

LEARN TO LEAD – TOGETHER!

The effectivity of professional development trajectories for school leaders:
opportunities and challenges for sustainable professional and school development

Dissertation presented for the degree
of Doctor of Education Sciences at
the University of Antwerp, defended by

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Antwerp, 2025

Learn to lead – together!

**The effectivity of professional development trajectories
for school leaders:**

**opportunities and challenges
for sustainable professional and school
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Els Tanghe

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Acknowledgments

Three common threads have run through my educational career so far: (subject) didactics, professional development and school leadership. Since the preparation and start of the GO ALL for Learning program in 2021, these have flowed together in my PhD research, forming the start of a wonderful road trip.

In the run-up to submitting a grant application in the spring of 2021, Prof. Wouter Schelfhout, as the supervisor of the GO ALL for Learning trajectory, sounded me out about my interest in a temporary part-time appointment to work on the quality of this project, providing a great opportunity to link a doctoral research project to it. In addition to the fascinating content, our already existing cordial collaboration with room for cutting-edge work and professional development in combination with mutual appreciation, trust, humor and fun, motivated me to accept and to take the research train.

Although conducting research was not part of my professional responsibilities at that moment, I had already gotten a taste of it during a three-year research project on differentiated instruction (2013-2015) supervised by Prof. Tom Smits. The switch to a university context in 2019 provided the ideal framework to do actual research. In the EduMaster's program, being allowed to co-supervise Master's theses and co-writing books and articles brought this focus more to the fore, and I thoroughly enjoyed it.

Using and transferring research is different from doing research yourself. Standing in front of groups of learners on a daily basis and making them enthusiastic about care professions or education, or contributing to the professional development of experienced teachers and school leaders, are quite different things from presenting a research paper to seasoned researchers, within a limited time frame, and in English at that. I was very much aware of this, but that was not sufficient a reason to say no to the opportunity, quite the contrary.

The route taken may not have been the most obvious, but it was in line with the winding roads I had followed before. The road led me past some steep inclines, sometimes required flexible planning and nocturnal thinking, and offered few chances to pull over and take a break. At the same time, it brought enthusiasm, the exploration of new domains, a feast of substantive conversations and discussions, wonder, the chance to challenge my brain to run at high speed. In short, all the ingredients for great research enthusiasm were present. With Prof. Wouter Schelfhout as my supervisor, I have had the opportunity to explore an incredibly fascinating world where I feel right at home! My sincere thanks, and I am looking forward to our future collaborations!

As co-supervisor, Prof. Tom Smits too was my supporter during the journey: the brief conversations we had in Venusstraat, the longer moments of work and relaxation (important as well) while travelling to Liège and De Panne by train. Who knows, speaking English without thinking about the correct terminology or words that sound strange might one day become “my cup of tea”. I was also able to count on the support of Prof. Karel Neels and Prof. Simon Beusaert. They were always present in the background and monitored my progress, giving me feedback when required and offering stimulating support. You all have my thanks. I would also like to thank Prof. Piety Runhaar for her participation in the doctoral jury!

To outsiders, combining different jobs may appear complex (“What exactly do you do again?”), but in terms of content, there is a clear link between my job as a teacher educator and my previous job as an employee and freelance trainer at the UAntwerp Center for In-service Training in Education (Centrum Nascholing Onderwijs). Moreover, I regularly keep in touch with former and current colleagues in both places, who have been inquiring about the status of the PhD, asking challenging questions and supporting me. I mostly saw the full-time PhD students during the Didactica Research Lab meetings. Their research-oriented outlook and recognition were also much appreciated.

A heartfelt thank you to Luc Pierrart, director of the Center for In-service Training in Education: in addition to the job opportunities he had given me, he fully supported my cooperation in the GO ALL for Learning trajectory. Moreover, both during and after the program, he created the opportunity to work with Prof. Schelfhout on valorization. The “light” version of the trajectory and this scientific research thus gain additional opportunities for application in education.

For two school years, nearly 150 primary and secondary school leaders participated in GO ALL for Learning. A response rate of 85% or more was no exception, which is every researcher’s dream. I would like to thank this school leaders for their enthusiasm and motivation. Many thanks also to the lecturers and coaches of the trajectory: working behind the scenes, observing and especially asking questions is not my natural habitat, but this was a huge learning experience that allowed me to enjoy their extensive expertise and our agreeable, lasting contacts.

My family and friends were a loyal group of supporters along the way. Even though this PhD was something vague and indefinable at times, they supported me, showed interest, expressed admiration and amazement, and occasionally looked after Floor and Stef when I could not. Thank you!

This brings me to the most essential part of these acknowledgments: my family. By now, Floor and Stef must think I’m glued to my computer. As a result, commenting on their screen time has become difficult. They may not realize it, but it was partly thanks to them that combining a full-time job with doing this PhD was possible. They were flexible during holidays and on weekends, were mostly enthusiastic about going on camps, and they became more independent, to mention

just a few things I am grateful for. This also led to interesting discussions, e.g., about the fact that not every doctor is a physician; that “data” does not always have something to do with months and years; that there is a “why” behind voluntarily embarking on a PhD; that effort is instructive; that eyes can sparkle when reading something beautiful; and that this can also be because an insight or a paragraph falls into place. I will always cherish these important conversations and word games.

Since we met, Hans has only has only experienced me in learning and study mode. “A PhD? Sure, why not ...?”, though this question was posed with a certain overtone. On top of our full-time jobs, daily family affairs and even adding renovations to the mix, this was no easy feat. At the same time, I felt unconditional love and support, resulting in my PhD project staying on track: my sincere thanks. I have no idea which path I will follow next. I fear my hunger for knowledge will never be satisfied. However, there is one learning path we will walk together: a woodworking course is next on the agenda!

“GO ALL for Learning” refers to the content of the trajectory, but for me it also applies to my PhD research: I did not complete this alone, nor for myself, but with, for and within a supportive framework. Thank you!

I wish you an equally fascinating road trip or, better still, “read trip”!

Els Tanghe
Antwerp, February 2025

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Samenvatting

Algemeen wordt aangenomen dat schoolleiderschap bijdraagt aan de efficiëntie en gelijkheid op het vlak van schoolse prestaties bij lerenden. Die focus zorgt ervoor dat schoolleiders steeds doelgerichter leiderschapsstrategieën moeten toepassen en effecten van hun beleid op leerprestaties bewijzen. Daarom is het essentieel dat professionaliseringsinitiatieven voor schoolleiders inhoudelijk inzetten op aspecten van effectief leiderschap, én dat dit aanbod adequaat is. Voor professionele ontwikkeling van schoolleiders is er behoefte aan kwaliteitsvolle professionaliseringstrajecten met een organisatie en aanpak die aanzet tot concrete transfer en duurzame implementatie van de inhoud tijdens en na deelname.

In dit proefschrift wordt onderzocht welke effectiviteit schoolleiders (i.e. directeurs, m/v/ x, en middenkaderleden van het regulier basis- en secundair onderwijs in Vlaanderen en Brussel-hoofdstad) naar aanleiding van hun deelname aan een tweejarig professionaliseringstraject hebben ervaren op het vlak van duurzame professionele en schoolontwikkeling. Uit literatuuronderzoek blijkt immers dat verschillende factoren de toegevoegde waarde van professionaliseringsinitiatieven op leeruitkomsten bij schoolleiders faciliteren. Empirisch onderzoek naar reële (langtermijn)effecten van professionaliseringsinitiatieven en naar verklarende processen is echter beperkt. Deze probleemstelling vormde de basis voor het ontwerpen en uitvoeren van een tweejarig professionaliseringstraject als onderzoekssetting. Hoewel algemeen wordt aangenomen dat deelname aan PDT de leeromgeving van studenten positief beïnvloedt en als zodanig ook positieve effecten heeft op de leerresultaten van studenten, wordt dit in dit onderzoek buiten beschouwing gelaten.

Bij het ontwerp en de uitvoering van het professionaliseringstraject werd er een onderscheid gemaakt tussen twee dimensies. De organisatorische dimensie bestond uit de structurele planning en opeenvolging van opleidingsdagen, bijeenkomsten van leergemeenschappen en individuele coaching. Hierin zat een didactische dimensie verweven, met focus op het aanreiken van theoretische kaders en praktijktoepassingen, werken aan een actieplan, voorzien in een gevarieerde en gedifferentieerde aanpak, (individuele) ondersteuning en feedback integreren, en het creëren van mogelijkheden tot netwerken. Daarnaast werden op overkoepelend niveau verschillende klemtonen gelegd, zoals het ondertekenen van een engagementsverklaring en deelname met twee schoolleiders per school.

Een **eerste deelstudie** richtte zich op het verkrijgen van een generiek beeld. Door middel van mixed methods-onderzoek met een online bevraging, diepte-interviews met deelnemende schoolleiders en focusgroepgesprekken met deelnemende professionele leergemeenschappen werd na het eerste opleidingsjaar onderzocht welke (wisselwerking tussen) sleutelfactoren van professionalisering als effectief worden gepercipieerd voor het genereren van specifieke ontwikkelingsprocessen met een duurzame verandering op school.

De kwantitatieve en kwalitatieve data-analyses van de online bevestigingen, focusgroepgesprekken en diepte-interviews toonden aan dat deelnemers ervaren dat ze in lijn met de geëxpliceerde doelen van het traject inzichten hebben verworven, deze hebben verwerkt en ook (al deels) hebben omgezet naar het doordenken of uitvoeren van concrete acties in de eigen school. De wisselwerking tussen het actief aanreiken van theoretische kaders en praktijktoepassingen, het verder verdiepen van inzichten door netwerken, het omzetten van inzichten in concrete actieplannen, en dit ondersteunen door schoolspecifieke coaching en het hanteren van een activerende en gevarieerde didactische aanpak genereerde het meest een ervaren effect op professionele ontwikkeling en schoolontwikkeling, zo bleek uit analyses.

Deze eerste generieke focus plaatste essentiële bijkomende onderzoeksvragen centraal, waarnaar diepgaander onderzoek wenselijk was.

Door de algemene netwerkmogelijkheden en meer specifiek tijdens de bijeenkomsten van de professionele leergemeenschappen – waaraan scholen deelnamen binnen het structureel samenwerkingsverband waarvan ze deel uitmaakten – werden er mogelijkheden voor collectief leren gecreëerd tijdens het professionaliseringstraject. Collectief leren genereert toenemende expertise door het overnemen van elkaars kennis, vaardigheden en attitudes, en door het ontwikkelen van een gedeelde taal en gemeenschappelijke doelen. Professionele netwerken die gebruikmaken van peer learning kunnen in principe dus bijdragen aan de ontwikkeling van schoolleiderschap en schoolontwikkeling, omdat een groep professionals samenwerkt om praktijken in en tussen scholen en/of hun schoolsysteem te verbeteren. Vraag is welke condities vereist zijn om maximale (duurzame) meerwaarde te genereren, en in deze onderzoekssetting specifiek binnen bestaande bovenschoolse netwerken die deelnemen aan het professionaliseringstraject.

In de **tweede studie** onderzochten we door middel van een mixed methods-aanpak aan de hand van een combinatie van online surveys en diepte-interviews hoe de professionele leergemeenschappen als vorm van formeel collectief leren zich binnen bestaande bovenschoolse netwerken ontwikkelen tijdens een professionaliseringstraject. We gingen allereerst na welke factoren verbonden aan de organisatie en aanpak van professionele leergemeenschap (PLG) en of de faciliterende rol van de scholengemeenschap de ervaren (leer)outcomes beïnvloedden. Daarnaast onderzochten we hoe de gerapporteerde (leer)outcomes op hun beurt de intentie tot een duurzame verderzetting van de professionele leergemeenschap na afloop stimuleerden.

De resultaten toonden allereerst dat de ervaren diepgang van het collectief leren binnen het bovenschoolse netwerk gedurende het tweejarig traject significant was toegenomen. Het meest verklarend voor de outcomes tijdens het traject en voor de verderzetting van de professionele leergemeenschap als professioneel netwerk na afloop van het traject was de door de schoolleiders ervaren werking van de PLG tijdens het professionaliseringstraject en de aanpak van de coach. De ervaren beginsituatie, het verloop van het ontwikkelingsproces gedurende de twee jaar

en de faciliterende rol van het bovenschoolse netwerk beïnvloedden mee de aandacht voor proactieve en structurele keuzes omtrent de toekomstige verderzetting en aanpak. Ook toonde het onderzoek de noodzaak aan van investeren in duurzaam collectief leren aan.

In langdurige professionaliseringstrajecten voor schoolleiders met implementatie van een PLG en individuele coaching neemt de coach een sleutelrol in op het vlak van de ondersteuning van leer- en ontwikkelingsproces van groepen en individuele schoolleiders. Die prominente en mogelijk ook doorslaggevende rol voor de ervaren meerwaarde van deelname aan het professionaliseringstraject viel reeds op tijdens het eerste onderzoek. Diepgaander onderzoek was aangewezen, wat zich uitte in twee specifieke onderzoeksfoci met een unieke kijk op coaching als geïntegreerd onderdeel van een professionaliseringstraject.

De focus van de **derde studie** was groepscoaching van schoolleiders, wat positief kan bijdragen aan het ondersteunen van professionele en schoolontwikkeling. Onderzoek naar het effect van groepscoaching als onderdeel van een professionaliseringstraject is echter schaars. Om de effectiviteit van de coach te kunnen maximaliseren, is empirisch onderzoek naar sleutelfactoren en beïnvloedende randvoorwaarden essentieel. In het onderzochte professionaliseringstraject voor schoolleiders waren professionele leergemeenschappen geïntegreerd, waarbij elke groep gedurende twee jaar een vaste coach had. Dit bood een unieke kans om de rol van de coach en de gepercipieerde waarde van de coachingscompetenties via een mixed methods-onderzoek met schriftelijke bevragingen en diepte-interviews na te gaan.

Uit het onderzoek blijkt dat een coach met veel inhoudelijke expertise en weinig coachingexpertise als minder effectief ervaren wordt door de deelnemende schoolleiders, dan een coach met veel coachexpertise en minder inhoudelijke expertise. Toch zijn beide belangrijk: de aanwezige expertise dient de coach doelgericht in te zetten in functie van het ontwikkelingsproces, rekening houdend met eventuele behoeften en verwachtingen van deelnemende schoolleiders alsook met aanwezige contextuele factoren. Zowel coachende vaardigheden als de didactische aanpak zijn belangrijk, waarbij de doorvertaling stimuleren aan de hand van werken met een actieplan als rode draad als het meest effectief werd ervaren.

Als aanpak van de organisatorische dimensie van het GO ALL-traject voor schoolleiders werd er zowel voorzien in coaching van bestaande samenwerkingsverbanden van schoolleiders in de vorm van een PLG als in individuele coaching van schoolleiders op schoolniveau. Dit had tot doel schoolleiders op maat te ondersteunen bij de transfer van de aangereikte inhouden naar de eigen schoolcontext.

De **vierde studie** richtte zich op individuele coaching van schoolleiders, wat eveneens positief wordt gewaardeerd met het oog op het ondersteunen van schoolleiderschap en schoolontwikkeling binnen uitdagende maatschappelijke contexten. Om de gepercipieerde impact van coaching en een effectieve coachingsaanpak te kunnen maximaliseren is empirisch onderzoek naar

beïnvloedende factoren essentieel, maar schaars. Het doel van deze empirische studie was om te onderzoeken welke kenmerken van de coach tijdens individuele coaching in de context van een breder professionaliseringstraject voor schoolleiders een gepercipieerde toegevoegde waarde hebben voor het genereren van professionele ontwikkeling en schoolontwikkeling.

Op basis van mixed-methodsonderzoek met schriftelijke bevestigingen en diepte-interviews konden we concluderen dat de coach er werkelijk toe doet. Afhankelijk van de didactische aanpak en coachingsvaardigheden die de coach hanteerde tijdens coachingsgesprekken ervoeren de deelnemende schoolleiders een (grote) bijdrage aan zowel het omzetten van inzichten in (het plannen van) concrete actie als de wens om wel of niet verder te werken aan de inhoud. Met name het stimuleren van reflectie, het vasthouden van een breed perspectief en het creëren van verdieping op maat van de school(leider) hadden een meerwaarde voor de deelnemende schoolleiders. De individuele coaching kon op deze wijze de ervaren impact van de PLG werking verder versterken.

Dat deelname aan het professionaliseringstraject, wat tevens als onderzoekssetting gold, bovengemiddeld positief werd ervaren door de deelnemende schoolleiders en dat dit leidde tot concrete outcomes op het vlak van professionele en schoolontwikkeling, bleek uit de vier voorgaande studies. Wel gold de vraag in welke mate de in gang gezette ontwikkelingsprocessen doorwerkten na afronding van het traject, en wat doorslaggevende factoren hiervoor zijn.

Dit leidde tot een **vijfde studie**, aangezien er weinig empirisch follow-up onderzoek beschikbaar is over de duurzame ervaren impact van professionaliseringstrajecten voor schoolleiders op hun professionele ontwikkeling en de schoolontwikkeling. Dit mixed methods-onderzoek had als doel om in te gaan op de bestaande onderzoekskloof en zicht te krijgen op mogelijke algemeen organisatorische factoren en specifieke aanpakvormen van professionaliseringstrajecten die schoolleiders als effectief ervaren voor verdere duurzame doel- en actiegerichte transfer en implementatie in het kader van professionele en schoolontwikkeling.

Het onderzoek dat één jaar na afronding van het traject werd uitgevoerd, toonde aan dat een aanpak van een professionaliseringstraject met implementatie van het werken met een actieplan, deelname aan een professionele leergemeenschap, mogelijkheden tot individuele coaching en hun onderlinge integratie leidden tot globale tevredenheid, ervaren doelgerichtheid en actiegerichtheid. Factoren op het vlak van de algemene organisatie van het professionaliseringstrajecten versterken de duurzame transfer van de inhoud.

De vijf onderzoeken samen leverden naast concrete vernieuwende inzichten als aanvulling bij (inter)nationaal onderzoek ook aanbevelingen op voor zowel schoolleiders, schoolbesturen van scholengemeenschappen, organisatoren van professionaliseringstrajecten voor schoolleiders alsook voor de overheid.

Summary

School leadership is widely believed to contribute to efficiency and equity in student performance. This focus ensures that school leaders must increasingly employ goal-oriented leadership strategies and prove the effects of their policy on learning outcomes. Therefore, professional development trajectories for school leaders must address aspects of effective leadership in terms of the content and the adequacy of these initiatives. Professional development of school leaders requires quality professional development trajectories with an organization and approach that encourages concrete transfer and sustainable implementation of the program content during and after participation.

This dissertation examines the perceived effectiveness of sustainable professional and school development experienced by school leaders (i.e., (m/f/x) principals, and middle managers of regular primary and secondary education in Flanders and Brussels-Capital Region, Belgium) by participating in a two-year professional development program. The literature shows that several factors influence professional development initiatives with respect to learning and other outcomes among school leaders. However, empirical research on the real immediate and long-term added value of professional development trajectories and explanatory processes is limited. This problem statement formed the basis for the design and implementation of the two-year professional development trajectory as a research setting. Although it is widely believed that participation in PDT positively affects students' learning environment and as such also has positive effects on students' learning outcomes this is not considered in this study.

In designing the trajectory, a distinction was made between the organizational and didactic dimensions. The organizational dimension focused on structural planning and sequencing of training days, professional learning community sessions and individual coaching. Woven into this was a didactic dimension, focusing on providing theoretical frameworks and practical examples, working on an action plan, providing a varied and differentiated approach, integrating individual and other forms of support and feedback, and creating networking opportunities. In addition, several elements concerned an overarching level, such as signing a statement of commitment and encouraging the participation of two school leaders per school.

The **first study** of this dissertation focused on obtaining a generic picture. It investigated, after the first year of the trajectory, which key factors (or their interaction) of professional development were perceived as effective for generating specific development processes with sustainable change in schools. The mixed methods study used an online survey, in-depth interviews with participating school leaders and focus group discussions with participating professional learning communities.

The quantitative and qualitative data analyses showed that participants had acquired insights in line with the expressed goals of the professional development trajectory, they had processed them and had also already converted or implemented them to some degree through concrete actions in their schools. Interaction between actively providing theoretical frameworks and practical examples, further deepening insights by networking, converting into concrete action plans, supporting this through school-specific coaching, and using an activating and varied didactic approach generated the strongest perceived effects on professional development and school development.

This initial generic focus brought essential additional research questions to the fore, for which deeper investigation was desirable.

General networking opportunities and, more specifically, during the meetings of the professional learning communities – in which schools participated through the structural partnership to which they belonged – opportunities for collective learning were created during the professional development trajectory. Collective learning generates increasing expertise by allowing the sharing of knowledge, skills and attitudes, and thus developing a shared language and focus. Professional networks that use peer learning can thus, in principle, contribute to the development of school leadership and school development because a group of professionals work together to improve practices in and between schools and/or their school systems. The question is what conditions are required to generate maximal, sustainable added value within this research setting, more specifically, within existing inter-school networks participating in the professional development trajectory.

In the **second study**, we used a mixed methods approach through a combination of online surveys and in-depth interviews to investigate how professional learning communities, as a way of formal collective learning, develop within existing inter-school networks during a professional development trajectory. We first examined which factors related to the organization and approach of professional learning communities and if the facilitating role of the school community influenced the learning outcomes as well as other outcomes experienced. In addition, we investigated how these reported outcomes then stimulated the intention to sustainably continue the professional learning community after the end of the trajectory.

First, the results showed that the perceived depth of collective learning within the inter-school network had increased significantly during the two-year trajectory. How the functioning of the professional learning community was experienced by school leaders during the professional development trajectory, as well as the general approach of the coach, were most explanatory of the outcomes both during the professional development trajectory and for the continuation of the professional learning community (PLG) as a professional network after the trajectory ended. Initial experiences, as well as the experience of the two-year development process and the

facilitating role of the inter-school network, influenced the level of attention paid to proactive and structural choices concerning the future continuation and approach. The study also showed the need to invest in sustainable collective learning.

In long-term professional development trajectories for school leaders that include implementing a professional learning community and individual coaching, the coach has a key role in terms of supporting the learning and development process of groups and individual school leaders. This prominent and possibly decisive role for the perceived added value of participating in the professional development trajectory was already apparent in the first study. More in-depth research was indicated, which resulted in two specific research foci with a unique perspective on coaching as an integrated part of a professional development trajectory.

The focus of the **third study** was group coaching of school leaders, which can contribute positively to supporting professional and school development. However, research on the effect of group coaching as part of a professional development trajectory is scarce. To maximize experienced coach effectiveness, empirical research on key factors, including influential preconditions, is essential. The professional development trajectory for school leaders integrated professional learning communities, with each group having a permanent coach for two years. This provided a unique opportunity to examine the role of the coach and the perceived value of coaching competencies through mixed methods research using written surveys and in-depth interviews.

The study found that a coach with extensive content expertise but little coaching expertise was perceived as less effective by school leaders and by coaches themselves, compared to a coach with much coaching expertise and less content expertise. Nevertheless, both are important: the coach should apply their expertise in a goal-oriented way in function of the development process, taking into account possible needs and expectations of participating school leaders as well as contextual factors. Both coaching skills and the didactic approach are important, whereby stimulating the transfer by working with an action plan as a common thread was felt to be the most effective.

As an approach to the organizational dimension of the GO ALL trajectory for school leaders, both the coaching in existing partnerships of school leaders, in the form of a PLC, and individual coaching of school leaders at the school level were provided. This aimed to provide tailored support to school leaders in transferring the content to their school context.

The **fourth study** focused on individual coaching of school leaders, which is also positively valued for supporting school leadership and school development within challenging societal contexts. To maximize the perceived impact of coaching and an effective coaching approach, empirical research on influential factors is essential but remains scarce. The purpose of this empirical study was to investigate which characteristics of the coach – during individual coaching in the context of a broader professional development trajectory for school leaders – have a perceived added value in generating professional development and school development.

Based on mixed methods research using written surveys and in-depth interviews, we concluded that the coach does matter. Depending on the didactic approach and the coach's coaching skills of the coach during sessions, participating school leaders experienced a (sometimes large) contribution to both converting insights into planning and carrying out concrete actions and the desire to continue working on the program content. In particular, stimulating reflection, maintaining a broad perspective and creating depth of learning tailored to the school (and leader) had added value for the participating school leaders. In doing so, individual coaching was able to further enhance the perceived impact of the PLC approach.

The four studies have shown that participation in the professional development trajectory, which also served as a research setting, was experienced as above-average positive by the participating school leaders and led to concrete outcomes in terms of professional and school development. However, one question still remained concerning the extent to which the development processes that had been initiated subsequently continued after the completion of the professional development trajectory, and what the decisive factors were for this to occur.

This led to a **fifth study**, as there is little empirical follow-up research available on the lasting perceived impact of professional development trajectories for school leaders on their professional and school development. The purpose of this mixed methods study using a written survey and in-depth interviews was to address the existing research gap and to gain insight into potential factors related to the general organization and specific approach of professional development trajectories that school leaders perceive as effective for further sustainable goal- and action-oriented transfer and implementation in the context of professional development and school development.

The study was conducted one year after completion of the trajectory and showed that an approach to a professional development trajectory with an action plan, participation in a professional learning community, opportunities for individual coaching and their mutual integration led to overall satisfaction, perceived goal-orientation and action-orientation. Factors at the level of the overall organization of the professional development trajectory strengthened the sustainable transfer of training.

The five studies combined provided not only concrete (innovative) insights to complement (inter)national research, but also recommendations for school leaders, school boards of school communities, the government, and organizers of professional development trajectories for school leaders.

INTRODUCTION

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CONCLUSION

General introduction

Societal evolutions over the past few decades have affected school curricula and the way education and assessment are organized (Rotherham & Willingham, 2010). Both internationally and nationally, a trend toward a culture of measurability can be observed (Bransen, 2019; van Middelkoop & Glastra, 2018). Discussions about the declining quality of education and policy decisions in this context rely on studies such as PISA, PIRLS, and TIMSS (Cordero et al., 2018; Plavčan, 2020).


The responsibility of school leaders for student learning outcomes (Leithwood, 2008), as well as institutional pressure, is increasing (Branch et al., 2013; Pont, 2020). School leaders are experiencing numerous school policy and school development challenges (Cordero et al., 2018; Plavčan, 2020). They are pressured by a complex and changing societal context (Brown & Poortman, 2018; Gurr & Drysdale, 2020; Hawkins & James, 2016) and by their sense of societal duty to provide high-quality education (Ritzema et al., 2022) and ensure student achievement (Tan, 2018; Trust et al., 2018; van Middelkoop & Glastra, 2018).

Since the 1980s, much research has been dedicated to the effects of leadership in education. School leadership is defined as a process of influence leading to the achievement of desired goals. Successful leaders develop a vision for their school based on their personal and professional values. They articulate this vision at every opportunity and influence their staff and other stakeholders to share that vision. The school philosophy, its structures and activities are geared toward achieving this shared vision (Bush & Glover, 2003, p. 8).

While the real effects of school leadership on student achievement prove difficult to measure (Leithwood et al., 2020; Hallinger, 2011) and cannot be unequivocally demonstrated, there is widespread recognition of the importance of school leadership for high-quality education (Barber et al., 2010; Daniëls et al., 2019b). Consistent with this, school leadership has become a policy focus, with increasing attention being paid to the ongoing professional development of school leaders (van Wessum, 2018).

Given this specific context, professional development initiatives for school leaders must address aspects of effective leadership (Daniëls et al., 2019a), concerning both educational leadership and the many other tasks and responsibilities of the school leader (Pont et al., 2008). These initiatives must also be proven to sufficiently fulfill their task (Rowland, 2017; Flückiger et al., 2014).

We have increasing evidence of the success conditions, in terms of the approach and nature of the professional development of school leaders (Daniëls et al., 2019a) and the importance of tailored support throughout all career phases (Goldring et al., 2012). Effective professional development



is defined as “well-received training that provides relevant knowledge and skills to the participant and the confidence to apply them on the job” (Kirkpatrick & Kirkpatrick, 2016). However, assessing the sustainable impact of professional development initiatives for school leaders is not straightforward. There is a lack of research on measurable criteria of effective professional development of school leaders (Day et al., 2014; LaPointe & Davis, 2006) because the subsequent effects of training initiatives are difficult to isolate and because of the influence of both anticipated and unanticipated personal and contextual factors and outcomes (Daniëls et al., 2019a).

Based on the definition above (Kirkpatrick & Kirkpatrick, 2016) this doctoral dissertation examines the effectiveness of professional development trajectories (PDTs) for school leaders in terms of their experience of school and personal development during and after participating in a two-year PDT. Obtaining a clear picture would benefit the optimization of current and future PDTs (Allen et al., 2021; Kirkpatrick & Kirkpatrick, 2016; Barber et al., 2010). This research adds to our knowledge of the conditions and preconditions of success specific to the organization of and approach to long-term PDTs, as well as the participants and the context that positively contribute to perceived effectiveness for sustainable school leadership and school development. This will enable school leaders and their boards to purposefully select PDTs that focus on development processes. Organizers of such PDTs will also be provided with recommendations to optimize their initiatives, and to develop an approach that school leaders perceive as valuable. Furthermore, government can use the results of the present research to strengthen and/or adjust its vision regarding school policy and professional development policy. Finally, the characteristics of PDT that come to the fore in the empirical sub-studies as potentially contributing to outcome variables can serve as a basis for further statistical research to gain an accurate view of (the strength of) causal effects on outcome variables and potentially influencing factors.

In the following sections of this introduction, we first introduce the theoretical framework and central concepts. After defining the research gaps, we introduce the central research questions and aims, followed by a focus on the specific research context and the research design. Finally, we explain the structure of the subsequent chapters of the dissertation.

Theoretical framework and central concepts

Professional development trajectory

Continuous professional development (CPD) – as a job-oriented form of life-long learning – can be defined as “how people maintain the knowledge and skills related to their professional lives” (Collin et al., 2012). Through professional development opportunities, school leaders – in this research context – have existing insights confirmed but also acquire new knowledge and skills, and are kept up to date with the latest developments in the field. This enables them to implement the best educational practices aimed to achieve success (Great Schools Partnership, 2014; Mizell, 2010).


Formal training is an approach within continuous professional development, where people are provided with targeted skills, knowledge, and competencies to improve their performance and productivity within the framework of their existing job responsibilities (Arulsamy et al., 2020). A wide range of CPD practices can provide this (Collin et al., 2012; Mizell, 2010), for example workshops, seminars, courses (sometimes online) and on-the-job training (Arulsamy et al., 2020).

This research focuses on a two-year initiative. Because of this duration, one can speak of a long-term initiative because it lasted more than six months (Noe, 2010). Different terms have been used for the same kinds of initiatives, such as course, program, training, and trajectory. We speak of “trajectory” because of its implicit connotation of development, which we consider essential over such a long two-year period.

Such a professional development trajectory (PDT) can be defined as effective when it “provides relevant knowledge and skills to the participant, and the confidence to apply them on the job” (Kirkpatrick & Kirkpatrick, 2016).

Four levels of learning can be distinguished in terms of the degree to which professional development initiatives – in this dissertation PDTs – contribute to the depth and outcomes of professional development of school leaders (Kirkpatrick & Kirkpatrick, 2016):

- Level 1 – Response: the extent to which participants evaluate the PDT as beneficial, interesting, and relevant to their job;
- Level 2 – Learning: the extent to which participants acquire the intended knowledge, skills, attitudes, trust, and commitment, based on their participation in the PDT;
- Level 3 – Behavior: the extent to which participants apply what they have learned during the PDT;
- Level 4 – Outcomes: the extent to which goal-oriented results occur as a result of the acquired learning experiences, learning event(s), and their application.



Prioritizing the fourth level when developing a PDT contributes to the purposefulness of its content and approach.

Starting from the research on how the content of PDTs is converted into practice, our research actively concentrates on the fourth level in this continuous structure, focusing on the specific sustainable transfer to the unique and complex context of school policy design in each school (Doe et al., 2017).

“Transfer” means that participants apply the competencies (knowledge, skills, behaviors, cognitive strategies) acquired during training to their work (Noe, 2010), and also includes the generalization and maintenance of trained capabilities (Ford & Weissbein, 1997).

The transfer of the PDT content occurs at different levels of use (Yelon et al., 2014):

- performing desired actions by applying what has been learned to ordinary tasks;
- evaluating the predefined actions (of oneself or others) against criteria;
- explaining the learned content and practical applications to others, such as instructing others to perform the predefined actions;
- training others to apply the learned content, thus changing norms of teamwork and improving work processes.

The present research on PDT specifically concerns the extent to which a PDT encourages a process of in-depth processing of the acquired insights (Tynjälä, 2013), as operationalized through critical reflection on what participants learned from the application in their own school context (Tingle et al., 2019); the extent to which the PDT stimulates brainstorming with other members of the school team and thus facilitates collaborative learning in the workplace (Brown & Flood, 2020a; Brown, 2020; Hulsbos et al., 2016); and the extent to which the PDT encourages goal-orientation to start working with the insights (as an intermediate step) and transform them into possible concrete actions and sustainable changes (Fluckiger et al., 2014; Doe et al., 2017). The PDT and its goals thus play a major role: PDT organizers need to think about the predefined learning outcomes and how to facilitate them (Leithwood & Levin, 2009).

Organizational and didactic conditions of effective professional development for school leaders

The following guiding principles have been identified for the development of PDTs for school leaders (Fluckiger et al., 2014):

- connecting to needs at both the individual and school level;
- a goal-oriented program;
- a research-based program;
- sufficient time;
- being practice-oriented;

- peer support;
- taking into account contextual factors;
- partnering and focusing on impact.

The identification of these principles underlines the importance of explicit goals (Pashiardis & Brauckmann, 2009) that focus on applicability and matching participants' goals and needs (Levine, 2006). In a coherent program, the curriculum matches and, furthermore, supports and reinforces the specific job content and context (Goldring et al., 2012).

In line with the goals, providing a broad research-based knowledge base linked to professional practice encourages participants to transfer the content of a PDT to their school context (Fluckiger et al., 2014; Doe et al., 2017). This requires a coherent curriculum that combines theoretical input with practical application opportunities (Levine, 2006). To acquire such a knowledge base, an expert training team with both academic expertise and educational experience is desirable.

PDTs are more successful when the theoretical frameworks and practical applications presented are maximally linked to the authentic school environment, thus allowing contextualization (Pont et al., 2008; Pashiardis & Brauckmann, 2009). This enables school leaders to apply the competencies and insights learned to their specific school context (Goldring et al., 2012; Zhang & Brundrett, 2010). School leaders perceive workplace learning as an effective approach to working on adjustments and innovation within their school context (Zhang & Brundrett, 2010). This "learning on the job" reinforces learning at the individual and organizational levels, as well as the relationship between the two. Generating transfer can be conducted by designing and implementing a time-spread approach focused on cognitive-theoretical ways of learning, cooperative and communicative processes and reflective forms of learning (Huber, 2011), and using various sources such as peer learning, online information, book learning and formal training (Barber et al., 2010). The explicit expectation should be conveyed, that is, by participating in a PDT, school leaders engage in activities within their school as a function of leadership development (Simkins et al., 2009). If participants know in advance what the purpose and approach of the PDT is, this leads to greater engagement and sustained processing of the PDT content (Kirkpatrick & Kirkpatrick, 2016; Kennedy, 2005).

A school context with a positive learning climate contributes to informal professional learning of school leaders through support, feedback, reflection and career awareness, and also generates social learning (Daniëls et al., 2023; Veelen et al., 2017). In PDTs, raising awareness of the school context, school culture, person-related aspects (Daniëls et al., 2019b; Tingle et al., 2019; Hauge et al., 2014), as well as the identification of current obstacles to or facilitating factors for professional development encourages transfer (Lumby et al., 2008). Participation in a PDT with a colleague also generates positive outcomes for both parties involved, e.g., in terms of the joint propagation of a school-wide culture, support in the implementation of actions, collaboration and a shared language and acquaintance with other perspectives (Doe et al., 2017, Hill et al., 2015).

Coaching

Coaching school leaders can positively contribute to supporting professional and school development within a challenging societal context with high demands (Brandmo et al., 2021; Ritzema et al., 2022). Coaching is defined as a coach's collaboration with individuals or groups of clients during a process of reflection and enquiry that inspires them to personal and professional development, often tapping into under-utilized resources such as imagination, productivity and leadership (International Coaching Federation, 2023). Through executive coaching, school leaders can focus on personal and organizational goals (Lochmiller, 2018). The focus is best on development (Wise & Cavazos, 2017) and tailored to their position and context (Rowland, 2017). Coaching supports the formulation of a vision, goals and/or desires, and the development or enhancement of the ability to achieve them (Huff et al., 2013).

Taken from a coaching typology (Brockbank & McGill, 2006), this way of coaching primarily pertains to the reality dimension, with a focus on the subjective perspective, in which – in this case – school leadership and school development are constructed and adjusted in interaction with others. In doing so, the coach identifies the personal and social context of the school leader as the starting point for development. Second, from the change dimension, transformation of a person or organization as a result of participation in coaching is paramount. The combination of both dimensions leads to a form of coaching focused on an evolutionary approach. Central are the school leader's ownership, the possibilities for change and the establishment of a reflective dialogue between the school leader and the coach. A central role is reserved for double-loop coaching, with an approach focused on reflecting, reframing, and redesigning (Witherspoon, 2014), which is in line with the purpose of executive coaching.

The coach stimulates depth in the learning processes during individual and group meetings using a theoretical and methodical growth-oriented framework (Peschl, 2006). Focus on achieving depth only arises when it is explicitly expressed (Boschman et al., 2015). The role of the coach is challenging, especially in the context of a group of school leaders with different school contexts. The quality of coaching helps determine the value of the PDT (Hulsbos et al., 2015).

In this study's research design, we used group coaching on the level of groups of school leaders from different schools, and individual coaching on the level of one or more school leaders from one school, which is explained in the following sections.

Professional Learning Community

To best carry out their challenging job (Leithwood et al., 2020; Pont, 2020), school leaders would benefit from the support and input of a sounding board that encourages quality and innovation (Vekeman et al., 2022). Studies of the characteristics of effective school leader professional development have demonstrated the importance of peers and peer learning (Levin et al., 2020). Learning from peers offers school leaders opportunities to deepen professional and personal


self-awareness and to reflect on their role and position (Bickmore et al., 2021; Daniëls et al., 2023; Levin et al., 2020). Reflective group learning allows for a holistic approach to recognizable situations from multiple perspectives, especially in diverse groups (Daniëls et al., 2023).

Collective learning is the process underlying collaborative professional development, in which a shift takes place from individual to shared knowledge construction (Katz & Earl, 2010). Collective knowledge construction in turn influences individual learning and becomes part of it. Moreover, collective learning generates increasing expertise by sharing knowledge, skills and attitudes, and thus developing a shared language and focus (Heikkilä & Gerlak, 2013; Leithwood, 2019). Group members pursue common learning goals or outcomes that improve their work (Kools & Stoll, 2016). Collective learning has a process-oriented character and a focus on collective learning products, such as new or reinforced ideas and insights, which may lead to new policies, programs, and rules (Heikkilä & Gerlak, 2013).

This is also reflected in the main goals of inter-school collaboration (Atkinson et al., 2007): sharing best practices or professional expertise, enhancing student learning, school development, improving collaboration and enriching learning opportunities. An educational network represents “an extended group of people with similar interests or concerns who interact and exchange knowledge for mutual assistance, support and to increase learning” (Kools & Stoll, 2016). Professional learning networks that capitalize on peer learning can thus contribute to school leadership development (Leithwood & Azah, 2016), as a group of connected educators collaborate to use this connectivity to improve practices in and across schools and/or their school system (Brown & Poortman, 2018).

One possible approach using a structural network where a group of schools works together to share resources and/or to enhance the quality of professional learning and the capacity for continuous improvement is known as a professional learning community (PLC) (Harris & Jones, 2019, 2021; Poortman et al., 2022). In a PLC, a small group of professionals, guided by an experienced coach (Daniëls et al., 2023), share common goals and objectives, gain new knowledge collaboratively through interaction and reflection in a growth-oriented approach, and aim to improve practices (Kools & Stoll, 2016). Five characteristics of a PLC with professionals from different schools are: collaboration, shared sense of purpose focused on student learning, reflective professional inquiry, leadership of this professional learning network, and boundary crossing (Poortman et al., 2022).

The importance of a facilitator with a specific mandate and competencies to guide the network is indisputable (Harris & Jones, 2019; Huijboom et al., 2023; Leithwood, 2019; Turner et al., 2018). Combining a critical attitude with building close relationships is challenging (Margalef & Roblin, 2018). The facilitator adopts a non-hierarchical position and uses an organic-cultural approach and purposefulness in developing inter-school networks (Devos, 2014; Hooge et al., 2015; Ritzema et al., 2022). Their approach should be continuously adapted to the needs of the PLC group (Margalef & Roblin, 2018).



Five common principles concerning the didactic approach of the coach during the PLC meetings of the PDT were identified for optimally coaching the learning process during the PLC meetings:

- deepening theoretical frameworks and practical examples;
- working toward an action plan;
- using a varied and activating approach;
- providing tailored support;
- creating opportunities to network and share.

These also further the facilitation of sustainable development after the completion of the PDT, which are linked to the goals of the PDT – to generate maximum transfer to the participants' schools as well as concrete actions regarding vision and school development – and take into account the key factors of effective professional development initiatives for school leaders (Kirkpatrick & Kirkpatrick, 2016). Although both the goals of a PDT and its approach were defined, within this framework, the coaches had the opportunity to develop their interpretation of PLC coaching. In doing so, they drew on their expertise in coaching school policy development processes (Patrick et al., 2021).

Creating and developing a network with the expected, sustainable quality is challenging, which illustrates the need to learn to develop it gradually and in a goal-oriented manner, potentially with structural support (Vanblaere & Devos, 2018). When facilitators leave, the network PLCs are vulnerable (Coenen et al., 2021). Therefore, when coaching PLCs, coaches fulfill two roles. They coach the learning process of the PLC group but also engage in coaching-the-coach, in which they model and explain (what, how, and why) the specific approach (Loughran & Berry, 2005).

Research gaps

Based on the theoretical frameworks we used in this study, we name the research gaps below. Because there is no direct, delineated relationship between the theoretical frameworks and the research gaps and there are often interconnections between them, we cluster the research gaps as they are addressed in the different sub-studies. This immediately forms a bridge to the next chapter in which we present the research goals for each substudy.

Research gap 1

It is believed that school leadership contributes to efficiency and equity in school performance. Therefore, it is essential that PDTs for school leaders address aspects of effective leadership and that they are adequate to the task. Based on a literature review, several factors appear to facilitate the influence of PDTs on learning outcomes of school leaders. Empirical research on the real immediate and long-term effects of PDTs and on underlying explanatory processes is limited (Rowland, 2017).


The literature review showed that several key factors leading to strong professional development can facilitate the influence of a PDT on learning outcomes among school leaders. These factors concern the goals and content, and the organization and approach of the PDT. However, empirical research on the possible associations between the organization and approach of a PDT and outcome variables on the one hand, and explanatory processes on the other remains limited. There is also little research on the functioning and added value of more complex and long-term PDTs (Daniëls et al., 2021).

It is unclear how these various key factors specifically could influence learning; how this influence may depend on characteristics specific to the school leader or their school context; how these factors reinforce or weaken each other; and how the deployment of these different factors is optimally spread across a long-term trajectory – and with which iteration. Moreover, little in-depth or large-scale research that combines quantitative data (as a basis for initial generic statements) and qualitative data (as a basis for explaining these statements in depth) is available.

These research gaps formed the impetus for the **first study**, in which we distinguished an organizational dimension, focusing on structural choices, and an intertwined didactic dimension.

Research gap 2

As mentioned above, to best carry out their challenging job (Leithwood et al., 2020; Pont, 2020), school leaders would benefit from the support and input of a sounding board (Vekeman et al., 2022). Research indicated that inter-school networks provide a significant added value (Brown & Poortman, 2018; Harris & Jones, 2021; Vekeman et al., 2022). Inter-school networks can use their existing structure to facilitate learning and exchange processes for expertise promotion and school development (Vekeman et al., 2022).



One possible approach within a structural network is a professional learning community (PLC) (Harris & Jones, 2019, 2021; Poortman et al., 2022). However, building sustainable and quality partnerships between the school leaders of inter-school networks is not self-evident (Azorín et al., 2020; Harris & Jones, 2021). What would be the stimulating role of a PDT that initiated and supported PLCs for inter-school collaboration regarding the depth of peer learning and longevity? Can a PDT reinforce existing inter-school networks? Research on methodologies to intensify collaboration within existing inter-school networks is limited (Chapman, 2013).

For the sake of sustainability, inter-school collaboration requires support with regard to scheduled time, resources, and moral support (Armstrong & Ainscow, 2018; Bouchamma et al., 2019; Huijboom et al., 2023). Communities linked to a project often dissolve after financial and other support ends (Baas et al., 2023). Network PLCs are also vulnerable when facilitators leave. While this opens up new opportunities (Antinluoma et al., 2021), can an inter-school PLC sustain itself in the long term without a structural facilitating coach? The importance of a facilitator with a specific mandate and competencies to guide the network is demonstrated in previous research (Harris & Jones, 2019; Huijboom et al., 2023; Leithwood, 2019; Turner et al., 2018). The quality of guidance determines the extent to which collective learning is considered valuable (Coenen et al., 2021; Feys & Devos, 2015). There are few studies available on who ideally performs this specific role.

Research shows that school leaders play the main role in the development of their schools as PLCs (Antinluoma et al., 2021; Huijboom et al., 2023; Valckx et al., 2021; Vanblaere & Devos, 2018) and in the creation of a supportive human resources management team (de Jong et al., 2021). Theoretical knowledge about the establishment and development of a PLC (Bouchamma et al., 2019), experience in a PLC as a participant (Wang, 2018) and a coach-the-coach approach can reinforce this. Research on professional development in this area is scarce, although its relevance has been stated (Bryk et al., 2015).

The literature demonstrates the importance of pre-existing collaboration and the need for a facilitating context before the start of and during a PLC. The concrete organization of and approach taken by a coach in the PLC is also an important factor, but do these variables influence learning outcomes? Research on this topic is limited.

To address these research gaps, in a **second study**, we investigate how PLCs develop within existing inter-school networks as a mode of social and collective learning (Schelfhout, 2017; Vaessen et al., 2014) during a PDT. Furthermore, we attempted to determine the possible variables influencing learning outcomes and longer-term sustainable development of the PLCs.

Research gap 3

Next, we turned to coaching, which occupies an increasingly prominent place within professional development services for school leaders (Cannon-Bowers et al., 2023; Lofthouse, 2019). Coaching for school leaders is positively valued for providing support to school leadership and school development within challenging societal contexts (Brandsmo et al., 2021; Darling-Hammond et al., 2022; Lochmiller, 2018; Ritzema et al., 2022; Rowland, 2017). It has been found to have an indirect impact on student learning outcomes (Wise & Cavazos, 2017). Moreover, this type of professional development provides opportunities for work-related and customized learning (Cannon-Bowers et al., 2023; Rowland, 2017; Weathers & White, 2015). Despite the opportunities, less research is available on coaching school leaders specifically. To maximize the effectiveness of coaching for professional and school development, empirical research on influential factors is essential, as other research states (Darling-Hammond et al., 2022; Lochmiller, 2021).

The PDT for school leaders that was studied integrated group coaching as a form of peer learning, in which several professionals participated with a coach (Flückiger et al., 2017). As mentioned above, PLCs can be considered a specific form of group coaching (Harris & Jones, 2019; Poortman et al., 2022). In our PLCs, the participating professionals – in this case school leaders – shared common goals and could collectively gain new knowledge through reflection and interaction that provided opportunities to improve their practices. Research on the real or perceived impact of this specific form of group coaching as part of a PDT is scarce (Brandmo et al., 2021; Flückiger et al., 2017).

Coaching competencies – which can be categorized into the coaching relationship, the coaching process, coaching skills and personal characteristics (Cox et al., 2014) – are important for perceived quality and effectiveness during PLC coaching (Coenen et al., 2021; Lofthouse & Whiteside, 2019). While the importance of understanding the specific effective role and approach of a coach during a PDT has been demonstrated, little research has been done on perceived quality interventions, success factors and necessary conditions for optimal integrated coaching that may have an association with sustainable professional and school development (Aas & Flückiger, 2016; Patrick et al., 2021).

Our specific research context provided a unique opportunity to examine the experienced role of the coach and the perceived impact of coaching competencies (Cannon-Bowers et al., 2023; Lofthouse & Whiteside, 2019), which we undertook in a **third study** that aimed to examine which coaching competencies are perceived by school leaders as effective in facilitating sustained professional and school development during PLC meetings in a PDT for school leaders.

Research gap 4

While much is already known about coaching and its efficacy, less research is available specifically on individual coaching of school leaders and its (perceived) impact (Patrick et al., 2021; Wise & Cavazos, 2017). To maximize the added value of individual coaching and an effective coaching approach on the professional development of experienced school leaders and school development, empirical research on influential factors is essential (Lackritz et al., 2019; Weathers & White, 2015).

Individual coaching of school leaders can be undertaken on its own as a separate approach or, as in this research setting, as part of a PDT (de Haan et al., 2011; Lofthouse, 2019). Research on individual coaching with school leaders has shown the importance of the ability to lean on evidence-informed frameworks (Darling-Hammond et al., 2022; Patrick et al., 2021). In individual coaching, there is not always room for this and/or the coach does not always have hands-on access to the necessary frameworks. Therefore, it may be worthwhile to integrate individual coaching into a broader PDT, in which theoretical frameworks have already been provided (de Haan et al., 2011; Lofthouse, 2019). Leadership development takes time (Kets de Vries & Korotov, 2012). Providing time for focused and supportive reflection is also important for the perceived effectiveness of coaching sessions (Henderson, 2011; Simkins et al., 2006; van Nieuwerburgh et al., 2020). Although a few sessions may already have an experienced positive contribution, coaching primarily requires a long-term process (Darling-Hammond et al., 2022; Reiss, 2015). However, long-term professional development for school leaders is structurally underfunded (Rowland, 2017). Integrating coaching into a PDT may address these circumstances. However, research on individual coaching as an effective experienced approach by school leaders within a broader PDT is scarce (De Meuse et al., 2009; Simkins et al., 2006). It is thus of value to investigate how this individual coaching functions (van Nieuwerburgh et al., 2020), in addition to and in interaction with other components of this trajectory.

The literature often treats coaching in general terms, without distinguishing specific competencies of the coach in individual and group coaching. When integrating both individual and group coaching into a PDT, the mutual interaction between these two organizational forms and the training days in which theoretical frameworks are taught (on which the coach can rely) is essential for facilitating purposeful school development.

The purpose of the **fourth study** was thus to investigate which characteristics of the coach in individual coaching sessions in the context of a broader PDT for school leaders had a perceived potential added value in generating professional and school development, given that research on this topic is useful but scarce (van Nieuwerburgh et al., 2020).

Research gap 5

Finally, the professional development of school leaders requires quality long-term professional development programs (Jensen, 2016; Sahlin, 2023). In addition to the choice of an appropriate program by the school leader (Wright & da Costa, 2016), the organization of and approach taken by PDTs determines their perceived effectiveness by school leaders (Mdhlalose, 2022; Orr & Orphanos, 2011). The concrete transfer and sustainable implementation of the content of a PDT in the work context also pose a challenge (Grossman & Salas, 2011; Mdhlalose, 2022). Once a PDT ends, input and support often decline. Although it has been demonstrated that participation in a PDT continues to have an impact experienced years later at the individual level (Yelon et al., 2013), the implementation of evidence-based programs that are proven effective and contribute to curriculum renewal appears to have little sustainability once initial enthusiasm and financial resources disappear (Askell-Williams & Koh, 2020; Cooper et al., 2015).

Insight into the possible added value of training programs focusing on transfer to the individual's context has improved over the past decades (Baldwin et al., 2017). However, little empirical transfer research is available on the experienced effects of PDTs for school leaders, and there is even less research on the specific key factors that sustain the perceived effectiveness of PDTs for school leaders after completion (Daniëls et al., 2021). Because it takes time to embed learning outcomes in the school context (Fluckiger et al., 2014; Rieckhoff & Larsen, 2012; Simkins et al., 2009), longitudinal follow-up with different measurements of perceived effects (Blume et al., 2019; Huang et al., 2017; Jensen, 2016; Day et al., 2014) is appropriate for both trainers and organizers (Baldwin et al., 2017; Yelon et al., 2014), also taking into account that sustainability is a dynamic non-linear process without an endpoint (Fullan, 2004).

Given the limited available empirical research (Daniëls et al., 2021; Ford et al., 2018; Jensen, 2016) on the long-term effects of specific approaches to PDTs for school leaders, a **fifth study** aimed to gain insight into factors related to the general organization of a PDT and specific approaches that school leaders perceived as explanatory for subsequent goal- and action-oriented transfer and implementation of the content in the context of professional and school development.

General overview

Overall, there are few in-depth and large-scale studies on the perceived effectiveness of professional development trajectories for school leaders that use a mixed methods approach allowing for an interaction between quantitative in-depth data (as a basis for generic statements) and qualitative in-depth data (as a basis for explaining these statements). This problem statement formed the basis for the dissertation, which consisted of designing, implementing and studying characteristics of a two-year PDT that appear to be associated with positively perceived outcome variables.

Research goals

This dissertation examined the perceived effectiveness of a long-term PDT as experienced by school leaders in relation to professional and school development during and after participation. Figure 2 (p. 48) provides a brief overview of the five individual studies, including their interrelationship.

Study 1 | Perceived impact of key factors of PDTs that generate professional and school development during a PDT for school leaders (after year 1)

The first study, after the end of the first year of the PDT, focused on obtaining a generic perspective. In this research, we examined the learning outcomes (the fourth level) with a focus on converting acquired insights into action plans and concrete actions. However, we hypothesized that this depth of learning with goal-oriented and sustainable actions is impossible without achieving the preceding levels, also consistent with the context and needs of the participating school leaders and their schools.

Using a mixed methods research approach we examined the perceived value of factors of effective professional development – as stated in previous research – in a PDT for school leaders in terms of the dimensions of: (1) organization and (2) didactics of the PDT, as well as their mutual interaction, and the interaction with possible external mediating factors.

The central research questions were:

- Q1.1: What is the perceived added value of participating in the PDT in terms of taking action on school development?
- Q1.2: Which factors of effective professional development in the dimensions of organization and didactics influence the perceived outcomes of a PDT?
- Q1.3: Which interactions between factors of effective professional development influence the perceived outcomes of the PDT and transfer to the school leader's own school, and for what reason?
- Q1.4: Which mediating PDT factors influence perceived outcomes of the PDT?

Study 2 | Focus on effective development of professional learning communities (PLCs) within existing inter-school networks during a PDT for school leaders (after year 2)

The second study focused on the specific PLC approach during the two years of the PDT as part of the organizational dimension. This mixed methods study examined how PLCs, as a mode of formal collective learning throughout a PDT, develop within existing inter-school networks. Such forms of collective learning (Schelfhout, 2017; Vaessen et al., 2014) between school leaders are not self-evident (Antinluoma et al., 2021; Azorín et al., 2020; Harris & Jones, 2021).

The research questions were:

- Q2.1: How does the approach of the PLC during a PDT influence: 1) the outcomes of the PLC; and 2) its sustainability after completion of the PDT?
- Q2.2: How does the facilitating role of the (structural) inter-school network influence: 1) the outcomes of the PLC; and 2) the sustainable continuation of the PLC within this partnership after completion of the PDT?
- Q2.3: How do the perceived outcomes of the PLC during the PDT influence the sustainable continuation of the PLC within the inter-school network?

Study 3 | Focus on coach-related characteristics of the PLC coach that generate professional and school development during the PLC meetings of a PDT for school leaders (after year 2)

Because the coach has a central role in the PLC, in this third study we examined which selected coach-related characteristics contribute potentially to professional and school development during the PLC meetings of a PDT for school leaders. Therefore we used a mixed methods design.

The research questions were:

- Q3.1: What is the explanatory value of the coach's didactic approach and coaching skills during PLC meetings with respect to the predefined outcome variables?
- Q3.2: Is there any indication of differences in the didactic approach and coaching skills of PLC coaches that may be associated with differences in outcome variables??
- Q3.3: What is the explanatory value of a PLC coach's expertise with respect to the outcome variables?
- Q3.4: What characteristics associated with participants, context, etc. are mediating for the perceived effectiveness of PLC coaching?

Study 4 | Focus on coach-related characteristics of the individual coach that generate professional and school development in the individual coaching sessions of a PDT for school leaders

The PLC coach also organized individual coaching with the schools in the PLC. The fourth mixed methods study examined which selected characteristics of the coach, in the context of the individual coaching sessions during a PDT for school leaders, were perceived by school leaders as determining the generation of professional and school development.

The research questions were:

- Q4.1: What is the perceived added value of the coach's didactic approach and coaching skills during individual coaching sessions with respect to the predefined outcome variables?
- Q4.2: Is there any indication of differences in the didactic approach and coaching skills of coaches that may be associated with differences in outcome variables?
- Q4.3: What is the perceived added value of the interaction between individual coaching, training days and PLCs in a PDT?

- Q4.4: What is the perceived added value of a coach's expertise on the outcome variables?
- Q4.5: What characteristics of the participants, the context, etc. constitute reasons to participate more or less frequently, or not at all, in individual coaching as an integrated part of a PDT?

Study 5 | Perceived impact of factors related to the general organization and specific approach on goal- and action-oriented transfer and implementation of the content of a PDT in the context of professional and school development one year after its completion (after year 3)

Using empirical research, we examined which factors – related to the general organization of the PDT and the specific approaches it used – school leaders perceived as an added value for future goal- and action-oriented transfer and implementation in the context of professional and school development after completion of a PDT.

The general research questions we addressed were:

- Q5.1: Which specific approach (developing an action plan, PLC participation, coaching participation) during the PDT do school leaders perceive as effective for sustained action- and goal-oriented transfer and implementation of professional and school development after completion of a program?
- Q5.2: Which factors related to the general organization of the PDT do school leaders perceive as effective for sustainable action- and goal-oriented transfer and implementation of professional and school development after completion of the program?
- Q5.3: Which factors related to school leadership and the school context do participating school leaders perceive as influencing sustainable action- and goal-oriented transfer and implementation of professional and school development after completion of a program?

Research context

On the initiative of the Flemish Government, the Minister of Education, responsible for education in Flanders and Brussels-Capital Region, determines priority themes aimed at supporting education policy and educational innovation (Flemish Ministry of Education and Training, 2022). The temporary and/or non-mandatory status can also be found in other countries (OECD, 2022), making the insights and recommendations of this dissertation valuable in the international context.


Educational institutions and organizations can apply for a temporary grant to provide in-service training in line with the theme for the selected target group(s). Based on certain criteria, the minister selects quality projects.

Commissioned by the Flemish Government (Belgium), the two-year PDT started in September 2021. The goals were fixed, but the project contributors freely designed the approach of the trajectory. This allowed a particular evidence-informed approach to be designed and examined for perceived effectiveness. The PDT was organized as a research setting in which several factors related to strong professional development were implemented (Daniëls et al., 2021; Coenen et al., 2021). This made it possible to examine the perceived impact of organizational and didactic factors, as well as their mutual interaction, on certain outcome variables.

The two-year PDT for school leaders was organized into training days, start-up and development of PLCs and individual coaching. This organizational approach was combined with a specific didactic approach to generate maximum transfer to the participants' schools and concrete actions on vision and school development. The didactic dimension was strongly determined by the organizational dimension but could be augmented by introducing different levels of intensity and depth in relation to these choices. Five focal points were central to this: presenting theoretical frameworks and practical examples; an action plan as an important focus to work on; using a varied and activating approach; giving tailored support to and feedback in the learning process; and creating opportunities for networking and sharing.

The training days aimed to provide theoretical frameworks, practical examples and applications for the whole group of participants. Each of the training days had a different content focus (Centrum Nascholing Onderwijs, 2021). Thereby, the organizers foresaw a clear link to the principles of "leadership for learning" (MacBeath & Dempster, 2009), as further transformed into the school development model "Team School. Creating learning communities in education" (Schelfhout et al., 2019).

