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Professionalization of guides in museums of art and history

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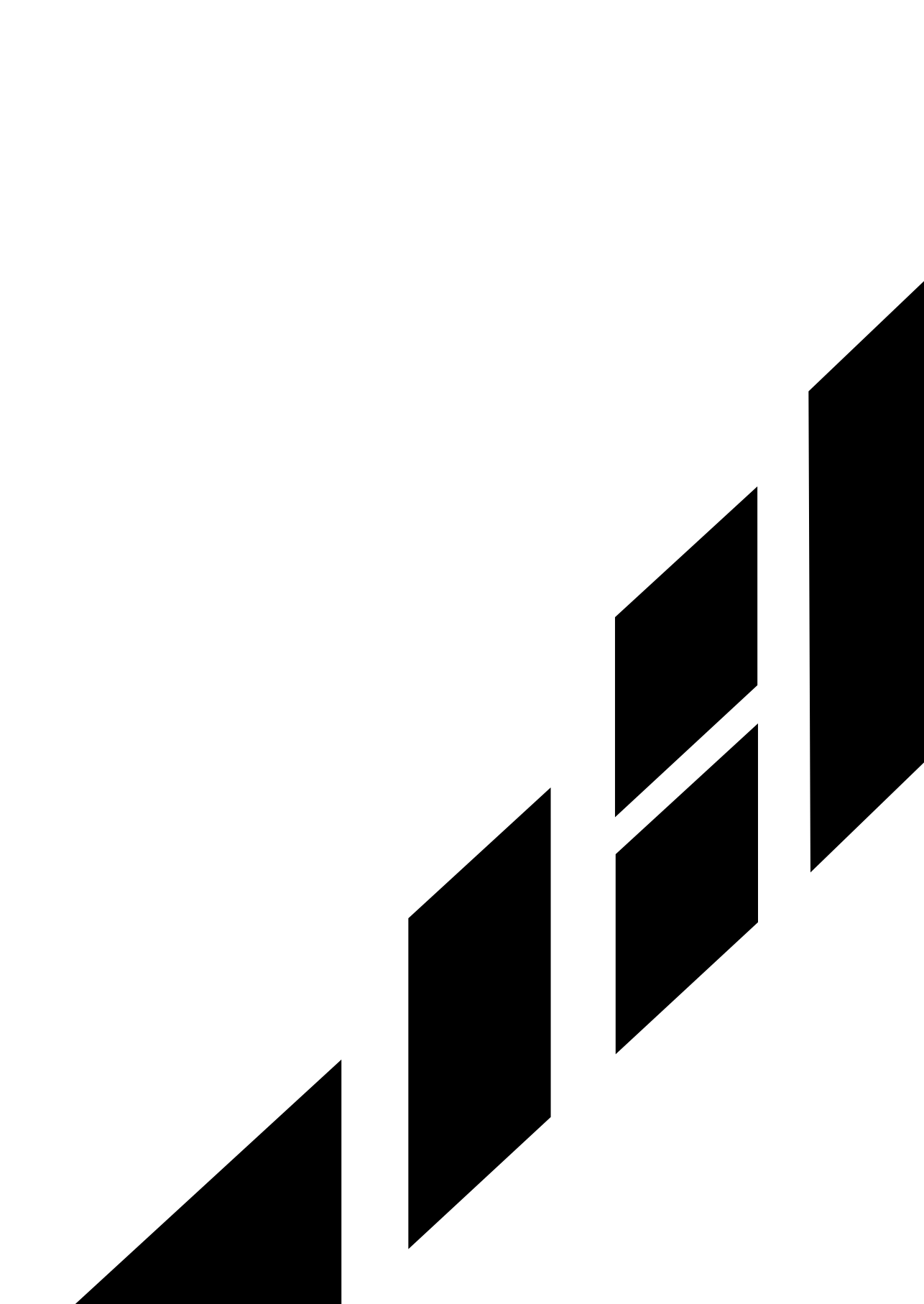
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CHAPTER

5

Museum Professionals and Student Teachers Collaborating on Museum Tours: Two Case Studies on Professional Learning Communities

Chapter 5 is based on: Schep, M., Van Boxtel, C., & Noordegraaf, J. (2018). Museum professionals and student teachers collaborating on museum tours: two case studies on professional learning communities. Manuscript is submitted for publication.

ABSTRACT

Teachers and museum guides share the responsibility of educating children. Although the teaching context differs, teachers and guides can learn from each other's knowledge, practices, and approaches. In two case studies, we investigated professional learning communities (PLCs) consisting of guides, student teachers, a museum educator, and a teacher educator. One PLC focused on art, the other on history. We investigated how and to what extent the PLCs contributed to the participants' professional growth, using questionnaires, learner reports, observations, and interviews. Results indicate that participants' professional growth and satisfaction was mainly dependent on the success of the shared inquiry. In the art PLC, participants engaged in fruitful discussion about theory and practice; the history group was less successful. The main reasons for this difference seems to be the motivation and abilities of the students and whether there was a safe learning environment in which participants felt free to share their thoughts.

