

Åse Kari H. Wagner
University of Stavanger
Atle Skaftun
University of Stavanger

DOI: <https://doi.org/10.5617/adno.9759>

©2023 Author(s). This is an open access article licensed under the Creative Commons CC BY 4.0 license (<http://creativecommons.org/licenses/by/4.0/>).

Side by Side or Side-lined? Teacher Collaboration in Early Years Literacy Classrooms

Abstract

The idea of a change in educational practise is a central aspect in Norwegian curricular reforms in this millennium. Several governmental initiatives were introduced as a means to bring about such changes. Teacher-student ratio is among these initiatives. Large scale research projects were initiated by educational authorities (2016-2023) in order to explore the effects of increased teacher-student ratio, and a national norm for student-teacher-ratio was implemented in 2018. Still, research evidence remains inconclusive as to the effects of this initiative. In order to better understand this inconclusiveness, our article explores six Year 2 Norwegian literacy classrooms with two teachers in the class. We find that the teachers seem to fall into accustomed forms of collaboration and roles, with homeroom teachers who “own” the class, and co-teachers who take on the waiting and watching role before taking out specific students. We also find a somewhat counter intuitive use of organisational forms together with a tendency towards “shift work”. Co-teaching clearly represents pedagogic opportunities as well as challenges concerning ways to share professional responsibility and roles, and we discuss why the potential is not fully released.

Keywords: case-study, co-teachin, co-teaching approaches, early literacy instruction, roles, teacher collaboration, teacher presence

Lærersamarbeid i begynneropplæringen

Sammendrag

Ideen om endring av utdanningspraksis ligger til grunn for læreplanreformer på 2000-tallet, støttet av en rekke initiativer fra utdanningsmyndighetene. Lærer-elev-tetthet er ett av disse initiativene, i form av storskala-prosjekter (2016-23) som skulle undersøke effekten av økt lærer-elev-tetthet i begynneropplæringen, og en nasjonal norm for lærertetthet ble innført i 2018. Forskningen viser likevel at ressursøkningen har begrenset betydning. For å bedre forstå begrensningene, utforsker denne artikkelen seks norske 2.-klasserom med to lærere i alle ukas norsktimer. Vi finner at lærerne ser ut til å falle inn i etablerte og kjente samarbeidsformer og roller, der hovedlæreren typisk

«eier» klassen, mens ekstralæreren inntar en mer avventende og observerende rolle, før hun typisk tar med seg enkeltelever ut av klasserommet. Vi finner også en kontra-intuitiv bruk av organiseringsformer sammen med en tendens til «skiftarbeid». Vi konkluderer med at lærersamarbeid representerer åpenbare pedagogiske muligheter, men også utfordringer knyttet til det å dele profesjonelt ansvar og fordele roller, og vi diskuterer hvorfor potensialet ikke er utløst.

Nøkkelord: case-studie, elev-lærer-tetthet, lærersamarbeid, begynneropplæring, lese- og literacy-opplæring, roller

Introduction

The call for educational changes, making space for inclusive and more active student learning, underlies educational research, curricular reforms and governmental initiatives in democratic societies. Teacher-student ratio (TSR) is considered to be an important agent of potential change (Blatchford et al., 2007; Buckingham et al., 2012; Fien et al., 2011; Konstantopoulos & Chung, 2011; Shin, 2012; Vaag Iversen & Bonesrønning, 2013). In research as well as in educational policy and practice there has been a shift from class size as the sole parameter of TSR towards more flexible forms of increasing the teacher density (Blatchford, 2012; Solheim & Opheim, 2019). In Norway large scale projects targeting mathematics and literacy education were initiated by the educational authorities (2016-2023) in order to explore the effects of increased teacher-student ratio in early education.¹ Also, in 2018 a national norm for student-teacher-ratio was implemented (Pedersen et al., 2022, p. 27), and two teachers in the class quickly became the most frequent solution (80 %) in Norwegian primary school classrooms (Utdanningsdirektoratet, 2019). Still, two teacher systems have been conceived differently across the country and even across schools (Hannås & Strømsvik, 2017), and research evidence remains inconclusive (Pedersen et al., 2022; Solheim & Opheim, 2019). To better understand this inconclusiveness, our article explores six Norwegian literacy classrooms where two teachers in the class was implemented from the start of Year 1, with a focus on how teacher collaboration was played out in the everyday life of the classrooms in Year 2.

Research has documented benefits of co-teaching for students with special needs (Davila, n.d.; Dyssegaard & Larsen, 2013; Friend & Barron, 2016; Mackey et al., 2018; Mastropieri et al., 2005; Murawski & Lee Swanson, 2001), but also for second-language students (Mackey et al., 2018) and for gifted students (Hughes et al., 2001; Mofield, 2020). More generally, it seems that students across group identities have a positive view of co-teaching (Wilson & Michaels, 2006), and co-teaching environments are reported to improve students' social interaction

¹https://www.forskningsradet.no/contentassets/965669a13e7c42e98bb879bdc2ddbdb/rammedokument_for_laerereffekt.pdf

and collaboration, for students with and without special needs (Scruggs et al., 2007; Villa et al., 2013). Teachers also report benefits from co-teaching, such as greater well-being and a reduced sense of isolation, an increased feeling of efficacy, as well as improved skills and problem-solving ability (Hang & Rabren, 2009; Jensen & Solheim, 2020; Mackey et al., 2018; Scruggs et al., 2007; Villa et al., 2013).

Simply adding an extra teacher to the classroom is not enough in order to bring about benefits like these, however (Alexander, 1997; Solheim et al., 2023). The quality of co-teaching depends on how teachers co-plan (Brown et al., 2013; Gourvennec et al., 2022), personality match and communication (Conderman et al., 2009; Conderman, 2011; Pratt, 2014), and the teachers' teamwork and co-teaching approaches (Carty & Marie Farrell, 2018; Friend & Barron, 2016; Shaffer & Thomas-Brown, 2015). It seems that students benefit more from types of teacher collaboration that involve and exploit the expertise of both teachers (Embury & Kroeger, 2012; Gourvennec et al., 2022; Wexler et al., 2018).

Friend and colleagues (Friend et al., 2010; Friend, 2015; Friend & Barron, 2016) have described six potential co-teaching approaches. Experienced teachers will often use all of these approaches, while less experienced teachers will use few of them (Friend & Barron, 2016). According to Friend & Barron (2016) the most productive approaches are *station work*, *parallel teaching* and *alternative teaching*. The most frequent approach, however, seems to be that one teacher does the teaching, while the other assists (Bryant Davis et al., 2012; Scruggs et al., 2007). This approach is not recommended by research (Friend & Barron, 2016).

Underlying these different co-teaching approaches are different distributions of roles. Scruggs and colleagues (2007) found that the co-teacher often seemed to play an inferior role (although assuming responsibility for problematic behaviour in the class) and was only rarely seen to instruct the full class. In their study of co-teaching practices in 16 middle-school classrooms, Wexler and colleagues (2018) found that teachers spent the majority of the time using a co-teaching approach where one teacher alone led the instruction (in the case of Wexler et al., the One teach, one assist approach), and where the co-teacher took on a subordinate role. Embury and Kroeger (2012), who investigated student perceptions of co-teachers, found that when the co-teacher's role is reduced to that of an assistant or aide, the students sense this power differential and difference in status between the two teachers.

