

School improvement and teachers' collaborative professional development for inclusive education: A Swedish case

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Abstract

Few longitudinal, mixed methods studies focusing on teachers' views of inclusive teaching have been conducted in primary schools. This article draws attention to a Swedish in-service (K-5) school improvement research project, aiming to contribute to a school's development toward improved inclusive education, where teachers' experiences were analysed, using mixed methods, at the beginning and at the end of the project. Data consisted of items extracted from the TALIS 2013 survey questionnaire and semi-structured interviews. The observed change between the first- and second-year surveys and interviews emphasised a connection between teachers' confidence, self-efficiency, collaborative professional development, and successful school development. What signified the development of inclusive education was moving away from categorising the needs of individuals with learning disabilities towards focusing on active teaching, mutual engagement, and content knowledge for all students.

Keywords: School improvement, collaborative professional development, inclusive education, communities of practice.

Introduction

Previous school development research shows a connection between collaborative professional development (CPD) and successful school improvement (Hattie, 2009; Lewis, 2002; SOU, 2018). For example, Hiebert and Morris (2012) highlighted the need for improving teaching by working directly on using teaching methods that can be shared among teachers and passed along to support continuous and lasting improvement (Lewis & Hurd, 2011).

Holmqvist and Lelinge's (2020) literature review of CPD for inclusive education identified a surprisingly low number of studies—21 between 1993 and 2019—that highlight the relation between CPD and inclusive education. Confirming this result, Waitoller and Artiel's (2013) literature review of 1,115 reviewed articles between 2000 and 2009 found only 12 articles dealing with CPD for inclusive education.

The scarcity of research on CPD for inclusive education can be compared with the Teaching and Learning International Survey (TALIS) of 2013, conducted within the Organisation for Economic Co-operation and Development (OECD) (OECD, 2014, 2019), based on which Opfer (2016) concluded that there is a strong connection between teachers' confidence and CPD. The TALIS surveys of 2013 and 2018 show a substantial increase in teachers' participation in competence development and exchanging teaching materials with colleagues (SNAE, 2020). Primary school teachers in Sweden who received feedback increased sharply (from 67 % to 86 %), and 64 % indicated that the feedback they received positively impacted on their teaching and their understanding of students' needs, both individually and as a group (SNAE, 2020). However, the Swedish figures reveal lower proportions than the OECD countries on average, and in comparison with other countries, Swedish teachers are also less likely to participate in more profound forms of professional collaboration. Furthermore, TALIS 2018 indicated a lack of Swedish schooling competence to teach students who need special additional support (OECD, 2019).

From a Swedish perspective, the Swedish National Agency for Education (SNAE) identified the need for a support system where teachers' autonomy could be developed in a collaborative environment (SNAE, 2019), something that Skaalvik and Skaalvik (2014) also distinguished as necessary for teachers' self-efficacy. Exercising autonomy can, for example, encompass confidence in planning adequate activities and having content that leads to all students understanding and achieving their goals, regardless of the special educational needs (Florian, 2014; Ying et al., 2012).

According to Stigler and Hiebart (1999), Swedish school development is mainly about two strategies: a) strategies that are linked to national reforms and their implementation, and b) strategies that advocate a teacher-oriented, continuous development work where the renewal work is taken in small steps by involving teachers and building on the profession's experiential knowledge (SOU, 2018). The first strategy presupposes acceptance for reforms by the profession and often requires extensive supervision, while in the second strategy, the main driving force in the improvement of the school is trust in the teaching and development work done by the teaching profession (ibid). "The content of professional development", say Darling-Hammond and Richardson (2009, p. 46), "can make the difference between enhancing teachers' competence and simply providing a forum for teachers to talk". When the effort towards professional development is a coherent part of the entire school development work, it becomes much more effective than when it only takes place as isolated efforts. Furthermore, when research supports the teachers, gives them opportunity for collaboration and collegiality and deepens their knowledge of subject content for all students, the improvements can be sustainable (Darling-Hammond & Richardson, 2009).

This article presents the results of a Swedish in-service (K-5 level) school improvement research project, focusing on increased opportunities for CPD and teaching for inclusive education. By linking the research questions directly to the teachers' identified needs for development and using a research method that involves the teachers, the improvements become a key in the research method (SOU, 2018). The focus of the article is on the second strategy referred to above, where teachers' collaborative development for inclusive teaching, or, more explicitly, the availability of the teaching content, is in the foreground. This means that practice-based professional school improvement is about developing teaching-learning as part of teaching (Ball & Cohen, 1999).

Aim and research questions

Based on observed changes in teachers' attitudes and experiences during a school improvement research project, the article aims to contribute knowledge regarding the prerequisites for a school to move towards improved inclusive education. The research questions (RQ) addressed were as follows:

RQ1. What attitudes and experiences of collaborative professional development for inclusive education were found (a) at the beginning and (b) at the end of the project?

RQ2. In what ways has the project contributed to changes in teachers' attitudes and experiences of collaborative professional development for inclusive education?

