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Students' perceptions of co-teaching in the general classroom

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ABSTRACT

This study examined how Finnish primary school students perceive teachers' roles and responsibilities, their own learning and participation, and the social climate during co-taught lessons. Data were collected through a web-based questionnaire among primary school students ($N = 242$) from grades four to six from Finnish schools where Swedish is the medium of instruction and co-teaching has been initiated. Students with and without special educational needs participated in the study. Students without special educational needs were more positive to co-teaching the more co-taught lessons they received per week, while students with special educational needs were most positive when they received four to five lessons weekly. Students also perceived that mostly the general education teacher is responsible for lesson planning and instruction but that both teachers contribute to the students' learning. In earlier research, the students' perceptions have seldom been in focus and there is an obvious need for more research on students' perspectives to develop and realise co-teaching as a teaching approach that promotes learning and participation for all students in a general classroom.

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Co-teaching; inclusion; special education; collaboration

Introduction

Inclusive education, where all students can receive education according to their individual needs in a regular classroom, is highlighted in international as well as national policy documents (Finnish National Agency of Education 2014; UNESCO 1994). The inclusion process has an impact on the roles, responsibilities and teaching approaches of both general education teachers (GETs) and special education teachers (SETs). Co-teaching between SETs and GETs is one of the recommended strategies to enable *all* students to receive instruction according to their individual needs in a general classroom (Friend et al. 2010; Sundqvist, Björk-Åman, and Ström 2021). Thus, co-teaching is used not only as a way to deliver instruction to students with special educational needs (SEN) but as a teaching approach that allows all students to receive instruction in a common physical space (Cook and Friend 1995). In such a learning environment, the teachers plan, implement and evaluate the teaching process together (Murawski 2006), and the collaborative work of GETs and SETs provides the opportunity to merge the professional knowledge

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and skills each teacher brings to the co-taught classroom, potentially benefitting all students in an inclusive setting (Villa, Thousand, and Nevin 2013).

Previous quantitative studies have primarily focused on students' academic achievement and their perceptions of co-teaching models (Szumski, Smogorzewska, and Karwowski 2017; Bottge et al. 2015; Hang and Rabren 2009). In earlier qualitative studies, the emphasis has been on student's perceptions of different co-teaching models, their own learning and teacher roles (Strogilos and King-Sears 2019; Keeley, Brown, and Knapp 2017; Embury and Kroeger 2012). Overall, the total sample of participants in each study has been quite small. This indicates the need for more research with a larger number of respondents that examines several different aspects of co-teaching from students' perspectives. A larger number of respondents enables a comparison between students with and without SEN and enhanced ability to generalise the results also for other contexts. Thus, the purpose of this study is to gain knowledge about students' perceptions of teachers' roles and responsibilities, their own learning and participation and the social climate during co-taught lessons. This knowledge could contribute to the development and implementation of co-teaching as a teaching approach for all students in the general classroom.

Co-teaching models

Different models of co-teaching have been developed by researchers (Cook and Friend 1995; Villa, Thousand, and Nevin 2013) to describe ways of organising the teaching approach. Villa, Thousand and Nevin (2013) described four different models: One Teach, One Assist means that one teacher gives instruction and has the main responsibility for the class while the other observes or assists. In parallel teaching, students are divided into two groups, and one teacher is responsible for each group. Complementary teaching implies that one teacher enhances the instruction provided by the other teacher. Finally, team teaching occurs when both teachers share responsibility for classroom leadership as well as planning, teaching and evaluation. In addition to these models, Cook and Friend (1995) proposed station teaching as a way of organising co-teaching. Station teaching implies that students work in smaller groups and rotate through each station in the classroom. Regarding the use of co-teaching models in Finnish schools, Sundqvist, Björk-Åman and Ström (2021) found that parallel teaching was the most frequently used model (56%), followed by the One Teach, One Assist model (40%). The other models were rarely used or not used at all.