INTRODUCTION

Teachers and museum guides¹ share the responsibility of educating children. Although the teaching context differs, teachers and guides can learn from each other's knowledge, practices, and approaches (e.g., Baron, Woyshner, & Haber, 2014). It is important for museum guides in art and history museums who give tours to school groups to keep developing their pedagogical competencies in order to improve the quality of their tours. An important question, for example, is how objects can be used to contribute to children's interest, knowledge, and skills. These domains-specific skills—to teach with objects and sources—are also central in teachers' art and history education programs. Several researchers have called for partnerships between museums and schools in order to co-develop educational programs to optimize children's learning in museums (e.g., Andre, Durksen, & Volman, 2016; Marcus, Levine, & Grenier, 2012), and to give museum guides a role in the development of tour programs (Grenier, 2009; Tran, 2008).

Similar ways to professionalize are stressed in the literature on the professionalization of museum guides and (student) teachers. Collaborating and exchanging ideas can be very valuable in professions that are considered isolated jobs, such as teaching or giving tours (Grenier, 2011; Little, 1990). Therefore, collaborative learning is a main focus of study in the field of teacher education and professionalization, for example, via professional learning communities (PLCs) (Prenger, Poortman, & Handelzalts, 2018; Thomas, Wineburg, Grossman, Myhre, & Woolworth, 1998) or lesson study groups (Dudley, 2015).

In our study, we focused on PLCs. The goal of a PLC in education is to improve children's learning and to professionalize teachers (Ropes, 2010). Most studies on PLCs focus on teachers working in homogenous groups, for example, teachers from one institute (Binkhorst, Handelzalts, Poortman, & Van Joolingen, 2015). In recent studies (Chapman & Muijs, 2014; Hofman & Dijkstra, 2010), researchers have called for PLCs

with participants who come from different institutions. In this study, we investigated the collaboration and learning that take place in two PLCs: one in the art domain and the other in the history domain. In these PLCs, museum education professionals, student teachers, and teacher educators analysed a tour program; identified potential points for improvement; and designed, implemented, and evaluated new pedagogical approaches. Damşa and Nerland (2016) explain that—under the right circumstances—such inquiry activities could foster professional growth. The above leads to the following research questions:

1. How and to what extent does the PLC foster professional development of the participants according to the participants?
2. How does this learning relate to the organization and characteristics of the PLC?

Heterogeneous Professional Learning Communities

In 2006, Stoll et al. conducted a review on PLCs. They argued that no universal definition of a PLC exists but suggested that a PLC is "a group of people sharing and critically interrogating their practices in an ongoing, reflective, collaborative, inclusive, learning-orientated, growth-promoting way, operating as a collective enterprise" (Stoll et al., 2006, p. 223). Based on the review by Stoll et al. (2006) and a recent study by Prenger et al. (2018), we identified key characteristics for effective PLCs: a shared vision and shared goals; shared responsibility; shared inquiry; collaboration, group, and individual learning; trust; and leadership. These characteristics are intertwined and can influence each other (Bolam et al., 2005).

Personal goals and expectations might differ, especially when participants come from different institutions. For the outcomes of the collaboration, it is important that participants share the goal the group is aiming for—in addition to having personal goals for professional development (Hord, 2004; Penuel, Fishman, Yamaguchi, & Gallacher, 2007; Stoll et al., 2006). The idea behind a PLC in education is to improve the learning of children by supporting the professionalization of teachers and the organization. Members of a PLC should all share the responsibility, commitment, and accountability to reach this goal.

Second, PLCs contribute to learning when participants engage in collaborative professional inquiry. Learning is enhanced by a dialogue in which participants discuss multiple perspectives but do not seek a homogeneous conclusion (Akkerman & Bakker, 2011; Grossman et al., 2001). In order to have such dialogues, it is important to establish trust and an open atmosphere in which participants are willing to share their knowledge and ideas (Prenger et al., 2018; Stoll et al., 2006). When collaborating as a group, a shared inquiry involves processes of co-construction. In co-construction, group members engage in repeated cycles of acknowledging, repeating, paraphrasing, enunciating, questioning, concretizing, and completing the shared knowledge, competencies, opinions, or creative thoughts (Damşa & Nerland, 2016; Decuyper, Dochy, & Van den Bossch, 2010). Decuyper et al. (2010) also argued that constructive conflict is a basic team learning process and defined constructive conflict as “a conflict or an elaborated discussion that stems from diversity and open communication, and leads to further communication and some kind of temporary agreement”(p. 117). Coming from different institutes, participants must negotiate between different ideas, understandings, contexts, and languages. For example, the specific language of people who work in museums might differ from people who work in universities or schools. Using the term "boundaries", many scholars have studied the challenges that arise when people must balance different contexts and collaborate with persons within and across institutions (Akkerman & Bakker, 2011). Akkerman and Bakker (2011) concluded “the multivoicedness and unspecificity at boundaries trigger dialogue and negotiation of meaning, explaining why encounters of boundaries are often described not only as challenging but also as worthwhile to investigate in relation to learning” (p. 150). Last, leadership is also a crucial factor in PLCs (Prenger et al., 2018); often a team coach organizes and structures the process (Erickson, Minnes Brandes, Mitcheland, Mitchel, 2005; Grossman et al., 2001) to stimulate the group to engage in productive interaction and to deal with possible conflicts (Thomas et al., 1998).

