently with the project researcher.

Next, the codebook was adapted to the latest version of VC by Wenger-Trayner and Wenger-Trayner (2020), before recoding the third round. Subsequently, the first and second rounds were recoded using the revised codebook. For all rounds, the differences were discussed again in the aforementioned two stages until an agreement was reached. Finally, all MBC and VC were reported, and organized per round. Participants were classified per PLC, to allow comparative analyses between cases. A VC story (Wenger et al., 2011; Wenger-Trayner et al., 2019; Wenger-Trayner & Wenger-Trayner, 2020) was drawn up per PLC, based on the reported VC per round.

3. Results

In this section, the results will be presented per research question. MBC, VC, and their similarities are subsequently described, and differences between the PLCs are worked out. First, the MBC that took place is presented for each learning mechanism. The underlying processes are also addressed.

3.1 Multilevel Boundary Crossing

The learning mechanism identification was mentioned in all three interview rounds in both PLCs, as demonstrated in Table 4. In the first round, the processes othering and legitimating coexistence appeared in a slightly different way. In DL othering was mostly about the difference between the aims of the UAS and the company; Boris and Simon refer to the differences in focus and target audiences. In SR othering was mostly about the difference between the modus operandi of the UAS and the company; Brenda mentions different tempi. In both PLCs legitimating coexistence concerned the usefulness of the joint PLC. But DL added the contributions both institutions could make to the PLC, while SR added what both institutions could gain from the PLC. In the second and third rounds, the differences were bigger. In SR only othering with a negative connotation was found; Barbara refers to the difference in investments participants want to make and Brenda mentions the difference in the perceived importance of grounding tools and interventions. In DL the othering was more neutral, and the legitimating coexistence increased; in DL participants were expressing their shared aspirations with the PLC regarding educational improvement, as Boris did.

Table 4
Identification, quotes

round	DL	SR
1	<p>[othering] <i>We are a bit more internally focused largely, while we do have professionalization offerings which are also very good, but of course our core business for years has just been the regular full-time student. While in the company, if they don't connect with externals then they no longer have a right to exist. [DL, 1, Boris],</i></p> <p>[legitimizing] <i>That is something I have noticed over the past year, which is very useful, working together in this way...you are always busy preparing all those hundreds of students we have for all those hundreds of schools, you are not busy with just one school. And I think the colleagues from the company also work together with a lot of schools, but in their work they are only busy with one school. There they can do something very different from what they do at another school. [DL, 1, Simon]</i></p>	<p>[othering] <i>I was afraid of that beforehand, it really is two worlds, combining the speed of the company with the slowness of doing research, yes, we still must find a way around that, so to speak. [SR, 1, Brenda].</i></p> <p>[legitimizing] <i>But for a bit I think we have a lot to offer each other. Because we also find out more and more in the conversations with each other, that we do a lot of things the same, which of course we already knew. [SR, 1, Vera]</i></p>
2	<p>[legitimizing] <i>Yes, I do find it very fascinating that we are working with another organization and that it works so smoothly. [DL, 2, Nicole]</i></p>	<p>[othering] <i>Yes... I think we look differently to the matter and we are also different in the time we are willing/able to put into it. [SR, 2, Barbara]</i></p>
3	<p>[legitimizing] <i>Yes, we are all people who have something with education and we didn't come to this position because we thought, well, we come in at 8.15 a.m. and we go home at 3.15 a.m. We want to do something for education. And in that, yes, in that you do know how to find each other. [DL, 3, Boris]</i></p>	<p>[othering] <i>We have an idea and let's go, that's then kind of held back by: it has to be more research-based or more substantiated. And maybe that's also why every time it's a little bit that we were held back. [SR, 3, Brenda]</i></p>

The learning mechanism coordination was mentioned in all three rounds in both PLCs, as demonstrated in Table 5. In the first round, it was all about the process efforts of translation and communicative connection, with a minor role for routinization. Vivian and Cindy took the lead in SR, this was also reflected by what Vera said. In DL the quotes of Gilian and Karl e.g. showed a more joint effort. In both PLCs, a working routine developed. In SR also increasing boundary permeability was present when working in subgroups, as mentioned by Vera. Boris described that in DL participants did not mix yet between organizations. In rounds two and three, SR failed to maintain or enlarge coordination, it was largely absent. Vivian attributes this to the different prioritization given to the PLC by participants. In DL, on the other hand, participants were positive about all their efforts of translation. Communicative connection and routinization increased. Boundary permeability was present from round two onwards; Vincent described how working in mixed couples was valued by participants.

Table 5
Coordination, quotes

round	DL	SR
1	<p>[communicative connection] <i>We also collected a lot of literature during the first few months. 'If you've found something please put it on our SharePoint, so everyone can access it.' So that was picked up well. [DL, 1, Gilian]</i></p> <p>[efforts of translation] <i>I think everyone can contribute... that's well aligned. The moment we are really discussing, there really is a kind of equivalence. [DL, 1, Karl]</i></p> <p>[routinization + increasing boundary permeability] <i>Well, then we actually break up again and until now it has actually always been the case that UAS members and company members together, actually in that setting also went back to preparing together. [DL, 1, Boris]</i></p>	<p>[coordination, all processes] <i>Yes what I said, I think it is going very well. I also like the fact that Vivian pulls the cart, and she makes the agenda. Cindy also does quite a lot. I like the fact that Vivian and Cindy take the lead from both institutes. We always have some kind of work assignment that has been done in different combinations, which I enjoyed. Sometimes it's from your own institute, sometimes it's in pairs from both institutes, sometimes we just have reading work that you have to do individually, of course, and everyone does that and we discuss at every meeting what we want the meeting to achieve. And sometimes we need all the time and sometimes we finish earlier. [SR, 1, Vera]</i></p>
2	<p>[efforts of translation] <i>es, at some point it's also very nice then to see a translation into something there where you... Yes, you're just really in the funnel, aren't you? At the top, it's still all a bit woolly and vague. At a certain point, your process becomes more and more concrete, until you arrive at where we are now. [DL, 2, Boris]</i></p> <p>[communicative connection] <i>Well, that situation is different now, because we have now come up with a common goal, a common product. In that respect, I think the differences are smaller. In any case, I am sure that we think more or less the same about the cooperation, that it is going very positively. [DL, 2, Simon]</i></p> <p>[routinization + increasing boundary permeability] <i>So pairs of the UAS and the company. People are still asking for it now, so we did it twice more. So there is also a real need to mix and match between the organizations, because it just contributes to the broader perspective. [DL, 2, Vincent]</i></p>	<p>[communicative connection] <i>I think there are different processes at play there, namely that we are in it differently... We also discussed that. From the company, they also said "we just don't have time for it; appointments with the client always take precedence". That is also what we have noticed, that for us the PLC still has a little more priority and we spend a little more time on it and you can understand how it works, but it does influence the process. [SR, 2, Vivian]</i></p> <p>[efforts of translation + increasing boundary permeability] <i>We then kind of give each other homework assignments. In the beginning, we did that very nicely with mixed pairs, right? This year we picked things out much more per organization. When we would then come back, I would still see that there was a different vision, a different detail of elaboration, which might have... At least I know we were sometimes disappointed. [SR, 2, Barbara]</i></p>
3	<p>[coordination, all processes] <i>There are only four of us left, we have actually said, well, this is the planning for the last year. We're mostly going to do a lot, so there's really no need for an agenda ... we're not working so structured now ... Because we have split the consultations. We sit with a duo. Yes, does there really have to be an agenda? While talking, we do have a good idea of what we still need to do now and, for example, last week I saw the emails passing between Nicole and Petra who then have a consultation next week and we do get included so that we know how it will be taken forward and Petra and I then have another consultation scheduled next Monday in which we are still trying to incorporate feedback from the school so that the others can go back on that. [DL, 3, Gilian]</i></p>	<p>[coordination, all processes] <i>Yes, well, if we can still speak of a PLC there. Yes, I'm going to say that and maybe others will have said that too, because we never see each other anymore. We never speak to each other again and, yes, the last time interviewer and I spoke, I was still very positive and hopeful. [SR, 3, Brenda]</i></p>

The learning mechanism reflection was mentioned in interview rounds two and three in DL, and just once in SR in round two, as demonstrated in Table 6. In SR only Vera experienced new perspectives. In DL all participants talked about how their identity was enriched beyond their current status, all examples showed both processes perspective making and perspective taking. Participants expressed how they were able to enlighten the other organization about their perspectives and how

they learned from the perspectives of other participants. Nicole and Vera did so more generally, while Petra specifically mentioned the attention paid to collaboration in school teams.