Co-teachers' roles and responsibilities

In a co-teaching arrangement, a SET and a GET share responsibility for teaching all students in the common classroom (Villa, Thousand and Nevin 2013). The GET usually serves as the content expert, while the SET provides expertise in differentiating instructions and adapting the curriculum for students with SEN (Scruggs and Mastropieri 2017). Co-teachers have different competences; however, both teachers should be equal in their roles and share responsibilities in the co-taught classroom (King-Sears et al. 2014). Research has shown that this is not always the case: the SET often has more of an assistant role during co-taught lessons, while the GET acts as the

main teacher (Sirkko, Takala, and Wickman 2018; Sundqvist, Björk-Åman and Ström 2020; Takala and Uusitalo-Malmivaara 2012). A lack of common planning time and unequal roles between SETs and GETs are the most commonly reported challenges of co-teaching in previous studies (Kokko, Takala, and Pihlaja 2021; Scruggs and Mastropieri 2017; Strogilos, Stefanidis, and Tragoulia 2016; Sweigart and Landrum 2015; Takala and Uusitalo-Malmivaara 2012). Other challenges found in the literature include difficulties in finding a suitable partner and differences in teachers' personalities (Pratt 2014; Takala and Uusitalo-Malmivaara 2012). Factors such as time for common planning, similar teaching philosophies, professional development and administrative support are prerequisites for effective co-teaching relationships (Pratt 2014). In a survey study, Kokko, Takala, and Pihlaja (2021) examined teachers' ($N=694$) views regarding co-teaching and found that the more teachers collaborate the more benefits they find and the fewer challenges they encounter.

Embury and Kroeger (2012) investigated middle school students' perceptions of co-teachers in two inclusive classrooms in the United States. The interviews with the seventh and eighth grade students indicated that the use of co-teaching strategies by both teachers affected how the students perceived each teacher. The seventh-grade students described the GET as the main teacher and the SET as the assistant teacher. The only strategy used for co-teaching by the pair was the One Teach, One Assist model, and the teachers did not alternate roles. In the eighth-grade class, the teachers used different co-teaching models, and the students considered both teachers to have the same instructional role.

King-Sears et al. (2014) surveyed co-teaching perspectives of teachers and students in a science class in the United States. A majority (85.7%) of the students indicated that the GET planned most instructions, while the rest (14.3%) indicated that both teachers did most of the planning. Nevertheless, all participants agreed that both teachers worked together to provide instruction that met the students' learning needs.

Students' learning, participation and social climate during co-taught lessons

Earlier research on students' perspectives regarding co-teaching has mainly focused on students' academic achievements (Bottge et al. 2015; Losinski et al. 2019; Szumski, Smogorzewska, and Karwowski 2017), while aspects such as students' perceptions of their own learning, participation and social climate have gained less interest (Keeley, Brown, and Knapp 2017; King-Sears, Jenkins, and Brawand 2020). In this study, participation and social climate includes aspects such as varied teaching, student-student interaction, teacher-student interaction, behaviour and well-being.

Learning

Earlier studies on how co-teaching affects students' learning are contradictory; most have found positive or moderate positive effects (Hang and Rabren 2009; King-Sears et al. 2021; Murawski and Swanson 2001; Szumski, Smogorzewska, and Karwowski 2017), while some report neutral or negative effects (Hattie 2009; Losinski et al. 2019).

In a recent comprehensive meta-analysis, King-Sears et al. (2021) compared academic achievement of students without SEN in co-taught classes with achievement of students

with SEN in special education settings. The literature search generated 26 studies, with a total of 3,714 students with SEN, and the results indicated a moderate effect size ($g = 0.47$) for students in co-taught settings compared to students in special education settings.

Based on the results of a one-year observation study conducted by Lochner, Murawski, and Daley (2019) in eight secondary schools in West Virginia, students who received instruction in the least restrictive environment with access to general education content while being supported by a co-teacher were found to be more cognitively engaged at higher levels. This means that the students were actively engaged in challenging thinking skills or activities and involved in peer-to-peer conversation during activities.