Collaborative professional development and establishing inclusive education

Professional development and learning are shaped in the classroom and are strongly influenced by the prevailing school culture and the community and society where the school is situated (Lave & Wenger, 1991; Timperley, 2008). Several researchers emphasise that teachers must identify their own continuing educational needs for successful school improvement (Bergmark, 2020; Carlgren, 2005, 2020; SOU, 2018) and structure professional dialogue to include entire subject groups led by teachers and supported by researchers (Ainscow, 2005). Drawing his findings from the TALIS instrument, Schleicher (2015) concluded that schools providing their staff with opportunities to participate actively in school decisions and supporting professional development are also more likely to express satisfaction with the terms of their employment contract (cf. Liljenberg & Blossing, 2020).

Stiegler and Hiebert's (1999) research confirmed that teachers' collaboration is essential for students' content knowledge development. Furthermore, teaching based research emphasises cyclical processes in professional development as being necessary for teaching-related research (Langley et al., 2009; Lewis, 2015). Timperley (2011) claimed that teachers need to influence professional knowledge research projects by participating and contributing their experiences to improve teaching or dealing with other problems to address professional needs adequately. Such a process focuses on their personal and relational needs and establishes methods for teachers to communicate their understanding of the curriculum, students' results, and work in teacher groups (Liljenberg & Blossing, 2020).

According to Norwich (1993), inclusive education can be understood in different ways, depending on different contexts and cultures where dilemmas can be associated with identification, common curricula, and integration (Black-Hawkins & Florian, 2012; Florian, 2014). Similarly, Holmqvist and Lelinge's (2020) literature review captured different aspects of the concept of inclusive education. Four categories were identified for the definition of inclusion, among which 'classroom inclusion' was the most prominent. Regardless of disability, it describes inclusive education as a right for all students to learn in the same classroom. This category implies that teachers' own developmental needs affect the inclusive work in the regular classroom from a broad perspective, where the teachers' improved quality of teaching affects all students' development. According to Holmqvist and Lelinge (2020) and their different definitions of inclusion, the collaboration models for inclusion also vary and provide space for different methodological alternatives. This can, for example, lead to professionals finding it difficult to attain a common basis for decisions regarding the most successful inclusive education methodology for students in general, and for students in need

of special support or additional adjustments in particular (Hornby, 2015). It is reasonable to assume that more profound knowledge of inclusion leads to more adapted and developed teaching. When students and teachers work collaboratively on the same topic, inclusive education can be strengthened (Ainscow, 1995; Kruse & Dederling, 2018). Moreover, each student also has the "possibility to work according to his/her capabilities and [get] the help he/she needs to outperform the individual potential" (Kruse & Dederling, 2018, p. 30). Similarly, Hattie and Timperley's (2007) argue that *feedback* given by the teacher or peer has a powerful impact on the object of learning when there is a learning context to which the feedback is directed. Collaboration between teachers plays an important role in the implementation of innovative pedagogies (Ghedini & Aquario, 2020), e.g., in the form of working in small groups and with different classroom models. Such forms of collaboration also lead to higher job satisfaction (Liljegren & Blossing, 2020; OECD, 2019), positive attitudes and strengthened teacher retention (Opoku et al., 2021).

Theoretical framework

The theoretical framework for this study finds its basis in the concept of 'community of practice' (Wenger, 2006; Bergmark, 2020), seen as the context within which teachers can improve their knowledge for students' learning. According to this understanding, professional development and sustainable learning occur in a social context, a context within the school and involving teachers planning the teaching content in collaboration. Lave and Wenger (1991) defines a community of practice as participation in an activity system where the participants share their knowledge. Wenger (1998, 2018) states that learning and knowing always involves social processes where experiences of meaning and understanding are created (cf. Bergmark, 2020). Learning within communities of practice is based on participation, a mutual engagement in what the situation entails, and sharing information and knowledge within the community (Lave & Wenger, 1991; Wenger, 1998). In other words, learning forms part of ongoing social practices and is developed by its participants in the particular context, where development creates meaning (Lave & Wenger, 1991).

Wenger (1998) claims that the cohesion of communities of practice can be measured based on three dimensions: mutual engagement, joint activities, and shared repertoire. This theory is based on the assumption that learning is a social process and that knowledge takes place in a community of practice in the form of absorbing and sharing (exchanging) information and knowledge. Thus, the community of practice perspective is about professional development in an educational context (Wenger, 2006). Wenger et al. (2002) summarise that "CoP [communities of practice] are groups of people who share a concern, a

set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (p. 4). Working from this perspective means creating both short-term and long-term values, such as when a teaching team can help each other with immediate problems and therefore spend less time chasing information and solutions themselves: “members develop professionally” and “accumulate their experience in a knowledge base” (Wenger et al., 2002, p. 19). Therefore, it is possible to see the student’s learning as situated in a (social) community where they can exercise influence (Östlund, 2017), and it is essential to emphasize that ‘community of practice’ alludes to developing different knowledge and skills associated with relationships and identity (Lave & Wenger, 1991). Learning in communities of practice is based on participation and a mutual understanding of what the current situation entails. From this point of view, all classrooms can be characterised as communities of practice that are shaped and given meaning by collaboration and mutual commitment between teachers and students.

