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Decomposing the observation-based coaching process: the role of coaches in supporting teacher learning

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ABSTRACT

Coaching is increasingly emphasised as a promising feature of professional development, yet concrete understanding of this complex process is lacking. This study investigates an observation-based coaching process by interviewing coaches and teachers from a three-year longitudinal PD programme. Findings indicate that coaches often supplemented their pedagogy by establishing coaching culture and credibility, which were embedded in four general coaching phases. Depending on how a coach chose, stressed and shifted among coaching phases, the coaching process can vary mainly between prescriptive and collaborative coaching pathways, with multiple routes to shift between them. Findings also suggest that these pathways require different combinations and intensity of coaching culture and coaching pedagogy to be effective. Lastly, the coaching pathway framework not only illuminates different coaching pathways but also helps coaches differentiate their coaching in the future (i.e., shift between and stress different phases), corresponding to the needs of individual teachers related to specific topics in their unique school context.

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Coaching process; coaching culture; coaching pedagogy; coach quality; coaching pathway

Introduction

Coaching has been increasingly emphasised as a feature of high-quality professional development (PD) (Desimone & Pak, 2017; Gallucci et al., 2010; Poglinco & Bach, 2004; Zwart et al., 2007). This is based on the assumption that using coaches can increase PD flexibility, which is necessary to handle individual teachers' specific needs at different PD sites and the complex interactions between situational forces and the PD elements (Borko, 2004; Kennedy, 2010; Poglinco & Bach, 2004). Using coaches may also result in more sustainable and deep-level changes in teaching practices (Coburn & Woulfin, 2012). However, these assumed benefits can hardly be realised without considering the complexity of the coaching process, how coaches delivered the coaching. For example, some researchers reported that coaching could effectively improve teaching skills, teacher efficacy and student achievement (e.g. Neuman & Cunningham, 2009; Sailors & Price, 2015). Other researchers found that coaching effectiveness were inconsistent across different PD programmes (Kennedy, 2016; Opfer & Pedder, 2011). Little research is

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available about what makes coaching effective. More research is needed to provide rich descriptions of the coaching process and how the coaches implement coaching in practice, which is the main aim of the current study.

Coaching has various forms and sometimes overlaps with mentoring or facilitation (Deussen et al., 2007; González et al., 2016; Ippolito, 2010; Mangin & Dunsmore, 2015; Veenman & Denessen, 2001), but its basic function is to provide feedback on teachers' functioning and enable them to realise the gap between intended outcomes of teaching and the outcomes actually attained (Costa & Garmston, 2002). In the current study, we limit our definition of coaching to the one-on-one discussion process, in which the coach uses classroom observation to provide targeted feedback and engage the teacher in reflection on instructional behaviours. Coaches complete classroom observation with the help of a structured observation tool: a previously designed and validated observation instrument called the International Comparative Analysis of Learning and Teaching (ICALT) (Van de Grift et al., 2014; Van der Lans et al., 2018). We define this process as observation-based coaching. Thus, the main research question of this study is: what coaching phases and coaching paths can be identified in the observation-based coaching process?

Theoretical background

Coaching pedagogy, the underlying theory of action in the coaching process, is one of the most powerful sources of influence on how teachers learn from coaching (see Kennedy, 2016). Depending on how coaches position themselves with teachers, coaching pedagogy may be generally described as collaborative or prescriptive, which can be placed on a continuum on the role of teachers' independent judgements (Ippolito, 2010; Kennedy, 2016; Sailors & Price, 2015). This resembles the supervisory behaviour continuum, which centres around the role of the supervisor and distinguishes between collaborative behaviours and directive control behaviours (Glickman et al., 2018). Teachers' independent judgement is defined as the extent to which teachers' opinions are consulted in designing and implementing the goals, content and process of the coaching intervention. At one extreme, collaborative coaching (also known as responsive, reflective or cognitive coaching) provides more space for teachers' independent judgements and less use of coach expertise, typically allows teachers' needs to guide the coaching process (Ippolito, 2010), engages teachers in joint inquiry about teaching (Heineke, 2013; Sailors & Price, 2015) and 'foster[s] new insights by raising provocative questions that force teachers to re-examine familiar events and come to see them differently' (Kennedy, 2016, p. 11). At the other extreme, prescriptive coaching (alternatively called directive or instructional coaching) relies more on the judgement of the coaches, who 'often assume the role of knowledgeable specialist' (Sailors & Price, 2015, p. 117) and 'explicitly describe or demonstrate what they believe is the best way for teachers to address a particular teaching problem' (Kennedy, 2016, p. 11). In general, a collaborative approach seems to be more effective and preferable than prescriptive approaches (Kennedy, 2016). Prescriptive suggestions may prompt teacher resistance if provided without the context of critical openness or not individuated (see also Hargreaves & Dawe, 1990; Sailors & Price, 2015). Some researchers hold the view that prescriptive and collaborative coaching are not mutually exclusive, and a balance