METHOD

We investigated PLCs in two qualitative case studies (Baxter & Jack, 2008). Both PLCs worked on the design of pedagogical approaches for a guided tour program.

Setting and Participants

The PLCs consisted of three student teachers, three museum guides, and two tutors (a museum educator and a teacher educator) who facilitated the process. One of the participating museums focuses on contemporary art and design, and the other museum combines history and art. The history museum educator nominated a tour that aims to contribute to upper secondary school students' ability to analyse historical objects and visual sources—a skill that is assessed in the history examination. The art museum educator nominated a tour program that serves as an introduction to the museum and to contemporary art and design in general.

We chose two criteria for the selection of the museum guides: (a) a willingness to collaborate with students in a PLC and (b) the guides' availability for the duration of this study. The museum educators made the final decision and selected three guides for each group.

We selected the student teachers from the university's teacher education programs in art and history of the University of Amsterdam. These students must conduct an educational design research (thesis) in the last semester of their teacher-training program. In this thesis, a student normally focuses on his or her classroom practices, but for the purpose of this study, the students conducted their research in both the museum environment and in their classrooms—pilot studies of the approaches could be tested in students' own classrooms. All 24 enrolled student teachers received information on this project and were invited to send their curriculum vitae and a motivation letter. Only three history students wished to participate, so there was no further selection process. Five students applied for the art group, and in consultation with the teacher educator, three students were selected based on their motivation, progress in the program, and relevant experience. See Table 1 and 2 for an overview of the participants (their names are fictional, and for privacy reasons we only use female names).

TABLE 1 Participants of the Art PLC

Name	Function	Age	Experience	Education
Liz	Museum educator	32	5	Teacher education (primary education)
Beth	Teacher educator	51	23	Art/Teacher education
Mary	Museum guide	49	21	Art history/Art, culture, and education
April	Museum guide	48	2	Art academy/Teacher education
Kim	Museum guide	42	6	Art/Teacher education
Rose	Student teacher	24	–	Art history/Teacher education
Lucia	Student teacher	27	–	Art history/Teacher education
Rachel	Student teacher	23	–	Culture and media/Teacher education

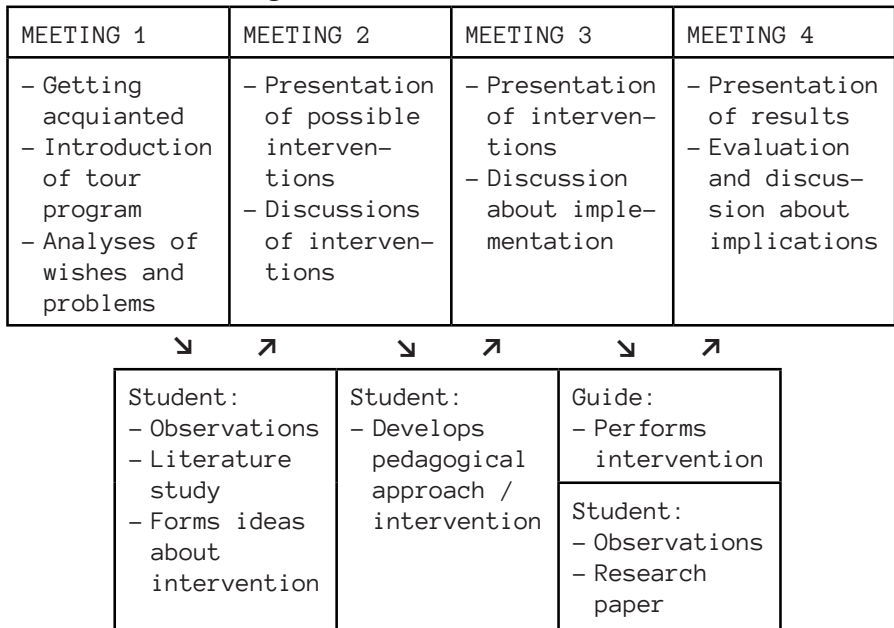
TABLE 2 Participants of the History PLC

Name	Function	Age	Experience	Education
Kristen	Museum educator	30	1	Art history/Teacher education
Janice	Teacher educator	41	10	History/Teacher education
Joyce	Museum guide	43	10	History teacher education
Emily	Museum guide	30	2	Art history/History/Teacher education
Olivia	Museum guide	38	10	History/Archeology/Teacher education
Claire	Student teacher	26	–	History/Teacher education
Ava	Student teacher	30	–	History/Teacher education
Jill	Student teacher	24	–	History/Teacher education

Design of the PLC

In designing the PLC, we took the elements described above as the starting point: shared goals and responsibility, shared inquiry and collaboration (Stoll et al., 2006), and leadership (Prenger et al., 2018). Over a period of five months, between February and June, both PLCs held four 2-hr meetings (see Figure 1). The group’s shared goal was to collaborate to develop new pedagogical approaches for the selected tour. The student teachers did most of the work because participation was part of their obligatory educational design research. Their course outline stated that students should invest 164 hr on their research project, which was divided into tasks such as participation in meetings, literature research, research design, data collection, data analysis, and writing a research paper. The museum guides agreed to invest 20 hr in the PLC on tasks such as participation in the meeting, giving tours, and the evaluation and discussion of the designed approaches. The guides received financial compensation.