The further deepening and concretization of that content occurred in the PLCs. In these smaller groups, the focus was on peer learning and social encouragement. These PLCs met four times



each year. The government's call for participation explicitly requested that schools register as partnership (informal partnership or formal school community) of at least four schools aiming to support collective learning processes. If such an inter-school network was involved in this study, all of its member schools constituted one single PLC. In the Flemish context, these partnerships often coincide with formal school communities. The school communities within the education system of the Flemish Community – initiated in September 2020 in the context of an administrative scale-up – are determined by Flemish decree (2023). School communities consist of schools of the same educational level (primary or secondary) and from geographically neighboring educational districts. Schools may or may not belong to the same educational network and school board. Separate composition criteria apply to both levels of education. A school community, in theory, has a lifespan of six years, which currently ends on August 31, 2026.

Individual coaching was also provided for each participating school. To generate and facilitate shared school leadership, participants were encouraged to register two colleagues per school. The focus of the individual session with the coach was deepening and concretizing the transfer of the theoretical frameworks and practical examples to the school leader's school. This provided an opportunity to confidentially discuss more personal and school-related issues.

Each PLC had a regular coach during the two years of the PDT. This coach was part of the training team. Each coach had coaching qualifications (notwithstanding differences between coaches) and extensive coaching experience, whether in education or not. Their educational expertise varied. Each coach supervised a minimum of one and a maximum of three PLCs. In the first year, the focus was on coaching the PLC. The second year saw a shift to a coach-the-coach approach where one of the participants in each PLC assumed the coaching role guided by the regular coach. The regular coaches of each PLC also provided individual coaching to participants in their own PLC. All coaches were always present during the training days and were well versed in the theoretical frameworks imparted to the participants.

Methodology

Research design and data collection

The research questions were answered by adopting a mixed methods approach (Figure 1). We organized four moments of data collection over three years. This created the opportunity to detect evolutions and experiential impact on sustainable outcomes related to professional development as perceived by the school leaders. The triangulation of the equally weighted quantitative and qualitative data increased the relevance and depth of the analysis, and provided the opportunity to account for the relationship between variables (Darling-Hammond et al., 2022).

We emphasize that randomized controlled trials were not used in this study. It was impossible to ensure that participants in the PDT formed a random sample of the entire population of school leaders. Participants were allowed to choose themselves – a condition for participation in the professional development initiative as stipulated by the government – whether they participated in the trajectory, which may have resulted in selection bias and endogeneity bias (Liu & Borden, 2019; Barret et al., 2012; Wayne et al., 2008). It is known from existing research that more motivated school leaders often choose to follow additional training (Daniëls et al., 2021; Noe, 2010).

Furthermore, it was impossible to work with a control group, which would have controlled for as many exogenous variables as possible (De Witte & Mika, 2009) that might play a role and which could have been spread evenly over the experimental and control groups. Moreover, there would still be a very high probability that this control group would be contaminated by additional professional development experiences during the two-year trajectory. As a result, we cannot make any statements from this study about the effects of the PDT on professional development or school development outcomes, nor can we generalize to the entire population of school leaders. However, this is not the purpose of this study in any case, especially since researchers have indicated how difficult, if not impossible, it is to arrive at a truly experimentally valid design when examining the impact of a PDT (Stufflebeam, 2017; Wayne et al., 2008). Even when operating without a control group in a more experimental design, one can control for possible mediating variables such as, for example, professional development initiatives already completed, experience as a school leader, views on professional development, age, and gender (Wayne, et al., 2008). However, beyond variables such as age and gender – which research already shows to have little explanatory value – a comprehensive set of variables would need to be included to control for the black box between PDT and outcomes. Research has already shown how challenging this is: analyses lose power because the collinearity between variables greatly increases (Li, 2021).

The purpose of this study is to demonstrate as powerfully as possible – based on the interaction of quantitative research and qualitative research – remarkable processes and mechanisms of action associated with participants' perceived effects, so as to be able to make strongly informed

recommendations for practice, linked to previous research. To substantiate this, a mixed methods approach on a sufficiently large scale is important.

The descriptive analysis of the surveys administered to a highly representative part of the entire participant group (response rate for online surveys was between 83% and 96%) aims to indicate clear trends for this PDT. The regression analyses on these data can then provide sufficiently first indications of the explanatory value of the surveyed characteristics of the PDT on intended professional development and school development outcomes without making generalized statements about demonstrated effects. Moreover, and importantly, qualitative data collection from a large part of participants can provide: a) a triangulation of the quantitatively provided insights and b) a deepening of insights into active processes.

The newly developed questionnaires were based on the literature review, and observations of the PDT to be able to capture important aspects of what happened in the reality of the process as part of the questionnaires. The observations took place during all training days, and PLC meetings of different PLC groups. Five PLC groups, each supervised by a different coach, were observed. No observations were made during individual coaching, given the importance of the safety and confidentiality of these conversations. Each of these questionnaires was validated through confirmatory factor analyses on the scales previously determined from the literature review and through reliability analyses. Where necessary this is reported in each case within each of the sub-studies.

Before the start of the PDT, participants completed an online survey with closed- and open-ended questions. In May 2022, after finishing the first school year, an online survey with closed- and open-ended questions was set up to probe into experiences with the PDT and perceived outcomes. A similar online survey was taken after the second year of the PDT. These three online surveys were distributed to all participants. Everyone who completed the written survey had participated in the training days and PLC meetings. To calculate the perceived added value of the coaching sessions, only quantitative data from those who participated were used. One year after the PDT had been completed, there was a final online survey. This was only completed by school leaders who participated in the in-depth interviews.

In June 2022, focus group discussions were organized with PLC groups and in-depth interviews with school leaders to collect further explanatory qualitative data to supplement the quantitative data and to further question trends in the quantitative data that had already been collected. In-depth interviews with school leaders were organized in May 2022, May 2023 and May 2024 to further question and explain trends that emerged from the quantitative data collected. The semi-structured online interviews were conducted using a question protocol (Morris, 2015; Seidman, 2006).

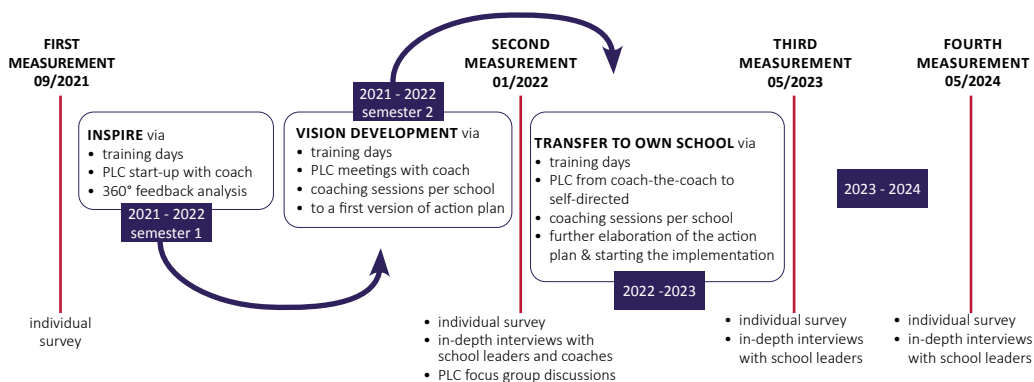


Figure 1 - Data collection

Participants

In September 2021, 149 participants of 69 schools started the PDT and each participated in a PLC. Participants were employed in primary (43%) or secondary education (57%). A management position was held by 58% of the participants, 42% occupied a middle management position with a focus on the learning support of students and 93% participated with a colleague.

Fourteen inter-school networks participated in the PDT. Each network consisted of 4 to 19 schools. Each network was organized as a PLC. The network with 19 schools was divided into two PLCs. Each PLC consisted of 7-13 participants and was supervised by the regular coach. Each coach supervised a maximum of three PLCs.

Three forms of inter-school networks participated. Thirteen inter-school networks were based on an existing formal partnership; they were school communities by decree. The schools in these communities had been in contact with each other and the school leaders often already participated in structural consultations. However, the participants did not necessarily know each other or cooperate closely. Not all schools that are members of these school communities necessarily participated in the PDT, while in some school communities full participation was mandatory. In five inter-school networks, some of the member schools of a school community formed the core participant group, with one school of another school community interested in being a member of the network. As with the first group, there was already cooperation within the established school community, though its degree could differ. A third form of network was represented by schools from different school communities throughout Flanders.

At the start of the PDT, 50.1% ($n=123$) had not yet participated in any form of learning community that required more extensive participation (more than once per school year). Of the participants, 13% had participated in a PLC committed to in-depth discussion and development of policy on the basis of the conviction that professional development is better done collectively between educational professionals with various profiles, given the shared responsibility for quality.



Valorization aim of the dissertation

The aim of this dissertation is twofold:

- to confirm and deepen existing research insights;
- to find answers to identified research gaps regarding the perceived effectiveness of long-term PDT for school leaders.

Based on our findings, we first want to formulate recommendations for further research on the effectiveness of PDTs for school leaders.

Secondly, we list concrete recommendations for organizing PDT which are perceived as effective. We formulate recommendations for organizations to strengthen existing or new long-term PDTs and further optimize quality.

In addition, school leaders, school communities, and school boards can use the recommendations formulated to make well-informed decisions when investing in participation in and selecting appropriate PDTs.

The education and thus professional development of school leaders and school development always occur in a specific societal context. Education is also subject to concrete political choices. Therefore, we also list important insights for policy and conclude by formulating concrete recommendations that will contribute to the quality of education by investing in quality professional development of school leaders.

Outline of the dissertation

The following five chapters are based on individual research articles that have been published (Chapter 1 and 2) or are under review for publication in a scientific journal (Chapters 3, 4 and 5).

The “General discussion” summarizes the main findings and reflects on the significance and limitations of this research and its implications, before making recommendations based on our findings.

Because each chapter can be read separately, some overlap is unavoidable.



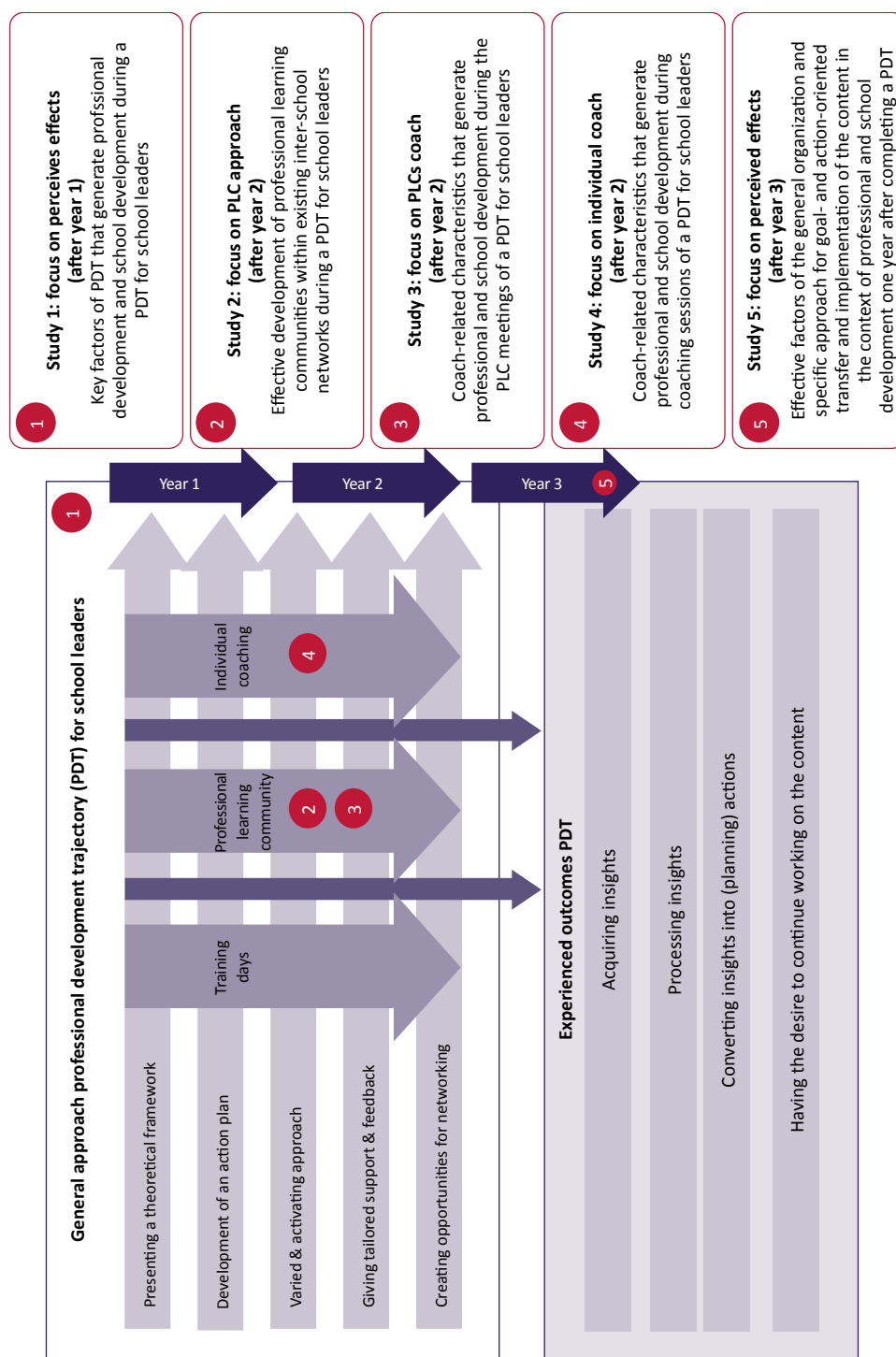


Figure 2 - Outline of the dissertation

INTRODUCTION

STUDY 1

2

3

4

5

CONCLUSION

Professional development trajectories for school leaders examined: the influence of organizational and didactic factors and their interaction on triggering concrete actions in school development

1

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Abstract

It is believed that school leadership contributes to efficiency and equity in school performance. Therefore, it is essential that professional development initiatives for school leaders foster learning and development processes toward effective leadership. Based on a literature review, several factors appear to facilitate the influence of professional development trajectories on learning outcomes of school leaders but empirical research on real effects and on explanatory processes is limited. This research gap forms the basis for this mixed methods study, in which we design and implement a longitudinal professional development trajectory as the research setting. We distinguish an organizational dimension focusing on structural choices and an intertwined didactic dimension. We examine which specific interaction between both contributes most to concrete learning-driven actions at the school of the participant. The results indicate that by participating in the trajectory with such a design, school leaders prepare action plans for their own school and start up school development. The interaction between actively providing theoretical frameworks, further deepening insights through peer learning in professional learning communities, the conversion of insights into concrete action plans and supporting this with school-specific coaching leads to the strongest results, analyses show.

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1.1 Introduction

Societal evolutions over the past few decades affect the curriculum and the way education and assessment are shaped (Rotherham & Willingham, 2010). Both internationally and nationally, a trend toward a culture of measurability can be observed (Bransen, 2019; van Middelkoop & Glastra, 2018). Discussions about the (declining) quality of education and policy decisions in this context rely on studies such as PISA, PIRLS and TIMSS (Cordero et al., 2018; Plavčan, 2020). The responsibility of school leaders for student learning outcomes (Leithwood & Day, 2008) as well as institutional pressures are increasing (Branch & Rivkin, 2015; Pont, 2020). Consistent with this, school leadership is a policy focus with an increasing attention to school leader professional development too (van Wessum, 2018).

Bush & Glover (2003) define school leadership as “a process of influence leading to the achievement of desired goals.” Successful leaders develop a vision for their school based on their personal and professional values. They articulate this vision at every opportunity and influence their staff and other stakeholders to share the vision. The school’s philosophy, structures and activities are geared toward achieving this shared vision” (p. 8).

A first dimension is linked to vision development and influencing and facilitating processes that lead to the achievement of core educational goals, namely quality teaching by teachers (Bush & Glover, 2014; Hallinger & Heck, 2010) and of pupils linked to this teaching (Daniëls et al., 2019b; Harris, 2013). The second dimension emphasizes the school leader’s task of uniting the team around core values and related strong teaching and learning practices based (Bush, 2020; Kelchtermans & Piot, 2010). A third dimension is propagating this vision (Bush & Glover, 2014).

Since the 1980s, much research has been dedicated to the effects of educational leadership. Even though real effects of educational leadership on student achievement prove difficult to measure (Hallinger, 2011; Leithwood et al., 2020) cannot be unequivocally demonstrated, there is widespread recognition of the importance of school leadership on high-quality education (Barber et al., 2010; Daniëls et al., 2019a). It is therefore essential that professional development initiatives for school leaders address aspects of effective leadership (Daniëls et al., 2019b) both with regard to educational leadership and the many other tasks and responsibilities of the school leader (Pont et al., 2008), and that these initiatives are also sufficiently adequate (Fluckiger et al., 2014; Rowland, 2017). Many countries developed competence profiles for selection and evaluation and as a basis for determining the professional development initiatives for school leaders (Rowland, 2017).

1.2 Theoretical framework

1.2.1 Effective professional development: four levels

Kirkpatrick & Kayser Kirkpatrick (Kirkpatrick & Kirkpatrick, 2016) define effective professional development as “well-received training that provides relevant knowledge and skills to the participant and the confidence to apply them on the job.” In line with this definition, there is increasing evidence on success conditions in terms of the approach and nature of professional development of school leaders (Daniëls et al., 2019b) and the importance of tailor-made support during all career phases (Goldring et al., 2012). However, assessing the impact of a leadership development program is not straightforward, such as due to a lack of research on measurable criteria of effective professional development for school leaders (LaPointe & Davis, 2006) because the effect of the PDT followed is difficult to isolate and because of the influence of (un)anticipated personal and contextual factors and outcomes (Daniëls et al., 2019b). Getting a clear picture would benefit the effectiveness of current and future professional development programs (Barber et al., 2010; Kirkpatrick & Kirkpatrick, 2016).

Four levels can be distinguished in the extent that professional development initiative contribute to the depth and outcomes of professional development (of school leaders) (Kirkpatrick & Kirkpatrick, 2016):

- level 1 – reaction: the extent to which participants evaluate the training beneficial, interesting and relevant to their job;
- level 2 – learning: the extent to which participants acquire the intended knowledge, skills, attitudes, trust and commitment, based on their participation in the professional development;
- level 3 – behavior: the extent to which participants apply what they have learnt during the professional development programs;
- level 4 – outcomes: the extent to which goal-oriented results occur as a result of the acquired learning experiences, learning event(s) and their application. Prioritizing these when developing a professional development initiative contributes to the purposefulness of its content and approach.

From the above research on how contents of professional development initiatives have converted to practice, we actively concentrate on the fourth level in this gradual structure, focusing on the specific transfer into the uniqueness and complexity of school policy in each school (Doe et al., 2016). It is specifically about the extent to which the professional development initiative encourages a process (Tynjälä, 2013) of in-depth processing of the acquired insights, both operationalized through critical reflection on what participants learned from application in one’s school context (Tingle et al., 2019), the extent to which the professional development initiative stimulates brainstorming on this with other members of the school team and thus facilitates collaborative learning in the workplace (Brown, 2020; Brown & Flood, 2020a; Hulsbos et al., 2016), as well as the professional development initiative encourages to be goal-oriented in

order to really start working with the insights (as an intermediate step) and transform them into possible concrete actions and sustainable change (Doe et al., 2016; Fluckiger et al., 2014). This aligns with the shift from knowledge acquisition to knowledge creation and development (Lumby et al., 2008). The result level (level 4) can be split up in different intermediate levels, e.g., the elaboration of an (preparatory) action plan (Hulsbos et al., 2016) together with members of the school team, the implementation of these actions, the possible results of these actions on teacher behavior (Hargreaves & Fullan, 2015), and longer-term follow-up at pupil level (Brown & Flood, 2020a; Doe et al., 2016), as well as the professional development initiative encourages to be goal-oriented in order to really start working with the insights (as an intermediate step) and transform them into possible concrete actions and sustainable change (Doe et al., 2016; Fluckiger et al., 2014). An outcome not included in this and other schemes about the depth of learning is well-being. Participation in a professional development initiative may also have this as an outcome as well, possibly strongly mediating with behavioral learning outcomes (Green, 2020; Wolf & Peele, 2019).

The professional development initiative and goals play a major role: the organization needs to think about the predefined learning outcomes (Leithwood & Levin, 2009). The job context as a mediating factor should not be overlooked, especially at this level 4 with learning on the job, coaching and feedback (Fluckiger et al., 2014; Kirkpatrick & Kirkpatrick, 2016; Rowland, 2017). Antecedents of participants may also influence the results achieved.

1.2.2 Factors of effective professional development for school leaders: the dimensions of organization and didactics

Ten guidelines have been identified for the development of professional development initiatives for school leaders (Fluckiger et al., 2014): connecting to needs at individual or school level, a goal-oriented program, a research-based program, sufficient time, practice-oriented, peer support, taking into account contextual factors, partnering, focusing on impact. This underlines the importance of explicit goals (Pashiardis & Brauckmann, 2009) that focus on applicability, moreover, matching with participants' goals and needs (Levine, 2006). In a coherent program, the curriculum matches and furthermore supports and reinforces the specific job content and context (Goldring et al., 2012).

1.2.2.1 Knowledge base

In line with the goals, providing a broad research-based knowledge base linked to professional practice encourages participants to transfer the content of the professional development initiative to their own context (Doe et al., 2016; Fluckiger et al., 2014). A coherent curriculum is needed, which combines theoretical input with practical application opportunities (Levine, 2006). To acquire such bases, an expert training team with both academic expertise and educational experience is desirable.

1.2.2.2 Contextual learning

Professional development initiatives are more successful when they are embedded in authentic school environments and allow for contextualization (Pashiardis & Brauckmann, 2009; Pont et al., 2008). This enables school leaders to apply the competencies and insights learned to their specific school context (Goldring et al., 2012; Zhang & Brundrett, 2010). Starting with an initial situation analysis allows to identify participants' reflections on their progression and needs, gather information about their job context (Doe et al., 2016; Hallinger, 2011). Goal-oriented transfer of acquired competencies is important for effective leadership and school development (Zhang & Brundrett, 2010). School leaders name this, among other things, as a lack in existing professional development initiatives (Devos et al., 2018). Generating that transfer can be done by designing and implementing a time-spread approach focused on cognitive-theoretical ways of learning, cooperative and communicative processes and reflective forms of learning (Huber, 2011), using various sources such as peer learning, online information, book learning and formal training (Barber et al., 2010). Frequent reference to how learning content is valuable and creating opportunities for discussions about possible applications contribute to transfer and relevance (Kirkpatrick & Kirkpatrick, 2016). An explicit expectation is needed toward school leaders that by participation in a professional development initiative they engage in activities within their own school as a function of leadership development (Simkins et al., 2009). If participants know in advance what the purpose and approach of the professional development initiative is, this leads to greater engagement and sustained processing of the professional development initiative content (Kennedy, 2005; Kirkpatrick & Kirkpatrick, 2016).

Competencies acquired during professional development initiative are applied in the authentic work context and vice versa (Fenwick, 2008). School leaders perceive workplace learning as an effective approach to working on adjustment and innovation within their school context (Zhang & Brundrett, 2010). This 'learning on the job' reinforces learning at the individual and organizational level as well as the relationship between the two. A school context with a positive learning climate contributes to informal professional learning of school leaders through support, feedback, reflection and career awareness, and generates social learning (Daniëls et al., 2023; Veelen et al., 2017). In professional development initiatives raising awareness of that school context, school culture and person-related aspects (Daniëls et al., 2019b; Hauge et al., 2014; Tingle et al., 2019), the naming of present (facilitating) factors for professional development facilitates transfer (Lumby et al., 2008).

Participation in a professional development initiative together with a fellow generates positive outcomes for both parties involved, e.g. in terms of the joint propagation of a school-wide culture, support in the implementation of actions, collaboration and a shared language and acquaintance with other perspectives (Doe et al., 2016; Hilton et al., 2015).

1.2.2.3 Professional learning communities and coaching

The use of PLC and is recommended (Daniëls et al., 2019b), with a central place for reflection (Huber, 2011) in combination with peer learning and peer feedback (Zhang & Brundrett, 2010). Small groups guided by an experienced coach (Daniëls et al., 2023) are appropriate to ensure psychological safety and high-quality reflection (Brown, 2020; Daniëls et al., 2023). The individual school leader is learning in one's own school environment and professional development is stimulated by exchanging and critically-constructively discussing (success) experiences – informally or not – as a sideline to formal professional development initiatives (Glazer & Hannafin, 2006).

The coach stimulates the depth of learning processes during individual and group meetings by using a theoretical and methodical growth-oriented framework (Peschl, 2006). Focus on achieving profundity only arises when it is explicitly expressed (Boschman et al., 2015). The role of the coach is challenging, especially in the context of a group of school leaders with different school contexts. The quality of coaching helps determine the value of the PDT (Hulsbos et al., 2014).

1.3 Research design and methodology

1.3.1 Concrete organization of the professional development trajectory

The literature review shows that several factors can facilitate the influence of professional development trajectories (PDT) on learning outcomes among school leaders. These factors are situated both on the goals and content, the organization and the approach. Empirical research on the real (long-term) effects of PDT and on underlying explanatory processes is limited (Rowland, 2017). There is also little research on the functioning and added value of more complex and long-term PDT (Daniëls et al., 2021). As a result, it is unclear how these different factors specifically influence learning, how this influence may depend on characteristics specific to the school leader or his school context, how these factors reinforce or weaken each other, how the deployment of these different factors is optimally spread within a long-term trajectory and with which iteration. Moreover, few in-depth and large-scale research is available, with an interaction between quantitative (as a basis for generic statements) and qualitative (as a basis for explaining these statements in depth) data.

This problem statement forms the basis for this study, in which we choose to design a long-term professional development trajectory (2 years) and implement it as research setting in which a number of characteristics of powerful professional development (Coenen et al., 2021; Daniëls

et al., 2021) were implemented. This makes it possible to examine the perceived impact of organizational and didactic factors as well as their mutual interaction on certain outcome variables (see Figure 1.1).

Given that the didactic dimension runs as a thread through the organizational dimension, the hypothesis is that responding to an interaction between the two leads to an increased influence of the PDT on perceived outcomes. Which specific interaction contributes most to this is also the subject of research.

The outcome variables of the PDT are ordered according to the levels of depth of learning by Kirkpatrick & Kayser Kirkpatrick (Kirkpatrick & Kirkpatrick, 2016). Specifically, this means that the outcome variables are arranged thematically according to the three highest levels:

- level 2: acquired insights regarding learning support, school policy, school leadership and starting PLC;
- level 3: processing acquired insights through reflection in general, being stimulated to brainstorm with members of the school team and being stimulated to be goal-oriented in terms of approach at school;
- level 4: converting acquired insights into action plans and concrete actions regarding the vision on learning support, school leadership and starting PLC.

In this research we examine the outcomes on the fourth level with a focus on converting acquired insights into action plans and concrete actions, which is less examined in other research. However, we hypothesize that this depth of learning with goal-oriented and sustainable actions is not possible without reaching the preceding levels, also consistent with the context and needs of the participating school leaders and their school.

1.3.2 Research and questions

We want to examine the influence of applying characteristics of effective professional development in PDT for school leaders in terms of the dimensions 1) organization and 2) didactics of the PDT, as well as their mutual interaction and the interaction with possible mediating external factors on the fourth level of learning outcomes. All this leads to the following research model (Figure 1.1).

The central research questions are the following:

- Q1: What is the perceived added value of participating in the PDT in terms of taking actions on school development (level 4)?
- Q2: Which factors of effective professional development on the dimensions of organization and didactics influence the perceived outcomes of a PDT (level 4)?
- Q3: Which interaction between factors of effective professional development influence the perceived outcomes (level 4) of the PDT and the transfer to the own school, and for what reason?
- Q4: Which non-PDT factors (medially) influence perceived outcomes (level 4) of the PDT?

All this leads to the following research model (Figure 1.1).

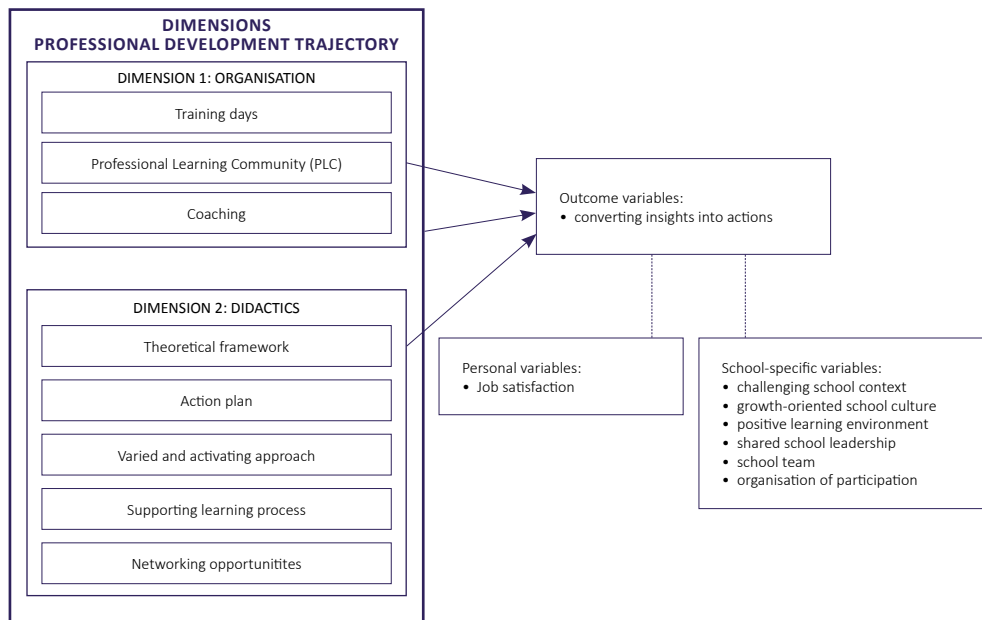


Figure 1.1 - Research model

1.3.3 Research context and participants

For the period 2021-2023 the PDT, commissioned by the Flemish government (Belgium), consists of training days, PLC meetings and coaching (Figure 1.2). During each of the five training days of year one, a different content focus is central (Onderwijs, 2021). Hereby the organizers foresee a clear link to the principles of 'leadership for learning' (MacBeath & Dempster, 2009), as further transformed into the development model 'Team School. Creating learning communities in education' (Schelfhout et al., 2019).

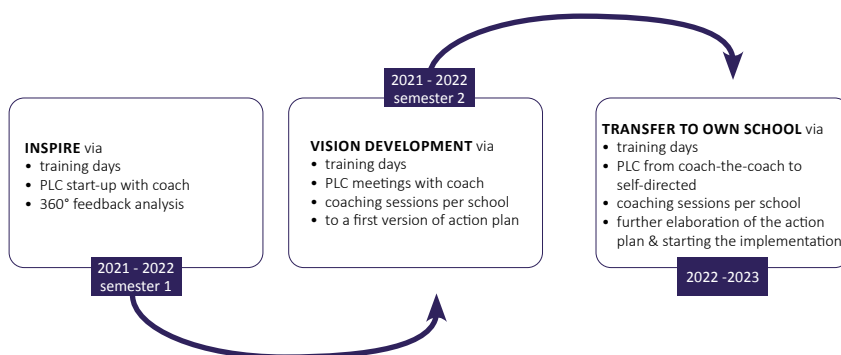


Figure 1.2 - Timeline professional development trajectory

During the training days for the full group of participants, the focus is on providing actual content aimed at acquiring insights and illustrated by practical examples. The further deepening and concretization of the acquired insights takes place in the PLC of school leaders and internal support staff, composed per registered partnership. In the PLC, the focus is on learning from and with each other, with extra social stimulation provided by the smaller group. The PLC will meet four times in the first year. In addition, coaching is provided for each school and focuses on their specific questions. During the first year two coaching meetings were planned. Four additional training days were organized in May 2022 focusing on the concrete application of PLC coaching. These days were optional for participants of the PDT and other team could also register, with the aim of facilitating the dissemination and broadening of the base on this topic.

During the 2021-2022 school year, 149 participants from primary education/K-12 (43%) - or secondary education (57%) follow the PDT. 58% hold a management position, 55% of them in secondary education. 42% occupy a (coordinating) middle management position at school linked to learning support, 60% of them in secondary education (Table 1.1).

			Management function	Middle management function	
Level	Primary education	Count	34	22	56
		%	44.7%	40.0%	42.7%
	Secondary education	Count	42	33	75
		%	55.3%	60.0%	57.3%
Total		Count	76	55	131
		%	100.0%	100.0%	100.0%

Table 1.1 - Education level and position in which respondents were employed

To generate and facilitate shared school leadership participants were encouraged to register two colleagues per school. 93% of respondents participated together with a colleague. For primary school principals, this is not always possible given the small school teams.

Each partnership was organized as a PLC. The partnership with 19 schools was split into two separate PLC groups. Each PLC consisted of 7 to 15 participants and was supervised by a permanent coach.

Each coach supervised a minimum of one and a maximum of three PLC.

The coaching sessions were supervised by the coach of the respective PLC of the participating schools. Each school decided whether to participate (not) in the (both) sessions, whether only the school leader participated. 53 % ($n=129$) participated in at least one coaching session.

1.3.4 Data collection

The research questions are answered by adopting a mixed methods approach because combining quantitative and qualitative data with proportionate weight increases relevance and provides an opportunity to check the relationship between variables.

Prior to the start of the PDT, participants completed a written initial situation analysis (ISA) with closed and open-ended questions. After finishing the first school year in May 2022, a written survey with closed and open-ended questions was organized, aimed at questioning experiences with the PDT and perceived outcomes. These surveys were developed based on literature research and observations during the trajectory. 131 out of 149 participants (88%) completed the final survey. 83% ($n=123$) of the participants completed both the ISA and the final survey. Everyone who completed the written survey participated in the training days and PLC meetings. To calculate the perceived impact of the coaching sessions ($n=66$), only quantitative data from those who participated was used.

In June 2022, focus group discussions were organized with PLC groups and in-depth interviews with school leaders (Figure 1.3) to collect further explanatory qualitative data to the quantitative data and to further question trends in the quantitative data already collected. Participants were invited to participate during the last training day and PLC meeting, and via email. The semi-structured online interviews were conducted using a question protocol drawn up on the basis of the literature review and observations. Focus group interviews lasted up to 90 and in-depth interviews up to 60 minutes in June and early July 2022 and were recorded with the knowledge and consent of all participants. Of the 15 PLC, 11 participated in a focus group discussion. 40 School leaders (=53%) distributed across the different PLC groups participated in an in-depth interview.

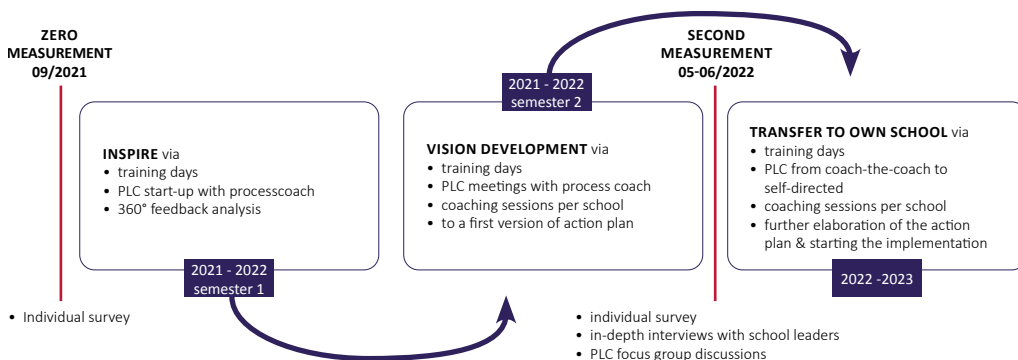


Figure 1.3 - Timeline data collection

1.3.5 Data processing and analysis

Six-point Likert scales were used (completely disagree - disagree - rather disagree - rather agree - agree - completely agree). To create meaningful descriptives of the data, these scales were made numeric (completely disagree (1) - etc. - completely agree (6)). Thereafter all Likert scales were standardized to enable analyses.

Exploratory factor analyses were conducted on the quantitative data, processed in SPSS, to arrive at meaningful, distinguishable and reliable scales. Principal axis factoring examined the interrelationship between items and extracted underlying factors. After identifying the factors, sum scales were constructed by merging highly correlated items. Eight factors were constructed (Appendices 1.1 and 1.2). Cronbach's alpha as a measure of reliability was above 0.7 for all scales.

After examining the existing correlation the strength of the perceived relationship between the eight factors of effective professional development and the outcome variables was examined through single regression analysis (SRA). The normality of residuals was shown by the histograms and the presence of homoscedasticity by scatterplots. Any outliers are minimal and non-systematic. VIF scores were below 2,5 for all predictors, which indicates the absence of multicollinearity concern. A statistical approach based on stepwise linear regression analysis (SLRA) was used for each outcome variable to determine the factor(s) with the greatest statistical predictive value. This is only indicative. We should be aware that the factors influence and reinforce each other when present together during a PDT. For naming the extent to which the variance in the dependent variables is explained by the explanatory independent variables (R^2), the following division was used: <10% weak, 10-25% moderately strong, 25-50% strong, 50% very strong, 100% perfect relationship. The coefficients were interpreted as follows: < .10 small effect, .10 - .30 medium effect, and .50 < large effect.

The qualitative data were supplemented with and underscored by (quantified) qualitative data and quotes from open-ended questions of the written survey (S), the focus group discussions (F) and the in-depth interviews (D). The qualitative data were processed in NVIVO and organized in line with the research questions, with an initial subdivision consisting of the PDT, external factors and outcome variables (Appendix 1.3).

1.4 Results

1.4.1 Experiences with the professional development trajectory

The descriptive analysis (Table 1.2; Appendix 1.1) shows that the perceived quality of the three factors of the organizational dimension of this PDT is above average with $M > 4.80$.

Label	Factors	N	6-Point scale	M	SD
Training days	Assessment of the quality of training days	131	Completely disagree (1) – completely agree (6)	4.95	.63
PLC	Assessment of the quality of professional learning communities	130		4.85	.67
Coaching sessions	Assessment of the quality of coaching sessions	66		4.83	.79

Table 1.2 - Independent variable organizational dimension

Participants perceived the quality of the factors of the didactic dimension of the PDT to be positive, with $M > 4.70$ (Table 1.3; Appendix 1.2).

Label	Factors	N	6-Point scale	M	SD
Theoretical framework	Assessment of the quality of providing practice-based theoretical frameworks	122	Completely disagree (1) – completely agree (6)	4.76	.82
Action plan	Assessing of the quality of targeting with an action plan	131		4.92	.62
Approach	Assessment of the quality of a varied and activating approach	131		4.90	.56
Support	Assessment of the quality of a differentiated support for the learning process	131		4.83	.82
Networking	Assessment of the quality of possibilities for networking	131		4.91	.61

Table 1.3 - Independent variables didactic dimension

1.4.2 Experienced outcomes of the professional development trajectory

The descriptive analysis shows that all outcomes about acquiring insights and processing acquired insights (Table 1.4) are perceived as above average ($M > 4.00$). This is important because we expect these learning processes to underlie and support the purposeful and sustainable conversion of acquired insights into action plans and concrete actions. This shows that school leaders experience participation in the PDT as an added value in these areas as well. For their general experience of success and well-being, school leaders also describe participation in the PDT as valuable.

Items			M	SD
ACQUIRING INSIGHTS				
Acquiring insights about learning support	122	Completely disagree (1) – completely agree (6)	4.46	.95
Acquiring insights about school policy			4.30	.79
Acquiring insights about leadership			4.35	.72
Acquiring insights about professional learning communities			4.16	.79
PROCESSING ACQUIRED INSIGHTS				
General critical reflection	122	Completely disagree (1) – completely agree (6)	4.99	.79
Brainstorming with members of the school team			4.73	.96
Being stimulated to be goal-oriented in terms of approach at school			4.51	.90
GENERAL OUTCOMES				
General experience of success	122	Completely disagree (1) – completely agree (6)	4.27	.89
Enhancing professional well-being			4.45	1.29

Table 1.4 - Outcome variables acquiring insights, processing acquiring insights and well-being

For converting insights into action (Table 1.5, Appendix 1.4), the mean is relatively high for both learning support and leadership. For starting a PLC the spread is wider and the mean ($M=3.90$) is slightly lower but still above average.

The qualitative data show that schools develop actions depending on the following school year and implement them at a later stage. In terms of management on learning support, the quantified qualitative data (Appendix 1.5) highlight actions on implementing effective guiding principles and school-wide lines (10), as well as concretely updating the pedagogical vision and/or policy on learning support (8) and implementing the elaborated learning support continuum (8).

“Immediately, applications at school are about implementing vision and fit within our policy priorities (without this PDT we would also have had to invest time and energy into optimization and it might have been less systematic).” (D R67)

Several times, this goes hand in hand with re-drawing the supporting roles’ (8) to maximally pursue that ‘every teacher is a supportive teacher’. Several school leaders (14) are implementing actions to optimize working groups according to the principles of a PLC or to start new ones (14). This also includes training coaches (9) to perpetuate effectiveness and sustainability. Overall, actions are taken to elaborate the vision and policy on professional development, and they give peer learning a structural place (10). Visualizing the vision and approach in the school and the team

organogram (5) is also a concrete action that leads to clarity. School leaders mainly implement concrete actions to create time for meetings with staff (6) which is not structurally provided for in their job. School leaders also mention working with an action plan as a basic document to guarantee implementation and follow-up (8). Some school leaders indicate that they are already experiencing more support in the team (5) and that it is important to keep investing time – as during this trajectory – to facilitate and thoroughly build on the progress (5).

“I now realize that the process of achieving impact takes time to bring everyone into it. I now don’t mind slowing down the process if it’s necessary for the team.” (S-R111)

Items	N	6-Point Scale	M	SD
CONVERTING ACQUIRED INSIGHTS TO ACTION				
Develop vision and action on learning support	122	Completely disagree (1) – completely agree (6)	4.33	.99
Actions about leadership			4.16	1.05
Actions about launch professional learning community			3.90	1.30

Table 1.5 - Outcome variables acquired insights to actions

Summary: experienced outcomes of the professional development trajectory

The data analyses show that participants perceive that by participating in the PDT they prepare or implement concrete actions in accordance with the expressed goals (Levine, 2006). This corresponds to the depth and effects of professional development up to the fourth level (Kirkpatrick & Kirkpatrick, 2016). Participants are more aware of the importance of a thorough initial situation analysis and mapping the perception and mindset about learning support among the team, which forms a good starting point for school and professional development (Hallinger, 2011; Simkins et al., 2009). The extent to which and focus chosen relates to prior knowledge present as well as priorities of the school approach and/or the school leader (Hulsbos et al., 2014). During this year, according to participants the PDT really triggered short-term actions, mainly in the area of policy on support learning as well as in the area of (shared) school leadership. Regarding actions in terms of starting PLC or optimizing existing meeting structures, the outcomes mainly focus on the preparatory phase leading up to the next school year. School leaders state that they experience more support in their schools and that they want to continue to focus on facilitating progress and support rather than implementing actions ‘for the sake of action’, which ties in with the objectives of the PDT.

1.4.3 Experienced interaction between approach of the PDT and perceived outcomes

1.4.3.1 Converting acquired insights into action

Participants' satisfaction (Table 1.6) with the school-internal actions already achieved appears high, although there is a spread in responses.

Items	N	6-Point Scale	M	SD
Overall satisfaction with school-internal actions already achieved so far	122	Completely disagree (1) – completely agree (6)	4.12	1.10

Table 1.6 - Satisfaction with school-internal actions

1.4.3.1.1 Develop vision and action on learning support

Training days ($R^2 = .08$) appear to have little relevance based on SRA, while participation in PLC ($R^2 = .12$) and coaching ($R^2 = .14$) have a moderately strong relationship with vision and action development in learning support. For the didactic dimension, only for working with an action plan ($R^2 = .12$) is there a moderately strong relationship (Appendix 1.6; Figs. 1.4-1.5). SLRA demonstrates the statistical relevance of participating in PLC as part of a PDT for school leaders in developing vision and action regarding learning support ($F(1, 62) = 11.99$, $p < .001$, $R^2 = .16$).

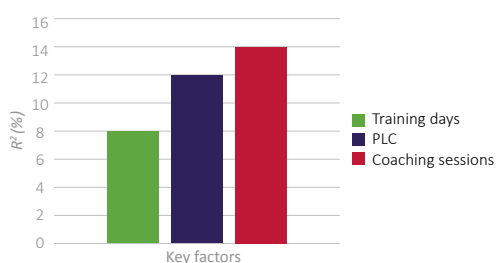


Figure 1.4 - Proportion of explained variance of three organizational key factors on being encouraged to focus on developing vision and action on learning support

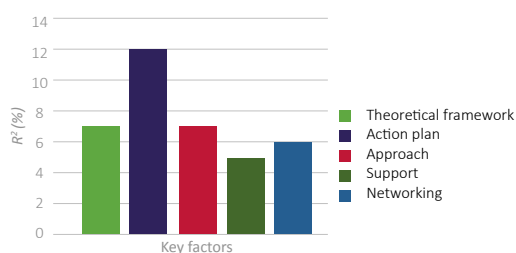


Figure 1.5 - Proportion of explained variance of five didactic key factors on being encouraged to focus on developing vision and action on learning support

1.4.3.1.2 Actions on school leadership

SRA show for participation in PLC ($R^2 = .19$) and coaching ($R^2 = .18$) a moderately strong relationship with taking actions regarding school leadership (Figure 1.6; Appendix 1.7). For the didactic dimension there is a moderately strong correlation for working with a theoretical framework ($R^2 = .21$) and action plan ($R^2 = .14$) (Figure 1.7). SLRA shifts working with a theoretical framework too for all most relevant professional development action within a PDT for school leaders ($F(1, 62) = 30.39$, $p < .001$, $R^2 = .33$). In addition, the combination of working with a theoretical framework and participating in coaching is the strongest for taking actions about school leadership ($F(1, 62) = 21.06$, $p < .001$, $R^2 = .41$).

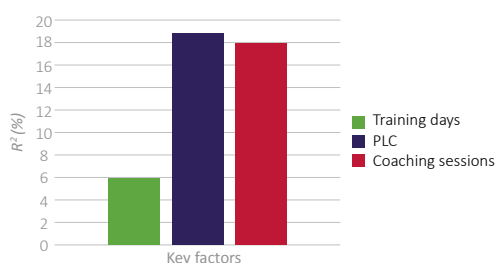


Figure 1.6 - Proportion of explained variance of three organizational key factors on being encouraged to focus on leadership

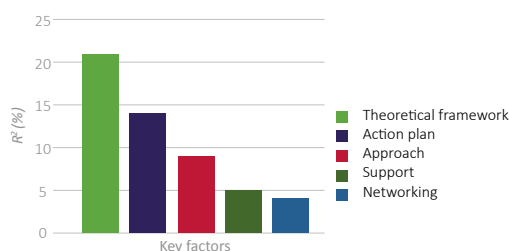


Figure 1.7 - Proportion of explained variance of five didactic key factors on being encouraged to focus on leadership

1.4.3.1.3 Initiate actions on PLC operation

Of the organizational dimension, based on SRA, a moderately strong correlation between participation in PLC ($R^2 = .13$) and actions regarding the start-up of PLC in one's own school appears, and so does coaching $R^2 = .10$. For the factors of the didactic dimension, there are only weak relationships ($R^2 < .8$) (Appendix 1.8; Figs. 1.8-1.9). Based on SLRA, participation in individual coaching appears to be most important for initiating actions on PLC operation, although here is only a moderate strong correlation ($F(1, 62) = 6.70$, $p = .013$, $R^2 = .10$).

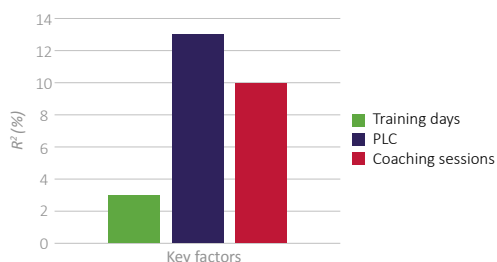


Figure 1.8 - Proportion of explained variance of three organizational key factors on initiating actions on PLC operation

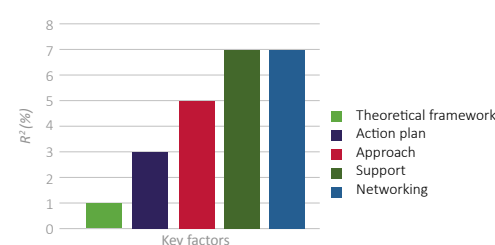


Figure 1.9 - Proportion of explained variance of five didactic key factors on initiating actions on PLC operation

The qualitative data show that the trajectory approach predominantly contributes to the implementation, with factors from the organizational and didactic dimensions that always interact. The facilitation of formal and informal networking opportunities offers an external perspective in addition to inspiration, which contributes positively to concretization to one's school. There are also opportunities for feedback on past experiences: participants strongly appreciate it when coaches actively return to this. Still, for some of the participants, the time frame of a year of PDT turns out to be too short to take real action. Especially as far as actions to start up PLC's are concerned, the trajectory does not yet offer much added value after one year because, but participants are preparing them for implementation in the following school year.

1.4.3.2 The influence of interaction between factors of the organizational and didactic dimension of the professional development trajectory

Participants named explicitly the coherent curriculum by aligning training days, PLC and coaching in terms of organization, didactic and content as positive: $M=5.02$ (Table 1.7, Appendix 1.9).

Items	N	6-Point Scale	M	SD
Added value of combining elements of professional development in 1 trajectory	130	Completely disagree (1) – completely agree (6)	5.02	.84
Building on content/insights from training days and professional learning communities during coaching sessions	66		4.42	.97
Interaction between training days, PLC and coaching sessions is reinforcing			5.56	.90
Coaching sessions stimulate conversion			4.79	.95

Table 1.7 - Interaction between key factors of effective professional development

The quantified qualitative data (Appendix 1.10) showed that all school leaders mentioned the added value of this interaction during the in-depth interviews. In 9 focus groups this was discussed as well, and in the optional fields of the written survey it was noted 8 times. Participants (19) state that PDT usually consist of one of the three organizational forms, but that only training days do not ensure implementation, and that only PLC or coaching do not provide theoretical frameworks. Maintaining this mix, they state, is necessary for learning efficiency and real change (13).

“It’s about a complete offer: it’s a combination of theoretical frameworks linked to practice that can be converted into concrete actions within your own organization. You can also count on individual coaching. This has a real effect! Other professional development trajectories often lack one or more parts, resulting in insufficient transfer.” (S-R111)

Making the link between the three organizational forms contributes to the transfer (8), partly by starting from an initial situation analysis and using reflection as a guiding principle, with the process in particular coming first (4). Frequent reference is made to the structure of the trajectory of, firstly, a theoretical framework and concrete inspiring examples (7) given by lecturers with extensive experience (5), then sharing ideas and feedback with like-minded participants from other contexts, which is experienced as an interesting benchmark, and finally focusing on one's own school, tailoring and filtering the input and converting it into actions, with or without support from the coach who provides additional support/feedback (2). This structure, which one school leader identifies as an unknown and innovative vision of professional development, provides broadening, deepening and/or renewal or refreshment (6). Working with an action plan in which schools set priorities tailored to their context (3) guarantees incentives combined with follow-up (11). As a result, schools succeed in reaching their predefined goal(s) and do not postpone them (8), which contributes to the perception of efficiency and effectiveness (5). Participants mention awareness of the importance of a theoretical framework and common language as this provides foundation for a shared approach (8) and the applicability in their own schools (11). Finally, the PDT encourages a transfer by means of concrete suggestions, focusing on application possibilities (22), although the time factor here is an obstacle to take action within one year, especially in combination with specific school-related challenges.

Who participated in coaching sessions ($n=66$) stated that the content or knowledge that were covered during training days and PLC were built upon during those conversations ($M=4.42$, $SD=.97$). Participants (Table 1.7) perceive the interaction between the three factors of the organizational dimension as reinforcing ($M=5.56$, $SD=.90$) and indicate that coaching sessions stimulate transfer to one's own practice ($M=4.79$, $SD=.95$). The quantified qualitative data (Appendix 1.11) show also that the link between the three organizational forms of the PDT is present. Participants mention the crucial role of – and the challenge for – the coach as a central person in establishing links between the training days, PLC and coaching (12) and maintaining the big picture during the PDT (8). Participants experience it as positive if the coach makes that link explicit and provides time for it (5). Especially participants who had a less positive experience with their coach mention the need for an overview. In general, participants appreciate that the coach acts as a critical sparring partner who tests the action plan against the theoretical framework and the initial situation analysis (4), which is also a call to put more effort into this if it is lacking (4).

Summary: experienced interaction between approach of the PDT and perceived outcomes

Participants experience the interaction between the factors of both dimensions as reinforcing:

- following the theoretical, science-based framework (Pont et al., 2008);
- which is offered in line with the predefined goals (Leithwood & Levin, 2009; Pashiardis & Brauckmann, 2009);

- a first attempt to apply the insights to the own school context is stimulated by interaction with peers who can additionally inspire here from other contexts (Tingle et al., 2019).
- Discussing the priorities or learning questions distilled for one's own school in a smaller, safe PLC group then provides further depth;
- after which a further tailor-made support of the learning process can take place through coaching in a closed context (Hulsbos et al., 2014);
- where the approach and contributed expertise by the coach plays an important role.

This is congruent with frequent reference to the ways in which learning content can be used combined with enough possibilities for conversations about possible applications and how this contributes the transfer and relevance of the content provided (Kirkpatrick & Kirkpatrick, 2016). Through varied activating didactics (Aas, 2017) that provoke reflection, the frameworks and practical examples provided are applied to one's own school context (Goldring et al., 2012) and further enriched in interaction with other participants and the experienced lecturers (Barber et al., 2010; Levine, 2006), both during formal and informal moments (Hulsbos et al., 2014), in which participants experience acting as a team. This is in line with increased effectiveness of reflection combined with coaching by a coach or peers (Barber et al., 2010; Tingle et al., 2019). Analysis of the qualitative data further show the intricate interaction between creating action plans as means to apply knowledge and the need to be inspired by theoretical frameworks and related insights.

1.4.3.3 Additional influences linked to the organization and approach of the professional development trajectory

The qualitative data show some indirect factors that participants believe contribute to the perceived positive effect. First of all, the fact that the professional development trajectory is funded by the Flemish government enhances accessibility. A school leader states that the school board is willing to pay for this quality but that it still requires a serious budget to register several participants. Participants wish that professional development for school leaders is always free of charge because they really need this support, and that only long-term quality trajectories can contribute to necessary change related to quality education. Moreover, participation is not without obligation due to the signed declaration of commitment, which additionally encourages goal-oriented action. Because the broader team is involved in the extra coaching days – where for some school leaders all the pieces of the puzzle fit (5) – extra colleagues are involved in the story, which benefits the support and actual transfer, although the number of participants per school remains limited.

The communication prior to the trajectory with an overview of all dates and contents, the intermediate informative e-mails as well as the follow-up of the initial situation analysis and the action plan ensure a positive experience and welcome pressure. Nevertheless, it is also noticeable that some participants were not aware of the contents, dates, locations at the start of the trajectory. A connection can be noticed with school communities where mainly one (coordinating) school leader (initially) initiates the participation and/or with recently started school leaders.

1.4.4 (Mediating) effects of external factors on learning outcomes

1.4.4.1 Person-related factors: participants

Job satisfaction (Table 1.8, Appendix 1.11) prior ($M=4.94$, $SD= .66$) and after one year remains stable, with more spread ($M=4.69$, $SD=1.01$).

Participants pointed to the impact of job satisfaction on their experience of the PDT ($M=4.46$; $SD=1.20$).

Items	N	6-Point Scale	M	SD
Job satisfaction at start of professional development trajectory	123	Completely disagree (1) – completely agree (6)	4.94	.66
Job satisfaction after one year of professional development trajectory			4.69	1.01
Impact job satisfaction on experience with the professional development trajectory			4.46	1.20

Table 1.8 - Person-related factors: job satisfaction

1.4.4.2 School-related factors: school level

At the start of the PDT, participants (Table 1.9; Appendix 1.12) named the challenging school context ($M=4.44$, $SD= .76$), the presence of a constructive and growth-oriented school culture ($M=4.30$, $SD= .76$), an enabling learning climate at the school ($M=4.34$, $SD= .85$) and individual level ($M=4.03$, $SD= .80$) in their school.

Items	N	6-Point Scale	M	SD
Challenging school context	123	Completely disagree (1) – completely agree (6)	4.44	.76
Growth-oriented school culture			4.30	.76
Positive learning climate (school level)			4.34	.85
Teacher-supportive learning climate			4.03	.80

Table 1.9 - School-related factors: school level, before the start of PDT

Obstructive factors are the many absences due to illness and the teacher shortage. This forces school leaders into crisis management and focusing on solving practical problems. They describe a survival mode with no place for the PDT, nor for transfer to their own school.

“It is very difficult that we had to cancel many times because of COVID-19 and understaffing at school. As a result, we missed learning opportunities.” (S-R116)

This is more urgent in primary schools (small teams) and schools in the urban or metropolitan context. A school leader states that the team is tired because of constant flexibility. A second aspect is falling into the "delusion of the day" which causes ideas/plans to fade into the background and the context of the schools does not allow to move, even if the PDT is facilitating.

"The most difficult thing in this process is providing time: time to inform colleagues, for professional development, for colleagues to discuss, ..." (S-R35)

This is related to a structural challenge for Dutch-speaking education in Flanders and the Brussels-Capital region: professional development time is not a structural part of teachers' and school leaders' jobs. School teams need to choose.

"It's an intense trajectory which means you regularly can't do your work at school, and this will remain." (S-R132)

"It's an investment of time but my participation provides a clear return on investment." (D-R94)

1.4.4.3 School-related factors: school team

Prior to the PDT, participants experienced shared school leadership ($M=4.46$, $SD= .68$). After year one, participants name the positive mindset among the school team ($M=4.03$, $SD= .83$) (Table 1.10, Appendix 1.13).

Items	N	6-Point scale	M	SD
Shared school leadership	123	Completely disagree (1) – completely agree (6)	4.46	.68
Constructive mindset schoolteam and facilitating approach	122		4.03	.83

Table 1.10 - School-related factors: school team

In one school shared leadership is (implicitly) evident:

"This is not official in our school, but we have a strong policy team with shared responsibility and tasks. Teachers also take responsibility because they are motivated to do so." (S-R104)

In another school theory, practice and formality may differ.

"With that little word 'shared' they think they can say everything. But when it's time to take on tasks and responsibilities, they refuse." (D-R149)

Motivations to engage more in shared leadership vary, e.g., increasing engagement, sharing workload, optimizing operations, ...

The analyses show differences between school teams in terms of the effect of a perceived constructive mindset and facilitative approach among the team at the end of year one (Appendix 1.13) on learning outcomes.

“My team adopts a constructively critical and reflective attitude; they have a growth mindset. I am a happy school leader.” (D-R120)

“It is difficult to create support in this team, which is probably influenced by the culture: autonomy is important.” (D-R81)

Mindset and facilitative approach (Table 1.11) have a moderately strong influence on starting PLC ($R^2 = .10$). In addition to a moderately strong correlation for school leadership actions ($R^2 = .21$), there is a strong correlation for developing vision and actions on learning support ($R^2 = .26$). This shows that the team aspect influences support for, and implementation of actions.

Item	Single regression analysis
Developing vision and actions on learning support	$F(1, 120) = 42.00, p < .001, R^2 = .26, R = .51$
Actions on school leadership	$F(1, 120) = 31.89, p < .001, R^2 = .21, R = .46$

Table 1.11 - Relationship between perceived positive mindset and facilitative approach school team with outcome variables professional development trajectory

Participating in the PDT ($n=112$) together with a colleague contributes positively for converting the content into concrete actions in one's own school, with a high mean $M=5.24$ (Table 1.12; Appendix 1.14). The limited number of individual participants ($n=8$) mentioned the perceived effect of participating alone on transfer ($M=3.69$).

