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ARTICLE



## Creating an optimal environment for inclusive education: co-location and transformation in interdisciplinary collaboration

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### ABSTRACT

Collaboration between teachers and child support workers is seen as a promising way to effectuate inclusive practice in mainstream education. This paper aims to explore how co-location of services promotes transformation of practice, and to expand an analytic framework for interdisciplinary collaboration. By combining these two perspectives, we intend to contribute to both theory and practice. The data consist of semi-structured interviews that explore the experiences of teachers and child support workers who co-work in three schools for secondary education. A template analysis was used to examine collaboration in co-location, and to further develop the framework with which we began our empirical research. The initial template consisted of dimensions of knowledge sharing in relation to dimensions of trust and dimensions of identity. The results showed that proximity can be divided into three different types, being spatial proximity, organisational proximity and personal proximity. These types of proximity, in turn, can be related to knowledge sharing, trust and identity. The contribution of the expanded framework for practice lies in its potential to shed light on how processes in interdisciplinary collaboration can be shaped.

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### KEYWORDS

Interdisciplinary collaboration; expansive learning; boundary crossing; inclusive education

## Introduction

As of August 2014, legislation requires Dutch schools to offer inclusive education. Within the Dutch policy framework, inclusive education implies that all students, regardless of their educational support needs, receive high-quality schooling in state-maintained mainstream schools within their neighbourhood, as opposed to special schools (Gubbels, Coppens, and De Wolf 2018). Mainstream secondary schools struggle to put this idea into practice, as teachers lack the knowledge and skills to effectively address special educational needs (De Vroey, Struyf, and Petry 2016; Norwich 2008). Collaboration between teachers, who are skilful in the delivery of content knowledge in a pedagogical responsible way, and child support workers, who are expert professionals on the prosperous development of the student, is seen as a promising way to effectuate

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the transformation from traditional practice of separating special needs students in special schools to inclusive general classroom support for all students in mainstream schools (De Vroey, Struyf, and Petry 2016; Edwards et al. 2009; Waitoller and Kozleski 2013). The aim of this paper is twofold. First, we explore how co-location of services promotes transformation of practice, drawing on data from a multiple case study in the Netherlands. Second, we use the input of practitioners for the expansion of an analytic framework (Gerdes et al. 2020). The framework, in turn, can be used to improve academic and practical knowledge about co-work in schools between professionals from different domains. The data consist of semi-structured interviews that explore the experiences of teachers and child support workers, co-working in three schools for secondary education. A template analysis was used to examine collaboration in co-location and to further develop the framework with dimensions of proximity in relation to transformation.

The transformative potential of interdisciplinary collaboration is widely accepted (Edwards et al. 2009; Engeström 2015; Virkkunen 2006; Wenger 1999). In collaboration, professionals from distinct disciplines can integrate knowledge and skills and co-create novel practices (Akkerman and Bakker 2011). For inclusive educational settings, the outcome of this collaboration would be the development of more hybrid practices, that are more adaptive to the diverse support students need to reach their full potential (Edwards et al. 2009; Engeström 2015; Terzi 2005). Interventions targeted at enhanced collaboration between educational staff and child support workers often involve *spatial* proximity of services through co-location. Traditionally, both schools and child support services construct separate support trajectories within their own disciplines and within their own offices. In terms of inter-organisational collaboration between schools and child support services, the obstacles for collaboration are partly due to the historical functions and objectives of the institutions (Engeström 2015). Staff members from the two disciplines have great difficulties constructing integrated trajectories that involve multiple systems, like home, school and child support services, and cross the institutional boundaries (Edwards et al. 2009; Engeström 2015). Spatial proximity may aid collaboration as it facilitates face-to-face interaction and exchange of information (Knoben and Oerlemans 2006). The question remains, whether spatial proximity as such provides teachers and child support workers with the ability to transform their practice.

### *Analytic framework*

Professional learning lies at the root of transformation (Engeström 2010). In this view, learning is seen as the expansion of the learners' capacity to innovate practice, rather than the acquisition of knowledge. Specifically, interdisciplinary collaboration is a fertile ground for expansive learning, as collaborators ideally engage in sharing the knowledge and perspectives that underly practice (Carlile 2004; Edwards 2009; Engeström 2015). While different lenses, perspectives or paradigms can be used to investigate co-work of professionals from different domains, we believe the Cultural Historical Activity Theory (CHAT) offers a particularly helpful perspective, because it furthers the understanding of human learning and agency across bounded systems with specific customs, language, and objectives (Engeström 2015). Following CHAT, schools and child support services can be defined as bounded activity systems, that work towards a specific, system-related objective. Each activity system has its own community, its own rules, its own tools, and its

own division of labour. As actors do not cease to be member of one community while participating in another, they bring different perspectives and meanings to each community. This produces a dynamic structure within the bounded unit (Wenger 1999).