Gourvennec (2021) found that shared responsibility for instructional tasks was associated with greater student literacy growth. Teacher pairs of high- and low-performing classes differed when it came to their understanding of students, teachers, classes, activities, organisational structures, instructional differentiation, and student engagement. The status of the co-teacher was more of a challenge in low-performing classes, where teachers also emphasised the negative consequences of their differences in status. In contrast, teachers in high-performing classes perceived differences in teaching experience, personality, or

professional competence as enriching (Gourvennec et al., 2022). Underlying these perceptions are what we might call figured worlds of education (Gourvennec, 2021; Gee, 2015), i.e., everyday theories and taken-for-granted perspectives about the interplay between roles, activities, settings, and resources that constitutes the social practice of the classroom (Ivanic, 2009; Van Leeuwen, 2008; Wagner et al., 2020). The distribution of responsibility between teachers seems likely to influence what roles are available for both teachers and students, and thus also how the pedagogical potential of being two teachers in the classroom is released.

The present study

Little research available has studied what teachers actually do in co-taught classrooms (Wexler et al., 2018), which is necessary in order to understand the inconclusive research evidence. Also, there are few observational studies based on co-teaching in early years literacy classrooms. The present study is part of The Seaside case, where we investigate literacy practices in co-taught early years literacy classrooms (Wagner et al., 2020). Based on observational data from this case study we explore how the collaboration between two teachers unfolds in six Year 2 literacy classrooms. We use the term co-teaching for the type of collaboration that involves two general educators who teach the same group of students.²

The following research questions are addressed:

1. How is teacher presence distributed across time and organisational forms?
2. How are co-teaching approaches distributed across the six classrooms?
3. What roles appear to be available for the two teachers in the classroom as collaborative space?

The first question allows us to map the whereabouts of the two teachers across overall activities. This overview serves as a backdrop for further exploring co-teaching approaches (Friend & Barron, 2016) as a first step towards grasping the distribution of roles, before turning towards an overall, holistic interpretation of teacher roles. Educational practice traditionally consists of a clear hierarchy between one teacher and many students (cf. Gage, 2009), and autonomy is a key feature of this teacher role. Being two teachers in the classroom opens up an unclear *collaborative space* with potential for innovative approaches to student participation and adapted education. However, it also challenges the relational pattern of roles in the classroom, and as such represents both a potential threat to professional identities and a source of change in practice. Our data allows for

² The term co-teaching often refers to the collaboration between a general educator and a special needs teacher, and other more neutral terms have been suggested (e.g., *Teachers Teaching Together*, Alexander, 1997). We hold on to co-teaching, which is the term used in the immediate research context of our study (Solheim & Opheim, 2019; Wagner et al., 2020).

careful inferences from classroom observations as to how teachers position themselves in the collaborative space of co-teaching.

Methodological considerations

Contextual frames

The Norwegian School

Norwegian children start school in August of the calendar year in which they turn six and attend primary school for seven years. Norwegian school is free and inclusive. There are few alternative programs and no streaming or tracking. Students with special needs are found in every classroom, often accompanied by an assistant. There are no grades in primary school and no exams, only formative assessments. Norway has a centralised curriculum (Utdanningsdirektoratet, n.d.), but there is considerable freedom for local schools and teachers regarding their organisation and instructional methods. Literacy education is integrated in all subjects, but the subject Norwegian has particular responsibility for this. In Norwegian primary schools, students usually have a homeroom teacher who teaches most lessons.³ This is also the case for our Seaside classes.

The Seaside case

The participants in this study are six Norwegian teacher pairs and their Year Two students (six classes of seven-year-olds), all part of The Seaside case, in which we aim to study literacy practices and teacher collaboration in co-taught early literacy classrooms. The six classes belong to different schools within the same municipality, and they all participate in an RCT study, *Two Teachers in the Class*, investigating the effects of co-teaching and professional development (Solheim et al., 2017). The intervention classes in this study have one extra teacher in all eight Norwegian initial literacy lessons each week, in Year One and Year Two (see Appendix 1). The classes and the municipality participating in the Seaside case were selected based on practical criteria and the opportunity to visit the schools regularly. The case was originally conceived to provide observational data, from the classrooms, as a contribution to understanding the quantitative findings of the RCT. Moreover, the case holds value in itself, as a comprehensive qualitative study of early years literacy practices in Norwegian classrooms. The six classrooms are part of the same municipality. As such they are part of an embedded case (Yin, 2018), which might support the generalisability of

³ In Norway, the homeroom teacher has the overall responsibility for their students, for communication with parents and collaboration with the teacher team and with the school administration. The homeroom teacher in the lower grades usually spends most of the school day with their students, and teaches all, or most of, the subjects.

aggregated results from different classrooms found within relatively privileged Norwegian schools.⁴

The six classes are intervention classes, i.e., classes with two teachers in Norwegian lessons.⁵ They are fairly small, with 18 students in C1 and C4, 20 students in C2, 14 in C3, 16 in C5 and 19 in C6. The 12 teachers (all female) involved have a minimum of three years of teacher training and are all general educators. None of the teacher couples had co-taught prior to participation in our study. While the couples in C2 and C4 have stayed the same in Year One and Year Two, changes have occurred in the other classes: C1, C2 and C6 have all gained a more experienced co-teacher in Year Two. In C5, however, there has been a change from two experienced teachers in Year One, to a new and fairly inexperienced homeroom teacher in Year Two, and distribution of the co-teacher resource on several teachers. Except for C5, where the homeroom teacher only has two years' experience, all teachers have extensive experience as primary school teachers (see Wagner et al., 2020, Table 1).

The teacher couples did not have extra time to plan their collaboration but could do so during their regular weekly time set aside for planning. As part of the RCT, they received explicit information about reading instruction and the opportunities two teachers gave for more flexibility in the organisation of literacy instruction. They did not, however, receive any specific information about different co-teaching approaches. It was up to the teacher couples themselves to decide how they shared the responsibility.⁶ See Appendix 1 for further details.

Methods of data collection

In Year Two, the team of six researchers spent time observing one full week in each of the six Seaside case classes. Teaching is organised around the week as a unit, and what happens in the Norwegian lessons is therefore connected to other subjects and different events during the day and the week (for example, since the homeroom teacher teaches several subjects, she might use themes from science when working on writing in Norwegian lessons). The observations took place in the second semester of Year Two, from the end of January until the end of February. An exception was C5, observed in May due to sick leave among the teachers.

The present study builds on video-supported observation of 47 Norwegian lessons (of 45 minutes) from Year Two (seven lessons from C5, 8 from the other five classes). Both main classrooms and group rooms were filmed, to capture interactions both within and outside the classroom (see Wagner et al., 2020 for

⁴ Seaside is a medium size, relatively wealthy rural municipality in strong growth (www.ssb.no).

⁵ In addition, there was usually an assistant (sometimes two) with responsibility for students with special needs.

⁶ As shown below, in some classes this resulted in the co-teacher taking on a special responsibility for students with special needs, whereas in other classes the teachers shared all students in a more equal manner.

details). In addition, we rely on field notes taken from each lesson and on narrative summaries written for each day (see examples of field notes and narrative summaries in Wagner et al., 2020, Appendix 3 and 4).

Analytical approach

Analytical procedures were carried out within a shared project file in NVivo12 for Teams. We coded each video recording from the 47 Year Two Norwegian lessons to find out how the six teacher pairs worked together during a week. The material was analysed in a stepwise movement from descriptive to interpretative categories (cf. Wagner et al., 2020), enabling us to make cross references between the teachers' presence in the classroom (how much time they spend together in the classroom), organisational forms and co-teaching approaches. Table 1 provides an overview of the three main sets of categories in our analyses.