“I've asked to participate with colleagues, but the school leader didn't found that a good idea regarding the task load. Then I saw that other participants were present with a colleague and could immediately transform ideas concretely and divide tasks ...” (D-R93)

Being able to collaborate professionally with a colleague is a prerequisite for perceived effectiveness ($M=5.32$). Discussing together, being on each other's sounding board allows for deepening and translating the knowledge into actions in their school. According to participants, it contributes to the use and propagation of a common framework and language, which facilitates transfer. Participants mention the positive experienced effect on the mutual bond with their colleague. That the school leader participates in the PDT to bring about change appears to be positive ($M=5.27$) but:

“If only the school leader participate to the PDT, the impact is much smaller in the school. It’s great that a second participant per school was allowed to participate.” (S-R139)

Items	N	6-Point scale	M	SD
Joint participation	112	Completely disagree (1) – completely agree (6)	5.24	.81
For the professional development trajectory to be effective, it is essential to work well together with the other participating colleague	122		5.32	.71
Individual participation	8		3.69	1.10
Participation school leader	122		5.27	.89

Table 1.12 - School-related factors: organization participation

Summary: (mediating) effects of external factors on learning outcomes

Among person-related factors, the participants’ perceived effects on the added value of participating in the PDT are particularly striking. The qualitative data show that several participants perceive the school context as an obstacle to their learning outcomes but regression analyses show that this correlation is less strong, meaning that quite a few school leaders with a school context perceived as challenging nevertheless engaged with the PDT content, and vice versa. Qualitative data illustrate the dichotomy of shared leadership and perceived constructive mindset and facilitative approach while the quantitative data show this is present in the participating schools. Focusing on a growth mindset of the team and sharpening the ‘sense of urgency’ turns out to be essential for taking concrete actions and embedding them. Participation together with a colleague generates a positive impact.

1.5 Discussion

The central research question is to what extent organizational and didactic approaches of a PDT for school leaders as well as their mutual interaction encourage concrete learning-driven actions on school development, and what are decisive elements in this respectively. This is an innovative research focus because it examines how school leaders not only acquire insights and have the intention to implement change but are encouraged to prepare and take action (Guskey & Yoon, 2009). In order to prepare action plans and take concrete actions that are sustainable and tailored to the school, the underlying processes of acquiring insights and processing these insights (together with the team) are equally important to achieve depth.

It became clear that reaching the levels 2 (acquiring) insights and 3 (processing acquired insights through reflection) of the Kirkpatrick & Kayser Kirkpatrick model (Kirkpatrick & Kirkpatrick, 2016) – which was generally the case in this PDT – are necessary conditions for reaching level 4 (converting insights into action), but in itself not sufficient. For instance creating (and coaching) goal-orientation and focused application on school practice are further needed. The other way around, reaching level 4 will also deepen knowledge (level 2) and reflection (level 3).

Participants describe the structure of the PDT as balanced with a logical cyclical progress and composition over a period of time (Huber, 2011; Simkins et al., 2009). For them the training days represent a valid starting point for processing and transferring the theoretical frameworks and content into the school context, supplemented with concrete examples, in connection with the PLC and coaching – at least for those who participated – where the preparation for one's own priorities is further and even more question-oriented analyzed. Preparing an action plan and using a varied and activating approach with focus on peer learning (Barber et al., 2010) during formal and informal moments (Hulsbos et al., 2014) encourages reflection (Huber, 2011). It also provides structure and rhythm to the transfer into school-specific goals. The PDT distinguishes by its structure from common trajectories with usually only training days, only PLC or coaching, where either theoretical frameworks or transfer to one's own school context are missing. According to the participants, that interaction just increases learning efficiency and facilitates really concrete changes in one's own school (Goldring et al., 2012). Participants experience the active support of this conversion into a school vision and action plan and the follow-up of plans made by the experienced lecturers and their own coach (Barber et al., 2010; Tingle et al., 2019) as contributing to the goal and action-orientation of their approach and as useful pressure to actually take action.

Participants also mention the important role of coaches during the PDT and the positive effect and added value they experience (Hulsbos et al., 2014). Quality implementation of coaching is important both in facilitating and supporting (through feedback) school development processes and in establishing links between the content and approach of the training days, PLC and coaching sessions. The coach facilitates the depth of learning processes through a theoretical growth-oriented framework (Coenen et al., 2021; Peschl, 2006) and by making things explicit (Boschman et al., 2015). However, a more negative experience with the coach causes participants to participate little or not at the coaching sessions, to perceive the PLC as more superficial and less fruitful. Participants also find the interaction between the three organizational forms of the PDT more unclear.

Given the crucial importance of their position and a quality fulfillment of it in combination with a high responsibility (Leithwood & Day, 2008) and pressure (Branch & Rivkin, 2015; Pont, 2020), school leaders wish that (long-term) professional development for their profession is free of charge (Pashiardis & Brauckmann, 2009), which also implies a form of appreciation (Daniëls et al., 2020). Participants point out the importance of being concretely stimulated to take concrete actions on school development (Simkins et al., 2009): they appreciate the fact that a PDT

is not non-committal, a dimension only sporadically demonstrated by another research (Kennedy, 2005; Kirkpatrick & Kirkpatrick, 2016). According to participants, the logistical and organizational support, follow-up and communication also add to the positive perception about the PDT. The time provided during the PDT for concrete application is appreciated by participants which is in line with research (Hulsbos et al., 2014). Nevertheless, the structural lack of professional development time within the job remains one of the factors that school leaders perceive as negative because taking time outside the PDT to thoroughly reflect and implement policy in collaboration with the team often gets snowed under by “the delusion of the day” and emergency solutions to guarantee the school’s basic role (Daniëls et al., 2023; Devos et al., 2018). Participants indicated that this resulted in them achieving fewer predefined actions than desired.

When analyzing the quantitative and qualitative data using existing guidelines (Fluckiger et al., 2014; Pont et al., 2008) the PDT for school leaders appears to largely meet these criteria. An influence of mediated variables on outcomes is possible (Leithwood & Levin, 2009). Based on the results, we can state that participation in a PDT for school leaders can transcend the initial situation, while contextual situations can conquer during participation in the PDT and create additional challenges in terms of prioritization (Hauge et al., 2014; Simkins et al., 2009; Tingle et al., 2019). On a team-oriented level, the growth-oriented mindset of the entire team during participation proved especially decisive for support, a shared framework and language, shared leadership, and transfer into concrete actions in one’s own school. Participating together with a colleague increases the perceived support and concrete transfer to one’s own school context (Hilton et al., 2015). In such a positive learning climate, school leaders experience more support, which supports them for further engagement (Daniëls et al., 2023; Mdhlalose, 2022; Veelen et al., 2017).

1.6 Conclusions

This research offered a relevant and unique perspective on how professional development trajectories for school leaders have a real perceived impact on concrete actions in one’s own school. Through mixed methods research, the study outlined an innovative view on factors perceived by participants as working for effective PDT for school leaders. This research will contribute to the evaluation and optimization of current and future PDT for school leaders and the goal-oriented selection of valuable PDT to participate in (Kirkpatrick & Kirkpatrick, 2016). This also leads to concrete recommendations for practice and further research.

1.6.1 Recommendations for practice

Firstly it is important that school teams have structural space for collaborative work and professional development. Only in this way do planned actions on school policy lead to commitment by the whole team and sustainable implementation. Both the school leaders and government should facilitate this structural professional development time. It also is necessary that professional development makes a structural part of the school leaders' job. Implementation of PDT happens the best by directly linking this to concrete and goal-oriented school development in their school. Government should support long-term PDT in which several team members per school can participate, precisely to increase a shared language and focus, and shared leadership.

Secondly the government should support powerful PDT organized by different education-oriented partners, with opportunities to encourage relevant and practice-oriented school development. In doing so, it is important to ensure a thoughtful combination of and interaction between training days with a focus on theoretical frameworks and practical examples, encouraging reflection (including from 360° feedback), a first exchange with peers and inspiration in function of the own school context, with as a common thread the elaboration of a concrete policy/action plan; meetings of professional learning communities with the partnership to convert the frameworks and inspiration provided into the school context, to discuss school-specific priorities/learning questions critically and constructively with peers; supported by coaching, with the aim of further concretizing the school policy and/or action plan; individual coaching per school to further support the conversion of inspiration, insights and a growing action plan into school-specific implementations and to respond to individual leadership questions. This organizational dimension is best combined with facilitating networking opportunities. In that way PDT can best take advantage of opportunities that arise within school partnerships to stimulate peer learning and peer feedback.

1.6.2 Recommendations for further research

At the time of the data collection, the PDT was still ongoing. In addition to the learning outcomes examined after one year of the professional development trajectory, it is relevant to examine how school leaders perceive further sustainability, as well as how further progress and integration can be facilitated, given that embedding learning outcomes takes time (Fluckiger et al., 2014; Simkins et al., 2009) and is best tailored to each school. How school leaders further implement and use the action plan based on the initial PDT is interesting to investigate.

Further research to the approach of the coach that school leaders experience as facilitating is relevant because this research already indicated that coaching has an impact on the perceived quality of professional development trajectories (Hulsbos et al., 2014). Because learning is both an individual and social activity, it is interesting to explore what relationship school leaders find valuable within a PDT. Starting from existing partnerships is a strength for jointly undertaking a

growth process in terms of school development. At the same time, it can be a brake if school leaders are less motivated, or the focus of the PDT and the PLC they participate in does not match their needs. Mapping the factors that may (or may not) be facilitating and will provide insight into criteria for sustaining the effects of a PDT for school leaders or standalone PLC of existing partnerships. Finally, this study focused on the learning outcomes of school leaders, while research literature shows that there may be secondary outcomes associated, such as professional well-being, isolation and network (Goldring et al., 2012), with effect on school development. This is an important goal for further research.

INTRODUCTION

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STUDY 2

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5

CONCLUSION

Professional learning communities of school leaders within inter-school networks: opportunities and conditions for sustainable professional development

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2

Abstract

Given the challenging and complex task of school leaders to ensure quality education, peer learning is important for both professional and school development. Structural inter-school networks are relevant in the context of collective learning. Initiating quality partnerships between school leaders sustainably is challenging. Using a mixed methods approach, we examine professional learning communities (PLCs) as a form of formal collective learning developed within existing inter-school networks during a two-year professional development trajectory, what the experienced (learning) outcomes are, and which variables affect sustainable long-term development. Data collection was based on online surveys and in-depth interviews. Results indicate that the quality of collective learning increased significantly during the two-year trajectory. Most explanatory of the PLC's continued sustainability as a professional network for school leaders is the PLC's perceived approach during the PDT. The perceived facilitating role of the inter-school network influences structural choices regarding future continuation and approach. It also demonstrates the need to invest in sustainable collective learning. Further longitudinal research into the sustainability of PLCs within inter-school networks and the quality of coaches is recommended.

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2.1 Introduction

School leaders experience numerous school policy and school development challenges about the curriculum and how education is organized and evaluated (Cordero et al., 2018; Plavčan, 2020). They are pressurized by a complex and changing societal context (Brown & Poortman, 2018; Gurr & Drysdale, 2020; Hawkins & James, 2016), and by their societal duty to provide high-quality education (Ritzema et al., 2022) and ensure student achievement (Tan, 2018; Trust et al., 2018; van Middelkoop & Glastra, 2018). To best carry out this expected and challenging job (Leithwood et al., 2020; Pont, 2020), school leaders would benefit from the support and input of a sounding board and from concrete policy incentives that encourage quality and innovation (Vekeman et al., 2022). School leaders can find support for existing school-related cases in their school (policy) team (Devos et al., 2018). Inter-school networks also provide a significant added value (Brown & Poortman, 2018; Harris & Jones, 2021; Vekeman et al., 2022), as they increasingly encourage schools to engage in structural collaboration (Brown & Flood, 2020a; Levin et al., 2020; Rincón-Gallardo & Fullan, 2016). In Flanders, school communities (similar to school boards in the Netherlands and school districts in the US) can offer such an opportunity for collaboration and professional development. Inter-school networks can use their existing structure to facilitate learning and exchange processes for expertise promotion and school development (Vekeman et al., 2022). A possible approach of a structural network where a group of schools work together to share resources and/or enhance the quality of professional learning and the capacity for continuous improvement is a professional learning community (PLC) (Harris & Jones, 2019, 2021; Poortman et al., 2022). In a PLC a group of professionals – in this study the school leaders – share common goals and objectives, gain (new) knowledge collaboratively through interaction and reflection with a growth-oriented approach, and aim to improve practices (Kools & Stoll, 2016). Five characteristics of a PLC with professionals from different schools are collaboration, shared sense of purpose focused on student learning, reflective professional inquiry, leadership of this professional learning network and boundary crossing (Poortman et al., 2022). However, building sustainable and quality partnerships between the school leaders of inter-school networks is not self-evident (Azorín et al., 2020; Harris & Jones, 2021). Due to its multidimensional and multilevel character, it is difficult to define, develop, and operationalize a PLC (Antinluoma et al., 2021). What are the effects of a professional development trajectory that initiates and supports professional learning communities for inter-school collaboration regarding depth of (peer) learning and longevity? Can a professional development trajectory (PDT) reinforce existing inter-school networks? Research on methodologies to intensify collaboration within existing inter-school networks is limited (Chapman, 2013). Using a mixed methods approach, we investigate how PLCs develop within existing inter-school networks as a mode of social and collective learning (Schelfhout, 2017; Vaessen et al., 2014) throughout a PDT. Furthermore, we attempt to determine the variables influencing learning outcomes and longer-term sustainable development of the PLCs.

2.2 Theoretical framework

2.2.1 Peer learning among school leaders

Characteristics of effective school leader professional development demonstrate the importance of peers and peer learning (Levin et al., 2020). Learning from each other offers school leaders opportunities to deepen (professional) self-awareness and reflect on their role and position (Bickmore et al., 2021; Daniëls et al., 2023; Levin et al., 2020). Reflective group learning allows for approaching recognizable situations holistically and from multiple perspectives, especially in diverse groups (Daniëls et al., 2023). Moreover, peer learning aligns with the learning preferences of school leaders (Coenen et al., 2021). A possible explanation is a reduction in professional isolation (Coenen et al., 2021; Levin et al., 2020; Trust et al., 2018), as commitment to networking and consultation provides opportunities to combat isolation. Additionally, experiencing recognition, appreciation, and support is key. Furthermore, the presence and development of mutual trust is essential (Coleman, 2012; Hooge et al., 2015; Rincón-Gallardo & Fullan, 2016).

2.2.2 Collective learning in and among schools

Collective learning is the process of collaborative professional development in which a shift takes place from individual to shared knowledge construction (Katz & Earl, 2010). Collective knowledge construction in turn influences individual learning and becomes part of it. Moreover, collective learning generates increasing expertise by adopting each other's knowledge, skills, and attitudes, and by developing a shared language and commonality (Heikkilä & Gerlak, 2013; Leithwood, 2019). Group members pursue common learning or outcomes that improve their work (Kools & Stoll, 2016). Collective learning has a process-oriented character and a focus on collective learning products such as new or reinforced ideas and insights, which may lead to policies, programs, and rules (Heikkilä & Gerlak, 2013).

Four levels can be distinguished in collective learning at individual, organizational, and network levels (Kasl et al., 1997):

- Level 1 – fragmented learning: each individual learns separately, without commitment to face-to-face learning or sharing;
- Level 2 – collaborative learning: members share information relevant to their task or goals with a clear trade-off between effectiveness and efficiency. There is a minimal integration of views, experimentation is limited;
- Level 3 – synergistic learning: members share information (on demand) and insights are integrated at an individual and collective level. Experimentation occurs at individual and group level, discussing (different) insights;
- Level 4 – continuous synergistic learning: collective learning is habitual.

Similarly classified collective learning processes are the acquisition, transfer, and dissemination of (new) knowledge, information, and/or experience (Heikkilä & Gerlak, 2013).

This is also reflected in the main goals of inter-school collaboration (Atkinson et al., 2007): sharing best practices or professional expertise, enhancing student learning, school development, improving collaboration, and enriching learning opportunities. An educational network forms “an extended group of people with similar interests or concerns who interact and exchange knowledge for mutual assistance, support and to increase learning” (Kools & Stoll, 2016). Professional learning networks that capitalize on peer learning can thus contribute to school leadership development (Leithwood & Azah, 2016), as a group of connected educators – in this study school leaders – collaborate to use this connectivity to improve practices in and across schools and/or their school system (Brown & Poortman, 2018).

2.2.3 Conditions for collective learning within inter-school networks

For school development, collective learning should be purposeful and intentional (Baas et al., 2023; Hooge et al., 2017). Three primary contextual characteristics of external networks are related to the outcomes achieved (Russell et al., 2015): composition, interaction within networks, and network structure and coordination.

2.2.3.1 Composition

An external network consists of at least three legally autonomous organizations cooperating structurally to achieve collective goals in addition to their own (Provan & Kenis, 2008). Each organization represents a social structure, cultural patterns, and symbolic orders, that are evident in the context of change processes, and influence, for instance, geographical or cultural cooperation between organizations (Atkinson et al., 2007). An average of eight participating schools is optimal to maintain a common focus, workability, and overview (Feys & Devos, 2015; Provan & Kenis, 2008).

2.2.3.2 Interaction within the network

Strategies aimed at jointly exploring ideas and creating a shared sense of purpose and focus are indispensable, combined with enabling ownership and autonomy (Armstrong & Ainscow, 2018; Hayesa & Briggs, 2015; Huijboom et al., 2023). Close interaction with strategies focusing on engaging participants and creating connection and collaboration is recommended (Hooge et al., 2017) to add value to participants (Baas et al., 2023; Dingyloudi et al., 2019).

The degree of solidarity and proximity within the network influences information sharing and trust (Armstrong & Ainscow, 2018; Feys & Devos, 2015). Relationships with mutual trust, shared understanding and collective responsibility appear to represent more significant interactional dimensions of networking than cooperation and taking action (Leithwood, 2019; Rincón-Gallardo & Fullan, 2016; Vaessen et al., 2014). Trust in itself is insufficient to perceive the network as relevant for professional development (Hooge et al., 2017). However, goal setting and feedback loops contribute to positive outcomes and positively influence the other components (Harris & Jones, 2019; Majchrzak et al., 2015).

2.2.4 Network structure and coordination

While inter-school networks can contribute positively to professional and school development, there are challenges associated with the context about network structure and coordination (Russell et al., 2015) that can affect PLC processes (Hairon et al., 2017; Slegers et al., 2013).

2.2.4.1 History of collaboration

Pre-existing relationships are essential in inter-school collaborations, despite being no prerequisite for success (Ainscow, 2015). Prior collaboration may facilitate collective learning, as participants experience fewer boundaries (Baas et al., 2023). However, prior competition, cultural differences, and school inequality can impede connection (Armstrong & Ainscow, 2018; Feys & Devos, 2015).

2.2.4.2 Dynamics

Inter-school networks appear to be unstable and dynamic. However, this does not thwart positive outcomes or experiences. On the contrary, this offers opportunities to respond to changes in external factors (Hooge et al., 2017; Majchrzak et al., 2015). These changes may arise within networks when establishing (new) goals and approaches, in the process of decision-making, through roles and procedures, or changing group composition (school- or individual-based). Current needs and interests may lead to increased cooperation, or, conversely, competition. Responding to this is crucial. Alignment between the goals of the participants and their school is important for sustainability of support and implementation (Baas et al., 2023).

2.2.4.3 Process guidance and the need to (learn to) develop it

The various network partners must feel involved in the topics being discussed, they must feel they can participate as equals (Coenen et al., 2021; Rincón-Gallardo & Fullan, 2016), and sense that shared leadership is firmly embedded in the collaboration with the partner schools (Devos, 2014; Hayesa & Briggs, 2015; Leithwood & Azah, 2016). Creating strategic accountability for the outcomes of the PLC facilitates higher effectiveness as all PLC members know about the focus and goal of the PLC and they agree to responsibilities (Easton, 2016).

The importance of a facilitator with a specific mandate and competencies to guide the network is indisputable (Harris & Jones, 2019; Huijboom et al., 2023; Leithwood, 2019; Turner et al., 2018). Combining a critical attitude with building close relationships is challenging (Margalef & Roblin, 2018). The facilitator adopts a non-hierarchical position and uses an organic-cultural approach and purposefulness in developing inter-school networks (Devos, 2014; Hooge et al., 2015; Ritzema et al., 2022). His approach should be continuously adapted to the needs of the PLC group (Margalef & Roblin, 2018). Few sources can be found on who ideally performs this specific role. A superintendent (Hooge et al., 2015), who is the principal of a structural inter-school network, is mentioned. A trusted external partner who facilitates peer learning and acts as a connecting mediator may suffice (Hayesa & Briggs, 2015; Honingh & Stevenson, 2020). School leaders who

assume a central role in existing in-school networks often take up this role (Moolenaar & Slegers, 2015). The quality of guidance determines the extent to which collective learning is considered valuable (Coenen et al., 2021; Feys & Devos, 2015).

2.2.4.4 Structural support

For the sake of sustainability, inter-school collaboration requires support in terms of scheduled time, resources, and moral support (Armstrong & Ainscow, 2018; Bouchamma et al., 2019; Huijboom et al., 2023). Communities linked to a project often dissolve after the (financial) support ends (Baas et al., 2023).

When facilitators leave, the network PLCs are vulnerable. While this opens up new opportunities (Antinluoma et al., 2021), can an inter-school PLC sustain itself in the long term without a structural facilitating coach? Creating and developing a network with the expected and sustainable quality is challenging, which illustrates the need to learn to develop it gradually and goal-oriented, potentially structurally supported (Vanblaere & Devos, 2018). Five skills and qualities collaborative school leaders bring to their network are collaboration, building relationships, having a knowledge base; willingness to learn, and to lead with a vision (Hayesa & Briggs, 2015). Research shows that school leaders play a main role in the development of their schools as PLCs (Antinluoma et al., 2021; Huijboom et al., 2023; Valckx et al., 2021; Vanblaere & Devos, 2018) and the creation of a supportive human resources management (de Jong et al., 2021). Theoretical knowledge about the establishment and development of a PLC (Bouchamma et al., 2019), experience with a PLC as a participant (Wang, 2018) and a coach-the-coach approach can reinforce this. Research on professional development in this area is scarce, although its relevance has been stated (Bryk et al., 2015).

The literature showed the importance of pre-existing collaboration and the need for a facilitating context before the start of and during the PLC. The concrete organization and approach (by a coach) of the PLC is also an important factor, but are these variables influencing (learning) outcomes?

2.3 Research design and methodology

2.3.1 Research model and research questions

The research questions are:

- Q1: How does the approach of the PLC during a PDT influence 1) the outcomes of the PLC and 2) its sustainability after completion (quantitative and qualitative)?
- Q2: How does the facilitating role of the (structural) inter-school network influence 1) the outcomes of the PLC and 2) a sustainable continuation of the PLC within this partnership after completing a PDT (quantitative)?
- Q3: How do the perceived outcomes of the PLC during the PDT influence the sustainable continuation of the PLC within the inter-school network (qualitative)?

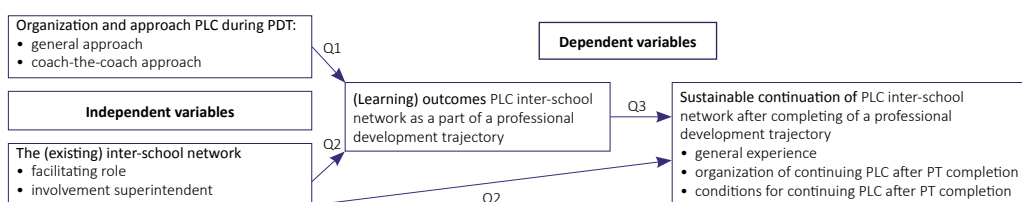


Figure 2.1 - Research model

2.3.2 Research context

In September 2021, a two-year PDT funded by the Flemish government started. The Flemish government's call for participation explicitly requested to register as an existing partnership of at least four schools aiming to support collective learning processes. In the Flemish context, these partnerships mainly include school communities, in which all member schools or a representation participate. School communities within the education system of the Flemish Community – initiated since September 2020 in the context of an administrative scale-up – are determined by Flemish decree (2023).

External networks, however, thrive voluntarily and as a positive bottom-up response to present needs (Armstrong & Ainscow, 2018; Brown & Poortman, 2018; Devos, 2014; Majchrzak et al., 2015; Vaessen et al., 2014). Associated (financial) benefits could generate other intentions (Ainscow, 2015; Brown & Flood, 2020a). However, incentives and decree obligations are insufficient to create solid and sustainable cooperation (Feys & Devos, 2015). Few conditions are imposed on school communities, which raises the question to what extent thorough cooperation and joint investment in in-service professional development opportunities can be expected. By comparison, in Dutch legislation, school boards (as an umbrella organization for several schools) are responsible for educational quality (Ritzema et al., 2022). This assumes, among other things, the presence of administrative capacity (Hooge et al., 2015) with an explicit focus on staff and educational development (Ritzema et al., 2022). A focus for school boards is goal-oriented knowledge and

expertise promotion between schools. Again, significant differences appear between school boards in the extent to which they succeed (Ritzema et al., 2022). It is a challenge for school communities and school boards to initiate and sustainably develop this kind of collaboration, partly based on the conditions for in-depth exchange identified in the theoretical framework. We therefore examined how PLCs as an approach to formal collective learning during a professional development trajectory (PDT) develop within existing inter-school networks.

2.3.3 Professional development approach

The PDT consisted of training days, PLC meetings, and coaching, combined with a specific approach as described in Tanghe & Schelfhout (2023) to generate maximum transfer to the participants' schools as well as concrete actions regarding vision and school development. The total group of participants ($N=149$) participated in the training days. In the PLC meetings (min. four times per school year), guided by a coach, schools participated in groups per existing inter-school network.

2.3.4 Participants

Fourteen existing inter-school networks reacted to the government's call and participated in the PDT. Each network consisted of four to 19 participating schools. With respect to existing network structures, combined with an optimal average of eight schools for maintaining a common focus, workability and overview during PLC meetings, the network of 19 schools was split into two. This results in a total of 15 PLCs.

Three forms of inter-school networks (Table 2.1) participated. Thirteen inter-school networks were based on an existing partnership, i.e. school communities by decree ("A" in Table 1). These schools have been in contact and school leaders often already participate in structural consultations. However, participants do not necessarily know each other or cooperate closely. Not all schools of the inter-school networks necessarily participated in the PDT, while in some school communities full participation was mandatory.

In five inter-school networks (state schools, subsidized public schools by provinces and municipalities, or subsidized free schools mainly affiliated with the Catholic church), part of existing inter-school networks formed the core participant group, with one other school of the same network from another school community (A+). As with A, cooperation already exists within the established school community, though its degree may differ. The added school is often known regionally, yet without cooperating with it.

A third form of network is represented by schools from different school communities throughout Flanders (B).

Based on the in-depth interviews (ESA-D) with school leaders, collaboration was categorized according to the level of collective learning present in the inter-school network at the start of the PDT within the four levels formulated in the theoretical framework (cf. 2.2.2).

PLC	Number of participants (n)	Primary (1) / Secondary education (2)	Type	Participation school community	Level of learning inter-school network
1	7	1	A	Partial participation	3
2	10	1	A	Partial participation	4
3	8	1	B	/	1
4	11	1	A	Complete participation	2
5	13	1	A	Complete participation	2
6	7	1	A	Partial participation	2
7	11	2	A+	Partial participation	3
8	12	2	A+	Partial participation	2
9	5	2	A	Partial participation	2
10	11	2	A+	Complete participation	3
11	8	2	A+	Partial participation	2
12	6	2	A	Complete participation	2
13	5	2	A+	Partial participation	2
14	9	2	A	Complete participation	2
15	8	2	B	/	1
N	131				

Table 2.1 - PLC of inter-school networks at the start of professional development trajectory

In September 2021, 149 participants started the PDT and each participated in a PLC. Participants were employed in primary (43%) or secondary education (57%). A management position was held by 58% of the participants, and 42% occupied a middle management position with a focus on the learning support of students. 93% participated with a colleague. At the start of the PDT, 50.1% (n=123) had not yet participated in any form of learning community that required more

extensive participation (more than once per school year) (Table 2.2). 13% had participated in a PLC committed to in-depth discussion and development of policy on the basis that professional development is better done collectively with various profiles, given the shared responsibility for quality education (Hilton et al., 2015; Rekers-Mombarg et al., 2022). Moreover, sustainable educational change benefits from the involvement of all school team members.

		Frequency	%
Participation in types of learning communities discussing challenges in depth, sharing types of approaches, discussing, and possibly developing more deeply	no participation	43	35.0
	limited participation (1 time per school year)	18	14.6
	extended participation (2-3 times per school year) with more general discussions	21	17.1
	extended participation (2-3 times per school year) with more in-depth discussion, possibly development of school policy	25	20.3
	intensive participation (4 or more times per school year) with a definite agenda, in-depth discussion and development of policy	16	13.0
N		123	100.0

Table 2.2 - Previous participation in types of learning communities

2.3.5 Data collection

The study uses a mixed methods research design to answer the research questions. In this fully mixed sequential equal status design, the combination of quantitative and qualitative data with equal weight collected within three stages of the research process increases relevance and provides an opportunity to substantiate the relationship between variables (Mortelmans, 2018). The questionnaires were developed based on the literature review.

An online survey with open and closed-scale questions was organized over three moments. Before the PDT, participants completed an initial analysis questionnaire (ISA-S). The questions explored the extent to which participants were already participating in structural inter-school networks, and whether a need for more cooperation within their school community existed. After the first year of the professional development trajectory (TSA-S), the desire for the continuation of a PLC after the end of a PDT was examined. 131 participants completed the written survey (i.e., response of 87.9%). At the end of the PDT, the ESA-S focused on experiences with the organization and approach of the PLC, the perceived effects on the outcomes, and the desire for sustainable continuation. Furthermore, experiences with participation as an inter-school network were surveyed. A total of 133 of the 138 participants ($n=96\%$) who participated during the second year completed the final survey.

In-depth interviews with school leaders were organized in May 2023 (ESA-D) to further question and explain trends that emerged from the quantitative data collected. The semi-structured online interviews were conducted using a question protocol (Morris, 2015; Seidman, 2006). In-depth interviews were recorded with participants' consent. Forty-two school leaders, five superintendents, and two participants combining school leadership with a position as a superintendent participated, evenly distributed across the different PLC groups.

To link the data collected at an individual level and to send an individual reminder, personal data were requested. Participants were informed of this method using a signed commitment statement before the PDT and a cover letter accompanying each call. During data processing, each respondent was assigned a personal code to link the separate data sets and then anonymize the data.

2.3.6 Data analysis

The independent variables relate to the situation of the inter-school network before the PDT, the organization and approach of the PLC during the PDT, and the facilitating role of the inter-school network. We examined the perceived effect of these independent variables on the dependent variables that are related to the reported learning outcomes of the PLC and the sustainable continuation of the PLC after the completion of the PDT.

The quantitative online survey data were processed in SPSS and used at a descriptive level to substantiate the qualitative data. Six-point Likert scales were converted numerically. For the final survey data, after examining the existing correlation the strength of the relationships present and their predictive value were checked using single regression analyses. The normality of residuals was shown by the histograms and homoscedasticity by scatterplots. Any outliers are minimal and non-systematic. To detect the extent to which the variance in the dependent variables is explained by the explanatory independent variables (R^2), the following categorization was used: <10% weak, 10-25% moderately strong, 25-50% strong, >50% very strong, and 100% perfect correlation (De Vocht, 2021).

The qualitative data from the open online survey questions and in-depth interviews were processed in NVIVO and analyzed deductively within the predefined categories of the research questions. To answer Q3, new subcategories were created based on inductive analysis as explanatory variables that were not theoretically presupposed (Mortelmans, 2018). All the data were quantified and utilized as citations to interact with the quantitative data for further substantiation.

2.4 Results

2.4.1 Outcome variables PLC inter-school network as part of a PDT

2.4.1.1 Learning outcomes at the PLC level

The perceived impact of participation in the PLC during the PDT contributed strongly to the perceived outcomes (Table 2.3). There appears to be a large spread. In 2.4.4, we explore how this can be explained by different independent variables.

Factors	N	Six-Point Scale	M	SD
Refreshing insights/acquiring new insights	131	Completely disagree (1) – completely agree (6)	4.95	.914
Processing acquired insights (general critical reflection, brainstorming, creating goal orientation, etc.)			4.88	.992
Converting acquired insights into action			4.69	1.044
Planning concrete actions			4.56	1.103
Having the desire to continue working on the content			5.05	1.022

Table 2.3 - Outcomes initiated by participation in PLC

2.4.2 Sustainable continuation of PLC inter-school network after the PDT

After the first year of the PDT (TSA-S), 83.9% (Table 2.4) wished for the continuation of the PLC ($M=4.74$; $SD=1.152$). At that time, 90% were positive about participating in a PLC after completion ($M=4.88$; $SD=1.039$). For both questions, the spread is relatively high at the end of this first year.

		Six-Point scale	Frequency	%	M	SD
TSA: this PLC can definitely continue as far as I am concerned	Completely disagree (1)	Completely disagree (1) – completely agree (6)	2	1.5	4.74	1.152
	Disagree		2	1.5		
	Rather disagree		17	13.1		
	Rather agree		24	18.5		
	Agree		47	36.2		
	Completely agree (6)		38	29.2		
TSA: if I get the opportunity to participate in a PLC after the professional development trajectory I will certainly participate in it	Disagree		4	3.1	4.88	1.039
	Rather disagree		9	6.9		
	Rather agree		27	20.8		
	Agree		48	36.9		
	Completely agree (6)		42	32.3		
Total			130	100.0		

Table 2.4 - TSA continuing PLC after completion PDT

Although continuing the PLC with the inter-school network after the PDT is not mandatory, all PLC groups (100%) planned a continuation, according to the ESA-S. 77.9% ($n=102$) indicated that the PLC would continue to meet in the same composition in 2023-2024. 22.0% had not reached a concrete agreement on membership. Organizationally, 50.0% had set follow-up dates and 45.2% had agreed on frequency and location. 59.8% indicated that they had decided on content priorities for future PLC meetings. 43.1% indicated that further approaches had been defined. Therefore, during the PDT, a solid basis was laid for the sustainability of the PLC within each inter-school network.

2.4.3 Organization and approach of the PLC during the PDT

In addition to items associated with the general PLC approach (2.4.3.1), we examined experiences with the general approach (2.4.3.2) and the coach-the-coach approach (2.4.4.3). We then explored the influence of these independent variables on the output and sustainability of the PLC after the completion of the PDT (2.4.3.3).

2.4.3.1 General approach

In the ESA-S, participants indicated that they experienced the idea, inspiration, and information sharing ($M=4.98$; $SD=.965$) as the PLC's most effective content-related focus (Table 2.5; Appendix 2.1). 97.0% saw opportunities to network and share within these networks as a positive approach ($M=5.22$; $SD=.871$). Support and receiving (peer) feedback were highly valued by 90.8%, although there appears to be a substantial response spread ($M=4.73$; $SD=1.051$). In particular, the conditions of collective learning within external networks have been achieved and more in-depth levels (3 and 4) of collective learning have been realized.

Items	N	Six-Point scale	M	SD
Sharing general ideas, inspiration and information	132	Completely disagree (1) – completely agree (6)	4.98	.965
Focus on defined themes			4.56	1.065
Focus on specific demands/needs of participating schools			4.69	1.065
Focus on concretization in/expectations around action plan			4.32	1.168
Co-creation together with the participating schools			4.17	1.314
Opportunities for networking, sharing	131		5.22	.871
Receiving support and feedback (based on personal support, reference questions, ...)			4.73	1.051

Table 2.5 - Focus PLC during professional development trajectory

2.4.3.2 The coach-the-coach approach

One aspect of the PLC within the PDT was to let participants experience its capabilities and teach them how to use and supervise one themselves, to facilitate development processes (Table 2.6; Appendix 2.2). 74.8% found the coach's approach inspiring, notwithstanding differences between coaches and their appreciation ($M=4.35$; $SD=1.335$). 76.4% experienced that the coach explained their approach in light of a potential future application of a PLC ($M=4.34$; $SD=1.182$). Being coached during the second year was still perceived positively by 77.1%, with a spread in responses between the various PLCs ($M=4.45$; $SD=1.223$). The extent to which the coach made suggestions to coach the PLC was rated positively by 73.3% ($M=4.25$; $SD=1.227$), though with a clear spread.

Items	N	Six-Point scale	M	SD
The approach of our coach was inspiring for how to facilitate development processes in a PLC.	131	Completely disagree (1) – Completely agree (6)	4.35	1.335
The coach explicitly mentioned the approach used to apply it himself at a later stage during a PLC.			4.34	1.182
During the second year, the coach actively supported participants in coaching themselves in order to guide this PLC in the future (coach-the-coach).			4.45	1.223
The coach actively gave suggestions about guiding a professional learning community.			4.25	1.227

Table 2.6 - Experience coach-the-coach approach

2.4.3.3 Influence of organization and approach of a PLC on its outcomes during the PDT

Using single regression analyses, we examined the explanatory value of the perceived functioning of the PLC for its outcomes. Table 2.7 shows the independent variables in the first column, corresponding to the points described in 2.4.4.1 to 2.4.4.3. Row 1 shows the outcome variables by (learning) outcomes of the PLC (see 2.4.1.1). Consequently, the perceived approach of the PLC has a strong explanatory relationship with its outcomes. In particular, focus on the action plan and co-creation (rows 4 and 5) have strong explanatory effects on the learning outcomes (items A-E) and sustainability (F). The moderately strong explanatory effect of sharing and networking and creating opportunities for feedback at PLC meetings indicates the perceived added value of structural opportunities for peer learning within an inter-school network. One school leader states:

“The quality of our PLC was inextricably linked to the quality of the coach.” (R139)

Considerable differences can be observed:

“It was too informal, everything was good. Fortunately, we have some strong school leaders who took the initiative themselves.” (R122)

“The great strength of our coach lies in our school community coming closer together through his approach, which is not evident with this group.” (R82)

For the coach-the-coach approach (items 8-11), we see some moderately strong relationships, indicating a rather limited influence on the outcomes of the PLC within the inter-school network.

Outcome variables approach PLC inter-school network		Output PLC during the professional development trajectory				
		A: refreshing insights/ acquiring new insights	B: processing acquired insights	C: converting acquired insights into action	D: planning concrete actions	E: having the desire to continue working on the content
	General approach					
	1: sharing general ideas, inspiration and information	$F(1,129)=23.31$, $p< .001$, $R^2= .153$	$F(1,129)=25.98$ $p< .001$, $R^2= .200$	$R^2< .100$	$R^2< .100$	$F(1,129)=21.530$, $p< .001$, $R^2= .166$
	2: focus on defined themes	$F(1,129)=28.646$, $p< .001$, $R^2= .221$	$F(1,129)=21.075$, $p< .001$, $R^2= .140$	$F(1,129)=32.865$, $p< .001$, $R^2= .203$	$F(1,129)=26.510$, $p< .001$, $R^2= .170$	$F(1,129)=30.651$, $p< .001$, $R^2= .192$
	3: focus on specific demands/needs of participating schools	$F(1,129)=26.113$, $p< .001$, $R^2= .168$	$F(1,129)=19.913$, $p< .001$, $R^2= .134$	$F(1,129)=22.864$, $p< .001$, $R^2= .151$	$F(1,129)=25.495$, $p< .001$, $R^2= .165$	$F(1,129)=28.064$, $p< .001$, $R^2= .179$
	4: focus on concretization in/ expectations around action plan	$F(1,129)=23.972$, $p< .001$, $R^2= .157$	$F(1,129)=48.384$, $p< .001$, $R^2= .273$	$F(1,129)=66.163$, $p< .001$, $R^2= .339$	$F(1,129)=74.679$, $p< .001$, $R^2= .367$	$F(1,129)=55.948$, $p< .001$, $R^2= .303$
	5: co-creation together with the participating schools	$F(1,129)=14.719$, $p< .001$, $R^2= .102$	$F(1,129)=26.879$, $p< .001$, $R^2= .172$	$F(1,129)=38.312$, $p< .001$, $R^2= .229$	$F(1,129)=44.186$, $p< .001$, $R^2= .255$	$F(1,129)=50.551$, $p< .001$, $R^2= .282$
	6: opportunities for networking, sharing	$F(1,129)=47.178$, $p< .001$, $R^2= .268$	$F(1,129)=43.754$, $p< .001$, $R^2= .253$	$F(1,129)=26.565$, $p< .001$, $R^2= .171$	$F(1,129)=20.888$, $p< .001$, $R^2= .139$	$F(1,129)=51.234$, $p< .001$, $R^2= .284$
	7: receiving support and feedback	$F(1,129)=20.730$ $p< .001$, $R^2= .136$	$F(1,129)=36.550$ $p< .001$, $R^2= .221$	$F(1,129)=38.342$ $p< .001$, $R^2= .229$	$F(1,129)=50.171$, $p< .001$, $R^2= .280$	$F(1,129)=53.504$, $p< .001$, $R^2= .293$
Coach-the-coach approach						
8: the approach of our coach was inspiring for how to facilitate development processes in a PLC	$R^2< .100$	$F(1,129)=22.674$, $p< .001$, $R^2= .149$	$R^2< .100$	$R^2< .100$	$F(1,129)=24.519$, $p< .001$, $R^2= .160$	
9: the coach explicitly mentioned the approach used to apply it himself at a later stage during a PLC	$R^2< .100$	$R^2< .100$	$R^2< .100$	$R^2< .100$	$R^2< .100$	
10: during the second year, the coach actively supported participants in coaching themselves in order to guide this PLC in the future	$R^2< .100$	$R^2< .100$	$R^2< .100$	$R^2< .100$	$R^2< .100$	
11: the coach actively gave suggestions about guiding a professional learning community	$R^2< .100$	$R^2< .100$	$R^2< .100$	$R^2< .100$	$F(1,129)=14.990$, $p< .001$, $R^2= .104$	

Table 2.7 - Influence of approach PLC on outcomes of the PLC during the PDT

2.4.4 The facilitating role of a structural inter-school network

2.4.4.1 and 2.4.4.2 focus on the potential facilitating role of structural inter-school networks, followed by an examination of the explanatory effect of these independent variables on PLC output and sustainable continuation of the PLC.

2.4.4.1 Existing inter-school network

The ESA-S (Table 2.8) shows that 74.5% of the participants ($n=106$) perceived the inter-school network to fulfill a facilitating role before the PDT ($M=4.40$; $SD=1.425$). During the PDT, 79.2% experienced facilitation ($M=4.48$; $SD=1.325$), which is a slight increase compared to the perceived experience at the start.

Items	N	Six-Point scale	Frequency	%	M	SD
Participation was facilitated by the school community before the professional development trajectory	106	Completely disagree (1)	4	3.8	4.40	1.425
		Disagree	11	10.4		
		Rather disagree	12	11.3		
		Rather agree	16	15.1		
		Agree	38	35.8		
		Completely agree (6)	25	23.6		
Participation was facilitated by the school community during the professional development trajectory	106	Completely disagree (1)	3	2.8	4.48	1.325
		Disagree	9	8.5		
		Rather disagree	10	9.4		
		Rather agree	20	18.9		
		Agree	40	37.7		
		Completely agree (6)	24	22.6		

Table 2.8 - Facilitating role of inter-school network before and during professional development trajectory

70.8% (Table 2.9) reported plans for the school community to facilitate the PLC after the completion of the PDT ($M=4.12$; $SD=1.285$). This response is indicative, as several PLCs planned another PLC meeting after the final training day of the PDT to define, among other things, the role of the school community.

77.8% believed the school community should further facilitate the process ($M=4.45$; $SD=1.318$). Several school leaders mentioned in the interviews (ESA-D) that although the call for participation had been disseminated within the school community, it was only one or a few individual schools that took the initiative and urged participation in the PLC. The school community showed interest during the PDT, though only on a general level and without structural follow-up or explicit support. Regarding the skills of the superintendent as a facilitator, 67.9% agreed with his ideal facilitating role in the future, with a very wide response range ($M=4.12$; $SD=1.596$). However, the interviews show that a further role of the superintendent as an effective PLC coach is questioned in some cases.

Items	N	Six-Point scale	Frequency	%	M	SD
I find it necessary that the school community facilitate further progress after the completion of the professional development trajectory	131	Completely disagree (1)	1	3,8	4.12	1.285
		Disagree	9	7.5		
		Rather disagree	20	17.9		
		Rather agree	29	27.4		
		Agree	44	30.2		
		Completely agree (6)	28	13.2		
I find it necessary that the further progress is facilitated by the school community	106	Completely disagree (1)	2	1.9	4.45	1.318
		Disagree	9	8.5		
		Rather disagree	13	12.3		
		Rather agree	23	21.7		
		Agree	33	31.1		
		Completely agree (6)	26	24.5		
The superintendent of the school community is the ideal facilitator for facilitating the progress after the completion of the professional development trajectory		Completely disagree (1)	10	9.4	4.12	1.596
		Disagree	10	9.4		
		Rather disagree	14	13.2		
		Rather agree	19	17.9		
		Agree	29	27.4		
		Completely agree (6)	24	22.6		

Table 2.9 - Facilitating role of inter-school network after completion of the professional development trajectory

2.4.4.2 Influence of the facilitating role of inter-school network structures on PLC output during the PDT and its sustainable continuation afterwards

The facilitating role of the structural inter-school network for the PLC outcomes has a limited explanatory value. The fact that existing school communities – for those who participated – assumed a facilitating role prior to participation shows a moderately strong relationship with the output aimed at refreshing and acquiring insights ($F(1,129)=12.662$, $p< .001$, $R^2= .109$) and incorporating acquired insights ($F(1,129)=16.416$, $p< .001$, $R^2= .136$). When participation is facilitated by the existing inter-school network, it can be encouraging and create the mental capacity to participate optimally. The participants perceived the composition of the PLC based on an existing structural inter-school network as an advantage, which has a moderately strong relationship with learning outcomes during the PDT ($F(1,107)=16.233$, $p< .001$, $R^2= .132$).

2.4.5 Influence of the experienced outcomes of the PLC during the PDT on sustainable PLC continuation within inter-school networks

2.4.5.1 General experience of inter-school networks' PLC functioning

The interviews (ESA) show that the experienced outcomes of the PLC with the inter-school network motivate participants to continue a PLC after PDT completion. The qualitative data show that school leaders began to experience a new and thorough collaboration within their inter-school network during the PDT, and perceived this as valuable. Overall, the interviews show that school leaders became more acquainted in an unprecedented way (39). The PLC (partially) transcended the competition/historical context (4):

“One of our schools used to be less involved. Through this PDT, we engaged with each other, learning from each other.” (R138)

The participants' confidence increased (6) and lowered barriers (10). School leaders experienced support and endorsement (17). Almost all interviewees ($n=43$) reported that the PLC provided a larger (critical) sounding board (42) with more possibilities to share ideas, ask questions, and give and receive feedback compared to the approach they had known in the past. Since the start of the PDT, discussions and collaboration reportedly have gained more depth (19). One school leader experienced a real 'learning community'. Participation of different profiles in the same PLC creates a valuable interaction between positions and levels (5), which is still un(der)exploited, even in schools with highly developed forms of collective learning (e.g. R313). Awareness and purpose are being shared while each school maintains its autonomy (9). Since the start of the PLC, content-specific and pedagogical themes are addressed in school communities (16). In terms of content, as a result of the experience during the PDT, participants suggested starting supplementary thematic groups and/or using the PLC approach in the current inter-school networks (6).

2.4.5.2 Organization of continuing PLC after PDT completion

During the two years of the PDT, the three types of inter-school networks evolved differently. School leaders who participate with their school community (forms A and A+) aim to sustain the depth of PLCs in the future, alongside existing meeting structures with a formal, administrative-organizational approach. In PLCs where the school community acted as a facilitator from the outset, this remains constant, although in some cases it is unclear what the specific role of the superintendent and the alignment of top-down facilitation with the bottom-up applied needs will be. In PLCs with initial self-selected PDT participation by the school (item D table 2.10), this intention generally remains the same at the end of the PDT in terms of further sustainability, as corroborated by the interviews (ESA-D). The cited reasons are the autonomous character within this formal structure, and/or lack of time of the superintendent. In these cases, school leaders prefer to use an independent working method.

The new partnerships (B) perceive PLC outcomes as an added value and prefer to keep it, potentially with a different PLC configuration (table 2.10). According to participants, not working within a structural inter-school network offers an advantage, as participating schools do not owe each other anything and individually choose to participate in sustaining the PLC. Nevertheless, they believe this autonomy could lead to non-commitment and decreasing contacts if the perceived output does not justify the distance between schools. These inter-school networks are searching for a sustainable structure.

The structural inter-school networks using deeper forms of collective learning at levels 3 and 4 are considering integrating the PLC in their existing (thematic) PLC groups and networking opportunities for school leaders, as the priorities are closely aligned in terms of content. By doing so, maximum sustainability can be achieved.

The coach can be a member of the current PLC or an external coach (previously linked to the PDT). School leaders report that the (future) choice of a coach will be determined by the experiences with the coach during the PDT, the coaching expertise present among the PLC participants, the availability of coaches from the educational advisory service, and the available financial resources.

PLC	A: membership PLG	B: coach engaged	C: completed training day/ experienced coach	D: support of school community/ superintendent	E: organization defined	F: themes/ priorities defined	G: approach defined
1	idem and/ or a fusion with learning networks within the school community	-	+	-: no expectations	-	-	-
2	integration in existing PLC approach	+	+	+	+	+	+
3	- 1 school + 2 schools	-	+	-: no expectations	-	-	-
4	fusion into 1 PLC of interested schools	external coach	+	+: facilitation and participation	+	+	+
5							
6	idem or possibly expansion with schools school community	-	+	+	-	-	-

7	idem	-	+	+: facilitation and participation	-	-	-
8	idem	member of the PLC	+	-: no expectations	+	+	+
9	idem possibly +	-	+	-: no expectations	+	+/-	-
10	- 1 school	external coach	+	+: facilitation and participation	+	+	+
11	idem	-	+	-: no expectations	-	-	-
12	idem or a fusion with learning networks within the school community	-	+	+	+	+/-	-
13	idem or possibly expansion with schools school community	external coach	+	-: no expectations	-	-	-
14	idem	member of the PLC	+	+: facilitation and participation	+/-	+/-	+/-
15	idem or a fusion with learning networks within the school community	-	+	-	-	-	-

Table 2.10 - Concretization of organizational facilitating conditions for the sustainable continuation of the PLC with the inter-school network

2.4.5.3 Conditions for continuing PLC after PDT completion

The interviewed school leaders are aware of specific challenges and pitfalls. Based on their PLC experience as part of the PDT, they aim to avoid certain PLC organizations and approaches in the future. They perceive their experience as a learning opportunity rather than a reason for discontinuing the PLC. They believe the future will show whether the lack of an explicit commitment and accompanying mindset, as was the case during the PDT, will lead to greater non-committal and a passive attitude (11). School leaders consider joint prioritization a prerequisite for making the PLC valuable to all participants and ensuring focus (5). Furthermore, school leaders (6) consider it important for structural continuity that shared leadership is made explicit through the appointment of a (rotating) leader and/or coach with a clear mandate.

They (6) explore options to facilitate PLC quality monitoring and follow-up, as there is no feedback on the process of the PLC and coaching via the external coach after PDT termination. School leaders are aware of the time investment of preparing for and participating in a PLC (11), and the risks of it being overshadowed by other priorities. However, only a few school leaders explicitly mentioned opportunities for facilitation, for instance by structurally scheduling time and linking PLC meetings to other meetings. Another concern school leaders mention are staff changes, which could undermine sustainability.

2.5 Conclusion and discussion

This mixed methods study aimed to examine how PLCs as a mode of formal collective learning throughout a PDT develop within existing inter-school networks. Such forms of collective learning (Schelfhout, 2017; Vaessen et al., 2014) between school leaders is not evident (Antinluoma et al., 2021; Azorín et al., 2020; Harris & Jones, 2021).

2.5.1 The influence of the approach of the PLC during a PDT on the outcomes of the PLC and its sustainability after completion

The single regression analyses and (quantified) qualitative data show the focus on PLC outcomes (Armstrong & Ainscow, 2018; Majchrzak et al., 2015) is strongly indicative of the output in terms of acquiring insights, as well as converting them into concrete actions regarding professional and school development. Positive experiences with a permanent focus on the action plan and the ongoing co-creation in the PLC (Kools & Stoll, 2016) strongly explain the intention to continue the PLC once the PDT is completed. Sharing and networking with peers and creating opportunities for feedback during PLC meetings remain important for learning outcomes and the desire to continue working on challenges which are faced.

The explanatory value of participants' positive experience with the PLC approach with their inter-school network (Armstrong & Ainscow, 2018; Hooge et al., 2017) is a significant stimulus of the intention for and character of the continuation of a PLC after the PDT.

The coach appears to play a role by providing the participants with a positive experience of how a PLC functions (Armstrong & Ainscow, 2018; Harris & Jones, 2019; Huijboom et al., 2023; Leithwood, 2019; Margalef & Roblin, 2018; Turner et al., 2018). The differences between the coaches should be further explored. The coach-the-coach approach used during the PLC sessions has a limited perceived impact on learning outcomes, yet it does support the acquisition of insights into conditions for a valuable PLC (Bryk et al., 2015).

Considering the formulated research question, we can conclude that a PDT focusing explicitly on developing PLCs within inter-school networks supports their further sustainability, given that participants perceive them as goal-oriented, insightful, and relevant to their practice.

2.5.2 The influence of the facilitating role of the (structural) inter-school network on PLC outcomes and sustainable continuation after completion of a PDT

The facilitating role of the structural inter-school network for the PLC outcomes has a statistically limited explanatory value. However, the qualitative data show that school leaders within the PLC perceive added value in in-depth sharing and networking with their inter-school network. This illustrates the need for peer learning opportunities (Levin et al., 2020). A large group of participants experienced such sharing and collaboration and the value of a sounding board within their inter-school network for the first time during the PDT (Devos et al., 2018; Vekeman et al., 2022; Wang, 2018). The broad and diverse content and feedback provided them with ample inspiration as well as opportunities for reflection, contributing to both personal, professional, and school development (Bickmore et al., 2021; Daniëls et al., 2023; Levin et al., 2020). Finding a sounding board in their peers provided support and appreciation. School leaders cited the time created to get acquainted and work together as positive for mutual trust (Coleman, 2012; Hooge et al., 2015).

2.5.3 The influence of the outcomes during the PDT on the sustainable continuation of the PLC within the inter-school network

The data show that a) the ambition to continue the PLC after the PDT is markedly present among all participating inter-school networks and b), different networks proactively initiated concrete actions toward the end of the PDT. Overall, we can state that a PLC during a PDT achieves the goals of inter-school collaboration (Atkinson et al., 2007).

PLC groups that run during a PDT can deepen the level of collective learning (Kasl et al., 1997). In inter-school networks in which superficial forms of collective learning (levels 1 and 2, Table 1.1) on both process and product levels existed before the PDT (Heikkilä & Gerlak, 2013), an evolution toward a deeper level can be observed. For inter-school networks with existent continuous synergetic collective learning (level 4), the PLCs are integrated into the existing organization. However, participation in the PLC of the PDT provided additional experiences and insights related to the creation of PLCs and how to collectively guarantee sustainable quality education (Hilton et al., 2015; Rekers-Mombarg et al., 2022). Remarkably, the absence of compulsory collaboration ensures a conscious choice to continue participating in the PLC in the newly established inter-school networks (form B, level 1). However, these PLCs are looking for a stable group composition and sufficient critical mass (Feys & Devos, 2015; Provan & Kenis, 2008). The dispersed locations of the schools may negatively affect further sustainability (Atkinson et al., 2007). The statistical explanatory value of the facilitating role of the structural inter-school network for the (learning) outcomes of the PLC during the two-year PDT is limited. Nevertheless, the support of and incentive for collaborative participation with the inter-school network can have a facilitating influence on participants' perceptions regarding the PLC, and positively influence the perceived added value during the PDT (Hairon et al., 2017; Slegers et al., 2013).

Linked to the facilitating role of the inter-school network, at the end of the PDT differences are noticed in how the continuation of a PLC is ensured, more specifically in terms of the organization and approach (Rekers-Mombarg et al., 2022) as well as expected commitment (Kasl et al., 1997) and shared leadership (Devos, 2014; Katz & Earl, 2010). In school communities where the superintendent played a facilitating role before and (participated) during the PDT, this will continue (Leithwood & Azah, 2016), although it is not always clear what this facilitating role will entail and who should fulfill it (Hooge et al., 2015). In the PLCs where this facilitation role was deliberately absent, the school leaders kept their autonomous status. The choice of an (external) coach will take into account the coach experience during the PDT, coaching expertise among PLC participants, availability of coaches from the educational advisory service, and financial resources. It is recommended that the participating school leaders and superintendents make conscious and well-founded choices for the sake of the quality of collaborative learning (Coenen et al., 2021; Feys & Devos, 2015; Hayesa & Briggs, 2015).

By experiencing the PLC meetings as participants, school leaders realize that initiatives such as prioritization and goal orientation (Armstrong & Ainscow, 2018; Easton, 2016; Hooge et al., 2017) are essential for sustained participant engagement and enacting PLC processes (Hairon et al., 2017; Slegers et al., 2013). The same applies to quality assurance through follow-up and (external) feedback (Majchrzak et al., 2015). School leaders want strive for shared leadership, equal commitment, and responsibility by making tasks, roles, and mandates explicit, and maximizing the self-regulatory capacity of the PLC (Russell et al., 2015). They perceive facilitating a stable group within the inter-school network as a challenge, although changes in PLC composition can generate new insights and input (Hooge et al., 2017; Majchrzak et al., 2015) if the facilitator does not leave (Antinluoma et al., 2021). At the organizational level, creating structural time and space for professional development is essential (Armstrong & Ainscow, 2018; Bouchamma et al., 2019; Hooge et al., 2017; Huijboom et al., 2023). The data show that some school leaders took specific actions at this level. Further research is needed to determine effective actions for the sustainable development of the PLCs when structural (financial) support ends (Baas et al., 2023).

Finally, we can conclude that a supported formal PDT can be the start of a more informal but sustainable continuation of a PLC as a form of collective and peer learning within the structure of an existing inter-school network. It remains to be seen whether the intentions and plans of the inter-school networks are sufficient to sustain the effects achieved during the PDT, and to overcome the aforementioned challenges.

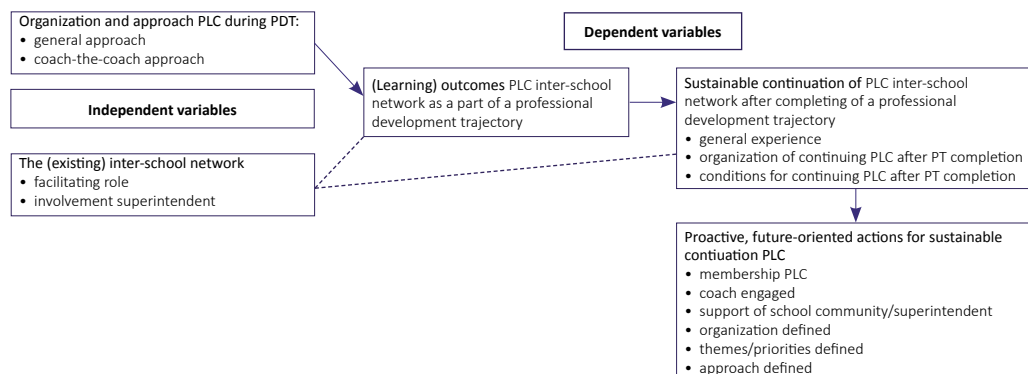


Figure 2.2 - Results

2.6 Recommendations

The government and school boards could use inter-school networks more effectively for knowledge and expertise development by engaging participants with different roles. To facilitate a sustainable PLC, being aware of challenges and necessary preconditions is crucial. PDTs that integrate a PLC can facilitate the start of this form of collective learning. Besides active incentive and appreciative policies to encourage schools to cooperate more frequently and substantially, investments in structural time for professional development is needed.

Although the present study is based on a relatively large group of respondents, it concerns participants who enrolled consciously and with a certain mindset in a two-year PDT including PLCs. This factor may have influenced the assumption of PLCs. Further longitudinal research is recommended on the key sustainability factors of PLCs within the inter-school network after the PDT. Lastly, research on the success factors for optimal coaching is relevant for the coaches and the specific professional development of this group.

INTRODUCTION

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STUDY 3

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CONCLUSION

The coach matters: the competencies of a PLC coach in the context of sustainable professional development of school leaders

Based on: Tanghe, E. & Schelfhout W. (Submitted). The coach matters: the competencies of a PLC coach in the context of sustainable professional development of school leaders.