Whether co-teaching is experienced positively by the students or has a positive impact on their learning may depend on the co-teaching model selected by the teachers, how it aligns with the lessons' learning outcomes and how the teachers distribute their roles and responsibilities (Carty and Farrell 2018; Embury and Kroeger 2012). Bottge et al. (2015) found that increased participation of SETs regarding instruction in a maths classroom improved the academic achievement of middle school students with SEN. Researchers also claim that students benefit more from co-teaching if both teachers' expertise is effectively used (Embury and Kroeger 2012; Sharma and Salend 2016; Wexler et al. 2018).

Participation and social climate

Few studies have examined how students perceive participation and social climate in co-taught settings. For example, Wilson and Michaels (2006) examined almost 350 secondary school students' perceptions of co-teaching. Both student groups responded favourably to co-teaching and reported receiving more help, structural support, multiple explanations and different teaching styles. The students were also asked to describe drawbacks they associated with co-teaching. Most reported perceiving *no drawbacks*, while some expressed drawbacks such as receiving contradictory explanations and getting distracted when one teacher was helping a student while the other was teaching.

Spörer, Henke, and Bosse (2020) investigated whether co-teaching influences student-student and student-teacher interactions and found that more interactions occurred during co-taught lessons than single-taught lessons. The observed co-taught lessons offered more opportunities for students to interact with others compared to single-taught lessons, and the effect was particularly significant for students with SEN. However, students with SEN interacted more with their teachers and less with their peers compared to students without SEN. In co-taught lessons, the likelihood of interacting with peers remained almost the same for students without SEN, whereas it was reduced for students with SEN. Sharma and Salend (2016) observed that if teachers mainly use the One Teach, One Assist approach, students with SEN tended to more intensively interact with the SET than students without SEN. Spörer, Henke, and Bosse (2020) highlighted the importance of providing teachers with more knowledge regarding co-teaching models and encouraging them to reflect on the relevance and effects of different models.

Strogilos and Avramidis (2016) conducted an observation study in 22 classes to identify grouping arrangements, engagement level and interactions with teachers and peers or students with SEN. The results revealed that students with SEN receive more individual

teaching in co-taught classes compared to non-co-taught classes and that co-teaching contributed positively to student behaviours. Students' experiences in the co-taught classroom have also been evaluated by Keeley, Brown, and Knapp (2017), who found that students' behaviour remains unchanged regardless of the co-teaching model and from the students' perspective all models have beneficial qualities when they are varied.

Another aspect considering the social climate is the teachers' attitudes towards including students with SEN in the general education classroom. Teachers' attitudes have a significant impact on how they manage their classroom, and teachers with positive attitudes towards inclusion have students that report greater satisfaction in the classroom and fewer difficulties than those with teachers who hold less positive attitudes (Monsen, Ewing, and Kwoka 2014).

Co-teaching as a part of the educational support system in Finland

Inclusive values are emphasised in Finnish educational policy documents and realised through the three-tiered support system (general, intensified and special support) in which all teachers have a responsibility to offer students early support through differentiation in regular classrooms (Finnish National Agency of Education 2016). The first tier of support, general support, is temporary and given immediately a student needs support. No statistical information is available for this tier because it is temporary and requires no official documentation. In 2021, 13.5% of students in primary schools (aged 6–12) received the second tier of support, intensified support, while 9% of primary school students received the third tier of support, special support (Statistics Finland 2021). The second tier is used when students need support for a longer period in one or several subjects. This requires a pedagogical assessment and a learning plan. If the support provided in the first and second tier is insufficient, special support is possible. An extensive assessment and a formal decision made by the school leader is required before an individual education plan is made for the student. However, special support does not necessarily mean special class placement. Over a third of the students provided with third tier support receive 80–100% of their education in regular classes (Statistics Finland 2021).

According to the policy documents, considerable responsibility is placed on GETs when it comes to students receiving the first tier of support; however, in practice, SETs serve a core function in the implementation of support through all three tiers (Paloniemi et al. 2021). Part-time special education, which can include individual teaching, small-group teaching or co-teaching (FNAE, 2016), is a common way to deliver support to students at all tiers of support (Paloniemi et al. 2021; Sundqvist, Björk-Åman, and Ström 2019). In the 2020–2021 school year, 22.7% of Finnish students in basic education received part-time special education (Statistics Finland 2021).