Table 1: Organisation of analyses of the video recordings

<i>1: Teacher presence in the classroom</i>	<i>2: Organisational forms</i>	<i>3: Co-teaching approaches</i>
<ul style="list-style-type: none"> - Homeroom teacher and co-teacher in the classroom - Only homeroom teacher in the classroom - Only co-teacher in the classroom 	<ul style="list-style-type: none"> - Whole class teaching - Individual work - Station work - Work in pairs - Group work 	<ul style="list-style-type: none"> 1. Teaming 2a. One lead (homeroom teacher), one assist 2b. One lead (co-teacher), one assist 3a. One lead (homeroom teacher), one watch 3b. One lead (co-teacher), one watch 4. Both supervise* 5a. Station teaching, all groups and both teachers in the classroom 5b. Station teaching, in different rooms 6. Parallel teaching 7. Alternative teaching - No co-teaching

* We have added this category for descriptive/analytical purposes (see further elaborations below).

To answer research question 1, we coded all videos for whether the homeroom teacher and the co-teacher were in the main classroom together; only the homeroom teacher was in the classroom; or only the co-teacher. All video recordings were also coded for organisational forms. This was done with reference to a set of four such forms developed in a previous work (Skaftun &

Wagner, 2019), in dialogue with the data and available typologies (Alexander, 2008; Hodgson et al., 2012; Klette, 2003): whole class teaching (including circle time), individual work ('seat work'), station work, work in student pairs and work in groups. Both peer work in groups and peer work in pairs are rare in our material, but we have still chosen to include these categories.

To answer research question 2, we coded the videos from main classrooms and group rooms with respect to co-teaching approaches. We adapted the six categories of co-teaching (Friend et al., 2010; Friend & Barron, 2016) to better fit our data. Both teachers could enter the leading role, and at times both were supervising students. Our adapted set of co-teaching approaches consists of categories 1-7 seen in Table 1. In categories 1-5a the teachers are together in the classroom. *Teaming* (1) means that the teachers lead whole class instruction together, representing different views or different ways to solve a problem (Friend et al., 2010). In the next four categories (2a-3b), the two teachers are together in the classroom, but one of them is clearly leading the lesson. We choose the word *lead*, and not *teach* (as used by Friend et al.), since organisation (e.g., practical information, calming the students) is also a significant part of the lessons. In some cases, the other teacher assists, e.g., by circulating among the students to offer individual assistance. In other cases, the other teacher watches.⁷ It is important to note that we found no active observing in our classrooms. Since Friend and colleagues' term *observe* implies collecting "academic, behavioural or social data on specific students or the class group" (Friend et al., 2010, p. 12), we have therefore chosen to replace this term with *watch*, thereby emphasising our impression of passivity without ruling out the possibility of observational intentions. The code *Both supervise* (4) is used for episodes where the two teachers both circulate (during individual/seat work) among the students, offering individual assistance. In the next two categories (5a and 5b), we distinguish between *station work* with all students in the same room, and where both teachers can circulate between groups, and station work whereby the teachers take the groups of students to different rooms and work independently. We code for *Parallel teaching* (6) when the two teachers divide the group of students into two equal parts. The teachers might teach the same to both groups and use the same material (as pointed out by Friend et al., 2010), but we have also included episodes where the two teachers do different things (e.g., one takes a group of students to the PC room or the library, while the other does writing activities with a group of students in the classroom). In line with Friend et al. (2010), *Alternative teaching* (7) is used when one teacher works with most of the students, while the other works with one or few students. We have also coded moments where no co-teaching is observed, e.g., when one of the teachers is alone with all students, or some very few and short occasions where no teachers are in the classroom.

⁷ The differences between assist and watch are sometimes subtle, but as a rule, a minimum of activity is required in the former.

Finally, to answer research question 3, we base our analysis of the distribution of roles in the six classrooms on the three main categories (Teacher presence in the classroom, Organisational forms, and Co-teaching approaches) and on researchers' comments in field notes from each of the 47 Norwegian lessons and narrative summaries written after each day of observation in the six classes. In these summaries, teacher collaboration (hierarchy, integration, sharing of workload, signs of common planning) is one of several themes on which each researcher has elaborated. Together, the filmed observations and the field notes and summaries allow for careful inferences from classroom observations for how teachers position themselves in the collaborative space of co-teaching.

To ensure reliability and agreement both authors first discussed the different coding categories. The first author then coded all classrooms according to the agreed codes. Next, the authors discussed all coding of categories 1-5a above (i.e., the co-teaching approaches whereby the teachers collaborate in the classroom, which are the most challenging to code), before final agreement and adjustment of the coding.

Findings and interpretations

How is teacher presence distributed across time and organisational forms (RQ1)?

As a first step towards an overall image of how the added teacher resource is used, we wanted to explore teacher presence across time. Table 2 provides an overview of total time spent in the classroom and on different activities (organisational forms).

Table 2: Overview of teacher presence in the classroom and distribution across organisational forms, all classes (% of observed time)

	Teacher presence in the classroom	Distribution of teacher presence across organisational forms			
		Whole class	Individual work	Stations	Work in pairs
1. Homeroom teacher and co-teacher in the classroom	55.6%	28.8%	17.8%	8.5%	0.6%
2. Only homeroom teacher in the classroom	35%	14.5%	13%	6.6%	1%
3. Only co-teacher in the classroom	9.4%	3.7%	2.9%	2.8%	0%
TOTAL	100%	46.9%	33.7%	17.8%	1.5%

The general picture as displayed in Table 2 shows that the teachers are together in the main classroom for 55.6% of the time. For the remaining time, one of the two teachers stays in the classroom, while the other colleague is involved in activities outside the classroom. It is normally the co-teacher who leaves the classroom to work with individuals or groups of students, while the homeroom teacher stays in the classroom. There are some variations between the six different classes, as shown in Appendix 2. C1 stands out from the mean in the sense that the two teachers are together in the classroom for 85% of the time. On the other end of the spectrum, we find C2 with 41% of the time spent together in the classroom.

Next, we see that whole class teaching, individual seat work and station teaching are the dominant organisational forms in all six classrooms, which account for 98.5% of the total time observed. Approximately half of the classroom time is organised as whole class teaching, one third as individual seat work, and the rest as station work. Work in pairs is hardly found,⁸ and group work is non-existent. Both individual work and station work are silent activities, and whole class teaching is teacher dominated – i.e., dominated by one of the teachers – leaving little space for active participation for both students and the co-teacher. Making space for student led groups or more extensive pair conversation is risky business for a single teacher in front of a large class. Two teachers might be able to deal with the consequences of opening up the tight script of traditional practice and balancing social control of the classroom against student engagement (Mastropieri, 2005). However, we could not see that progressive approaches like these were played out in any level of the classroom practices observed. This should not come as a big surprise given the well documented resistance to change in traditional education (Gage, 2009) with the “persistence of recitation” (Alexander, 2008, p. 47) as its hallmark. The findings rather reflect blind spots in the overall intervention since the distribution of roles in the social practices of classrooms was not addressed.

Looking further at how teacher presence is distributed across different organisational forms, we notice that the two teachers share the classroom independently of what is going on. They are together more than half of the time during whole class teaching and individual seat work, and almost half of the time during station work (61.2%, 52.9% and 47.5%, respectively, cf. Appendix 3). The co-teacher leads the classroom for less than 10% of the time.⁹ Comparing the distribution of organisational forms within category one and two (see Table 3), it is noteworthy that more time (relative to the specific category) is spent on whole

⁸ The occurrence of work in pairs is concentrated in a few classrooms, making it an important feature of the classroom profiles. These differences deserve attention, but they are not our primary interest in this article.

⁹ This 10% is accounted for by sick leave in one of the classes (C4), leaving the co-teacher alone with the class.

class teaching (51.7%) when there are two teachers in the classroom than when the homeroom teacher is alone in the classroom (41.4%).