Abstract

Group coaching of school leaders can make a positive contribution to supporting professional and school development. Research on the effect of group coaching as part of a professional development trajectory is scarce. To maximize coaching effectiveness, empirical research on perceived key factors and influencing preconditions is essential. The professional development trajectory for school leaders explored integrated professional learning communities, providing a unique opportunity to examine the experienced role of the coach and the perceived added value of coach competencies through a mixed method approach. A coach with a lot of domain expertise and little coaching expertise is perceived by both school leaders and coaches as less effective than a coach with more coaching expertise and less domain expertise. Nevertheless, both are important: the existing expertise should be used by the coach in the development process, taking into account possible needs and expectations of school leaders and existing contextual factors.

Author Contributions: All authors contributed substantially to the work reported. Conceptualization, E.T. and W.S.; methodology, E.T. and W.S.; software, E.T.; validation, E.T. and W.S.; formal analysis, E.T.; investigation, E.T.; resources, E.T. and W.S.; data curation, E.T.; writing - original draft preparation, E.T. and W.S.; visualization, E.T.; supervision, W.S.; project administration, E.T.

3.1 Introduction

Coaching school leaders can positively contribute to supporting professional and school development within a challenging societal context with high demands (Brandmo et al., 2021; Ritzema et al., 2022). Less research is available specifically on coaching school leaders. To maximize effectiveness of coaching for professional and school development, empirical research on influencing factors is essential (Darling-Hammond et al., 2022; Lochmiller, 2021). The professional development trajectory (PDT) for school leaders studied integrated professional learning communities (PLC). Research on the impact of this specific form of group coaching as part of a professional development trajectory is scarce (Brandmo et al., 2021; Flückiger et al., 2017). This specific research context provides a unique opportunity to examine the role of the coach and the impact of coaching competencies (Cannon-Bowers et al., 2023; Lofthouse & Whiteside, 2019).

3.2 Theoretical framework

3.2.1 Coaching

Coaching is defined as a coach's collaboration with (individual) clients during a process of reflection and enquiry that inspires them to personal and professional development, often tapping underutilized resources such as imagination, productivity and leadership (International Coaching Federation, 2023). Through executive coaching leaders can focus on both personal and organizational goals (Lochmiller, 2018). The focus is best developmental (Wise & Cavazos, 2017) and tailored to position and context (Rowland, 2017). Coaching supports formulating a vision, goals and/or desires, and developing or expanding the ability to achieve them (Huff et al., 2013).

In group coaching, several professionals participate together with a coach (Flückiger et al., 2017). A specific form of group coaching is a PLC (Harris & Jones, 2019; Poortman et al., 2022). Participating professionals – in this case school leaders– share common goals and collectively gain (new) knowledge through reflection and interaction that provides opportunities to improve their practices (Kools & Stoll, 2016). In this process, each school leader brings in the perspective of their own school culture and school context (Kools & Stoll, 2016). Five characteristics of PLCs are: collaboration, shared purpose focused on student learning, reflective professional inquiry, leadership of this professional learning network and boundary crossing (Poortman et al., 2022).

3.2.2 Added value of coaching

Generally, school leaders experience coaching as valuable in boosting their self-confidence (Saddler, 2023). They notice higher self-efficacy (Brandmo et al., 2021) and feel less isolated (Wise & Cavazos, 2017). Coaching helps them cope better with job demands (Lofthouse & Whiteside, 2019).

As a form of professional development, coaching can contribute to job retention and sustainability (Lofthouse & Whiteside, 2019). Additionally, school leaders experience stronger strategic leadership, are able to define goals more effectively, achieve them faster and better anticipate complex challenges (Saddler, 2023).

Specific to group coaching, peer learning is perceived as valuable for current and future professional development (Coenen et al., 2021). School leaders indicate that participation contributes to recognizing common problems and challenges (Brandmo et al., 2021). Moreover, each participant brings in their perspective, which school leaders find enriching (Daniëls et al., 2023; Flückiger et al., 2017).

3.2.3 Competence of the coach

The coach supports from an equal position (Ritzema et al., 2022) and continuously adapts the approach to the needs of the PLC group (Margalef & Roblin, 2018). The coach combines developing close relationships with a critical attitude, which provides a challenging balance (Aas & Flückiger, 2016; Margalef & Roblin, 2018). This shows that the coach's competencies are important for perceived quality and effectiveness (Coenen et al., 2021; Lofthouse & Whiteside, 2019). These competencies can be categorized into the coaching relationship, the coaching process, coaching skills and personal characteristics (Cox et al., 2014).

3.2.3.1 Coaching relationship as a baseline

The role and mandate of the coach should be clear (Harris & Jones, 2019). The independence of the coach creates safety and confidentiality (Lochmiller, 2018). To facilitate the development process deeply and ethically, there must be mutual trust, respect and equal status (Weathers & White, 2015). The coach invests in that mutual relationship and makes roles and expectations explicit (Aas & Flückiger, 2016). The safety present allows school leaders to be vulnerable and dare to explore (Saddler, 2023; van Nieuwerburgh et al., 2020).

3.2.3.2 Coaching process: coaching approach

The coach best uses an approach tailored to the specific context of education and the personal and professional needs of school leaders (Huggins et al., 2021; Lochmiller, 2018). The coach also uses research-based frameworks (Darling-Hammond et al., 2022; Rowland, 2017). To facilitate maximum positive outcomes, the coach focuses on both social interaction within the group and content (Aas & Flückiger, 2016; Brandmo et al., 2021). Sufficient focus on content in the coaching process also increases engagement and motivation (Kets de Vries & Korotov, 2012; van Nieuwerburgh et al., 2020).

Clarity about the overall purpose of coaching and the context in which it takes place is essential. The coach should establish at the beginning whether the participating school leaders each have a separate goal, or whether there is a common goal (Brandmo et al., 2021). With a common goal, there may still be individual or school-specific goals (Reiss, 2015), given the contextuality of school leadership. Making explicit the (priority) development goals, desired outcomes and an action plan to achieve them is opportune (Grant, 2020; Huff et al., 2013). The school leader is accountable for the goal, primarily through progress monitoring and feedback from the coach during the coaching process, which contributes to effectiveness (Wise & Hammack, 2011). This raises the question of which coaching approach is most conducive to planning concrete professional and school development actions.

3.2.3.3 Coaching skills

Encouraging reflection, reframing and continued development are key goals in coaching (Patrick et al., 2021). Through the use of coaching skills, the coach encourages and facilitates (peer) learning and problem solving, and supports the transfer of key insights to the work context, which makes learning purposeful and creates development opportunities (Aas & Flückiger, 2016; Patrick et al., 2021). The coach guides the development process by using various coaching methods (Leedham, 2004). The coach applies intervention methods to purposefully facilitate co-creative development processes (Aas & Flückiger, 2016; Daniëls et al., 2023).

The coach asks purposeful in-depth, activating questions to promote meaningful reflection and changes in consciousness, and combines this with strong listening skills (Aas & Flückiger, 2016; Patrick et al., 2021). Based on data from multiple perspectives, the coach provides feedback (Huff et al., 2013). Additionally, the coach names progress and good practices, which is motivating (Wise & Hammack, 2011). These different coaching skills raise the question of which school leaders participating in a PLC perceive as most effective in facilitating sustainable professional and school development.

3.2.3.4 Personal characteristics: expertise

The coach's level of professional development appears to be a better predictor of coaching quality and self-awareness of the quality delivered than coaching experience (Diller et al., 2020; O'Broin & Palmer, 2010). The question is what exactly constitutes a high level of professionalism, given the wide variety of coach education. Existing research remains unclear about the importance of the coach (being able to) use substantive school development expertise versus the coach (being able to) use coaching skills (Lochmiller, 2021; Reiss, 2015). The effectiveness of coaching increases when school leaders perceive the coach as inspiring (Leedham, 2004). The question of the impact of contextual and person-related variables among school leaders is also raised, given that the same coach and his approach can achieve different effectiveness with different coached participants or groups (Veelen et al., 2017).

3.2.4 Integration of coaching into a professional development trajectory

3.2.4.1 Added value of PLC with coaches

Coaching mainly has a longer duration (Reiss, 2015). At least two years of collaboration between a school leader and coach is proven to lead to school development (Heston, 2013). Leadership development also takes time (Kets de Vries & Korotov, 2012). However, there is a structural underfunding of long-term professional development for school leaders (Rowland, 2017) although this represents a return on investment for the school leader, the sustainability and effectiveness of his leadership as for school development (Lofthouse & Whiteside, 2019). Integrating group coaching as an approach within a PDT can address these preconditions (Brandmo et al., 2021; Flückiger et al., 2017).

Group coaching offers the opportunity to provide personal support within a PDT because it can connect the school leader's current development process with that of the school (Zhang & Brundrett, 2010). The integration of a PLC as an approach within a PDT is perceived as qualitative by school leaders (Tanghe & Schelfhout, 2023). Effective coaching plays a crucial role here (Leedham, 2004). Indeed, the competencies of the coach are key factors in facilitating internal personal added value for the school leader, such as clarity and focus, increased self-confidence and motivation. The realization of that value can in turn lead to external added value such as increased knowledge and insights, and improved skills and behavior in the school leader. Finally, it enables real professional and school development to be initiated, which is the goal of the PDT. Therefore, during the PLC meetings, the coach's role is to facilitate transfer to each school through his approach and use of coaching skills, in line with the predefined depth of learning (Kirkpatrick & Kirkpatrick, 2016). Additionally, personal motivation both during and after the PDT is an important prerequisite to (continue to) work with the content (Leedham, 2004) and ensure sustainability of the outcomes. Therefore, this is also the focus as an outcome variable of the PLC.

3.2.4.2 PLC coaching as a research context

Based on the theoretical insights regarding key factors for effective professional development (Tanghe & Schelfhout, 2023), the facilitation of in-depth learning and development processes (Kirkpatrick & Kirkpatrick, 2016) and the predefined goal of transfer to one's own school context, five common principles for the PLC's didactic coaching approach were identified: deepening theoretical frameworks and practical examples; working toward an action plan; using a varied and activating approach; providing tailored support; creating opportunities to network and share. Although both the goals of a PDT and the approach were defined, within this framework, the coach had the opportunity to make his own interpretation of PLC coaching. In doing so, he drew on his expertise in coaching school policy development processes (Patrick et al., 2021). Overarching research questions are: which approach do school leaders perceive as successful for (sustainable) development and motivation? To what extent do personal and/or contextual factors play a role? If a coach supervises several groups during a PDT, it is interesting to find out whether

these groups have the same or different perceptions and what causes this. Finally, a relevant question is to what extent school leaders experience effective coaching in the same way as their coaches (Forde et al., 2013).

While the importance of understanding the specific effective role and approach of a coach during a PDT has been demonstrated, little research has been done on quality interventions, success factors and necessary conditions for optimal integrated coaching with impact on sustainable professional and school development (Aas & Flückiger, 2016; Patrick et al., 2021). However, this is relevant for organizers of professional development trajectories for school leaders, coaches participating in such trajectories and for their professional development (Brandmo et al., 2021; Huggins et al., 2021).

3.3 Research design and methodology

3.3.1 Research model and research questions

Using empirical research, we explore which coach-related characteristics determine professional and school development during the PLC meetings of a PDT for school leaders. Sub-questions are:

- Q1: What is the explanatory value of the coach's didactic approach and coaching skills during PLC meetings on the predefined outcome variables?
- Q2: Is there any indication of differences in the didactic approach and coaching skills of PLC coaches that may be associated with differences in outcome variables?
- Q3: What is the explanatory value of a PLC coach's expertise on the outcome variables?
- Q4: What characteristics associated with participants, context, ... are mediating for the perceived effectiveness of PLC coaching?

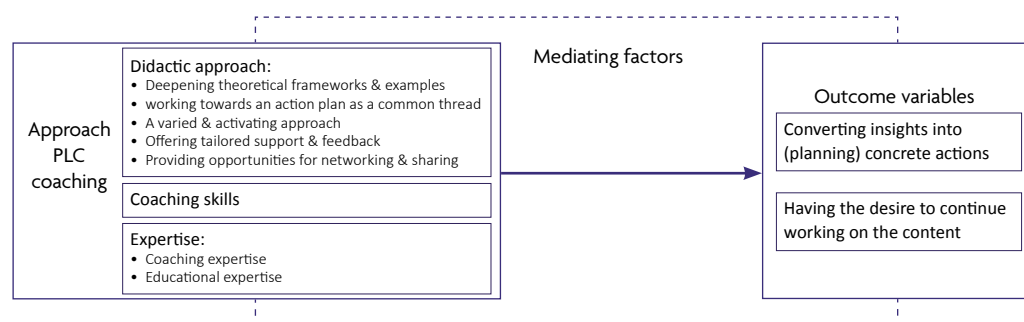


Figure 3.1 - Research model

3.3.2 Research context

The two-year PDT for school leaders¹ was organized into training days, start-up and development of PLCs and individual coaching. This organizational approach was combined with a specific didactic approach to generate maximum transfer to the participants' school and concrete actions on vision and school development. The aim of the training days was to provide theoretical frameworks, practical examples and applications to the whole group of participants. The deepening and concretization of that content happened in the PLC. In these smaller groups, the focus was on peer learning and social encouragement. This PLC met four times each year. Individual coaching was also provided for each participating school.

During the process, each PLC was guided by an assigned coach. Each coach had coaching qualifications (with differences between coaches) and extensive coaching experience, whether in education or not. The educational expertise present varied. These coaches also provided individual coaching to participants in their own PLC. All coaches were always present during the training days and were well-versed in the theoretical frameworks provided to the participants.

3.3.3 Participants

A total of 149 school leaders participated in the PDT. The participants were employed in primary (43%) or secondary education (57%). 58% of the participants held a management position and 42% a middle management position. 93% participated with a colleague.

All participants could voluntarily enroll in the PDT. The only condition was to participate together with schools from an existing inter-school network. Fourteen inter-school networks participated in the PDT (Tanghe et al., 2024). Each network consisted of four to 19 schools. Each network was organized as a PLC. The network with 19 schools was split into two. Each PLC consisted of 7-13 participants and was supervised by the permanent coach. Each coach supervised a maximum of three PLCs (Table 3.1).

PLC	Number of participants (n)	Primary (1) / secondary education (2)	Coach
1	7	1	A
2	10	1	A
3	8	1	B
4	11	1	A
5	13	1	B

¹ Commissioned by the Flemish government (Belgium), the two-year PT started in September 2021. The goals were fixed, but the approach of this trajectory was freely chosen by the contractors. This allowed a particular evidence-informed approach to be designed and examined for effectiveness. A more in-depth description can be found in Tanghe and Schelfhout (2023).

6	7	1	B
7	11	2	C
8	12	2	D
9	5	2	C
10	11	2	E
11	8	2	D
12	6	2	E
13	5	2	F
14	9	2	G
15	8	2	F
<i>N</i>	131		

Table 3.1 - PLC of inter-school networks at the start of the PDT

3.3.4 Data collection

The research questions were answered using mixed methods research. This is a fully mixed sequential equal status design, where quantitative and qualitative data were collected (partly) simultaneously and used in an integrated approach (Mortelmans, 2018). The triangulation of these equal-weight data increases the relevance and depth of the analysis and provides the opportunity to account for the relationship between variables (Darling-Hammond et al., 2022).

At the end of the first year, an online survey (TSA-S) with closed and open-ended questions was administered, focusing on experiences with the PDT and observed outcomes. Thematic questions were also asked about the PLC. 130 participants of the PDT ($n=88\%$) completed the survey. At the end of the second year, a new online survey was administered to the same participants ($N=131$), with a section focusing on PLC participation and the approach and expertise of the PLC coach. Some of the questions featured in both surveys because of the same focus. We used the data from the survey at the end of the second year because it reflected the participants' final experiences. Everyone who completed the survey participated in the training days and the PLC.

Focus group discussions were organized with PLC groups. Semi-structured interviews were conducted using a question protocol (Morris, 2015). Focus group discussions lasted up to 1.5 hours. Of the 15 PLCs, 11 participated in a focus group discussion. The 4 other PLCs formed a second or third PLC under the supervision of the same coach, making the collection of these data less relevant. Finally, each coach ($N=7$) was interviewed. This in-depth interview was also conducted using a question protocol and provides further triangulation of the data and additional interpretation from the coaches' perspectives.

3.3.5 Data processing

The quantitative data from the surveys were processed in SPSS. Likert scales were created numerically (e.g., completely disagree (1)- disagree (2) - rather disagree (3) - ...). Where relevant, exploratory factor analyses were conducted to obtain meaningful, distinguishable and reliable factors. Cronbach's alpha as a measure of reliability was always above 0.70.

Analysis of variance (ANOVA, partial eta squared) was used to examine if there were differences between coaches (Tests of Between-subjects effects). First, we examined potential differences in outcome variables across coaches. Then, we separately investigated whether differences in coaching approach and skills could explain a variation between coaches. As the data did not appear to be normally distributed, a non-parametric Kruskal Wallis test was performed, confirming the ANOVA and the significance of the differences. For effect size (η^2), the following scale was used: $\eta^2 < 0.01$: negligible; $0.01 \leq \eta^2 < 0.060$: small; $0.06 \leq \eta^2 < 0.14$: medium; $\eta^2 \geq 0.14$: large (Cohen, 2013).

The possible differences between coaches were further examined using multiple regression analyses, where each coach was considered as a categorical independent variable, representing the different coaching groups they guided. To incorporate these coaches into the regression model, six dummy variables ($k-1$) were created, with each dummy variable corresponding to a specific coach, based on the coaching groups they supervised (De Vocht, 2021; Field, 2018). Multicollinearity was controlled by Variance inflation factor (VIF) and was at most 3.3. To assign the extent to which the variance in the dependent variables is explained by the independent variables (R^2), the following classification was used: <10%: weak relationship; 10-25%: moderately strong relationship; 25-50%: strong relationship; >50%: very strong relationship; 100%: perfect relationship (De Vocht, 2021).

The qualitative data from the focus group discussions were processed in NVIVO and deductively analyzed within the predefined categories of the research model (Figure 3.1). The data were quantified and used as citations to interact with the quantitative data to provide further robustness.

Due to the mode of enrollment in the PDT, a wide diversity of school leaders participated. Capturing this diversity would, in itself, require mapping a complex set of variables. Unfortunately, due to the research design, it was not possible to control for an extensive set of characteristics of coaches and participants. Unobserved coach characteristics possibly affecting outcome variables were not controlled for by adding a set of questions, to make the questionnaire more feasible. Thus, the results of the quantitative analyses are only indicative.

3.4 Results

3.4.1 Outcome variables PLC

The TSA-S after the first year (Table 3.2) showed that participants perceived the impact of PLC participation on ‘converting into concrete actions’ and ‘having the desire to continue working on the content’ as strongly positive ($M > 4.50$), although with a wide range.

Items	N	6-Point Scale	Min.	Max.	M	SD
Converting insights into (planning) concrete actions	130	Completely disagree (1) – completely agree (6)	1	6	4.59	1.043
Having the desire to continue working on the content			1	6	4.73	1.029

Table 3.2 - Outcomes initiated by PLC participation (TSA-S)

The perceived added value of the PLC and the range (Table 3.3) was stable after the end of the PDT (ESA-S) compared to the mid-term survey.

Items	N	6-Point Scale	Min.	Max.	M	SD
Converting insights into (planning) concrete actions	131	Completely disagree (1) – completely agree (6)	1	6	4.63	1.031
Having the desire to continue working on the content			1	6	5.05	1.022

Table 3.3 - Outcomes initiated by PLC participation (ESA-S)

Using focus groups ($N=11$) (Table 3.4), we examined which aspects of the PLC were perceived as added value by the school leaders. Content input stood out, particularly the sharing of practical examples and ideas, the sharing of materials and the discussion of theoretical frameworks. All groups also indicated that the PLC group functions as a sounding board: other participants take a critical look, bring a different perspective and provide feedback, which stimulates reflection and depth. The participants experienced the PLC as supportive and encouraging. Two PLCs cited the PLC as a welcome help in transferring the content to their schools, which is made easier by this input and the time provided. Due to the structural embedding in the trajectory, follow-up was also experienced (1).

Getting to know each other better and expanding one’s network were also mentioned in every focus group discussion, which encouraged participants to continue working together. In two PLCs, sharing the same themes, experiences and challenges was mentioned as added value. In six PLCs, the added value of experiencing a PLC yourself was mentioned:

“You can read about coaching and PLC, but by immersing yourself in it you

| 122 *experience it yourself. It does inspire you to apply it in your organization.” (PLC9)*

- Content input (share practices and ideas, exchange materials, discuss frameworks): 10
- Sounding board (critical eye, other perspectives, feedback): 10
- Getting to know each other better, growing collaboration: 10
- Support, and recognition: 10
- Self-experienced functioning PLC: 6
- Support in transferring to their school: 2
- Accelerated transfer through PLC effect: 2
- Similarity: same focus areas and experiences: 2
- Follow-up of transfer: 1

Table 3.4 - Quantified qualitative data focus groups (N=11) added value participation in PLC

3.4.2 Independent variables: perceived added value of coaching during PLC

As indicated in 2.4, common principles for the didactic approach of PLC coaching were identified at the beginning of the PDT, by key factors for effective professional development for school leaders (Tanghe & Schelfhout, 2023). Below we analyze how the participants experienced the coaching and why, based on a descriptive analysis of the quantitative data and an in-depth qualitative analysis of the focus group discussions. In §3.4.3, we discuss the observed interaction between perceived coaching and outcome variables, based on multiple regression analyses.

3.4.2.1 Didactic approach PLC

The ESA-S shows that school leaders perceived the coach's didactic approach as effective and above average (Table 3.5). Notable is the high mean for opportunities to network and share in the PLC ($M=5.22$; $SD=8.71$). However, there is a large spread: this may be due to differences in the coaches' approach and/or in participants' appreciation of it.

Items	N	6-Point Scale	Min.	Max.	M	SD
I found the effective didactic approach during the PLC to be...						
deepening theoretical frameworks and practical examples	131	Completely disagree (1) – completely agree (6)	1	6	4.43	1.110
working toward an action plan as a common thread					4.40	1.161
a varied and activating approach					4.46	1.178
offering tailored support & feedback					4.73	1.051
providing opportunities to network and share					5.22	.871

Table 3.5 - Independent variables didactic approach PLC

The added value of the PLC was often mentioned simultaneously with the approach during the focus group discussions (Table 3.6). The focus was always ($N=11$) on the added value of an approach with opportunities for interaction and sharing, learning from and with peers. Four focus groups referred to the link the coach made during the PLC with the theoretical frameworks provided during the training days, and two groups mentioned newly introduced frameworks. Action orientation was addressed in all focus groups in various ways, including giving preparatory tasks, focusing on the action plan, having participants formulate concrete goals, and following up on actions taken:

“The coach was always focused on the goal the group had, but was still able to leave room for all the side activities needed to get there.” (PLC13)

Tailored support was also noted: participants’ questions and goals were central to all coaches’ approaches, as was time for feedback, sharing of ideas and expertise. Six focus groups mentioned that their coach purposefully used different didactic approaches:

“That brought depth and a critical look at how you are doing as a school. At the same time, you receive suggestions and feedback that you can work with. Without that methodology, that would have been an uneven and not so constructive conversation.” (PLC11)

Five focus groups wished the coach had made an explicit link to the content of the training days, to promote better embedding. Four PLCs shared extensively what schools are working on, but lacked further inspiration and depth. There could have been more forward-thinking and action oriented (2) and more critical thinking and substantive discussion (1), according to participants. Participants missed a goal-oriented approach (3), with a clear practical-organizational framework to facilitate the quality of the PLC (2) and clear expectations and responsibilities regarding preparing and taking a role during the PLC (3). The coaches’ didactic methods were not always appropriate: a particular methodology was useful but due to the limited time there was no depth (1), and too much time was spent on introduction and exploration (1) and the approach did not fit the group and the purpose of this PDT.

<p>Effective approach:</p> <ul style="list-style-type: none"> • Learning from peers, opportunity for interaction and sharing: 10 • Action-orientation (including preparatory tasks, action plan, having concrete goals formulated, follow-up actions): 10 • Tailored support (focus on questions and goals participants, feedback, sharing and expertise): 10 • Use of different methods to create focus and depth: 6 • Link between theoretical framework training days and PLC: 4 • Providing new theoretical frameworks: 2 	<p>Missed opportunities:</p> <ul style="list-style-type: none"> • Link more explicitly to training day content in the interest of better embedding: 5 • Sharing without inspiring each other: 4 • A clear and focused approach: 3 • Clear expectations and responsibilities: 3 • A clear framework (practical-organizational), structure: 2 • Encouragement to be forward-looking and action-oriented: 2 • A critical eye and substantive discussion: 1 • Inappropriate didactic approach: too little depth due to lack of time (1), too long introduction and exploration phase (1)
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Table 3.6 - Quantified qualitative data focus groups ($N=11$) effective approach during PLC

3.4.2.2 Coaching skills during PLC

The ESA examined 12 skills for PLC coaching (Table 3.7). The presence of these skills among coaches was rated above average ($M > 4.50$). At the same time, a very large spread ($SD > 1.000$) was found for all these skills.

Items	N	6-Point Scale	Min.	Max.	M	SD	α
Coaching skills	131	Completely disagree (1) – completely agree (6)	1	6	4.78	1.108	.978
The coach monitored shared/ established priorities					4.52	1.198	
The coach asked questions/ content brought in by participants					4.79	1.201	
The coach summarized regularly					4.81	1.124	
The coach invited all participants to actively participate					4.76	1.216	
The coach monitored goal achievement (versus lack of commitment)					4.60	1.232	
The coach was engaged with all participants					4.95	1.270	
The coach was attentive to individual needs					4.79	1.330	
The coach asked critical questions that encouraged depth					4.83	1.260	
The coach was appreciative and constructive toward the participants					5.16	1.044	
Where relevant, the coach gave content-related advice					4.68	1.326	
Where relevant, the coach gave feedback					4.73	1.271	
Through the approach the coach created a safe learning environment in which I dared to bring up difficult themes/ sensitivities/etc.					4.79	1.346	

Table 3.7 - Independent variable coaching skills during PLC

Eight focus groups (Table 3.8) explicitly mentioned the safe and open learning environment their coach created through an enthusiastic, calm, nonjudgmental, supportive, sincere, constructive and appreciative approach. Participants in two focus groups reported that their coach used skills that bet on connection and group dynamics, involving everyone equally. Three groups mentioned the coach's empathy. The coach monitored goal orientation by explicitly linking back to the goals or questions formulated by the participants (7). The focus groups mentioned a good balance

between creating a relaxed atmosphere without being non-committal and aimless (6). The focus groups explicitly referred to coaching skills in terms of asking purposeful and in-depth questions (6), (encouraging) listening and using silences (4), summarizing and synthesizing (4), and giving feedback (2). Five focus groups mentioned the perceived effectiveness of the PLC in preparation. The approach felt authentic and organic (2). Some coaches also modeled through their approach (3), and asked for feedback themselves so they could adapt their approach to the group (2).

Two groups mentioned that the coach did not integrate the role of coach enough nor was a good example:

“I do not feel coached, but acknowledged.” (PLC6)

Where one coach was allowed to bring in more expertise, another group said that the coach shared many examples from his expertise, but did not facilitate transfer to the schools’ context:

“Sometimes it was limited to many examples from a lot of expertise. But then the next step could also come, specifically let’s look at everybody’s context.” (PLC3)

The focus groups revealed that the expectations and needs of the PLC group and/or individual participants determined whether an approach was effective. When there was a need for depth and support in the transfer of each school, a great deal of listening and sharing of practical examples from the coach was not sufficient in one PLC while it was sufficient for the same coach for the other group. Participants indicated during focus group discussions that a good coach can anticipate this. Two focus groups indicated that they had a role in the effectiveness of the PLC. They could better share their feedback and desires with the coach instead of just letting it pass by.

<p>Effective approach:</p> <ul style="list-style-type: none"> • Safe and open learning environment (through enthusiasm, calmness, no judgments, support, sincerity, constructive and appreciative approach): 8 • Monitoring goal orientation (feedback on predefined goals or questions): 7 • Balance between relaxed atmosphere and goal orientation and focus: 6 • Asking questions: 6 • Prepared approach: 5 • Listening (stimulating): 4 • Summarizing and synthesizing: 4 • Empathic ability: 3 • Modeling function: 3 • Focus on connection, group dynamics and equality: 2 • Giving feedback: 2 • Authentic and organic approach: 2 • As a coach, asking for feedback and adjusting approach: 2 	<p>Missed opportunities:</p> <ul style="list-style-type: none"> • Really take up coaching role: 2 • Providing expertise/examples tailored to the group and making transfers: 2 • Taking responsibility for the process as a PLG group: 2
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Table 3.8 – Quantified qualitative data focus groups (N=11) coaching skills during PLC

3.4.2.3 Independent variables: expertise coach

The coaches' perceived expertise was positive for both experience in coaching ($M=4.85$) and relevant educational expertise ($M=4.71$). At the same time, a very wide range was also observed (Table 3.9).

Items	N	6-Point scale	Min.	Max.	M	SD
Our coach has experience in coaching	124	Completely disagree (1) – completely agree (6)	1	6	4.85	1.260
Our coach has relevant educational experience			1	6	4.71	1.396

Table 3.9 - Independent variables coaching expertise during PLC

3.4.3 Perceived added value of coaching approach on outcome variables

3.4.3.1 Differences between coaches and their influence on PLC coaching

In the descriptive analyses, the wide range in the perceived added value of PLC coaching by school leaders was notable. The question arose whether this spread was due to differences between coaches. Multilevel analysis in which we would nest school leaders in the 14 PLCs proved impossible due to the low N per PLC (Maas & Hox, 2005). Therefore, we analyzed this question using a set of descriptive analysis, analysis of variance, and regression analysis without accounting for control variables.

Variance analysis (Tests of Between-subjects effects) showed for the outcome variables 'converting insights into (planning) concrete actions' ($F(6,131)=5.06$, $p < .001$, $\eta_p^2 = .197$) and 'having the desire to continue working on the content' ($F(6,131)=3.82$, $p < .001$, $\eta_p^2 = .169$) a large effect variance exist between coaches. In other words, one coach would achieve more results than another coach. These differences could possibly be a result of differences in approach between coaches and/or in the relationship between participants and their coaches.

Variance analysis (Tests of Between-subjects effects) showed for the independent variables a large difference between coaches' approach for 'deepening theoretical frameworks and practical examples' ($F(6,131)=6.58$, $p < .001$, $\eta_p^2 = .241$), 'working toward an action plan' ($F(6,131)=4.43$, $p < .001$, $\eta_p^2 = .177$), 'varied and activating approach' ($F(6,131)=7.04$, $p < .001$, $\eta_p^2 = .254$) and for coaching skills ($F(6,131)=15.021$, $p < .001$, $\eta_p^2 = .421$). For 'tailored support and feedback' there was a significant mean difference between coaches ($F(6,131)=2.99$, $p = .009$, $\eta_p^2 = .126$). For 'networking and sharing', there was a small, non-significant difference ($F(6,131)=1.66$, $p = .136$, $\eta_p^2 = .074$).

These analyses provided an initial indication that the coaches' approach could have made a difference in achieving the predefined outcomes, however without accounting for control variables. The question remained as to how much influence the coach had on the outcome variables and which specific approach contributed most to the achievement of the outcome variables.

Multiple regression analysis, without inclusion of control variables, showed a possibly strong indication ($R^2 = .437$) of the coach's didactic approach during the PLC on 'converting into concrete action' (Table 3.10, Model 1). The predictors that could made the largest unique contribution on top of the joint value were 'working toward an action plan' ($\beta = .367$, $p < .001$) and 'tailored support and feedback' ($\beta = .299$, $p = .001$). Coaching skills during the PLC had a moderately strong explanatory value on action planning ($R^2 = .229$, $p < .001$).

Model 1: independent variables						Model 2: independent variables with dummies of categorical variable coach					
Didactic approach											
$F(5,125)=19.38, p< .001, R^2= .437$						$F(11,119)=1.94, p= .080, R^2= .487$					
Unstandardized Coefficients		Standardized Coefficients				Unstandardized Coefficients		Standardized Coefficients			
<i>b</i>	Std. Error	β	<i>t</i>	Sig.		<i>b</i>	Std. Error	β	<i>t</i>	Sig.	
(Constant)	.949	.454		2.091	.039	1.468	.527		2.785	.006	
deepening theoretical frameworks and practical examples	.149	.085	.160	1.746	.083	.110	.087	.118	1.261	.210	
working toward an action plan as a common thread	.326	.085	.367	3.854	<.001	.271	.089	.306	3.042	.003	
a varied and activating approach	-.074	.099	-.084	-.745	.458	-.021	.103	-.025	-.208	.836	
tailored support & feedback	.293	.087	.299	3.363	.001	.249	.087	.254	2.869	.005	
opportunities for networking and sharing	.102	.095	.086	1.071	.286	.120	.099	.101	1.206	.230	
Dummy Coach 2						.471	.217	-.190	-2.169	.032	
Dummy Coach 3						.454	.270	-.070	-.752	.454	
Dummy Coach 4						.065	.264	-.164	-1.860	.065	
Dummy Coach 5						.825	.269	-.017	-.222	.825	
Dummy Coach 6						.140	.257	-.115	-1.484	.140	
Dummy Coach 7						.335	.292	.073	.968	.335	
Coaching skills											
$F(1,129)=38.28, p< .001, R^2= .229$						$F(7,123)=2.30, p= .039, R^2= .307$					
Unstandardized Coefficients		Standardized Coefficients				Unstandardized Coefficients		Standardized Coefficients			
<i>b</i>	Std. Error	β	<i>t</i>	Sig.		<i>b</i>	Std. Error	β	<i>t</i>	Sig.	
(Constant)	2.500	.353		7.075	<.001	3.034	.525		5.780	<.001	
Coaching skills	.445	.072	.478	6.187	<.001	.406	.092	.436	4.418	<.001	
Dummy Coach 2						.795	.237	-.321	-3.349	.001	
Dummy Coach 3						.270	.292	-.093	-.926	.356	
Dummy Coach 4						.403	.326	-.135	-1.235	.219	
Dummy Coach 5						.347	.297	-.101	-1.167	.245	
Dummy Coach 6						.408	.290	-.123	-1.406	.162	
Dummy Coach 7						.052	.325	.013	.160	.873	

Table 3.10 - Multiple regression analysis of perceived added value of didactic approach and coaching skills on converting into actions

For the outcome variable ‘having the desire to continue working on the content’, multiple regression analysis showed a very strong explanatory value ($R^2 = .573$, $p < .001$) of the coach’s overall didactic approach during the PLC (Table 3.11, Model 1). The predictors that made the greatest unique contribution besides joint value were a ‘varied and activating approach’ ($\beta = .314$, $p = .002$), ‘working toward an action plan’ ($\beta = .202$, $p = .016$), and ‘opportunities to network and share’ ($\beta = .214$, $p = .003$). Coaching skills also had a strong explanatory value on ‘having the desire to continue working on the content’ ($R^2 = .339$, $p < .001$). Control variables were not included.

Model 1: independent variables					Model 2: independent variables with dummies of categorical variable coach					
Didactic approach										
(F(5,125)=33.56, <i>p</i> < .001, <i>R</i> ² = .573)					(F(11,119)= .56, <i>p</i> = .761, <i>R</i> ² = .585)					
Unstandardized Coefficients		Standardized Coefficients			Unstandardized Coefficients		Standardized Coefficients			
<i>b</i>	Std. Error	<i>β</i>	<i>t</i>	Sig.	<i>b</i>	Std. Error	<i>β</i>	<i>t</i>	Sig.	
(Constant)	.800	.391		2.044	.043	1.186	.470		2.525	.013
deepening theoretical frameworks and practical examples	.100	.074	.109	1.362	.176	.069	.077	.075	.886	.377
working toward an action plan as a common thread	.178	.073	.202	2.437	.016	.183	.080	.208	2.301	.023
a varied and activating approach	.273	.085	.314	3.188	.002	.270	.092	.311	2.926	.004
tailored support & feedback	.105	.075	.108	1.395	.166	.087	.077	.089	1.120	.265
opportunities for networking and sharing	.251	.082	.214	3.067	.003	.248	.088	.211	2.804	.006
Dummy Coach 2					-.263	.194	-.107	-1.359	.177	
Dummy Coach 3					-.259	.241	-.090	-1.075	.285	
Dummy Coach 4					-.178	.235	-.060	-.759	.450	
Dummy Coach 5					-.251	.239	-.074	-1.047	.297	
Dummy Coach 6					-.154	.229	-.047	-.674	.501	
Dummy Coach 7					.074	.260	.019	.286	.775	
Coaching skills										
(F(1,129)=66.16, <i>p</i> < .001, <i>R</i> ² = .339)					(F(7,123)=2.72, <i>p</i> = .016, <i>R</i> ² = .416)					
Unstandardized Coefficients		Standardized Coefficients			Unstandardized Coefficients		Standardized Coefficients			
<i>b</i>	Std. Error	<i>β</i>	<i>t</i>	Sig.	<i>b</i>	Std. Error	<i>β</i>	<i>t</i>	Sig.	
(Constant)	2.477	.324		7.645	<.001	2.375	.477		4.978	<.001
Coaching skills	.537	.066	.582	8.134	<.001	.603	.083	.654	7.225	<.001
Dummy Coach 2					-.550	.216	-.224	-2.550	.012	
Dummy Coach 3					-.274	.266	-.095	-1.031	.305	
Dummy Coach 4					.257	.296	.087	.866	.388	
Dummy Coach 5					-.625	.270	-.184	-2.311	.022	
Dummy Coach 6					-.051	.264	-.015	-.193	.847	
Dummy Coach 7					-.266	.296	-.069	-.900	.370	

Table 3.11 - Multiple regression analysis of perceived added value of didactic approach and coaching skills on having the desire to continue working on the content

As multilevel analysis was not possible due to the limited sample size (N), we examined differences between coaches using regression analysis with dummy variables (Table 3.10-3.11, Model 2). In this model, without accounting for control variables, each coach was treated as a separate category, and dummy variables were created for each coach (6 in total). For each coach, the mean responses of their group members were calculated. These group means were then compared across coaches to assess differences. The regression analysis, with the inclusion of the coach dummy variables, showed differences between coaches. However, since $p > .05$ for the didactic approach, we concluded that there is no significant difference for this outcome. In contrast, coaching skills showed significant differences between coaches ($p < .05$).

How did coaches ($N=7$) themselves perceive the implications of their coaching approach and skills on the PLC outcome variables, and to what extent does this correspond to the perception of school leaders as described in 3.4.2.1 and 3.4.2.2? During the in-depth interviews (Table 3.12), the coaches identified goal- and action-oriented creation and monitoring as the most effective approach (6). They felt this approach was complementary to structuring, summarizing, and synthesizing (2). The coaches felt that daring to adapt, challenge and enrich content was crucial (5). At the same time, one coach indicated that guiding too much with an eye on timing and providing a lot of content did not work.

Connecting with the group, focusing on the PLC's learning process over one's own aspirations as a coach, and responding to group dynamics and present needs, experiences and expectations contributed to the effectiveness of their approach, according to the coaches (5):

*"Effectiveness = quality * acceptance. I feel acceptance is very important." (C1)*

One coach indicated that he gave too little direction when participants wanted to express their needs, in their complaints or when they were distracted by a topic on the sidelines.

One coach did not consider himself a good coach for this PDT with a PLC implementation:

"I am good at giving information, but that is different from coaching. In training, I can use my expertise more." (C2)

Four coaches identified the participants' side as a co-determining factor in the effectiveness of PLC coaching:

"I think you can be a very competent coach and still hit a barrier if participants are not open to participating in the PLC or if mutual dynamics prevent full participation." (C6)

Most effective approach:

- Creating and monitoring goal and action orientation: 6
- Focusing on connection and group dynamics: 5
- Pushing boundaries (adjusting, challenging, enriching): 5
- Providing additional support outside of PLC meetings: 3
- Structuring, summarizing, synthesizing: 2
- Moderating in terms of directing too much and providing content: 1

Most ineffective approach:

- Too little (directing): 1
- Being more expert than coach: 1
- Contextual influencing factors:
- Group dynamics and disposition of participants: 4
- Willingness to systemic change: 1

Table 3.12 - Quantified qualitative data in-depth interviews coaches (N=7) effective approach

3.4.3.2 Experienced impact of coach expertise during PLC coaching

The explanatory value of perceived coaching expertise was found to be moderately strong for 'converting into (planning) concrete actions' ($F(1,102)=11.07$, $p=.001$, $R^2=.098$). For the coach's perceived educational expertise, the regression analysis showed a moderately strong relationship for 'having the desire to continue working on the content' ($F(1,102)=11.00$, $p=.001$, $R^2=.097$). As argued before, we did not control for variables which could mediate this explanatory value, because it is impossible to capture possible mediating variables such as professional development initiatives participants have taken part in, existing knowledge, pre-existing attitude towards different forms of professional development, etc. with a feasible set of questions that would not jeopardize completing the already extensive questionnaire.

In eight focus groups (Table 3.13), people expected a coach with coaching expertise to facilitate content and group dynamics and ensure transfer. If this was lacking, according to participants, any educational expertise did not play a role. The coach did not necessarily need to have experience in education, but being familiar with it and having an education-oriented mindset appeared to be necessary (6). Despite the fact that other contextual experiences could be valuable for a broader perspective, there was a chance that the coach would offer less depth or provide little realistic input due to unfamiliarity with the educational context (2). A coach with a large network (outside of education) to gather or refer input to was valued (2).

Expectations of the coach in terms of coaching expertise:

- Able to facilitate and transfer content and group dynamics: 8

Expectations of coach in terms of educational expertise:

- Familiarity with education, mindset about education: 6
- Familiarity with specific educational context to generate depth and realistic input: 2
- Large network (outside education): 2

Table 3.13 - Quantified qualitative data focus group interviews (N=11) expectations expertise coach

To what extent did the coaches ($N=7$) confirm these findings? Having coaching expertise was mentioned as necessary by six coaches (Table 3.14). One coach mentioned the need for specific experience in PLC coaching. All coaches mentioned that educational expertise should enable the coach to guide schools in transferring theoretical frameworks and practices to their schools. For this, the affinity with education must be sufficiently strong, the coach must know the context and preconditions well and speak the same language to avoid input being limited to general ideas or borrowed examples. Having educational experience made it easier to provide examples of the topic, bring in authentic experiences and be articulate, but this does not necessarily have to be as a school leader, according to the coaches (5). One coach indicated that perhaps the PLC precisely needed a coach who is not familiar with education to think out-of-the-box, but that the participants themselves did not realize this, so the process guidance by such a coach was perceived as a mismatch. For this coach, the central question was what the purpose of the PLC was rather than whether the coach had the right expertise.

Expectations about own coach's expertise:

- Expertise in coaching: 7
- Expertise in guiding PLC: 1

Expectations about own educational expertise:

- Educational expertise able to guide transfer theoretical framework and examples to school context (knowledge of context & preconditions, shared educational language): 7
- Own experience in education but not necessarily as a school leader: 5
- Insufficient expertise in education in terms of out-of-the-box thinking: 1

Contextual influencing factors:

- Participants themselves do not realize that they can benefit for their learning from a coach unfamiliar with education: 1
- What is the purpose of the PLC as a central question rather than whether the coach has the right expertise?

Table 3.14 - Quantified qualitative data in-depth interviews with coaches ($N=7$) necessary expertise

3.5 Conclusion & discussion

This mixed methods study aimed to examine which coaching competencies are perceived as effective in facilitating sustained professional and school development during PLC meetings in a PDT for school leaders. The focus was on the outcome variables ‘converting into (planning) concrete actions’ in line with the fourth level of depth of professional development (Kirkpatrick & Kirkpatrick, 2016) and ‘having the desire to continue working on the content’ (Leedham, 2004) as a basis for sustainable development. The triangulation of quantitative data based on online surveys, qualitative data from focus group discussions with PLC participants, and in-depth interviews with the coaches contributed to detecting possible indications. However, as mentioned earlier, this analysis could not comprehensively control for possibly mediating underlying characteristics specific to coaches and participants, and therefore the conclusions drawn should be considered tentative.

3.5.1 Perceived added value didactic approach and coaching skills coach during PLC for outcome variables

The descriptive analyses showed that school leaders perceived participation in the PLC as valuable, both for ‘converting into (planning) concrete actions’ and ‘having the desire to continue working on the content’. However, there appeared to be a large spread in these outcome variables. Although the independent variables ‘didactic approach’ and ‘coaching skills’ of the coaches were perceived as above average positive, there was also a large spread in this area, which was reflected in both the quantitative and qualitative data.

3.5.2 Indications of differences in the didactic approach and coaching skills of PLC coaches that may be associated with differences in outcome variables

We further examined the large range observed in the outcome variables ‘converting into (planning) concrete actions’ and ‘having the desire to continue working on the content’, and the perceived added value of the coach’s approach and coaching skills on those outcome variables. Analysis of variance showed differences between coaches in didactic approach, possibly leading to a difference in perceived effectiveness on the outcome variables, but regression analysis did not confirm these because of non-significant results. As to coaching skills, multiple regression analysis showed significant differences between coaches ($p < .05$).

The comparison of quantitative and qualitative data from PLC groups with the same coach showed different ratings of perceived effectiveness. These differences were situated in the areas of commitment, goal orientation and tailored support. Although in-depth interviews revealed that these coaches were more often positive about their achieved effectiveness, they noted differences in the effects of their approach between their respective groups. This confirms research that argues that the ability to use multiple techniques and methods in a goal-oriented, tailored way

to the target group and at the right time makes the difference (Patrick et al., 2021). According to research, the coach's level of professional development helps determine self-awareness of the quality delivered (Diller et al., 2020; O'Broin & Palmer, 2010). If participants experience high levels of empathy with and support from the coach, this appears to be a greater predictor of perceived effectiveness than the approach and methods used (Cox et al., 2014). In other words, how the coach perceives the purpose of coaching (Heston, 2013) and concretely fulfills his role can help influence perceived effectiveness (Coenen et al., 2021; Patrick et al., 2021).

3.5.3 Explanatory value expertise coaches for outcome variables

Although qualifications and relevant professional experience are a guarantee of quality coaching (Cox et al., 2014; Lofthouse & Whiteside, 2019; Reiss, 2015), this did not automatically lead to high perceived effectiveness among participating coaches. Previous research has defined 'relevant professional experience' more broadly. In this study, the focus was on two further operationalized facets: perceived coaching and educational experience. The descriptive data showed above-average positive perceptions for both independent variables, but with a wide range.

The qualitative analysis showed that coaches with extensive coaching experience – ideally PLC coaching – best facilitated content and group dynamic processes and ensured concrete transfer to the school context with concrete (planning of) action. This contradicts previous research that identified the professionalization level of the coach as a better predictor of coaching quality than the coaching experience present (Diller et al., 2020; O'Broin & Palmer, 2010). The more in-depth operationalization within this study into coaching expertise and educational expertise supports a further nuanced analysis. For example, it appears that having educational expertise (in the role of school leader) is not a necessity, but strong familiarity with education and school policy is necessary to facilitate depth and provide sufficient realistic and feasible input on education and leadership (Thornton, 2010). Although research (Lochmiller, 2021; Reiss, 2015) shows that expertise in principle need not be (entirely) education-related or topic-related as a coach assumes the role of facilitator, it shows that effective facilitation is only possible if there is educational affinity. Moreover, educational expertise should serve to guide the transfer of theoretical frameworks and examples to each context, rather than primarily showcasing one's own expertise and positioning oneself as a consultant rather than a coach, which is consistent with previous research (Heston, 2013; Margalef & Roblin, 2018). Finally, the coach's educational expertise has a moderately strong perceived impact on 'having the desire to continue working with the content', which could be related to the inspirational effect of the coach (Leedham, 2004).

3.5.4 Mediating factors for perceived effectiveness of PLC coaching

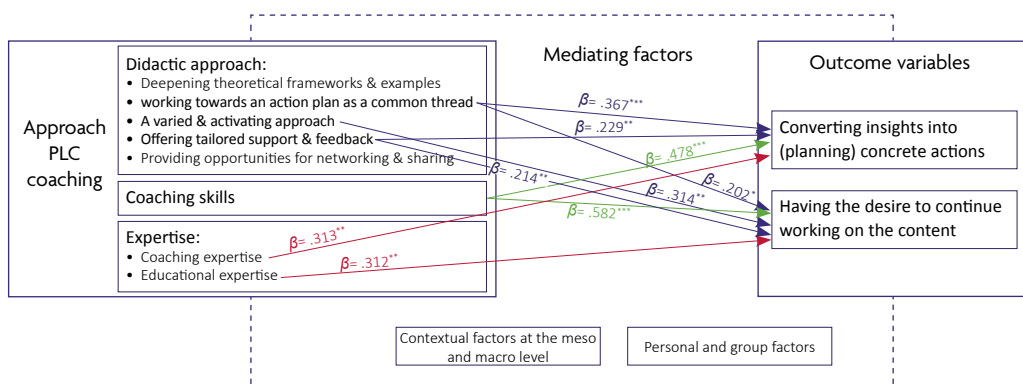
In PLC groups where the coach perceived the startup as challenging and laborious, it remained so. The first meetings took place during the COVID-19 pandemic, which made the (online) startup of the PLC groups especially challenging. Some coaches attribute the difficulty in connecting with school leaders in part to this. The question is whether this was due to this pandemic context, as

this was not an issue with other coaches. Some coaches coached multiple groups for whom the difficult startup was not the case in all their groups.

Participants identified contextual factors that hindered the PLC effectiveness such as teacher shortage, teacher absence, ... as these were priorities. At the same time, school leaders mentioned that a good coach would support the group in this by not paying endless attention to it and challenging participants to (continue to) engage in professional and school development. If a coach did not take such an approach, participants with this need felt heard but not coached. Participants also mentioned their responsibility to address this.

Coaches identified the side of the participants as a co-determining factor in the effectiveness of PLC coaching. According to them, this could transcend the coach's competence in positive and negative ways. Reference was made to the participants' motivation and aspiration for participation in the PDT and PLC and the willingness for systemic change. If this was not present, attempts by a coach to challenge the PLC group were perceived as a mismatch between (the expertise of) the coach and the PLC group rather than generating introspection. This lower effectiveness due to lower willingness is reflected in previous research (De Meuse et al., 2009).

The results of our study provide an indication of a relationship between the didactic approach, coaching skills and expertise of the coach, and the outcome variables. However, research designs using for instance randomized controlled trials are needed to obtain evidence for causal relations. The qualitative research confirms previous results (Coenen et al., 2021; Lofthouse & Whiteside, 2019; Tanghe et al., 2024) that coaches are influencing the perceived effectiveness and outcomes of the PLC within a PDT. Selecting competent coaches to take on such a crucial role within a PDT for school leaders is extremely important for facilitating sustainable professional and school development. Here it is necessary to consider the competencies of the coaches, with a particular focus on the didactic approach and coaching skills as success factors for perceived effectiveness by school leaders. As external factors are mediating, it is important that both PDT organizers and coaches consciously anticipate them.



* $p < .05$; ** $p < .01$; *** $p < .001$

Figure 3.2 - Determinants associated with the coach approach for outcome variables during the PLC meetings of a PDT for school leaders (model 1)

3.6 Limitations and recommendations

Although we had a large number of respondents, this dataset was too limited for in-depth multilevel analysis. Due to the design of the PDT and the enrollment procedure, it was not possible to cluster the PLC groups according to specific characteristics. Moreover, in this research design, comparing coaches was only partially possible. Connected to the PDT, we established common goals and, in line with them, the principles of the approach. Within this framework, coaches had the autonomy to shape their approach based on their expertise. For this reason, there are limitations to the comparison between coaches in terms of their coaching approach and coaching skills. Furthermore, no control variables were taken into account due to the reasons already discussed in the methodology section.

The associations and mediating factors that were detected can serve as a basis for future research, with a potential for experimental research in which groups of school leaders receive PLC coaching that meets certain conditions. Further research on influential background and context characteristics also remains important, with triangulation between quantitative and qualitative data. There is added value in examining the long-term effects of PLC coaching with action- and goal-oriented prompts on concrete professional and school development, so that coaches can further tailor their didactic approach and coaching skills. Additional research on the perceived impact of the interaction between PLC and individual coaching as an approach within a PDT for school leaders and the perceived added value by school leaders is also useful.

INTRODUCTION

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STUDY 4

5

CONCLUSION

The coach matters: the value of individual coaching as a component of professional development trajectories for school leaders

Based on: Tanghe, E. & Schelfhout, W. (Submitted). The coach matters: the value of coaching as a component of professional development trajectories for school leaders.

Abstract

Coaching for school leaders is positively valued for supporting school leadership and school development within challenging societal contexts. To maximize the impact of coaching and an effective coaching approach, empirical research on influencing factors is essential but scarce. The purpose of this empirical study was to examine which characteristics of the coach during individual coaching sessions in the context of a broader professional development trajectory for school leaders had a perceived added value in generating professional and school development. Based on mixed method research, we can conclude that the coach matters. Depending on the didactic approach and coaching skills the coach used during individual coaching sessions, the school leaders experienced a (large) impact on both converting insights into (planning) concrete action and whether or not they wanted to continue working on the professional development trajectory content. In particular, stimulating reflection and creating professional development driven depth tailored to the school (leader) had added value for the participating school leaders. The coaching expertise and educational expertise of the coach have less impact. Finally, we formulate recommendations for government, schools and school boards and organizers of such professional development trajectories.

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4.1 Introduction

Coaching occupies an increasingly prominent place within professional development services for school leaders (Cannon-Bowers et al., 2023; Lofthouse, 2019). Coaching for school leaders is positively valued for supporting school leadership and school development within challenging societal contexts (Darling-Hammond et al., 2022; Lochmiller, 2018; Rowland, 2017), with an indirect impact on student learning outcomes (Wise & Cavazos, 2017). Moreover, this type of professional development provides opportunities for work-related and customized learning (Cannon-Bowers et al., 2023; Rowland, 2017; Weathers & White, 2015).

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Much is already known about coaching and its efficacy; less research is available specifically on coaching school leaders and its impact (Patrick et al., 2021; Wise & Cavazos, 2017). To maximize the impact of coaching and an effective coaching approach on the professional development of (experienced) school leaders and school development, empirical research on influencing factors is essential (Lackritz et al., 2019; Weathers & White, 2015). Individual coaching of school leaders can exist as a separate approach or, as in this research setting, as part of a professional development trajectory (de Haan et al., 2011; Lofthouse, 2019). However, research on individual coaching as an effective approach within a broader professional development trajectory (PDT) for school leaders is scarce (De Meuse et al., 2009; Simkins et al., 2006), while it is valuable to investigate how this coaching functions (van Nieuwerburgh et al., 2020), in addition to and in interaction with other components of this trajectory.

4.2 Theoretical framework

4.2.1 Definition of coaching

Coaching involves a collaboration between a coach and (individual) clients during a process of reflection and enquiry that inspires personal and professional development, often tapping into underutilized resources such as imagination, productivity and leadership (International Coaching Federation, 2023). Coaching supports the formulation of a vision, goals and/or desires, and the development or expansion of the capacity for realization (Huff et al., 2013; Wise & Jacobo, 2010). The focus is on facilitating positive and sustainable decision-making and change (Cox et al., 2014; van Nieuwerburgh et al., 2020; Wise & Cavazos, 2017). This aligns with expectations regarding (school) leaders and their personal needs (Arnold Jr, 2015). Indeed, school leaders face numerous challenges that may affect their resilience, well-being and work-life balance (Lofthouse & Whiteside, 2019).

Although coaching can be generally defined, the goals and concrete approach may differ, partly due to the diverse educational context in which it takes place (Lofthouse, 2019). (Executive) coaching of school leaders can focus on both person- and organization-related goals (Heston, 2013).

The focus is best developmental (De Meuse et al., 2009; Wise & Cavazos, 2017), aligned with and related to the position and context (Haslam et al., 2011; Henderson, 2011; Rowland, 2017). To generate maximum change and achieve shared goals, collaboration between the school leader(s), the coach and the organization (in this case, the school) is central (Cox et al., 2014; Heston, 2013; Lackritz et al., 2019). School development risks failure if coaching remains purely at the individual level (Cox et al., 2014; Heston, 2013; Lackritz et al., 2019).

4.2.2 Added value of coaching

School leaders perceive coaching as valuable for job growth (Aguilar, 2017). Coaching enables them to be more resilient to the demands of their jobs (Lofthouse & Whiteside, 2019). They experience increased strategic leadership, improved effectiveness and better anticipation of complex challenges (Saddler, 2023) inherent in school development (Wise & Jacobo, 2010). Through coaching, they expand their leadership competencies (Farver, 2014). School leaders experience greater self-efficacy and feel less isolated (Wise & Cavazos, 2017), which has a positive effect on retention and job sustainability (Lofthouse, 2019; Lofthouse & Whiteside, 2019). School leaders also feel recognized in their leadership, which in turn contributes to increased self-confidence (Saddler, 2023).

4.2.3 Coach competencies

Coaching competencies are important for perceived quality and effectiveness (Lofthouse & Whiteside, 2019; Nicolaidou et al., 2016). These can be categorized into four focus areas: the coaching relationship, the coaching process, coaching skills and personal attributes (Cox et al., 2014). A similar classification can be found in other models (Goff et al., 2014; Leedham, 2004; Wise & Hammack, 2011).

4.2.3.1 Coaching relationship as a fundamental foundation

The coach invests in the trust relationship, making roles and shared expectations explicit (Farver, 2014; Weathers & White, 2015; Wise & Hammack, 2011). Trust, respect, equality and reciprocity are necessary for deep and sustainable coaching (Darling-Hammond et al., 2022; Eastman, 2019; Lofthouse, 2019). Importantly, the coach is neutral and coaching is separated from assessment (Wise & Cavazos, 2017). The independence of the coach creates a psychologically safe and confidential environment with the opportunity to discuss personal themes (Cox et al., 2014; Saddler, 2023; van Nieuwerburgh et al., 2020). This development process should therefore be given sufficient time (Lofthouse, 2019).

4.2.3.2 Coaching process: coaching approach

Clarity about the overall purpose of coaching and the context in which it takes place is essential. The coach's approach is best tailored to the specific context of education and the personal and professional needs of school leaders (Huggins et al., 2021). A nuanced understanding of the educational context present contributes to the value of coaching for the school leader rather than merely an instrumental process (Lofthouse, 2019).

Making explicit the (prior) development goals for the school leader, the desired outcomes and an action plan to achieve them is recommended (Grant, 2020; Huff et al., 2013). The coach monitors progress toward the formulated goal, which contributes to effectiveness (Wise & Hammack, 2011). This also increases the involvement and motivation of the school leader (Kets de Vries & Korotov, 2012; van Nieuwerburgh et al., 2020). However, sufficient content of the coaching process is necessary (Patrick et al., 2021). A question is which coaching approach most stimulates content interpretation and (planning) concrete actions on professional and school development.

4.2.3.3 Coaching skills

Through dialogue, the coach encourages reflection, reframing and further development (Lackritz et al., 2019; Witherspoon, 2014). The coach guides the process of experiential development by using various coaching methods (Lofthouse, 2019). It is not the method that makes the difference, but the coach's ability to use multiple techniques purposefully, tailored to the school leader and at the right time (de Haan et al., 2011; De Meuse et al., 2009). How the coach sees the purpose of coaching (Heston, 2013) and concretizes his role may also influence perceived effectiveness (Patrick et al., 2021).

The coach asks activating questions, questions to encourage meaningful reflection and changes in consciousness, and combines this with strong listening skills (Eastman, 2019; Weathers & White, 2015). Through this approach, the coach encourages and facilitates learning and problem solving and supports translating key insights to one's job and context, which entails purposeful learning and creates developmental opportunities (Lackritz et al., 2019; Rowland, 2017). The coach identifies progression and good practices, making school leaders feel empowered, which in turn motivates (Eastman, 2019; van Nieuwerburgh et al., 2020; Wise & Cavazos, 2017). A coaching approach that coaches rarely use is naming or questioning challenges (Patrick et al., 2021), even though this could just contribute to depth and transfer.