Co-teaching as a way of supporting students with SEN is highlighted in the Finnish National Core Curriculum for Basic Education (Finnish National Agency of Education 2016), and the use of co-teaching has increased during the last decade (Saloviita 2018; Sundqvist, Björk-Åman and Ström 2020; Takala and Saloviita 2010). In particular, teachers' views on co-teaching and the frequency of co-teaching among teachers have been recognised in several studies (Rytivaara, Pulkkinen, and Palmu 2021; Sirkko, Takala, and Wickman 2018; Sundqvist, Björk-Åman and Ström 2020; Takala and Saloviita and Takala 2010; Takala and Uusitalo-Malmivaara 2012).

Saloviita (2018) conducted a study among primary school teachers ($N=2,276$) in schools where Finnish is the medium of instruction to examine, among other things, how common co-teaching is among Finnish teachers. The results from the electronic survey indicated that 42% of teachers used co-teaching on a weekly basis; however, the results do not reveal for how many hours the teachers use co-teaching per week. Sundqvist, Björk-Åman and Ström (2020) investigated the use of co-teaching among SETs ($N=126$) in Finnish primary schools where Swedish is the medium of instruction. On average, the respondents in their study devoted 13% of their teaching time during the school year to co-teaching, which, in practice, is a couple of hours per week. There were also marked differences between schools; in some schools, the SETs did not use co-teaching at all, while the SETs in others used co-teaching up to 50% of their teaching time. Research also shows that SETs in Finnish schools use co-teaching to support students at all three tiers of support (Björk-Åman and Sundqvist 2019; Paloniemi et al. 2021).

Aim of the study

The current study is part of a research project investigating co-teaching from the perspectives of school leaders, teachers and students in Finnish schools where co-teaching is realised. The aim of this study is to examine how Finnish primary school students perceive co-teaching.

The following research questions have guided the study:

- (1) How do students with and without special educational needs perceive the special education teachers' and the general education teachers' roles and responsibilities during co-taught lessons?
- (2) How do students with and without special educational needs perceive their own learning, participation and the social climate in the co-taught setting, and how do students' perceptions vary according to the number of co-taught lessons per week?

Methods

Participants and data collection

Data for this study were collected in spring 2021 through a web-based survey among primary school students ($N=242$) from six Finnish schools (grades 4–6), located in different regions, where Swedish is the medium of instruction and co-teaching has been initiated. Participant selection was based on strategic selection, i.e. students at primary schools where co-teaching has been initiated were asked to participate. To contact such schools, the first author utilised previous contacts from an earlier study on school leaders' perspective on co-teaching. The inclusion criteria were that the schools should have started co-teaching and continued to use the teaching model for at least two hours per week during the school year.

Permission to conduct this research was acquired from the different municipalities where the participants were located and from the schools' leaders. Participation was voluntary, and informed consent forms were obtained from the students and their

Table 1. Descriptive statistics for grade and gender.

Grade	Female	Male	Other	Do not want to answer	Total
4	63	41	2	1	107
5	51	45	0	1	97
6	20	14	3	1	38
Total	134	100	5	3	242

guardians. The first author sent the consent forms to the concerned teachers in each school, who ensured that the guardians received and returned the completed form. Informed consent was obtained from 293 students, and 242 students answered the questionnaire. The internal missing data across all study variables ranged from 0.8% to 3.3%. The data collection was performed at the end of the school year to ensure that the students had sufficient experience in receiving co-taught instruction. Students with and without SEN participated. Students with SEN included students receiving the second ($N=37$) and third ($N=15$) tiers of support, while students without SEN included students with no support needs and students receiving the first ($N=185$) tier of support.

To ensure the clarity of the questionnaire, a pilot study was conducted with two students, one with SEN and one without SEN, before the actual data collection was performed. No changes were made to the original questionnaire.

Measures

Co-teachers' roles and responsibilities

To measure students' perceptions of co-teaching in the common classroom, a questionnaire inspired by the work of King-Sears and Strogilos (2020) was developed. Initially the participants were asked to provide background information such as their grade, gender (Table 1) and number of co-teaching lessons received weekly. The question concerning tier of support was the first question in the questionnaire and before the students continued to answer the questionnaire, the teachers checked that the students had marked the correct tier of support. The first part of the questionnaire focused on students' perceptions regarding co-teachers' roles and responsibilities and student interactions during co-teaching lessons. It contained nine statements, and the participants could choose from three alternatives (general teacher, special teacher or both teachers).