of the two coaching behaviours might be most effective (Ippolito, 2010; Sailors & Price, 2015). Research insights are needed regarding what makes a certain coaching pedagogy effective in which conditions and how coaches can achieve balanced coaching (e.g., when and how to shift between collaborative and prescriptive roles and for what purpose).

Another key aspect of the coaching process is the establishment of a coaching culture or environment between the coach and the teacher. This is similar to the cultural tasks of supervision used for teacher professional development (Glickman et al., 2018) or the collaborative relationships in clinical supervision (Garman, 1990). This can involve such activities as building mutual trust (Veenman & Denessen, 2001), interpersonal connection or the 'click' between the coach and the teacher (Kroeze, 2014), avoiding authoritative and patronising communication (Heineke, 2013), and establishing critical openness in which the coach allows for changes and revisions to their ideas as much as they expect such change from the teachers (Hargreaves & Dawe, 1990). Hargreaves and Dawe (1990) suggest that this culture is highly relevant for prescriptive coaching. This study aims to contribute to the understanding of how to establish such a culture or interpersonal connection.

Moreover, the complexity of the coaching process can be reduced with a concrete description of the coaching phases (also labelled 'coaching moves' or 'chronological paths') followed during the observation and post-observation discussions. Many studies have identified coach qualities and activities that make coaching effective (Gallucci et al., 2010; Linder, 2011; Poglinco & Bach, 2004; Veenman & Denessen, 2001). This study aims to provide information regarding the sequential order in which such activities may take place, to shed light on when to use which coaching techniques to achieve what specific effects. A few relevant studies address chronological paths between different collaborative actions in the interaction process of teacher collaboration groups (Kuusisaari, 2014) and facilitating teacher collaborations in study groups using video clubs (Van Es et al., 2014), discussing animations (Nachlieli, 2011) and combinations of video clubs and discussing animation (González et al., 2016). We wonder how coaching may proceed in one-on-one coaching discussions. Ippolito (2010) provides rich examples of how a coach can shift between collaborative and prescriptive moves, more research is needed not only to provide more examples but also to synthesise the phases entailed in the effective examples to develop a framework that also captures how these coaching activities function.

Against this background, this study took up the challenge to develop a framework to describe the coaching phases and pathways while capturing the underlying coaching pedagogy and coaching culture embedded in those coaching phases. We explored how coaching was operationalised concretely by interviewing PD coaches and teachers involved.

Method

We explored our research questions in the context of one PD programme executed by multiple PD coaches at multiple sites (type 2 according to Boriko, 2004). We interviewed the PD coaches and a selection of teachers in a three-year longitudinal PD programme. The following subsections provide a brief background of the PD programme.

The PD programme

This programme (2014–2017), financed by the Dutch government, was designed by a team of scholars and teacher educators from a research university to improve the teaching practices of secondary school teachers of a selection of schools in the Netherlands that the Inspectorate of Education considered weak performing. Altogether, 518 teachers from 15 Dutch schools were involved. The project consisted of systematic classroom observation (using ICALT, Van de Grift et al., 2014) and post-observation discussions (i.e., observation-based coaching). Seven coaches were employed to observe lessons of teachers and conduct observation-based coaching discussions with the teachers after each observation. The coaching discussions were non-evaluative and aimed at providing systematic and targeted feedback for teachers to improve teaching skill. Teachers should receive four visits in two to three years. The observation tool focuses on teaching skills and has 32 items in six domains, including Safe and stimulating climate, Classroom management, Clear and structured instructions, Activating students, Differentiating instruction and Teaching learning strategies. These six indicators describe teaching behaviours following a cumulative order, from simple to complex and advanced teaching behaviours.