Interdisciplinary collaboration implies that activity systems connect and work towards a shared objective. This requires boundary crossing between the professionals of both systems. In boundary crossing, expertise, skill, and perceptions travel across the borders of two systems (Akkerman and Bakker 2011). Moreover, in interdisciplinary collaboration, perspectives that are grounded in the culture and history of both domains travel across the borders (Edwards et al. 2009). The exchange leads to the expansion of professional knowledge on both sides.

The learning processes in expansive learning appear to be closely related to the social-psychological processes of trust formation and identity formation at the micro level of interdisciplinary collaboration (Eteläpelto et al. 2013). The concept of group identity formation and the concept of intergroup trust play a major part in building collaborative capacity (Ellis and Ybema 2010). Trust can be defined in varied ways. In this paper, we regard trust as a disposition that reduces complexity by forming positive expectations about future actions of other people (Gambetta 2000). These expectations are based on three factors, which will be explicated in the next paragraphs: sanction or reward, social structure, and previous experiences (Brattström and Bachmann 2018). The proposed framework connects dimensions of boundary crossing with dimensions of trust and identity formation in interdisciplinary collaboration.

The collaboration continuum describes three dimensions of co-work, being cooperation, coordination and collaboration (Himmelman 2001; Mcnamara 2012). In *cooperation*, the trajectories within practices remain separate and disconnected (Himmelman 2001; Mcnamara 2012). In practice, this means that when a student has special educational needs, the school offers an educational trajectory and an external child support service offers a support trajectory. Practitioners from distinct disciplines engage in mere transfer of knowledge; knowledge crosses the boundary between disciplines without further explanation or elaboration (Carlile 2004). This exchange occurs unplanned and incidentally. Cooperation is defined by a distinct us-them identity; professionals in the other domain are perceived to be members of an out-group, whereas professionals within the own domain are perceived to be members of the in-group (Beech and Huxham 2003). As for trust, at this level of co-work the emphasis is on being a reliable partner; keeping one's word and being punctual (Luhmann 1979). Mechanisms that assure sanction or reward like contracts can build this dimension of trust between partners (Brattström and Bachmann 2018).

Whereas the exchange of knowledge in cooperation is unplanned and incidental, in *coordination* the exchange is regulated (Mcnamara 2012). Professionals from both disciplines take part in official meetings where students at risk are discussed. This regulated interaction opens up opportunities for the alignment of trajectories. Alignment of trajectories depends on mutual understandings. Therefore, practitioners engage in boundary crossing that involves the translation of knowledge (Carlile 2004). Identity gradually shifts to alliance; professionals from the other domain may be perceived as allies, working for the same cause (Alvesson and Empson 2008; Beech and Huxham 2003; Ellis and Ybema 2010). As for trust, the prerequisite for alignment of practice is the positive evaluation of competence. This positive expectancy is based on the social position of the partner, his

level of education, his being experienced or not, and the socially understood evaluation of the profession (Luhmann 1979). Trust in competence is needed in order to make the decision to align one's action with an ally.

In *collaboration*, trajectories merge and practitioners seek to synthesise practices (Mcnamara 2012). Boundary crossing consists of knowledge integration, leading to knowledge transformation (Carlile 2004). Participants negotiate meaning across the boundaries of their distinct practices, causing the boundaries to blur (Carlile 2004; McNamara 2012). Working towards shared objectives, professionals from distinct disciplines develop a so-called we-identity, perceiving the other as member of the in-group (Alvesson and Empson 2008; Beech and Huxham 2003; Ellis and Ybema 2010). Trust in this situation moves to the more profound and personal level of trustworthiness; as objectives become intertwined and the level of interdependency increases, partners have to be trusted not to threaten each other's interests (Luhmann 1979). The factor of previous experiences comes into play as positive expectations are based on previous interaction with the trustee or the professional group (Bachmann 2001). Trust in this case relates to the expectancy that the co-workers will help each other reaching their goals, and is best defined by the term trustworthiness (Gambetta 2000).