FIGURE 1 Schedule of PLC Meetings and Activities Between the Meetings.



Data Gathering

In order to investigate the outcomes of the two case studies, we used a mixed-methods approach consisting of pre-questionnaires, video observations, learner reports, and interviews. In the pre-questionnaire, participants were asked about their motivation for participating, their experience with similar activities, their expectations towards the collaboration, and their personal learning goals.

Each meeting was recorded, and at the end of each session, participants were asked to reflect on the meeting via a learner report (Van Kesteren, 1993). The questions in the learner report were

1. I have insights in/have experienced that....
2. Which questions do you have following this meeting?
3. Do you have any remarks and points of special interest?
4. Which actions did you undertake in between the two meetings?

Finally, all participants were interviewed. The interviews lasted between 20–60 min. The questions focused on the characteristics of an “effective” PLC (Prenger et al., 2018; Stoll et al., 2006). Furthermore, we questioned participants about their satisfaction with the program, the collaboration, their personal goals, what they learned, the implications for their future practices, and their advice for future PLCs.

Data Analysis

All meetings and interviews were transcribed verbatim. We coded the interviews using Atlas.ti and developed a coding scheme based on the points for an effective PLC: a shared vision, shared goals, shared responsibility, shared inquiry, collaboration, learning (Stoll et al., 2006), trust, and leadership (Prenger et al., 2018).

Within the learning code, we created extra codes based on three of the five levels of evaluation of professional development programs introduced by Guskey (2002). The first level focuses on the satisfaction of the participants. The second level focuses on the specific learning of the participants. We expected participants to further develop their knowledge about pedagogy, as well as their skills to design education programs in the museums, and to further develop their pedagogical competencies. The third level deals with participants’ use of

the new knowledge. We created additional codes for cases in which participants gave advice for future PLCs.

The recordings of the meetings served as supplementary materials to gain insight into the collaboration. In the analysis, we looked for instances of conflict (i.e., when two or more participants disagreed without argumentation to resolve it), co-construction (i.e., two or more participants contributed with substantive contributions to the discussion and worked jointly on the same ideas—an idea is adopted, developed, reworked, elaborated, questioned, or criticized/challenged), boundary crossing (i.e., trying to understand practices or perspectives related to the other—museum or school—context), and the development of a common language. We compared these observations with the data obtained from the questionnaires, interviews, and learner reports and used them as illustrative materials in the Results section. Furthermore, the recordings helped us to understand what exactly happened during the PLC meetings, which was more or less in line with what we planned, as will be discussed below.

RESULTS

At the end of this project, two of the art students had finished their thesis and one was in the process of finishing. Only one of the history students was able to fully perform the design research; however, she had not finished her research paper. Two of the history students dropped out, so two of the history museum guides were unable to test a new approach.

The abovementioned points for an effective PLC will serve as the framework to describe the findings. As noted, these characteristics are intertwined but will be discussed separately as much as possible. First, we start with a short overview of participants' expectations towards the project.

Participants' Expectations

In the prequestionnaire, most participants agreed on factors that contribute to a successful collaboration: open attitude and atmosphere; sharing of knowledge, ideas, experiences, enthusiasm, and curiosity; and a safe learning environment. Possible setbacks were mainly organizational factors, such as lack of time, difficulties with communication, no shared room/building, and different time schedules. Histo-

ry museum educator Kristen noticed that guides might be less open towards the ideas of students because of students' lack of experience. Kristen also stated that she hoped students would be competent enough to add something. Teacher educator Janice made a similar remark by stating that there is an asymmetrical relationship between the guides and the student teachers; the guides might act less like equal partners and more like mentors who help students to get on the right track.

Participants' Motivation and Goals

Based on the prequestionnaires, we found that most participants sought insights into the different perspectives of people involved in teaching about art and history and wanted to improve the quality of the tour program. For example, guide Mary stated: “[I hope] to successfully re-write the tour program in which the input of other participants has a lasting effect on my actions and thinking.”

We found differences in the goals related to personal learning. The museum guides' main motivation was their curiosity towards the broader research project (of which this PLC was a part) and the opportunity to exchange ideas, share knowledge, and engage in further professionalization. Guides explained that in their daily practice it is difficult to find moments to reflect and to talk about tour guiding with others. They hoped to gain useful tips, access to recent literature, and new pedagogical approaches.