The PD programme in this study can be considered well-defined, as it included systematic classroom observation and post-observation discussions between the coaches and the teachers, the use of a systemic observation tool, teaching skills as measured by the the observation tool and coach training regarding how to use this observation tool and how to interpret the outcomes for discussion (cf. Borko, 2004). Effect studies show that this approach is highly effective in increasing teaching skills (Helms-Lorenz et al., 2018, 2016; Maulana et al., 2015), though these studies do not explore the role of the coaches.

Participants

We interviewed seven coaches and 10 teachers and asked them to provide a step-by-step description of the coaching process, examples of the coaching content, specific strategies used and the rationale behind those choices. The interviews lasted an average of one hour and 40 minutes.

The seven coaches (five female and two male) were teacher educators from a research-intensive university in the Netherlands, and two of them were also teachers in schools. They also specialised in different subject areas. Before starting the project, the seven coaches were carefully trained about how to observe teaching with the observation tool. We chose highly experienced coaches who had developed their own style, because doing so allowed us to provide a rich description of a variety of ways of coaching for this PD. By the time of our data collection, the seven coaches had completed over 900 observations and coaching sessions.

The ten teachers (five men and five women) were from eight different schools, with varying years of teaching experience and teaching subject. We asked each coach to identify two teachers to interview, one who found the project helpful and the other who did not, to ensure that we included diverse views on different aspects of the coaching process. Of the respondents, six were critical and four positive about this project. We

created pseudonyms for each interviewee for anonymity (for detailed background information, see Appendix A).

Data analysis

We opted for sequential analysis because using different analytic lenses could reveal greater complexity and in-depth understanding of the research questions (Simons et al., 2008). First, we coded interview transcripts iteratively with ATLAS.ti 7 qualitative data analysis software. We started with assigning open descriptive codes to relevant interview fragments and then categorising the descriptive codes into analytical codes. We then discussed and adjusted the analytical codes to develop a tentative coding scheme. After several rounds of discussions and adjustments, we were able to finalise the coding scheme which included five main categories: coaching pedagogy, coaching culture, coach credibility, adaptive coaching and open-minded personality. More specifically, coaching pedagogy was further coded into prescriptive and collaborative pedagogy, drawing on previous research on directive and responsive coaching styles (Ippolito, 2010; Kennedy, 2016; Sailors & Price, 2015). Coaching culture included high- and low-affiliation culture, with four subcategories based on coach identity in relation to the teacher (peer vs. superior other) and interpersonal relationship (warm vs. neutral). Coach credibility included four subcategories, including expressing awareness of PD limitations, accurately identifying issues a teacher is struggling with (i.e., the teacher's zone of proximal development), aiming to provide objective evaluations of the observed lesson and personal characteristics (i.e., having seniority, and teaching experience and expertise). We drew on previous studies' insights about interpersonal connections to code coaching culture and coach credibility (Hargreaves & Dawe, 1990; Heineke, 2013; Veenman & Denessen, 2001). Supplementary material 1 presents detailed definitions and examples for the main categories and their subcategories.

Second, to provide a general overview of the strategies used in the coaching process, we started with quantitative analysis of the code frequencies and code co-occurrence analysis. We exported the code frequency table for each coach–teacher dyad regarding the coaching strategies. Next, we used the Co-Occurrence Tool and the analytic function of Network Views in ATLAS.ti to explore which other coaching strategies were mentioned together with collaborative or prescriptive (Contreras, 2011; Friese, 2015). We then reviewed and discussed the association patterns next to the interview content, and examination of code neighbours to increase the rigour of the analysis. We also double-checked the content of the co-occurrences that seemed to deviate from our conclusions to finalise the co-occurrence figure (see Appendix B).

After identifying the coaching strategies and their relationships, we then constructed the chronological paths to represent how different coaching strategies were embedded in the coaching process. To do so, we consulted previous research on facilitation moves (González et al., 2016; Kuusisaari, 2014), identified four general phases and several sub-phases the coaches and teachers mentioned and then combined them into a coaching pathway framework. Next, we identified the corresponding coaching activities in each phase and how these activities served the function of establishing coaching culture, coach credibility and collaborative and prescriptive coaching pedagogy. This process involved frequent discussions, moving back and forth between the interview texts and the

theoretical presumptions about the coaching phases. Thus, the final coaching pathway framework simultaneously represented the chronological paths of different coaching phases and the underlying functions of the coaching strategies within and across different phases. We applied the coaching pathway framework to each coach's process to determine which phases were included, missing and stressed. This analysis yielded two baseline pathways, collaborative and prescriptive, as well as several variations of them.