The framework (Figure 1) shows the collaboration continuum, the dimensions of knowledge sharing, the professional identity continuum, and the dimensions of trust (Gerdes et al. 2020). The continuums are progressive, e.g. one cannot share a we-identity and an us-them identity at the same time. The dimensions are discrete, e.g. although trustworthiness is perceived to be a more profound dimension of trust, one still needs to be reliable and competent. The framework is a model that by its abstract and general nature simplifies the complexity and muddiness of the real world. For example, as dimensions of trust and dimensions of knowledge sharing cannot be placed on a continuum, the framework seems to suggest that in a cooperative stage only reliability and acts of knowledge transfer occur. Such an unambiguous connection is unlikely to be found in real-world contexts. However, for joint work to qualify as collaboration, there have to be elements of knowledge transformation, trustworthiness and higher degrees of informality and sense of shared group membership. At the same time, collaboration builds on aspects belonging to the level of coordination and cooperation.

Transformation of practice is most likely to occur in a collaborative setting. By combining different perspectives and expertise in a creative manner, collaborators develop novel ways to solve complex problems and present-day challenges (Engeström 2015). In an exchange between different contexts, new meaning, new perspectives and new patterns of activity emerge (Engeström 2010; Paavola, Lipponen, and Hakkarainen 2004). The

co-work	knowledge sharing	identity	trust
<b>collaboration</b>	transformation	we	trustworthiness
<b>coordination</b>	translation	ally	competence
<b>cooperation</b>	transfer	us-them	reliability

**Figure 1.** Analytic framework for analysing collaboration.

capacity to form beneficial relationships at the micro level, coined by Edwards as relational agency, is seen a prerequisite for boundary crossing at the level of transformation (Edwards 2007, 2009; Edwards et al. 2017). In the Dutch context, organisations seek to enhance co-work by co-location of services. In practice, this results in child support workers working in the school building. The primary focus of this co-location is enhancement of coordinated action. Arguably, it is easier for professionals to have meetings and consultations when working within the same building. However, whether or not this is effective in terms of collaboration and transformation is still unclear (Paloniemi and Goller 2017). The present study seeks to shed light on the relation between proximity and transformation in co-located settings.

## Method

### *Research context*

The data for this study are drawn from a multiple case study concerning collaboration between schools and child support services in Dutch mainstream secondary education. Three schools for secondary education participated in this study. The schools were part of a regional consortium that seeks to develop knowledge on effective student support in inclusive education by connecting research and practice. The selection of these particular schools within the consortium was based on similarities in the school context and differences in terms of interdisciplinary collaboration. The schools are all public comprehensive schools for mainstream secondary education (age 12 – 16). For this study, the departments preparing students for vocational education were selected. On a national level, these departments have the highest rate of special needs students (Koopman et al. 2015). Each school has a support team, consisting of a school psychologist, and internal and external child support workers. At school A, a professional employed by the local authorities visits the school once a week and acts as a liaison between the school and external child support services at school A. School B and school C recently started a partnership with a local agency for child support. Child support staff members have the school as their home base for four days a week.

### *Data collection*

Data were collected by means of individual semi-structured interviews with members of the support team and focus group interviews with form teachers. The distinction between individual interviews and focus group interviews was made because the support team members were expected to possess sufficient explicit knowledge on the topic, as they perform their job in a setting primarily focused on co-work with education. The teachers, on the other hand, primarily focused on teaching, we expected to benefit from group discussion to elicit their perceptions. At school A, though, one teacher volunteered, resulting in an individual interview.

The individual interviews were conducted by the first author. The focus group interviews were conducted by the first author and a senior researcher. Standardised opening questions were used to explore three broad themes, based on the analytic framework. The first section of the interview taps into participants' personal views on the importance of

collaboration, personal experiences and factors they consider salient to good collaboration. The second section focusses on dimensions of co-work and boundary crossing. The third section focusses on professional identity and trust. The individual interview protocol was tested with the aid of three support team members of non-participating schools and refined afterwards. In the original protocol, participants were asked to describe their actual practice of co-work. The question proved to be difficult to answer and to yield one-dimensional responses. In order to induce more rich and detailed responses, photo-prompts were added to the protocol.

### Participants

In total, 41 participants were interviewed. Table 1 shows the distribution of participants over interviews and focus group interviews.