Table 6
Reflection, quotes

round	DL	SR
2	<i>I worked with Vincent a lot, for example. I find that very interesting then. It's not one thing, but I just find it very interesting to hear from him what he is working on then, what his experiences are. So we talk about things. Then he has a different experience with that than I do, for example, but it comes together nicely. So I can't name a specific thing from that, but I do find that interesting. [DL, 2, Nicole]</i>	<i>Yes, what I said, more understanding of each other's institution. Yes, to me those are really the... So more understanding and the changing understanding, back to that professional dialogue. Dialogue and collectivity anyway. For me, those are really the big insights. [SR, 2, Vera]</i>
3	<i>I think that this has also come to light at UAS's, or at least at ours, which is a bit more insightful, right? The attention paid to it is very nice. It's difficult for students at some point, of course, because you do an internship in a team and then you have to deal with the collaborative culture. [DL, 3, Petra]</i>	

The learning mechanism transformation was mentioned in rounds two and three in DL, and not in SR, as demonstrated in Table 7. In DL in the second round participants described the realization that collaboration is very much needed for Deep Learning. Students do not necessarily acquire those skills and school teams often have problems with collaboration. The latter could be interpreted as a confrontation with a challenge or problem. Recognizing a shared problem space can be seen in the subsequent decision to focus on collaborative culture. In the third round participants still addressed the shared problem space and at the same time, they maintained their uniqueness by addressing both target audiences, as mentioned by Petra. Because they combined elements from different contexts to create something new, which Petra called two versions of the same product, there was a process of hybridization.

Table 7
Transformation, quotes

round	DL
2	[confrontation + recognizing a shared problem space] <i>Yes, I think we now have more of a sense of 'what can we do that gives us something in our work in terms of content, that we can use with our clients and that the UAS can use with students?'. [DL, 2, Gilian]</i>
3	[recognizing a shared problem space] <i>I guess that still comes back to that bit about today's students becoming our customers of the future, they don't remain two different groups. [DL, 3, Petra]</i> [maintaining uniqueness of intersecting practices + hybridization] <i>And yes, this actually worked out well because we are after all working on two different, no not different products, but two versions of this product. [DL, 3, Petra]</i>

3.2 Value-Creation

Figure 2 and Figure 3 show the VC stories of both PLCs. An elaboration per interview round contains some exemplifying quotes.

Figure 2

Deep Learning, value-creation story

<p>Strategic value</p> <p>1. Internally: Participants need the creation of a specific product as an aim for the PLC, as their learning agenda. They understand that Fullan’s theories can’t be translated wholesale to the Dutch educational system, this concerns their strategic context. Externally: Participants experience a difference in involvement of supervisors. One participant also thinks the other PLC is further on in the process.</p> <p>2. Internally: The decision about a specific product has been made, participants agree on the learning agenda. Externally: The aspirations and expectations from supervisors, from the institutions, are unclear according to participants, but that doesn’t seem to bother them.</p> <p>3. Internally: Participants pay attention to their strategic context by translating interpretations of their environment and stakeholders to reflect their perspectives. They also envision the differences all participants care to make by creating two versions of their product.</p>					
<p>Orienting value</p> <p>1. Participants appreciate each other’s perspectives, they all read Fullan’s book and they express the need for better access to (academic) sources. One participant also mentions the other PLC.</p> <p>2. Participants use an existing Q-sort from an expert outside the PLC. They also interviewed an expert outside the PLC to create a stronger theoretical foundation.</p> <p>3. There is less attention for internal orienting value, one participant speaks about identities and personal networks. They do talk about the other PLC and they engage with students and schools.</p>	<p>Immediate value</p> <p>1. Meetings are pleasant, nice, the collaboration is interesting, participants express a curiosity towards it. Some participants think it will be possible to achieve aspirations with this PLC, others have doubts about the usefulness relative to the time and energy that are needed.</p> <p>2. The PLC is still a nice challenge, participants still feel connected with the theme and aims of the PLC. They appreciate the smooth collaboration within the PLC and testing their intermediate product on themselves.</p> <p>3. Participants recognize their joint aspirations in one another. New immediate value, enthusiasm, emerges from testing the intermediate product in schools and with students.</p>	<p>Potential value</p> <p>1. Participants gain new perspectives and insights; the PLC is a possibility to test new ideas and may lead to adjustments in curricula. Participants also feel it is still abstract and vague.</p> <p>2. Participants reached agreement on the specific, structural output the PLC should deliver, no abstraction and vagueness anymore. They also gained new insights in terms of each other’s modus operandi and expertise They share and help inside the PLC.</p> <p>3. Potential value can be found in the agreement on the subject, the collective language, the sharing of stories and experiences. Participants also talk about gaining access to a network of external experts and the PLC forming a new network for each of them.</p>	<p>Applied value</p> <p>1. Some participants already apply their newly gained insights in their daily work outside the PLC.</p> <p>2. They test the intermediate product of the PLC on themselves. One participant explicitly tries to transfer the modus operandi to the other PLC.</p> <p>3. Concretizing and testing of the tool, the product, take place, both in the field and inside one of the institutions involved. Participants translate their original idea of the product into the new version of it, to address all audiences. They all still collaborate structurally with other participants.</p>	<p>Realized value</p> <p>1. No realized value was reported.</p> <p>2. Several participants report personal, professional development.</p> <p>3. Participants report personal, professional development and personal satisfaction. Two products, or tools, are almost finished.</p>	<p>Transformative value</p> <p>1. No transformative value was reported.</p> <p>2. New learning imperatives like changes in mindset occur internally.</p> <p>3. No transformative value was reported.</p>
<p>Enabling value</p> <p>1. Internally: it took a while to find routines, they are established now. SharePoint is being used. There is a mutual feeling of commitment and contributing. Reading and discussing the same literature creates collective language. Efficiency is experienced during and between meetings. No external enabling value is mentioned by participants.</p> <p>2. Commitment, shared leadership, routines, and efficiency are still growing stronger. The facilitator also provides a robust backchannel.</p> <p>3. The PLC managed to continue smoothly, despite the departure of the facilitator and one other member. When necessary, they transparently discuss and adapt their modus operandi. Commitment, shared leadership, routines, and efficiency are still going strong.</p>					