Results

Even though coaches were working on the same PD intervention programme, using the same observation tool and following the same PD design procedure, the interviews showed differences in how they delivered coaching such as the way they created the coaching culture, established credibility and chose coaching pedagogy; and how they prioritised certain coaching phases and shifted between coaching pathways. In the following report, we focused on the phases and paths in coaching, while the features such as coaching culture, coaching pedagogy were reported as part of the phases.

Descriptions of coaching phases

We identified four general coaching phases: orientation, observation, post-observation discussion (with three sub-phases) and after-observation consultation. [Table 1](#) presents an overview of the general phases and variations in each.

The orientation phase served as the first step to creating a coaching culture between teachers and the coach. The observation phase involved mainly preparations for the next phase, which subsequently influenced coach credibility and coaching culture. The post-observation discussion phase was the core of the coaching process, involving the interaction between the coaching pedagogy and the coaching culture and credibility. The after-observation consultation phase served as the last step to create a coaching culture. Coaching culture, coach credibility and coaching pedagogy were interlinked in all these phases.

Although we observed variations in all four general phases, the largest occurred during the post-observation discussion phase, which we further elaborated in [Table 2](#). This phase is the core of the coaching process and includes three main sub-phases: teachers' self-evaluation, coach comments on strengths of the lesson and critiques.

The first two sub-phases continued to build coaching culture and credibility, and coaches often used them to demonstrate their recognition of the teachers' work and effort. These sub-phases also prepared teachers for the critiques in the third sub-phase. Coach Emma explained the function of the first sub-phase:

Of course, it's very important to know if the teacher is satisfied or not. Because sometimes I'm not satisfied . . . but if the teacher says, "well, I'm very satisfied", that gives me information about which strategy I will try to follow to talk about things I did not appreciate in that lesson. It is more difficult if somebody says, "well, it was a good lesson, I'm very satisfied." You have different ways of reaching the point where you can say to somebody, "Well, but, this and this. Well, you do it a little bit . . ."

Coach Lisa explained the rationale of stressing the strengths of teachers:

Table 1. General phases of the coaching process and coach variations in each phase.

Phase	Definition/function	Variation
Orientation	This phase describes the contact before entering a formal coach–teacher relationship and the pre-observation contact for each observation. All coaches arrived at the school earlier to spend about at least five minutes talking with the teacher before entering the classroom to observe a lesson.	Effective coaching cultures often took more effort than just having small talks. For instance, one coach (Anne) would arrive at the school a half-hour before to ‘inhale’ the school environment, particularly with the first observation. She did so to have an adequate understanding of the working atmosphere of the teacher, which she could use later to open the discussion and to create a connection with the teacher. Another coach (Nelleke) sometimes had introductory meetings with teachers prior the first observation. In this meeting, the coach introduced her background, teaching experience and expertise. In addition, she familiarised teachers with her communication style, thus making a first step in building a connection with teachers.
Observation	The coaches observed the lesson and prepared for the coaching discussions. The coaches mostly sat at the back of the classroom, took notes on the lesson and filled in scores on the observation list.	Coaches differed in the extent to which they took notes. Some took very detailed notes of several pages (Nelleke); Anne took the script-taping strategy and noted the time frame in connection with the teaching activities. Emma and Gerda described a way to annotate points for discussion in connection with specific classroom events. They also differed in how they filled in the observation scores. Some (e.g., Anne) filled in the scores before the discussion so that they could use them to direct discussion; others (e.g., Nelleke) filled in the scores post-discussion, after careful contemplation of the lesson and the talk. Some filled in the score once at the end of the lesson, and some (e.g., Anne) filled in the score every 15 minutes during the lesson, taking one hour immediately after each lesson to finalise the scores and contemplate a strategy to recommend to the teacher.
Post-observation discussion	This phase was the core of the coaching process with several sub-phases: teachers’ self-reflection on the observed lesson, coach commentary on teachers’ strengths, discussions about what to improve and recommendations of how to improve teaching.	Within this phase, the coaching sessions differed mainly in how much teacher self-reflection coaches induced to raise awareness of a teaching problem and come to a solution to the problem. The coaches differed from each other as well as within their own coaching practice (for details, see Table 2).
After-observation consultation	In this exit phase, teachers contemplated or tried out solutions by themselves, occasionally consulting the coach. After the observation, the coaches sent in the observation scores together with written feedback of the lesson and a summary of the coaching discussion. Occasionally, teachers emailed about some remaining questions and requests for literature or other resources.	Some coaches made extra observations visits if the teacher requested them (e.g., Nelleke). Most waited until the next visit as designated in the PD.