### Procedure

Contact persons at the schools provided names and email addresses of all support team members. The respondents were invited by email, and all agreed to take part. The interviews took place at the schools. The interviews were recorded using an audio recorder and transcribed. For the focus group, the contact person made a selection of teachers, based on having sufficient experience and being available. The focus group interview was video taped and transcribed. A member check was conducted after transcription. The study and all of its procedures were approved by the ethical commission board of the first author's faculty.

### Data analysis

After completion of the data collection, the interview data were analysed using Template Analysis (TA). The Template Analysis allows for applying pre-existing knowledge or theory to the data set alongside codes that are generated from the data (Brooks et al. 2015; King 2012). TA allows for the use of both interpretive and descriptive codes. The initial categories can be multilevelled and interrelated. TA is therefore a holistic approach that acknowledges the contextual complexity of the phenomenon under investigation (King 2012), and is therefore useful in case study research. Coding was initially done by pen and paper, and transferred to MS Word. The limited number of interviews allowed for the use of MS Word, which had the advantage that hand coding provides the opportunity to develop a system for making sense of the data during the process rather than using

**Table 1.** Number of support team members and teachers in interviews and focus group interviews.

	Interview	Focus group interview
School A Support Team Members	7	
School A Teachers	1	
School B Support Team Members	8	
School B Teachers		8
School C Support Team Members	10	
School C Teachers	1	6

a built-in structure offered by qualitative data analysis software (Tracy 2019). A codebook was developed during the process. The meaning of the labels and the coding itself was discussed within the research team. The first wave of coding was done by the first author, who is not only a researcher but also a teacher at one of the participating schools. This provided the opportunity to understand and interpret the data with an insider perspective. Yet, it also opened the possibility of bias. In order to ensure that coding was rooted in the data rather than being the result of individual bias, codes and themes were discussed within the research team, and with fellow researchers outside the team. A within-case analysis was conducted to gain in-depth understanding of the level of co-work in each school. In an ongoing within-case analysis the complete set was treated as an integral case, the framework was refined and extended. The focus group data were analysed at three levels. First, the individual contribution of each participant was codes. Second, the degree of group agreement was taken into account, and third, the quality of group interaction was used to assess the feel of the contribution (Liamputtong 2011). For example: a teacher indicated that in a specific case, collaboration went surprisingly smooth. The group shared his surprise and participants exchanged sarcastic comments on the quality of collaboration, indicating a strong sense of discontent. A cross-case analysis was conducted to detect difference and similarities between cases. The preliminary template consisted of the initial framework, the broad themes being dimensions of co-work, knowledge exchange, trust, identity and formality as discussed in the introduction. Adopting King's (2012) guidelines, the first step was to code six full interviews. In order to gain in-depth understanding of the contextual aspects defining a theme, interviews from one case were selected. Subsequently, the interviews were analysed case by case. In each case, the interviews with relative outsiders like school-based external child support workers were analysed first. These interviews were expected to contain more explicit descriptions that could serve as a lens for the interpretation of the more tacit insider information. For each case, the teacher interviews were analysed last, and the overall level of co-work arising from the support team members data was compared by the overall level of co-work described by the teachers. Throughout the process, the broad themes were refined with codes derived from the data. As each school has its specific features, new codes were added throughout the process and saturation was reached after analysing 25 support team interviews: no new codes emerged and no expanding of existing codes occurred.

## Findings

The findings section consists of two parts. In the first part, we present the extension of the framework. In the second part, we discuss the multiple cases. For each case, we first provide a general description. Second, we explore the quality of co-work in terms of cooperation, coordination and collaboration. Third, we explore for each case in what way proximity enables professionals with the agency to cross boundaries and achieve objectives. Fourth, we provide a cross-case analysis.

### *Improvement of the framework: dimensions of proximity, availability and agency*

For the expansion of the framework, we examined how dimensions of proximity enabled different types of knowledge sharing in general, and how this translated into the agency of individuals. For proximity, we identified three dimensions in the data. The first type is spatial proximity, the physical closeness of people. The second type is organisational



co-work	knowledge sharing	proximity	availability	agency	identity	trust
collaboration	transformation	personal	<i>connectivity</i>	relational	we	trustworthiness
coordination	translation	organizational	<i>accessibility</i>	professional	ally	competence
cooperation	transfer	spatial	<i>reachability</i>	operational	us -them	reliability

**Figure 2.** Extended framework for interdisciplinary collaboration.

proximity, the closeness of the organisations in terms of core business and objectives. For example, child support services are concerned with the development of young people and are therefore more proximal to schools than to hospitals. The third type is personal proximity, the emotional closeness experienced by individual people.