Based on data, the coach provides constructive, nonjudgmental feedback (Eastman, 2019; Huff et al., 2013; Nicolaidou et al., 2016). Feedback alone is insufficient for behavior change (Bickman et al., 2012; Goff et al., 2014). Substantiated feedback stimulates developmental processes (Patrick et al., 2021). The coach best uses research-based frameworks (Darling-Hammond et al., 2022). Coaches often bring ideas or advice that are primarily based on their own experiences and to a lesser extent evidence-informed (Patrick et al., 2021).

Coaching skills thus appear to encompass several essential components. However, research on what interaction between those different skills contributes strongly to the perceived effectiveness of individual coaching is limited.

4.2.3.4 Personal attributes: expertise

Qualifications and relevant professional experience guarantee quality coaching (Cannon-Bowers et al., 2023; Darling-Hammond et al., 2022; Diller et al., 2020). However, given the wide variety of coach education trajectories, the question is when constitutes high-quality education (Nerdinger, 2018). Research is ambiguous about the need for substantive educational expertise and its relationship to coach competencies, (Lackritz et al., 2019; Lofthouse & Whiteside, 2019). This results in what expertise school leaders consider important in a coach.

In addition, there is the question of the impact of contextual and person-related variables on the (school) leader, given that the same coach and his approach can achieve different effectiveness with different coached participants or groups (Haslam et al., 2011; Veelen et al., 2017). For example, if the school leader's willingness to participate or to introspect is lower, effectiveness will be lower (Aguilar, 2017; De Meuse et al., 2009).

4.2.4 Individual coaching integrated into a PDT

Research on individual coaching with (school) leaders shows the importance of the ability to lean on evidence-informed frameworks (Darling-Hammond et al., 2022; Patrick et al., 2021). In individual coaching, there is not always room for this and/or the coach does not always have hands-on access to the necessary frameworks. Therefore, it may be interesting to integrate individual coaching into a broader PDT in which theoretical frameworks have already been provided (de Haan et al., 2011; Lofthouse, 2019).

Individual coaching allows for tailored support during a PDT for school leaders because it can connect to the school leader's current development process regarding school development (Zhang & Brundrett, 2010). The effectiveness of coaching plays a crucial role in this process (Leedham, 2004). The coach's competencies are key factors in facilitating personal added value for the school leader, such as clarity and focus, increased self-confidence and motivation. The achievement of added value can then lead to increased knowledge and insights, improved skills and behaviors in the school leader. This then contributes to true professional and school development, which is the goal of the PDT.

During individual coaching, the coach's approach and coaching skills facilitate the transfer to the school to plan and implement concrete actions aligned with the predefined depth of learning (Kirkpatrick & Kirkpatrick, 2016). Additionally, the personal motivation of the school leader during and after the professional development process is an important condition to (continue to) engage with the content (Leedham, 2004) and thus ensure the sustainability of the outcomes. For this reason, motivation is also an important outcome variable.

Leadership development takes time (Kets de Vries & Korotov, 2012). Providing time for focused and supportive reflection is also important for the effectiveness of coaching sessions (Henderson, 2011; Simkins et al., 2006; van Nieuwerburgh et al., 2020). Although a few sessions are already impactful, coaching is primarily long-term (Darling-Hammond et al., 2022; Reiss, 2015). At least two years of collaboration between a school leader and coach has been shown to lead to school development (Heston, 2013). However, there is a structural underfunding of long-term professional development for school leaders (Rowland, 2017), although this represents a return on investment for the school leader, the sustainability and effectiveness of their leadership and school development (Lofthouse & Whiteside, 2019). Integrating coaching as an approach within a PDT can address these preconditions. However, little research has been done on conditions for the effective interaction of individual coaching within a broader professional development trajectory.

The literature often speaks generally about coaching, without distinguishing specific competencies of the coach in individual and group coaching. When integrating both individual and group coaching in a PDT, the mutual interaction between these two organizational forms and the interaction with training days is essential for facilitating purposeful school development. School leaders name this interference as reinforcing the transfer to their schools (Tanghe & Schelfhout, 2023). The coach's task is to ensure the link between the different organizational forms. Inherent in this is the coach's mastery of the content of the training days (Tanghe & Schelfhout, 2023).

The above shows the importance of understanding a coach's specific role and approach during individual coaching as an integrated part of a PDT. This is relevant for organizers of PDT for school leaders, coaches who participate in such trajectories, and for their professional development (Darling-Hammond et al., 2022; Huggins et al., 2021; Ostrowski & Potter, 2023).

4.3 Research design and methodology

4.3.1 Research model and research questions

Using this empirical study, we examined which characteristics of the coach in the individual coaching sessions of a PDT for school leaders are perceived as determining the generation of professional and school development.

Sub-questions are:

- Q1: What is the perceived added value of the coach's didactic approach and coaching skills during individual coaching sessions on the predefined outcome variables?
- Q2: Is there any indication of differences in the didactic approach and coaching skills of coaches that may be associated with differences in outcome variables?
- Q3: What is the perceived added value of the interaction between individual coaching, training days and professional learning communities in a PDT?

- Q4: What is the perceived added value of a coach's expertise on the outcome variables?
- Q5: What characteristics of the participants, the context, ... constitute reasons to (not) participate (more) in individual coaching as an integrated part of a PDT?

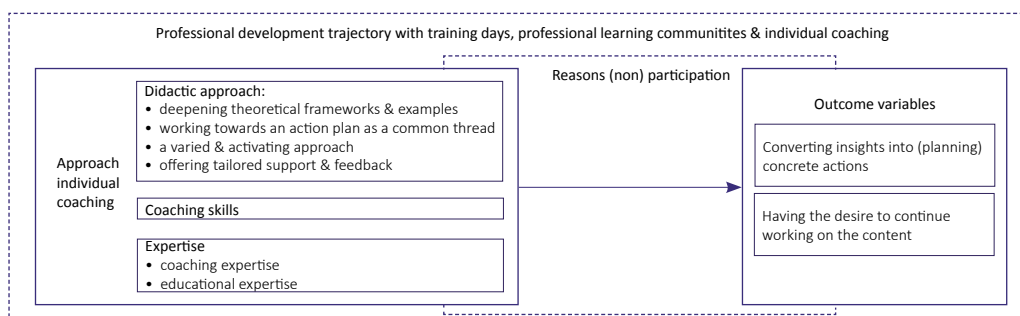


Figure 4.1 - Research model

The two-year PDT¹ for school leaders consisted of training days, start-up and development of professional learning communities (PLC) and individual coaching. This organizational approach was combined with a specific didactic approach aimed at generating maximum transfer to the participants' school and concrete actions in terms of vision and school development. The purpose of the training days was to provide theoretical frameworks and practical examples to the whole group of participants. The deepening and concretization of that content happened in the PLC. In these smaller groups, the focus was on peer learning and social incentives. This PLC met four times in both the first and second years. Individual coaching was also provided for each participating school, with two sessions per year. This coaching was optional; participation was highly recommended and monitored by the coach.

During the process, each PLC was supervised by a regular coach. These coaches also provided individual coaching to the participants of their own PLC, making it possible to identify differences in perceived effectiveness among the coaches. The coaches worked independently of a school and thus were not involved in any form of evaluation of the school leader. Each coach had coaching qualifications (with differences between coaches) and extensive coaching experience, whether in education or not. The educational experience present varied. All coaches were always present during the training days and were kept abreast of the theoretical frameworks and practical applications provided.

¹ In September 2021, commissioned by the Flemish government (Belgium), the two-year PDT started. The substantive focus areas were fixed and the approach of this PDT was free to be determined by the implementers. This created the opportunity to design an evidence-informed approach and conduct research. A more in-depth description can be found in Tanghe & Schelfhout (2023).

Based on the theoretical insights regarding the facilitation of deep learning and development processes during a PDT (Kirkpatrick & Kirkpatrick, 2016) as well as the predefined goal of transfer to one's school context, five common principles for the approach to individual coaching were identified within the research setting: deepening theoretical frameworks and practical examples; working toward/working on an action plan; use of a varied and activating approach; tailored support; creating opportunities for networking and sharing. Although both the goals of a PDT and the approach are fixed, the coach had room within this framework to give his interpretation of the individual coaching. In doing so, he drew on his expertise in coaching school policy development processes (De Meuse et al., 2009; Patrick et al., 2021).

4.3.2 Participants

149 school leaders participated in the PDT. Participants were employed in primary education (43%) or secondary education (57%). 58% of the participants held a management position, 42% a middle management position. 93% participated with a colleague.

73 respondents or 55.7% ($N=131$) participated in individual coaching. 45.2% had one coaching session, 32.9% had two sessions and 11% of respondents had 3 or 4 sessions each.

4.3.3 Data collection

The research questions were answered using mixed methods research. This is a fully mixed sequential equal status design, in which quantitative and qualitative data were collected (in part) simultaneously and used in an integrated manner (Mortelmans, 2018). The triangulation of quantitative and qualitative data with equal weight increases the relevance and depth of the analysis and provides the opportunity to ground the relationship between variables (Darling-Hammond et al., 2022).

At the end of the first year, an online survey (TSA-S) with closed and open-ended questions was completed, focusing on experiences with the trajectory and observed outcomes. Thematic questions were also asked about the individual coaching. 130 participants of the PDT ($n=88\%$) completed the survey. At the end of the second year, a new online survey was administered to the same participants ($N=131$), with a specific section focusing on individual coaching and the approach and expertise of the coach. This section was completed only by school leaders who had participated in the individual coaching ($n=73$). Some of the questions featured in both surveys because of the same. We used the data from the survey at the end of the second year because it reflected the participants' final experiences. All school leaders who completed the written survey participated in the training days and PLC meetings.

Additionally, in-depth interviews were organized with participants ($n=49$), balanced across coaches. Semi-structured interviews were conducted using a question protocol (Morris, 2015).

The in-depth interviews lasted up to one hour, with some questions dealing with individual coaching.

4.3.4 Data analysis

The quantitative data from the written surveys were processed in SPSS. Likert scales were created numerically (e.g., completely disagree (1) - disagree (2) - rather disagree (3) - ...). Where relevant, exploratory factor analyses were conducted to find meaningful, distinguishable and reliable factors. Cronbach's alpha as a measure of reliability is always higher than 0.70.

Analysis of variance (ANOVA, partial eta squared) was used to examine differences in approach and outcome variables between coaches (Tests of Between-subjects Effects). First, we examined potential differences in outcome variables across coaches. Then, we separately investigated whether differences in coaching approach and skills could explain a variation between coaches. As the data did not appear normally distributed, a non-parametric Kruskal Wallis test was performed, confirming the differences in ANOVA and significance. For effect size (η^2), the following scale was used: $\eta^2 < 0.01$: negligible; $0.01 \leq \eta^2 < 0.060$: small; $0.06 \leq \eta^2 < 0.14$: medium; $\eta^2 \geq 0.14$: large (Cohen, 2013).

The possible differences between coaches were further examined using multiple regression analyses, where each coach was considered as a categorical independent variable, representing the different coaching groups they guided. To incorporate these coaches into the regression model, six dummy variables ($k-1$) were created, with each dummy variable corresponding to a specific coach, based on the coaching groups they supervised (De Vocht, 2021; Field, 2018). Multicollinearity was controlled by Variance inflation factor (VIF) and was at most 3.3. For naming the extent to which the variance in the dependent variables is explained by the independent variables (R^2), the following distribution was used: <10%: weak relationship; 10-25%: moderately strong relationship; 25-50%: strong relationship; >50%: very strong relationship; 100% perfect relationship (De Vocht, 2021).

The qualitative data from the open-ended questions of the written surveys and in-depth interviews were processed in NVIVO and analyzed deductively within the predefined categories of the research model (Figure 4.1). The data were quantified and used as citations to interact with the quantitative data to provide further evidence.

Due to the mode of enrollment in the PDT, we had a great diversity of participants. Participation in coaching sessions was also optional. Capturing this diversity would, in itself, require mapping a complex set of variables. It is possible that participants who see a benefit in individual coaching are more likely to participate in this. The unobserved coach characteristics that affect the outcome variables were not controlled for. The results of the quantitative analyses are only indicative, and we examine whether – in combination with the qualitative data of this exploratory research – associations can be established.

4.4 Results

4.4.1 Outcome variables individual coaching

The TSA-S showed that individual coaching sessions ($n=66$) had added value ($M \geq 4.70$) for the learning and development process, with a high mean score ($M=5.03$) for having the desire to continue working on the PDT content. A remarkably large spread can be seen in the perceived added value for converting insights into (planning) concrete actions (Table 4.1).

Items	N	6-Point Scale	Min.	Max.	M	SD
Coaching sessions provide...						
converting insights into (planning) concrete actions	66	Completely disagree (1) – completely agree (6)	2	6	4.70	1.037
having the desire to continue working on the content					5.03	.911

Table 4.1 - Outcomes initiated by participation in individual coaching (TSA-S)

At the end of the second year (ESA-S), school leaders' participation in individual coaching contributed above average to perceived outcomes across the PDT. There is a wide spread in the outcomes ($n=73$), also relative to the TSA (Table 4.2).

Items	N	6-Point Scale	Min.	Max.	M	SD
Coaching sessions provide...						
converting insights into (planning) concrete actions	73	Completely disagree (1) – completely agree (6)	1	6	4.67	1.231
having the desire to continue working on the content					5.07	1.071

Table 4.2 - Outcomes initiated by participation in individual coaching (ESA-S)

A Paired Sample T-test for individual coaching showed no significant increase in perceived outcomes at the end of the PDT compared to the first year.

The ESA-S showed that individual coaching sessions contributed above average positively to increased focus on priorities and their transfer to one's school context, albeit with a wide spread in perceived added value (Table 4.3).

Items	N	6-Point Scale	Min.	Max.	M	SD
Coaching sessions...						
improved the focus on the priorities	73	Completely disagree (1) – completely agree (6)	1	6	4.71	1.124
supported the transfer of priorities into concrete policy actions within the school					4.66	1.145

Table 4.3 - Experience respondents ($N=73$) effectiveness individual coaching (ESA-S)

The analysis of the in-depth interviews ($n=49$), specifically at the level of outcomes formulated by respondents (Table 4.4), shows the added value of individual coaching sessions holding up the mirror (articulated in 11 in-depth interviews):

“A critical friend looking very neutrally at the steps you have taken and need to take: that felt very valuable. It was appreciative and gave a clear view of concrete actions. It gave me a boost.” (R21)

In addition to that broad view (9), individual coaching generated deep insights (6). School leaders experienced it as supportive (2) and positive that it was tailored to their school/situation (8). It gave them inspiration and input (4). Creating goal orientation was also mentioned (3). That the coaching was free (2) and time and space were offered (2) was perceived as facilitating. For some participants, it was a first experience of individual coaching:

“The first time, I thought it was an informal conversation. The second time, I discovered there was something behind it. The coach picked it up and brought the right things.” (R53)

- Mirror, reflection: 11
- Broad, external view: 9
- Tailored: 8
- Depth, critical view: 6
- Inspiring, substantiated input: 4
- Creating focus (goal orientation and delineation): 3
- Follow-up: 3
- Supportive: 2
- Free of charge: 2
- Created time and space: 2
- Reflecting on own approach to colleagues: 1

Table 4.4 - Added value of individual coaching for school leaders (ESA-D)

4.4.2 Independent variables: perceived added value of coaching approach and expertise coach

Q4 was answered as part of the other research questions because this independent variable always interacts with the other independent variables. We devoted a separate section to it in the conclusion/discussion.

4.4.2.1 Didactic approach during individual coaching

Before the start of the PDT, four common principles were identified for the didactic approach to individual coaching (Table 4.5). School leaders ($n=73$) especially perceived tailored support ($M=4.96$; $SD=1.047$) as valuable for learning. For all items, the spread is high.

Items	N	6-Point Scale	Min.	Max.	M	SD
I found the effective approach during coaching to be...	73	Completely disagree (1) – completely agree (6)				
deepening theoretical frameworks and practical examples			1	6	4.10	1.314
working toward an action plan as a common thread			1	6	4.73	1.261
a varied and activating approach			1	6	4.19	1.255
tailored support			1	6	4.96	1.047

Table 4.5 - Didactic approach during individual coaching (ESA-S)

In line with the items in Table 4.5, the quantified data from the in-depth interviews (Table 4.6) showed that the purposefulness of the coaching approach in particular was perceived as important for the school leaders' learning process (4), including the focus on a specific question or problem (1) and the focus on the transfer to one's school/classroom (1).

"It came at the right time, when we took a leap in developing our new vision and translating it to staff, transferring it to actions. Thinking together about questions that were still pending: how best to tackle this?" (R3)

Some school leaders mentioned an approach with a specific conversation approach (3) and sparring (1) without being too rigid (organic approach: 1). Tailored support can be evidenced by content ownership and creating a sense of autonomy (3). Appreciative and affirming interaction (5), giving space combined with creating engagement (2) and a constructive-critical outlook (1) also resonated with this. Deepening theoretical frameworks and practical examples were not explicitly named, but are discussed in Tables 4.6 and 4.7.

- Appreciation, recognition of small steps: 5
- Goal orientation: 4
- Ownership of the school, creating a sense of autonomy: 3
- Discussion/work form: 3
- Giving space without obligation: 2
- Sparring: 1
- Organic, facilitating approach: 1
- Focus on transfer to school/classroom: 1
- Constructive-critical support: 1
- Focus on a concrete question/concrete problem: 1

Table 4.6 - Didactic approach during individual coaching (ESA-D)

The ESA-S (Table 4.7) showed that participants appreciated, above average, the fact that specific topics could be discussed in depth during the coaching if there was a need. That insights from the training days and PLC are taken into account during individual coaching was positively confirmed ($M=4.36$; $SD=1.123$) and also perceived as reinforcing ($M=4.67$; $SD=1.214$). Participation in individual coaching was warmly recommended: those who participated appreciated the encouragement ($M=4.73$; $SD=1.272$). For all these responses, however, a wide spread applied.

	N	6-Point Scale	Min.	Max.	M	SD
During coaching challenges faced by the school could be discussed in depth, depending on the needs	73	Completely disagree (1) – completely agree (6)	1	6	4.99	1.021
During coaching we discussed more in-depth personal topics such as shared or personal leadership, dynamics in the school team and self-reflection, depending on the needs					4.70	1.163
During coaching content/insights from the training days and PLC were further developed					4.36	1.123
The interaction between coaching, training days and PLC was reinforcing					4.67	1.214
I found it positive that during the trajectory there was a strong emphasis on participation in coaching as an integrated part of the PDT					4.73	1.272

Table 4.7 - Experience respondents ($n=73$) effectiveness individual coaching (ESA-S)

The fact that coaches connected to the content of the PLC and training days was mentioned by seven school leaders. At the same time, two school leaders indicated that this could be done more.

During the in-depth interviews (ESA-D), we examined the extent to which school leaders found the same coach for the PLC and the individual coaching an added value (see Table 4.7 items 3 and 4). Indeed, these coaches always participated in the training days. The quantified data (Table 4.8) showed the added value for the relationship between the school (leaders) and the coach: the coach was involved in the school (6), got to know the school (in terms of content and needs) (12), there was trust (23). According to school leaders, this relationship was necessary for performance and efficiency (7) and could (in time) lead to more depth (6) and continuity (3). The coach was a regular point of contact the school could call on (6) and who monitored progress (1). The school leaders and the coach went through a growth process together (5), using shared language and ideas (2). According to four school leaders, the coach added value, provided there is also a 'click':

"I think it takes a while before you feel each other and know what you can do with each other, so no objection to having the same coach for two years. I even felt good about that. I also want to take time first to explore and know how we look at each other." (R83).

"I thought that was positive, because I think if we had started working with someone else in the second year, a lot of trust would have been lost. Also, that other coach didn't know the process you're already in." (R109)

At the same time, variety in coaches can also provide different perspectives, inputs and/or approaches (3).

<p>Positive aspects:</p> <ul style="list-style-type: none"> • Quicker trust and security, trusting relationship: 23 • (Content) aware of the schools' process, of the needs: 12 • Necessary for sufficient efficiency and calm: 7 • More depth, sustainable relationship: 6 • Being able to make links to PLC and training days: 7 • Commitment to school (individuality, willingness to get to know it): 6 • Continuity: 3 • Ability to call on them for elaboration, approachability: 6 • Follow-up: 1 • Shared language and ideas: 2 • On the road together, the coach can also learn: 2 	<p>Opportunities:</p> <ul style="list-style-type: none"> • Added value when it clicks: 4 • Linking more: 2 • Other coaches provide diverse perspectives/ input/approaches: 3
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Table 4.8 - Added value according to same coach PLC and individual coaching + attendance during training days (ESA-D)

4.4.2.2 Coaching skills during individual coaching

During individual coaching, the coach applied various skills (Table 4.9). Notable for the use of the four coaching skills was the above-average rating ($M > 4.50$). At the same time, this also showed a large spread.

Items	N	6-Point Scale	Min.	Max.	M	SD	α
Coaching skills	73	Completely disagree (1) – completely agree (6)	1	6	4.77	1.160	.866
The coach ensured depth through his/her approach					4.77	1.264	
The coach ensured goal orientation					4.67	1.202	
The coach created a sense of safety through his/her approach					4.96	1.263	
The coaching stimulated a transfer of the content to the school					4.70	1.266	

Table 4.9 - Independent variables coaching skills during individual coaching (ESA-S)

Quantified data from the ESA-D (Table 4.10) showed that school leaders found the coaches' questioning (8) valuable. This contributed to depth, focus and transfer:

“The coach’s questioning helped us to think in other registers and address other threads, gain other insights and sharpen our vision. How do you concretize that? Being in conversation with someone who is not directly involved, who as an outsider asks these questions without an ulterior motive, was pleasant. This gets you inspired and gives you new ideas.” (R131)

Listening (4) and summarizing (1) were also mentioned. The coach generated focus (2) and thoughtfulness (1), partly by demonstrating (1), within a safe (4) and supportive (4) context. That the coach acted authentically (3) and empathically (3), exuded calmness and patience (3) and maintained an open mind (1) was seen as positive. However, four school leaders indicated that the coach did not act in a sufficiently coaching manner. For example, preparing for a PLC meeting was not perceived as coaching by school leaders, but was interpreted as such by the coach. A lack of depth also contributed to this statement.

Skills: strengths: <ul style="list-style-type: none"> • Asking good questions, probing: 8 • Creating a safe environment: 4 • Offer support: 4 • Readiness to listen: 4 • Authentic, sincere: 3 • Empathic: 3 • Generating focus: 2 • Being calm, patient: 3 • Summarizing: 1 • Thoughtful: 1 • Open view: 1 • Demonstrating: 1 	Skills: challenges: <ul style="list-style-type: none"> • Too little coaching: 4
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Table 4.10 - Experienced coaching skills (ESA-D)

4.4.2.3 Expertise coach

Coaches' expertise was surveyed overarchingly for both PLC coaching and individual coaching (Table 4.11-A). The perceived coaches' expertise was positive for all respondents ($N=124$), both for experience in coaching ($M=4.85$) and for relevant educational experience ($M=4.71$). At the same time, a large spread could also be seen. Comparing the respondent group that did not receive individual coaching (B) ($n=46$) with the group that did (C), it was found that for the latter group, the perceived added value was higher for both coaching experience ($M=5.24$; $SD=.885$) and educational experience ($M=5.00$; $SD=1.124$), and the spread lower. Based on an independent T-test, this difference was found to be significant, $p=.003$ for coaching experience and $p=.05$ for education experience, respectively.

Items	N	6-Point Scale	Min.	Max.	A: Overarching		B: No individual coaching		C: Individual coaching	
					M	SD	M	SD	M	SD
Our coach has coaching experience	124	Completely disagree (1) – completely agree (6)	1	6	4.85	1.260	4.52	1.394	5.24	.885
Our coach has relevant educational experience					4.71	1.396	4.46	1.559	5.00	1.124

Table 4.11 - Independent variables coaching skills individual coaching (ESA-S)

The ESA-D showed that 16 school leaders considered the coaches' educational know-how as an added value. In addition, two school leaders mentioned the added value of other expertise as relevant.

4.4.3 Perceived added value of coaching approach on outcome variables

For individual coaching, the wide spread in the descriptives of independent and dependent variables was remarkable. When comparing the averages by coach, these differences were also noticed. Further analyses were conducted without accounting for control variables.

Variance analysis (Tests of Between-subjects effects) showed a large though non-significant effect on a $p < .05$ level, on difference between coaches for the dependent variable converting insights into (planning) concrete action ($F(6,73)=2.18$, $p = .056$, $\eta^2 = .166$). For having the desire to continue working on the content, there was a non-significant mean effect difference between coaches ($F(6,73)=1.59$, $p = .164$, $\eta^2 = .126$).

For the independent variables, variance analysis (Tests of Between-subjects effects) of the coaching approach showed a large effect difference between coaches for using a varied and activating approach ($F(6,73)=3.59$, $p = .026$, $\eta^2 = .190$), tailored support ($F(6,73)=2.28$, $p = .046$, $\eta^2 = .172$) and coaching skills ($F(6,73)=3.05$, $p = .011$, $\eta^2 = .217$). These results may indicate differences between coaches their approach. A non-significant mean effect difference between coaches was demonstrated for deepening theoretical frameworks and practical examples ($F(6,73)=.754$, $p = .608$, $\eta^2 = .064$) and for working toward an action plan as a common thread ($F(6,73)=1.26$, $p = .288$, $\eta^2 = .103$). A varied and activating approach and coaching skills showed the largest variance between coaches.

Multiple regression analysis (Table 4.12, Model 1) showed a very strong explanatory value of the coach's didactic approach during individual coaching on converting insights into (planning) concrete action ($R^2 = .616$, $p < .001$). The predictor that contributed most uniquely on top of collective added value was tailored support ($\beta = .446$, $p < .001$). Coaching skills, which we examined separately, had a very strong explanatory value for this outcome variable ($R^2 = .580$, $p < .001$). As a predictor, the coach's coaching skills made a contribution up to $\beta = .765$ ($p < .001$).

Model 1: independent variables						Model 2: independent variables with dummies of categorical variable coach				
Didactic approach										
F(4,68)=27.32, p< .001, R²= .616						F(10,62)=1.35, p= .249, R²= .661				
Unstandardized Coefficients		Standardized Coefficients				Unstandardized Coefficients		Standardized Coef- ficients		
b	Std. Error	β	t	Sig.		b	Std. Error	β	t	Sig.
(Constant)	.076	.472		.161	.873	.046	.568		.081	.936
deepening theoretical frame- works and practical examples	.227	.121	.242	1.880	.064	.215	.133	.229	1.621	.110
working toward an action plan as a common thread	.064	.138	.063	.463	.645	-.001	.140	-.001	-.010	.992
a varied and activating approach	.182	.134	.186	1.363	.177	.217	.154	.221	1.410	.163
tailored support	.524	.149	.446	3.512	<.001	.533	.155	.453	3.432	.001
Dummy Coach 2						.224	.311	.070	.720	.474
Dummy Coach 3						-.060	.348	-.019	-.172	.864
Dummy Coach 4						.522	.417	.117	1.252	.215
Dummy Coach 5						.428	.320	.130	1.335	.187
Dummy Coach 6						-.092	.362	-.022	-.255	.799
Dummy Coach 7						.704	.362	.170	1.948	.056
Coaching skills										
F(1,71)=100.44, p< .001, R²= .580						F(7,65)= .367, p= .897, R²= .566				
Unstandardized Coefficients		Standardized Coefficients				Unstandardized Coefficients		Standardized Coefficients		
b	Std. Error	β	t	Sig.		b	Std. Error	β	t	Sig.
	.794	.398		1.994	.050	.851	.523		1.626	.109
	.812	.081	.765	10.022	<.001	.790	.094	.744	8.390	<.001
Dummy Coach 2						.149	.314	.047	.473	.638
Dummy Coach 3						-.044	.335	-.014	-.132	.896
Dummy Coach 4						.017	.396	.004	.043	.966
Dummy Coach 5						.150	.318	.045	.472	.639
Dummy Coach 6						-.259	.376	-.062	-.690	.493
Dummy Coach 7						.304	.377	.073	.806	.423

Table 4.12 - Multiple regression analysis outcome variable converting insights into (planning) concrete action

Multiple regression analysis (Table 4.13, Model 1) showed a very strong explanatory value of the coach's overall didactic approach during individual coaching for the outcome variable having the desire to continue working on the content ($R^2= .680, p< .001$). The predictor that contributed most uniquely on top of collective added value was tailored support ($\beta= .573, p< .001$).

We investigated the same for coaching skills. The separately examined coaching skills had a strong explanatory value for this outcome variable ($R^2= .605, p< .001$). As a predictor, the coach's coaching skills made a contribution up to $\beta= .778 (p< .001)$.

Model 1: independent variables						Model 2: independent variables with dummies of categorical variable coach				
Didactic approach										
F(4,68)=36.21, p< .001, R²= .680						F(10,62)= .972, p= .045, R²= .708				
Unstandardized Coefficients		Standardized Coefficients				Unstandardized Coefficients		Standardized Coefficients		
b	Std. Error	β	t	Sig.		b	Std. Error	β	t	Sig.
.758	.375		2.020	.047		.843	.459		1.837	.071
deepening theoretical frameworks and practical examples	.168	.096	.206	1.754	.084	.172	.107	.211	1.609	.113
working toward an action plan as a common thread	.065	.110	.074	.591	.556	.059	.113	.067	.520	.605
a varied and activating approach	.097	.106	.114	.917	.363	.112	.124	.131	.901	.371
tailored support	.586	.119	.573	4.945	<.001	.571	.125	.557	4.553	<.001
Dummy Coach 2						.005	.281	.002	.019	.985
Dummy Coach 3						.283	.337	.073	.840	.404
Dummy Coach 4						-.249	.259	-.087	-.964	.339
Dummy Coach 5						.080	.292	.022	.272	.786
Dummy Coach 6						.079	.292	.022	.271	.787
Dummy Coach 7						.074	.260	.019	.286	.775
Coaching skills										
F(1,71)=108.91, p< .001, R²= .605						F(7,65)=1.05, p= .401, R²= .640				
Unstandardized Coefficients		Standardized Coefficients				Unstandardized Coefficients		Standardized Coefficients		
b	Std. Error	β	t	Sig.		b	Std. Error	β	t	Sig.
1.638	.338		4.843	<.001		1.663	.432		3.852	<.001
.719	.069	.778	10.436	<.001		.748	.078	.810	9.636	<.001
Dummy Coach 2						-.395	.259	-.142	-1.525	.132
Dummy Coach 3						.070	.276	.025	.252	.802
Dummy Coach 4						-.165	.327	-.042	-.504	.616
Dummy Coach 5						-.451	.262	-.157	-1.722	.090
Dummy Coach 6						-.012	.310	-.003	-.038	.970
Dummy Coach 7						-.207	.311	-.057	-.665	.508

Table 4.13 - Multiple regression analysis outcome variable having the desire to continue working on the content

As multilevel analysis was not possible due to the limited sample size (*N*), we examined the presence of differences between coaches using regression analysis with dummy variables (Table 4.12-4.13, Model 2). In this model, six dummy variables were created to represent the seven coaches. Model 2 is nested within Model 1, with the addition of the dummy variable ‘coach’ allowing us to compare the performance of each coach. Control variables were not included due to the limitations of the research design.

The regression analysis revealed that most of the outcome variables could not be significantly attributed to differences in coaching. Specifically, the perceived impact of the didactic approach and coaching skills showed minimal explanatory value for the outcome variables, except for the perceived outcome of 'having the desire to continue working on the content' ($p = .045$). This significant difference was specifically linked to the coaching approach that focused on tailored support ($\beta = .557$, $p < .001$). Statistically, the comparison between Model 1 and Model 2, using F-tests, showed no significant improvement in model fit when adding the dummy variables for coaches. This suggests that the addition of the dummy variables did not substantially improve the explanatory power of the model for coaching approach and coaching skills. Statistically, the model fit with the addition of the dummy variables (Model 2) does not show a significant improvement in explaining the coaching approach and coaching skills.

4.4.4 Perceived added value of coach expertise

The explanatory value of perceived coaching expertise was found to be moderately strong for converting insights into (planning) concrete action ($F(1,56)=6.34$, $p = .015$, $R^2 = .102$). For the coach's educational expertise the regression analysis showed a moderately strong relationship for the same outcome variable ($F(1,56)=6.42$, $p = .014$, $R^2 = .103$). The explanatory perceived impact of the coach's expertise on having the desire to continue working on the content by school leaders was found to be low.

4.4.5 Reasons not to participate (anymore) in individual coaching

Participation in individual coaching was warmly recommended during the PDT, which was appreciated. At the same time, it remained a personal choice to participate and how frequently (three sessions were provided). 41.1% ($n=30$) participated in coaching sessions during both the first and second year of the PDT and 47.9% only during the first year. From the ESA-S ($n=41$), three thematic lines from the in-depth interviews can be identified as the main reasons for non-participation.

School leaders did not participate because their question was not clear enough (yet), participants did not know whether coaching was useful, an additional 'consultation' was not necessary, they had enough input, and they did not know what coaching was (14).

A second reason mentioned was lack of time or organizational difficulties in scheduling the interview (11).

A third reason (table 4.14) for non-participation (anymore) in individual coaching was the approach of the coach during the PLC (10). No (good) connection between the school leader and the coach appeared to be a reason (3) as well as too little expertise of the coach (1):

“I did not find coaching his strongest point. He was strong in giving input” (R157)

This was mentioned more strongly during the in-depth interviews than in the online survey. The coaches who experienced more difficulties during coaching the PLC acknowledged the challenges during individual coaching. The participation rate among these coaches was noticeably lower: more school leaders didn’t participate or had only one coaching session. In particular, the coach’s approach during the PLC contributed to school leaders not participating (anymore) in individual coaching.

Reasons for not (or no longer) participating in coaching sessions:

- Coach’s approach in PLC (not enough coaching attitude, no suitable approach, not critical enough, too sweet, breach of trust, too floaty/vague): 10
- No click between group and coach during PLC, too little trust: 3
- Too much distance professionally, too little expertise: 1

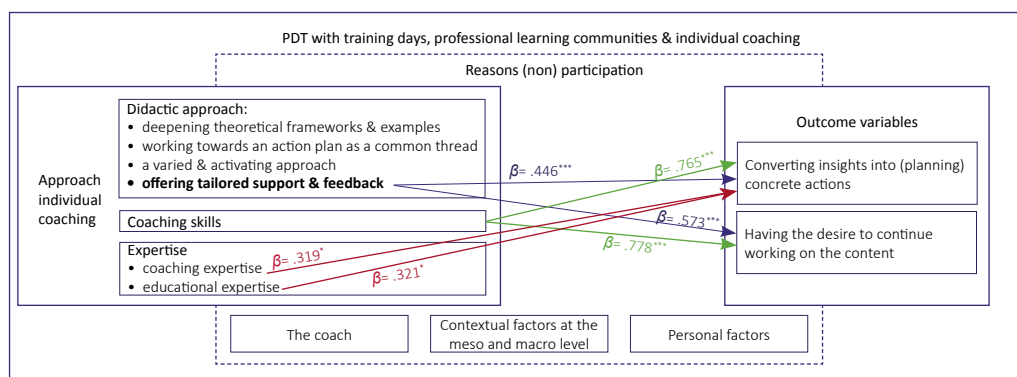
Table 4.14 - Reason non-participation linked to the coach (ESA-D)

4.5 Conclusion & discussion

The purpose of this empirical study was to investigate which characteristics of the coach during individual coaching sessions in the context of a broader PDT for school leaders had a perceived added value in generating professional and school development, given that research on this topic is useful but scarce (van Nieuwerburgh et al., 2020). The triangulation of quantitative data based on online surveys, and qualitative data from in-depth interviews contributed to detecting possible indications. However, as mentioned earlier, this analysis could not comprehensively control for characteristics specific to coaches and participants, and therefore the conclusions drawn should be considered tentative and of an exploratory nature.

Based on our mixed-method research, we have indications that the coach matters: individual coaching sessions as an integrated part of a PDT were perceived as above-average positive for professional and school development by school leaders who chose to participate, confirming previous research (Cannon-Bowers et al., 2023; Lochmiller, 2018; Rowland, 2017). There was both an perceived effect on converting insights into (planning) concrete action and on having a sense of purpose to continue working on the content. The perceived added value remained stable over the two years. There was a large spread in responses, the reason for which we investigated further. Depending on the didactic approach and coaching skills used by the coach during the individual coaching sessions, school leaders experienced a (large) impact on the two outcome variables, or not. Focusing on their priorities was perceived above average positively, which may contribute to effectiveness (Saddler, 2023), again with large differences between responses. In particular, stimulating reflection, maintaining a broad perspective and creating depth tailored to the school (leader) had added value for participating school leaders.

Although this was a relatively large dataset for such a PDT, this group was too small for multilevel analysis. Therefore, in addition to variance analysis and multiple regression analysis, attempts were made to collect explanatory data through in-depth interviews. The design of the PDT, the enrollment procedure, and the optional participation in individual coaching came with some limitations. Moreover, in this research design, comparing coaches was only partially possible. Connected to the PDT, common goals were established, and the principles of the approach were in line with them. Within this framework, coaches had the autonomy to shape their approach based on their expertise. For this reason, there are limitations to the comparison between coaches in terms of their coaching approach and coaching skills and no control variables were taken into account. The associations and mediating factors detected can serve as a basis for future research, with the potential for experimental research in which school leaders receive coaching that meets certain conditions. Further research on influential background and context characteristics also remains important, with triangulation between quantitative and qualitative data advised.



* $p < .05$; ** $p < .01$; *** $p < .001$

Figure 4.2 - Determinants associated with the coach approach for outcome variables during the individual coaching of a PDT for school leaders (model 1)

4.5.1 Added value didactic approach and coaching skills coach on outcome variables

4.5.1.1 Didactic approach coach

In particular, tailored support (if needed) was perceived as valuable by school leaders for the learning process, which is also reflected in previous research (Cannon-Bowers et al., 2023; Rowland, 2017; Weathers & White, 2015). However, differences in responses were observable.

School leaders who participated in individual coaching generally experienced the same coach for PLC meetings and individual coaching as positive. In particular, getting to know the school leaders and their school (context) and building a relationship of trust were mentioned as high added value. That basis is necessary for optimal coaching during a learning and development process. Coaches also mentioned the importance of creating a professional relationship and the need

for customization. These results are consistent with previous research stating that the empathic ability of and support from the coach and the relationship between them appears to be a greater predictor of perceived effectiveness than the approach and methods used (Cox et al., 2014; de Haan et al., 2011). At the same time, this relationship of trust is reflected in the coach's behavior and thus approach. For example, school leaders named listening skills and the coach's questioning as manifestations of a positive relationship for effective coaching (Heston, 2013; Patrick et al., 2021). Such processes require investment from both the coach and the school leader anyway (Darling-Hammond et al., 2022; Eastman, 2019; Lofthouse, 2019). The PDT organizer should also take this into account when designing the trajectory.

The strong preference for the same coach during a two-year PDT need not exclude a concept with different coaches. Different perspectives, input and approaches constitute added value, as some school leaders also pointed out. The choice of one of the two forms or a mix should above all match the predefined goals of the PDT in terms of depth and sustainability.

4.5.1.2 Coaching skills coach

In terms of coaching skills, both ensuring depth and focus, employing a sense of security and transferring to the school context of school leaders were rated highly. Yet here, there was a widespread. The in-depth interviews particularly revealed the importance of asking questions to generate depth, purposefulness and transfer. Listening and summarizing are also important necessary skills. In addition, skills related to creating a safe learning environment and an authentic and engaged attitude proved particularly valuable. These can influence the effectiveness school leaders experience from the sessions and the feeling of being coached. Participants themselves also have the responsibility to give feedback, to name their needs and/or to request an (in-depth) conversation (Simkins 2006) as coaching is about an equal relationship (Darling-Hammond et al., 2022).

4.5.2 Indications of differences in the didactic approach and coaching skills of PLC coaches that may be associated with differences in outcome variables

We then examined the extent to which the large spread between descriptives could be linked to differences between coaches. The variance analysis showed large effect differences between coaches for the independent variables 'using a varied and activating approach', 'tailored support' and 'coaching skills'. The quantitative analysis showed no significant differences for the outcome variables. Both the didactic approach and the coaching skills of the coach have a very strong explanatory value during individual coaching on converting insights into (planning) concrete action and on having the desire to continue working on the content, as shown by the multiple regression analysis. In other words, the perceived added value stands or falls with the created content and the coach's approach but maybe it does not lead to significant differences in outcomes between coaches. The non-significant results of the multiple regression analysis with added dummy variables were in contrast with the results of the in-depth interviews. Further research is required.

Our research showed that many of the coaches' behaviors were not perceived as coaching by school leaders, activating them too narrowly and not leading to the predefined depth, which is also shown in previous research (Patrick et al., 2021). How the coaches concretized the agreed didactic approach and coaching skills to work with the selected questions/themes affected the perceived impact, which is also shown in other research (Patrick et al., 2021).

4.5.3 Perceived added value of the interaction between individual coaching, training days and professional learning communities in a long-term PDT

The coaches' participation during the training days was perceived positively by school leaders for establishing links and providing theoretical frameworks. The fact that coaches connected the content and practical applications provided during the training days, the further transfer to their school context, the social interaction with other school leaders during PLC meetings and the further deepening and concretization during individual coaching were experienced as positive by the participants. School leaders named this interference as reinforcing in both this and previous research (Tanghe & Schelfhout, 2023). It facilitates the necessary content of the coaching process (Patrick et al., 2021) and can create additional depth (Kirkpatrick & Kirkpatrick, 2016). The fact that not every coach did this at the same level and demand was evident from the spread of quantitative and quantified qualitative data and was found to correlate with participants' perceived added value. Coaches must apply this consistently (and sometimes more explicitly). This is also reflected in previous research that indicated the importance of referring to evidence-informed frameworks (Darling-Hammond et al., 2022; Patrick et al., 2021). During individual coaching, there is not always the possibility to present theoretical frameworks, but during training days, there is not always time to get to work on transferring theoretical frameworks and practical applications tailored to each school and school leader (Zhang & Brundrett, 2010), interaction between these two components is valuable, which is confirmed by other research (de Haan et al., 2011; Lofthouse, 2019; Tanghe & Schelfhout, 2023).

To ensure optimal interaction and progress in a broader PDT with training days, PLC and individual coaching, it is important that coaches consciously focus on this (Leedham, 2004). This must be done sufficiently and explicitly to be perceived as effective by school leaders. It is also important that coaches have sufficient content (Tanghe & Schelfhout, 2023) to explicitly link and be aware of their crucial role in this area. This confirms the need for a clear concept of the coaching role, especially a perspective of facilitator and/or a more content-based approach where the coach also co-facilitates input from a theoretical framework (Farver, 2014; Weathers & White, 2015; Wise & Hammack, 2011).

4.5.4 Perceived added value expertise coaches on outcome variables

4.5.4.1 Expertise coach

Both perceived educational expertise and coaching expertise of the coach were surveyed among the participating school leaders. These were rated high, overarching for both PLC coaching and individual sessions. In addition, school leaders who participated in individual coaching rated the coaches' expertise significantly higher. However, it is notable that there was a spread in responses. This may be related to reasons why school leaders stopped scheduling coaching sessions in the second year.

Aligning expectations toward the coach at the beginning of individual coaching – also as part of a broader PDT – makes sense for both partners because it can foster the establishment of a professional coaching relationship, equity and transparency. Perceptions regarding the coaching approach of participating school leaders may differ from those of the coaches (Lofthouse, 2019; Simkins et al., 2006). At the same time, nuance is advisable: most school leaders want to build a trusting relationship first and are not immediately focused on the coach's competencies (de Haan et al., 2011). This also explains why it was not always easy for school leaders to identify exactly what worked in terms of coaching.

A clear understanding of how coaching is integrated into a broader PDT and what the concrete expectations are regarding the coaching role is in order as this affects the coach's interpretation of the approach (Patrick et al., 2021). After all, a coach can be very strong and yet not function optimally within a given framework or not have a match with the school leader(s). It is up to the coach to consider whether he can meet this and whether this matches his values (Lofthouse, 2019). Although all coaches had a strong profile and coaching expertise, not all of them had professional coaching training. This could potentially contribute to inaccurate perceptions and the pursuit of quality standards (Lackritz et al., 2019). However, during coaching sessions, coaches rarely ask questions to verify whether their coaching approach was effective (Patrick et al., 2021). Goals and expectations should also be clear to participants (Simkins et al., 2006), for example to provide feedback.

4.5.4.2 Perceived added value expertise coach

The coach's perceived expertise in coaching was found to only moderately strongly explain both outcome variables. Although during in-depth interviews, the coach's subject matter expertise on education was mentioned by school leaders as valuable, educational expertise did not have a perceived impact based on multiple regression analysis.

Depending on school leaders' questions or needs, educational experience appeared to be an additional positive/negative influencing factor. When coaching school leaders to transfer to their school context is key, educational experience appears to be an important prerequisite. While

this is confirmed by research (Lochmiller, 2018), there are also research findings indicating that a coach can facilitate without having the expertise themselves (Reiss, 2015). School leaders' perceptions and expectations of what makes a good coach help determine the perceived added value (Lackritz et al., 2019).

4.5.5 Reasons not to engage (anymore) in individual coaching

Participation in individual coaching as an integrated part of the PDT was warmly recommended. Nevertheless, it remained a personal choice to participate and with what frequency.

4.5.5.1 (Un)familiarity of school leaders with (the concept of) individual coaching

The absence of need was a reason not to participate in individual coaching. This raises the question of the participants' perception of coaching, as it can be valuable to examine positive situations or because coaching can clarify a question. A possible unfamiliarity of the school leader with the concept (it is not just a consultation) and/or the added value of individual coaching could. Indeed, school leaders know about coaching but often do not have access (Darling-Hammond et al., 2022) or do not know what it means for them (Lofthouse & Whiteside, 2019). Coaches play an important role by informing participants (several times) about the possibility of coaching, what coaching entails and how and why it is integrated into the PDT, giving concrete examples of possible questions/themes (linked to the school's priorities) so that it becomes more concrete, encouraging participants to schedule a session at a time that suits both partners. The coach's role should also be clear (Wise & Hammack, 2011).

4.5.5.2 Previous experience with coach crucial for (not) participating in coaching

The fact that the connection between the school leader and coach did not always work well or that the coach's expertise was considered (beforehand) insufficient were reasons for not participating (anymore) in individual coaching. In particular, the coach's approach during the PLC contributed to school leaders not participating (more) in individual coaching. The coaches themselves did not spontaneously link their approach during the PLC with the effect on the level of participation in individual coaching. Building a trusting relationship takes time anyway (Eastman, 2019; Lofthouse, 2019). The fact that school leaders found their coach friendly and nice was not enough.

It is valuable to proactively consider an alternative approach, possibly with a different coach, when that connection is not realized and coaching does not create the desired added value or school leaders do not participate for that reason. This is certainly opportune since individual coaching is integrated within the broader PDT and does facilitate the transfer and sustainability of the themes of the training days and PLC. In addition, it may be interesting to organize intervention sessions with the coaches to support them in such situations, which are not included in scenarios.

4.5.5.3 Time, space and resources for coaching

Given that most coaches were flexible in scheduling sessions, the question is whether there was no possibility of scheduling a session or whether non-participation had more to do with prioritizing in “the delusion of the day”. Presenting a perspective can contribute positively to the mindset: how do one hour of coaching and one hour of ‘firefighting’ compare? Timely scheduling of sessions and working toward this can also help overcome difficulties in terms of lack of time. For the coach who scheduled sessions with each participant at the start of the PDT, the response rate was almost 100%. At the same time, this can lead to feeling obligated and participating ‘because the sessions are scheduled’ rather than for the added value. Either way, flexibility to adapt the sessions to each school’s (leader’s) process is useful. Communication about the format of the coaching could also be different, by specifically naming it as a fixed dimension of the PDT, but scheduling a predefined number of sessions freely during the PDT, in consultation with the coach.

Although coaching is an increasingly common practice in education, it is not yet accessible to everyone. Both the financial threshold and possible guidelines for budgets linked to professional development may be influential (Lofthouse & Whiteside, 2019; Rowland, 2017). The fact that coaching is implemented in the broader approach of a PDT and is free of charge may encourage school leaders to familiarize themselves with it and engage with it further after completing the PDT, including for their team.

The limitation of three sessions per school came from financial constraints. At the same time, some schools need more or less. If the financial guidelines are fixed, it might be possible to move with a lower and upper limit, with coaching schools for whom it is less necessary or who have coaching available from outside the PDT pursuing a lower limit of participation and the freed-up sessions being used for schools with greater need.

4.6 Recommendations

4.6.1 Recommendations for the government

Individual coaching appears valuable for facilitating professional and school development of school leaders as an integrated part of a broader PDT. Given the cost, it makes sense to provide incentives that can enhance the quality of education.

Many coaches are working in and around education. Given their possible impact, they should be adequately qualified. Defining quality indicators for coaches is advised.

4.6.2 Recommendations for schools/school boards

It appears valuable that school leaders – and by extension all staff – participate in individual coaching, whether integrated into a PDT or not. In addition to providing that opportunity, it is important to carefully select a PDT with integrated coaching or separate coaching to ensure quality. In addition, it is opportune to carefully examine how school leaders perceive coaching – especially if their experience with it is limited – and pay attention to aligning mutual expectations. This improves the sustainability and perceived effectiveness of the partnership.

4.6.3 Recommendations for organizers of professional development trajectories

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During a long-term PDT, several overarching goals are central. At the same time, each school/school leader has their pathway, in line with their expertise, team, school (context), simultaneous participation in other professional development trajectories, ... Consequently, the need for individual coaching may differ. Besides how to communicate non-committal individual coaching as a valuable integrated part of a PDT, it makes sense to define a lower limit in terms of participation in individual coaching. It is also necessary to think proactively about an approach when that necessary trusting relationship is not established and individual coaching does not create the desired added value or school leaders do not (no longer) participate for that reason.

Since coaches have an important central role during the PDT, they should be aware of the communication that needs to take place (and its impact) about what coaching is, what the goal might be, the frequency, any flexibility to schedule custom sessions (number, time, questions/themes, etc.), ...

If individual coaching is part of a PDT, it is opportune to select coaches in advance in a goal-oriented way who have the necessary coaching expertise and possibly educational expertise, in line with the goals of the trajectory. The coaches should have a clear idea of the broader framework in which individual coaching takes place and what expectations there are with regard to them and the organization of coaching sessions, in order to work maximally within the vision of the professional development trajectory.

Commitment to central principles for approaching coaching using scenarios provides structure. Personal interpretation within the provided framework allows ownership and the opportunity to valorize one's own expertise. Finally, organizing intervision between coaches can be valuable for their professional development, as it creates opportunities for peer learning based on case discussions and sharing of practical examples.

INTRODUCTION

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STUDY 5

CONCLUSION

Goal- and action-orientation as key factors during a professional development trajectory for school leaders to facilitate sustainable transfer of training

Based on: Tanghe, E. & Schelfhout, W. (Submitted). Goal- and action-orientation as key factors during a professional development trajectory for school leaders to facilitate sustainable transfer of training.

Abstract

The professional development of school leaders requires quality professional development trajectories which take an organizational and didactic approach that encourages concrete transfer and sustainable implementation of the content during and after participation. However, little empirical follow-up research is available on the sustainable impact of such trajectories for school leaders with respect to their own professional development and that of their school. This mixed methods study aimed to address this research gap and gain insight into factors related to the general organization of professional development trajectories. It explores specific approaches that school leaders perceive as effective for the further goal- and action-oriented transfer and implementation of the content in the context of subsequent professional and school development. The study shows that a professional development trajectory approach that implements working with an action plan, participation in a professional learning community and opportunities for individual coaching, as well as their mutual integration, leads to overall satisfaction and perceived improvement of goal-orientation and action-orientation. Certain factors relating to the overall organization of a professional development trajectory can enhance the sustainable transfer of training. Some additional salient research insights and recommendations for policy, schools or school communities and organizers are also noted.

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5.1 Introduction

The professional development of school leaders requires quality long-term professional development programs (Jensen, 2016; Sahlin, 2023). In addition to the choice of an appropriate program by the school leader (Wright & da Costa, 2016), the organization of and approach taken by professional development trajectories (PDT) determine their perceived effectiveness by school leaders (Mdhlalose, 2022; Orr & Orphanos, 2011). The concrete transfer and sustainable implementation of the content of a PDT in the work context also poses a challenge (Grossman & Salas, 2011; Mdhlalose, 2022). Once a PDT ends, input and support often decline. Although it has been demonstrated that participation in a PDT continues to have an impact years later at the individual level (Yelon et al., 2013), the implementation of evidence-based programs that are proven effective and contribute to curriculum renewal appears to have little sustainability once initial enthusiasm and financial resources disappear (Askill-Williams & Koh, 2020; Cooper et al., 2015).

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Insight into the effectiveness of training programs focusing on transfer to the individual's context has improved over the past decades (Baldwin et al., 2017). However, little empirical transfer research is available on the effects of PDTs for school leaders (Daniëls et al., 2021), and there is even less research on the specific key factors that sustain the effectiveness of PDTs for school leaders after completion (Daniëls et al., 2021). Possible reasons for this may be the complexity of professional and school development and the context in which it takes place (Askill-Williams & Koh, 2020; Brauckmann et al., 2023; Daniëls et al., 2021; Jensen, 2016); the fact that outcomes of a PDT (in terms of timeline) may differ among participants (Blume et al., 2019); and that changes are not always immediately apparent, although participants experience them (Fluckiger et al., 2014). Because it takes time to embed learning outcomes (Fluckiger et al., 2014; Rieckhoff & Larsen, 2012; Simkins et al., 2009), longitudinal follow-up with different measurements of perceived effects (Blume et al., 2019; Huang et al., 2017; Jensen, 2016) is appropriate for both trainers and organizers (Baldwin et al., 2017; Yelon et al., 2014), also taking into account that sustainability is a dynamic non-linear process without an endpoint (Fullan, 2004). Therefore, this mixed methods study aimed to gain insight into factors related to the general organization of a PDT and specific approaches that school leaders perceived as effective for the further goal- and action-oriented transfer and implementation of the PDT content in the context of subsequent professional and school development.

5.2 Theoretical framework

Effective professionalization “provides relevant knowledge and skills to the participant and the confidence to apply them on the job” (Kirkpatrick & Kirkpatrick, 2016). This motivates school leaders to transfer acquired insights into concrete actions in their schools (Tanghe & Schelfhout, 2023). The transfer of PDT learning content may occur at different levels, such as performing desired actions by applying what has been learned to regular tasks; evaluating the predefined

actions (of oneself or others) according to criteria; explaining the learned content and practical applications to others; instructing others in performing the predefined actions; and training others to apply the learned content, thereby changing norms of teamwork and improving work processes (Yelon et al., 2014).

To facilitate transfer, the program needs to fulfill certain conditions. Although assessing the effectiveness of PDTs for school leaders is not straightforward, due to a lack of research on criteria (LaPointe & Davis, 2006); the limited consensus on what constitutes professional development of school leaders and the best approach to do so (Goldring et al., 2012; Wright & da Costa, 2016); and the difficulty of isolating direct effects (Daniëls et al., 2019; Ford et al., 2018; Simkins et al., 2009), conditions of success can be detected. The components that influence the level of transfer of learning content during and after a PDT can be categorized into factors associated with the PDT approach and factors associated with school leadership in relation to the school context (Baldwin & Ford, 1988; Grossman & Salas, 2011).

5.2.1 Key factors for effectiveness during a PDT

5.2.1.1 Factors associated with the organization of the PDT

Clear goals are important (Levine, 2006). Based on these, school leaders can select a PDT in a goal-oriented way that matches their needs (Levine, 2006), their personal background (Leithwood & Levin, 2005) and their specific job content and context (Brauckmann et al., 2023; Goldring et al., 2012; Sahlin, 2023; Wright & da Costa, 2016). The added value to the individual's development and/or context must be demonstrated (Manju & Suresh, 2011) before a "transfer of training" happens (Mdhlalose, 2022). Making the goals explicit also demonstrates the level of depth and transfer of the content to the individual's school (Kirkpatrick & Kirkpatrick, 2016) and their respective expectations (Brion, 2022).

School leaders are aware of the importance of having insight into their initial situation as a strong basis for future professional and school development (Brauckmann et al., 2023; Rieckhoff & Larsen, 2012). An evidence-based theoretical framework concerning the goals (Leithwood & Levin, 2009; Pashiardis & Brauckmann, 2009) of training days is perceived by school leaders as necessary for acquiring insights that allow them to take reasoned action (Tanghe & Schelfhout, 2023). Further deepening the content presented and linking it to school-specific priorities is also appropriate for recognition and applicability (Daniëls et al., 2019). This also increases engagement (Sun & Leithwood, 2015).

School leaders perceive the development of an action plan during a PDT as bringing added value with respect to the purposeful transfer to their school context (Doe et al., 2016; Fluckiger et al., 2014; Sun & Leithwood, 2015; Tanghe & Schelfhout, 2023). This accords with the shift from knowledge acquisition to knowledge creation and development (Lumby et al., 2008). In addition, this concretizes what is called "implementation intention" (Gollwitzer, 1999), particularly for

complex situations, by delineating how the predefined goal will be concretely pursued (Friedman & Ronen, 2015). A prerequisite for realizing knowledge transfer and minimizing contextual factors is the formulation of priority goals and the way they will be achieved as concretely as possible (when, where, how and why) (Gollwitzer & Sheeran, 2006).

School leaders also perceive the added value of depth and reflection (Daniëls et al., 2023; Daniëls et al., 2021; Huber, 2011; Lazenby et al., 2022; Tanghe & Schelfhout, 2023; Tingle et al., 2019) that comes through discussing school-specific priorities and questions with peers, as well as gaining inspiration and receiving feedback from their peers (Lazenby et al., 2022; Rieckhoff & Larsen, 2012; Tingle et al., 2019; Wright & da Costa, 2016). This may occur during formal or informal exchange opportunities (Sahlin, 2023; Sparr et al., 2017; Tanghe et al., 2024), where various activating didactics tailored to the group can be used (Brion, 2022; Tanghe & Schelfhout, 2023). Frequent referencing to the way learning content is useful, while creating space for conversations about possible applications contributes to the transfer and relevance of the content taught (Kirkpatrick & Kirkpatrick, 2016).

Follow-up meetings of professional learning communities (PLCs) and possible participation in coaching sessions provide structure, stimulate transfer to a school-specific approach (Tanghe & Schelfhout, 2023), test observable results at the teacher level (Hargreaves & Fullan, 2015; Hattie, 2012; Marzano & Boogren, 2010) and, in the longer term, the student level (Brown, 2020; Brown & Flood, 2020a; Doe et al., 2016). Goal- and action-orientation is also fostered by tailored support and goal-oriented monitoring of progress by experienced coaches and trainers (Brion, 2022; Goldring et al., 2012; Tanghe & Schelfhout, 2023).

School leaders argue that a PDT with a balanced and logical cyclical progression and structure over time (Huber, 2011; Simkins et al., 2009), consisting of training days, PLC meetings and coaching with mutual interaction, increases learning efficiency and facilitates concrete changes in the individual's school (Tanghe & Schelfhout, 2023). Effectiveness is improved through the deployment of various approaches, in addition to spreading them over time (Goldring et al., 2012). Formally providing time and space for professional development is necessary for deep learning (Brion, 2022; Daniëls et al., 2023; van Veen et al., 2010; Wright & da Costa, 2016) and real action (Rieckhoff & Larsen, 2012; Sahlin, 2023; Tanghe & Schelfhout, 2023).

5.2.1.2 Factors associated with school leadership in relation to the school context

For a PDT to be effective, it is important that participants explicitly choose to engage with and sustain content processing (Kirkpatrick & Kirkpatrick, 2016; Simkins et al., 2009) at the start, thus endorsing the importance of professionalization (Lazenby et al., 2022; van Veen et al., 2010). Participants also appreciate that a PDT entails longer term commitment (Tanghe & Schelfhout, 2023). A positive decision and the motivation to participate can also positively influence longer term transfer (Huang et al., 2017), while self-regulation competencies also contribute to positive outcomes (Gollwitzer & Sheeran, 2006).

A school context with a positive learning climate contributes to informal professional learning of school leaders through support, feedback, reflection and career awareness, and also generates social learning (Brion, 2022; Daniëls et al., 2023; Daniëls et al., 2021; Ford et al., 2018; Mdhlalose, 2022). During a PDT, explicit consideration of the importance of the school context, culture and aspects related to being a school leader (Daniëls et al., 2019; Lumby et al., 2008; Tingle et al., 2019) brings out facilitating or non-facilitating factors related to professional and school development – such as the current school climate – and thus facilitates transfer (Harteis, 2012; Lumby et al., 2008; Sigford, 2005).