It is not normal in education to say to teachers that they are doing well; you always hear when you are not doing well. So, I try to give them back all the positive things I saw in the class. . . . I think if a teacher knows what he or she is good at, it is easier to develop at the next step, than when hearing only what was not well. This helps teachers to gain some confidence in themselves.

The coaching then entered the third sub-phase (critique) of identifying and solving problems in the observed lesson. This sub-phase played a crucial role in shaping teachers' experiences of the coaching because this phase is where teachers could experience cognitive dissonance between their existing beliefs/knowledge and information provided by the coach, so that they came to see familiar things in their teaching differently. Whether teachers could experience adequate cognitive dissonance often depended on how the coach brought teachers' attention to a problem in the observed lesson (i.e., explicit statement of the problem vs. implicit script-taping of class events).

Coaching paths

Taking all these phases together, we analysed the different coaching paths. With a few exceptions, the coaching generally followed the path: orientation → observation → post-observation discussion → after-observation consultation. The main divergences were in the phase of post-observation discussion, which started with teachers' self-reflection, followed by coach comments on strengths of the lesson and the offering of critiques. Coach Gerda described clearly the transitions across these sub-phases:

I first address what teachers themselves came up with I always start with the 'good points', then switch to places teachers said were difficult. . . . "You just mentioned that you found difficulty to get the attention of the whole class, that's a point I would like to discuss." So, I try to connect to the points in their summary. Afterwards, I also have some points open: "So there [are] also some points I would like to discuss on my list here." . . . there are often new points they did not mention in their summary. Then it is important to introduce those new points with examples, the concrete details [the act of script-taping].

Divergence in the critique sub-phase resulted in two main types of coaching paths (see bottom half of [Table 2](#)): collaborative (Coach provides script-taping → Teacher reflects on teaching problems → Teacher thinks of solution/alternatives) and prescriptive (Coach comments on teaching problem → Coach provides solution/alternatives). However, the coaches also frequently switched between these paths. For example, some coaches started with the collaborative path by providing script-taping to motivate teacher's own reflection on a teaching problem, then switched to the prescriptive path in which the coaches offered their opinions of what were problematic as a comparison or expansion of teacher's own reflection. After this, the coach could provide solutions directly or switch again to the collaborative path by inviting teachers to think of solutions themselves. Therefore, it is unlikely that a coaching session follows only one path, especially that it often covers three to four topics. When the discussion moved to the next topic, the coaching returned to the sub-phase of offering critiques, and from there, the coach could choose a different path based on teacher personality, feasibility for the teachers to see and solve the problem by themselves or how resourceful/insightful/competent the coach was on the topic in question. One coach recalled:

Table 2. Definitions and variations of the sub-phases in the post-observation discussion.