Figure 3
Self-Regulation, value-creation story

<p>Strategic value</p> <ol style="list-style-type: none"> Internally: Participants all want to accomplish behavioral change in teachers, but how? Participants stress the differences between themselves on the one hand but feel they all have knowledge on the subject and want the same with the PLC on the other hand. They feel the subject and the construct of the PLC are legitimate. Externally: Institutions involved set an example by their intentions to collaborate more in the future. Internally: the learning agenda contains not much of a direction, participants are unaware of each other’s aspirations, some voices are louder than others. Externally: The aspirations and expectations from supervisors, from the institutions, are unclear according to participants. Needs and wishes from the field, from teachers, distract the participants. Internally: The different constituencies are stressed and there’s no understanding of how the PLC could make a difference. By just adapting an existing product, participants adopt external imperatives wholesale. 					
<p>Orienting value</p> <ol style="list-style-type: none"> Participants express the need for better access to (academic) sources, and the wish to be informed about the progress of the other PLC. Learning from the other PLC might help, participants think. The PLC received the advice to interview external experts and audiences. One participant claims there’s more understanding of each other’s institutions. An existing, potentially useful Q-sort was totally forgotten. No internal orienting value is mentioned. There are negative and absent external orienting values concerning the levels of scale and external audiences, participants miss the connection with other spaces. 	<p>Immediate value</p> <ol style="list-style-type: none"> Participants report personal ambitions regarding professional development and the subject. The collaboration is nice, challenging, interesting. It’s good to already know each other and each other’s expertise. New angles and their link to practice give energy. There’s a curiosity towards the outcomes of the research. One participant, who entered the PLC later, doesn’t feel challenged (yet), plus it’s bothersome to disagree on the aims or working method of the PLC. The subject and the other participants are still nice, but the PLC doesn’t bring anything new or challenging. Nothing useful in daily work, feels to much as extra work with low priority. Several dominant personalities/experts emerge and overshadow the others. Participants don’t discuss the biggest issue of distrust with one another. They don’t recognize their aspirations in the PLC. It feels like just work or worse. 	<p>Potential value</p> <ol style="list-style-type: none"> Participants gain new perspectives and insights; the PLC may lead to adjustments in curricula. Participants also feel it is still abstract and vague. A toolkit or list as an advice or solution isn’t appropriate for self-regulation according to several participants. Most participants did gain new insights and networks, but some participants didn’t learn anything from the others. Participants don’t feel inspired by each other, they don’t gain new content-related knowledge and insights, it’s all still vague and abstract. 	<p>Applied value</p> <ol style="list-style-type: none"> One participant adjusted their daily work, following gained insights from the PLC. Participants fail to apply all new knowledge and insights into something useful. Participants don’t succeed in collaboration and generating revenues, they resort to modifying something that already exists. 	<p>Realized value</p> <ol style="list-style-type: none"> No realized value was reported. Lots of things did happen and lots of work is done, but there’s no sense of achievement. No tool or product is developed, no sense of achievement. One participant reports personal, professional development. 	<p>Transformative value</p> <ol style="list-style-type: none"> No transformative value was reported. No transformative value was reported. No transformative value was reported.
<p>Enabling value</p> <ol style="list-style-type: none"> Internally: The PLC has found routines without discussing them: Vivian prepares and plans, everyone contributes, and they work in mixed duos. Participants use the SharePoint for collecting literature and sharing a growth document. There is a mutual feeling of commitment. The facilitator is in the lead when it comes to process and contents, other participants do what is agreed on. Backchannel consists of the facilitator discussing the process and contents with mainly one other participant. There’s a need to set specific instructions towards each new meeting for all participants. Because of new participants and irregular attention of meetings routines and content need reconstruction. Externally: Facilitator can discuss a not attending participant with supervisor, this participant leaves the PLC. Participants experience differences in available time and space. Internally: Mutual feeling of commitment is gone, there’s no shared leadership, the PLC is excessively dependent on two participants. Efficiency, routines are absent. Externally: Several participants feel a lack of time regarding the PLC. Internally the enabling value is absent, participants just hope it’s going to work, there’s no commitment, participants don’t step up. The backchannel is more about gossiping and taking sides. Externally participants mention again they still experience a lack of strategic facilitation; one institution didn’t send its expert, but a novice. 					

Value-Creation and Boundary Crossing in PLCs

In the first round, much of the reported VC was positive. The most experienced values were strategic, enabling, and immediate. A small number of participants reported applied value. Orienting and potential value were also present, although quotes regarding the vagueness of contents, purpose, and process of the PLC point to some missing potential value in both PLCs. In SR the internal orienting value was absent, participants regarded each other's expertise more as a known given, which felt comfortable, nonetheless. Furthermore, in SR some quotes about constituencies, part of internal strategic value, were negative. Participants stressed and exacerbated the differences between their organizations, they created stereotypes.

Over the years, images of each other have also developed, and we only mention them to each other sporadically, because the big image that the UAS has of the company is that they are quick scorers, they pick a theory from somewhere and go out and sell it and bring it in. And they think of us, yes, that must be all theoretically justified, it all takes so long before anything changes. [SR, 1, Vera]

SR struggled with a lack of efficiency, an enabling value. Participants thought this was due to the changed composition of participants. However, DL did not mince words on similar circumstances.

Maybe it will come now that the group is more stable. Because that really worked against us in that almost every session we were missing someone or someone else was there. Which meant you always had to repeat, to summarize. [SR, 1, Brenda]

All participants in SR experienced solely positive immediate value, except for one:

We have certainly talked about it, and I have perhaps held them back a little, on the one hand, it feels a little awkward. (...) but on the other hand, I think it's good because they were taking a path that I couldn't quite endorse. [SR, 1, Barbara]

In the second round, most frequently reported VC still concerned strategic, enabling, and immediate. In SR those were all experienced largely negatively or absent. In DL the experienced potential value increased and changed, while the other values remained positive:

We have much more insight into each other's professionalism. That is indeed how you could interpret it. (...) It is now a very pleasant group also in connection, in which respect is a basic condition, but also just pleasant cooperation, which also makes it possible to work on the goal and to use each other's professional capacities. [DL, 2, Vincent]

Participants in DL managed to create positive external orienting value by consulting two experts, it was their interpretation of obtaining a theoretical foundation. Some realized and transformative values were also reported.

In the third round, SR reported only negative or missing values, while DL created seven theoretical positive values. In DL strategic value was less prominent, but immediate value appeared to be enhanced by testing the prototypes in the field. Gilian enjoys watching their prototype being used by a school team and receiving useful feedback on it.

Well, that was fun. [DL, 3, Gilian]

Nicole started to encounter colleagues who teach the senior classes because of the PLC.

So, it's very concretely different because of the PLC, I'm also very consciously working on that [meeting colleagues from other classes] and I really like that, to also get a more complete picture of the whole education. [DL, 3, Nicole]

3.3 How MBC and VC relate

In section 1.4 several resemblances are discussed: (a) similar characterizations of a considerable number of values and mechanisms, (b) non-hierarchy versus a sequel tendency, and (c) occurrence at different levels. For both PLCs, those resemblances and their implications will be discussed subsequently.

3.3.1 Similar Characterizations

The MBC mechanism identification and immediate and internal strategic value were often present together in one quote, which was made visible in Table 8. Strategic value and identification were found within one sentence several times. Identification concerns two processes: othering, and legitimating coexistence. In the case of othering, the differences and similarities of the participating organizations are explicitly discussed. At the same time, awareness of each other's constituencies is an internal strategic value. It can become a negative value when differences are stressed too much, when stereotypes are created. The quotes of Karl, Boris, and Petra show positive othering and an appreciation of each other's constituencies. They were being susceptible to other, new contexts, which is an immediate value. In SR aligning concerns and aspirations failed; according to Vivian participants gave up on this part of the learning agenda after multiple attempts. Vivian knew about different goals and layers, the so-called othering, but she did not act on this strategic context. Instead, participants focused on the content, they narrowed down their learning agenda.