Table 3: Distribution of organisational forms in most frequent categories, all classes (% of time)

	Whole class	Individual work	Stations	Work in pairs	SUM
1. Homeroom teacher and co-teacher in the classroom	51.7%	32%	15.3%	1%	100.0%
2. Only homeroom teacher in the classroom	41.4%	37.1%	18.7%	2.8%	100.0%

It is similarly noteworthy that more time (relative to the specific category) is spent on individual work when the homeroom teacher is alone in the classroom (37.1%) than when there are two teachers (32.1%). Even the most traditional framework for education would consider it meaningful to activate both teachers in the classroom, as in having two teachers instead of one assisting students during individual seat work. Further, traditional whole class teaching seems more sensible when there is only one teacher in the class than if there are two, especially if only one is active. The fact that we find more whole class teaching when both teachers are present, and more individual work when there is only one teacher present, indicates a low level of consideration of opportunities and pedagogical purposes related to co-teaching. Or, perhaps, fairer to the teachers involved, it indicates that their actions in the classroom are motivated by figured worlds of education (Gourvenec, 2021) that are not the same as those underlying the intervention and the general conceptions of how increased teacher–student ratio might improve educational practices. The counter-intuitive distribution of teacher presence is a paradox that calls for further studies.

How are co-teaching approaches distributed across the six classrooms (RQ2)?

Table 4 informs us that three out of seven co-teaching approaches are clearly dominant when both teachers are present in the classroom.

Table 4: Different co-teaching approaches, per class. Per cent of total time.¹⁰

	Co-teaching approaches	C1	C2	C3	C4	C5	C6	SUM
Teachers work together in the classroom	1. Teaming	0%	0%	1.6%	0%	0%	0%	0.3%
	2a. One lead (homeroom teacher) one assist	1.9%	6.5%	4.8%	0.8%	0%	0.6%	2.5%
	2b. One Lead (co-teacher) one assist	0%	0%	2.1%	0%	0%	0%	0.4%
	3a. One lead (homeroom teacher) one watch	26.6%	11.5%	18.8%	16.7%	26.5%	9.4%	18.1%
	3b. One lead (co-teacher) one watch	1.6%	0.4%	11.1%	10%	3.1%	0%	4.5%
	4. Both supervise	31.7%	22.3%	12.2%	0.4%	12.5%	21.6%	17.3%
	5a. Station teaching with all groups in the classroom	21.6%	0%	0%	28.3%	23%	0%	10.9%
Teachers work in separate rooms	5b. Station teaching in different rooms	11.9%	24.8%	13.5%	0%	0%	0%	8.5%
	6. Parallel teaching	0%	0%	0%	0%	22.6%	0%	3.2%
	7. Alternative teaching	2.8%	22.7%	19%	15.9%	3.5%	59.7%	21.9%
No co-teaching		1.9%	11.9%	16.9%	27.9% ¹¹	8.9%	8.8%	12.4%
	TOTAL	100%	100%	100%	100%	100%	100%	100%

Supervision is clearly related to students working individually. Also, stations are dominated by individual work (such as writing tasks or individual reading to the teacher). The largest category, *One lead* (largely the homeroom teacher), *one watch* (3a, 3b) (a total of 22.6%), is clearly related to whole class teaching. In categories where only one of the teachers is in the classroom, we see that *alternative teaching* (7) is the most dominant co-teaching approach, but *station teaching* in different rooms (5b) and *parallel teaching* (6) do occur in some of the classrooms, making the picture less uniform than when the two teachers are together in the classroom. There are also other interesting differences between the classrooms. The *One lead* (homeroom teacher), *one watch* approach (3a) is particularly common in C1 and C5. As an overall picture, the co-teacher has a withdrawn role during whole class teaching. This is particularly clear in C6, where

¹⁰ Categories are marked for readability. Approaches occurring less than 10% on average are marked in light grey, and approaches occurring less than 1% are marked in darker grey. The films from the main classroom form the basis for the minutes counted.

¹¹ The high number of No co-teaching in this class is due to sick leave.

the co-teacher never leads the class during communal time in the classroom (and where the co-teacher's function is to take out students, which she does for almost 60% of the total time). In C3 and C4, however, the co-teacher leads more than in the other classrooms. When it comes to individual work, the teachers in C1 spend much of their communal time in the classroom on helping students during individual work (31.7% of total time), while this approach (*both supervise* (4)) is hardly used in C4 (0.4% of total time).

Working together in the classroom.

The most frequent co-teaching approach according to international research – consistently lamented by the research community – is the *One lead, one assist* approach (Bryant Davis et al., 2012; Scruggs et al., 2007). In our classrooms this approach (2a, 2b) is found in only 2.9% of the total time. It is mainly the co-teacher who assists (2.5%), and the assistance consists of calming down or getting individual students to follow the homeroom teacher's teaching, helping a student find the right book, page, or line, or assisting the homeroom teacher by for example pointing to the board. When the teachers work together in the classroom, the dominating co-teaching approach is in fact the *One lead, one watch* (3a, 3b) (22.6% of total time). This is also the most current of all co-teaching approaches and occurs during different stages of the lessons (not only at the start). It is mostly the homeroom teacher who leads (18.1%), only to a small extent the co-teacher (4.5%). As noted above, we never find that the teacher who does not lead collects academic, behavioural, or social data concerning students – we only find the, seemingly, passive watching. Often, the watching teacher stands in the background. This is very pronounced in C1, where we sometimes have trouble seeing the co-teacher in the films, as she often stands by the wall, almost out of the camera. In C1 and C6 during circle time, the co-teacher sits either behind the students, on a desk, or stands at the side of the room. She is never addressed by the homeroom teacher. The same is the case for all other *One lead, one watch* sessions, except for C3. In C3, over 80% of the *One lead, one watch* sessions take place during circle time, but contrary to the other classrooms, the watching teacher sits on the small bench in the ring, among the students, on an equal footing, so to speak. She also closely follows what the other teacher says, modelling attention and engagement. The high frequency of the *One lead, one watch* approach, together with the low frequency of the *One lead, one assist* approach, indicates a form of “shift work”, sharing the workload of teaching, rather than teachers facing the class as equal partners.

Otherwise, when the two teachers are together in the classroom, they spend time supervising, either during individual work (4) (17.3% of total), or in connection with *station work* (5a) (10.9% of total), where the two teachers rotate between groups and often sit with each group for quite a long time. This is a way of giving individual attention, although our data does not permit us to say whether this attention is adapted to the individual student's needs. It has been pointed out

that *station work* supports equality at the teacher-led stations (Friend & Barron, 2016; Moorehead & Grillo, 2013). In our data we do however note a tendency towards a more withdrawn role for the co-teacher also during *station work*, compared to the homeroom teacher (the homeroom teacher is often the one giving instruction and the one who leads, with the co-teacher assisting or calming down students). The teachers also make little use of the opportunity offered by this co-teaching approach to provide individualised feedback or evaluate student understanding, as in C1, where the teacher listens to each individual student's reading, exactly as she does during whole class teaching. She starts by asking each student how many times he or she has read the text, then lets the student read aloud, comments that it is "very good, I hear that you have read many times!", and then moves on to the next student.

Finally, *Teaming* (1), the closest and most integrated co-teaching approach, where the teachers lead the whole class instruction together, is not a choice of collaboration (only 0,3 % in total).

Working in separate rooms.