Sub-phase	Definition/function	Variation
Teachers' self-reflection	<p>Except for the first observation, in which the coach and teacher exchanged information about their personal background, this sub-phase usually started with the coach inviting teachers to express how they liked the observed lesson.</p> <p>Information provided in these self-reflections could also direct the coaches to adjust their strategies accordingly.</p> <p>How this was done can influence the building of coaching culture (i.e., peer or superior).</p>	<p>Coaches differed in how they opened the discussion.</p> <p>Some coaches asked teachers how they liked their lessons, thus giving more room for teachers to influence the coaching process; for example, 'Is this lesson common to most of the lessons you give, and why? Why not?'(Emma)</p> <p>Some limited the space for teachers' input and started with checking the predesigned topics on the observation list with teachers: 'Is it true that I did not see this?' (Ben)</p>
Coach comments on strengths of the lesson	<p>In the second sub-phase, the coach often commented on the strengths of the observed lesson.</p> <p>Coaches used this technique to strengthen teacher confidence and to ease their anxiety about the observation. The observation by nature was intrusive, and most teachers were not used to be observed.</p> <p>The overall function of this sub-phase was to create a supportive coaching culture.</p>	<p>The coaches differed in how they offered such comments.</p> <p>Some stressed giving positive comments (Lisa), and others remained neutral and just summarised what teachers said (Gerda).</p>
Critiques	<p>The third sub-phase focused on offering critiques and aimed to change teaching practice. The coaching entered the most critical stage of identifying and solving problems in the observed lesson.</p> <p>This phase dealt mainly with coaching pedagogy, though how questions were phrased could also influence coaching culture.</p> <p><i>Collaborative path</i> (Coach provides script-taping → Teacher reflects on teaching problems → Teacher thinks of solution/alternatives) The collaborative path often avoided confrontation. The coach implicitly brought up a teaching problem via provision of targeted script-taping of classroom events (i.e., citing the exact phrases of teachers and students) so that teachers could see the problems themselves. The coach frequently asked for teacher opinions, brainstormed about alternative ways to teach and deliberately delayed or even avoided providing suggestions to teachers.</p> <p><i>Prescriptive path</i> (Coach comments on teaching problem → Coach provides solution/alternatives) The prescriptive path was more confrontational. The coaches were often more explicit about the problems they saw and spent more time in explaining the results of the observation tool, sharing their views of the lesson and providing suggestions.</p>	<p>Two main variations were the collaborative and prescriptive paths of bringing teachers' attention to and solving a problem. Multiple routes to shift between these two paths were present.</p> <p>Coaches differed in how they phrased their questions, the tone in which they asked those questions, and how adequately a coaching culture was built. These subtle differences induced different levels of teacher self-reflection and thus influenced the extent to which coaching was collaborative.</p> <p>Coaches differed in the extent to which they considered the teacher's ideas when providing a suggestion.</p> <p>Some coaches (Lisa, Ben) had stronger tendency to convince teachers. For example, 'Some of the teachers say, "Oh no, all these games, we don't need that." And then I ... discussed with them "it's of course a game, but children can learn playing game [then the coach continued providing arguments and examples of how to use it in class]."' (Ben)</p>

It was depending on how experienced the teacher was or how easy the communication was between me and the teacher. Sometimes I just gave some tips, but there are some teachers you'd better not give those tips. Because they would feel it as if, "well, who are you coming to tell me what to do?" Then I didn't give the tips, I just described what I had been seeing and summarized what we had been talking about. (Emma)

Thus, none of the coaches were purely prescriptive or collaborative coaches; they often switched between prescriptive and collaborative paths in response to different topics in one coaching session. Some coaches prioritised collaborative paths (Nelleke, Emma, Gerda and Anne) and others prioritised prescriptive paths (Lisa, Roeland and Ben).

We observed more variations of coaching paths, in which coaches skipped some phases or stressed a selection of these phases. First, some coaching covered mostly the initial sub-phases of teacher self-evaluation and coach comments on the strengths of teachers and few critiques about problems in teaching. This short path stressed the use of positive comments and compliments to encourage or strengthen teacher confidence. However, this strategy appeared insufficient for those teachers who expected critiques and challenges from the coaches. For example:

There was no feedback, actually, to improve myself. It was just teeny tiny little things I do think, like differentiation, it's still something that I'm not very good at Maybe I need more . . . "why is it so hard for you? Why aren't you doing this every course?" More questions like that. (Inge)

When coaches offered few critiques, the coaching likely ended before reaching the point of sufficient dissonance for teachers to re-examine their own teaching beliefs and practices. In other words, the coaching ended prematurely before reaching the teacher's zone of proximal development.

Second, some coaching sessions deemphasised or even skipped the sub-phases of teacher self-evaluation and coach comments on teachers' strengths and started directly with comments on the problems in the observed lesson. Coach Ben used this path frequently, and some other coaches used it when it was obvious for both the teacher and the coach that the lesson did not go well, especially when there were issues with classroom management (Emma). Sometimes, a coaching session skipped the sub-phase of teacher self-evaluation and started with the coach commenting on strengths (Lisa and Alex). Other times, after the critique sub-phase, the coaching went back briefly to the second sub-phase about commenting on strengths of the lesson as a summary of the whole discussion.

Conclusions and discussion

Our study reveals considerable variance in the coaching process when the same PD was implemented by multiple PD coaches at multiple sites. The coaches vary in why and how they chose specific coaching pedagogy, created a coaching culture and gained credibility. We observe such variations among different coaches, as well as within the practices of a single coach. We conclude with a coaching pathway framework that captures how coaching pedagogy and coaching culture were embedded in the coaching process (see [Figure 1](#)).