Spatial proximity translates into reachability and is related to the basic operational agency of making a (technical) connection and transfer of knowledge. Organisational proximity translates into accessibility of knowledge; the foreign knowledge is close enough to the own knowledge base to be understood. This is related to the professional agency of staff members to engage in negotiations, alignment, and translation of knowledge. Personal proximity enables professionals to connect and translates into connectivity. When talking about connectivity, respondents mention informal interaction, giving or receiving help, being open and vulnerable, and risk taking by trying out new things. This can be related to the relational agency to engage in shared meaning making and transformation of knowledge. **Figure 2** shows the extended framework. Again, the dimensions of co-work and identity are mutually exclusive, the other constructs are progressive.

## **School A**

### **General description of school A**

The school is situated in a medium-sized city and has approximately 700 students. The school-based support team consists of three school coaches, a school psychologist, and two coordinators. A partly school-based professional employed by the local authorities visits the school once a week and acts as a liaison between the school and external child support services. General student support at group level is the responsibility of a form teacher. When individual educational needs require more attention, the form teacher discusses the student with the coordinators to decide whether actions should be taken at class room level or actions by the support team should be considered. In the latter case, the student is discussed by the support team and the form teacher.

### **Quality of co-work in school A**

The co-work between teachers and child support staff in school A can be defined as cooperation and coordination. The exchange of knowledge is limited to transfer of knowledge. The support team is expressing an us–them identity when discussing perceptions of the teachers. As for trust, the support team members are well aware of the fact that trust is to be obtained by them. Being effective and being of value is seen as a way to gain the trust of the teaching staff. This dimension of trust is a feature of coordination.

### *Proximity, availability and agency in school A*

As there is no spatial proximity of school and external services, the reported level of reachability is low. The main issues discussed by the respondents concern a lack of transfer between the school and external services. Respondents express how this limits their operational agency to act when a student needs specialised support, but it is also limiting their professional agency when they struggle to offer a student the support that is needed. As for the interaction between the support team and the teachers, the support team appears to be technically within reach. Yet, the interaction is limited to transfer. In the following excerpt, the partly school-based child supporter explains how limited contact is restricting her access to the contextual information.

*'I visit the school only once a week, so I certainly do not get all the information. That's why we asked for evaluations. Are things going as we planned, or not? Because I think, yes, we give all this advice, but we have no idea what they (the teachers) do with it'. (Child support worker)*

Limited reachability of the teachers leads to limited accessibility of knowledge on what happens in class, restricting this child support worker's professional agency. Features of organisational structure play an important part in the provision of access. In the following excerpt, the school psychologist describes her struggle to grasp the organisational structure.

*'To me, the care structure was really unclear. It took me a long time to grasp it, and I still do not completely understand it. (...) In fact, nobody does'. (School psychologist)*

Support team members report that the transfer and translation of knowledge between the school and external child support services is equally insufficient. In the following excerpt, a school coach expresses the need for intensified contact.

*'Getting them inside the school. Getting them to talk to each other, educational people and child support people. Like they say: engage in dialogue. Explain to each other: what does a process mean to you, what is the desired outcome. Why is it important? How can we work in interdependency?' (School coach)*

The intensified contact the school coach is advocating, can be linked to the level of reachability and operational agency (getting them inside the school), the level of access and professional agency (explanation), and the level of connectivity and relational agency (discussing objectives in interdependency).

## **School B**

### *General description of school B*

The school is situated in medium-sized town and has about 1,500 students. The school-based support team consists of two external child support workers located at the school, a school psychologist, a school coach, a coach for students with autistic spectrum disorder and a care coordinator. General student support at group level is the responsibility of form teachers. When individual educational needs require more attention, teachers discuss possible the possible interventions amongst each other and implement the one deemed best. When interventions turn out to be ineffective, the student is redirected to the support team. The support team decides whether to provide new suggestions to the teachers, to offer in-house support themselves, or to refer the student to specialist support outside the school.

### Quality of co-work in school B

The co-work between education and child support in school B can be defined as cooperation. In each department, a student coordinator regulates communication between teachers and support team. Direct interaction between members of the support team and teachers is limited. Although staff members acknowledge the fact that both professional groups should be allies, no incidences of translation of knowledge were mentioned. External child support services are perceived to be outsiders, that are not fully trusted.