Table 8
Immediate and strategic value, identification

MBC present	Quote	VC present
Identification: othering	[constituencies + othering] <i>And I clearly saw different perspectives. The [educational consultancy organization] has a commercial aim, 'we coach schools, so we'll create a project for money'. And we are occupied with: when you're a student here and you become a teacher, what does that entail? What does it mean for our education, for students' knowledge, skills, and attitude? Do we want something with that? And what role does the school play? [engaging] Questions like that. And that's what we talked about for about two weeks. So it's really exploring together. [DL, 1, Karl]</i>	Immediate value: engaging with other perspectives, Strategic value: constituencies
Identification: othering	[othering] <i>As an organization, as separate organizations, we do have other long-term goals with the PLC as well, because for UAS it is quite kind of complicated you could say. ... there are different layers, and it has to be reflected in different layers as well [recognition] but that was actually so complicated that we just parked that every time [learning agenda] and said of let's talk about the content first and then we'll think about other things. [context] Similarly, the company obviously has multiple layers in the organizations in which they did want something with this. [SR, 1, Vivian]</i>	Immediate value: absence of mutual recognition as learning partners, strategic value: negative learning agenda, absent strategic context
Identification: othering	[engaging] <i>Yes, that one might also be interesting, [constituencies + othering] but I think that one fits better with the company, because of course they also... Look, in-service training is also an important branch with us, but it is not our core business. Our core business is training students to become primary school teachers. So, we are also somewhat less likely to be in the position as a teacher where we come to a school and we could start doing something with this. [DL, 2, Boris]</i>	Immediate value: engaging with other perspectives, Strategic value: constituencies
Identification: othering	[engaging] <i>Not so much in person, but perhaps in organization, that we see differences, for example, in scheduling certain dates, dates for consultations I actually mean. [constituencies + othering] Whereas the UAS is actually a bit tied to class schedules with students, we at the company are a bit more flexible in that respect, in the sense that we are not necessarily tied to a particular schedule, and we can arrange our agenda completely ourselves, but then it is true that in practice, if a client shoots in between, we still prioritize it. Yes, you know? That's our core business and that's what we generate turnover on. If we cancel a customer; yes, that is just not so easy for us. [DL/SR, 2, Petra*]</i>	Immediate value: engaging with other perspectives, Strategic value: constituencies

Note. *Petra made a general quote, concerning both PLCs.

The next MBC mechanism, coordination, often appeared together with immediate and internal enabling value. Examples can be found in Table 9. Again, multiple values and processes were found within one sentence. Petra felt her participation was valued by others; she had a sense of inclusion, as did Cindy and Gilian. It was easy for Petra to blend in as a newcomer, so this generational encounter succeeded. She attributed these positive immediate values to the availability of up-to-date documentation, an enabling value as well as a boundary object used for communicative connection. Cindy also mentioned instruments and structures, this communicative connection was already routinized. The familiarity with the process was helping her, it made meetings productive and efficient. According to Gilian, it became routine to work in mixed couples somewhere after the first interviews. This routinization not only concerned the communicative connection but also efforts of translation, as they shared their points of view. Everyone naturally taking responsibility implicated internal leadership. For Gilian, this success experience is a special

part of participating in the PLC. Cindy further mentioned discussing fundamental questions regarding the PLC's assignment. This created an opportunity to connect with others around what you care about, and to establish a shared language, both very similar to the process efforts of translation. Barbara pointed out that efforts of translation have been made by talking about using qualities, but that did not alter her feelings towards participants of the other institution. She felt that others did not step up or maybe did not even care for the quality of the PLC.

Table 9
Immediate and enabling value, coordination

MBC present	Quote	VC present
Coordination: communicative connection	[documenting + connection] I also kind of like the fact that we have a SharePoint, folders that contain documents. For example, we have the ambition document in which both PLCs have described, what I just mentioned, their goals and ambitions. I was able to read up on that during the first meeting. [encounters + inclusion] So I have to say it hooks up pretty easily. [DL/ZR, 1, Petra*]	Immediate value: generational encounters, sense of inclusion, Enabling value: documenting
Coordination: communicative connection, efforts of translation, routinization	[inclusion + process + efficiency + connection + routinization] We often worked on flaps, those big ones. On which somebody made notes and drew connections. (...) And we committed to all reading up in advance on literature concerning understanding the concept and contributing this in PLC meetings. That was very helpful. [identification + language + efforts] We also went back to the question why: why do we find it important that children self-regulate their learning? Why do we want that? Why do we strive for that? And even further back, why should that be a task for the PLC? [SR, 1, Cindy]	Immediate value: identification, sense of inclusion, Enabling value: process, efficiency, language
Coordination: communicative connection, efforts of translation, routinization	[conviviality + inclusion] Yes, I think the experience of working with someone else. Your own colleagues are just very familiar. You speak to them every week. The PLC members are familiar, but in a different way, because you don't speak to them so often. [process + efficiency + efforts + routinization] Now you did have a person from the UAS and a person from the company who also exchanged with each other in between, from everyone's own point of view, and who then brought it together anyway and then shared that with each other again. So we actually made it bigger than just the PLC meeting. We sought each other out beyond that one time a month six of us being together. [leadership + inclusion + connection + efforts] I think we were allowed to have the success experience that even that just went well and was also okay, that it also went very naturally. "Oh yes, do you want to do this with me, we'll do this." [DL, 2, Gillian]	Immediate value: conviviality and enjoyment, sense of inclusion, Enabling value: internal leadership, process, efficiency
Coordination: efforts of translation incomplete	Interviewer: You just think people should contribute equally. Barbara: It doesn't have to be that way... Some people have much more qualities in that corner and others... I think that's totally fine. [efforts] We've talked about that before, about using each other's qualities, making use of them. It's not that I expect exactly the same from everyone. I mean, I don't have Vivian's knowledge at such a detailed level either, but she respects that, and I can sometimes be much further ahead in terms of the level of application. [inclusion + commitment + leadership] But no, it's more the feeling that the energy is actually equal, that the investment... The investment actually. [SR, 2, Barbara]	Immediate value: negative sense of inclusion, Enabling value: absence of commitment, internal leadership

Note. *Petra's quote concerns both PLCs.

The MBC mechanism reflection was often present together with potential and internal orienting value, which is made visible in Table 10. Internal orienting value represents a mindset concerning orientation to the broader landscape rather than actions (Wenger-Trayner & Wenger-Trayner, 2020). Participants showed how they were willing to consider the participant contexts,

inherited boundaries, and biographies and identities. At the same time in round two, Simon and Vera expressed how they were able to explicitly share their perspectives, perspective making. The MBC mechanism reflection also contains perspective taking. All examples showed how participants took in the perspectives of others. Exchanging perspectives and backgrounds was combined with some potential values, participants also gained stories of others' experiences, insights, and information. Simon and Nicole explicitly perceived these as potentially valuable.