The museum educators mainly sought inspiration for how to improve their tours and to get more acquainted with the guides; both participating educators had recently started work in their museum. The teacher educators explained they hoped to get more insights into the learning process of students in museums and into ways to connect museum visits to the classroom environment. Additionally, they hoped to further develop their tutoring skills.

The students indicated that this project gave them insights into how education in a museum takes form and how to incorporate museum visits in their own lessons. The first point was especially important for the students in the art PLC. All three indicated that they wish to work in a museum. For one student, the prospect of collaborating with museum professionals at the Stedelijk Art Museum was enough of a reason to choose this specific university program. In contrast, history students did not mention career aspirations to work in a museum.

During the first group meeting, the goal of the PLC was not completely evident for all participants, but at the end of the meeting, participants agreed that the focus should be on the development and testing of new pedagogical approaches.

Collective Responsibility and Leadership

There was interdependence in planning the PLC; students had to complete their work, and the other participants had to facilitate this process—either by giving input and performing the tour (the guides) or by helping the students to organize and give feedback (both the educators). Art teacher educator Beth stated: “Ideally, there would have been a more equal relationship, that the students are not graded. But I think it worked out, the research was the guidebook, but the conversations were not dominated by it.” For some students, the responsibility was a burden; they felt the pressure to conduct their own research but also to provide the museum professionals with new theories and pedagogies. Student Claire explained: “The expectations of the participants were not matched. The students clearly had ‘the Sword of Damocles’ hanging over their heads, because of the educational design research. Compared to the guides who just wanted some new approaches based on theory.”

The teacher educators played an important role as facilitators of the group process. The art students explained that Beth was demanding, but her feedback was also helpful. Beth indicated that her feedback was perhaps more critical than usual because she felt that there was more at stake due to the partnership with the museum. The museum educators played a background role, but the art students particularly valued the educators’ contribution. Rose explained: “Liz really connected our ideas to the museum program; maybe she even gave the best feedback because her position was a bit in between us and the guides.” Most students indicated that the support from the guides was sufficient. Guides were available for students when needed, for example, to share their practical insights or to give feedback. However, as will be discussed more in depth below, the collaboration was not always fruitful.

Shared Inquiry

Crucial for individual and group learning is the process of sharing knowledge and insights and discussing both. For the museum guides, this was one of the main reasons to partici-

pate. The teacher educators felt the responsibility to facilitate this process and to do justice to all the participants. For example, educator Beth stated: “You need openness, but also concrete questions [...] I really tried to use the principles of dialogical learning to make sure that everyone has the chance to give input and their input is taken seriously.”

In the history group, the students had difficulties explaining the theories on teaching history and how these could improve tours. For example, guide Olivia of the history group stated: “I really hoped that the students provided some recent literature on history pedagogy, which was not the case.” In fact, the students in the history group barely managed to observe tours, which made guide Olivia state: “If you want to know how you can improve tea, you should drink more than one cup of tea.” This is in contrast to the art students; between Meetings 1 and 2, the art students observed tours and engaged in conversations about the tours with the guides.

History teacher educator Janice acknowledged that the students might not have had enough expertise to really add something to the tour and had difficulties explaining their ideas. The recordings from the first meeting also show that the discussions were mostly between the guides, who talked about their own practices. Janice explained that she tried to structure the assignment for the students and sent them reminders but “in the end the students also have to take it into their own hands.” However, Janice also stated that not all guides were supportive in the process, which compromised the safe learning environment. This was in line with a remark made by one of the history students:

I felt that the guides were not really enthusiastic about our ideas, and in some cases they were an inhibitory factor in the brainstorming process. I expected more input of the guides in the first meetings of the PLC, because their expertise was much needed for a good research design.

For these reasons, lack of input and no safe learning space, co-construction was difficult in the history group. The guides were disappointed by the lack of ideas and literature introduced by the students, and the students were dissatisfied with the support of the guides.

The art group’s experience was quite different. Ideas could be shared and discussed. The museum educator in the art group remarked: “The students really were an added value.

Especially the theories they provided.” She thought it very helpful when students gave short PowerPoint presentations about the theory as input for a group discussion. In the history group, the student presentations were less structured: Although students introduced some theories, they merely named them without further explanation. In the next section, we discuss the collaboration in depth.

Collaboration, Boundary Crossing, and Co-Construction

As noted, two of the history students were unable to design a pedagogical approach. Setting aside personal reasons, such as a heavy workload and sickness, perhaps the students failed because the group did not cross *boundaries*. For example, when the museum guides and participants from the university discussed the pedagogical concept “teacher guided whole-class discussion,”¹ they did not come to an agreement. The guides felt that this approach was impractical for the design of the tour. One student, however, lingered on this subject and in the end did not design a pedagogical approach at all. An example of this lack of boundary crossing can be seen in Excerpt 1: Student Jill was unable to fully explain her ideas and the guides were sceptical

EXCERPT 1

Exploration of the Pedagogical Concept Teacher-Guided Whole-Class Discussion

- JILL^[S] The problem to activate children to participate, that’s what I want to address. I want to use the teacher guided whole-class discussion to stimulate them to interact more.
- JOYCE^[G] How do you picture that? Which ideas do you have?
- JILL^[S] By asking certain questions, really have a conversation with the children; maybe there are some techniques to do that.