Participation in a PDT with a colleague generates positive outcomes for both of the school leaders involved, including in terms of the joint propagation of a school-wide culture, support in the implementation of actions, collaboration and a shared language, vision and introduction to other perspectives (Doe et al., 2016; Hilton et al., 2015; Sun & Leithwood, 2015). The opportunity for other team members to participate in additional training days and thus also engage in shared school leadership also facilitates transfer (Tanghe & Schelfhout, 2023).

5.2.2 Key factors for effectiveness after completion of the PDT

5.2.2.1 Factors associated with the organization of the PDT

Formulating concrete future-oriented goals and predefined outcomes during and at the end of a PDT can stimulate concrete transfer and implementation afterward (Ford et al., 2018; Tews & Tracey, 2008). Continuing with the action plan formulated during the PDT and linked to the school context and school policy can maintain or even enhance implementation intention (Friedman & Ronen, 2015).

“Debriefing” or after-event reviews facilitate reflection, which encourages action or implementation and/or adjustments to them with respect to the future (Brion, 2022; Tannenbaum & Cerasoli, 2013; Villado & Arthur Jr, 2013). Although little research is available (Ford et al., 2018), two potential ways to do this are to continue the PLC meetings initiated during the PDT and to share with colleagues from one’s team who also participated in the PDT. Previous research has found that all inter-school PLC groups initiated during a PDT for school leaders had the intention to continue them after the event (Tanghe et al., 2024). To ensure that future PLCs remain relevant, it is important that participation is formally linked to the school policy and associated school action plan, and that the PLC makes a meaningful contribution to the latter (Brown & Flood, 2020a).

Further participation in coaching (with a coach from the PDT) can positively influence post-transfer through active follow-up, support and feedback (Blume et al., 2019; Tews & Tracey, 2008).

5.2.2.2 Factors associated with school leadership in relation to the school context

School leaders decide what to apply, how and for what reason (Yelon et al., 2014). Prior knowledge, as well as beliefs and values related to the profession, influence the decision to transfer learning content into practice (Brion, 2022; Choi & Roulston, 2015). Experiencing success in applying learning content acquired during the PDT encourages long-term sustainable application and possibly extended implementation opportunities (Yelon et al., 2014). In other words, the outcomes of the PDT need not be limited to insights and behavior as such, since the co-creation of new conditions and goals for further application in the school context are also linked to this (Yelon et al., 2014).

School leaders who have competencies to deal with various contextual obstacles, such as lack of time and teacher shortage, as well as problem-solving competencies, will be better equipped for transfer of PDT to their schools (Sun & Leithwood, 2015; Tews & Tracey, 2008). In addition, time is needed to participate in PLCs, to develop policies and actions and to engage and mobilize the team (Brown & Flood, 2020a). School leaders need to schedule structural time for themselves and the team (Brown & Flood, 2020a).

5.3 Research design & methodology

5.3.1 Research model and research questions

Using empirical research, we examined which factors – related to the general organization of the PDT and the specific approaches it used – that school leaders perceived as effective for future goal- and action-oriented transfer and implementation in the context of professional and school development after completion of a PDT. The sub-questions we addressed were:

- Q1: Which specific approach (developing an action plan, PLC participation, coaching participation) during the PDT do school leaders perceive as effective for sustained action- and goal-oriented transfer and implementation of professional and school development after completion of a program?
- Q2: Which factors related to the general organization of the PDT do school leaders perceive as effective for sustainable action- and goal-oriented transfer and implementation of professional and school development after completing the program?
- Q3: Which factors related to school leadership and the school context do participating school leaders perceive as influencing sustainable action- and goal-oriented transfer and implementation of professional and school development after completion of a program?

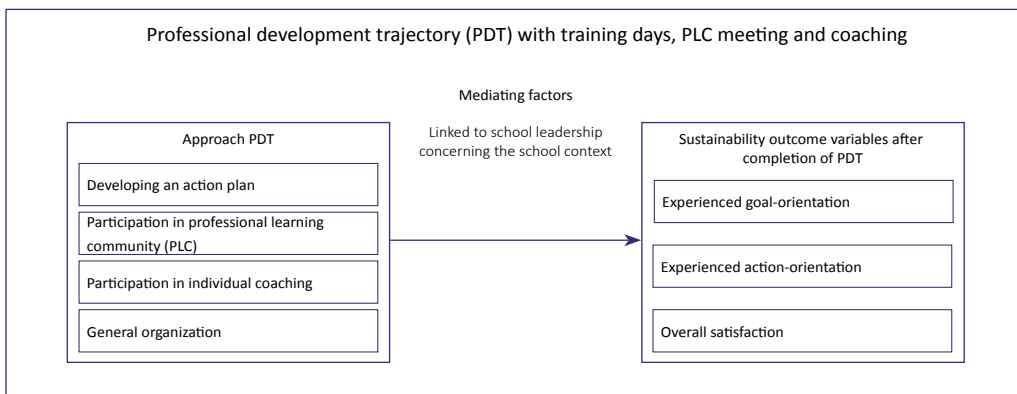


Figure 5.1 - Research model

5.3.2 Research context

A two-year PDT started in September 2021 on behalf of the Flemish government (Belgium). The trajectory was composed of training days, the start-up and development of professional learning communities (PLC) and individual coaching. This organizational approach was combined with a specific didactic approach to generate maximum transfer to the participants' own schools and concrete actions in terms of vision and school development (Tanghe & Schelfhout, 2023).

The purpose of the training days was to provide the entire group of participants with a theoretical framework, practical examples and applications. The deepening and concretization of this content as a function of transfer to the participants' own school context occurred in the PLCs. The PLCs focused on peer learning and social stimulation in smaller groups of existing inter-school networks (Tanghe et al., 2024). These permanent PLC groups met four times in both the first and second years. Individual coaching was also provided for each participating school. The central focus during the coaching was each school's individual level and specific needs or questions. During the two years, three coaching sessions per school were planned. This coaching was not obligatory but warmly encouraged.

Before the start of the PDT, all participants signed a declaration in which they committed to participate in the entire process and develop a school-specific action plan to transfer the PDT content to their school. They also committed to participating in research surveys.

5.3.3 Participants

In September 2021, 149 school leaders from 69 schools started the PDT. Participants worked in primary education (43%) or secondary education (57%). A management position was held by 58% of the participants, 42% held a middle management position and 93% participated with a colleague.

Fourteen inter-school networks participated in the PDT (Tanghe et al., 2024). Each network consisted of 4 to 19 participating schools. Each network was organized as a PLC. The network with 19 schools was divided into two PLCs. Each PLC consisted of 7-13 participants and was supervised by a permanent coach, who supervised a minimum of one and a maximum of three PLCs.

Each school decided individually whether they would participate in all or some of the individual coaching sessions, and whether the school leader participated alone or other colleagues also participated. In total, 73 respondents ($n=55.7\%$) participated in the individual coaching, with 41.1% participating in the coaching sessions over two years and 47.9% only participating during the first year. The largest group of respondents ($n=45.2\%$) participated in individual coaching once (Table 2).

At the end of the first year, each school submitted the first draft of a school-specific action plan linked to the content of the PDT. At the end of the second year, a further optimized draft was submitted by 61 schools (88,14%). Schools received a sample template which they could choose to use or not.

5.3.4 Data collection

The research questions were answered using mixed methods research. We used a fully mixed sequential equal status design, in which quantitative and qualitative data were collected, sometimes simultaneously, and used in an integrated way (Mortelmans, 2018). Combining quantitative and qualitative data with equal weight increased the relevance and depth of the analysis, and provided the opportunity to substantiate the relationship between variables through triangulation (Darling-Hammond et al., 2022).

An online survey (ESA-S) was completed at the end of the trajectory. A total of 132 school leaders ($N=96\%$) who participated during the second year of the PDT completed the final survey. All those who completed the survey participated in the training days and PLC meetings.

All action plans submitted ($N=61$) were screened according to quality criteria developed on the basis of guidelines during the PDT and a literature review (Appendix 5.1). Based on their score, the action plans were then ranked according to degree and quality of development, with three categories for both primary and secondary education: limited, sufficient or strong content development.

Next, by stratified sampling, four school leaders from each of the three groups for both primary and secondary education were contacted ($N=24$) to complete an online survey (ESA2-S) and in-depth interview (ESA2-D), with the same numbers from primary ($n=12$) and secondary ($n=12$) education, and all from different PLC groups. The online survey consisted of closed questions,

and the in-depth interview was semi-structured. Both focused on respondents' perceptions. All interviews were recorded and then transcribed.

To link the datasets at the individual level, we collected personal data. This was also used for the individual reminder. Participants were informed of this in the statement of commitment which they signed before the PDT and a cover letter accompanying each call. During data processing, each respondent was assigned a personal code to link the separate datasets and then anonymize the data.

5.3.5 Data processing

The quantitative data from the surveys at the end of the PDT (ESA-S) and one year after it had been completed (ESA2-S) were used to analyze the dependent and independent variables. They were processed in SPSS and used at the descriptive level. Likert scales were created numerically (e.g., completely disagree (1), disagree (2), rather disagree (3), etc.).

To assess the extent to which the stratified sample used was representative of the full sample, Paired T-tests were first conducted to examine whether the averages of the stratified sample ($n=24$) were significantly different from the average of the original sample ($N=132$). In addition, independent T-tests were conducted to examine the extent to which the mean scores of the stratified sample ($N=24$) at the end of the PDT were significantly different from the mean scores one year after completion of the PDT. Although the stratified sample was not found to be significantly different from the original sample, we should be wary of generalizing statements because original participants who chose not to participate have been left out of the sample and, in addition, there may be influencing factors that we do not capture by these T-tests.

The qualitative data from the in-depth interviews one year after completion of the PDT (ESA2-D) were analyzed deductively after transcription within the predefined categories of the research model (Figure 5.1) using a similarly constructed code tree (Figure 5.2). The data were quantified and also exploited as citations to interact with the quantitative data and provide further substantiation (Mortelmans, 2018).

5.4 Results

5.4.1 Outcomes experienced by participants

Overall, the ESA2-D ($N=24$) showed that 23 school leaders responded positively when asked for their general reflections one year after completion of the program and what it stimulated. Five school leaders immediately mentioned the major changes in school policy to which their participation had led.

“It was a real success for our school and for me as a school leader. The process set a lot in motion and changed a lot.” (R120)

Four school leaders had mixed responses because not all of the content had met their expectations, they had gained fewer insights in the second year, or there was already a connection with school leaders from the other schools in the PLC.

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Positive appreciation was linked to five themes. First, participants learned a lot in terms of content: in addition to theoretical frameworks and in-depth insights (11), they also discovered concrete applications and ideas (7). Second, their participation stimulated a process of change in which they took concrete steps (7), committed to shared school leadership and more support (7), committed to creating a common language (5) and generated more focus and purpose (3). Third, linked to this, their participation generated more conscious and deeper ability for reflection, including self-reflection (24), with a broader view and opening of school policy (5) or of their school leadership (2). Fourth, the importance of peers was also discussed, both within their team (4) and within the school community, with the PLC being an initiator of a greater reflective capacity (6). An enlarged and strengthened network with other school leaders was generally perceived as valuable (10) and the connection within the inter-school network was deepened and strengthened (in terms of content) (11). Participation in the PDT with a colleague had a reinforcing effect (4). Networking also contributed to support and reassurance (5). Finally, four participants reported that they felt stronger as school leaders.

5.4.1.1 Goal-orientation by developing actions

Both at the end of the PDT (ESA-S, $N=132$) and one year after (ESA2-S, $n=24$), school leaders experienced above-average goal-orientation and focus in preparing and developing actions as a result of their participation in the PDT (Table 5.1). Notable was the wider spread of responses at the end of the course ($M=4.78$, $SD=.893$) compared to one year after completion of the PDT ($M=5.25$, $SD=.541$). The paired T-test showed no significant difference for the sample: $t(22)=.569$, $p=.575$.

Item	6-point scale	At the end of the PDT						One year after completing the PDT				
		<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>	α	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>
Experienced goal-orientation	Totally disagree (1) – Totally agree (6)	132	1	6	4.78	.926	.893	24	4	6	5.25	.453
I experience more focus in the approach					4.58	.973					5.00	.511
The program encouraged me to focus on (learning) care (and school leadership)					4.65	1.105					5.17	.702
The program encouraged me to develop goal-oriented actions for my school					5.09	.976					5.58	.654

Table 5.1 - Experienced goal-orientation and focus by development of actions (ESA-S and ESA2-S)

5.4.1.2 Taking concrete actions

To interpret the results on action-orientation one year after the end of the PDT, it is important to consider the situation at the end of the PDT and how the PLCs and individual coaching, as two key organizational features, contributed to it.

The ESA-S at the end of the PDT (Table 5.2) showed that participants were above-average positive about the extent to which the PLC contributed to planning concrete actions ($M=4.69$, $SD=1.044$) and taking concrete actions ($M=4.56$, $SD=1.103$). The broad spread and thus large differences between participants is noteworthy.

Item	6-point scale	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>
The PLC contributed to:						
Converting insights into planning concrete actions	Totally disagree (1) – Totally agree (6)	131	1	6	4.69	1.044
Taking concrete actions					4.56	1.103

Table 5.2 - Contribution of PLC to action-orientation during PDT (ESA-S)

Furthermore, the ESA-S (Table 5.3) showed that participants ($n=73$) were above-average positive about the extent to which the coaching contributed to planning concrete actions ($M=4.67$, $SD=1.248$) and taking concrete actions ($M=4.73$, $SD=1.216$), also with a wide spread.

Item	6-point scale	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>
Individual coaching contributed to:						
Converting insights into planning concrete actions	Totally disagree (1) – Totally agree (6)	73	1	6	4.67	1.248
Taking concrete actions					4.73	1.216

Table 5.3 - Contribution of individual coaching to action-orientation during PDT (ESA-S)

In general, at the end of the PDT, school leaders (Table 5.4, Appendix 5.2) were above-average positive ($M=4.42$, $SD=.811$) about the extent to which their participation led to taking actions in their school. One year after completion of the PDT, this positive experience had increased even more ($M=5.17$, $SD=.578$). The paired T-test showed a significant difference in results: $t(22)=-.271$, $p=.013$. This illustrated that school leaders who participated in the in-depth interviews took further actions after the completion of the trajectory.

Item	6-point scale	At the end of the PDT						One year after completing the PDT					
		N	Min.	Max.	M	SD	α	N	Min.	Max.	M	SD	α
Experience action-orientation	Totally disagree (1) – Totally agree (6)	132	1	6	4.42	.811	.845	24	4	6	5.17	.578	.713

Table 5.4 - Taking concrete actions (ESA-S and ESA2-2)

5.4.1.3 Overall satisfaction with actions taken

Both the ESA-S and ESA2-S (Table 5.5) showed that school leaders were above-average satisfied with the actions achieved as a result of their participation in the PDT. The wider spread in the ESA-S due to outliers ($M=4.36$, $SD=1.042$), compared to one year later ($M=4.63$, $SD=.711$) when there were no outliers, is of note. The paired T-test showed no significant difference: $t(22)=-.253$, $p=.803$.

Item	6-point scale	At the end of the PDT					One year after completing the PDT				
		N	Min.	Max.	M	SD	N	Min.	Max.	M	SD
Overall, how satisfied are you with the actions already achieved?	Totally disagree (1) – Totally agree (6)	132	1	6	4.36	1.042	24	4	6	4.63	.711

Table 5.5 - Satisfaction with actions achieved following participation in PDT (ESA-S and ESA2-2)

When asked during the in-depth interviews (ESA2-D) about the perceived impact of their participation in the PDT on reflecting on school policy up to one year after completion, 20 school leaders responded positively. Four school leaders also stated that they still regularly explicitly referred to their participation in the PDT.

“I was and am very enthusiastic about the program because it was a very important point of return, even a pivotal point in my school leadership. I was at a loss and the trajectory was the starting point for a whole reform in our school. The trajectory was an opportunity to rethink our work” (R159)

The greatest perceived impact appeared to be in the area of vision, specifically developing or updating the vision or ambition (10). Three school leaders mentioned insights acquired about first developing a vision, prior to taking action. School leaders mentioned an increased focus on goal-oriented and process-oriented work and prioritizing (11). The concrete transfer of the vision into an action plan (multi-year: 1), as well as its implementation, evaluation and adjustment, if desired, was also mentioned (15). By developing substantive themes (underpinned: 3; in-depth: 3), implementing and growing further, school leaders had the experience that they were taking steps forward (8).

“We are now prioritizing and formulating goals. We are also evaluating those goals and reflecting on them. We are more intentional about it than before and also involve the team more” (R48)

They wanted to continue along this path in the future (3), with one school leader stating that their school policy now inspires other schools. School leaders mentioned insights acquired into taking time for sustainable change and transfer (4) and the importance of communication, repetition and providing support (4). They better realized the importance of time to ensure positive development (5). Two school leaders took additional in-depth courses after the PDT. Although the majority of school leaders stated that the trajectory had a great perceived impact, even a year later, the origin of the input could not always be traced to the PDT.

Five challenges appeared to inhibit the perceived impact. Three school leaders mentioned the lack of time or time that primarily went into keeping daily operations going.

“If I could choose for myself I would provide much more time to delve deeper. I did feel good about it. I defined a whole policy. Things remain from it and the colleagues who participated are also on board, but it may seep in more. In the workplace, there are constant crises, so there is no time” (R170)

The depth (3) and speed and progression (4) of change processes were also discussed, also with other foci (1) and contextual factors (1). A lack of further structural input and support and monitoring of the school's progress was also felt (2). Finally, the school team appeared to be subject to teacher shortages, attrition or turnover of team members, which put pressure on the vision chosen and the commitment to shared school leadership. It also led to the loss of expertise or its fragmentation (6). Teams are also not always eager for change (1).

5.4.2 Participants' perceived approach to PDT

5.4.2.1 Developing an action plan

Overall (Table 5.6), the ESA-S revealed school leaders ($N=131$) had above-average appreciation of working with an action plan during the PDT, although there was some spread in responses. According to the participants (Appendix 5.3), the action plan contributed to reflecting on concrete actions ($M=4.86$, $SD=.901$) and converting school policy into subsequent actions ($M=4.79$, $SD=.859$). In addition, the action plan provided a valuable framework for effective implementation of the actions ($M=4.76$, $SD=.985$) and a true commitment to them ($M=4.82$, $SD=.943$). School leaders also mentioned that they became aware of the value of working with action plans during the PDT ($M=4.50$, $SD=1.126$), which may be especially true for those who were not already working with such plans (given the wide range). Finally, school leaders mentioned an intention to continue using the action plan after the PDT ended ($M=5.00$, $SD=1.081$) and to extend this practice to other policy themes ($M=4.53$, $SD=1.166$).

Item	6-point scale	At the end of the PDT					
		<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>	α
Being asked to develop an action plan contributed to reflecting on concrete actions	Totally disagree (1) – Totally agree (6)	131	2	6	4.75	.887	.949

Table 5.6 - Working with an action plan during the PDT (ESA-S)

Working with an action plan was implemented in the PLCs ($N=131$) and during individual coaching ($N=73$). At the end of the PDT, participants were above-average positive about the added value of the PLCs ($M=4.67$, $SD=.948$) and coaching ($M=4.57$, $SD=1.082$) for developing an action plan (Table 5.7).

Item	6-point scale	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>
Added value of PLC in developing action plan	Totally disagree (1) – Totally agree (6)	131	2	6	4.67	.948
Added value of coaching in developing action plan		73	1		4.57	1.082

Table 5.7 - Working with an action plan during PLC and individual coaching (ESA-S)

We examined participants' experiences one year after the PDT based on the screening of action plans (see Appendix 5.1), selecting eight school leaders who scored low and eight school leaders who scored high on the elaboration of their action plans which they submitted at the end of the PDT. This allowed us to detect possible similarities and differences in terms of factors that did or did not facilitate goal- and action-orientation after participating in a PDT, in addition to the overarching data from the ESA2-D ($N=24$).

Of the schools with a strong action plan ($n=8$), six were already working with such plans before the PDT. At one school, the school leader was familiar with them, but for the school this was a relatively new concept that she had recently introduced. One school was already working with a plan, but it was not as clearly delineated or lacked clear criteria. Among the schools with a weakly developed action plan ($n=8$), five school leaders said they were familiar with it, at one school it was not so well delineated or lacked clear criteria up to that point, while at two it was new.

“Action plans don’t fit well in an informal school. It takes effort to convince people of the usefulness. Not having an action plan is comfortable and means less accountability” (R83)

The action plans functioned as active documents (7) for goal-oriented, thoughtful and structured work (11) and prioritization (3), as well as being future-oriented (10). They also presented a transparent communication and visualization tool (16) for the completed and predefined steps to be taken. In addition, they were used to evaluate (4) and if necessary make adjustments to the process (3), although this capacity could be even stronger (1). Developing an action plan was experienced as an opportunity to create depth (5).

“The action plan creates overview and structure: setting goals and planning succeed, the follow-up is somewhat less but assuring even so. The action plan is also a kind of personal reminder and ‘big stick.’ It involves administration, but developing it is also nice and it helps to clarify and communicate expectations.” (R104)

School leaders said that they often take the initiative (for certain parts) (5) and that further elaboration or adjustment based on input and feedback (e.g., from core groups: 4) is usually undertaken by themselves and/or with the policy team (11). Three school leaders indicated that they managed it alone. Updating the document was variable: some school leaders mentioned that this was often out of sync with the steps implemented and that this was an area for improvement (3). Getting the whole team more involved was also mentioned as a challenge (4). Finding time appeared to be an important aspect (2).

All school leaders found the task of developing an action plan during the course valuable, with two school leaders nominating it as the greatest element of added value of the PDT. The guarantee of transfer of the content provided during the PDT to their school was thus kept concrete (11) and active (7). The PDT content provided additional insights and applications that could be integrated (8), such as the importance of prioritizing (4), the importance of support and shared responsibility (4) and considering the action plan as a tool for school development rather than as an “administrative task” (1). The project team that organized the PDT wanted to model the importance of being well informed and working with evidence from the start and so organized an initial situation analysis. We found that school leaders who had an elaborate action plan found this an important signal (3). School leaders with a weak action plan specifically mentioned that they acquired insight regarding goal-oriented (4) and cyclical (4) work.

The fact that the action plan was part of the commitment agreement was mentioned as positive (10), while it was suggested that the school also needs to see the action plan as a priority for change (2). However, one school leader did not recall hearing this information during the first training day (1).

The support and feedback received (3) were identified as valuable for goal- and action-orientation by school leaders with a weakly developed action plan. Follow-up (2), mainly in the PLC (8) and during individual coaching (3), was seen as crucial. According to some school leaders (6), some coaches could be even more explicit in follow-up and feedback. These opportunities could also be utilized more during training days (1). Input from peers was appreciated (5), although not every school leader found sharing useful (1), while participating with colleagues also contributed positively (2).

The template provided for an action plan proved especially useful for school leaders with a weakly developed action plan (6), although the other school leaders also appreciated it (3). One school leader considered it positive that participants had autonomy in whether or not to use the template. Providing multiple templates and concrete examples was one suggestion for improvement (2).

That time was provided to work on the action plan during training days and PLC meetings proved positive for goal- and action-orientation (1). Even more time was desired (3). In addition, two school leaders mentioned that after the PDT it was up to them to further consolidate the input.

5.4.2.2 Participation in a PLC

The ESA-S showed a strong appreciation of the PLC approach for goal- and action-orientation (Table 5.8). More specifically, despite the wide spread of experiences, participants were above-average positive about: developing an action plan as a common thread ($M=4.40$, $SD=1.161$); the focus on priorities during the PLC meetings ($M=4.52$, $SD=1.198$); and the focus on predefined goals ($M=4.60$, $SD=1.232$).

Item	6-point scale	N	Min.	Max.	M	SD	α
The PLC increased the focus on priorities	Totally disagree (1) – Totally agree (6)	131	1	6	4.51	1.048	.847
The effective approach during the PLC: developing/using an action plan as a common thread					4.40	1.161	
During the PLC, the coach monitored the priorities defined					4.52	1.198	
During the PLC, the coach monitored the achievement of the goals defined					4.60	1.232	

Table 5.8 - Concrete approach of PLC to create goal- and action-orientation (ESA-S)

5.4.2.2.1 Perceived influence of PLC participation on goal- and action-orientation one year after the PDT

During the in-depth interviews (ESA2-D), 23 school leaders ($N=24$) commented positively about the purpose and action-orientation generated during the PDT PLC. First, the input during the PLC was highly valued (21). Starting with a clear goal and question (6) and broad input in terms of frameworks, examples and experiences were considered of central importance. This provided a broad perspective as well as support. The fact that input came from the other PLC members (8) and/or the coach (5) further stimulated purposeful reflection (2), although one participant indicated that content expertise could be more prominently related to the goal. According to a number of school leaders (6), the input was applicable, and the effects could be determined. However, one participant suggested that the return was more limited when the questions and needs were too far apart in the PLC. Seven school leaders found the experience in the PLC valuable in itself (in addressing both what was going well and the difficulties) as well as for developing the action plan simultaneously in their school. Some specific PLCs were said to lack a clear goal or explicit focus on the goal, which inhibited action- and goal-orientation (6). This was especially felt when success was too long in coming (1), with some suggesting that this was due to all the attention being focused on the person or process rather than a concrete product and needs of the school leaders (2).

The school leaders also mentioned that the planning and organization of the PLC sessions provided structure, while allowing time and space to work in-depth on the content (6), although excessive travel time between schools was less facilitative (2).

A third facilitating dimension for action- and goal-orientation during the PLC was the coach's approach. An approach by which the school leaders' action plan and needs were actively discussed and provided with feedback was highly appreciated (11). The active follow-up of the development process and the actions taken during and between the different PLC sessions (e.g., by reviewing) was found stimulating and at the same time positively compelling: it called for action (12). Ten school leaders found that the same approach during all sessions contributed to action- and goal-orientation. In certain PLCs, the lack of this coaching approach (2) and/or the appearance of non-commitment contributed negatively to action- and goal-orientation. It was suggested that feedback could be more rigorous (2), there could be more guidance (2) and the time available could be used more optimally (4). A lack of content expertise of the coach (1) and the methodology chosen were also considered points for improvement.

5.4.2.2.2 Continuation of PLC after completion of the PDT

After the completion of the PDT, all PLC groups had the intention to continue. One year after completion (ESA2-D) of the PDT, of the six PLCs with school leaders from primary schools, one was integrated into another PLC collaboration, one was continued with the same group composition, and two were continued in smaller or slightly modified groups. The two PLCs with school leaders

from the same inter-school network who were split during the PDT were merged with school leaders from the two original groups. In secondary education, four PLCs (out of nine) were continued, while two PLCs did not, despite the intention. For three PLCs, the reasons for not continuing remains unclear, due to job changes among the participating school leaders and the inability to interview them. The other reasons for not maintaining a PLC or for individually no longer participating in an existing PLC were diverse, such as no need and/or little depth, or other priorities. The PLCs that continued plan to do so in the future.

The number of sessions planned varied between one and five. Often three or more were planned but some were canceled for various reasons, including a long absence of the school leader who would be the coach, waning interest (due to other priorities) and/or time constraints. Some of the PLCs did not have a permanent coach (external). The person who would take on this role was mainly organically determined (in rotation), or everyone engaged in co-coaching at the same time. The practical and organizational initiative to establish the PLC sessions or to determine the approach proceeded organically in PLCs without a permanent coach (e.g., who defined the themes or priorities). In structural inter-school networks ($n=3$), a superintendent facilitated these processes. In all other PLCs, no specific roles were agreed. The contents and themes of the PLC sessions were determined together in all PLCs.

In the year following the PDT, goal- and action-orientation were further facilitated, primarily through sharing and inspiration in the PLC (7). Although all participants commented positively on the value in terms of the practical content of the continuation of the PLC, opinions about goal-orientation and depth were mixed. The perceptions of school leaders from the same PLC were also different. School leaders who participated in a follow-up PLC with an external coach explicitly mentioned the depth it offered (3). One school leader mentioned the lack of new content. They also mentioned that the discussion of the issues of the day tended to come to a standstill more rapidly.

The fact that PLCs were initiated during the PDT was found positive by the school leaders with respect to creating long-term goal- and action-orientation. Continuing this with the permanent group contributed to further depth (1). However, according to some school leaders, sustainability measures were still too limited to allow it to function independently after completion without the presence of the coach (3) and/or a clear trigger (2) or role assignment (1). The importance of an external coach (or a designated coach) with a clear mandate (3) and expertise to coach the PLC (1), as well as the retention of the planned data by all participants (4) were named as conditions for sustainable continuation. Making the conscious choice to participate was also mentioned (3). Finally, five school leaders mentioned the need to prepare the PLC.

5.4.2.2.3 Future-oriented plans for continuation of the PLC

All PLCs that had continued throughout the school year after the PDT will continue to do so in the future. For one PLC, continuation was not successful, but they intended to try again. Six PLC groups planned to ask an external coach to be involved, including a PLC which functioned well without a coach, according to the participants.

5.4.2.3 Participation in individual coaching

The ESA-S (Table 5.9) showed ($n=73$) that participants were above-average positive about the approach to individual coaching to stimulate goal- and action-orientation, with a broad spread of responses. Specifically, participants were above-average positive about the increased focus on defined priorities ($M=4.71$, $SD=1.124$), the support in transferring priorities to create concrete policy actions ($M=4.66$, $SD=1.145$) and in transferring priorities to the school context ($M=4.81$, $SD=1.151$). They considered that working toward and developing an action plan had added value, despite the spread of responses ($M=4.72$, $SD=1.216$).

Item	6-point scale	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>	α
Coaching sessions increased focus on priorities defined	Totally disagree (1) – Totally agree (6)	73	1	6	4.73	1.058	.933
Coaching session increased focus on priorities defined					4.71	1.124	
Coaching sessions supported the transfer of priorities into concrete policy actions within the school					4.66	1.145	
Coaching sessions stimulated transfer to own school					4.81	1.151	

Table 5.9 - Concrete approach to individual coaching to facilitate goal- and action-orientation (ESA-S)

From the in-depth interviews one year after the completion of the PDT (ESA2-D), we learned that 15 of the 24 school leaders participated in non-compulsory individual coaching during the PDT. The content of the coaching was perceived as facilitating long-term goal- and action-orientation, with a focus on concrete insights, tools and feedback (9), diving deeper into the school's action plan (5) and with concrete actions as outcomes (6). The goal-orientation (4) and more objective view of the coach was considered to have brought additional perspectives, with the coach acting as a sounding board (8), which led to in-depth reflection (1) and awareness (1), while also proving to be facilitating.

In addition, in-depth questioning (4) and the coach's readiness to confront the school leader (1) were perceived as valuable ways to generate goal- and action-orientation.

“When you say this, what exactly do you mean?” ‘Can you clarify that with an example?’ By questioning further, the existing lines of thought become broader” (R131)

On the organizational level, customization (1) was mentioned as essential for goal- and action-orientation; also, the coach actively monitored progress and, if necessary, also made the link with the PLC (5). The fact that time was made to discuss content and address questions in depth was mentioned as a strength several times (5) and as a condition (1) to increase the perceived effectiveness of goal- and action-orientation. Moreover, this was perceived as beneficial (2). Finally, school leaders stated that during a long-term PDT, a more systematic approach (3) to coaching and clear communication by the coach about the possibilities (1) is necessary.

5.4.2.4 General organization PDT

Participating school leaders (Table 5.10) perceived the duration as optimal at the end of the two-year PDT ($M=2.08$, $SD=.497$). In addition, they considered participation in such long-term PDTs as important for effective elaboration and optimization of school policy ($M=4.89$, $SD=.908$).

Item	6-point scale	N	Min.	Max.	M	SD
The duration of the trajectory is...	Too short (1) – too long (3)	131	1	3	2.08	.497
How important do you consider participation in long-term PDT for effective development or optimization of school policy?	Totally disagree (1) – Totally agree (6)	131	2	6	4.89	.908

Table 5.10 - Perception of long-term PDT for optimizing school policy (ESA-S)

The ESA2-D showed that all school leaders interviewed ($N=24$) experienced rich input of clear and transferable evidence-based theoretical frameworks, through a focused didactic approach, as facilitating further transfer of the content after the PDT. This content was brought in by inspiring experts (6). Starting with an initial situation analysis (2) that was linked to vision development (2) was considered to have facilitated the sustainable transfer to one’s context (1). Linking theory to practice was also mentioned (6). It was suggested that there could be more substantive input (2) during the second year, and a constant reminder that change takes time (1) was another suggestion for improvement.

Transfer was facilitated by providing time (5), support (5) and background material (5) during the PDT. From the start, the goal was clear and the structure of the PDT was aligned (3). The signed declaration of commitment (2) and following the “transfer of training” (9) were considered positively compelling and not without obligation.

The opportunity to participate in the PDT with a colleague was perceived as valuable for further sustainability (11). This proved positive for the team aspect, creating a shared language and

complementarity afterward. At the same time, it was mentioned that the participation of two people from the same school was a critical factor in the case of long absences (4).

The formal and informal networking opportunities and peer-learning opportunities embedded during the PDT had a perceived facilitating effect even after the end of the trajectory (14), although some competition within an existing inter-school network was said to still inhibit this (1). That other team members could also participate in a training day was also found to be valuable for longer term transfer (4).

Although one school leader indicated that the PDT was sufficiently long, 17 mentioned the wish for a longer duration or follow-up with joint return visits organized by the providers of the PDT to guarantee further sustainability. According to them, the focus should mainly be on the follow-up of the action plan and the state of implementation, and follow-up coaching and feedback through peer learning:

“I do find that interesting that you are accountable at a later stage, that you prove what you have done further with the input” (R87)

5.4.3 Factors associated with school leadership in relation to the school context

The previous section discussed how factors related to the PDT organization and approach impacted further goal- and action-orientation and the implementation of insights one year after completion. When analyzing the in-depth interviews, several factors, mainly linked to school leadership concerning the specific school context, influenced this potential perceived impact.

First, if school leaders perceived the content as valuable – whether or not it matched their needs – and could actually do something with it, and also believed in its importance for their school, this appeared above all to facilitate sustainability (9). Second, taking up or returning to the content themselves, immersing themselves in it, repeatedly referring back to the process and reflecting on it (7), also contributed to sustainability. In relation to leadership, the third main factor facilitating sustainability appeared to be making goal-oriented choices, prioritizing and working in an action-oriented way (6). At the same time, however, prioritizing was sometimes challenging due to other ongoing issues (3). Convincing the entire school team (which was sometimes large) of the importance of pursuing development and change processes (4), while remaining aware that change requires time and patience (3), also appeared to be a quest for some of the school leaders interviewed.

The network in the school and beyond – which, according to the school leaders, greatly expanded due to their participation in the PDT – was mentioned as important for sustainability because of the critical eye, recognition, support and alignment it provided, which were a source of motivation to continue (8).

School leaders identified the current educational context (e.g., post-COVID-19, teacher shortage, education reform) as both inhibiting (5) and facilitating in creating a sense of urgency (3). A clear vision and purpose and a school structure in function of it (5) can counter the lack of time (2), the “delusion of the day” (4) and the perception of education (2).

5.5 Conclusion & discussion

Given the limited empirical research (Daniëls et al., 2021a; Ford et al., 2018; Jensen, 2016) on the long-term effects of specific approaches to PDTs for school leaders, this mixed methods study aimed to gain insight into factors related to the general organization of a PDT and specific approaches that school leaders perceived as effective for subsequent goal- and action-oriented transfer and implementation of the content in professional and school development. In doing so, we organized longitudinal follow-up (Blume et al., 2019; Huang et al., 2017; Jensen, 2016), which is less common at this scale. Moreover, this study examined a number of key factors, which were applied in combination and can reinforce each other, whereas existing research often focuses on only one factor.

The surveys (ESA-S and ESA2-S) and in-depth interviews (ESA2-D) revealed that school leaders were above-average positive about the concrete perceived impact of their participation both immediately after the end of the program and one year after completion. After one year, the perceived impact of the PDT on their approach and capacity to reflect on school policy was rated positively by almost all the school leaders. Their participation mainly affected vision development and goal-oriented elaboration and implementation of a policy-based action plan. When reflecting on their initial situation, they considered the PDT offered a strong basis for professional development of school leaders and school development (Brauckmann et al., 2023; Rieckhoff & Larsen, 2012). Consequently, we claim that there was effective professionalization, according to the definition used previously (Kirkpatrick & Kirkpatrick, 2016), facilitated by the overall organization and the specific approaches used during the PDT. Below, we further discuss the key factors associated with the approach and organization of the PDT and school leadership that influenced sustained action- and goal-orientation with respect to the school context after the completion of the trajectory. These factors are also summarized in Figure 5.2, which also depicts the code tree.

5.5.1 Key factors associated with the PDT approach to sustainable action- and goal-orientation after completion of the PDT

5.5.1.1 Developing an action plan

Working with an action plan during the PDT contributed to the active transformation of school policy into reflection about concrete actions and their implementation and follow-up, which confirms previous research (Doe et al., 2016; Fluckiger et al., 2014; Sun & Leithwood, 2015; Tanghe & Schelfhout, 2023).

Concrete elaboration facilitates transfer, which is important in complex situations such as education, when the aim is to work in a goal-oriented manner, that is, based on an explicitly defined goal (Friedman & Ronen, 2015). The action plans primarily serve as an active working document to elaborate and implement policy in a concrete and in-depth manner, as well as to communicate and visualize them, demonstrating the importance of their practicality. The intention to continue using the action plan at the end of the PDT appeared to still be a reality one year later among all school leaders interviewed, also with application to other policy themes and often creating links between various action plans. This implementation intention (Friedman & Ronen, 2015) – in this case, of the school leader to continue working in this manner in the future – as a result of participation in a PDT, which led to concrete development and change in a complex school context, has not been specifically demonstrated before.

Although most school leaders had experience of working with action plans, which is to be expected given the quality expectations in education, the PDT focus on them was nonetheless considered as offering added value and, among more experienced users, even led to additional insights regarding quality use. While school leaders know the importance of creating shared responsibility and support in development and implementation (Brown & Flood, 2020a), as well as the need for prioritization (Gollwitzer & Sheeran, 2006), among other factors, our research showed that this does not directly equate to deep insight or application. For those school leaders with weakly developed action plans, the acquired insights regarding goal-oriented and cyclical work were highly significant.

School leaders with weakly developed action plans found the support and feedback they received valuable in the pursuit of action- and goal-orientation. The template provided also appeared particularly useful to them, although it also appealed to the other school leaders. It was suggested that the provision of several templates and concrete examples could inspire everyone to make autonomous choices appropriate to their own school leadership and school context. The time provided to work on the action plan was considered positive for enhancing goal- and action-orientation, although more time was always desirable. Creating time themselves appears to require a conscious choice that school leaders, remarkably, often do not make, despite the intention to do so. Here, contextual factors play a role (see 5.2).

Working with an action plan and follow-up was implemented with the assistance of PLCs and individual coaching. This implementation and the interaction between the two forms of assistance was crucial in ensuring the perceived impact of the PDT, according to school leaders. At the same time, it was suggested that some coaches could make even more explicit use of follow-up and feedback as functions of optimal transfer, which previous research has also indicated (Brion, 2022; Goldring et al., 2012; Tanghe & Schelfhout, 2023).

5.5.1.2 Participation in PLC

Both the online survey and in-depth interviews showed a strong appreciation of the PLC approach as a function of goal- and action-orientation. Clear planning and organization of the sessions provided an enabling framework to work on content. When substantive, broad and concretely applicable content linked to questions or goals was central to PLC meetings, school leaders found this positive. In their absence, school leaders experienced this as inhibiting their motivation and transfer. The coach's approach, with a focus on follow-up and feedback on the action plan, was found to be decisive for action- and goal-orientation following the PLC, confirming previous research (Brion, 2022; Tannenbaum & Cerasoli, 2013; Villado & Arthur Jr, 2013).

Despite the intention of all PLCs to sustain collaboration around jointly defined themes at the end of the PDT, this was not achieved by all groups or individual school leaders. This was often due to personal or school-related reasons, as well as structural reasons, as also identified in previous research (Armstrong, 2015). The number of sessions that took place in the year following the PDT varied between groups. Notably, the number of sessions planned was often reduced due to contextual factors, different priorities and time constraints. PLCs without a permanent external coach were canceled sooner, possibly because participation was not formally embedded in school policy and not a priority (Brown & Flood, 2020b), and there was less accountability (Easton, 2016). In most groups, work was organic in terms of organization and approach, although school leaders, based on their own experiences in the PLC during the PDT, mentioned the importance of thoughtful, proactive choices as a function of outcomes (Tanghe et al., 2024). Despite all participants expressing positive views on the value of the PLC for their school (context) at the end of the PDT (Tanghe et al., 2024), opinions were divided on the ultimate goal- and action-orientation, as well as the depth in the rather "organic" continuation afterward, in contrast to the PLC with a permanent external coach. Despite the challenges, all PLCs intended to continue or be relaunched, with more attention being paid to practical and organizational issues (e.g., appointing an external coach) and proper preparation. Our research showed that, despite the intentions, it is less evident that a substantively thorough inter-school PLC can be instituted on an organic basis even after a structured two-year start-up during a PDT. This constitutes an additional insight, given existing research mainly focuses on a structured PLC approach.

5.5.1.3 Participation in individual coaching

Participants in individual coaching had an above-average experience of it, mainly due to the time created to focus on content, concrete insights, tools and feedback all aimed at concrete actions. A coach who questioned and acted as a mirror was considered valuable by the school leaders, which confirms previous research (Blume et al., 2019; Tanghe & Schelfhout; Tews & Tracey, 2008). Making links to the approach in the PLC was strongly appreciated. This further deepens insights from the limited existing research in this area (De Meuse et al., 2009; Huber, 2011; Simkins et al., 2009; Tanghe & Schelfhout, 2023). During a long-term trajectory, a systematic (or more systematic) approach to coaching and clear communication by the coach about the options appears

necessary for maximum goal- and action-orientation, as well as transfer, which demonstrates the importance of a clear understanding by the coach of how their coaching is integrated into the broader PDT and the related expectations regarding the coaching role (Hulsbos et al., 2014; Patrick et al., 2021).

5.5.1.4 General organization of the PDT

The research literature shows that the overall approach of a PDT, with thoughtful and cyclical progress over a longer period (Huber, 2011; Simkins et al., 2009), can facilitate the transfer of PDT content into the school context and encourage school leaders to take concrete long-term actions (Fluckiger et al., 2014; Pashiardis & Brauckmann, 2009; Yelon et al., 2013). Our research confirmed the importance of specific approaches, such as the creation of PLCs and coaching and working with an action plan, and it strongly points to the importance of coherence in the overall organization of PDTs. School leaders found clear planning, the provision of working time, and support and materials during the PDT to facilitate sustainability afterward. While the time provided still appeared to be too limited – according to school leaders (Brown & Flood, 2020a; Tanghe & Schelfhout, 2023) – this may also be inherent to the educational culture in Flanders and the limited time for professional development for school leaders. The statement of commitment signed at the start of the PDT appeared to contribute to the sustainable transfer of content, as previous research has also found (Kirkpatrick & Kirkpatrick, 2016; Simkins et al., 2009), and it was a positive stimulus for both action plan development and transfer of training. Participation with a colleague had a high level of experienced impact on further sustainability and implementation and facilitated shared leadership, which is in line with previous research (Doe et al., 2016; Hilton et al., 2015; Sun & Leithwood, 2015). However, these participants still found themselves under pressure due to various circumstances, so a larger delegation from the school would be even better.

The school leaders considered their participation in a long-term PDT as important for the effective development of school policy. Although they rated a two-year trajectory as optimal after completion, about 70% recommended an even longer duration when asked one year later, or at least some follow-up (at a less intensive level than the PDT itself) with joint return moments scheduled by the PDT organizers and/or coaching (Blume et al., 2019; Tews & Tracey, 2008) to ensure sustainability. This confirms previous research showing that providing time and space for professional development is necessary for in-depth learning (Brion, 2022; Daniëls et al., 2023; van Veen et al., 2010; Wright & da Costa, 2016) and real action (Rieckhoff & Larsen, 2012; Sahlin, 2023; Tanghe & Schelfhout, 2023). Our research also confirmed the importance of repetition, supplementary input and follow-up.

5.5.2 Key factors associated with school leadership concerning the school context for sustainable action- and goal-orientation after completion of the PDT

Finally, notable in the data analysis was the crucial role of the participating school leader, which is also reflected in research on school improvement (Harris et al., 2013; Yeigh et al., 2019). A PDT can appear effective, but without action by the participating school leaders and the active involvement of the team there is less impact and transfer.

A prerequisite for successful transfer is the perception of the PDT: if school leaders perceive the content as useful, sustainability appears to be higher, as previous research has also shown (Huang et al., 2017). Continuing to use the content oneself, delving into it, repeatedly referring back to the trajectory and reflecting on it is necessary, and again it points to the importance of self-regulation (Gollwitzer & Sheeran, 2006), even without further supportive professionalization.

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Based on previous research, leadership focused on prioritizing and planning appears essential (Sun & Leithwood, 2015; Tews & Tracey, 2008), which is challenging in a context that has many ongoing issues and dynamic processes. A clear vision and purpose and a supportive school structure can help counter the lack of time, the “delusion of the day,” as can critical reflection on one’s attitude (Askell-Williams & Koh, 2020; Brauckmann et al., 2023; Daniëls et al., 2021; Jensen, 2016).

However, the school context in which the school leader functions also plays an important role. How the action plans were used differed in terms of shared responsibility and support in the teams. Not all school leaders took their team on the road or delegated. Too often, team involvement appeared to be limited to informing others, and little necessary follow-up on goals and/or support and professionalization was provided (Brown & Flood, 2020a; Perry & Boylan, 2018; Yelon et al., 2014). At the same time, school leaders identified time constraints, the pursuit of depth, the pace and course of change processes and the lack of structural input, support and follow-up from the school team as challenges. They also realized the importance of taking time for sustainable transfer and change, communication, repetition and providing support.

We also saw the same issues in relation to the sustainability of PLCs: while they were perceived as very valuable, participation in PLC meetings appeared to be under pressure and they were quickly skipped due to other priorities. The inconsistency between one’s vision and awareness of school leadership and concrete behavior as a school leader can unintentionally and unconsciously hinder transfer. Because school leaders’ coping competencies and problem-solving competencies could be better armed for the transfer of content from the PDT to their school (Sun & Leithwood, 2015; Tews & Tracey, 2008), it is appropriate to pay sufficient attention to this at the individual level during a PDT, thus the importance of individual coaching.

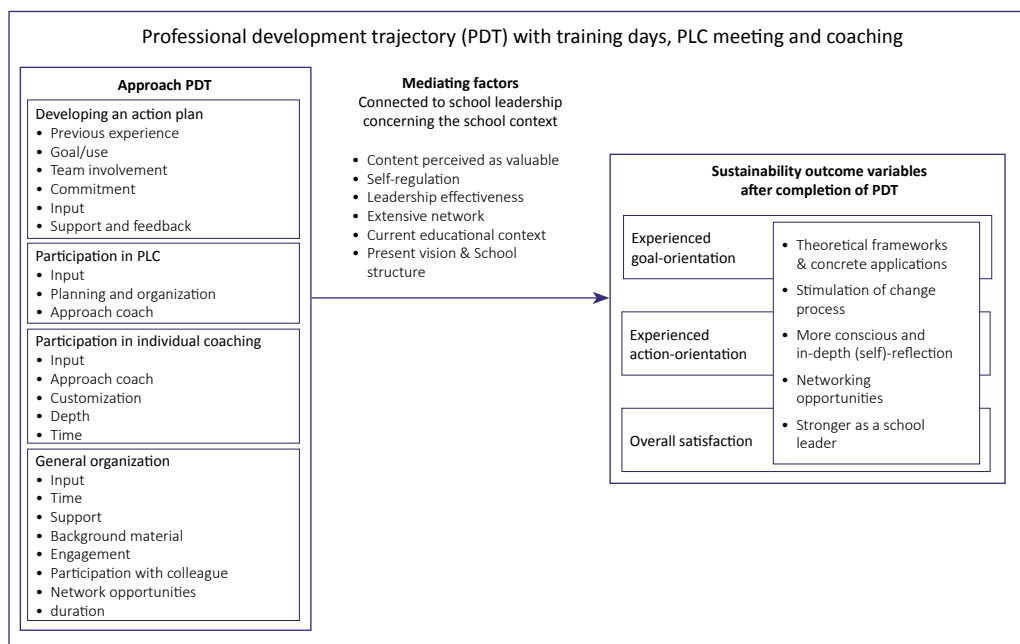


Figure 5.2 - Key factors associated with the PDT approach and school leadership concerning the school context for sustained action- and goal-orientation after the completion of the trajectory

5.6 Strengths & limitations

Although a relatively small dataset, this research setting created the opportunity for long-term follow-up with multiple measurement points. The decision to interview 24 school leaders in depth led to several insights, with sufficient saturation of the number of influencing factors found during the analysis (see also the code tree in Figure 5.2). Moreover, the triangulation of qualitative and quantitative data provided a consistent view. We chose self-report and perception surveys because it is impossible for other stakeholders to link school change processes to school leaders' participation in a long-term PDT. It is also challenging for school leaders to identify which changes and actions are a direct result of participation in a particular PDT when participating in multiple trajectories simultaneously.

Although we used stratified sampling to select school leaders from various primary and secondary schools with less developed to well-developed action plans, and although T-tests showed no significant differences, we should be extremely cautious about generalizing statements. Not all schools submitted an action plan, and we do not know the reason for this. Participants in the in-depth interviews may have been particularly committed to sharing their experiences. Recruitment of school leaders who took little or no action after completing the PDT, or who worked in difficult circumstances during the period of the in-depth interviews, was not deliberately pursued. Other

unknown factors may also have been of influence. For future research, we recommend contacting all previous PDT participants – including those who ended their participation – and asking them to complete an online survey to obtain a broader dataset. The stratified sample should also include these respondents for selection as part of in-depth interviews. Of note here is that when contacted for the in-depth interview, we found that several school leaders had been absent for long periods, had changed schools, or had quit as school leaders one year after completing the PDT. This was alarming, given the importance of continuity in a school team and school policy, and the drain on human capital. This is also a factor that is out of a researcher’s control.

5.7 Recommendations

School leaders are expected to implement quality school policy. These expectations need “outstanding” school leaders (Levine, 2006). Therefore, investing in long-term PDTs is important to facilitate school leaders’ input, time, space and support to develop high-quality school policy, with the implementation of concrete actions and to assess and optimize evaluation.

In PDTs with this goal, it is best to employ a vision and a focused approach that encourages goal- and action-orientation, in particular to ensure the integrated organization of the PDT with training days, participation in a PLC and individual coaching. Developing an action plan as a common thread throughout the PDT, with active follow-up and support – with the PLCs and individual coaching as important facilitators – contributes to the “transfer of training.” Coaches have a crucial role, which deserves necessary attention, both in the preparation of and during the trajectory. Participation in the same PDT of several team members from the same school ensures broader support, which is preventive in the event of the absence of a school leader, ensuring the insights gained from the PDT and the actions planned remain at the forefront.

Finally, to enable sustainable school development, depending on the initial situation, a PDT of at least two years is appropriate. For schools seeking more support, a tailored follow-up program is desirable. Retreat days for all participants can provide repetition and refreshment in relation to theoretical frameworks and practical applications, allow the discussion of new insights, create opportunities for sharing with peers and put school development in the spotlight. Investing in the organization of and participation in such sustainable PDTs also demonstrates the necessary confidence in school leaders and their teams.

INTRODUCTION

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CONCLUSION

General discussion

School leadership is widely believed to contribute to efficiency and equity in student performance (Day et al., 2016; Hitt & Tucker, 2016; Ten Bruggencate et al., 2012). To be able to achieve this, school leaders must employ goal-oriented leadership strategies and prove the effects of their policy on learning outcomes. Therefore, professional development trajectories (PDTs) for school leaders must address aspects of effective leadership in terms of the content and the adequacy of these initiatives. For the professional development of school leaders, quality PDTs are needed that feature an organization and approach which encourage concrete transfer and sustainable implementation of the PDT content during and after participation. The research literature shows several key factors influencing professional development initiatives with respect to learning and other outcomes among school leaders. However, empirical research on the real immediate and long-term effects of PDTs is limited. This problem statement formed the basis for the design and implementation of a two-year PDT as a research setting.

The present dissertation aimed to offer a practical and unique perspective on how PDTs for school leaders have a real perceived added value on sustainable professional and school development during and after participating in a long-term PDT. Through mixed methods research with four measurement points over three years using a combination of online surveys, focus group discussions and in-depth interviews, this study presented an innovative view on factors perceived by participants as valuable for PDT for school leaders. This research will contribute to the evaluation and optimization of current and future long-term PDTs (in Flanders and abroad) for school leaders and the goal-oriented selection of valuable PDTs in which school leaders should be involved.

This chapter will first discuss the main findings of each of the five studies and their contribution to the existing knowledge base on the perceived effectiveness of PDTs for school leaders. The discussion is followed by a summary of the main findings for each study. For the next studies, only the additional findings are added. This will be followed by a discussion of the strengths and significance as well as the limitations of the research, and finally, by recommendations for further research.

Main findings and discussion

Study 1 | Perceived Impact of key factors of PDTs that generate professional and school development during a PDT for school leaders (after year 1)

The literature review showed that several key factors of professional development initiatives, which we integrated in the PDT designed as context for this research influence the perceived impact of professional development initiatives on learning outcomes among school leaders. These factors concern both the goals and content on the one hand, and the organizational and didactic approach of the PDT on the other. Yet, empirical research on the real effects and explanatory processes remains limited. There is also little research on the functioning and added value of more complex and long-term PDTs (Daniëls et al., 2021). Moreover, in-depth and large-scale research that uses a mixed method approach allowing an interaction between quantitative data (as a basis for generic statements) and qualitative data (as a basis for explaining these statements in depth) is scarce.

The first study, after the end of the first year of the PDT, focused on obtaining a generic perspective. We examined the perceived value of factors of effective professional development during a PDT for school leaders in terms of the organizational and didactic dimensions, as well as their mutual interaction, and the interaction with potential external mediating factors. This required attention to learning outcomes, the fourth level of learning (Kirkpatrick & Kirkpatrick, 2016), with a focus on converting acquired insights into action plans and concrete actions. By using mixed methods research with an online survey, focus group discussions with PLC groups as well as in-depth interviews with individual school leaders, we examined which specific approach and interactions contributed most to learning outcomes.

This was an innovative research focus for two reasons. Firstly, it examined how school leaders not only acquire insights and have the intention to implement change but also how they are effectively encouraged to prepare and take action, while most evaluations of professional development initiatives do not focus on results criteria (Saks & Burke, 2012). The underlying processes of acquiring insights and processing these insights (with the team) are equally important to achieve depth when preparing action plans and taking concrete actions that are sustainable and tailored to the school's predefined goals, as previous research has shown (Yelon et al., 2014; Levine, 2006). Secondly, there is still a research gap regarding the specific approach of professional development initiatives, the role of trainers and coaches, and the influence of their approach and expertise, according to Tonhäuser and Büker, 2016.

The perceived added value of participating in the PDT in terms of taking action on school development (Q1.1)

The data analyses showed that participants perceived participation in the PDT as effective for preparing or implementing concrete actions linked to the predefined goals. During the first year, according to participants, the PDT triggered real short-term action, mainly in the areas of policy on support learning and shared school leadership. Participants became more aware of the importance of a thorough initial situation analysis and mapping perceptions and mindsets about learning support among the team. This formed a good starting point for professional and school development, which confirms previous research (Hallinger, 2011; Simkins et al., 2009). It has been shown that the extent of this awareness and the predefined goals chosen are related to prior knowledge and the priorities of the school leader and/or the school approach, which is in line with Hulsbos et al. (2014).

Regarding actions such as starting a PLC or optimizing existing meeting structures, the outcomes mainly focused on the preparatory phase leading up to the next school year. Our research showed the importance of the depth and effects of professional development at the first three levels in relation to reaching the fourth level, as defined by Kirkpatrick and Kirkpatrick (2016), but this alone is not sufficient. Conversely, achieving Level 4 will deepen knowledge (Level 2) and reflection (Level 3). The data analysis also shows that embedding learning outcomes in leadership and school development takes time, as is known from previous research (Fluckiger et al., 2014; Kets de Vries & Korotov, 2012; Rieckhoff & Larsen, 2012; Simkins et al., 2009). Creating and coaching goal-setting and focused application to school practice is further needed.

School leaders stated that they experienced more support and engagement in their schools since participating in the PDT. They wanted to continue to focus on facilitating progress and support rather than implementing action “for the sake of action,” which tied in with the objectives of the PDT.

These intermediate results can be linked to the concept of training transfer, as studied extensively by Tonhäuser and Büker (2016), Grossman and Salas (2011), and Baldwin and Ford (1988), among others. Positive training transfer involves the application in one’s work context of what was learned during training, leading to changes in job performance (Grossman & Salas, 2011; Baldwin & Ford, 1988). Part of the key factors consists of “training inputs,” which can be categorized into trainee characteristics, training design, and work environment (Grossman & Salas, 2011; Baldwin & Ford, 1988). Although a direct and indirect influence on outcomes has been shown (Baldwin & Ford, 1988), other research points to mixed findings and puts the optimistic results into perspective (Saks & Burke, 2012; Blume et al., 2010).

Factors of effective professional development in the dimensions of organization and didactics that influence the perceived outcomes of the PDT (Q1.2)

An analysis of the quantitative and qualitative data using existing guidelines on the key factors of strong professional development initiatives for school leaders (Pont et al., 2008; Fluckiger et al., 2014) showed that the organizational and didactic dimensions of the PDT for school leaders that were designed largely met these criteria.

Data analysis showed that the training days were perceived as a valuable starting point for processing and transferring theoretical frameworks and concrete examples into the school leaders' context. The connection with the PLCs and coaching, at least for those who participated, was important for the further determination of priorities and even more question-oriented support.

It is already known that preparing an action plan and using a varied and activating approach with a focus on peer learning (Barber et al., 2010) during formal and informal moments (Hulsbos et al., 2014) encourages reflection (Huber, 2011). This provides structure and rhythm in the transfer to school-specific goals. Based on our research, the importance of participants experiencing active support for this conversion into a school vision and action plan became clear. According to previous research the follow-up of plans made by the experienced lecturers and coaches (Burke & Hutchins, 2008; Barber et al., 2010; Tingle et al., 2019) during PLCs, as well as individual coaching, all contributed to the goal- and action-orientation of their approach. In evaluating approaches by trainers and coaches, everyone must be aware of the correct measurement level: satisfaction with support does not automatically predict transfer or training, as noted by Hutchins and Burke (2007).

Participants pointed to the support as offering useful pressure to take concrete action. They pointed to the importance of the PDT being not without obligation, a dimension only sporadically demonstrated by previous research (Kirkpatrick & Kirkpatrick, 2016; Kennedy, 2005). The time provided during the PDT for concrete application was appreciated by participants, which is in line with other research (Hulsbos et al., 2014).

According to participants, the logistical and organizational support, follow-up and communication also added to the positive perception of the PDT.

Previous research showed the impact of the training design of PDTs on learning and training outcomes (Grossman & Salas, 2011; Baldwin & Ford, 1988). The three most important factors detected were 1) behavior modeling, by creating opportunities for observation and practice with supportive feedback and social reinforcement, 2) organizing error-based training, and 3) creating realistic training environments. As a part of behavior modeling, researchers point to the importance of setting goals and creating scenarios by participants (Ford et al., 2018; Taylor et al., 2005),

a central approach during the PDT. This is in line with the approach that Kirkpatrick and Kirkpatrick (2016) proposed, namely frequently referring to how learning content can be used, while leaving room for discussions about possible applications that contribute to the transfer and relevance of the content provided.