Table 10
Potential and internal orienting value, reflection

MBC present	Quote	VC present
Reflection: perspective making and taking	[stories + insights + contexts] <i>That not only from different personalities, but also different contexts, within which you function or within which you see the product functioning, and from different expertise you bring [making] you have input. [making + taking] That you also get that change of perspective, not only between individuals, but also between roles and areas of expertise. [DL, 2, Simon]</i>	Potential value: stories of others' experiences, insights Orienting value: participant contexts
Reflection: perspective making and taking	[biographies] <i>Yes, what I said, more understanding of each other's institution. Yes, to me those are really the... [insights + making + taking] So more understanding and the changing understanding, back to that professional dialogue. Dialogue and collectivity anyway. Those are the big insights for me though. Yes. [SR, 2, Vera*]</i>	Potential value: insights Orienting value: biographies and identities
Reflection: perspective taking	<i>Yes yes, I do just think that too. In the collaboration or I will say that it's the fact that it succeeds, huh, such a, I did think that was already one. [contexts] Yes, an eye opener of we are very different organizations, but if we all go into it full force. Then, then it just works out. [stories + insights + taking] But also yes, also, like the conversations with Vincent. Yes, I just found that very instructive. Because you look at something from different perspectives, for example, and then he told you something about how he was working on it. That I thought, oh yes, I hadn't looked at it from that angle yet. Or I don't have a concrete example of it, but it's very interesting. Yes, I really enjoy talking to people who want to look at it from a completely different perspective, so that's always instructive. [DL, 3, Nicole]</i>	Potential value: stories of others' experiences, insights Orienting value: participant contexts
Reflection: perspective taking	[information + boundaries] <i>When at the company it was said, yes, but you all have hours for this and we do this in our free time, so that facilitation was not equal already. [insights + taking] So then I really thought: well, then we have to do something about it. Anyway. And, and that did command some respect from me etcetera and also some willingness to take that into account. But it was pronounced and then it is, yes, then I think you can move forward with it. But yes, nothing happened with it after that. [SR, 3, Vera*]</i>	Potential value: insights, information Orienting value: inherited boundaries

Note. *Vera is the only participant in SR with quotes regarding reflection.

Some processes of the MBC mechanism transformation were present in one quote with transformative value, which is made visible in Table 11. Internal transformative value is among others about new learning imperatives. Boris and Vincent indicated they had adopted a different approach to respectively working in a PLC and substantiating tools or interventions. In the example of Boris, the new learning imperative was combined with the process of recognizing a shared problem space, with the goal of the PLC. In the example of Vincent with crystallization, with a new habit.

Table 11
Transformative value, transformation

MBC present	Quote	VC present
Transformation: recognizing a shared problem space	<i>Yes, then you have to hang above it a bit each time, so to speak. That might be the learning thing then. [recognizing] Like "okay, what is the goal, what have we talked about before, what were we positive about and less positive about?". That you sort of try to grab a meta position in such a process, as it were, where you then think: okay, yes, that might be an action that could be helpful, [imperatives] also for yourself, to take direction from that. That awareness of that might also be something you learn from it then. [DL, 2, Boris]</i>	Transformative value: new learning imperatives
Transformation: crystallization	<i>Vincent: I myself am always someone of educational innovation, but I place a little less value on the evidence-based of informed level in my work. That has more to do with the nature of the work sometimes. There is some growth in that, I think. Interviewer: How nice. How do you notice that? [imperatives + crystallization] Vincent: Well, in thinking about it: am I going to substantiate this or not? [DL, 2, Vincent]</i>	Transformative value: new learning imperatives

When a process of one of the MBC learning mechanisms took place, often also value was created. The quotes in Tables 8 to 11 show this with some examples. Similar characteristics that become visible when both theoretical frameworks are compared also emerged in data in fixed combinations.

Applied value and realized were not found in a combination with MBC, but the other six values all appeared when quotes concerning MBC were studied. In the case of quotes with VC as a starting point, MBC was not always found. MBC had a lower frequency than VC.

3.3.2 Sequel Tendency

In sections 1.2, 1.3, and 1.4 non-hierarchy versus a sequel tendency of both VC and MBC mechanisms is discussed. Findings regarding those trends are presented here per PLC.

In DL first strategic, enabling, immediate, and potential value were extensively experienced alongside MBC mechanisms coordination and identification, as is shown in Table 12. Small amounts of orienting and applied value were also experienced. In the next round, the experience of potential value and the mechanism coordination evolved. Experiences of applied and realized value were added, alongside the mechanisms reflection and transformation. Some transformative value was experienced. In this second round, all values and mechanisms were present. In the third round, strategic value and the mechanism identification became less mentioned. Reflection was most

mentioned, and transformation evolved. Enabling and immediate value, alongside coordination, were firmly present in all rounds.

Table 12
Sequel tendencies in DL

		round 1	2	3
VC	Strategic	all participants, positive	all participants, positive	two participants, only internal
	Enabling	all participants, positive	all participants, positive	all participants, positive
	Orienting	three participants, slightly more external than internal	five participants, more external than internal	all participants, only external
	Immediate	all participants, positive	all participants, positive	all participants, positive (review whole duration PLC)
	Potential	four participants, positive (possible changes in curricula) and not created (abstractness PLC)	all participants, positive (new insights)	all participants, positive
	Applied	two participants, positive	all participants, positive	all participants, positive
	Realized	-	all participants, positive	all participants, positive
	Transformative	-	two participants, internal (new learning imperatives)	-
MBC	Coordination	all participants, mostly communicative connection, then efforts of translation, little routinization	five participants, mostly efforts of translation, then communicative connection and routinization, little permeability	three participants, mostly communicative connection, then efforts of translation and routinization, and permeability
	Identification	all participants, slightly more othering than legitimating coexistence	five participants, slightly more othering than legitimating coexistence	two participants, only legitimating coexistence
	Reflection	-	all participants, more perspective taking than making	all participants, more perspective taking than perspective making
	Transformation	-	two participants, confrontation and recognizing shared problem space	two participants, recognizing shared problem space, hybridization, and maintaining uniqueness

The first round of interviews in SR unfolded comparable to the one in DL, as is shown in Table 13. Strategic, enabling, immediate, and potential value appeared alongside MBC mechanisms coordination and identification. Little orienting and applied value were experienced. Some values were negative or absent. In the next round, applied value increased and identification changed. Realized value and a little reflection were also experienced. Quotes are largely negative on all values and mechanisms; MBC processes do not take place. In the third round, strategic value became less mentioned. Reflection did not change. Enabling and immediate value, alongside coordination, were firmly present in all rounds, although not in a positive way. No transformation or transformative value were reported.

Table 13
Sequel tendencies in SR

		round		
		1	2	3
VC	Strategic	all participants, some negative (constituencies)/not created	all participants, negative/not created (learning agenda)	two participants; only internal, negative/not created
	Enabling	all participants, some negative (reconstruction routines)	all participants, negative/ not created	all participants, negative/ not created
	Orienting	three participants, all external	five participants, more external than internal	three participants, only external, negative, not created
	Immediate	all participants, mainly positive	all participants, negative (usefulness) /not created (no challenge, nothing new)	all participants, negative/not created
	Potential	four participants, positive (possible changes in curricula) and not created (abstractness PLC)	all participants, mostly negative	all participants, negative/not created
	Applied	one participant, positive	all participants, not created	two participants, not created
	Realized	-	two participants, not created	three participants, not created
	Transformative	-	-	-
MBC	Coordination	five participants, mostly communicative connection and efforts of translation, little routinization and permeability	all participants, efforts of translation and communicative connection equally, both positive and negative quotes	three participants, efforts of translation and communicative connection equally, almost all negative quotes
	Identification	four participants, slightly more othering than legitimating coexistence	three participants, lots of othering, one negative legitimating coexistence	four participants, lots of othering, one negative legitimating coexistence
	Reflection	-	one participant, both perspective taking and making	one participant, both perspective taking and making
	Transformation	-	-	-

In DL, experience of VC developed from mainly strategic, enabling, and immediate value experienced in the first round to more potential, applied, realized, and even transformative value later. MBC developed from identification and coordination in the first round to reflection and transformation in the next rounds. In SR the development went in the first round as in DL.

3.3.3 Levels

Akkerman and Bruining (2016) added the multilevel aspect to boundary crossing. The intrapersonal, interpersonal, and institutional levels are recognized in several other studies (Martinez-Alvarez et al., 2021; Rosalina, 2017; Ryymin & Lamberg, 2022). Members of the PLC can also experience values individually, collectively, or on an organizational level (Wenger et al., 2011; Wenger-Trayner & Wenger-Trayner, 2020), although no explicit attention has been paid to levels in values.