1.
The idea is that the teacher engages in a conversation with the students, which builds upon the answers of the students without the goal to seek for an immediate answer.

- OLIVIA^[G] That's true. It should not be a lecture. But do you have any theories?
- JANICE^[TE] The core will be the theory of teacher guided whole-class discussion.
- OLIVIA^[G] What's that?
- JANICE^[TE] The teacher asks a question, and the students react on that, but also on each other, which creates a conversation.
- OLIVIA^[G] Can you give an example?
- JANICE^[TE] For example, after the Second World War. How can you rebuild the country? I think you use such questions already...
- JOYCE^[G] Often you just give turns and then someone says something and others don't.
- JANICE^[TE] It can be difficult for the children.
- OLIVIA^[G] What specific things are you thinking about?
- JILL^[S] Well, it's not completely clear yet, but the fact that you work towards a certain goal, and don't stir them by giving content knowledge.
- OLIVIA^[G] I get what the goal is.
- JOYCE^[G] You mean, you want that everyone is participating and enthusiastic.
- JILL^[S] I know it's difficult, that you never reach that.
- OLIVIA^[G] Regardless of the children, I wonder if that's possible at all, and whether it's necessary.
- JANICE^[TE] I think for Jill the process is more important. But you still have the question, what is the goal you aim for.
- OLIVIA^[G] I think the children already need a lot of content knowledge. If you do this, then you can have a real conversation about history, otherwise you have to steer too much.
- JOYCE^[G] I rather see your research focusing on different techniques to come to an answer. This is too woolly.
- OLIVIA^[G] Questions that can open a conversation.
- KRISTEN^[ME] Most of the time we already have a set menu of questions, you know, the starting questions and the follow-up questions.
- EMILY^[G] I can't say a thing about this. I did the teacher training program and I still don't know what a teacher guided whole-class discussion is.
- JOYCE^[G] You really need to do it step by step.
- JANICE^[TE] You won't solve all the problems.

JOYCE^[G] Often I just start with a funny story or a joke—to break the ice.

Note. TE = Teacher educator; S = Student; G = Guide; ME = Museum educator.

After this, the student asked a question about an object, two guides and the educator gave some examples, and the conversation faded. In the interview, two of the three guides expressed that it all should have been more practical and less theoretical. Guide Olivia, however, had hoped for more theoretical insights.

History student Claire felt lucky that her idea resonated with the guide; she gave her a lot of ideas for possible pedagogical approaches and the objects that could be used. Claire explained that this exchange might have been more fruitful earlier in the process when the groups were divided in two because the bilateral discussions about objects were the most valuable moments in the museum. Guide Joyce liked Ava's idea and tried to remain positive, but she was amazed that Ava did not design an approach. Students were required to present their pedagogical approach in Meeting 3; however, Ava did not present her approach because she was unable to work on his project between Meetings 2 and 3. The group tried to help her, but in the end, she made no concrete plans. Between Meetings 3 and 4, Ava decided to quit the thesis. Museum educator Kristen had hoped that the critical attitude of the guides would be an added value, but acknowledged that it turned out differently: "Maybe the students were a bit intimidated by [the guides]."

The collaboration in the art PLC was more successful, perhaps due to the safe learning environment. Student teacher Rose explained:

It was super nice to collaborate with Mary, she knows so much, and also because she really listened to what I said [...]. She was really supportive, even when the intervention did not go as planned, she texted me "think positively, it will work out."

Mary, likewise, was positive about the collaboration: "What I liked a lot was the way the student teachers engaged in conveying the material to their students in an interesting way. I really enjoyed hearing them talk about their students with so much respect."

Just like the history student teachers, the art students were not always at ease, but they appeared to grow in their role. For Rachel, at first being “just a student” made her reluctant to advise the guides based on theories, but she noted that everyone was very open and flexible. There were *boundaries* in the art group. After the first meeting, the guides expressed their concern about the balance between theory and practice. In some cases, the guides did not understand what the students and teacher educators were talking about. Student teacher Rose noticed this as well: “I had the idea that, when we were talking with Beth, we sometimes were a bit in an [academic] bubble. I saw that Mary strayed off a bit.” Teacher educator Beth noticed something similar: “I sensed that the guides really liked to discuss their own practices; however, for the students it was also necessary to focus on a research question that is connected to theory.” Most participants explained that they struggled to find both a common language and the middle ground. Excerpt 2 demonstrates how this struggle initially led to some misunderstandings but also to a shared inquiry and a form of co-construction involvement.

EXCERPT 2

Student Presentation is the Start of a Discussion That Leads to Boundary Crossing and Co-Construction.