### Proximity, availability and agency in school B

Reachability within the school, so between support team and teachers within the school, is regulated through procedures. Reachability is therefore limited to rather formal interaction and this regulation is a barrier for operational agency. As a student coordinator remarks, the regulations are time-consuming and restricted to the effective transfer of information.

*'All these regulations produce sluggish processes. You have to fill in a lot of forms before you get anywhere'. (Student coordinator)*

As reachability between teachers and child support staff is limited, the accessibility of knowledge and information is restricted as well. The regulations limit the agency of professionals to access knowledge and to engage in the act of translation. In the following excerpt, a form teacher talks about the lack of interaction between teachers and the support team.

*'You hardly get any feedback. (...) We receive a notice that they are working on it. But after that, you hear nothing at all. We came together just once and afterwards, we did not receive any information on what's happening. What's wrong with the child?' (Teacher)*

As for external agencies, the same regulation can be observed. The rather complicated system of neighbourhood teams does not seem to enhance the professional agency of staff members working within the system. In the following excerpt, the care coordinator expresses his difficulties in organising specialised support for a student.

*'It could be about money. But then, be transparent about it. Do not say, this case is not the responsibility of the Public Health Services, when it obviously is. Depression, suicide, how can that not be?' (Care coordinator)*

The overall picture of the co-work in this case is not favourable to building durable connections and executing relational agency.

## School C

### General description of school C

The school is situated in a rural municipality and has about 1,000 students. The school-based support team consists of three school coaches, five school-based child support workers, a school psychologist, and a coordinator. One of the school-based child support workers is assigned to the vocational training department. The other support team members serve all levels. General student support at group level is the responsibility of a form teacher. When a student's educational needs require more attention, the student is referred to the school coaches. School coaches take care of support needs that are solely related to learning. For instance, students who struggle with planning

their homework. The next support level consists of three school-based child support workers from external agencies. These support team members address psychosocial support needs that are related to the school context. For instance, behavioural problems or test anxiety. When support needs extend beyond the educational setting or the competence of the support team, members of the team scale up to external agencies. This happens, for instance, when a student suffers from neglect or attachment disorder.

### *Quality of co-work in school C*

The co-work between teachers and child support in school C can be defined as collaboration. The composition of the support team enables interaction and knowledge sharing between support team members and teachers: the team has sufficient members and offers diverse expertise. Teachers and support team members engage in transformation of knowledge through team teaching and dialogue. Both professional groups perceive members of the other group as allies or in group members. Staff members express a strong sense of belonging to the school, and also a sense of belonging to the community. External child support services are trusted and treated as allies.

### *Proximity, availability and agency in school C*

The support team is within reach of teachers, management and external agencies. The reachability in this case adds to the operational agency of staff members, as it enables them to pro-actively transfer knowledge and information. The processes, as a consequence, are perceived to be fairly smooth and efficient. Accessibility of knowledge between staff members is guaranteed by the team composition. As the steps for scaling up and down are neatly aligned by assigning diverse expertise to the support team, each expert can act as a translator of knowledge to the next stage. For example, school coaches translate knowledge from the external child support workers to the teachers. The accessibility of knowledge adds to the professional agency of staff members as they can move around in a structure that is well known and well understood. Staff members are enabled to seek or provide support that matches their competence and the student's needs.

*'The structure is very clear. I can easily contact the school coach. She asks me a lot of questions, as well. I think that's helpful. And beneficial for the students'. (Teacher)*

Connectivity is actively sought in informal interaction, attention, and shared experience. In the following excerpt, a school-based external child support worker explains how he tries to establish informal relationships with teachers.

*'Being visible, accessible, trustworthy. Being one of them, in fact. That is, that is very important. Keeping close connections with staff members. Go for a cup of tea every now and then. You can discuss students without making an official meeting out of it. More like: hey, let's put our heads together'. (Child support worker)*

In building close connections, relational agency is developed – staff members know how to connect with others within the community when seeking to improve practice or when dealing with problems. In the following excerpt, a teacher describes how he feels about the interaction between teachers and support team members.

*'We just know each other very well. We look out for each other. We do our best to understand what they mean. You can feel it. We are fully committed, and they are fully committed'. (Teacher)*

Staff members offer help, ask for help and know where to get help. This openness towards others is also a sign of relational agency.