The individual or intrapersonal level was present in the interviews for both VC and MBC.

Participants often explained their personal experiences, insights, or views, like this potential value:

It's more in that I also support things with conviction like "oh yes, no, now we're going to bring out a message together" or "now we're going to talk to colleagues". So, I think it's more in that, that I dare to follow that feeling more or dare to follow or want to follow others in the sense of "yes, no, we're going to do this together". That is perhaps more of a personal development now than still a professional development in a group context.

[DL, 2, Simon]

Another example concerns the mechanism coordination, more specifically the processes efforts of translation and communicative connection:

She has developed a format that we have to fill in every week as a kind of protocol, a guideline for the meeting, and then we also look at what the purpose of the meeting was, what it was about, and what the plans are for the next time, in summary. That kind of thing, yes, I like that very much and that just helps a lot in the process because now we are swimming a bit less so to speak. [SR, 1, Cindy]

The collective or interpersonal level covers the PLC as a group. This level appeared to be present when more participants expressed something similar, like how Brenda and Vera talked about their learning agenda, a strategic value.

We are now also in the phase where we want to apply something that will be of practical use. What's most important is the attitude of teachers, so not just dropping a toolbox or I don't know what, but coming up with something that makes those teachers think more and that their own vision, attitude, beliefs, that something happens in that. To that extent, this is aligned and we have formulated design requirements. [SR, 1, Brenda]

Yes, we have now agreed in our PLC, because this is also about those learning conversations, that we all have the same vision about what it should deliver for teachers.

So actually a behavioural change that we would like to bring about, so that the teacher will look differently at children and will focus on the ownership of that child and will therefore enter into conversation with children from that equal position. [SR, 1, Vera]

In this case, it is not possible to establish with certainty whether this does concern the PLC, or just two individual, separate participants. In other cases, the interpersonal level is more identifiable, mostly when participants gave a factual description, as Petra did about transformation, maintaining uniqueness of intersecting practices:

Well, yes, it did take some searching, okay, didn't it? We had a yield, we had a goal, but we have always been aware that we are talking about customers and students. That there are two different target groups and how can we develop something, which can be used for both, which in any case can generate revenue for both target groups, so we have always kept that in mind if we, as a company, lost sight of that for a moment, then we were reminded of it again by the UAS in a pleasant way. [DL, 3, Petra]

The interviews did not contain leads on the institutional level. Whether both involved institutions experienced created values, or whether learning mechanisms took place on this level, was left undiscussed by participants.

4. Conclusion and Discussion

4.1 Conclusion

The first sub-question was the identification of MBC mechanisms within PLCs. In line with other studies (Akkerman & Bruining, 2016; Rosalina, 2017; Ryymin & Lamberg, 2022) two mechanisms, identification and coordination, were present throughout all interview rounds, although evolving. The most frequently occurring processes of othering, communicative connection, and efforts of translation contained learning potential because of actually crossing a boundary (Rosalina, 2017). In SR, no other mechanisms were found, and the achieved coordination fell back. In DL, reflection and transformation occurred, both in the second and third rounds. Transformation evolved from confrontation and recognizing a shared problem space to hybridization and maintaining uniqueness of intersecting practices.

The second sub-question was: Which cycles of VC occur in the PLCs? Two different VC stories emerged. The first signs of these different outcomes can be found in the first interviews, after about six months. It concerns the strategic and enabling values and for one participant some immediate value. In SR, there were predominantly negative and missing values from the second round onward. Transformative value was not mentioned at all. In DL some transformative value was experienced in the second round, and realized value in the second and third rounds. All other values were still experienced positively, evolving in the second and third rounds. During their one-year studies, Booth and Kellogg (2015) and Bertram et al. (2017) confirmed that realized and transformative values take time. Findings for strategic, enabling, and orienting value cannot be compared with research yet, as other scholars used the earlier Wenger et al. (2011) and there are few longitudinal studies.

The overall research question was: How do the mechanisms and processes of MBC relate to the experienced cycles of VC in professional learning communities, consisting of professionals from diverse educational backgrounds? Consistent combinations of values and mechanisms appeared throughout the three rounds. Possibly due to matching characteristics as described in both frameworks. Furthermore, VC and MBC followed identical trends. VC went from mainly strategic, enabling, and immediate value experienced in the first round to more potential, applied, realized,

and even transformative value. MBC went from identification and coordination in the first round to reflection and transformation. Identifying the level at which a value or a mechanism occurs was equally difficult for both values and mechanisms. Promoting VC does seem to look the same as stimulating MBC learning mechanisms, for example with strategic value and identification, or with enabling value and coordination.

4.2 Discussion

The overarching strategic and enabling values were mentioned by Bertram et al. (2017) in their discussion, but so far, no other studies included them. One could argue that the negative and absent internal strategic and enabling values in the first round largely contributed to the course of SR. More explicit attention to those values in the first phase of the PLC might have led to more positive values later. In DL, participants more deliberately focused on getting to know each other and each other's aspirations and expertise. Subsequently, they managed to create all theoretically possible values and they encountered all MBC learning mechanisms; they accomplished the design of two new tools for collaborative culture.

Furthermore, Booth & Kellogg (2015) confirmed the importance of tangibles to promote learning in a PLC, such as DL-participants interviewing an expert for a theoretical foundation. Tangibles extend the value of the learning process itself and can act as 'boundary objects' (Akkerman & Bakker, 2011). Baas et al. (2022) offer another option for stimulating VC: activities and connections valued by participants of a PLC should be more solidly connected with the urgent matters of the involved organizations. The latter concerns external strategic values according to Wenger-Trayner and Wenger-Trayner (2020). This probably does not alter the fact that the overarching internal strategic and enabling values must first be created to achieve more positive VC later.

A PLC's potential power can only be effectuated if the PLC establishes a shared focus and coordinated effort (Kubiak et al., 2014). The goodwill that brings a group together can at first mask the differences in assumptions, opinions, and meaning of language (Kubiak et al., 2014) i.e., the absence of internal strategic and enabling values. Eventually though, participants will have to figure

out collectively how they want to go ahead and at the same time consider all identities present (Edwards, 2010). This alignment search can be very uncomfortable and emotional (Kubiak et al., 2014). This became visible in SR with not only the negative and absent strategic, enabling, and immediate values but also in the amount and nature of othering.

Alvesson and Willmott (2002) mention two processes *identity-regulation* and *identity-work* by which participants negotiate their identity when they enter a new community such as a PLC. All formal and informal acts by the new community or organization are identity-regulation. Identity-work concerns how individuals deal with their perception of the self by forming, repairing, maintaining, or revising it. Examples of both failure and success as portrayed by Fenton-O’Creevy et al. (2014) show that experiences of failure and all kinds of sometimes strong emotions are a frequent consequence of the identity-work involved in crossing boundaries. Supporting learning should also involve supporting identity-work, i.e., supporting emotion handling. This is in line with the findings regarding internal strategic and enabling value in both PLCs, which amongst others concern constituencies, the learning agenda of the PLC, and commitment.

4.3 Limitations

The VC framework and stories proved their worth in gauging learning and values on different levels, related to PLCs (Bertram et al., 2017; Clarke et al., 2021; Baas et al., 2022). By using adapted interview guidelines by Wenger et al. (2011) both VC and MBC could be mapped in detail and depth for both PLCs. Coding VC can be troublesome, however. In previous research, it has been reported it can be difficult to determine which value a particular quote represented (Booth & Kellogg, 2015; Bertram et al., 2017; Baas et al., 2022), yet the newest version (Wenger-Trayner & Wenger-Trayner, 2020) seems clearer and more robust.