Research methodology

School context and overall project design

At the beginning of the project, conversations were held with the principal of the school, who had initiated the school improvement research project to provide an overall research basis for the teaching practice. These conversations helped to identify important aspects of the school’s challenges and needs for improvement. The principal identified several areas of improvement for the school, such as developing a professional approach to both students and parents, understanding the syllabus learning objectives, creating a team spirit, and increasing teachers’ confidence in the dual mission of the school: to create a democratic spirit and make the teaching content available to all students.

The principal painted a despairing picture of a staff group that was constantly changing, where many chose to quit, in some cases before they had even commenced with their contracts:

It is not just about recruiting them; it is also about keeping them. And as it is today, I cannot do that. They disappear faster than I have time to recruit new ones [...] and we don’t have a common goal that we all pursue against (conversation with the principal, 2017).

When this school improvement research project began, the school had a multi-ethnic student body of 433 students, 93 % of whom had parents born in another country than Sweden.

The project involved four steps:

1. Identifying several themes for interventions (autumn 2017, when the first round of interviews was also carried out),

2. Starting improvement science (Plan-Do-Study-Act [PDSA] cycles) teachers' groups based on three of these themes (January 2018, at the time of the first survey),
3. Conducting lesson studies and learning studies based on different objects of learning (Autumn 2018-Spring 2019; Lelinge & Svensson, 2020),
4. Concluding the project (Spring 2019, when the second round of interviews and the second survey were carried out).

Research design

The research data consisted of both qualitative (semi-structured interview transcripts) and quantitative (survey) materials. A mixed-methods approach (Creswell & Creswell, 2018; Johnson, Onwuegbuzie & Turner, 2007) was adopted to analyse changes in teachers' attitudes and experiences regarding inclusive education at the beginning and the end of the project. A concurrent triangulation design is appropriate when one of the forms is of insufficient standing by itself and needs to bring together the strengths of dual approaches to answer the RQs (Cara, 2017). According to Cara (2017), 'When you need one type of data to support the other type of data, you can use an embedded mixed methods research design' (p. 206) and 'The data is collected separately and then is often mixed later during data analysis' (p. 207).

The units of analysis for RQ1 contained semi-structured interviews (four at the beginning of the project and four follow-up interviews with the same persons one year later) and a survey at the beginning of the project (answered by 45 persons) and a year later (38 persons). RQ2 compared the results of these questionnaires and rounds of interviews. For the questionnaire, TALIS version 2013, used by the SNAE in Swedish schools in 2013, was adapted on both occasions. The survey data were structured according to the questionnaire themes that most clearly related to collaborative professional development for inclusive education. Following Cara (2017), our qualitative data (semi-structured interviews) were collected separately and incorporated later to complement the survey data with participants' voices.

Participants

During the first period (2017), 19 participants were interviewed: 15 teachers, 2 principals within the school, and 2 from the central municipal school administration. The second period (2019) involved six participants. Initially, we intended to include more participants in the follow-up interviews, but because several had left the school it was decided to interview only those remaining from the first period. Only the participants interviewed during both periods, four in total, constitute data in this article as represented in Table 1.

Table 1. Participating teachers at both interviews.

Participants	School level	Gender	Teacher's degree	Work experience in years (current school)
Teacher 1 (T1)	K-5	Female	Yes, and certified special needs teacher	15 (2)
Teacher 2 (T2)	K-2	Female	Yes	2 (2)
Teacher 3 (T3)	K-3	Male	No	2 (2)
Teacher 4 (T4)	K-2	Female	No	2 (2)

Notes: The suffix “1” after the teachers’ coding (e.g., T1, 1) denotes excerpts from the first round of interviews and “2” from the second round of interviews.

The semi-structured interviews lasted between 18 and 30 minutes. The point of departure for the interviews, on both occasions, was the school’s current situation, where the informants discussed the work environment, the school’s need for improvement, and overall views and experiences regarding the school improvement research project.

As stated above, the respondents of the two surveys consisted of 45 (2018) and 38 (2019) persons, respectively. Exact data for employed teaching staff for the years 2018 and 2019, were unavailable, but a comparable figure from March 2020 confirmed 43 teaching staff employed at the school. When compared with our response figures of 45 and 38 for the previous two years, this indicates an excellent response turnout.

It should be noted that when we refer to ‘teachers’ in relation to these questionnaires (as well as in the interviews), we are using the term broadly to cover teaching staff in a wide sense, that is, not just persons with a formal teaching qualification. In our presentation, ‘teachers’ may also refer to other categories such as special needs teachers and leisure-time teachers, that is, so-called paraprofessional staff.

Since a significant employee turnover had occurred in the previous year, it is not possible to determine the extent to which the same persons answered both questionnaires. Instead, these two surveys provided us with ‘snapshots’ of the situation in a school undergoing a change process and facing problems with the retention of teaching staff as indicated in Table 2.

Table 2. Survey respondents.