When the teachers work in separate rooms, the most frequently used co-teaching approach is *alternative teaching* (7) (21.9% of total time). *Alternative teaching* means that one teacher works with most of the students in the classroom, while the other works with one or few students in an adjacent room. We note that *alternative teaching* most often takes place during parts of the lesson (except for C6, where the whole lesson can be organised with *alternative teaching*), and that it is almost always the co-teacher who takes out students. It is mostly groups of students (often 3-5) who are taken out during *alternative teaching* (69% of total *alternative teaching* time), and less often individual students (31% of total time). In C4, however, all *alternative teaching* time serves to take out the same two individual students that the teacher has a special responsibility to follow up. Sometimes, the teacher who brings students out will work with the same theme or task as in the classroom, e.g., in C2, where the two groups work on the same text, or C3, where the co-teacher often goes through the same learning content as in the main classroom with three or four students. For example, after having drawn a mind map on the board during whole class teaching, the co-teacher takes three or four students to the adjacent room and draws the same mind map there. Then they work on the same tasks before they all meet in the classroom again to continue their common work. Most often, however, the group or student who is brought out will work on different learning content, i.e., in C2, where the co-teacher does guided reading with a group of students in the group room, while the rest of the class is working on questions to a text. Or in C3, where the co-teacher often goes through the reading lesson with a group of students, while the homeroom teacher does something else in the main classroom. C6 stands out from the other classes with extended use of *alternative teaching*, always performed by the co-teacher, and with focus on different learning content than in the main classroom (the main

classroom and the adjacent group room function almost as two parallel worlds). The co-teacher often brings groups of students out. The students then work individually, often with earphones and iPad, while the teacher takes each of them, in turn, to a small desk for individual reading. *Alternative teaching* is suitable for more intense and differentiated instruction. It also facilitates pre-teaching and re-teaching for students who have difficulties (Cook & Friend, 1995). It has been pointed out, however, that *alternative teaching* may be modelled on the traditional way of giving special education and be stigmatising for students if it is consistently the same students who are taken out of the classroom (Cook & Friend, 1995). This is particularly the case for C4, where the co-teacher has special responsibility for two students. In the other classrooms it seems to be a goal to take out all student groups, although lack of time sometimes leads to a concentration on the lowest performing students. In C2, the specific guidelines in condition 2 of the RCT (see Appendix 1) may explain the widespread use of this co-teaching approach.

Part of the co-teaching time (8.5%) is also spent on *station work* (5b) with groups of students in different rooms, usually a couple of groups in the classroom with the homeroom teacher, and a group with the co-teacher in an adjacent room. Sometimes, there will also be a fourth group playing (with e.g., Lego bricks).

Parallel teaching (6), with the group of students divided into two equal parts, is only found in C5. This is a 90-minutes lesson where the homeroom teacher takes half of the class to the library to find a new book for the “reading siesta”, while the other half works on text assignments with the co-teacher.

What roles appear to be available for the two teachers in the classroom as collaborative space (RQ3)?

We do not have data for how the teachers have collaborated in the planning and evaluation of their lessons. However, our overall interpretation from the observations is that the two teachers seem to have clarified roles in the classroom conceived of as collaborative space, with the homeroom teacher as the leader of the classroom (who leads whole class teaching when they are together, and who holds the classroom when they separate) and the co-teacher as the one who attends to particular students or groups of students. Apart from C1, all the co-teachers undertake most of their follow up of particular students outside the classroom. The teachers in C4 express how the co-teacher’s role is that of “an extra reading teacher”, with particular focus on two students; a second language student and a student who struggles with motivation and reading. This focus on two specific students during *alternative teaching* is confirmed by our filmed observations. In C6, the co-teacher spends almost all her time in the adjacent group room, just popping into the classroom to take out new students. In his field notes on the fourth day of the observations, the researcher even notes that “I don’t think the co-teacher has said a single word out loud in class since Monday”. In C1, the co-teacher was new in Year Two, and had no previous experience with young

students. It is therefore the homeroom teacher who follows up students with special needs, and she uses the co-teacher as an assistant for other tasks.

In their field notes and narrative summaries, most researchers comment that the collaboration between the two teachers in the six classrooms seems to be smooth and well-functioning. An exception is C5, probably due to the situation with a new and inexperienced homeroom teacher in Year Two and a distribution of the co-teacher resource on several teachers. In this classroom, we observed little explicit interaction or dialogue between the homeroom teacher and the co-teacher and assistants. The researchers' field notes and narrative summaries also comment on the subordinate role of the co-teacher. In all six classrooms, the homeroom teacher is described as the main teacher ("clearly the boss" C1; "the dominating teacher" C4; "the authoritative teacher" C5). And in all classes, the co-teacher's main role is described as that of a (well-qualified) assistant. Only in one classroom, C3, did the two teachers often lead short whole class sessions together, by alternation (e.g., the homeroom teacher will lead the class through a short writing task, while the co-teacher thereafter goes through key words and concepts). The most prominent feature of our data is what might be called opportunities lost. Clearly, organisational forms in the classroom activities, as well as co-teaching approaches and roles, could have been used in more productive ways.

Conclusion and implications

The aim of this article was to better understand the inconclusiveness of increased teacher-student ratio, by studying what teachers actually do in co-taught classrooms. The overall results for the *Two Teachers in the Class RCT* show that the combination of a commitment to school based professional development on literacy instruction combined with an extra teacher resource has a small but significant effect on student reading measures (Solheim et al., 2023). This is not, however, conclusive related to the big question about how increased teacher-student ratio affects practice. We cannot see any systematic differences between our six classroom practices that correspond to this overall result. When the teacher pairs are together in the classroom, the general picture is that the co-teacher is quite literally side-lined, watching and waiting while the homeroom teacher leads. This subordinate role of the co-teacher is very much in accordance with international research (Mastropieri et al., 2005; Scruggs et al., 2007; Wexler et al., 2018), and also with Gourvennec and colleagues's findings (2022), emphasising shared responsibility as critical for student growth.

A critical question is whether the teachers in our study were enabled to fully exploit the possibilities associated with being two teachers in the classroom. As already mentioned, the teachers did not receive any specific information about different co-teaching approaches (Friend & Barron, 2016). The focus was more

specifically related to literacy instruction (see Appendix 1 for details). In retrospect, it seems evident that the project could have benefitted from more general reflections on the classroom as social practice (van Leeuwen, 2008), and co-teaching as a way of changing the distribution of roles in the classroom (Alexander, 1997; 2008), more explicitly aiming for student participation and student-active learning activities.

We cannot expect teachers to plan for innovative distribution of roles in the classroom if they are not asked or taught to do so. Preparations within the framework of single teacher teaching might position the co-teacher as an extra resource waiting on the side-line, entering the field when called upon. Rather than considering the passivity as a sign of lacking preparation, we might see it as a meaningful expression of underlying assumptions and values (Gourvenec, 2021). The most active use of the extra teacher resource was found in cases where the co-teacher was outside the main classroom with one student or a small group of students. This approach was not introduced as part of the overall RCT project design, and at the same time it seemed to be a familiar way of organizing the lesson. This should perhaps not be surprising, since this approach to co-teaching is widespread in Norway (Hannås & Strømsvik, 2017).

Our findings display unreleased pedagogical potential concerning the organisation of classroom activities and the distribution of roles between the two teachers. Both aspects further relate to the potential for making space for more active students, i.e., educational changes concerning the student role. The findings are a bit surprising, given the focus on educational ideas rooted in progressive education in teacher education, educational policy, and research. But they also reflect a well-documented gap between official discourses of education and what actually happens in the daily life of classrooms (Gage, 2009; Matusov, 2021), and the experience that new ideas are adapted to existing practices (Barnes & Shemilt, 1974; Cuban, 2020). While having two teachers in the classroom could have stimulated dialogue and interaction, it seems to produce more discipline and teacher control and more student silence (Skaftun & Wagner, 2019).