Post-observation discussion is the core of a coaching process and the critique sub-phase is the most challenging and complex. The arrows in [Figure 1](#) demonstrate different pathways through the framework. In extreme cases, prescriptive and collaborative pathways proceed as follows:

- (1) Prescriptive pathway: orientation → observation → teacher self-evaluation → coach comments on strengths → coach comments on teaching problem → coach provide suggestions → teachers try suggestions
- (2) Collaborative pathway: orientation → observation → teacher self-evaluation → coach comments on strengths → coach script-taping → teacher reflection on teaching problem → teacher reflection solution/coach provide suggestions → teachers try suggestions

Although a coaching session often started with orientation and ended with teachers trying suggestions, they displayed flexibility in the pathways. Depending on how a coach chose, stressed and shifted between coaching phases in the framework, especially in the critique sub-phase, the coaching sessions differed in the extent to which they were prescriptive or collaborative. In addition, we observed a short coaching pathway in which the coach skipped or spent little time on the critique sub-phase. The coaches often mixed the use of these pathways in response to different teachers or different topics in one coaching session.

Many researchers have identified various factors that make coaching effective, such as the experience and expertise of the PD coaches, coach credibility, the interpersonal connection between coaches and teachers and the extent to which the coach is directive or responsive in offering feedback (Gallucci et al., 2010; Linder, 2011; Poglinco & Bach, 2004; Veenman & Denessen, 2001). This study expands on that previous research by exploring how these factors (i.e., collaborative or prescriptive coaching pedagogy, coach credibility and coaching culture, and adaptive coaching) are interrelated in the coaching process.

Prior studies find that coaching effectiveness are inconsistent across different PD programmes (e.g., Kennedy, 2016; Opfer & Pedder, 2011). No conclusive evidence can be drawn regarding the effectiveness of coaching due to a lack of clear understanding of the coaching process and how the coaches implement coaching in practice. Our findings thus contribute to this knowledge by providing detailed descriptions of the coaching phases, the variances in the coaching paths, and the conditions under which each coaching path may shape teachers' experiences of the coaching.

Previous research suggests that collaborative coaching may be more effective (Kennedy, 2016), but prescriptive coaching may be helpful for beginning teachers or in the presence of a trusting coach-teacher relationship (Deussen et al., 2007). Our study provides a rich description of how prescriptive pedagogy, with or without a high-affiliation coaching culture and coach credibility, could lead to teacher learning or teacher resistance, respectively. Other researchers suggest that a balance of the prescriptive and collaborative coaching behaviours may be most effective (Ippolito, 2010; Sailors & Price, 2015). Our coaching pathway framework presents the various possibilities to shift between different coaching phases and thus achieve a balance of prescriptive and collaborative coaching.

However, we acknowledge that our findings about coaching strategies and coaching pathways are based on self-reports of the coaches and teachers, and more research should investigate the coaching process with other types of data, such as videotaping or