- LUCIA^[S]: [Reads out loud the design hypothesis]
 MARY^[G]: Can you explain that in plain language?
 LUCIA^[S]: Yes, I want to use the dimensions of CKV² to look at art, to help the children to analyse and interpret art. These dimensions help to look at art with a different view.
 APRIL^[G]: In a way, the idea of beautiful and ugly works quite well as a starting point for a conversation—if you give them some contextual information.
 BETH^[TE]: The dimensions are designed in a way that you

3.
 CKV is a subject that is focused on the cultural and artistic education of children.

- shift a bit between them. They are not opposites. It helps to give meaning. Is that clearer?
- MARY^[G]: Well, those dimensions are...
- LUCIA^[S]: Ah, I will name the dimensions: fact and fiction, beauty and ugliness, autonomous and applied, tradition and innovation, local and global [...].
- LIZ^[ME]: Yes, you can use those dimension with all objects
- BETH^[TE]: You can really shift between dimensions. Do you have a question for us, Lucia?
- LUCIA^[S]: Which pedagogical approaches fit these dimensions?
- BETH^[TE]: So if you have the dimensions, what can you do with them in the museum? Do you recognize these, for example, autonomous and applied?
- APRIL^[S]: Sure, we do that, for example, with design.

Next, the group engaged in a discussion about the dimensions and how they could be implemented in a tour program.

Besides the whole-group collaboration, guides and students also conversed in pairs. Together they discussed the student's design, the tours, and the effects of the intervention. Participants mostly evaluated these conversations positively—especially in the art group. But art guide April was a little ambivalent about the collaboration; she was not convinced that it was a true collaboration.

Most work had to be done by the student. I read her research proposal, and basically I gave some practical advice on the possibilities and limitations of the museum [...]. Eventually, the student did not really develop a new approach, but sort of built upon my idea. Which is all right, of course.

However, April enjoyed discussing the pedagogical approaches of the students as well as her practices and suggested that the collaboration should be protracted. Adding to that, guide Kim stated that she would have liked to have more meetings over a shorter period, in order to increase the involvement. She was positive about the collaboration: "It went very well with Rachel. The enthusiasm—the students were very motivated."

History museum educator Kristen stated that a more balanced setup perhaps could lead to an ideal collaboration—in this study, the students had done most of the work. Teacher educator Janice agreed and explained that the guides more or

less assumed the role of experts. Teacher educator Beth, in contrast, was satisfied with the collaboration; key for her was the openness of the participants and the diversity of the group.

Learning in the PLC

Participants' Reactions

The satisfaction of the participants differed, especially if we compare the two groups. The reaction of the participants in the art group was mostly positive, but participants in the history group felt more ambivalent. The tutors in the art group were satisfied—Beth explained that the collaboration was motivating, especially because she enjoyed working in an authentic environment that allowed her to collaborate with other professionals. Art museum educator Liz shared Beth's assessment. The history museum educator was slightly disappointed; she had hoped that the museum would profit more from the collaboration.

The art students were very satisfied with doing research in the museum context and being able to collaborate with and learn from museum education professionals. Student Lucia explained: "It is nice to get a confirmation of the theory in practice, which I do not often experience in the classroom." The history students had some similar feelings, but were less positive overall. One of the students explained that looking at history teaching from a different perspective was inspiring but that the collaboration and all the different interests had caused some stress.

The art museum guides were also positive about the PLC, using terms such as *interesting*, *motivating*, and *inspiring* to describe their experiences. Two history guides expressed negative initial reactions: "The outcomes were very low, I expected more." The third guide described the project as *good* and *nice* but offered some suggestions for improvement: a more concrete assignment and better planning.

Participants' Learning

The art museum guides explained that it was helpful and motivating to talk about their profession, to get access to recent scientific literature, and to receive feedback. Guide April stated: "It is about your own awareness and reflection about how you work. I work very intuitively. [...] That's why I wanted to participate [...]. It really stimulated me to search for more in my own practices." Educator Liz stated that she got further

insights in, how to conduct professional development conversations with the guides and that she learned from the conversations with teacher educator Beth and students, especially about specific pedagogies and the needs of teachers.

The teacher educators valued the insights relating to the design process of the students and understood that learning in an authentic context, such as a museum, can be valuable for student teachers. The art students expressed that they learned a lot from working with the museum professionals and were inspired to be more creative in their lesson designs. Rose said that she started to develop her own vision about teaching and learning. The history students explained that they got insights relating to teaching in the museum, for example, how to use objects for teaching and how to help students analyse visual sources.

Use of New Knowledge

All interviews were conducted within two months after the last meeting; therefore, it was not always possible to point out real behavioural change. However, participants made statements about insights that they found enlightening and which may change their behaviour. For example, art museum guide Kim explained that the collaboration motivated her to find her “creative mind set” and to think about pedagogical approaches that are suited to the group.

The idea to carefully examine what you are doing, and look at it from a theoretical perspective: What do you need? What do you miss? That was very interesting and a wake-up call. I really enjoyed that and hope to continue with that.

History guide Olivia did not gain any particularly new content knowledge or deep insights, but she noticed a gap in the literature concerning history museum pedagogy, which inspired her to try and fill that gap. The other history guides did not indicate that the collaboration stirred them to change their practices.