Nevertheless, transformative value formed a challenge for coding, how to assess the breadth and depth of a change. In this study, the label transformative was applied more strictly, as in Clarke et al. (2021). Some transformative value was experienced in the second round in DL, as new learning imperatives arose, but in the third round, no transformative value was found. A possible explanation

for this development is that participants continued without a facilitator and spent this last phase merely finishing and finetuning the already designed tools, not requiring the creation of transformative value.

VC stories should be built out of various data (Wenger et al., 2011; Wenger-Trayner et al., 2019; Wenger-Trayner & Wenger-Trayner, 2020). A limitation is that the data consisted solely of interviews in this thesis. Due to COVID, it was not possible to observe meetings and collect other materials systematically. Akkerman and Bruining (2016) equally used various data for MBC. However, their focus was on interviews, giving much space to the intrapersonal level. More recently Ryymin and Lamberg (2022) emphasized the interpersonal level by mainly observing. The limitation because of the data collection thus influenced the possibility to assess different levels in MBC too; the intrapersonal level took up most attention in and throughout the interviews.

The institutional level was left undiscussed. Other data might have helped here, but the institutional level has been lacking before (Akkerman & Bruining, 2016; Ryymin & Lamberg, 2022) unless the need to engage multiple institutions is critical to reaching the goal (Martinez-Alvarez et al., 2021). Participants of DL and SR did mention various encounters with other colleagues, externals, and other stakeholders. The fact that the institutional level was not among those, suggests no MBC whatsoever took place on this level. More knowledge of the levels and their interaction could therefore show the impact of the PLCs more clearly.

Furthermore, the absence of applied and realized value in the combinations with MBC processes raises questions. A broader data collection might have made these combinations more visible. Another explanation is the rather small amount of applied and realized value that was reported at all. The nature of the PLC's assignment was to develop a tool or instrument in three years. Applied and realized values regarding those tools logically emerge when the tool is almost finished. Here, the reported applied and realized values mostly concern using the practice and knowledge acquired through participating in the PLC. Given the descriptions in both theoretical frameworks, the most logical combination seems to be with the MBC mechanism transformation. To

apply what one learned earlier and to obtain results, the transformation processes of hybridization and crystallization could be appropriate.

A constraint of this study is its somewhat limited scope, as it involved only two PLCs. Concerning sequel tendencies, DL is a clear case to confirm suggestions for both MBC (Ryymän & Lamberg, 2022) and VC (Booth & Kellogg, 2015; Bertram et al., 2017). SR seems more complicated with several absent values, but suggestions of trends are also present in this PLC. More cases with longitudinal research would provide more certainty about tendencies in VC, MBC, and combinations of both.

4.4 Implications

It is good to have several theories to understand the complex process of social learning in PLCs, but the integration of theories is necessary to fully grasp social learning in PLCs. The frameworks for VC and MBC both offer leads for integration in theory and practice. For example, the importance and necessity of the combinations of strategic value plus identification and enabling value plus coordination may now lead PLCs to work on these aspects more deliberately, as DL did. This may lead participants to openly discuss each other's personal purposes, expertise, and values (Edwards, 2010).

Obtaining this knowledge offers leads to optimizing the learning processes in a PLC, to “organize systems in such a way that innovation is not a finite project but becomes a way of working and organizing (Vermeulen, 2016, p. 2)”. Two Dutch institutions wanted to contribute to this way of working, as the goals with their PLCs were not only co-creating knowledge that can improve education but also helping to obtain knowledge about a more effective and efficient design for PLCs as a form of learning for professionals.

And yes, then I do take pride in the fact that I think: fortunately, we did manage to really find each other, and it is also delivering something for us, so it was all for a reason.

[DL, 3, Gilian]

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Appendix A

Step-by-step interview instruction for WCV 1	The Networked Professional	
Interaction		Action
<ul style="list-style-type: none"> - Introduce yourself to one another - Explanation of the content of the research - Purpose conversation - Have a consent form signed 	<p>Purpose of conversation</p> <ul style="list-style-type: none"> - It mainly concerns your own experiences with and through your participation in the PLG - The conversation is being recorded - Interviewer co-writes - All content remains anonymous 	<p><i>Get to know each other, create an atmosphere of mutual trust. Have a consent form signed.</i></p>
<p>0. Ground narrative realization of PLC</p> <p>Starting Story What does your PLC process look like?</p>	<p>Ground narrative</p> <ul style="list-style-type: none"> - How did the PLC come about? - How did your participation in the PLC come about? - What happened in the PLC? What have you done within the PLC? - What do the activities in the PLC look like? - How did you organize and experience the collaboration with other colleagues? <p>- What did you find to be a particularly valuable experience? (several also possible)</p>	<p><i>Give the respondent the space to talk, do not intervene and ask further questions, do not focus on value or results, only on context.</i></p> <p><i>Ground narrative provides starting point of threats to follow: value cycles around a particular starting point. In addition, it provides an overview of contextual factors that may influence value creation in the PLC.</i></p>
<p>0.1 Strategic value</p> <p>The importance of the results of the PLC for participants and stakeholders. It concerns individual and collective goals, both within the PLC and beyond for the participating organizations. <i>“Strategic value refers to the clarity of the strategic context in which the network is operating and the ability of the network to engage in strategic conversations about the value it creates. This is crucial because knowledge and learning are often seen as operational challenges when in fact they are primarily strategic issues. Office Bearers, Governing Council and Development Partners are key stakeholders for generating strategic value.”</i></p>	<p>Strategic value</p> <ul style="list-style-type: none"> - What do you find important about the subject of your PLC? - What do you hope the PLC will proceed? - What goals are you pursuing as an individual with your participation in the PLC? - What goals does the PLC pursue as a group? - How do these individual and collective goals fit into the goals of the organization you work for? 	<p><i>Focus on individual and collective ambitions and objectives. Write these down and systematically explore in enabling value what it takes to achieve each goal.</i></p>
<p>The aspirations, without value, are described as follows: <i>“On the other hand, narratives also represent aspirations for a network</i></p>		

<p><i>or community—what a person is trying to achieve when networking, what defines success for a community. Whether explicit or not, such aspirational narratives describe communities/networks in terms of the value they are expected to produce. We call these expectations “aspirational narratives” because they constitute a story about what networking or communities should be, which evolves over time.”</i></p> <p>My definitions: aspirational: personal goals, that which an individual or network wants to achieve with the collaboration strategic: the goals of the organization in which the network operates enabling: that which is necessary to achieve those goals</p>		
<p>0.2 Enabling value</p> <p>Necessary and conditional factors for successful functioning in a PLC:</p> <p>Enabling value based on literature:</p> <ol style="list-style-type: none"> 1. Basic psychological needs: autonomy, competence, social connectedness 2. Participant learning perspective (transformational versus transactional perspective on learning) 3. Relationship of trust in the group, knowing each other 4. Continuity of participants 5. Learning climate: reciprocity is part of the culture in the group and in the organisation. Quid pro quo: not knowledge for knowledge, but knowledge for value 6. Situational Time – Structural Time 7. Organizational and team support – interest in participating 8. Support managers 9. Financial Support 10. Access to knowledge and social capital <p><i>“Enabling value refers to the support processes that make the</i></p>	<p>Enabling value</p> <ol style="list-style-type: none"> 1 What do you need to achieve these goals? 2 How are these conditions currently met? 3 How are already known necessary conditions being met (see opposite)? 	<p><i>Systematically explore all the stated goals. Let the interviewee talk openly about his experiences.</i></p> <p><i>When all goals have been explored, then also explore to what extent the necessary factors from the literature are met.</i></p>