While reducing the class size implies altering the number of students for the teacher to deal with, having two teachers in the classroom changes the relational dynamics in far more profound ways (Scruggs et al., 2007; Wexler et al., 2018), as it opens entirely new ways of approaching the students as individuals and as a group. The ultimately authoritative position of the single teacher is replaced by a relationship between two teachers. This scenario gives opportunities for more varied and adapted use of organisational forms and co-teaching approaches and allows more intense and differentiated instruction than is possible for one teacher alone. Teachers who are not prepared for these opportunities, might very well experience the scenario as undermining their professional identity and underlying theories of what education should be like (Gourvenec et al., 2022). Between these extremes we probably find most of our teachers struggling to make the best

out of the new situation, without any direct interventional support concerning the importance of the relational architectonics of the co-taught classroom.

An important implication for future professional development in general, is therefore to be aware of the work of underlying theories or figured worlds (Gourvenec, 2021). Releasing the potential of two teachers in real-life classroom practice, is a task that requires teachers and students to reconsider their roles in learning and classroom practice. Shared responsibility between teachers is a prominent feature associated with successful co-teaching that might benefit students (Gourvenec et al., 2022; Wexler et al., 2018) and a way of opening and modelling collaborative space in the classroom. Teachers engaged on equal terms in such a collaborative space might model participation for the students in ways that are inaccessible for the single authoritative teacher. The extra teacher resource thus provides the potential to achieve key ambitions of educational change in international and Norwegian educational policy. Releasing this potential is a long-term task that calls for innovative and patient professional development, preferably with an awareness of the power of social practice.

Limitations

There are important limitations to our study. First, we do not have any qualitative information on how the teachers planned their co-teaching, only on how the collaboration displayed in the classrooms. Interviews with the teachers might have given us a richer and more nuanced picture of their co-teaching choices. We could have used the teachers' yearly quantitative self-reports (from the *Two Teachers in the Class* RCT), but chose not to, as these do not give the desired depth. Secondly, having researchers observing and filming lessons for a whole week is intruding and might impact the teaching. We do not have any systematic information on how the teachers experienced this. There is also the danger that the teachers change their behaviour as a result of being observed (cf. The Hawthorne effect; Salkind, 2010). We did our best to attenuate this phenomenon by visiting the class and talking to the students and teachers before the week of observation and also having the same researcher remain within the same class for the whole week. Finally, our 47 filmed lessons only represent an extract of the co-taught lessons in Year Two and relate to one week in each classroom. These lessons are however situated within a case study building on a total of 131 observed lessons from Year 1 and 2, as well as interviews.

Acknowledgement

We have no known conflict of interest to disclose.

The authors are grateful to the students and teachers who participated in our case study for inviting us into their classrooms. We also thank Professor Oddny J.

Solheim, Professor Per Henning Uppstad and Associate Professor Erin M. McTigue for valuable comments on earlier versions of the manuscript.

The Seaside case is part of the *Two Teachers in the Class* RCT study, which is funded by The Research Council of Norway, Research Programme “LÆREEFFEKT”, grant number: 256197.

About the authors

Åse Kari H. Wagner (dr.art.) is a professor of Nordic languages at the University of Stavanger, Norway. Her current research interests are literacy education and oracy. She is also Norway’s national research coordinator for the international large-scale study PIRLS (2021 and 2026).

Institutional affiliation: National Centre for Reading Research and Education, University of Stavanger, Post Box 4036 Stavanger, Norway.

Email: aase-kari.h.wagner@uis.no

Atle Skaftun (dr.art.) is a professor in Literacy at the University of Stavanger, Norway. His research interests include reading education, disciplinary literacy, literary dialogues, and structures of participation in school and in disciplinary practices. Oral interaction is a common denominator for many of these interests.

Institutional affiliation: National Centre for Reading Research and Education, University of Stavanger, Post Box 4036 Stavanger, Norway.

Email: atle.skaftun@uis.no

References

- Alexander, R. (1997). *Policy and Practice in Primary Education*. Routledge.
<https://doi.org/10.4324/9780203060049>
- Alexander, R. J. (2008). *Towards dialogic teaching. Rethinking classroom talk*. Dialogos UK Ltd.
- Barnes, D., & Shemilt, D. (1974). Transmission and interpretation. *Educational Review*, 26(3), 213–228. <https://doi.org/10.1080/0013191740260305>
- Blatchford, P., Russell, A., Bassett, P., Brown, P., & Martin, C. (2007). The role and effects of teaching assistants in English primary schools (Years Four to Six) 2000–2003. Results from the Class Size and Pupil—Adult Ratios (CSPAR) KS2 Project. *British Educational Research Journal*, 33(1), 5–26. <https://doi.org/10.1080/01411920601104292>
- Blatchford, P. (2012). Three generations of research on class-size effects. In K. R. Harris, S. Graham, T. Urdan, S. Graham, J. M. Royer, & M. Zeidner (Eds.), *APA educational psychology handbook, Vol. 2. Individual differences and cultural and contextual factors* (pp. 530–554). American Psychological Association. <https://doi.org/10.1037/13274-021>
- Bressoux, P. (2016). Research on class size in France. In P. Blatchford, K. W. Chan, M. Galton, K. C. Lai, & J. C.-K. Lee (Eds.), *Class Size* (pp. 100–111). Routledge.
<https://doi.org/10.4324/9781315760872-15>

- Brown, N. B., Howerter, C. S., & Morgan, J. J. (2013). Tools and strategies for making co-teaching work. *Intervention in school and clinic*, 49(2), 84–91.
<https://doi.org/10.1177/1053451213493174>
- Bryant Davis, K. E., Dieker, L., Pearl, C., & Kirkpatrick, R. M. (2012). Planning in the middle: Co-planning between general and special education. *Journal of Educational and Psychological Consultation*, 22(3), 208–226.
<https://doi.org/10.1080/10474412.2012.706561>
- Buckingham, J., Wheldall, K., & Beaman, R. (2012). A randomised control trial of a Tier-2 small-group intervention ('MiniLit') for young struggling readers. *Australian Journal of Learning Difficulties*, 17(2), 79–99. <https://doi.org/10.1080/19404158.2012.717537>
- Carty, A., & Marie Farrell, A. (2018). Co-teaching in a mainstream post-primary mathematics classroom: an evaluation of models of co-teaching from the perspective of the teachers. *Support for Learning*, 33(2), 101–121. <https://doi.org/10.1111/1467-9604.12198>
- Conderman, G. (2011). Methods for addressing conflict in cotaught classrooms. *Intervention in School and Clinic*, 46(4), 221–229. <https://doi.org/10.1177/1053451210389034>
- Conderman, G., Johnston-Rodriguez, S., & Hartman, P. (2009). Communicating and Collaborating in Co-Taught Classrooms. *Teaching Exceptional Children Plus*, 5(5), n5.
- Cook, L., & Friend, M. (1995). Co-teaching: Guidelines for creating effective practices. *Focus on exceptional children*, 28.
- Cuban, L. (2020). Reforming the Grammar of Schooling Again and Again. *American Journal of Education*, 126(4), 665–671. <https://doi.org/10.1086/709959>
- Davila, A. (n.d.). Are Two Heads Better Than One? The Effects of Co-Teaching in the Maths 8 Classroom. Retrieved March 31, 2023, from
<https://www.fortbendis.com/cms/lib09/TX01917858/Centricity/Domain/71/Action%20Research/Effects%20of%20Co-teaching%20in%20the%20Math%208%20Classroom.pdf>
- Dyssegaard, C. B., & Larsen, M. S. (2013). *Viden om inklusion*. Dansk Clearinghouse for Uddannelsesforskning. Aarhus: Institut for Uddannelse og Pædagogik. Retrieved March 31, 2023 from
https://dpu.au.dk/fileadmin/edu/Udgivelser/Clearinghouse/Viden_om/VidenInklusion.pdf
- Embury, D. C., & Kroeger, S. D. (2012). Let's Ask the Kids: Consumer Constructions of Co-Teaching. *International Journal of Special Education*, 27(2), 102–112.
- Fien, H., Santoro, L., Baker, S. K., Park, Y., Chard, D. J., Williams, S., & Haria, P. (2011). Enhancing teacher read alouds with small-group vocabulary instruction for students with low vocabulary in first-grade classrooms. *School Psychology Review*, 40(2), 307–318.
<https://doi.org/10.1080/02796015.2011.12087720>
- Friend, M., Cook, L., Hurley-Chamberlain, D., & Schamberger, C. (2010). Co-teaching: An illustration of the complexity of collaboration in special education. *Journal of Educational and Psychological Consultation*, 20(1), 9–29.
<https://doi.org/10.1080/10474410903535380>.
- Friend, M. (2015). Welcome to co-teaching 2.0. *Educational Leadership*, 73(4), 16–22.
- Friend, M. & Barron, T. (2016). Co-Teaching as a Special Education Service: Is Classroom Collaboration a Sustainable Practice? *Educational Practice & Reform*, 2, 1–12.
- Gage, N. L. (2009). *A Conception of Teaching*. Springer Science & Business Media.
<https://doi.org/10.1007/978-0-387-09446-5>
- Gee, J. P. (2015). *Social linguistics and literacies: Ideology in discourses* (5th ed.). Routledge.
- Gourvenec, A. F. (2021). Digging into the extremes: A case study of figured worlds of early literacy instruction among homeroom teachers in more or less successful co-taught classrooms. *L1-Educational Studies in Language and Literature*, 21, 1–30.
<https://doi.org/10.17239/L1ESLL-2021.21.01.19>