Respondents	First survey	Second survey
	45	38
Age (mean)	39.3	34.6
Women / men	57 % / 43 %	39 % / 61 %
Years in present employment (mean)	4.3 years	2.4 years
Years as teacher (mean)	7.5 years	7.0 years
Having a teacher's degree	49 %	47 %

In Swedish primary schools, two out of three teachers are women (SNAE, 2019), a proportion that has remained constant since 2013. In grades K-6, the proportion of women is even higher at 82 %. Our survey showed that between 2018 and 2019, the proportion of women in this school decreased sharply from 57 % to 39 %, with men comprising the majority of the school's teaching staff. The average teacher's age also decreased from 39.3 years in the first year to 34.6 years in the second year. According to TALIS 2018, the average age of teachers in Sweden is 45 years in grades K-6 (the same as in 2013). The school in our study has a relatively inexperienced group of teachers, and according to the questionnaires their years as teachers dropped from 7.5 years to 7.0 years during the time of the project. In the same vein, the number of years in their current form of employment dropped even more: from 4.3 years to 2.4 years. Less than half of the teaching staff responding to our questionnaires were certified teachers.

Procedure

In the first phase of coding the qualitative data, the participants' statements were transcribed. In the second phase, the researchers coded the raw data based on the themes identified in the questionnaire study, first separately and then together, marking similarities and differences and discussing the meaning and possible use of the statement for supplementing and clarifying results from the questionnaires. In the third phase, data analysis began to reach saturation and, accordingly, the researchers distanced themselves from the data for a period. All these steps were done in parallel (cf. Cara, 2017) with the survey coding, where the researchers continually compared their notes and the coding of the participants' excerpts. This contributed to the validation of coding and the relevance of the identified themes.

The data outcomes were discussed with colleagues in the same research field. The process helped explore our interpretations of the results and increased reliability, aligning with the ethical guidelines of openness and transferability of our process and results. This

approach is also in line with Ekvall Hansson and Malmgren Fänges' (2014) thoughts behind the model on inter-assessor reliability and compliance to increase the reliability. The Swedish version of the TALIS 2013 teachers' questionnaire contained, in all, 266 variables. For this article, we selected 38 variables, focusing mainly on qualities in the school environment, teachers' professional development, skills and resources for teaching, and CPD for inclusive education from a broad perspective. In Table 3, the questionnaire's thematic structure and basic results are presented. IBM SPSS Statistics version 27 was used to analyse and draw comparative conclusions from the surveys.

Ethical Procedures

The researchers provided information about the school improvement research project to all participants and obtained their informed, signed consent (Swedish Research Council, 2017). Participating teachers signed a consent form that clearly expressed the goals of the research. The Swedish Research Council's guidelines for Good Research Practice (2017) emphasise the researchers' obligation to follow these guidelines. The informed teachers had the right to withdraw before completing the process without the need for clarification. The entire process met the requirements of the General Data Protection Requirements (GDPR).

Participants were assured anonymity and that video and audio recording would only be used for developmental and analytical purposes with and between teachers and researchers. The interviewees were also allowed to read the transcripts and consent before their publication in this article. The researchers were responsible for the validity and reliability of the project and its careful attention to the transparency of the research.

Results

The results of this study are addressed according to the research questions:

RQ1. Attitudes and experiences of collaborative professional development for inclusive education found (a) at the beginning and (b) at the end of the project.

RQ2. The project's contribution to changes in teachers' attitudes and experiences of collaborative professional development for inclusive education.

Table 3 outlines the questionnaire responses relating to the first RQ. These responses are categorised into eight themes, following the TALIS 2013 questionnaire. Subsequently, the results are discussed in two different sections, accompanied by clarifying quotes from the interviews. Following these sections, a third section draws conclusions according to the second RQ.

Table 3. A comparison between the first and second survey. (Items from TALIS 2013 questionnaire (OECD, 2013)).

Respondents	First survey 45	Second survey 38
<i>Theme 1: School Climate and Job Satisfaction¹</i>		
The school provides staff with opportunities to participate in school decisions	7 %	41 %
The school has a culture of shared responsibility for school issues	4 %	22 %
There is a collaborative school culture which is characterized by mutual support	11 %	46 %
If a student from this school needs extra assistance, the school provides it	11 %	32 %
I enjoy working at this school	36 %	60 %
I would recommend this school as a good place to work	22 %	57 %
I am satisfied with my performance in this school	31 %	27 %
All in all, I am satisfied with my job	31 %	43 %
<i>Theme 2: Perceived need of Teacher Professional Development²</i>		
Need of professional development in student behavior and classroom management	16 %	3 %
Need of professional development in approaches to individualized learning	29 %	3 %
Need of professional development in teaching students with special needs	33 %	11 %
<i>Theme 3: Your teaching in general (1): How often do you...?³</i>		
Teach jointly as a team in the same class	62 %	66 %
Observe other teachers' classes and provide feedback	29 %	16 %
Engage in discussions about the learning development of specific students	62 %	40 %
<i>Theme 4: Your teaching in general (2): To what extent can you...?⁴</i>		
Control disruptive behavior in the classroom	38 %	53 %
Motivate students who show low interest in school work	38 %	26 %
Calm a student who is disruptive or noisy	51 %	42 %
Use a variety of assessment strategies	29 %	26 %
Provide an alternative explanation	58 %	42 %
Implement alternative instructional strategies in my classroom	44 %	37 %

¹ TALIS 2013 items 44 a, d, e; 45 d; 46 e, g, i, j. Figures show the percentage of respondents who agree completely with the statements.