The art students became more enthusiastic about teaching in the museum and expressed their ambitions to work in a museum. Related to her teaching, Rachel explained that the collaboration pushed her to think deeply about setting goals for her lessons and that she wants to keep educational and pedagogical theories in mind when designing tours. Rose stated that she changed her teaching practices in the last weeks

of her internship and focused more on group interactions, rather than giving PowerPoint presentations.

Art museum educator Liz indicated that she would incorporate the designed pedagogical approaches in the new version of the tour program. Furthermore, she liked the idea of a PLC, in which participants may collaborate and reflect on their practices, and would strive to organize such meetings more often. Beth acknowledged the value of a PLC: "I really think one-day professional development training programs can have a short term learning effect; however, in order to change [participants'] thinking, attitudes, and behaviour, a PLC [must have] a much longer lasting effect." Beth hopes that projects like this become common practice in the teacher-training program.

DISCUSSION

The present study aimed to answer two questions: (a) How and to what extent do the PLCs foster professional development according to the participants and (b) How does this learning relate to the organization and characteristics of the PLC?

The results are twofold. The art group evaluated the process as a valuable learning experience, whereas most participants in the history group were disappointed. Some of the characteristics (e.g., shared vision, shared responsibility, shared inquiry, collaboration, learning, trust, and leadership), as identified by Stoll et al. (2006) and Prenger et al. (2018), were clearly key in the effectiveness of the two PLCs and therefore in the learning processes.

Participants in the art group indicated that their learning was mainly a consequence of a productive shared inquiry; for example, the guides stated that the collaboration challenged them to explain their ideas and practices and to reflect upon them. This resulted in insights about their own function and gave them new ideas. For the students in this group, the learning took place via the conversations with the museum professionals and through the designing process. The students praised the insights they gained regarding museum education. The history students expressed that they gained some insight on teaching with objects, which they might use in their classrooms. Because of the lack of shared inquiry in the history group, the self-reported learning of the history guides was limited.

A few crucial factors appeared to influence the process: finding common ground, a safe learning environment, and the students' interest and motivation to work in a museum education PLC. In both groups, participants were searching for common ground and a common language. For example, participants talked about each other's specific role in the process and engaged in discussions about the end goal. In this, we observed differences between the two PLCs. History students complained about the lack of a safe learning space, so they sometimes lost their confidence to share ideas. In the same group, the guides were disappointed by the students' input and their lack of effort. Another difficulty was that participants needed to cross boundaries in order to develop a common language: Guides used a more practice-orientated language, whereas the students employed a more theoretical language suited to the university environment. This led to several misunderstandings in the history group, which were never solved.

In contrast to the history PLC, the art PLC participants crossed boundaries successfully. By discussing the theory and practical examples, they found a common language to talk about the tour program. In this process, the role of the tutors was important; they summarized and synthesized contributions of other participants or asked them to further explain themselves. Both the art students and the teacher educator indicated that the PLC was a safe learning space. Working in a safe learning space helped the participants to engage in a shared inquiry, which involved open discussions, explaining individuals' practices, and translating the theories into practical examples. Trust and leadership, as indicated by Prenger et al. (2018), seemed to play a role in the process.

There are some possible explanations for the differences between the groups. First, fewer students applied for the history PLC (three) compared to the art PLC (five students). Thus, there was no selection process for the history group, whereas the art students were selected based on their motivation and track record at the university. The art students also indicated an intrinsic motivation to pursue a career in museum education; this might have stimulated them to succeed. Second, before the start of the collaboration, there were doubts about the guides' openness towards collaborating with students and about the students' ability to add value for the guides. By Meetings 2 and 3, two history students were at an impasse. They were unable to present their ideas, and the group was unable to help them in the right direction.

More projects like this are needed to draw stronger conclusions. In this study, we only researched two groups. However, because we analysed prequestionnaires, learner reports, observations, and interviews, we were able to analyse in-depth how these two PLCs functioned. Because there were clear differences between the two groups, we could isolate the success factors and constraints, which related to the factors indicated by Stoll et al. (2006) and Prenger et al. (2018): trust, leadership, and a shared inquiry. Based on the suggestions of the participants, we can make some recommendations for future heterogeneous PLCs. Participants indicated that the assignment for the students should be very concise and straightforward, that everyone's role should be made explicit, and that the end goals should be clear. Some, participants advised a longer trajectory, or at least a pre-meeting to discuss the goals and responsibilities of each participant.

Because art student teachers often wish to work in a museum, authentic projects like this can be a valuable addition to their training program, as is suggested by Baron et al. (2014). The students indicated that they learned a lot about the practices of museum education professionals and enjoyed experiencing the museum as a learning environment. The history students in this study were less enthusiastic about the collaboration, although they liked the idea of learning how to use objects in their teaching.

The results of this study suggest that—when there is a safe learning environment and the participants are motivated—museum professionals and student teachers can learn together and from each other in a PLC. The most valuable part of the collaboration seemed to be the shared inquiry in which participants shared their knowledge, discussed their insights, and reflected on their practices.