- Gourvennec, A. F., Solheim, O. J., Foldnes, N., Uppstad, P. H., & McTigue, E. M. (2022). Shared responsibility between teachers predicts student achievement: A mixed methods study in Norwegian co-taught literacy classes. *Journal of Educational Change*, 1–32.
- Haaland, V. F., Rege, M., & Solheim, O. J. (2023, in press). Do students learn more with an additional teacher in the classroom? Evidence from a field experiment. *The Economic Journal*.
- Hang, Q., & Rabren, K. (2009). An examination of co-teaching: Perspectives and efficacy indicators. *Remedial and Special Education*, 30(5), 259–268.
<https://doi.org/10.1177/0741932508321018>
- Hannås, B. M., & Strømsvik, C. L. (2017). Tidlig innsats, økt lærertetthet og tolærersystem [Early intervention, increased teacher density and two-teacher system]. In B. M. Hannås (Red.), *Pedagogikk, trender og politikk i klasserommet: Empiriske og teoretiske studier av pedagogisk praksis [Pedagogy, trends and policy in the classroom: Empirical and theoretical studies of pedagogical practice]*, 86–114. Gyldendal akademisk.
- Hattie, J. (2005). The paradox of reducing class size and improving learning outcomes. *International journal of educational research*, 43(6), 387–425.
<https://doi.org/10.1016/j.ijer.2006.07.002>
- Hodgson, J., Rønning, W., & Tomlinson, P. (2012). *Sammenhengen mellom undervisning og læring. En studie av læreres praksis og deres tenkning under Kunnskapsløftet* [The relationship between teaching and learning: A study of teachers' practices and their thinking during the "Knowledge Boost" curriculum reform]. Sluttrapport [final report] (No. NF-rapport nr. 4/2012). Nordlandsforskning.
- Hughes, C. E., & Murawski, W. A. (2001). Lessons from another field: Applying coteaching strategies to gifted education. *Gifted Child Quarterly*, 45(3), 195–204.
<https://doi.org/10.1177/001698620104500304>
- Ivanič, R. (2009). Bringing literacy studies into research on learning across the curriculum. M. Baynham & M. Prinsloo (eds.), *The future of literacy studies*. Palgrave Macmillan.
- Jensen, M. T., & Solheim, O. J. (2020). Exploring associations between supervisory support, teacher burnout and classroom emotional climate: the moderating role of pupil teacher ratio. *Educational Psychology*, 40(3), 367–388.
- Klette, K. (Ed.) (2003). *Klasserommets praksisformer etter Reform 97* [Classroom practices after 'Reform 97']. Retrieved March 31, 2023, from
https://www.duo.uio.no/bitstream/handle/10852/32308/Reform97_Rapp_1_03_web.pdf?sequence=1&isAllowed=y
- Konstantopoulos, S., & Chung, V. (2011). The persistence of teacher effects in elementary grades. *American Educational Research Journal*, 48(2), 361–386.
<https://doi.org/10.3102/0002831210382888>
- Krammer, M., Gastager, A., Lisa, P., Gasteiger-Klicpera, B., & Rossmann, P. (2018). Collective self-efficacy expectations in Co-teaching teams—what are the influencing factors? *Educational Studies*, 44(1), 99–114.
<https://doi.org/10.1080/03055698.2017.1347489>
- Mackey, J., O'Reilly, N., Jansen, C., & Fletcher, J. (2018). Leading change to co-teaching in primary schools: A "Down Under" experience. *Educational Review*, 70(4), 465–485.
<https://doi.org/10.1080/00131911.2017.1345859>
- Mastropieri, M. A., Scruggs, T. E., Graetz, J., Norland, J., Gardizi, W., & McDuffie, K. (2005). Case studies in co-teaching in the content areas: Successes, failures, and challenges. *Intervention in school and clinic*, 40(5), 260–270.
<https://doi.org/10.1177/10534512050400050201>

- Matusov, E. (2021). Progressive Education is the Opium of the Educators. *Integrative Psychological and Behavioral Science*, 1–34. <https://doi.org/10.1007/s12124-021-09610-2>
- Mofield, E. L. (2020). Benefits and Barriers to Collaboration and Co-Teaching: Examining Perspectives of Gifted Education Teachers and General Education Teachers. *Gifted Child Today*, 43(1), 20–33. <https://doi.org/10.1177/1076217519880588>
- Moorehead, T., & Grillo, K. (2013). Celebrating the reality of inclusive STEM education: Co-teaching in science and mathematics. *Teaching Exceptional Children*, 45(4), 50–57. <https://doi.org/10.1177/004005991304500406>
- Murawski, W. W., & Lee Swanson, H. (2001). A meta-analysis of co-teaching research: Where are the data? *Remedial and special education*, 22(5), 258–267. <https://doi.org/10.1177/074193250102200501>
- Pedersen, C., Reiling, R. B., Vennerød-Diesen, F. F., Alne, R., & Skålholt, A. (2022). *Evaluering av norm for lærertetthet: Sluttrapport [Evaluation of the norm for teacher density: Final report]*. NIFU. Retrieved March 31, 2023, from <https://nifu.brage.unit.no/nifu-xmlui/bitstream/handle/11250/3029689/NIFUrapport2022-12.pdf?sequence=6&isAllowed=y>
- Pratt, S. (2014). Achieving symbiosis: Working through challenges found in co-teaching to achieve effective co-teaching relationships. *Teaching and Teacher Education*, 41, 1–12. <https://doi.org/10.1016/j.tate.2014.02.006>
- Salkind, N. J. (2010). *Encyclopedia of research design* (Vols. 1–0). SAGE Publications, Inc. <https://doi.org/10.4135/9781412961288>
- Scruggs, T. E., Mastropieri, M. A., & McDuffie, K. A. (2007). Co-teaching in inclusive classrooms: A metasynthesis of qualitative research. *Exceptional children*, 73(4), 392–416. <https://doi.org/10.1177/001440290707300401>
- Shaffer, L., & Thomas-Brown, K. (2015). Enhancing teacher competency through co-teaching and embedded professional development. *Journal of Education and Training Studies*, 3(3), 117–125. <https://doi.org/10.11114/jets.v3i3.685>
- Shin, Y. (2012). Do black children benefit more from small classes? Multivariate instrumental variable estimators with ignorable missing data. *Journal of Educational and Behavioral Statistics*, 37(4), 543–574. <https://doi.org/10.3102/1076998611431083>
- Skaftun, A. & Wagner, Å. K. H. (2019). Oracy in year one: a blind spot in Norwegian language and literacy education? *L1 Educational Studies in Language and Literature*, 19, 1–20. <https://doi.org/10.17239/L1ESLL-2019.19.01.09>
- Solheim, O.J., Rege, M. & McTigue, E. (2017). Study protocol: “Two Teachers”: A randomized controlled trial investigating individual and complementary effects of teacher-student ratio in literacy instruction and professional development for teachers. *International Journal of Educational Research*, 86, 122–130. <https://doi.org/10.1016/j.ijer.2017.09.002>
- Solheim, O.J. & Opheim, V. (2019). Beyond class size reduction: Towards more flexible ways of implementing a reduced pupil–teacher ratio. *International Journal of Educational Research*, 96, 146–153. <https://doi.org/10.1016/j.ijer.2018.10.008>
- Solheim, O. J., Haaland, V. F., McTigue, E., & Rege, M. (2023). Coming together is a beginning, staying together is progress, and working together is success”. Co-teaching can increase student learning. [Manuscript submitted for publication].
- Utdanningsdirektoratet [The Norwegian Directorate for Education and Training]. (2019). *Utdanningsspeilet 2019 [The Educational Mirror, 2019]*. Retrieved March 31, 2023, from <https://www.udir.no/tall-og-forskning/publikasjoner/utdanningspeilet/utdanningspeilet-2019/fakta-om-grunnskolen/>