² TALIS 2013 items 26 f, h, i. Figures show the percentage of respondents who claim to be in strong need of professional development within the fields mentioned.

³ TALIS 2013 items 33 a, b, e. Figures show the percentage of respondents who claim to weekly do what is asked about.

⁴ TALIS 2013 items 34 d, e, i, j, k. Figures show the percentage of respondents who claim the opportunity to do what is asked about.

Respondents	First survey 45	Second survey 38
<i>Theme 5: Having received Teacher Professional Development⁵</i>		
Professional development in student behavior and classroom management. (yes / positive effect)	33 % / 80 %	42 % / 94 %
Professional development in approaches to individualized learning. (yes / positive effect)	20 % / 56 %	21 % / 63 %
Professional development in teaching students with special needs. (yes / positive effect)	22 % / 70 %	21 % / 63 %
<i>Theme 6: Teacher feedback (focus of)⁶</i>		
Student behavior and classroom management	42 %	61 %
Teaching of students with special needs	36 %	37 %
The feedback I provide to other teachers for improving their teaching	22 %	50 %
Collaboration or working with other teachers	40 %	68 %
<i>Theme 7: Teacher feedback (positive effects)⁷</i>		
For your classroom management practices	16 %	26 %
For your teaching practices	13 %	24 %
For your methods for teaching students with special needs	22 %	13 %
For your job satisfaction	24 %	58 %
For your motivation	31 %	58 %
<i>Theme 8: Teacher appraisal and feedback in this school⁸</i>		
Teacher appraisal and feedback have little impact on the way teachers teach in the classroom	22 %	8 %
Feedback is provided to teachers based on a thorough assessment of their teaching	20 %	55 %
Measures to remedy any weaknesses in teaching are discussed with the teacher	49 %	61 %

⁵ TALIS 2013 items 22 f, h, i. Figures show the percentage of respondents who claim to have received professional development during the last 12 months within the fields mentioned and, if so, claim that it has had a positive effect.

⁶ TALIS 2013 items 29 e, f, h, k. Figures show the percentage of respondents who claim that the emphasis of received teacher feedback regards the fields mentioned.

⁷ TALIS 2013 items 30 h, j, k, m, n. Figures show the percentage of respondents who claim that teacher feedback has had a strong positive effect regarding the fields mentioned.

⁸ TALIS 2013 items 31 b, e, g. Figures show the percentage of respondents who agree or agree strongly with the statements.

Attitudes and experiences found at the beginning of the project

The first survey depicted a rather glum image of the pedagogical environment in the school. Figures regarding the staff's perception of *teacher appraisal and feedback* (Theme 8) were remarkably low, and figures reaching over 50 % were only found concerning teachers' self-appraisal, that is, their understanding of their capacity to deal with different pedagogical issues (Themes 3 and 4). Regarding their overall appreciation of the *school climate and job satisfaction* (Theme 1), only around one in three expressed that they enjoyed their work or were satisfied with their performance at the school. Even fewer said that their school was a democratic or collaborative work environment.

The perceived need for *Teacher Professional Training* (Theme 2) was not overwhelming. However, given that the perception of a *strong* need counted here, the figures were still notable, particularly regarding professional development in 'approaches to individualised learning' and in 'teaching students with special needs'. Here, 29 % and 33 % of the teachers, respectively, stated that they had a strong need for these. A minority of teachers had received teacher professional development within these fields (Theme 5), but where this had occurred, its appreciation was generally high.

The questionnaire also covered teachers' feedback, its content and effects (Themes 6 and 7). The types of feedback provided seem to be relatively evenly distributed among 'student behaviour and classroom management' (42 %), 'collaboration or working with other teachers' (40 %), and 'teaching students with special needs' (36 %). Regarding the effects of teacher feedback, these were recognised particularly for motivation (31 %), job satisfaction (24 %), and methods for teaching students with special needs (22 %). Overall, these figures were relatively low, indicating that the feedback given at the time had only partly done its job.

From the first round of interviews, we learned that the school suffered significant problems concerning collaboration or sharing the same goals. The perception was that of a school with an individualistic culture:

What I can feel irritated about sometimes, in this school, is that everyone does what they want, and I guess that is because they don't know how to do things. (T2, 1)

Teacher 2's statement linked to the school's lack of clear organisational guidelines and goals. In addition, the teacher's description of the current situation depicted a professional staff that did not know what was expected of them. Similarly, teacher 1 expressed that all school staff should adhere to the school's agreed goals applying to students' goal fulfilment (according to the national curriculum), but this did not seem to be the case:

A more secure workgroup provides a feeling to the students, works with the relations with students, works with the learning environments. [...] Everyone must want to be on the train, and I am not sure that everyone who is here today wants that. (T1, 1)

The image of being ‘on the train’ illustrated what was needed to turn the situation around. Teacher 1 also expressed that the teacher group needed to work on their professional relationships to create confidence in the student groups and indicated that more focus on learning environments was needed.