Our participants started with an initial situation analysis to detect challenges, needs, etc. The goal of the PDT was to equip participants with theoretical frameworks, concrete examples, and applications to optimize the situation and facilitate professional and school development. This approach could be linked to error management. The transfer of the content of the training days, PLC meetings, and coaching sessions to the job and school context of the participating school leaders was also a goal, but the training setting was not a realistic environment as noted in this research (Ford et al., 2018; Grossman & Salas, 2011; Baldwin & Ford, 1988). One question is how skills are defined, given the complexity of a school leader's job in a dynamic educational context and the specific needs in terms of professional development and school development. Research suggests a greater likelihood of transfer when combined with predictor variables, where the target competencies are broad, with a focus on self-regulatory knowledge instead of procedural knowledge, such as professional leadership development (Gegenfurtner, 2011; Blume et al., 2010).

Influence of interaction between factors of effective professional development on the perceived outcomes of the PDT and transfer to the school leader's own school (Q1.3)

Participants described the structure of the PDT as balanced, with a logical cyclical progression and build-up over time, which confirms previous research (Huber, 2011; Simkins et al., 2009). They thought it noteworthy that the PDT distinguished itself from other common PDTs, which usually offer only training days, PLCs, or coaching and lack theoretical frameworks or concern for the transfer to the school context. According to the participants and previous research (Goldring et al., 2012), the structure of this PDT and the mutual interaction between the different organizational forms increased learning efficiency and facilitated real changes in their schools. Notably, the importance of this interaction is not mentioned in research into the impact on transfer or training (Grossman & Salas, 2011; Baldwin & Ford, 1988). This indicates a research gap on which we further elaborated in study 5 'Goal and action orientation as key factors during a professional development trajectory for school leaders to facilitate sustainable transfer of training'.

Participating in the PDT together with a colleague increased the perceived support and concrete transfer to the school context which is in line with previous research (Hilton, et al., 2015). As is known, in such a learning climate, school leaders experience more support, which encourages further engagement (Daniëls et al., 2023; Veelen et al., 2017; Mdhlalose, 2022).

Also notable was that participants mentioned the important role of coaches during the PDT and the positive and negative effects and the added value they experienced after one year. This is

in line with Coenen et al. (2021), Burke and Hutchins (2008), and Peschl (2006), among others, who state that the coach has an important role in facilitating the depth of learning processes using a theoretical and methodological growth-oriented framework. It also accords and with Boschman et al. (2015), who particularly emphasize the importance of making things explicit. According to Hulsbos et al. (2014), quality implementation of coaching is important in facilitating and supporting school development processes and in establishing links between the content and approach of the training days, PLCs, and coaching sessions. This is also related to the insights coaches and trainers must have about success factors for training transfer, such as sufficient attention being paid to the initial situation and the needs analysis linked to the school leader, their team, and the school context, and to what extent they concretely take this into account when coaching groups, as has been previously noted (Granado, 2019; Ford et al., 2018; Hutchins, 2009; Hutchins & Burke, 2007). Extensive research into coaches' knowledge of this issue and making them aware of it is appropriate.

However, a more negative experience with the coach led participants to participate less frequently or not at all in the coaching sessions and to perceive the PLC as more superficial and less fruitful. Participants also found the interaction between the three organizational forms of the PDT more unclear when they had a more negative experience of coaching.

Mediating PDT factors that influence perceived outcomes of the PDT (Q1.4)

The mindset of the school leader was found to be important. This can be linked to one of the key conditions related to the participant for transfer or training, as identified by Baldwin and Ford (1988) and further examined by others (Tonhäuser & Büker, 2016; Grossman & Salas, 2011). They refer to this as “perceived utility or instrumentality”, in which the participant perceives the utility of participating. As a consequence of attendance, a participant is more likely to apply the competencies gained in the work context. As stated in the introduction, primarily school leaders who see the benefit of participating in a PDT may enroll, which affects the results. Caution is required. At the same time, standard deviations were high indicating a large spread in answers and the qualitative data showed that not every participant wanted to participate.

Among person-related factors, the participants' perceived effects concerning the added value of participating in the PDT were particularly striking, with participants themselves mentioning a greater perceived impact on their job satisfaction than statistical analyses showed.

The qualitative data showed that several participants perceived the school context as an obstacle to their learning outcomes, but regression analyses showed that this correlation was less strong, meaning that quite a few school leaders who perceived their school context as challenging nevertheless engaged with the PDT content, and vice versa. Previous research also identifies the work environment as a key condition for transfer or training (Grossman & Salas, 2011; Blume et al., 2010; Burke & Hutchins, 2007; Baldwin & Ford, 1988). If the work environment or transfer

climate does not lend itself to application, the effectiveness of a PDT declines, even if it meets all effectiveness criteria. Three important components associated with the work environment are a positive transfer climate, general and peer support, and the opportunity to perform (Tonhäuser & Büker, 2016; Grossman & Salas, 2011; Baldwin & Ford, 1988). Saks and Burke (2014) linked transfer of training to firm performance.

Despite this, it is appropriate that maximum consideration be given to the initial situation and needs present during the PDT to ensure that the PDT content truly brings about change in terms of professional and school development, as noted in previous research (Hutchins & Burke, 2007).

Based on the results, we can conclude that participation in a PDT for school leaders can transcend the initial situation by providing school leaders with theoretical frameworks and practical applications that enable them to be better prepared. At the same time, however, contextual situations can be overwhelming during participation in a PDT and create additional challenges in terms of prioritization, which the research confirmed (Tingle et al., 2019; Simkins et al., 2009; Hauge et al., 2014). Focusing on a growth-oriented mindset of the entire team during participation appears to be very decisive for support, a shared framework and language, shared leadership and the transfer into concrete actions in one's school. Sharpening the "sense of urgency" turns out to be essential for taking concrete actions and embedding them.

Given the crucial importance of their position and the quality fulfillment of it, in combination with high levels of responsibility and pressure – also pointed by other scholars (Branch & Rivkin, 2015; Pont, 2020; Leithwood & Day, 2008) – school leaders suggested that professional development should be an integral part of their daily functioning, and therefore PDT initiatives as part of their profession should be offered free of charge. Daniëls et al. (2020) pointed out that this is a form of appreciation. Nevertheless, the structural lack of professional development time within the job remains one of the factors that school leaders perceived as negative because taking time outside the PDT to thoroughly reflect and implement policy in collaboration with the team often gets snowed under by "the delusion of the day" and emergency solutions to guarantee the school's basic role, as previously described (Devos et al., 2018; Daniëls et al., 2023). Participants indicated that this resulted in them achieving fewer predefined actions than desired.

Main findings: Study one

- ✓ Acquiring insights through theoretical frameworks and concrete applications, and processing acquired insights through reflection is necessary to convert insights into action.
- ✓ A PDT with the integration of and interaction between training days, professional learning communities and individual coaching has an added value for preparing and taking concrete actions on leadership and school development.
- ✓ A didactic approach including preparation of an action plan, using a varied and activating approach, creating possibilities for networking and sharing, and tailored support and feedback has an added value for preparing and taking concrete actions on leadership and school development.
- ✓ Creating time during the PDT to convert insights into actions is facilitating to take concrete steps.
- ✓ Solid communication and organization stimulate a positive perception of the PDT.
- ✓ Participating with a colleague increases the perceived support to take action in one's own school and enhances the concrete transfer to the school context.
- ✓ By providing school leaders with theoretical frameworks and practical applications, participation in a PDT for school leaders can transcend the initial situation, while contextual situations can be overwhelming during participation in the PDT and create additional prioritization challenges.
- ✓ Structural lack of professional development time within the job influences the possible experienced impact of the PDT.

Study 2 | Focus on effective development of professional learning communities (PLCs) within existing inter-school networks during a PDT for school leaders (after year 2)

To best carry out their challenging job (Leithwood et al., 2020; Pont, 2020), school leaders would benefit from the support and input of a sounding board (Vekeman et al., 2022). Inter-school networks can significantly add value (Brown & Poortman, 2018; Harris & Jones, 2021; Vekeman et al., 2022). One possible approach of a structural network where a group of schools work together to share resources and/or enhance the quality of professional learning and the capacity for continuous improvement is known as a PLC (Harris & Jones, 2019, 2021; Poortman et al., 2022).

However, building sustainable and quality partnerships between the school leaders of inter-school networks is not self-evident (Azorín et al., 2020; Harris & Jones, 2021). Research on professional development in this area remains scarce, although its relevance has been acknowledged (Bryk et al., 2015). A coach's concrete organization and approach in the PLC is also an important factor, but research on the influence on outcomes is scarce. Research on methodologies to intensify collaboration within existing inter-school networks during a PDT is also limited (Chapman, 2013).

Therefore, the second study focused on the specific PLC approach during the two years of the PDT as part of the organizational dimension. Using a mixed methods approach with an online survey after the first year and again at the end of the second year of the PDT, as well as in-depth interviews with school leaders, we investigated how PLCs develop within existing inter-school networks as a mode of social and collective learning as described in previous research (Schelfhout, 2017; Vaessen et al., 2014) throughout a PDT. Furthermore, we attempted to determine the variables influencing learning outcomes and longer term sustainable development of the PLCs.

The influence of the approach of the PLC during a PDT on the outcomes of the PLC and its sustainability after completion (Q2.1)

As to this research question, we can conclude that a PDT focusing explicitly on developing PLCs within inter-school networks supports these networks' further sustainability, given that participants perceived their PLC as goal-oriented, insightful, and relevant to their practice.

The single regression analyses, quantified qualitative, and qualitative data showed the focus on PLC outcomes during the PLC meetings, which confirmed previous research (Armstrong & Ainscow, 2018; Majchrzak et al., 2015) and were strongly indicative of the perceived output in terms of acquiring insights, as well as converting them into concrete actions regarding professional and school development. Positive experiences with a permanent focus on the action plan and ongoing co-creation – mentioned in previous research (Kools & Stoll, 2016) – in the PLC, strongly explained the presence of the intention to continue the PLC after completion of the PDT. Sharing and networking with peers and creating opportunities for feedback during PLC meetings remained important for learning outcomes and the desire to continue working on the challenges faced.

In line with other research (Armstrong & Ainscow, 2018; Hooge et al., 2017), the participants' positive experience of the PLC approach within their inter-school network was a significant stimulus of the intention to continue a PLC after the PDT, as well as playing a role in how they perceived the character of these future PLCs.

Our research also reconfirms that the coach appears to play a role by providing the participants with a positive experience of how a PLC functions (Armstrong & Ainscow, 2018; Harris & Jones, 2019; Huijboom et al., 2023; Leithwood, 2019; Margalef & Roblin, 2018; Turner et al., 2018).

Moreover, the coach-the-coach approach used during the PLC sessions, on which there is limited research, had a limited perceived impact on learning outcomes, but it did support the acquisition of insights into the conditions for a valuable PLC and formed a possible intervention to learn about how to coach a PLC. Our study also addressed the current gap in research into professionalization in this area and indicates there is a need for the latter (Bryk et al., 2015).

The influence of the facilitating role of the (structural) inter-school network on PLC outcomes and sustainable continuation after completion of the PDT (Q2.2)

The facilitating role of the structural inter-school network for the PLC outcomes had statistically limited explanatory value. However, the qualitative data showed that school leaders within the PLC perceived added value in in-depth sharing and networking with their inter-school network. Our research confirms the need for peer learning opportunities (Levin et al., 2020). The organization of PLCs within inter-school networks can be linked to the concept of social capital. One form of the latter is a social network in which a group of people is connected by relationships, with a focus on the functioning and well-being of the participants, and the organization of which they are a part (Moolenaar, 2010; Dika & Singh, 2002). As an example of external social capital, the PLCs within the inter-school networks during the PDT had an added value with respect to collaboration and the well-being of the school leaders (Beausaert et al., 2023).

It is noteworthy that a large group of participants experienced such sharing and collaboration and the value of a sounding board within their inter-school network for the first time during the PDT, although previous research has also mentioned the potential and added value of PLCs (Devos et al., 2018; Vekeman et al., 2022; Wang, 2018). Administrative scaling up (Vlaams Ministerie van onderwijs en vorming, 2023) has also aimed to use the existing structure for learning and exchange processes to promote expertise and school development (Vekeman et al., 2022). However, our research confirms that incentives and obligations imposed by decree are not sufficient to achieve solid and sustainable cooperation (Feys & Devos, 2015) and that the presence of administrative capacity with an explicit focus on staff and educational development is a necessity (Hooge et al., 2015; Ritzema et al., 2022). Our research shows that investing in PLCs within the inter-school network can be a way to facilitate knowledge and expertise development between schools.

The broad and diverse content and feedback provided school leaders with ample inspiration as well as opportunities for reflection, contributing to personal, professional and school development, which previous research confirms (Bickmore et al., 2021; Daniëls et al., 2023; Levin et al., 2020). Finding a sounding board in their peers provided support and appreciation. School leaders mentioned the time created to get to know each other and work together as positive for promoting mutual trust, which is a necessary condition according to Coleman (2012) and Hooge et al. (2015), among others.

The influence of the outcomes of the PLC during the PDT on the sustainable continuation of the PLC within the inter-school network (Q2.3)

Overall, we can conclude that a PLC during a PDT according to the participants, achieves most of the goals of inter-school collaboration as listed by Atkinson et al. (2007); more specifically the sharing of good practices or professional expertise, school development, improving collaboration, and enriching learning opportunities. Based on our analysis, we would not think of Atkinson et al.'s (2007) last principle of increased student learning as achieved during the PDT. We believe that caution should be exercised in regarding the precise impact of networks between schools, which other research also confirms (Brown et al., 2024), because it is very difficult to pinpoint executive relationships and effects. The data analysis showed that: a) the ambition to continue the PLC after the PDT was markedly present among all participating inter-school networks; and b) different networks proactively initiated concrete actions toward the end of the PDT.

PLC groups that run during a PDT can deepen the level of collective learning, according to the classification of Kasl et al. (1997). In inter-school networks in which there were only superficial forms of collective learning (Levels 1 and 2, Table 1) at both the process and product levels (Heikkila & Gerlak, 2013), before the PDT, an evolution toward a deeper level of collective learning could be observed. In inter-school networks that already engaged in continuous synergetic collective learning (Level 4), the PLCs were integrated into the existing organization.

However, participation in the PLC of the PDT provided additional experiences and insights regarding the establishment of PLCs and how sustainable quality education can be jointly guaranteed. Our research thus confirms the principle that professional development better takes place jointly for various profiles given the shared responsibility for quality education (Hilton et al., 2015; Rekers-Mombarg et al., 2022). This is also consistent with the importance of the cross-level perspective of vertical social capital, as mentioned by Beausaert et al. (2023), which involves collaboration both across job levels and across schools.

Notably, the absence of compulsory collaboration ensured a conscious choice to continue participating in the PLC in the newly established inter-school networks (Form B, Level 1). This contradicts previous research which states that the existing relationship is an important factor in inter-school collaboration, although it is not a prerequisite for success (Ainscow, 2015). However, these PLCs were looking for a stable group composition and sufficient critical mass, the importance of which has been previously demonstrated (Feys & Devos, 2015; Provan & Kenis, 2008). The dispersed locations of the schools may negatively affect further sustainability, which has also been previously investigated (Atkinson et al., 2007).

The statistical explanatory value of the facilitating role of the structural inter-school network for the learning outcomes of the PLC during the two-year PDT was limited, although research suggests that it contributes to sustainability (Armstrong & Ainscow, 2018; Hooze et al., 2017). Nevertheless, as mentioned in previous research, the support and incentive for collaborative participation within the inter-school network can have a facilitating influence on participants' perceptions regarding the PLC, and positively influence the perceived added value of the PDT (Hairon et al., 2017; Slegers et al., 2013).

Linked to the facilitating role of the inter-school network, at the end of the PDT, differences were noticed in how the continuation of a PLC was ensured, which is also addressed in previous research. More specifically, there were differences in terms of the organization and approach (Rekers-Mombarg et al., 2022), as well as expected commitment (Kasl et al., 1997) and shared leadership (Devos, 2014; Katz & Earl, 2010). In school communities existing by decree, where the superintendent played a facilitating role before and participated during the PDT, this support will continue, although it was not always clear what this facilitating role would entail and who should fulfill it. Although research on this topic is limited, results suggest that superintendents can promote the organizational social capital of their inter-school networks by focusing on educational goals and offering support accordingly (Hooze et al., 2015). In addition, they can also play an important role by providing support, which can contribute to school leaders' well-being (Beausaert et al., 2023).

In the PLCs where this facilitation role was deliberately absent, the school leaders maintained their autonomous status. The choice of an (external) coach should take into account the coaching experience during the PDT, coaching expertise among PLC participants, availability of coaches from the educational advisory service, and financial resources. It is recommended that the participating school leaders and superintendents make conscious and well-founded choices for the sake of the quality of collaborative learning, which confirmed previous research (Coenen et al., 2021; Feys & Devos, 2015; Hayesa & Briggs, 2015).

By experiencing the PLC meetings as participants, school leaders realized that initiatives such as prioritization and goal-orientation, as mentioned in previous research (Armstrong & Ainscow,

2018; Easton, 2016; Hooge et al., 2017) are essential for sustained participant engagement and enacting PLC processes. The same applies to quality assurance through follow-up and internal/external feedback as referred to by Majchrzak et al. (2015). School leaders wanted to strive for shared leadership, equal commitment and responsibility by making tasks, roles and mandates explicit, and maximizing the self-regulatory capacity of the PLC. They perceived the facilitation of a stable group within the inter-school network as a challenge, although changes in PLC composition could generate new insights and input, as stated before (Hooge et al., 2017; Majchrzak et al., 2015). What is important, according to Antinluoma et al. (2021), is that the facilitator did not leave. At the organizational level, creating structural time and space for professionalization is considered essential by several researchers, including Armstrong and Ainscow (2018), Bouchamma et al. (2019), Hooge et al. (2017), and Huijboom et al. (2023). The data showed that some school leaders took specific actions at this level.

Additional main findings: Study two

- ✓ School leaders experience the need for peer-learning opportunities, but a large group of participants experienced the value of their inter-school network as a sounding board for the first time during the PLC within the PDT.
- ✓ PDTs focusing explicitly on developing PLCs within inter-school networks supports their further sustainability after completion of the trajectory.
- ✓ The approach of the PLC within the inter-school network is strongly indicative of:
a) converting acquired insights into concrete actions regarding professional and school development, and the desire to continue working on challenges that are faced; and b) the intention to sustain continuation after the PDT completion.
- ✓ PLC groups that run during a PDT achieve the goals of inter-school collaboration.
- ✓ PLC groups that run during a PDT can deepen the level of collective learning.
- ✓ The time created during PLCs with the inter-school network is experienced positively in fostering mutual trust.
- ✓ The coach plays an important role by providing the participants with a positive experience of how a PLC functions.
- ✓ The coach-the-coach approach used during the PLC sessions has a limited perceived impact on learning outcomes.
- ✓ The facilitating role of the structural inter-school network has limited explanatory value for the PLC outcomes.

Study 3 | Focus on coach-related characteristics of the PLC coach that generate professional and school development during the PLC meetings of a PDT for school leaders (after year 2)

Coaching is positively valued for supporting school leadership and school development within challenging societal contexts (Brandsmo et al., 2021; Darling-Hammond et al., 2022; Lochmiller, 2018; Ritzema et al., 2022; Rowland, 2017). To maximize the effectiveness of coaching for professional and school development, empirical research on the influential factors is essential (Darling-Hammond et al., 2022; Lochmiller, 2021).

The PDT for school leaders studied integrated group coaching as a form of peer learning, in which several professionals participated in a professional learning community (PLC) with a coach (Flückiger et al., 2017; Harris & Jones, 2019; Poortman et al., 2022). Research on the impact of this specific form of group coaching as part of a PDT is scarce (Brandmo et al., 2021; Flückiger et al., 2017).

The coach's competencies are important to the perceived quality and effectiveness of PLC coaching (Coenen et al., 2021; Lofthouse & Whiteside, 2019). While the importance of understanding the specific effective role and approach of a coach during a PDT has been demonstrated, little research has been done on quality interventions, success factors, and necessary conditions for optimally integrated coaching with an impact on sustainable professional and school development (Aas & Flückiger, 2016; Patrick et al., 2021).

This third study examined if coaching competencies were perceived as effective in facilitating sustained professional and school development during PLC meetings in a PDT for school leaders. The focus was on the outcome variables of "converting insights into (planning) concrete actions," in line with the fourth level of depth of professional development (Kirkpatrick & Kirkpatrick, 2016) and "having the desire to continue working on the content" (Leedham, 2004) as a basis for sustainable development. Therefore, we employed mixed method research using online surveys with two measurements for the participating school leaders, focus group discussions with PLC groups and in-depth interviews with the coaches.

The explanatory value of the coach's didactic approach and coaching skills during PLC meetings with respect to the predefined outcome variables (Q3.1)

The analyses showed that school leaders perceived participation in the PLC as valuable, both for "converting insights into (planning) concrete actions" and "having the desire to continue working on the content." However, there appeared to be a large spread in these outcome variables. Although the independent variables of "didactic approach" and "coaching skills" of the coaches were perceived as above-average positive, there was also a remarkably large spread of the school leaders' answers in this area.

Indications of differences in the didactic approach and coaching skills of PLC coaches that may be associated with differences in outcome variables (Q3.2)

Statistical analysis showed the possible differences between coaches in didactic approach and coaching skills, leading to a difference in perceived effectiveness on the outcome variables, where cautiousness is required since control variables are not included. The coach's overall didactic approach during the PLC had a strong explanatory value for "converting insights into (planning) concrete actions." "Working toward an action plan" and "tailored support and feedback" made the largest singular contribution to these outcome variables. For "having the desire to continue working on the content," the analysis showed a very strong perceived effect of the coach's overall didactic approach during the PLC. Again, explicit use by the coach of "working toward an action plan" was most effective, especially when the link to the training days was emphasized. Coaching skills had moderately strong and significant explanatory value for "converting insights into (planning) concrete actions" during the PLC. With respect to "having the desire to continue working on the content," the coach's coaching skills had a greater perceived effect.

Differences in perceived effectiveness between groups with the same coach were found using qualitative data in the areas of commitment, goal-orientation, and tailored support. Although coaches were more often positive about the level of effectiveness they achieved, they noted differences in the effects of their approach between their respective groups. This confirms research that argues that the ability to use multiple techniques and methods in a goal-oriented way tailored to the target group and at the right time makes the difference (Patrick et al., 2021).

According to previous research, the coach's level of professionalization helps determine self-awareness of the quality delivered (Diller et al., 2020; O'Broin & Palmer, 2010). If participants experience high levels of empathy with and support from the coach, this appears to be a greater predictor of perceived effectiveness than the approach and methods used, as Cox et al. (2014) stated. In other words, how a coach perceives the purpose of coaching and concretely fulfills this role can help influence perceived effectiveness by school leaders, which is in line with previous research (Coenen et al., 2021; Patrick et al., 2021; Heston, 2013). The interpretation by coaches is also reflected in the typology of coaching described by Brockbank (2008), which focuses on three questions: whose goal, what process, and what learning outcome? As cited above concerning transfer or training, evidence of coaches' awareness of the findings of scientific research is important (Burke et al., 2010; Hutchins & Burke, 2007).

The explanatory value of a PLC coach's expertise with respect to the outcome variables (Q3.3)

Although, according to prior research (Cox et al., 2014; Lofthouse & Whiteside, 2019; Reiss, 2015), qualifications and relevant professional experience guarantee quality coaching, this did not automatically lead to high levels of perceived effectiveness among participating coaches. Previous research has defined "relevant professional experience" more broadly. In this study, the

focus was on two further operationalized facets: perceived coaching and educational experience. The data showed above-average positive perceptions for both of the independent variables but with a wide range.

The mainly qualitative analysis showed that coaches with extensive coaching experience – ideally PLC coaching – best facilitated content and group dynamic processes and ensured concrete transfer to the school context with the concrete planning and undertaking of action. This contradicts previous research that identified the professionalization level of the coach as a better predictor of coaching quality than the coaching experience present (Diller et al., 2020; O’Broin & Palmer, 2010).

The more in-depth operationalization of coaching expertise and educational expertise within this study supported a further nuanced analysis. It appeared that having educational expertise (in the role of school leader) is not a necessity, but strong familiarity with education and school policy is necessary to facilitate depth and provide sufficient realistic and feasible input on education and leadership, which confirms previous research (Thornton, 2010). Although previous research (Lochmiller, 2021; Reiss, 2015) showed that expertise, in principle, need not be entirely education-related or topic-related, as a coach assumes the role of facilitator, we showed that effective facilitation is only possible if there is educational affinity. Moreover, educational expertise should serve to guide the transfer of theoretical frameworks and examples to each context, rather than primarily showcasing one’s expertise and positioning oneself as a consultant rather than a coach, which is consistent with previous research (Heston, 2013; Margalef & Roblin, 2018). This aligns with evolutionary approaches to coaching, which are characterized by client ownership of the goal, a person-centered process, and transformative learning outcomes (Brockbank, 2008).

Finally, the coach’s educational expertise had a moderately strong experienced impact on “having the desire to continue working with the content”, although without adding control variables, which is related to the inspirational effect of the coach, as pointed out by Leedham (2004).

Characteristics associated with participants, context, etc. that are mediating for the perceived effectiveness of PLC coaching (Q3.4)

In PLC groups where the coach perceived the start-up as challenging and laborious, it remained so. The first meetings took place during the COVID-19 pandemic, which made the online start-up of the PLC groups especially challenging. Some coaches attributed the difficulty in connecting with school leaders in part to this. The question is whether this was really due to the pandemic context, as this was not an issue with other coaches. Some coaches coached multiple groups, for whom a difficult start-up was not the case in all their groups.

Participants identified contextual factors that hindered the PLC effectiveness, such as teacher shortage and teacher absence, as these issues took priority. At the same time, school leaders mentioned that a good coach would support the group with these issues by not paying endless

attention to them and challenging participants (to continue) to engage in professional and school development. If a coach did not take such an approach, participants with this need felt heard but not coached. Participants also mentioned their responsibility to address this.

Coaches identified the participants themselves as a co-determining factor in the effectiveness of PLC coaching. According to them, this could transcend the coach's competency both positively and negatively. Reference was made to the participants' motivation and aspiration to participate in the PDT and PLC and their willingness for systemic change. If this was not present, attempts by a coach to challenge the PLC group were perceived as a mismatch between the coach or their expertise and the PLC group, rather than generating introspection. This lower level of effectiveness due to less willingness has also been found in previous research (De Meuse et al., 2009).

Additional main findings: Study 3

- ✓ "Working toward an action plan" and "tailored support and feedback" made the largest unique contribution to "converting insights into (planning) concrete actions."
- ✓ "Working toward an action plan" was most effective for "having the desire to continue working on the content," especially when the link to the training days was emphasized.
- ✓ Coaching skills had a moderately strong explanatory value for "converting insights into (planning) concrete actions" during the PLC and a greater perceived effect for "having the desire to continue working on the content."
- ✓ Differences in perceived effectiveness of PLC groups with the same coach were found in the areas of commitment, goal-orientation and tailored support.
- ✓ How the coach perceives the purpose of coaching and concretely fulfills this role can influence perceived effectiveness.
- ✓ Coaches with extensive coaching experience – ideally PLC coaching – best facilitated content and group dynamic processes and ensured concrete transfer to the school context with concrete planning and undertaking of action.
- ✓ Effective facilitation of PLC within a PDT for school leaders is the best possible if there is educational affinity.
- ✓ Educational expertise should guide the transfer of theoretical frameworks and examples to each context, instead of primarily showcasing expertise and positioning oneself as a consultant rather than a coach.
- ✓ In PLC groups where the coach perceived the start-up as challenging, it remained so.
- ✓ Contextual factors can hinder PLC effectiveness, as these are priorities, but a good coach supports by not paying endless attention to these. If a coach did not take this approach, participants with this need felt heard but not coached.
- ✓ Because coaching is a relationship between coaches and participants, both have responsibilities to reach the predefined goals. If willingness is not present in participating school leaders, the perceived effectiveness is lower.

Study 4 | Focus on coach-related characteristics of the individual coach that generate professional and school development in the individual coaching sessions of a PDT for school leaders

Much is already known about coaching and its efficacy; less research is available specifically on individual coaching of school leaders and its impact (Patrick et al., 2021; Wise & Cavazos, 2017), more specifically as part of a PDT (de Haan et al., 2011; Lofthouse, 2019). Empirical research on the influential factors is essential to maximize the impact of individual coaching and, of an effective coaching approach on the professional development of experienced school leaders and school development (Lackritz et al., 2019; Weathers & White, 2015). Little research has been done on the conditions for the effective interaction of individual coaching within a broader PDT (De Meuse et al., 2009; Simkins et al., 2006), while it would be of value to investigate how this individual coaching functions (van Nieuwerburgh et al., 2020), in addition to and in interaction with other components of this trajectory.

When integrating both individual and group coaching into a PDT, the mutual interaction between these two organizational forms and their interaction with training days is essential to facilitate purposeful school development. This shows the importance of understanding a coach's specific role and approach during individual coaching as an integrated part of a PDT.

Thus, the purpose of this fourth empirical study was to investigate which characteristics of the coach of individual coaching sessions, in the context of a broader PDT for school leaders, had a perceived added value in generating professional and school development.

Overall, we have indications that the coach matters: individual coaching sessions as an integrated part of a PDT were perceived by school leaders as above-average positive for professional and school development, confirming previous research (Cannon-Bowers et al., 2023; Lochmiller, 2018; Rowland, 2017). There was both a perceived effect on converting insights into planning and undertaking concrete action and on having a sense of purpose to continue working on the content. The perceived added value remained stable over the two years of the PDT. The large spread in the responses was a reason for investigating further. Depending on the didactic approach and coaching skills used by the coach during the individual coaching sessions, school leaders experienced an impact (sometimes large) on the two outcome variables, or not. Focusing on their priorities was perceived above-average positively, which may contribute to effectiveness (Saddler, 2023), again with large differences between responses. In particular, stimulating reflection, maintaining a broad perspective and creating depth tailored to the school and school leader had added value for participating school leaders.

The perceived added value of the coach's didactic approach and coaching skills during individual coaching sessions with respect to the predefined outcome variables (Q4.1)

Tailored support (if needed) was perceived as valuable for the learning process, which is also reflected in previous research (Cannon-Bowers et al., 2023; Rowland, 2017; Weathers & White, 2015). However, differences in responses were observable.

School leaders who participated in individual coaching generally had a positive experience when they had the same coach for PLC meetings and individual coaching. In particular, getting to know the school leaders and their school context and building a relationship of trust were mentioned as offering high added value. This basic familiarity was considered necessary for optimal coaching during a learning and development process. These results are consistent with previous research which found that the empathic ability of and support from the coach and the relationship between the coach and school leader appears to be a greater predictor of perceived effectiveness than the actual approach and methods used (Cox et al., 2014; de Haan et al., 2011). At the same time, this relationship of trust is reflected in the coach's behavior and thus their approach. For example, school leaders mentioned listening skills and the coach's questioning as manifestations of a positive relationship and effective coaching (Heston, 2013; Patrick et al., 2021). Such processes still require investment from both the coach and the school leader (Darling-Hammond et al., 2022; Eastman, 2019; Lofthouse, 2019). The PDT organizer should also take this into account when designing the program.

The strong preference for the same coach during a two-year PDT need not exclude a concept with different coaches. Different perspectives, input and approaches may constitute added value, as some school leaders also pointed out. The choice of one of the two forms or a mix should, above all, match the predefined goals of the PDT in terms of depth and sustainability.

In terms of coaching skills, ensuring both depth and focus, employing a sense of security and transferring to the school context of school leaders were rated highly. However, here, there was a wide spread of experiences. The in-depth interviews particularly revealed the importance of the coach asking questions to generate depth, purposefulness and transfer. Listening and summarizing were also considered important and necessary skills. In addition, skills related to creating a safe learning environment and an authentic and engaged attitude proved particularly valuable. These can influence the perceived effectiveness of the sessions experienced by school leaders and the feeling of being coached. Participants themselves also have the responsibility to give feedback, to state their needs and/or to request an in-depth or further conversation (Simkins 2006), as coaching is about an equal relationship (Darling-Hammond et al., 2022).

Indications of differences in the didactic approach and coaching skills of PLC coaches that may be associated with differences in outcome variables (Q4.2)

The analyses showed large perceived effect differences between coaches for some independent variables. Both the didactic approach and the coaching skills of the coach during individual coaching had a very strong explanatory value on converting insights into planning and undertaking concrete action and on having the desire to continue working on the content. In other words, the perceived added value stands or falls with the content created and the coach's approach. When identifying the differences in approach between coaches and their possible effect on the outcome variables, there appeared to be a discrepancy between the non-significant results of the statistical analyses and the analysis of the qualitative data regarding the perceptions of school leaders. Qualitative data offer the opportunity to interact with quantitative data to obtain more valid answers. Moreover, it is important to be alert to the perception of school leaders collected by open-ended questions and in-depth interviews because it can affect the motivation to work or to continue to work with the content (Leedham, 2004).

It is of note that none of the coaches' behaviors were perceived as not a form of coaching by school leaders, as activating them too narrowly and not leading to the predefined depth. Previous research on coaching behaviors states that one-third of these behaviors truly activate learning opportunities. If the coach uses them during coaching sessions they result in rich and meaningful content (Patrick et al., 2021). How the coaches concretized the agreed didactic approach and coaching skills to work with the selected questions/themes influenced the perceived impact, which has also been shown in other research (Patrick et al., 2021).

The perceived added value of the interaction between individual coaching, training days and PLCs in a PDT (Q4.3)

The coaches' participation during the training days was perceived positively by school leaders for establishing links and providing theoretical frameworks. The participants positively experienced the fact that coaches connected the content and practical applications provided during the training days, explored the further transfer to their school context, encouraged social interaction with other school leaders during PLC meetings and explored the further deepening and concretization during individual coaching. School leaders considered this interaction as reinforcing in both this and previous research (Tanghe & Schelfhout, 2023), as it facilitates coverage of all the necessary content of the coaching process (Patrick et al., 2021) and can create additional depth (Kirkpatrick & Kirkpatrick, 2016). The fact that not every coach was able to facilitate this interaction at the same level and demand was evident from the spread of quantitative and quantified qualitative data and was found to correlate with participants' perceived added value. Coaches must apply this consistently (and sometimes more explicitly). This is also reflected in previous research that indicated the importance of referring to evidence-informed frameworks (Darling-Hammond et al., 2022; Patrick et al., 2021). During individual coaching, there is not always the opportunity to present theoretical frameworks, while during training days, there is not always time to work on

transferring and tailoring theoretical frameworks and practical applications to each school and school leader (Zhang & Brundrett, 2010), thus the interplay between these two components is valuable, which has been confirmed by other research (de Haan et al., 2011; Lofthouse, 2019; Tanghe & Schelfhout, 2023).

Thus, to ensure optimal interaction and progress in a broader PDT with training days, PLCs and individual coaching, it is important that coaches consciously focus on this (Leedham, 2004). This must be done sufficiently and explicitly to be perceived as effective by school leaders. It is also important that coaches have sufficient content knowledge (Tanghe & Schelfhout, 2023) so that they can explicitly link the theoretical, practical and individual input and be aware of their crucial role in this area. This confirms the need for a clear concept of the coaching role, especially a perspective of facilitator and/or a more content-based approach, where the coach also co-facilitates input from a theoretical framework (Farver, 2014; Weathers & White, 2015; Wise & Hammack, 2011).

The perceived added value of a coach's expertise on the outcome variables (Q4.4)

Both the perceived educational expertise and coaching expertise were rated high with respect to both PLC coaching and individual sessions. In addition, school leaders who participated in individual coaching rated the coaches' expertise significantly higher. However, it is notable that there was a spread in responses. This may also be related to why school leaders stopped scheduling coaching sessions in the second year.

Aligning expectations of the coach at the beginning of individual coaching – also as part of a broader PDT – makes sense for both partners because it can foster the establishment of a professional coaching relationship, including equity and transparency. Perceptions of the coaching approach held by school leaders may differ from those of the coaches themselves (Lofthouse, 2019; Simkins et al., 2006). At the same time, nuance is advisable: most school leaders want to build a trusting relationship first and are not immediately focused on the coach's educational competencies. This also explains why it was not always easy for school leaders to identify exactly what worked in terms of coaching.

A clear understanding of how coaching is integrated into a broader PDT and what the concrete expectations are regarding the coaching role is in order, as this affects the coach's interpretation of the approach (Patrick et al., 2021). After all, a coach may have a very strong profile and yet not function optimally within a given framework or not have a match with the individual school leader or group. It is up to the coach to consider whether they can meet this and whether this matches their values (Lofthouse, 2019). Although all coaches had a strong profile and coaching expertise, not all of them had professional coaching training. This could potentially contribute to inaccurate perceptions and affect the pursuit of quality standards (Lackritz et al., 2019). However, it has been found that during coaching sessions, coaches rarely ask questions to verify whether

their coaching approach is effective (Patrick et al., 2021). Goals and expectations should also be clear to participants (Simkins et al., 2006), for example, to provide feedback.

The coach's perceived expertise in coaching was found to only moderately strongly explain both outcome variables. In the in-depth interviews, the coach's subject matter expertise on education was mentioned by school leaders as valuable, but educational expertise did not have a perceived impact.

Depending on school leaders' questions or needs, educational experience appeared to have an additional positive or negative influence. When coaching school leaders to transfer content to their school context was key, educational experience appeared to be an important prerequisite. While this has been confirmed by previous research (Lochmiller, 2018), other research findings have indicated that a coach can facilitate transfer without having the expertise themselves (Reiss, 2015). School leaders' perceptions and expectations of what makes a good coach help determine the perceived added value (Lackritz et al., 2019).

Characteristics of the participants, the context, etc. that constitute reasons to participate more or less frequently, or not at all, in individual coaching as an integrated part of a PDT (Q4.5)

Participation in individual coaching as an integrated part of the PDT was warmly recommended to the participants. Nevertheless, it remained a personal choice to participate and to determine the frequency. The perceived absence of need was a reason not to participate in individual coaching. This raises the question of the participants' perceptions of the role of coaching, as they may not readily recognize that it could be of value to examine a positive situation or that coaching might help to clarify a question. It is possible that a school leader may be unfamiliar with the concept of coaching (it is not just a consultation) and/or the added value of individual coaching. Indeed, school leaders generally know about coaching but often do not have access to it (Darling-Hammond et al., 2022) or do not know what it might mean for them (Lofthouse & Whiteside, 2019). Coaches can thus play an important role in informing participants (several times if necessary) about the possibility of coaching, what coaching entails and how and why it is integrated into the PDT, giving concrete examples of possible questions/themes (linked to the school's priorities) so that its value becomes more concrete and encourages participants to schedule a session at a time that suits both partners. The coach's role should also be clear (Wise & Hammack, 2011).

The fact that the connection between the school leader and coach did not always work well or that the coach's expertise was considered insufficient (beforehand) were reasons for not participating at all or any longer in individual coaching. In particular, the coach's approach during the PLC contributed to school leaders choosing not to participate at all or more frequently in individual coaching. The coaches themselves did not spontaneously link their approach during the PLC with the effect on the level of participation in individual coaching. Building a trusting relationship takes time in any case (Eastman, 2019; Lofthouse, 2019). The fact that school leaders found their coach friendly and nice was not enough.

It is valuable to proactively consider an alternative approach, possibly with a different coach, when a fruitful connection is not realized and coaching does not create the desired added value or school leaders do not participate for that reason. This would certainly be opportune, since individual coaching is integrated within the broader PDT and facilitates the transfer and sustainability of the themes of the training days and PLCs. In addition, it may be interesting to organize intervention sessions with the coaches to support them in such situations, which are not included in prepared scripts.

Given that most coaches were flexible in scheduling sessions, the question is whether there was no possibility of scheduling a session or whether non-participation had more to do with prioritizing in “the delusion of the day.” Presenting a perspective can contribute positively to the mindset that asks: “How does one hour of coaching compare to one hour of ‘firefighting’?” Timely scheduling of sessions and working toward this can also help overcome difficulties in terms of lack of time. For the coach who scheduled sessions with each participant at the start of the PDT, the response rate was almost 100%. At the same time, this can lead to feeling obligated and participating “because the sessions are scheduled” rather than for the added value. Either way, flexibility to adapt the sessions to each school and school leader’s process would be useful. Communication about the format of the coaching could also be different. It could be specifically identified as a fixed dimension of the PDT, but with the scheduling of a predefined number of sessions freely during the PDT in consultation with the coach.

Although coaching is an increasingly common practice in education, it is not yet accessible to everyone. Both the financial threshold and possible guidelines for budgets linked to professional development may be influential (Lofthouse & Whiteside, 2019; Rowland, 2017). The fact that coaching is implemented in the broader approach of a PDT and is free of charge may encourage school leaders to familiarize themselves with it and engage with it further after completing the PDT, including its use in their team.

The limit of three sessions per school arose due to financial constraints. At the same time, some schools need more or less. If the financial guidelines are fixed, it might be possible to move between a lower and upper limit, with schools for whom coaching is less necessary or who have access to coaching outside the PDT pursuing the lower limit of participation, allowing the freed-up sessions to be used for schools with greater need.

Additional main findings: Study 4

- ✓ Individual coaching sessions as an integrated part of a PDT were perceived as above-average positive for converting insights into planning and undertaking concrete action and having a sense of purpose to continue working on the content.
- ✓ Focusing on school leaders' priorities and tailored support were perceived above-average positively.
- ✓ Stimulating reflection, maintaining a broad perspective and creating depth tailored to the school and school leader had added value for participating school leaders.
- ✓ School leaders who participated in individual coaching generally experienced the same coach for PLC meetings and individual coaching positively. This need not exclude an approach using different coaches, given the predefined goals in terms of depth and sustainability.
- ✓ Coaching skills such as asking questions, listening and summarizing, ensuring depth and focus, employing a sense of security and transferring to the school context of school leaders were rated highly.
- ✓ How the coaches concretized the agreed didactic approach and coaching skills to work with the selected questions/themes influenced the perceived impact.
- ✓ A clear concept and communication of the coaching role, especially the perspective of a facilitator and/or a more content-based approach, where the coach also co-facilitates input from a theoretical framework during a PDT, is important for coaches and school leaders.
- ✓ A clear understanding of how coaching is integrated into a broader PDT and what the concrete expectations are regarding the coaching role is in order, as this affects the coach's interpretation of the approach.
- ✓ When coaching school leaders to transfer content to their school context is key, educational experience appears to be an important prerequisite.
- ✓ The coach's approach during the PLC contributed to school leaders not participating at all or less frequently in individual coaching.

Study 5 | Perceived impact of effective factors related to the general organization and specific approach on goal- and action-oriented transfer and implementation of the content in the context of professional and school development one year after completing a PDT (after year 3)

The professional development of school leaders requires quality long-term professional development programs (Jensen, 2016; Sahlin, 2023). In addition to the choice of an appropriate program by the school leader (Wright & da Costa, 2016), the organization of, and approach taken by, professional development trajectories (PDT) determine their perceived effectiveness among school leaders (Mdhlalose, 2022; Orr & Orphanos, 2011).

Insight into the effectiveness of training programs focusing on transfer to the individual participant's context has improved over the past decades (Baldwin et al., 2017). However, little empirical transfer research is available on the effects of PDTs for school leaders, and there is even less research on the specific key factors that sustain the effectiveness of PDTs for school leaders after PDT completion (Daniëls et al., 2021). Longitudinal follow-up research with different measurements of perceived effects (Blume et al., 2019; Huang et al., 2017; Jensen, 2016) is appropriate for both trainers and organizers (Baldwin et al., 2017; Yelon et al., 2014). Therefore, this mixed methods study aimed to gain insight into factors related to the general organization of a PDT and specific approaches that school leaders perceived as effective for the further goal- and action-oriented transfer and implementation of the PDT content to subsequent professional and school development. In doing so, we organized a longitudinal follow-up (Blume et al., 2019; Huang et al., 2017; Jensen, 2016) using a mixed methods design, which is less common on this scale. Moreover, this study examined a number of key factors, which were applied in combination and can reinforce each other, whereas existing research often focuses on only one factor.

Our research showed that school leaders were above-average positive about the specific perceived impact of their participation both immediately after the end of the program and one year after completion. Although previous research demonstrates a gap between learning and concrete transfer to practice (Grossman & Salas, 2011), as well as downsized transfer of training without maintenance (Blume et al., 2010; Baldwin & Ford, 1988) and significantly lower self-efficacy when there is a time lag between participation in a PDT and the measurement (Blume et al., 2010), based on the perceptions of the participating school leaders, the approach of this PDT seemed to contribute positively even one year after completing the PDT. The experienced impact of the PDT on their approach and capacity to reflect on school policy was rated positively by almost all school leaders. Their participation mainly affected vision development and goal-oriented elaboration and implementation of a policy-based action plan. When reflecting on their initial situation, they considered the PDT to offer a strong basis for professional development and school development (Brauckmann et al., 2023; Rieckhoff & Larsen, 2012). Consequently, we claim that there was effective professionalization, according to the definition used previously (Kirkpatrick & Kirkpatrick, 2016), facilitated by the overall organization and the specific approaches used during the PDT.

Specific approach during the PDT school leaders perceive as effective for sustained action- and goal-oriented transfer and implementation of professional and school development after completion of a program (Q5.1)

Working with an action plan during the PDT contributed to the active transformation of school policy into reflection about dedicated actions and their implementation and follow-up, which confirmed previous research (Doe et al., 2016; Fluckiger et al., 2014; Sun & Leithwood, 2015; Tanghe & Schelfhout, 2023). Concrete elaboration facilitated transfer, which is important in a complex context such as education, when the aim is to work in a goal-oriented manner, that is, based on an explicitly defined goal (Friedman & Ronen, 2015). The action plan primarily served as an active working document to elaborate and implement policy in a concrete and in-depth manner, as well as to communicate and visualize them, demonstrating the importance of their practicality. The intention to continue using the action plan at the end of the PDT appeared to still be a reality one year later among all school leaders interviewed, also with application to other policy themes and often creating links between various action plans. This implementation intention (Friedman & Ronen, 2015) – in this case, the intention of the school leader to continue working in this manner in the future – as a result of participation in a PDT, which led to concrete development and change in a complex school context, has not been specifically demonstrated before.

Although most school leaders had experience with working with action plans, which is to be expected given the quality expectations in education, the PDT focus on them was nonetheless considered as offering added value and, among more experienced users, even led to additional insights regarding quality use. While school leaders know the importance of creating shared responsibility and support in development and implementation (Brown & Flood, 2020a), as well as the need for prioritization (Gollwitzer & Sheeran, 2006), among other factors, our research showed that this does not directly equate to deep insight or application. For those school leaders with weakly developed action plans, the acquired insights regarding goal-oriented and cyclical work were highly significant.

School leaders with weakly developed action plans found the support and feedback they received valuable in the pursuit of action- and goal-orientation. The template provided also appeared particularly useful to them, although it also appealed to the school leaders strong developed action plans. It was suggested that several templates and concrete examples could inspire everyone to make autonomous choices appropriate to their own school leadership and school context. The time provided to work on the action plan was considered positive for enhancing goal- and action-orientation, although more time was always desirable. Creating time themselves appeared to require a conscious choice that school leaders, remarkably, often did not make, despite the intention to do so. Here, contextual factors played a role.

Working with an action plan and follow-up was implemented with the assistance of PLCs and individual coaching. This implementation and the interaction between the two forms of assistance was crucial in ensuring the perceived impact of the PDT, according to school leaders. At the

same time, it was suggested that some coaches could make even more explicit use of follow-up and feedback during the PDT as functions of optimal transfer, which previous research has also indicated (Brion, 2022; Goldring et al., 2012; Tanghe & Schelfhout, 2023). Previous research also identifies follow-up after PDT completion as a success condition linked to the work environment (Saks & Burke, 2012; Grossman & Salas, 2011; Baldwin & Ford, 1988). Ford et al. (2018), and Tonhäuser and Bükér (2015) point out the importance of transfer-boosting measures before and after participating in a professional development initiative, but more research is recommended. According to these researchers, trainers, and coaches have a crucial role in this, including giving feedback afterward, which contributes positively to making the training transfer more sustainable. What have been called “job aids” may also be useful, as discussed in the research by Ford et al. (2018) and Tonhäuser and Bükér (2015). In our view, the action plan that has been put forward can be an example of this.

School leaders had strong appreciation of the PLC approach as a function of goal- and action-orientation. Clear planning and organization of the sessions provided a conducive framework to work on content. When substantive, broad and concretely applicable content linked to questions or goals was central to PLC meetings, school leaders found this positive. When absent, school leaders experienced this as inhibiting their motivation and transfer. The coach’s approach, with a focus on follow-up and feedback on the action plan, was found to be decisive for action- and goal-orientation following the PLC, confirming previous research (Brion, 2022; Tannenbaum & Cerasoli, 2013; Villado & Arthur Jr, 2013).

Despite the intention of all PLCs to sustain collaboration around jointly defined themes at the end of the PDT, this was not achieved by all groups or individual school leaders. This was often due to personal or school-related reasons, as well as structural reasons, as also identified in previous research (Armstrong, 2015). The number of sessions that took place in the year following the PDT varied between the PLC groups. Notably, the number of sessions planned was often reduced due to contextual factors, different priorities and time constraints. PLCs without a permanent external coach were cancelled sooner, possibly because participation was not formally embedded in school policy and not a priority (Brown & Flood, 2020b), and there was less accountability (Easton, 2016). In most groups, work was organic in terms of organization and approach, although school leaders, based on their own experiences in the PLC during the PDT, mentioned the importance of thoughtful, proactive choices (Tanghe et al., 2024). Despite all participants expressing positive views on the value of the PLC for their school (context) at the end of the PDT (Tanghe et al., 2024), opinions were divided on the ultimate goal- and action-orientation, as well as the depth of learning and collaboration in the rather “organic” continuation afterward, in contrast to the PLC with a permanent external coach. Despite the challenges, all PLCs intended to continue or be relaunched, with more attention being paid to practical and organizational issues (e.g., appointing an external coach) and proper preparation. Our research showed that, despite the intentions, it is less evident that a substantively thorough inter-school PLC can be instituted on an organic basis even after a structured development during a PDT. This constitutes an additional insight, given existing research mainly focuses on a structured PLC approach.

Participants in individual coaching had an above-average experience of it, mainly due to the time created to focus on content, concrete insights, tools and feedback, all aimed at concrete actions. A coach who questioned and acted as a mirror was considered valuable by the school leaders, which confirmed previous research (Blume et al., 2019; Tanghe & Schelfhout; Tews & Tracey, 2008). Making links to the approach in the PLC was strongly appreciated. This further deepens insights from the limited existing research in this area (De Meuse et al., 2009; Huber, 2011; Simkins et al., 2009; Tanghe & Schelfhout, 2023). During a long-term trajectory, a systematic (or more systematic) approach to coaching and clear communication by the coach about the options appears necessary for maximum goal- and action-orientation, as well as transfer, which demonstrates the importance of a clear understanding by the coach of how their coaching is integrated into the broader PDT and the related expectations regarding the coaching role (Hulsbos et al., 2014; Patrick et al., 2021).

Factors related to its general organization of the PDT that school leaders perceive as effective for sustained action- and goal-oriented transfer and implementation of professional and school development after completion of a program (Q5.2)

The research literature shows that the overall approach of a PDT with thoughtful and cyclical progress over a longer period (Huber, 2011; Simkins et al., 2009) can facilitate the transfer of PDT content into the school context and encourage school leaders to take long-term actions (Fluckiger et al., 2014; Pashiardis & Brauckmann, 2009; Yelon et al., 2013). Our research confirmed the importance of specific approaches, such as the creation of PLCs and coaching and working with an action plan, and it strongly pointed to the importance of coherence in the overall organization of PDTs. School leaders found clear planning, the provision of working time, and support and materials during the PDT to facilitate sustainability afterward. While the time provided still appeared to be too limited – according to school leaders (Brown & Flood, 2020a; Tanghe & Schelfhout, 2023) – this may also be inherent to the educational culture in Flanders and the limited time for school leader professional development. The statement of commitment signed at the start of the PDT appeared to contribute to the sustainable transfer of content, as previous research has also found (Kirkpatrick & Kirkpatrick, 2016; Simkins et al., 2009), and it was a positive stimulus for both action plan development and transfer of training. Participation with a colleague had a high level of perceived impact on further sustainability and implementation and facilitated shared leadership, which is in line with previous research (Doe et al., 2016; Hilton et al., 2015; Sun & Leithwood, 2015). However, these participants still found themselves under pressure due to various circumstances, so a larger delegation from the school would be even better.

The school leaders considered their participation in a long-term PDT as important for the effective development of school policy. Although they rated a two-year trajectory as optimal after completion, about 70% recommended an even longer duration when asked one year later, or at least some follow-up (at a less intensive level than the PDT itself) with joint return moments scheduled by the PDT organizers and/or coaching (Blume et al., 2019; Tews & Tracey, 2008) to

ensure sustainability. This confirmed previous research showing that providing time and space for professional development is necessary for in-depth learning (Brion, 2022; Daniëls et al., 2023; van Veen et al., 2010; Wright & da Costa, 2016) and real action (Rieckhoff & Larsen, 2012; Sahlin, 2023; Tanghe & Schelfhout, 2023). Our research also confirmed the importance of repetition, supplementary input and follow-up.

Factors related to school leadership and the school context that school leaders perceive as influencing sustainable action- and goal-oriented transfer and implementation of professional and school development after completion of a program (Q5.3)

The participating school leaders had a crucial role, which is also reflected in research on school improvement (Harris et al., 2013; Yeigh et al., 2019). In addition, scholars state that participants themselves have a responsibility with respect to follow-up after the PDT, for example, by focusing on reflection (Grossman & Salas, 2011; Baldwin & Ford, 1988).

A prerequisite for successful transfer is the appropriate perception of the PDT: if school leaders perceive the content as useful, sustainability appears to be higher, as previous research has also shown (Huang et al., 2017; Grossman & Salas, 2011; Baldwin & Ford, 1988). This can be linked to the importance of motivation of the participant in training transfer (Gegenfurtner, 2011). Continuing to use the content oneself, delving into it, repeatedly referring back to the trajectory and reflecting on it, is necessary, and again it points to the importance of self-regulation (Gollwitzer & Sheeran, 2006), even without further supportive professionalization.

Based on previous research, leadership focused on prioritizing and planning appears essential (Sun & Leithwood, 2015; Tews & Tracey, 2008), which is challenging in a context that has many ongoing issues and dynamic processes. A clear vision and purpose and a supportive school structure can help counter the lack of time, the 'delusion of the day,' as can critical reflection on one's attitude (Askill-Williams & Koh, 2020; Brauckmann et al., 2023; Daniëls et al., 2021; Jensen, 2016).

However, the school context in which the school leader functions also plays an important role. How the action plans were used differed in terms of shared responsibility and support in the teams. Not all school leaders delegated or took their team on the road. Too often, team involvement appeared to be limited to informing others, and little necessary follow-up on goals and/or support and professionalization was provided (Brown & Flood, 2020a; Ingvarson et al., 2005; Perry & Boylan, 2018; Yelon et al., 2014). At the same time, school leaders identified time constraints, the pursuit of depth, the pace and course of change processes and the lack of structural input, support and follow-up from the school team as challenges. They also realized the importance of taking time for sustainable transfer and change, communication, repetition and providing support.

We also saw the same issues arising in relation to the sustainability of PLCs: while they were perceived as very valuable, participation in PLC meetings appeared to be under pressure and

they were quickly skipped due to other priorities. The inconsistency between one's vision and awareness of school leadership and concrete behavior as a school leader can unintentionally and unconsciously hinder transfer. Because school leaders' coping competencies and problem-solving competencies could be better armed for the transfer of content from the PDT to their school (Sun & Leithwood, 2015; Tews & Tracey, 2008), it is appropriate to pay sufficient attention to this at the individual level during a PDT, hence the importance of individual coaching.

Additional main findings: Study 5

- ✓ The specific approaches and overall organization of the long-term PDT offered a strong basis for professional development of school leaders and school development, and thus effective professionalization.
- ✓ Working with an action plan during the PDT contributed to the active goal- and action-oriented transformation of school policy into reflection about concrete actions and their implementation and follow-up, during and after completion of the PDT.
- ✓ While school leaders know the importance of creating shared responsibility and support in development and implementation as well as the need for prioritization, this does not directly equate to deep insight or application.
- ✓ School leaders with weakly developed action plans found the support and feedback they received valuable in the pursuit of action- and goal-orientation.
- ✓ The time provided to work on the action plan was considered positive for enhancing goal- and action-orientation, but creating time themselves appears to require a conscious choice that school leaders often do not make, despite the intention to do so.
- ✓ The implementation of working with an action plan and follow-up during PLC meetings and individual coaching was crucial in ensuring the perceived impact of the PDT.
- ✓ Coaches have the crucial role of making more explicit use of follow-up and feedback as functions of optimal transfer by working with an action plan.
- ✓ The intention to sustain PLC collaboration after completion of the PDT is not enough in itself to ensure concrete steps are taken, due to personal, school-related or structural reasons.
- ✓ Although school leaders expressed the importance of thoughtful, proactive choices as a function of outcomes of the PLC, based on their experience during the PDT, after the completion, most groups worked organically in terms of organization and approach.
- ✓ Despite the intentions, it is less evident that a substantively thorough inter-school PLC can be instituted on an organic basis even after a structured two-year start-up during a PDT.
- ✓ The statement of commitment signed at the start of the PDT appeared to contribute to action plan development and transfer of training.

- ✓ Although they rated a two-year trajectory as optimal after completion, about 70% recommended an even longer duration when asked one year later, or at least some follow-up.
- ✓ A PDT can appear effective, but without action by the participating school leaders and the active involvement of the team there is less impact and transfer.
- ✓ Self-regulation, coping competencies and problem-solving competencies are important to continue the use of the content even without further support of the PDT.
- ✓ A clear vision and purpose and a supportive school structure can help counter the lack of time, the 'delusion of the day,' as can critical reflection on one's attitude.
- ✓ Too often, team involvement appeared to be limited to informing others, and little necessary follow-up on goals and/or support and professionalization was provided.
- ✓ The inconsistency between one's vision and awareness of school leadership and concrete behavior as a school leader can unintentionally and unconsciously hinder transfer.

Overall main findings

Based on the five studies conducted, we can conclude that a long-term PDT for school leaders with a specific organizational structure and didactic approach positively contributes to the school leaders' perceived sustainable professional development and to school development, both during the PDT and afterward. In the following, we will highlight the main overarching findings that emerged from the various studies.

As to the organizational dimension, the training days, professional learning community meetings, and the opportunity for individual coaching were perceived as valuable. The construction of the PDT with an interconnection between the three organizational forms systematically created action orientation and its specific application by each participant to their own school leadership and context. In addition, the progression and interaction between the different forms positively contributed to the perceived transfer into the school context of the participating school leaders.

A didactic approach with 1) a focus on providing theoretical frameworks, practical examples and applications to the shared goals created and a shared language, 2) working with an action plan to achieve the predefined goals, 3) using an activating and varied approach, 4) providing tailored support and feedback, and 5) creating opportunities for networking and sharing was perceived by participants as positively contributing to the concrete transfer of the content to their school context. Working with an action plan and creating opportunities for networking and sharing were perceived as contributing the most. The fact that the approach was integrated during the training days, the PLC meetings, and the individual coaching had a reinforcing effect. In other words, the organizational forms and didactic approaches used reinforced each other in their mutual interaction.

In addition, we found that the role of the coach is important during a PDT. Coaches who provided both coaching for the PLC and individual sessions during the PDT played a crucial role in the perceived effectiveness of the meetings, according to the school leaders. The presence of both coaching and teaching expertise was considered necessary by both the school leaders and coaches to maximally facilitate the learning process of school leaders within a PDT.

General organizational aspects of the PDT also positively supported the school leaders' perceptions of sustainable outcomes and a transfer to the school context. In particular, participating with a colleague from one's school facilitated shared leadership and transfer to the own school, as did signing a commitment statement and experiencing clear communication. The duration of the PDT was also perceived as facilitating success, along with the time created during the PDT to develop the action plan for the school.

Although there were strong intentions to continue the transfer of the content and practical applications, as well as maintain the PLC groups at the same depth after the end of the PDT, in

practice, this was experienced as challenging. The reasons for this were related to factors linked to the school leader, the school team, the school context, government policy, and "the delusion of the day".

In the following sections, we will provide specific recommendations for further research and for different stakeholders.