### *Cross-case analysis*

In school A, the attempt to improve proximity of services consists of a part-time child support worker, acting as a middle person between the school and external services. In school B, two external child support workers have the school as their home base. In school C, four child support workers have the school as their home base.

As for spatial proximity, school A and school C differ the most. Accordingly, the predominant exchange in school A is transfer, whereas staff members in school C cover the whole continuum from transfer to transformation. In school A, a distinct us-them identity was found, whereas the identity that defines school C is alliance and group membership. As for trust, utterances of school A respondents reveal a lack of trust on the level of competence, whereas utterances of school C respondents stress the importance of trustworthiness. As for relational agency, school A respondents seem to work in isolation, whereas school C respondents actively seek connection and create the opportunities to give and receive support. As to be expected, the interaction in school C leads to small transformations of practice and perspective.

The comparison of cases A and C reveals that spatial proximity indeed helps to enhance the operational agency of staff members. However, when we compare case B and C, it becomes apparent that spatial proximity is just a prerequisite and not a guarantee for transformation. The most striking difference is found in identity and trust formation. In school C this is fostered by adequate staffing, sufficient time for interaction, and professional autonomy. In addition, the staff members from different branches feel connected by being members of an overarching institution. In school B, despite spatial proximity, the branches remain disconnected.

### *Conclusion and discussion*

The main question for this study was how and under what circumstances proximity promotes transformation of knowledge and practice of co-workers from different disciplines. Co-location of services is seen as a promising way to enhance co-work, but it is not clear how co-location can spark collaboration and transformation in inclusive educational settings (Paloniemi and Goller 2017). The results indicate that proximity can be divided in three different types, being spatial proximity, organisational proximity and personal proximity. Spatial proximity translates into reachability, which can be associated with operational agency in transfer and reliability between distinct groups at the cooperation level. Organisational proximity translates in accessibility, which can be associated with professional agency in translation of knowledge between competent allies at the coordination level. Personal proximity translates in connectivity, which can be associated with relational agency in transformation of knowledge between trustworthy ingroup members at the collaboration level.

For the transformation of knowledge and practice, co-workers need to execute relational agency; the capacity to recognise, examine, and work with the resources of others (Edwards 2009). From this point of view, spatial proximity and organisational proximity may be fundamental to the formation of relational agency. Reachability, linked to

operational agency, and accessibility, linked to professional agency, are needed for the recognition and the examination of resources that precede the integration of resources. Operational agency and professional agency being, therefore, indispensable stepping stones in the formation of relational agency. Furthermore, school C shows that identity and trust formation are not just a by-product of interaction, but also an aid for the formation of relational agency, and the transfer, translation and transformation of knowledge.

From a practical point of view, one can conclude that, when seeking to improve interdisciplinary collaboration, one has to look beyond mere spatial proximity and operational agency through reachability. It is crucial to examine whether knowledge is sufficiently accessible and whether the system supports the connectivity of actors.

For future research, a longitudinal design on more cases could provide further insight in how collaboration develops. The transformations observed in school C are still modest. Building collaborative relationships inevitably takes time and effort. To shed light on this process, further research is needed. A limitation of the present study is that it is limited to three settings. Another limitation concerns the design of the study, which did not address the issue of power relations in interdisciplinary collaboration that arise from underlying differences in culture. The study, for instance, does not address how identity and trust formation are grounded in organisational culture. This would be a valuable angle to explore in future research. Furthermore, it would be advisable and in line with CHAT to use the theoretical findings of this study in participatory research, were practitioners are actively involved in intervention design, research design, implementation and analysis (Sannino, Engeström, and Lemos 2016).

Finally, the comparison between cases may seem to be a bit unfair, as school C is located in a village, whilst school A and school B are located in larger towns. Arguably, lines of communication are more easily handled in a smaller municipality. Yet, it would be interesting to consider how and to what extent the essential features of the school C case can be translated to larger organisations or communities. The old, and rather overused, proverb states that it takes a village to raise a child. In analogy, it may take a village-like structure for teachers and child support workers to reach each other, to access knowledge, and to connect. In other words, it may take a village-like proximity to provide professionals with the relational agency to transform traditional mainstream practice into a more adaptive, inclusive practice.

## Disclosure statement

No potential conflict of interest to be reported.

The data that support the findings of this study are available on request from the corresponding author, Jantien Gerdes. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

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