Teacher 4 revealed a staff group who were unsure of themselves and unable to appreciate positive feedback on what was working well:

The negative thing [is] that people cannot see the success factors, that they cling to what isn’t working and tend to stay there. And if one says that something is good, then they ‘don’t know what you’re talking about’. That makes me sad now. (T4, 1)

Teacher 3 expressed a lack of colleagues to work collaboratively with towards the same goal, developing together:

I need a group of individuals who work together with me and that we work towards the same goal: a red thread in our activities that we lack today; a mutual learning. (T3, 1)

So, what do the participants feel should be done? Teacher 1, a special needs teacher, expressed this most clearly:

Find the available strengths. Identify the strengths we have and build on them. It is a bit like [...]: what do you have to build on? And not just fill in the gaps categorically, but what do we have to build on? What is the strength of the language? What is the strength of the classroom [environment]? (T1, 1)

With the school being in a comprehensive process of change that could lead to several necessary improvements, Teacher 1 expressed that for improvements to be identified, the school staff needed to take advantage of what they could build on and further develop. Teacher 4 addressed required changes in more concrete terms, emphasising the need to develop ‘a [collaborative] forum where we can focus completely on pedagogy’ (T4, 1) allowing teachers to talk about their challenges in working with the students and develop a more systematic approach to their work.

Attitudes and experiences found at the end of the project

The second survey, conducted a year later, revealed a vastly different picture. The figures from the second survey indicate a general—in some cases, dramatic—increase in participants’ satisfaction with the school and their job, suggesting that the development process constituted by the implementation of CPD models and a collaborative research project had been successful. For *school climate and job satisfaction* (Theme 1) and *focus of teacher*

feedback (Theme 6), all statements denoted a stronger agreement in the second questionnaire, the only exception from this pattern being ‘satisfied with my performance in this school’ (Theme 1), where we found a slight decrease, from 31 % to 27 %. The results indicated an improvement to the school as a pedagogical work environment and also an improved sense of job satisfaction. However, it did not seem to be accompanied by a change in self-perception by the teaching staff.

The positive change in the teaching environment was commented on by one of the teachers:

Many feel that since this type of work began, we have been lifted, that we feel seen and listened to and that there is a space for development. And the best thing about this is that it has a direct impact on the students’ learning [...] All this that we have chosen to deepen our knowledge about [...] the research work that we do [...] increases our learning as to what we want to teach, in what way we can reach the students in our teaching. (T3, 2)

With a change in perception of the prerequisites for the pedagogical work, a decrease in figures regarding *perceived need of Teacher Professional Development* (Theme 2) and *one’s teaching in general* (Themes 3 and 4) followed. The results for Theme 2 were least surprising. Teachers who received Teacher Professional Development throughout the project felt much less in need of additional such measures at the second time of measurement, particularly when it came to ‘student behaviour and classroom management’ and ‘approaches to individualized learning’, where only 3 % claimed to be in strong need of such measures. Regarding the perceived need for professional development in teaching students with special needs, the figure was higher at 11 %, but in the previous year this figure was 33 %, so a significant decrease had still occurred.

Overall, these figures indicated that at the time of the second questionnaire, teaching staff had a stronger sense of what was required of them:

I have a very different understanding today of how my way of teaching can be based in the students’ existing knowledge, and [...] creating questions and pre-tests, capture the critical aspects which we can then contrast with the object of learning and then, create a different type of understanding, [which] makes understanding both more interesting and more adequate for the student [...] Based on this, we have reached an understanding regarding how we can teach. (T3, 2)

The response pattern for the statement ‘motivate students who show low interest in schoolwork’ (Theme 4), with a decrease from 38 % to 26 % between the measurement times may seem paradoxical. Had the teaching staff *lost* tools for motivating students that they previously possessed? Our interpretation of these responses goes in a different direction. As

one of our interview participants described, the change rather concerns the *need* for such motivational efforts:

We have also received feedback from the students, asking them, based on the pre-tests and everything we have worked with, ‘what do you think about this way of working?’, ‘Does it provide a better way to learn?’. And we almost always receive the response ‘Yes! It is much more interesting’. And, I would say, we have used the students and [the classroom methods] we work with to increase our understanding of what we are to do in the future. (T3, 2)

Overall, responses in the second survey indicated that the introduction of the collaborative and cyclical classroom models had given teachers a structure for collaboration. Table 3 expressed that the teachers had less need to adapt the teaching content on an individual basis. Instead, their responses revealed a more accessible teaching situation for all students, which was in line with the research purpose: collaborative professional development for inclusive education. As Teacher 3 expressed it:

[Today we] co-plan our teaching – it is on a completely different level today than a year ago. Now we start from what we have learned with or where we have captured critical aspects, where we have immersed ourselves in the students’ understanding to begin with, where we work in a different way that is more proven and scientifically explored, where we have previously guessed or thought we knew something and in many cases invented the wheel [...]. So, I would like to say that this is the biggest difference because now we know that this is what we are going to work with and that there is a common understanding that this is what we want. (T3, 2)

Excerpts from the second-round interviews second the change of perception we were able to observe in the questionnaire data, but they also indicated that the improvements initiated were, at the time, still an ongoing process:

This is still a tough school to work [...] Staff has been replaced [...] and some choose to quit because they still perceive a lack of organisation. [However,] the direction is more set than at the time of our first interview, and we see effects of the ongoing processes [...] visible in our activities. (T1, 2)

The interview excerpts demonstrate that the school improvement research project had contributed to individual professional development and awareness of teaching models (e.g., video recordings of teaching situations and collegial feedback). Teacher 2’s (interview 2) statement indicated an increased understanding of the consequences of the improved learning environment’s impact on the individual (students with special needs), which emphasised that the social and organisational aspects have been more pronounced than ‘changing’ the student’s behaviour:

I have thought further about how I can act and think in my encounters with students [with special needs]. And I have, from the discussions in the collaborative group, also become aware of certain things in my own classroom that I may not have become aware of otherwise; for example, certain structures of power, relating to gender, that I have become aware of [...] I think it has been great that we have observed one another and entered one another's classrooms and listened to one another. [...] When you invite people to your classroom, or are being observed or recorded – to be able to listen to yourself – that is a great way of achieving professional development. (T2, 2)

The project's contribution to changes in teachers' attitudes and experiences for inclusive education

The data suggest that efforts focusing on adapted teaching for the whole group had increased. Individually related efforts for specific adaptations for certain students had decreased, which, in turn, implied that students, to a significantly lesser extent, were being categorised as students in need of special educational support. Instead, collaborative teaching models adapted to the whole group composition, had increased equity in the classroom. This signified moving away from categorising individual needs towards focusing on a teaching situation to achieve content knowledge for all students.

According to our results (Table 3, Theme 6), the differences of the first and second survey's feedback '[provided] to other teachers for improving their teaching' increased from 22 % to 50 %. The effects of feedback enhanced their job satisfaction and motivation from 27 % to 34 %. For example, Teachers 1 and 2 (interview 2) expressed that they had developed their teaching ability by observing other teachers' classes. After observing a lesson, they were able to share experiences and analyse the video-recorded lessons: 'that is a great way of achieving professional development' (T2, 2). In statements from Teacher 3 (interview 2), we observed that teachers had previously guessed how to construct their lessons without understanding why. At the second interview, they possessed capabilities of pre-testing to understand students' knowledge and difficulties better and then create their lesson plans. Teacher 3 (interview 2) also experienced communicating and discussing content and learning methods with students to a greater extent than before, contributing to increased teaching quality. More teachers felt that they had developed resources where the increased focus on CPD models had improved their ability to, for example, teach students in need of special education together with other classmates.

Our interpretation of questionnaire response patterns may also shed some light on the seemingly paradoxical result regarding teachers' *teaching in general* (Themes 3 and 4), where

the questionnaire results indicated a *reduced* interest in applying specific pedagogical tools. The relative decrease in figures regarding this could be explained by a model already having been established, a model of collaborative teaching that has a cyclical and iterative approach. The change also indicated a shift of focus from the individual student to the entire classroom as a forum for pedagogical intervention, indicated by the increase in figures regarding statements such as ‘teach jointly as a team in the same class’ (Theme 3) and ‘control disruptive behaviour in the classroom’ (Theme 4), which increased from 62 % to 66 % and from 38 % to 53 %, respectively.

Having concluded the relatively clear, positive picture of the development process that took place over these years, we wanted to check whether the changing pattern could be linked to specific differences within the groups of participants (and, thus, for example be explained by staff being replaced between the years). However, such differences were minor, with the fundamental change patterns remaining regardless of which specific groups of respondents we looked for. We detected only a slight positive correlation between the teachers’ time as teachers and their perceived need for Teacher Professional Development, notably regarding individualised teaching ($\rho = .201$). Older teachers seemed to be somewhat more aware of a lack of knowledge within specific areas and more likely to value professional development measures. Thus, extensive experience as a teacher could be said to go hand in hand with a somewhat more critical attitude, for example, an awareness of certain shortcomings, including in oneself as a teacher.

Discussion

It is evident from the results that the use of both qualitative and quantitative (mixed) methods has contributed to both broader and deeper nuances of teachers’ attitudes to inclusive teachings and collaborative professional development for improved school development. Moreover, the project has positively impacted the work environment, where increased mutual commitment and joint work has developed new professionalism. In addition, the teachers seem convinced that trying new collaborative teaching methods (cf. Stigler & Hiebert, 2016) has created an increased closeness to their students and security in their teaching and lesson design supported by the methods they have developed together with the researchers, i.e., cyclically, iteratively and in different teaching teams (communities of practice).