- Utdanningsdirektoratet [The Norwegian Directorate for Education and Training] (n.d.). *Læreplanverket* [School curricula] Retrieved March 31, 2023, from <https://www.udir.no/laring-og-trivsel/lareplanverket/>
- Vaag Iversen, J. M., & Bonesrønning, H. (2013). Disadvantaged students in the early grades: will smaller classes help them? *Education Economics*, 21(4), 305–324. <https://doi.org/10.1080/09645292.2011.623380>
- Van Leeuwen, T. (2008). *Discourse and practice: New tools for critical discourse analysis*. Oxford university press. <https://doi.org/10.1093/acprof:oso/9780195323306.001.0001>
- Villa, R. A., Thousand, J. S., & Nevin, A. I. (2013). *A guide to co-teaching: New lessons and strategies to facilitate student learning*. Corwin Press.
- Wagner, Å. K. H., Skaftun, A., & McTigue, E. (2020). Literacy practices in co-taught early years classrooms. Study protocol: The seaside case. *Nordic Journal of Literacy Research*, 6(4), 70–97. <http://dx.doi.org/10.23865/njlr.v6.2212>
- Wexler, J., Kearns, D. M., Lemons, C. J., Mitchell, M., Clancy, E., Davidson, K. A., Sinclair, A.C., & Wei, Y. (2018). Reading comprehension and co-teaching practices in middle school English language arts classrooms. *Exceptional Children*, 84(4), 384–402. <https://doi.org/10.1177/0014402918771543>
- Wilson, G. L., & Michaels, C. A. (2006). General and special education students' perceptions of co-teaching: Implications for secondary-level literacy instruction. *Reading & Writing Quarterly*, 22(3), 205–225. <https://doi.org/10.1080/10573560500455695>
- Yin, R.K. (2018). *Case Study Research and Applications. Design and Methods (Sixth Ed.)*. Sage.

Appendix 1: The Two Teachers in the Class RCT

The present study was undertaken within the framework of a large RCT study, *Two Teachers in the Class*, investigating the effects of higher teacher-student ratios and professional development for teachers in initial literacy education (Solheim et al., 2017). As part of the RCT study, the six schools participated in different experimental conditions targeting higher teacher-student ratios and professional development for teachers. While the classes belonging to condition 0 (C1, C3, C4) represented a ‘business as usual’ condition, free to use the extra teacher as they wished and with no requirements concerning the professional development of the teachers, condition 1 (C5, C6) and condition 2 (C2) were required to adapt to an Internet-based programme for professional development in literacy instruction (Language Tracks, <http://sprakloyper.uis.no>). This meant that all schools appointed a team responsible for planning and implementing Language Tracks. The schools were free to choose which key literacy areas from Language Tracks they would prioritise (e.g. Reading as a basic skill; Writing as a basic skill; and Difficulties with language, reading and writing). The teachers were asked to work with Language Tracks for an average of one hour per week. This weekly hour could be group sessions, work on assignments or try-outs in the classroom (Haaland et al., 2023, Solheim et al., 2017). Finally, in condition 2 (C2), the intervention classes also received specific guidelines for how the extra teaching resources should be used. This included assessment of letter knowledge and reading development; talks with the student about mastery, challenges and reading interests; reading aloud by every child to a teacher at least once a week; guided reading in achievement level groups (at least once a week); extra attention towards low-performing students (apps to train letter knowledge, phonological awareness and spelling were recommended); and use of adapted texts for homework in reading.

All the teachers involved also attended an information meeting before the start of the intervention. School leaders or school contacts also met the researchers three times (at the start, middle and end of the project) to discuss experiences, obligations, preliminary results – and for conditions 1 and 2, implementing Language Tracks – issues related to the use of the online literacy resources. In addition, the teachers in condition 2 attended two one-day courses where they were introduced to the recommended instructional approaches. The teacher couples did not have any specific time for planning related to the RCT but could plan their collaboration during their regular weekly time set aside for planning.

As shown, the requirements in the RCT were mostly about the use of online professional development resources and literacy instruction, and the teachers in all conditions received explicit information about reading instruction and the opportunities two teachers gave for more flexibility in the organisation of literacy instruction. Only for condition 2 were there explicit guidelines for how to use the extra teacher, with a primary focus on literacy instruction methods. When it comes

to the collaboration between the two teachers, however, it is important to note that as part of the RCT the teachers did not receive any specific information about different co-teaching approaches (*alternative teaching, parallel teaching and station work, etc*).

Appendix 2: Teacher presence in the classroom across the six classes

% of observed time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
1. Homeroom teacher and co-teacher in the classroom	85%	41%	55%	66%	61%	48%
2. Only homeroom teacher in the classroom	12%	59%	31%	10%	27%	51%
3. Only co-teacher in the classroom	3%	0%	13%	24%	12%	1%
TOTAL	100%	100%	100%	100%	100%	100%

Appendix 3: Overview of teacher presence in the classroom and distribution across organisational forms

The distribution of teacher presence in the classroom within each organisational form (%)					
	Whole class	Individual work	Stations	Work in pairs	All lessons
1. Homeroom teacher and co-teacher in the classroom	61.2%	52.9%	47.8%	35.7%	55.6%
2. Only homeroom teacher in the classroom	30.9%	38.6%	36.7%	64.3%	35%
3. Only co-teacher in the classroom	8%	8.5%	15.4%	0%	9.4%
TOTAL	100%	100%	100%	100%	100%
The distribution of organisational forms within each category of teacher presence (%)					
	Whole class	Individual work	Stations	Work in pairs	SUM
1. Homeroom teacher and co-teacher in the classroom	51.6%	32.1%	15.3%	1%	100.0%
2. Only homeroom teacher in the classroom	41.4%	37.1%	18.7%	2.8%	100.0%
3. Only co-teacher in the classroom	40%	30.6%	29.4%	0%	100.0%