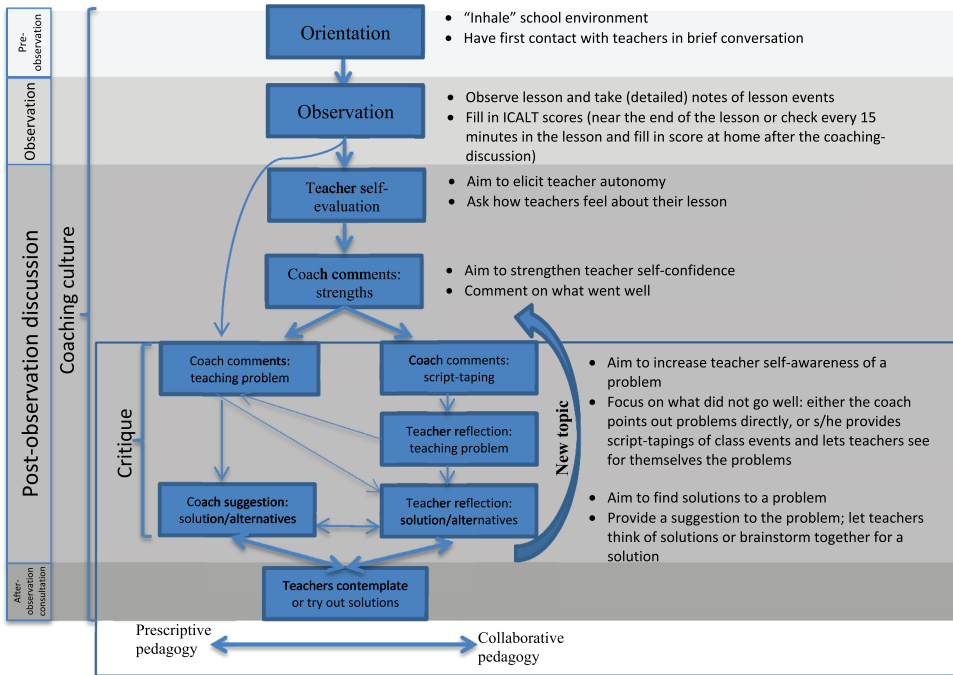


Figure 1. Coaching pathways (general phases, sub-phases and their relationships).

observation to confirm these findings and explore further how different paths may yield different outcomes.

Implications

It is possible that our pathways require different combinations and intensity of coaching culture and coaching pedagogy to be effective. The effectiveness of each coaching pathway could depend on a teacher’s personality and skills, degree of difficulty of the topic (i.e., how feasible it was for the teachers to see and solve the problem by themselves) and coach competence (i.e., how competent and resourceful the coach was on the topic in question). For example, when coaching on a new topic in which the coach is not experienced, a collaborative approach may be more effective, especially if the teacher is competent. The short pathway, stressing emotion and positive attitude, could also work well in this instance.

This framework can help coaches move beyond intuitive coaching and develop a meta-awareness of their own coaching style, such as in which phase or pathway they are most competent, in consideration of a specific coaching topic or teacher personality. The variations in the specific coaching activities in different phases can equip coaches with alternative options. The coaching pathway framework not only illuminates different coaching pathways but also helps coaches differentiate their coaching in the future (i.e., shift between and stress different phases), corresponding to the needs of individual teachers related to specific topics in their unique school

context.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix A

Background information of the coaches and teachers

Coach	Number of observations	Teacher	Teaching experience (years)	Subject
Nelleke	180	Theo ^c	7.5	Chemistry
Lisa	68	Alex ^p	2 (intern)+1	Dutch language
		Inge ^c	14	French
Roeland	199	Linda ^c	32	Creative arts
		Chris ^p	32	English, 5 years Dutch
Emma	53	Daan ^c	24	Chemistry and biology
Ben	237	Saskia ^c	14	English
		Fred ^c	15	Physical education
Gerda	157	Rosanne ^p	33	French
		Jacobine ^p	18	Creative arts
Anne	33	/	/	/

Note. ^cThe teacher is critical of the PD; ^pThe teacher is positive about the PD.

Appendix B

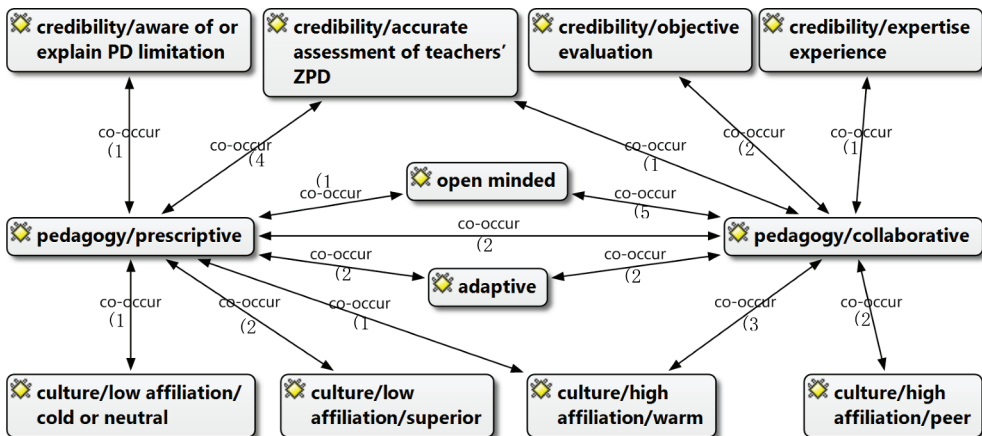


Figure Relationships of coaching pedagogy with coaching culture, credibility and adaptive coaching
 Note. Numbers in parentheses are the co-occurrence frequencies.