Our results can be compared to those of Darling-Hammond and Richardson (2009), who claimed that school improvements become much more effective when the development process engages a whole school, rather than takes place as isolated efforts. Furthermore, when research supports the teachers, when it gives them the opportunity for collaboration and

collegiality and deepens their knowledge of subject content for all students, then the improvements can be sustainable (Darling-Hammond & Richardson, 2009). According to Wenger (1998), learning involves social processes for creating meaning and understanding experiences. Our results can be understood from a community of practice perspective, as showing the consequences of teachers working in a joint activity, sharing information and knowledge within the community (Lave & Wenger, 1991). The teachers created meaning of what research-based education is, and how it can be implemented, as part of the development of their everyday work practice (cf. Bergmark, 2020).

At the beginning of the project, the principal expressed the situation as the school needing several interventions simultaneously. Our results show evidence that the school improvement research project has contributed to changing the picture regarding the teachers' collaborative professional development, attitudes, and experiences of improved inclusive education. The difference between the first- and second-year survey, together with the interviews, can be related to Opfer (2016) and TALIS (OECD, 2014, 2019), showing that there is a connection between teachers' confidence self-efficiency (Skaalvik & Skaalvik, 2014), CPD (Hattie, 2009), and successful school development. The teachers' statements in the second interview indicated that they had contributed to the school's development through the mandate they had as a collaborative element to identify school improvements and challenges (see, e.g., Carlgren, 2005, 2020; Lewis, 2002; SOU, 2018). For example, Teacher 2 (interview 2) emphasised the importance of professional dialogue, where it was possible to try new lessons that included whole subject groups, with critical support from the researchers (Ainscow, 2005). Accordingly, it was signalled by Teacher 2 that she developed a capacity to meet all students' needs, especially students with special needs, in an intentionally developed way through the project. That can be related to Hiebert and Morris's (2012) and Stigler and Hiebert's (1999) discussions about collaboration models. Such models need to use a teaching-focused iterative method shared with and between school staff, where different opinions and attitudes are discussed and questioned.

Hattie and Timperley (2007) emphasise verbal and constructive feedback as a powerful tool for developing various teaching skills. In our study, both interview data and questionnaires (Themes 7 and 8) showed an increasingly positive effect of teachers' feedback due to the collaborative teaching models that were developed through the project. It is also possible to link this increased satisfaction and collaboration to what Holmqvist and Lelinge (2020) and Skaalvik and Skaalvik (2014) identified with well-being and teacher efficiency. The teacher's new knowledge can mirror a development from who is to be taught to an

increased focus on what and how, together with a better conceptual understanding of inclusion (Kruse & Dederling, 2018) and of the importance of interacting with students about content knowledge (Black-Hawkins & Florian, 2012; Florian, 2014; Florian & Spratt, 2013; Ying et al., 2012).

Several of our questionnaire results (Theme 1) align with Schleicher's (2015) comments that Swedish schools should, to a greater extent, recommend that teachers be given opportunities to actively participate in school decisions, which is also encouraged in Liljenberg and Blossing's study (2020). The teachers who are given the responsibility to be active decision-makers and who are supported in professional development are more likely to say they are satisfied and confident with the terms of their employment contract (Schleicher, 2015). Accordingly, this could also help solve one of the problems identified by the principal, namely the severely low retention of teachers in the school.

Conclusions

School improvement and teachers' collaborative professional development for inclusive education is depending on building a research-based education. This article has offered insights into the content of professional development, which is about *teaching, research and collaboration*.

To summarise, the professional development interventions developed during the school improvement research project emphasise the importance of collaborative processes, where the teaching-related object of learning has been in the foreground. Our article has highlighted six critical elements regarding schoolwide development and changes in the ability to create inclusive education:

1. The relations between teacher engagement, job satisfaction, and self-efficacy can be strengthened by a school development project, focusing on CPD and inclusive education.
2. Mutual commitment, joint work, and sharing experiences (materials) and knowledge need to be integral in the cohesion of the teaching team's community of practice.
3. Teachers must be active in the decisions regarding their teaching; the learning environment's objects of learning must be initiated and identified based on the teachers' experienced needs, and this should be done in collaboration with researchers.
4. Collaborative teaching methods can provide teachers with new awareness and understanding of necessary conditions to develop inclusive education for all students.
5. Collegial feedback and student dialogue are necessary for reflecting on the teaching environment and classroom settings.

6. Using a mixed-methods approach enriches improvement research with significant knowledge of interventions contributing to the development of CPD for inclusive education.

These six elements—related to improving teachers’ abilities, opportunities, and resources for inclusive education through CPD and applied in an entire school—should be combined with a strong focus on accountability and the relationship between the organisational level and the personal (teacher) level. Accordingly, teachers must express and communicate better with other teachers and constantly keep the curriculum and students’ results in the foreground.

This schoolwide research project might have shown different results with a higher degree of authorised teachers and with a higher retention of teachers over the year. Even though this could be a limitation for the study, it is a reality that Swedish schools are struggling with. To adequately address professional needs, this article illustrates that teachers’ need to participate in and influence research projects to, with the support of researchers, contribute their experiences to improve teaching and strengthen inclusive teaching of all students.

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