<p><i>network's life possible. It includes internal leadership as well as external support, such as a dynamic support team, logistical support, and good technology. It is important because it is a sign of sustainable activities and results for the network. The Secretariat, the PAC clerks, and the Development partners have been important players in creating enabling value."</i></p>		
<p>1. Immediate value -direct value, productive activities</p> <ul style="list-style-type: none"> - Ask about concrete activities and activities within activities and how they were experienced. - Type of interaction in the group and in the PLC - Affective value/happy? - Relevance of PLC - Relevance of interaction - Contacts -Collaboration - Recognition, Recognition - Sense of social connectedness - Autonomy - Competency 	<p>Immediate value</p> <ul style="list-style-type: none"> - How do you experience participation in the PLG? - What activities and proceedings have you been involved in and how did you experience them? - What does the interaction with fellow plc members look like? How did you experience it? 	<p><i>When exploring the different cycles, also refer to the answer to this question from the ground narrative:</i></p> <p>What did you find to be an especially valuable experience? (several also possible)</p> <p><i>Immediately write down all directly definable values – inquire per unit of value. It usually concerns feelings during activities: fun, interesting, sociable, useful, but also recognition, acknowledgment, connection</i></p>
<p>2. Potential value, useful resources</p> <p>Capital: knowledge, human, social capital</p> <p>Ask for potentially useful insights, documents, tools and contacts.</p> <ul style="list-style-type: none"> - Acquired Abilities - New contacts - Information received -Inspiration -To trust - Structural form team - output - Documentation - Reputation team - Insights about learning (note: this concerns acquired knowledge, not fundamental changes of insight, that is reframing) 	<p>Potential value</p> <ul style="list-style-type: none"> - What specific insights have you gained from [previously mentioned value] or [participation in the PLC]? - What did you take away from the activities in the PLC? - What information, materials and contacts did [previously mentioned value] or [participation in the PLC] provide you? 	<p><i>Immediately write down all directly definable values</i></p> <p><i>Draw lines between values that are connected to each other. These are things that could possibly be useful, but are not yet at the time of acquisition.</i></p> <p><i>NB In the initial phase of an activity that is being explored, the realized value is not yet that big. It usually takes at least three weeks before the step from potential to applied and further is made. The rest of the interview format can be administered, but if the interviewer notices that the realized value is limited, they can proceed to step 8 from here.</i></p>

<p>3. Applied value - promising (changed?) practice</p> <p>Ask about how implementing a change has changed the day-to-day practice of the person concerned, where the direct benefit of that change may not yet be visible.</p> <ul style="list-style-type: none"> - Implementation of advice/solution/insight - Innovation in practice - Use of tools - Reuse products - Use social contacts - Innovation in systems - Transfer to other situations 	<p>Applied value</p> <ul style="list-style-type: none"> - Have you done things differently because of [previously mentioned value] or [participation in the PLC]? - Have you put knowledge from the PLC or [above mentioned value] into practice? - Did you make use of the contacts you made in and through the PLC? - How has [previously mentioned value] or [participation in the PLC] influenced your functioning in your daily (teaching) practice? -What have you experimented with? 	<p><i>Immediately write down all directly definable values</i> <i>Draw lines between values that are connected to each other.</i></p>
<p>4. Realized value – visible yield</p> <p>Ask about what an implemented change has yielded in concrete matters, such as in time, money or meaning to others.</p> <ul style="list-style-type: none"> - Personal achievement - Stakeholder performance - Concrete achievements - Knowledge products as performance 	<p>Realized value</p> <ul style="list-style-type: none"> - What difference have the previously value (or participation) made for your own performance and that of stakeholders (pupils, colleagues, supervisors, parents)? 	<p><i>Immediately write down all directly definable values</i> <i>Draw lines between values that are connected to each other.</i></p>
<p>5. Reframing value – new insights</p> <p>Ask if a particular point has generated new insights or a new way of thinking</p> <ul style="list-style-type: none"> - Structural changes - Other perspectives - Changes in systems of knowledge and value 	<p>Reframing value</p> <ul style="list-style-type: none"> - Have you started to think about things differently because of [previously mentioned value] or [participation in the PLC]? - Have your ideas about your profession and/or the PLC changed? 	<p><i>Immediately write down all directly definable values</i> <i>Draw lines between values that are connected to each other.</i></p>
<p>6. If a 'storyline' has been discussed exhaustively, select another unit of value and repeat the process from step 5.</p> <p>7. Not all cycles are completed, not all cycles follow each other neatly. The conversation requires flexibility from the interviewer to move with the interviewee's story</p>		<p><i>Repeat until 10 minutes before the end of the interview</i></p>

<p>and requires overview to keep an eye on the value lines along with the conversation line.</p>		
<p>8. 10 minutes before the end of the interview, start asking the closing questions</p>		
<p>9. Strategic value vs aspirational value</p> <p>- Inquire about goals, ambitions, activities, and deadlines, make it concrete, ask for examples.</p>	<p>Strategic vs aspirational value</p> <ul style="list-style-type: none"> - What do you think are strong elements of the PLC? (ask why and what is related to that?) - In your opinion, what could be improved in the functioning of the PLC? (ask why, what is related to it) - What do you want to pursue in the next PLC meeting? - What do you as a PLC want to do in the coming period? - Have your ideas about your profession and whether the PLC changed? 	
<p>10. Evaluation of the interview</p> <p>- Do you feel that you were able to tell all your experiences with the PLC in this interview?</p> <p>- Did the questions asked help you or not?</p> <p>- Has this interview influenced your view on the PLC?</p> <p>- How did you experience the interview in general?</p> <p>- Are there any other things you'd like to discuss?</p>		<p>Write down keywords</p>
<p>11. Thank you for your time!</p>		

Appendix B

Coding Scheme by Vermeulen and Nijland (2020, 2021, 2023)

Codes	Indicators
<i>Multilevel boundary crossing</i>	
Identification	Making one's organization explicit; differences and matches in interests, perspectives, relations Othering
Coordination	To discuss, exchange, e-mail, make appointments/agreements, develop tools for smoothing cooperation/collaboration
reflection	Understanding differences by taking perspectives of the others, empathizing in acting and ideas of others. One's own perspective becomes clearer and is critically reviewed.
Transformation	Forming new (boundary) practices, forming a new identity, culture, frame of reference
<i>Value-creation</i>	
Immediate value	Affective values: happy, excited, bored relevance of PLC, relevance of interactions contacts/connections cooperation/collaboration recognition sensing relatedness, sensing autonomy, sensing competence
Potential value	Possibly usefull sources Gained knowledge Access to knowledge, sources, skills/abilities, people, networks, contacts Received information, trust, inspiration, documentation, reputation of the PLC
Applied value	Promising practices, Innovation of practice Implementation of advice/solution/insight Use of tools, Reuse products Using contacts/connections Innovation of systems Transfer to other situations
Realized value	Visible proceeds: Personal performance, Performance by stakeholders, Specific performances, Knowledge products as performances
Transformational value	Structural changes Other perspectives Changes in systems of knowledge and value
Enabling value	Psychological basic needs: autonomy, relatedness, competence Perspective on learning of participants (transformational vs. transactional) Mutual trust and acquaintance Continuity of participants Learning climate: reciprocity as part of the culture in PLC and organization, knowledge for value Situational time and structural time Support from organization and management, showing interest in participants Financial support Access to knowledge and social capital Participants' perspectives on their own role
Strategic value	Importance of the PLC and it's outcomes for the participating organizations

Note. The scheme was used in the first and second rounds of interviews. It was complemented in the third round with Wenger-Trayner and Wenger-Trayner (2020).