Limitations and recommendations for further research

As a condition for participation in the government's professional development initiative, participants were allowed to choose for themselves whether they participated in the trajectory or not. It is known from existing research that more motivated school leaders often decide to follow additional training (Daniëls et al., 2021; Noe, 2010). For this reason, randomized controlled trials were not used in this study, because it was impossible to ensure that participants in the PDT formed a random sample of the entire population of school leaders. This may result in selection and endogeneity biases (Liu & Borden, 2019; Barret et al., 2012; Wayne et al., 2008).

We chose self-report and perception surveys with a focus on the perceived effects of the organization and approach of the PDT, because it would be too demanding to observe possible objective changes in school processes continuously in 69 schools. Moreover, even if this had been plausible, the dimension of coexistence with professional development processes as experienced by the school leaders would not be captured. Therefore, our goal was not to make statements about the perceived effects of PDT on professional development or school development outcomes or to generalize insights to the entire population of school leaders.

The purpose of this study was to demonstrate – based on the interaction of quantitative research and qualitative research on a large group of participants, with data collected at four moments during and after the PDT – processes and mechanisms of action associated with participants' perceived effects and, on this basis, to be able to make strongly informed recommendations for practice. To do so, a mixed methods approach on a sufficiently large scale is important.

Descriptive analysis of the surveys administered to a highly representative portion of the entire participant group (response rate for online surveys was between 83% and 96%) aimed at indicating clear trends. The regression analyses on these data provided sufficiently potential indications of the perceived explanatory value of the characteristics of the PDT studied on the intended outcomes in professional development and school development, without generalized statements about demonstrated effects. This data collection from a large group of participants (Day et al., 2014) in a PDT is rather unique.

Moreover, this research setting created the opportunity for long-term follow-up (Day et al., 2014) with multiple stakeholders and multiple measurement moments. Such an approach can provide: a) triangulation of the insights provided quantitatively and qualitatively and b) deeper insights into active processes, which provide a more consistent view.

A broad perspective on processes

Follow-up studies with all participants

One year after the completion of the PDT, we organized a survey with a small group of school leaders who had participated in the two-year PDT. Although we used stratified sampling to select school leaders from schools with action plans that ranged from less developed to well-developed, and T-tests confirmed the representativity of the sample, participants in the in-depth interviews may have been particularly committed to sharing their experiences. The recruitment of school leaders who did not submit an action plan or who took little or no action after completion of the PDT, or who worked in difficult circumstances during the period of the in-depth interviews, is not self-evident. For future research, it would be appropriate to contact all previous participants of a PDT and ask them to complete an online survey to obtain a broader dataset. For the in-depth interviews, it is also advised to use the original group of respondents to select the stratified sample. Additional research focusing on the effectiveness of school leadership related to the school context is appropriate (Baldwin & Ford, 1988; Grossman & Salas, 2011).

Of note here is that when contacted for the in-depth interview, we found that several school leaders had been absent for long periods, had changed schools, or had quit as school leaders one year after completing the PDT. This was alarming, given the importance of continuity in a school team and school policy, and the drain on human capital. This is also a factor that is out of a researcher's control. This study focused primarily on the depth of learning outcomes of school leaders; however, the research literature shows that there may be associated mediating outcomes, such as the growth of professional well-being, less professional isolation, and a larger professional network (Goldring et al., 2012), with a mediating perceived impact on behavioral learning outcomes and school development. This is an important theme for further research (Wolf & Peele, 2019; Green, 2020).

Survey of multiple stakeholders in school development

It is challenging for school leaders to delineate which changes/actions are a direct result of participation in a particular PDT when participating in multiple trajectories simultaneously.

Further research on evolutions in school policy and concrete actions implemented that include both school leaders and teachers is recommended to compare perceptions and to examine the real value of the approach for shared school policy, in particular its strengths and weaknesses, given that self-report can lead to higher estimation (Gegenfurtner, 2011; Blume et al., 2010). Different measurement moments before, during and after, with a time lag, and separate surveys about the input and outcomes, has also been recommended by Gegenfurtner (2011) and Blume et al. (2010).

Research on knowledge of trainers and coaches about transfer of training is also appropriate because they play such a crucial role during a PDT and evidence-informed knowledge on this topic can be reinforcing.

Replication studies

International and further replication research is recommended to strengthen the main findings of this dissertation.

The next step: impact measurement

The quantitative and qualitative data were based on participants' and coaches' perceptions and thus are only indicative of perceived added value. For example, it was impossible to ascertain – due to the group being too small for multilevel analysis – whether differences between the perceived effects of the PLC-coaching approach on the outcome variables were entirely attributable to the coach or whether person-specific factors of the participants or context-specific factors had an influence. Nevertheless, this study revealed numerous probable mediating factors that could influence the perceived added value to professional development and school development of the school leaders participating in the PDT. Previous research has also shown that trainee characteristics and the work environment are conditions affecting the success of the transfer of training (Grossman & Salas, 2011; Baldwin & Ford, 1988). The insights may provide a basis for further impact research. The variables whose potential influence on perceived outcomes was identified in these studies can then be included as well-founded control variables in follow-up studies. This means including a large number of variables to control for the black box between PDT and outcomes. Research has already shown how challenging this is: analyses lose power as collinearity between variables increases greatly, among others (Li, 2021).

Finally, there is also a need for research with randomized controlled designs that investigate as many exogenous variables as possible. To examine the real impact of participation in PDT on outcome variables, it is important to control for exogenous variables associated with the background characteristics of the school leader, the contextual factors related to the school, and their interrelationship.

Recommendations

“I have been working as a school leader for a while, but it still taught me a lot and it would have been even better if I had followed this a little earlier. [...] Whatever you do in school, if there’s not a supported vision it’s not going to work.”

This dissertation investigated the opportunities for and challenges to professional and school development associated with professional development trajectories for school leaders. This final section presents concrete recommendations based on our research questions and findings. We want to contribute to educational practice. We want to focus on the school leader as playing a crucial and key role for school development, which also would facilitate student improvement.

Because professional development of school leaders and school development always occur at micro, meso and macro levels and involve specific stakeholders, here we offer practical recommendations for school leaders and school boards; organizers, lecturers and coaches of PDTs; and government. Simultaneous action at the different levels can contribute to the common goal of providing quality education with ambition.

Recommendations for school leaders and school boards

Highlights

- ✓ Well-considered selection of professional development trajectories
- ✓ Creating structural time and space for professional development (group and individual)
- ✓ Co-participation in professional development
- ✓ School leadership that creates a culture of commitment
- ✓ Use existing support
- ✓ Concrete actions to facilitate school development after the PDT

Well-considered selection of professional development trajectories

“I have a constructively critical reflective team, there is a growth mindset. I’m a happy principal.”

“There are problems in the policy team because the school is in a process of integrating two schools. There is a value split within the executive team, which is interfering with the implementation of a new vision of care support.”

To generate sustainable school development, it is important that school leaders thoughtfully select a PDT. The basis for this should be the needs and related goals of the school leader and the school team within the school and societal context.

“Immediately, applications at school are about implementing vision and fit within our policy priorities. Without this PDT, we would also have had to invest time and energy into optimization and it might have been less systematic.”

When selecting a PDT, it is important to consider the substantive goals: To what measures do they match? To what extent is the importance of transfer to one’s school, and thus a goal-oriented and-oriented approach, mentioned? It is also advisable to check which organization and approach to the PDT organizers prioritize and whether this is consistent with the goals, given the conclusion that PDT with the implementation of PLCs and individual coaching was perceived as effective by school leaders.

“Taking time and space to get to the bottom of something, exchanging views and taking the next step toward policy seems unfamiliar territory for many. Executives want to get practical quickly and see results. That they have to direct this themselves from reflection and exchange demands a lot of hard work...”

“I now realize that the process of achieving impact takes time to bring everyone into it. I now don’t mind slowing down the process if it’s necessary for the team.”

School development takes time. In this sense, realistic expectations regarding short-term initiatives are necessary. A PDT that spans two years is ideal. Even then, the PDT is just one intervention that could support sustainable school development. School leaders must make the transfer themselves and develop and implement concrete actions with the school team. School development is not possible without the involvement of the school team, which means that the school leader will also want to focus on systemic change in their school. This will also require time and commitment from members of the school team. If motivation and aspiration are not present at the time, it is better to postpone such investment.

Creating structural time and space for professional development (group and individual)

“The most difficult thing in this whole process I find is making time, time to pass on the information to immediate colleagues, time for professional development, bringing colleagues together ...”

“It’s an intense trajectory which means you regularly can’t do your work at school, and this will remain.”

School leaders and school teams must have structural time for professional development and collaborative work. It is only in this way that planned actions on school policy lead to commitment by the whole team and sustainable implementation.

School leaders should think about (creative) opportunities to integrate time for meetings, time for development, etc. into the timetable of those (also the school leader!) involved, in addition to participation in the PDT, and continuing after completion.

Co-participation in professional development

“I’ve asked to participate with colleagues, but the school leader didn’t find that a good idea regarding the task load. Then I saw that other participants were present with a colleague and could immediately transform ideas concretely and divide tasks ...”

“Positive that we followed it together, that you already exchange [thoughts] on the bus and that we effectively set aside time to lay out together what we have taken away and want to do with it.”

With the term “school leaders,” one usually automatically thinks of “the principal.” However, when we look at practice, in all schools there are several school leaders, with or without this official position. Ultimately, both administrative staff and teachers (with additional functions such as mentor coach, IT coach, learning care coordinator, etc.) run the school.

“Building the school together” also applies in terms of participation in PDTs. Having multiple team members from each school participate in the same PDT, provides, first of all, the opportunity to discuss the insights and ideas gained and compare different perspectives, among other things. In addition, a shared language and focus can be developed. There is also investment in shared school leadership. Participation in the same PDT by multiple team members ensures broader support, and it is also preventive should there be an absence of a school leader, with insights and envisioned actions remaining at the forefront.

“If only the school leader participates in the PDT, the impact is much smaller in the school. It’s great that a second participant per school was allowed to participate.”

School leaders should think carefully about who ideally participates in the PDT, to ensure maximum input and to facilitate transfer. By engaging team members with different roles, a broad coverage of the different echelons and roles within the team is better guaranteed.

School leadership that creates a culture of commitment

“The catch-all term ‘shared leadership’ is not interpreted or implemented the same way by everyone: even at the board level there are differences in content and application ...”

“This is not official in our school, but we have a strong policy team with shared responsibility and tasks. Teachers also take responsibility because they are motivated to do so.”

When selecting participants from the team, a future-oriented perspective should also be taken into account. During and after the PDT, participants are expected to help facilitate the processes that have been set in motion so that lasting effects are possible. However, this is not easy because it is, of course, impossible to foresee personnel changes and unexpected events or to anticipate their consequences, but the exercise is very worthwhile.

In any case, all colleagues must have insight into the goal of participation in the PDT and the opportunities and commitments expected during and after the PDT to be able to decide autonomously whether they can and want to put their shoulders to the wheel.

“It is difficult to create support in this team, which is probably influenced by the culture: autonomy is important.”

In the beginning, the focus may be mainly on informing others about the goals, the theoretical knowledge base and important terminology, because clarity on terms and concepts is essential in this regard. However, this involvement of others should soon become more active, because support, a shared language and shared leadership, and a school-wide culture are not created by merely informing others, and the further optimization of classroom practice cannot be achieved by merely handing out detailed proposals on paper. At the team level, it appears that a growth-oriented mindset of the entire team and the sounding board function that emanates from the school team and is present during participation in the program are decisive for the translation into concrete actions in the school.

It is possible that during or after the PDT some of the team members will not yet have the necessary competencies to make the concrete roll out possible. This in itself is not illogical. If this is the case, it makes sense to involve external partners, whether or not linked to the trajectory being followed, who help to substantively embellish and guide this process. In this way, disappointment, dropping out and other negative outcomes are avoided for all concerned. A high-quality professionalization program for school leaders will continue to point to the importance of creating consultation, professionalization and development time for the school team.

Use existing support

“Learning, reflecting and discussing together was enriching.”

“The great strength of our coach is that through his way of working we as a school community came closer together, which is not self-evident with us.”

School leaders and school boards could use (existing) inter-school networks more effectively for knowledge and expertise development. One possible structure to use is a professional learning community (PLC). PDTs that integrate a PLC can initiate this form of collective learning. To facilitate a sustainable PLC within an inter-school network after the completion of the PDT, an awareness of the challenges and necessary preconditions is crucial. For example, it is important to consider the choice of an internal or external coach, the PLC's organization (how many times each year, on what dates and where, etc.) and approach (which specific didactic methods will be used) and its focus or priorities.

In addition to active incentives and appreciative policies to encourage school leaders to cooperate more frequently and substantially in a PLC, investment in structural time for professional development is needed. Time and opportunities for professional development should also be provided for internal coaches to prepare the meetings and follow up the PLC process. A good school leader or teacher is not necessarily a good process coach: specific competencies are required.

Concrete actions to facilitate school development after the PDT

“I am satisfied with every small step taken. I have come to realize that the process of achieving impact takes time to bring everyone on board. I now no longer mind slowing down the process if necessary to bring the whole team on board. Change takes time ...”

After a PDT is terminated, input and follow-up end (in part). Therefore, it is important to think about possibilities to further facilitate school development during and even before participation. This can be done by participating in post-initiatives linked to the PDT (if there are any), but especially by preparing concrete goals and shorter- and longer-term actions that ensure further sustainability. Given school leaders' high perceived impact on transfer after completion of the PDT, it is certainly important to prepare concrete actions in this area. An investment in a supportive and collaborative school culture and structure is also important.

For the continuation of a PLC initiated during the PDT through the inter-school network, it is recommended that participating school leaders and superintendents make conscious and

informed choices for the sake of the quality and sustainability of collaborative learning. These choices are linked to the organization and approach of the PLC, for which it is important to prepare proactively. In addition, it is essential to make thoughtful choices by selecting a coach. An important question here is: What outputs does the inter-school network want to pursue and to what extent are they willing to invest (financially and otherwise)?

Recommendations for organizers, lecturers and coaches of PDT for school leaders

Highlights

- ✓ A goal-oriented and action-oriented focus before and during the PDT
- ✓ A well-considered organizational and didactic approach to the PDT
- ✓ Quality lecturers and coaches: the whole is greater than the sum of its parts
- ✓ Clear communication
- ✓ A post-PDT follow-up

A goal-oriented and action-oriented focus before and during the PDT

A long-term PDT for school leaders requires concrete goals. In this way, school leaders know what to expect. It is also possible to adjust the organization and approach of the PDT accordingly.

A PDT for school leaders focuses best on concrete transfer and implementation of the insights and practical examples provided to each school context. Therefore, it is necessary to gain insight into the participants' initial situation before the course and to encourage school leaders from the beginning of the PDT to formulate concrete goals and actions tailored to their school.

A well-considered organizational and didactic approach to the PDT

"It's about a complete offer: it's a combination of theoretical frameworks linked to practice that can be converted into concrete actions within your own organization. You can also count on individual coaching. This has a real effect! Other training programs often lack one or more parts, resulting in insufficient transfer."

Organizers of PDTs must think about the organizational and didactic dimensions of a PDT for school leaders. To organize an effective PDT for school leaders we advise designing in a research-based way by implementing an integrated combination of key factors of powerful professional development. During shorter PDTs it is also valuable to implement this key approach.

A long-term PDT can encourage concrete and sustainable professional and school development during participation and after completing the PDT.

“From evidence-informed theoretical frameworks and theories, look critically at your own school organization and be able to recognize the sore points linked to possible causes and to a certain remedial way to address them. Many sore points are recognizable, also at other schools, and research has already been done into possible causes. The feeling that not only our school is struggling with this gives you a sense of relief in a way.”

Because of their perceived effectiveness by school leaders, PDTs are recommended that use a combination of: training days with a focus on providing theoretical and practical examples, encouraging initial reflection and sharing with a large group of peers; meetings of a professional learning community to transfer the acquired insights and inspiration within smaller groups of peers and to critically and constructively discuss school-specific priorities or questions with peers; and individual coaching to further support and deepen the transfer tailored to one's own school.

“Every time you have to make that transfer to your school and formulate actions, even though it's not always easy, I found it very important. How are you going to translate that to your school? What opportunities do you see?”

“I think the biggest added value of an action plan is that a goal is thought about beforehand and that you can always adjust that based on a plan.”

In combination with the organizational dimension, a didactic approach is required that also contributes to goal- and action-orientation to facilitate maximum sustainable professional and school development. Theoretical frameworks provide an important basis, which should be primarily imparted during the training days, with further concretization during PLC meetings and individual coaching. The use of an activating and varied didactic approach in which opportunities for networking and peer learning and feedback are encouraged is strongly recommended.

“The questions point to the importance of looking over the wall and not always saying to ourselves ‘what a good job we are doing.’ Daring to be self-critical and questioning things, not always looking for the ‘with voice’ but daring to relate to the ‘no voice.’”

During a long-term PDT, several overarching goals are central. While the main reason for participating in a PDT may be the same, one's school leadership and current expertise, the team, the school context, and the local societal context of education may necessitate differentiation of the goals. Building tailored group and individual support and feedback aligned with the questions and needs of participants in terms of professional and school development is desirable. For example, it makes sense to define a lower limit in terms of minimum participation in individual coaching.

“The action plan creates overview and structure: setting goals and planning succeed, the follow-up is somewhat less but assuring even so. The action plan is also a kind of personal reminder and ‘big stick.’ It involves administration, but developing it is also nice and it helps to clarify and communicate expectations.”

In long-term PDT, it is best to employ a vision and a focused approach that encourage goal- and action-orientation, especially the integrated organization of the PDT with training days, participation in a PLC and individual coaching. Developing an action plan as a common thread during the PDT with active follow-up and support – with the PLC and individual coaching as important facilitators – contribute to the “transfer of training.” Moreover, the approach used can offer school leaders inspiration for a similar or derived effective approach for their own team. Experience with certain methods and discussing the possibilities for one’s own school can lead to concrete steps with the team. As emphasized above, a policy and action plan can be of high quality on paper, but without a team that can roll it out, it is of little use.

“That brought depth and a critical look at how you’re doing as a school. At the same time, you receive tips and feedback that you can then really work with. Without that method, it would have been an uneven and not so constructive conversation.”

Inviting feedback at regular intervals during the PDT provides valuable input for organizers and their team. It is important to evaluate both the perceived added value of the content and the organization and approach of the PDT. It is also useful to identify which elements are important and how the approach enhances the transfer of the content. This can be done both at the level of the separate organizational forms and approaches, and at the level of the trainer or coach approach. In doing so, it is also appropriate to question the entire functioning of the PDT.

Quality lecturers and coaches: the whole is greater than the sum of its parts

“Kudos to the lecturers involved. They know how to enthuse and stimulate!”

“The quality of our PLC was inextricably linked to the quality of the coach.”

The interaction between the training days, PLCs and individual coaching increases the perceived effectiveness of the PDT by school leaders. For this reason, all lecturers and coaches involved must be aware of the motivation offered by this approach and their part in guaranteeing the set goals: the whole is more than the sum of its parts.

“That personal contact, being able to discuss the things you run up against into or feel with someone with knowledge and expertise and who can give you input to take further steps again. That’s what I found most valuable.”

“We clearly felt he had a lot of expertise. He was very inspired, inspiring, and we hooked up our wagons there ‘con mucho gusto’ for a while.”

“I do not feel coached, but acknowledged. I did not find coaching his strongest point. He was strong in giving input.”

Coaches have a crucial role in determining what deserves the necessary attention, both in the preparation of and during the trajectory. Because individual and group coaching constitute the largest part of a PDT, it is opportune to select coaches in advance in a goal-oriented way, who have the necessary coaching expertise and possibly educational expertise. It is necessary to consider the competencies of the coaches, with a particular focus on the didactic approach and coaching skills as success factors for perceived effectiveness of the coaching by school leaders. Clarifying the expertise required is also essential; for example, a focus on concrete transfer to practice requires certain educational expertise, but perhaps not necessarily expertise in education.

“It’s kind of nice to take a look at the school once with someone who has so much expertise and who doesn’t know the school; that there will be an objective view and also a broader view.”

“You have to have a lot of expertise and experience in the broad field of education to be able to use that terminology and assess where something is going. You have to have an understanding of educational levels and how they are put together. Otherwise, principals are going to look strange, even though you’re monitoring that process well.”

It must be clear what a particular approach or organizational form means when it is integrated into such long-term PDT. For example, everyone can imagine something about coaching, but what exactly does coaching mean during such a process and integrated into a PDT? Commitment to central principles of the coaching approach as an integrated part of a PDT provides structure, such as by using scenarios. Personal interpretation within the broader framework provided allows ownership and the opportunity to valorize one’s expertise. By clarifying this, lecturers and coaches can better determine whether they have the required competencies and expertise to participate in such a PDT.

“A critical friend looking very neutrally at the steps you have taken and need to take: that felt very valuable. It was appreciative and gave a clear view of concrete actions. It gave me a boost.”

During the PDT, it is also necessary to focus on the professional development and support of the lecturers and coaches, among other things by informing them well, developing sessions together

and returning to them afterwards, sharing concrete approaches and, for example, organizing intervention meetings where questions, difficulties and challenges are discussed in connection with the PDT. This creates opportunities for peer learning based on case discussions and sharing practical examples. It is also important to present and discuss research-based knowledge about the key role of the coach during a long-term PDT for school leaders. This is also a form of “teach as you preach,” concerning the participating school leaders.

“I think it takes a while before you feel you know each other and know what you can do with each other, so no objection to having the same coach for two years. I even felt good about that. I also want to take time first to explore and know how we see each other.”

“I thought that was positive because I think if we had started working with someone else in the second year, a lot of trust would have been lost. Also, that other coach wouldn’t know the process you’re already in.”

Because a mismatch, the non-establishment of a trusting relationship between a coach and school leaders (or group), or a minimal experience of added value are always possible, it is necessary to think proactively about possible alternative approaches, such as changing coaches during the PDT, and the consequences of the different options. Discussing this openly with the coaches is appropriate. As external factors play a mediating role, it is important that both PDT organizers and coaches consciously anticipate them.

Clear communication

“The first time, I thought it was an informal conversation. The second time, I discovered there was something behind it. The coach picked it up and brought out the right things.”

Both before and during the process, it is important to communicate the goals, subsequent approach and expectations and make sure they are explicitly understood. Repetition is necessary – possibly both orally and in writing – so that all participating school leaders can capture the information, even when they are absent. It must also be clear to participants who they can contact about what.

A permanent, easily accessible learning platform with a clear structure is recommended for sharing material from the training days, optional resources, etc. Providing participants with a notebook to take notes themselves encourages more active participation. Although small, such actions are greatly appreciated.

“The coach was always focused on the goal the group had at the time, but was still able to leave room for whatever detours were needed to get there.”

“And also during the coaching we felt it was really customized. Where do we want to go? What kind of themes? What kind of approach? Is there homework needed? I think that’s strong, that these kinds of aspects are possible in a trajectory that’s not all pre-written.”

Since coaches have an important key role during the PDT, they should be aware of the communication that needs to take place (and its perceived impact): what the PLC and coaching are about; what the goal might be; the frequency; and the importance of flexibility to schedule (custom) sessions (number, time, questions/themes, etc.). They must link their communication to the central goal and approach of the PDT. If individual coaching is non-compulsory, it is important to communicate why it is a valuable, integrated part of the PDT, and why it is being offered. Additionally, it is opportune to carefully examine the perceptions of school leaders about PLC coaching or individual coaching – especially if their experience with it is limited – and pay attention to aligning a shared understanding of concepts, role clarity and mutual expectations within the relationship between school leaders and coaches. This will improve the sustainability and perceived effectiveness of the partnership.

A post-PDT follow-up

“I do find that interesting that you are accountable at a later stage, that you prove what you have done further with the input.”

To enable sustainable professional and school development, depending on the initial situation, a PDT of at least two years is appropriate. For schools requiring more support, a tailored follow-up program is desirable. Indeed, training days for all participants provide the opportunity for repetition and refreshment of theoretical frameworks and practical applications, for the discussion of new insights and the opportunity to share with colleagues and highlight professional and school development.

To gain insight into the long-term effects of participation by school leaders, it is important to organize a follow-up both during and after the PDT. Feedback on both the long-term added value of the content and the organization and approach can contribute to further optimization of the PDT for school leaders. At the same time, evaluating questions can stimulate the transfer of training. After all, warmly received insights and inspiration do not automatically lead to transfer, and what is perceived as valuable during the PDT may not be perceived as such, or be less so, in the longer term.

Recommendations for government

Highlights

- ✓ Professional development as a structural part of a school leader's job
- ✓ Sustainable investment in high-quality PDT for school leaders

Professional development as a structural part of a school leader's job

School leaders are expected to implement quality school policy. These expectations need “outstanding” school leaders (Levine, 2006). Therefore, professional development must be a structural part of the school leader's job, and school leaders must have access to appropriate PDT.

The current structural lack of time and space for professional development as part of the educational profession is thus highly problematic. This makes it seem as if professional development is something that comes “on top” of the job, while not being present at school is considered to create a burden for other colleagues. This may be true in the short term, but in the longer term there is a return on investment because the process of school development is given a boost, and experiencing that evolution motivates everyone involved to continue along the chosen path.

Investing in long-term PDTs is important to facilitate the input, time, space, and support that school leaders require to: develop high-quality school policy; implement actions; evaluate these; and ultimately optimize evaluation. Investing by ensuring time and financial support for participation in such sustainable PDT also demonstrates the necessary confidence in school leaders and their teams.

School teams must also have structural space for collaborative work and professional development. It is only in this way that planned actions based on school policy lead to commitment by the whole team and sustainable implementation. Both school leaders and government should facilitate this structural professional development time.

Sustainable investment in high-quality PDT for school leaders

Temporary project funding allows the government to respond to current needs among school leaders. Moreover, participating school leaders perceive such contributions as a form of appreciation for their hard work. At the same time, when these funds disappear, access to the valuable expertise of project organizers, lecturers and coaches also disappears. To increase

sustainability and honor the expertise available, it is desirable to allow for the extension of funding, with project partners also adjusting the PDTs before their resumption based on lessons learned. In addition, investing in structural and continuous funding is recommended, as the sustainable embedding of quality and additional action for optimization and adjustment take time. Moreover, the current level of funding that is committed limits the number of participants. This means that schools with very high motivation are held back and are missing out because of limitations on participation.

The government should financially support evidence-informed and proven high-quality PDTs that provide opportunities to encourage relevant and practice-oriented professional and school development. In doing so, ensuring a thoughtful combination of and interaction between training days, PLC meetings and individual coaching is important. This organizational dimension should be combined with a didactic approach that provides a theoretical framework and practical applications, develops an action plan, uses an activating and varied approach, offers tailored support and feedback, and creates opportunities for peer learning by networking and sharing.

For schools seeking more support and to facilitate long-term sustainability, the government can support different possibilities for a tailored follow-up program with training days, PLC meetings and/or individual coaching are also desirable.

“Now there really is a ‘learning community’”

“One of our schools used to be less involved. Through this process, they really started a dialogue, learned from each other.”

The government could use organically developed inter-school networks and existing school communities more effectively for knowledge and expertise development by school leaders and their teams. PDTs that integrate a PLC can facilitate the start of this form of collective learning. Therefore, investments in PDTs with such an integrated organization and approach are advisable. Peer learning is a very powerful form of professional development. Moreover, such structural substantive cooperation allows joint investment in attracting external expertise as a function of the predetermined common goals.

Many kinds of experienced education-oriented partners and many coaches work in and around education. Given their perceived impact, they should also be adequately qualified. Defining quality indicators for coaches is also advised. However, these should not become mere checklists or lose sight of the interpersonal and dynamic aspects of school leadership and school development.

“I know that if I drop out now, the team can move on, just because the leadership is no longer just with me. That’s a mindshift, but a sustainable one.”

Participation of several team members with different roles in the same PDT ensures broader support, which is preventive in the absence of a school leader, allowing others to ensure that the insights and envisaged actions remain at the forefront. The government should support PDTs in which several team members from each school can participate, precisely to enhance a shared language and focus, as well as shared leadership, and thus quality and sustainable professional and school development.

It is very valuable when schools consciously choose to participate in long-term PDTs because they want to invest in quality professional development. However, in some schools (usually smaller ones), there is no time and space for more than one person to participate in a PDT. In addition, the fact that this PDT was offered free of charge was a relief for many school leaders: they considered that participation in such a long-term PDT - although very interesting - would otherwise be more difficult to achieve financially. Even when resources are in place and they are confident of the “return on investment,” it appears that a large portion of the available budget goes to one person or a few people. It makes sense to think about how participation of the team can be better supported so that professional development does not move into the background.

A one-time PDT offered to school leaders runs the risk of overlooking those in even greater need of assistance, with such opportunities more readily taken up by certain schools with good access to information channels, an existing “sense of urgency,” a supportive culture and structure, and a clear view of their needs. Perhaps they also see the PDT as the (first) step toward a clearer vision and concrete action or they have had a positive experience with previous participation in other PDTs. The structural embedding of PDTs at government level will ensure that the benefits of participation are available to all schools. It is important to remain attentive to the best process for ensuring this.

VALORIZATION

Valorization

Academic journals

- Tanghe, E., Smits, F.H.T., & Schelfhout W. (2024). Professional learning communities of school leaders within inter-school networks: opportunities and conditions for sustainable professionalization. *Pedagogische studiën*, 101(2), 91-124.
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- Tanghe, E. & Schelfhout, W. (Submitted). The coach matters: the competencies of a PLC coach in the context of sustainable professional development of school leaders.
- Tanghe, E. & Schelfhout, W. (Submitted). The coach matters: the value of coaching as a component of professional development trajectories for school leaders.
- Tanghe, E. & Schelfhout, W. (Submitted). Goal- and action-orientation as key factors during a professional development trajectory for school leaders to facilitate sustainable transfer of training.

Broader journals

- Tanghe, E. & Schelfhout, W. (2024). Professionalisering voor schoolleiders met impact op schoolontwikkeling: wat werkt? In: Deruytter, G. & Martin, A. (Red.) (2024). *Schoolleiderschap in ontwikkeling. Actuele perspectieven op leiding geven in onderwijs*. Politeia.
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Paper presentations

- ECER 2024: Professional Learning Communities of School Leaders Within Inter-school Networks: Opportunities and Conditions for Sustainable Professionalization (08/2024, Nicosia, Cyprus).
- ORD 2024: Professionele leergemeenschappen binnen bovenschoolse netwerken: een duurzame opportuniteit (symposium, 07/2024, Tilburg, the Netherlands).
- AERA 2024: Professional learning communities of school leaders within inter-school networks: opportunities and conditions for sustainable professionalization fostering school development (symposium, (04/2024, Philadelphia, US).
- Velon-congres 2024: Team school: hoe leergemeenschappen bijdragen aan professionalisering (03/2024, Utrecht, The Netherlands).
- Velon-congres 2024: Professionele leergemeenschappen in bovenschoolse netwerken als duurzame professionaliseringsvorm (03/2024, Utrecht, the Netherlands).
- PME Conference 2023: Key factors of effective professionalization programs for school leaders (11/2023, Utrecht, the Netherlands).
- EARLI 2023: Key factors of effective professionalization programs for school leaders (08/2023, Thessaloniki, Greece).
- ORD 2023: Sleutelfactoren van effectieve professionaliseringstrajecten voor schoolleiders (07/2023, Amsterdam, The Netherlands).

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APPENDICES

Appendices

Appendices study 1

Appendix 1.1 - Independent variables organizational dimension

Label	Items	N	6-Point scale	M	SD	Cronbach's α
Assessment of the quality of training days						
Training days	<p>How do you experience the PDT approach to your learning process?</p> <ul style="list-style-type: none"> Getting new inspiration based on knowledge, skills, attitudes and insights during the training days Being given sources to deepen my understanding of the content covered during the training days Expertise of lecturers on the training days 	131	Completely disagree (1) – completely agree (6)	4.95	.63	.713
Assessment of the quality of professional learning communities						
PLC	<p>To what extent do you agree with these statements about the PLC you participated in?</p> <ul style="list-style-type: none"> Participating in a PLC yourself makes it easier to implement such professional development approaches in one's own school and assess strengths and challenges In our school we definitely set up a PLC operation as part of the school-wide development and professional development policy Our coach's approach is inspiring for how to facilitate development processes in a PLC The PLC meetings ensure in-depth thinking about a vision for the implementation of a policy on learning support PLC meetings provide for in-depth thinking about priorities PLC meetings provide new insights PLC meetings generate new ideas PLC meetings ensure that concrete possible actions begin to be developed/planned The PLC meetings (afterwards) provide energy to continue working The fact that there are both school leaders and internal support staff in our PLC is an added value Participation in this PLC has strengthened personal ties between participants The PLC provides an opportunity to step out of one's own educational practice/daily rush for a while Agenda-wise, the PLC may be inconvenient, but once present, I am satisfied that I participated Participating in a PLC myself makes me realize the added value of this professional development approach As it currently stands: as far as I am concerned, this PLC can certainly continue If I get the chance to participate in a PLC after the professional development trajectory, I will definitely take part in it I feel at home in the current PLC In the PLC, I feel supported by my colleagues The contribution of both school leaders and internal support staff is considered equal in our PLC There is no competition between schools in the PLC 	130	Completely disagree (1) – completely agree (6)	4.85	.67	.942

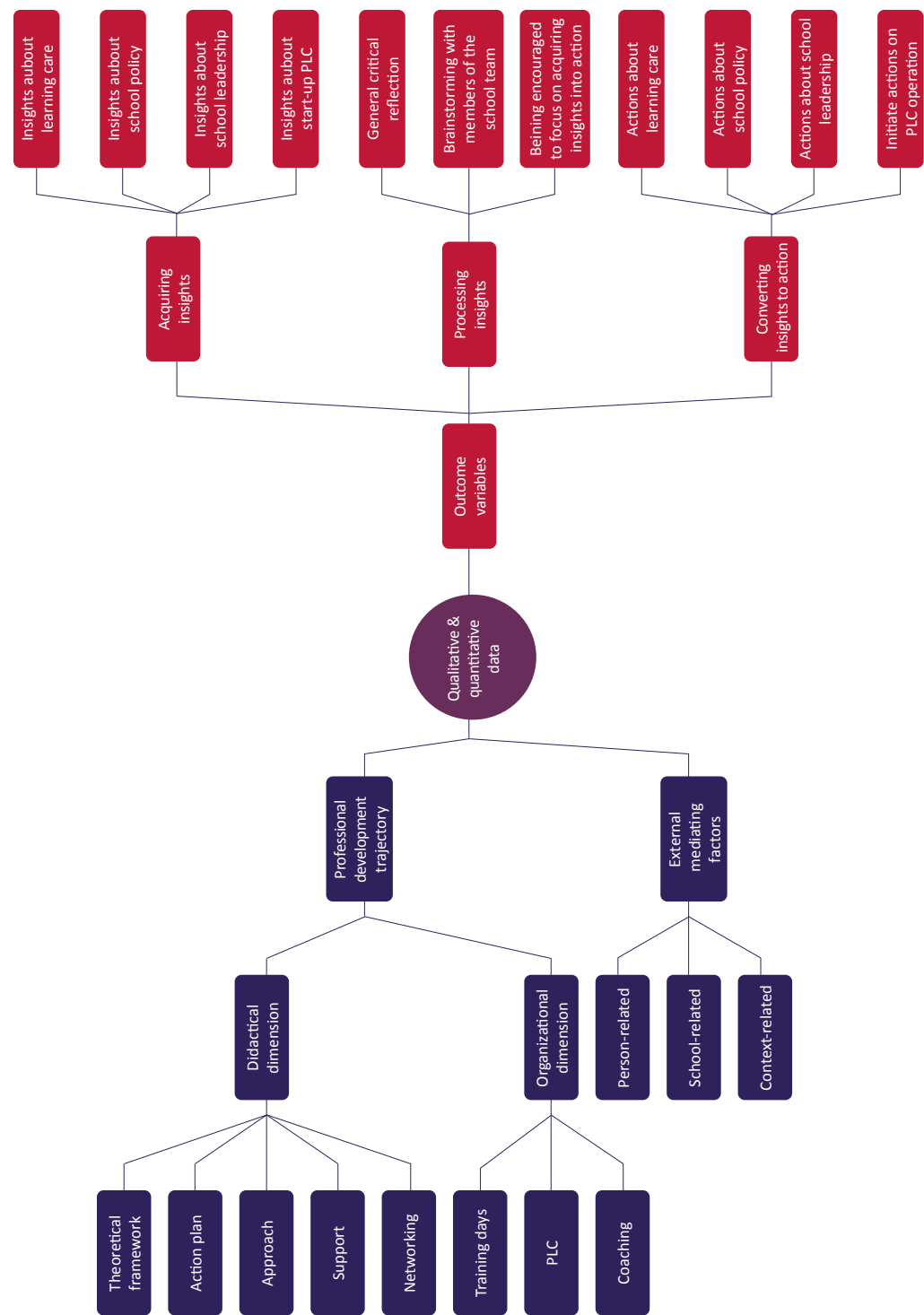
Assessment of the quality of coaching sessions						
Coaching sessions	<p>To what extent do you agree with these statements?</p> <ul style="list-style-type: none"> • Coaching interviews allow for in-depth reflection through of a vision for conducting a policy about learning support • Coaching sessions help to think about priorities in depth • Coaching sessions provide new insights • Coaching sessions lead to new ideas • Coaching sessions lead to the start of working out/ planning concrete possible actions • Coaching sessions afterwards provide the energy to continue working • (Individual) coaching sessions form an added value in a two-year professional development process • (Individual) coaching sessions increase the focus on the set priorities • (Individual) coaching sessions support the transfer of priorities into concrete policy actions within the own school • If I get the chance to follow a professional development trajectory that includes coaching interviews, I would choose it • I find it positive that during the PDT there is a strong emphasis on participation in the coaching conversations as an integrated part of the PDT 	66	Completely disagree (1) – completely agree (6)	4.83	.79	.910

Appendix 1.2 - Independent variables didactic dimension

Label	Items	N	6-Point scale	M	SD	Cronbach's α
Assessment of the quality of providing practice-based theoretical frameworks						
Theoretical framework	Which approach contributed to competence development? <ul style="list-style-type: none"> Concrete practical examples and tips were provided A supporting framework for thinking was provided A new perspective on certain aspects of school policy was provided Current forms of school policy were critically examined It was recognizable from the challenges I face 	122	Completely disagree (1) – completely agree (6)	4.76	.82	.868
Assessing of the quality of targeting with an action plan						
Action plan	<ul style="list-style-type: none"> An initial situation analysis allows conscious reflection on the current state of affairs An initial situation analysis reveals the broad context of learning support policy and the various points of attention An initial situation analysis allows us to assess whether we are on the right track (or not) An initial situation analysis prompts us to think about concrete actions An initial situation analysis as a baseline enables a follow-up measurement in the future Returning to the initial situation analysis (own, school team, parents and/or pupils) during the continuation of the professional development trajectory increases the added value An initial situation analysis helps to set goal-oriented priorities There was a stimulus to actively think about concrete action(s) Being encouraged in this phase by means of e.g. assignments, questions, ... to actually translate ideas into first (possible) action(s) in my school, based on the insights gained during the training days or PLC 	131	Completely disagree (1) – completely agree (6)	4.92	.62	.883
Assessment of the quality of an varied and activating approach						
Approach	How do you experience the approach of the professional development trajectory for your learning process? <ul style="list-style-type: none"> Interaction between training days, PLC meetings, coaching Interaction between training days for teachers Variety in theoretical input and exercises with application to own school Variety in working methods (discussions, games, brainstorming, ...) Variety of methods of exchange with other participants (own colleague, PLC, other colleagues) and coaching 	131	Very negative(1) – very positive (6)	4.90	.56	.832

Assessment of the quality of a differentiated support for the learning process						
Support learning process	<p>How do you experience the approach of the professional development trajectory for your learning process?</p> <ul style="list-style-type: none"> • For specific questions that I can call on coaching/ coaching when turning ideas into first (possible) action(s) in my school • Permanent PLC coach and coaching interviews • Expertise coach own PLC and coaching interviews • Choices (determine own priorities, choice sessions, possibility to use questioning of school team, pupils, parents) • Opportunity to experience the functioning of a PLC in order to learn from it for your own school 	131	Completely disagree (1) – completely agree (6)	4.83	.82	.858
Assessment of the quality of possibilities for networking						
Net-working	<p>How do you experience the approach of the professional development trajectory for your learning process?</p> <ul style="list-style-type: none"> • Cooperating/exchanging with another school community/school group/another partnership during the training days. • Being able to participate in a professional learning group (PLC) of directors/internal support staff from your own school community/school group/another partnership • Formal networking and exchange opportunities (e.g. during exercises, PLC, etc.) • Informal networking opportunities (e.g. during breaks) 	131	Completely disagree (1) – completely agree (6)	4.91	.61	.790

Appendix 1.3 - Visual representation processing qualitative data in NVIVO



Appendix 1.4 - Outcome variables acquiring insights to actions

Items	N	6-Point scale	M	SD
Develop vision and action on learning support				
<ul style="list-style-type: none"> Expand vision (broad school vision and/or vision on learning support) Adjust vision (broad school vision and/or vision on learning support) Develop action plan based on learning support Concrete actions based on broad basic support and increased learning support to the classroom floor 	122	Completely disagree (1) – completely agree (6)	4.33	.99
Actions about leadership				
<ul style="list-style-type: none"> Take concrete actions based on personal educational leadership Take concrete actions based on shared educational leadership 	122	Completely disagree (1) – completely agree (6)	4.16	1.05
Actions about launch professional learning community				
<ul style="list-style-type: none"> Launch professional learning community 	122	Completely disagree (1) – completely agree (6)	3.90	1.30

Appendix 1.5 - Quantified qualitative data learning outcomes professional development trajectory

Quantified qualitative data learning outcomes professional development trajectory		
Converting insights to action (or start)	learning support	<ul style="list-style-type: none"> • implement effective guiding principles/school-wide principles: 10 • (updating) pedagogical vision/policy on learning support: 8 • implementation detailed supportive continuum for pupils' learning: 8 • classic designation and interpretation of supportive roles' (abolish/distribute): 6 • visualizing approach and/or organization chart: 5 • toward 'every teacher is a supportive teacher': 5 • self-regulated learning: 3 • importance of being explicit to all involved: 3 • optimize approach of class councils: 2 • developing supportive plans: 1 • structuring the approach: 1
	school leadership	<ul style="list-style-type: none"> • creating meeting time for staff: 6 • making things explicit: 2 • shared leadership: implementing actions: 2 • optimize participation structures: 1 • practice approach: 1 • team building activities during pedagogical study days: 1
	initiate actions on PLC operation	<ul style="list-style-type: none"> • start (cross-school) PLC's/learning groups/optimize current teams: 14 • train team members as coaches: 9 • schedule (consultation) time: 3 • pedagogical study day on this theme: 2 • share agenda in advance: 1 • introducing preparation: 1 • handle time control: 1 • integrate coach-the-coach principle: 1
Overall		<ul style="list-style-type: none"> • develop professional development policy & vision on lifelong learning with time for peer learning: 10 • (multi-year) action plan as a basic document for the entire team and facilitate implementation (where to, why and how): 8 • experiencing more support, sense of urgency: 5 • taking time: 5 • incorporate cyclical repetition/refreshment: 4 • incorporate cyclical evaluation (to do- doing- done): 3 • use an integrated approach: 2 • celebrate successes (and failures are also allowed): 1

Appendix 1.6 - Simple regression analysis proportion of explained variance factors organizational and didactic dimension on initiating actions on acquiring insights into action on learning support

Item	Simple Regression Analysis (SRA)
Proportion of explained variance of three organizational factors on initiating actions on learning support	
Training days	$F(1, 120) = 10.24, p = .002, R^2 = .08, R = .28$
Professional learning community (PLC)	$F(1, 120) = 16.43, p < .001, R^2 = .12, R = .35$
Coaching sessions	$F(1, 62) = 10.11, p = .002, R^2 = .14, R = .37$
Proportion of explained variance of five didactic factors on initiating actions on learning support	
Theoretical framework	$F(1, 120) = 8.92, p = .003, R^2 = .07, R = .26$
Action plan	$F(1, 120) = 16.49, p < .001, R^2 = .12, R = .35$
Approach	$F(1, 120) = 8.50, p = .004, R^2 = .07, R = .26$
Support	$F(1, 120) = 6.24, p = .014, R^2 = .05, R = .22$
Networking	$F(1, 120) = 7.09, p = .009, R^2 = .06, R = .24$

Appendix 1.7 - Simple regression analysis proportion of explained variance factors organizational and didactic dimension on initiating actions on school leadership

Item	Simple Regression Analysis (SRA)
Proportion of explained variance of three organizational factors on initiating actions on school leadership	
Training days	$F(1, 120) = 7.60, p = .007, R^2 = .06, R = .24$
Professional learning community (PLC)	$F(1, 120) = 27.86, p < .001, R^2 = .19, R = .43$
Coaching sessions	$F(1, 62) = 13.77, p < .001, R^2 = .18, R = .43$
Proportion of explained variance of five didactic factors on initiating actions on school leadership	
Theoretical framework	$F(1, 120) = 32.67, p < .001, R^2 = .21, R = .46$
Action plan	$F(1, 120) = 18.99, p < .001, R^2 = .14, R = .37$
Approach	$F(1, 120) = 11.51, p < .001, R^2 = .09, R = .30$
Support	$F(1, 120) = 6.11, p = .015, R^2 = .05, R = .22$
Networking	$F(1, 120) = 4.35, p = .039, R^2 = .04, R = .19$

Appendix 1.8 - Simple regression analysis proportion of explained variance factors organizational and didactic dimension on initiating actions on PLC operation

Item	Simple Regression Analysis (SRA)
Proportion of explained variance of three organizational factors on initiating actions on PLC operation	
Training days	$F(1, 120) = 3.37, p = .069, R^2 = .03, R = .17$
Professional learning community (PLC)	$F(1, 120) = 17.70, p < .001, R^2 = .13, R = .36$
Coaching sessions	$F(1, 62) = 6.60, p = .013, R^2 = .10, R = .31$
Proportion of explained variance of five didactic factors on initiating actions on PLC operation	
Theoretical framework	$F(1, 120) = 1.39, p = .241, R^2 = .01, R = .11$
Action plan	$F(1, 120) = 3.34, p = .070, R^2 = .03, R = .16$
Approach	$F(1, 120) = 6.32, p = .003, R^2 = .05, R = .22$
Support	$F(1, 120) = 8.75, p = .004, R^2 = .07, R = .26$
Networking	$F(1, 120) = 9.08, p = .003, R^2 = .07, R = .27$

Appendix 1.9 - Perceived added value interaction professional development actions on learning outcomes

Items	N	6-Point scale	M	SD	Cronbach's α
Added value of combining elements of professional development in 1 trajectory					
<ul style="list-style-type: none"> That different elements of professional development (training days, PLG, coaching, baseline analysis) are combined in one trajectory increases the added value 	130	Completely disagree (1) – completely agree (6)	5.02	.84	/
Building on content/insights from training days and professional learning communities during coaching sessions					
To what extent do you agree with these statements? <ul style="list-style-type: none"> During the coaching sessions, there was further building on contents/insights from the training days During the coaching sessions, there was a clear interaction with what was covered during the PLC 	66	Completely disagree (1) – completely agree (6)	4.42	.97	.749
Interaction between training days, PLC and coaching sessions is reinforcing					
To what extent do you agree with these statements? <ul style="list-style-type: none"> The interaction between the training days and the coaching works reinforcing The interaction between the PLC and coaching is reinforcing 	66	Completely disagree (1) – completely agree (6)	5.56	.90	.895
Coaching sessions stimulate conversion					
To what extent do you agree with these statements? <ul style="list-style-type: none"> The coaching sessions encouraged a conversion of the content into the school context and practice 	66	Completely disagree (1) – completely agree (6)	4.79	.95	/

Appendix 1.10 - Qualitative data experienced interaction organizational dimension professional development process

Qualitative data experienced interaction organizational dimension professional development process

Experiences with interaction organizational dimension:

- good mix and balance, combination definitely maintained: only training days does not ensure transfer, only PLC does not ensure frameworks: 19
- achieves the goal, great contribution to effectiveness/return on investment, increases efficiency and application, otherwise it may remain somewhere, 'disappear' cannot in PLC: 13
- action plan: obligatory action and transfer, follow-up: 11
- link between training days, PLC and coaching: strong PDT, conscious attention to this and making links contributes to transformation 8
- enriching, inspiring examples: 7
- broadens and deepens and/or renews/refreshes: 6
- lecturers: experience and expertise, interesting & inspiring: 5
- stimulating reflection as common thread instead of result, opportunity to reflect and think things through, starting situation analysis as starting point: 4
- coach: attention and time for transfer (5) + critical sparring partner: 4
- approach that responds to the diverse group (differentiation): own priorities/learning questions, coaching + self-management of learning process: 3
- coach: presence support, feedback: 3
- view of the big picture, coherence: 3
- meets the need for individual coaching among school leaders, although this is still a relatively unknown approach in education: 2
- thinking process is central, not the result as such: 1
- ensures necessary repetition: 1
- presence recognition and acknowledgement: 1
- strong cohesive team who thinks more broadly than what education should be: 1
- first training days closer together is good: 1
- different vision of professional development: not separate pieces, but integrated process, getting used to: 1

Actions:

generate transfer, generate concrete actions, applicable: 22

- starting from a common framework and language, awareness of importance of framework and foundation: 8
- approach is applicable in own school operation (structure and content of trajectory), participating in PLC yourself is training in approach, practice what you preach: 11
- unconscious learning: 2
- critical reflection on purpose, 'why do we do what we do?': 10
- setting priorities for own school: 3

Challenges:

- coach: central person organizational forms in terms of transfer (12) and view of overall picture: 8
 - coach as critical sparring partner in connection with testing action plan against framework and initial situation: 4
 - the theoretical framework recurs visually during the trajectory: 1
-

Appendix 1.11 - Person-related factors: job satisfaction

Items	N	6-Point scale	M	SD	Cronbach's α
Job satisfaction at start of professional development trajectory	123	Completely disagree (1) – completely agree (6)	4.94	.66	.872
I am satisfied with my job					
I feel good at work					
I am satisfied with what I achieve at work					
Job satisfaction after one year of professional development trajectory					
I am currently satisfied with my job			4.69	1.01	/
Impact job satisfaction on experience with the professional development trajectory					
My job satisfaction has an impact on my experience of the professional development trajectory			4.46	1.20	/

Appendix 1.12 - School-related factors: school level, before the start of PDT (initial situation analysis)

Items	N	6-Point scale	M	SD	Cronbach's α
Challenging school context	123	Completely disagree (1) – completely agree (6)	4.44	.76	.741
<ul style="list-style-type: none"> Our school context is challenging in terms of: learning difficulties and learning disabilities problems with behavior staff policy, in particular to fill vacancies HR policy, in particular to get all noses in the same direction and to ensure that every member of the school team wants to implement the predefined policy resulting in a high workload for the school team which involves a high workload for me as a principal/ internal sub-assistant but I can delegate my work as principal/the director to other people in the school team 					
Growth-oriented school culture			4.30	.76	.869
Culture in which... <ul style="list-style-type: none"> teachers are usually willing to try out new ideas teachers are constantly learning and developing new ideas teachers are doers who know how to get things done teachers are willing to take risks that take the school to the next level teachers are encouraged to go to the maximum of their abilities 					
Positive learning climate (school level)			4.34	.85	.802
Learning climate at school that: <ul style="list-style-type: none"> ensuring attractive professional development facilities provides both sufficient financial, material resources and time for teachers to develop their professional skills ensures that each team member receives the professional development he needs; rewards team members who develop professionally. team members who make an effort to learn new things are respected and valued for this. 					
Teacher-supportive learning climate			4.03	.80	.866
Learning climate at school where: <ul style="list-style-type: none"> individual team members are not afraid to admit mistakes individual team members dare to discuss mistakes with each other, individual team members are not afraid to discuss work problems openly teachers help each other in learning teachers give each other open and honest feedback 					

Appendix 1.13 - School-related factors: school team

Items	N	6-Point scale	M	SD	Cronbach's α
Shared school leadership (at the start of the professional development trajectory)	123	Completely disagree (1) – completely agree (6)	4.46	.68	.856
In our school, there is leadership in which: <ul style="list-style-type: none"> • leadership is broadly distributed across the staff corps • there is a distribution of roles essential to the achievement of school objectives • staff members are involved in making decisions • there is an effective consultation structure for taking decisions • that actively supports and promotes good and effective communication between staff members • there is an appropriate degree of autonomy and freedom in decision-making 					
Constructive mindset school team en facilitating approach (end of year 1)	122	Completely disagree (1) – completely agree (6)	4.03	.83	.778
<ul style="list-style-type: none"> • Our school team is currently positive about rolling out a policy on learning support and an action plan • Our school team currently wants to actively help implement the roll-out of a policy on learning support and action plan • There is sufficient time and space within my responsibilities to develop and roll out the policy on learning support and action plan • Our school currently has a strong substantive policy team, which increases the effectiveness of the professional development process • In our school, there is currently shared leadership (more shoulders make less work) 					

Appendix 1.14 - School-related factors: organization participation

Items	N	6-Point scale	M	SD	Cronbach's α
Joint participation	122	Completely disagree (1) – completely agree (6)	5.24	.81	.990
<ul style="list-style-type: none"> Participating with a colleague has an effect on applying the contents to one's own school context Participating with a colleague has an effect on starting to translate the contents into concrete actions in one's own school 					
<ul style="list-style-type: none"> For the professional development trajectory to be effective, it is essential to work well together with the other participating colleague 			5.32	.71	/
Individual participation	8	Completely disagree (1) – completely agree (6)	3.69	1.10	.999
<ul style="list-style-type: none"> Participating alone has an effect on applying the contents to one's own school context Participating alone has an effect on starting to convert to concrete actions in one's own school 					
Participation school leader	122	Completely disagree (1) – completely agree (6)	5.27	.89	/
<ul style="list-style-type: none"> To bring about real change, it is essential for a school leader to participate in this trajectory 					

Appendices study 2

Appendix 2.1 - focus PLC during professional development trajectory

Items	N	Six-Point scale	Frequency	%	M	SD
Sharing general ideas, inspiration and information	132	Completely disagree (1)	1	.8	4.98	.965
		Disagree	1	.8		
		Rather disagree	7	5.3		
		Rather agree	25	18.9		
		Agree	54	40.9		
		Completely agree (6)	44	33.3		
Focus on defined themes		Completely disagree (1)	3	2.3	4.56	1.065
		Disagree	1	.8		
		Rather disagree	15	11.4		
		Rather agree	35	26.5		
		Agree	56	42.4		
		Completely agree (6)	22	16.7		
Focus on specific demands/ needs of participating schools		Completely disagree (1)	3	2.3	4.69	1.065
		Disagree	1	.8		
		Rather disagree	11	8.3		
		Rather agree	33	25.0		
		Agree	55	41.7		
		Completely agree (6)	29	22.0		
Focus on concretization in/ expectations around action plan		Completely disagree (1)	5	3.8	4.32	1.168
		Disagree	4	3.0		
		Rather disagree	18	13.6		
		Rather agree	37	28.0		
		Agree	53	40.2		
		Completely agree (6)	15	11.4		
Co-creation together with the participating schools		Completely disagree (1)	3	2.3	4.17	1.314
		Disagree	14	10.6		
		Rather disagree	23	17.4		
		Rather agree	31	23.5		
		Agree	40	30.3		
		Completely agree (6)	21	15.9		

Opportunities for networking, sharing	131	Completely disagree (1)	1	.8	5.22	.871
		Disagree	0	.0		
		Rather disagree	3	2.3		
		Rather agree	19	14.5		
		Agree	50	38.2		
		Completely agree (6)	58	44.3		
Receiving support and feedback (based on personal support, reference questions, ...)		Completely disagree (1)	1	.8	4.73	1.051
		Disagree	3	2.3		
		Rather disagree	8	6.1		
		Rather agree	42	32.1		
		Agree	41	31.3		
		Completely agree (6)	36	27.5		

Appendix 2.2 - Experience coach-the-coach by coach

Items	N	Six-Point scale	Frequency	%	M	SD
The approach of our coach was inspiring for how to facilitate development processes in a PLC.	131	Completely disagree (1)	6	4.6	4.35	1.335
		Disagree	7	5.3		
		Rather disagree	20	15.3		
		Rather agree	24	18.3		
		Agree	50	38.2		
		Completely agree (6)	24	18.3		
The coach explicitly mentioned the approach used to apply it himself at a later stage during a PLC.		Completely disagree (1)	2	1.5	4.34	1.182
		Disagree	7	5.3		
		Rather disagree	22	16.8		
		Rather agree	34	26.0		
		Agree	45	34.4		
		Completely agree (6)	21	16.0		
During the second year, the coach actively supported participants in coaching themselves in order to guide this PLC in the future (coach-the-coach).		Completely disagree (1)	1	.8	4.45	1.223
		Disagree	9	6.9		
		Rather disagree	20	15.3		
		Rather agree	29	22.1		
		Agree	44	33.6		
		Completely agree (6)	28	21.4		
The coach actively gave suggestions about guiding a professional learning community		Completely disagree (1)	3	2.3	4.25	1.227
		Disagree	10	7.6		
		Rather disagree	22	16.8		
		Rather agree	30	22.9		
		Agree	50	38.2		
		Completely agree (6)	16	12.2		

Appendices study 5

Appendix 5.1 - Quality criteria evaluation action plan

Evaluation framework for action plan: (name of school)		
Main goal(s)		
1 main goal (0/2)		Multiple main goals (2/2)
Main goal(s) linked to 1 content theme PDT (0/2)		Main goal(s) linked to 1 content theme PDT, minimum learning care (2/2)
Main goal(s) not SMART (0/2)	Main goal(s) partly SMART (1/2)	Main goal(s) SMART (2/2)
Actions linked to main goal(s)		
Action-oriented on levels 1 and 2 (Yelon) (0/2)	Action-oriented on level 3 (Yelon) (1/2)	Action-oriented on levels 4 and 5 (Yelon) (2/2)
1 concrete action for the/each main goal (0/4)	Alternating and/or multiple concrete action(s) for the/each main goal (2/4)	Multiple concrete action(s) at / each main goal (4/4)
(External) stakeholder(s) not specified (0/2)	(External) stakeholder(s) vaguely concretized (1/2)	(External) stakeholder(s)/ involvement school team concretized (2/2)
Concrete timing actions not concretized (0/2)	Concrete timing actions varied concretely (1/2)	Concrete timing actions concretized (2/2)
Link to/within broader school policy		
No link to other policy themes (0/2)	Vague link with other policy themes (1/2)	Concrete link with other policy themes (2/2)
No link to broader school policy/ pedagogical project (0/2)	Vague link to broader school policy/pedagogical project (1/2)	Concrete link to broader school policy/pedagogical project (2/2)

Appendix 5.2: Items of experienced concrete action performed at the end of the PDT and one year after ending the PDT

Through participation in the program, I have transferred insights into concrete actions:		At the end of the PDT						One year after ending the PDT					
Items	6-point scale	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>	α	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>	α
(Further) supplement/adjust vision	Completely disagree (1) – completely agree (6)	132	1	6	4.44	1.167	.845	24	3	6	5.17	1.090	.713
Developing an action plan			1	6	4.64	1.078			4	6	5.42	.717	
Broad learning support and increased learning support			1	6	4.63	1.029			4	6	5.54	.658	
(Shared) educational leadership			1	6	4.36	1.042			4	6	5.21	.779	
Starting up professional learning communities			1	6	4.32	1.292		23	3	6	4.78	1.043	
Optimizing professional learning communities			1	6	4.17	1.438		21	2	6	4.81	1.209	

Appendix 5.3 - Items for working with an action plan during the PDT (ESA-S)

Items	6-point scale	N	Min.	Max.	M	SD	α
The question of developing an action plan helped to develop concrete actions	Completely disagree (1) – completely agree (6)	131	2	6	4.86	.901	.949
The action plan allowed the school policy to be transferred into concrete actions					4.79	.859	
The action plan provided a valuable step for actually implementing concrete actions			1	6	4.76	.985	
The action plan stimulated commitment					4.82	.943	
During this PDT, we experienced the added value of working with action plans					4.50	1.126	
We will continue to use the action plan even after the PDT					5.00	1.081	
We will also work with similar action plans for other themes					4.53	1.166	