Learning, participation and social climate

The second part consisted of a five-point Likert scale that included three dimensions: *learning*, *participation* and *social climate* (Appendix 1). The participants could choose from strongly disagree (1) to strongly agree (5). To clarify the Likert scale further, appropriate smileys were placed besides the answer options. The dimension *learning* (seven statements) focused on the students' perceptions of their own learning and the support they receive during co-taught lessons. The dimension *participation* (four statements) inquired how the students perceived their own academic activity and interactions with teachers

Table 2. Descriptive statistics and correlations for study variables.

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3
1. Learning	234	3.76	.74	–		.
2. Participation	234	2.90	.91	.40***	–	
3. Social climate	234	3.86	.75	.65***	.40***	–

*** $p < .001$.

and peers. Finally, the dimension *social climate* (five statements) focused on how the students perceived the atmosphere and student behaviour in the co-taught classroom.

Analysis

All analyses were conducted using SPSS (version 27). To investigate the relations between SEN status and the GETs' and SETs' roles and responsibilities, a series of independent samples chi-square (X^2) tests were performed. Through cross tabulation, the observed frequencies were compared to the expected frequencies, and the X^2 test determined whether the difference was statistically significant. Further, two-way ANOVAs were used to analyse group-related differences in perceptions regarding co-teaching between students with and without SEN and between students receiving different amounts of co-teaching. Descriptive statistics and correlations for the teaching variables are displayed in Table 2, while the descriptive statistics for teacher role and responsibility variables are presented in Table 3.

Results

Students' perceptions of co-teachers' roles and responsibilities

Table 3 presents the students' perceptions regarding the SETs' and GETs' roles and responsibilities during co-taught lessons. A majority of both student groups, students without SEN (59.2%) and students with SEN (76%), indicated that they learn equally well from both teachers. However, both students groups indicated, that it is the GET who mostly gives instruction to the class, responds to students' schoolwork, seems to plan most of the lessons and seems to be in charge of most of the lessons. Regarding the support the students receive, the students reported receiving support from both teachers. This includes whom the students ask for help (6), who walks around and helps the students (7), who explains things most of the time (8) and who explains things in different ways (9).

When comparing students with and without SEN, significant differences were observed, regarding (1) whom they learn best from, (3) the teacher who mostly responds to their schoolwork and (5) the teacher who seems to be in charge of most of the lessons (see Table 3). A higher percentage of students without SEN compared to students with SEN perceived they learn best from the GET, while a higher percentage of students with SEN compared to students without SEN perceived they learn best from the SET or both teachers. As for who mostly responds to the students' schoolwork, most students without SEN indicated that they receive

Table 3. Students' perceptions of the general education teachers' and special education teachers' roles and responsibilities.

Statements	General Teacher		Special Teacher		Both Teachers		χ^2	df	p
	n	%	n	%	n	%			
1. I learn best from							11.17	2	.004
Students without SEN	68	37.0	7	3.8	109	59.2			
Students with SEN	7	14.0	5	10.0	38	76.0			
Total	75	32.1	12	5.1	147	62.8			
2. The teacher who gives instruction to the class							5.28	2	.071
Students without SEN	91	49.7	22	12.0	70	38.3			
Students with SEN	21	42.0	2	4.0	27	54.0			
Total	112	48.1	24	10.3	97	41.6			
3. The teacher who mostly responds to my schoolwork							9.07	2	.011
Students without SEN	102	55.7	9	4.9	72	39.3			
Students with SEN	18	35.3	7	13.7	26	51.0			
Total	120	51.3	16	6.8	98	41.9			
4. The teacher who seems to plan most of the lessons							5.28	2	.071
Students without SEN	117	63.9	8	4.4	58	31.7			
Students with SEN	24	47.1	2	3.9	25	49.0			
Total	141	60.3	10	4.3	83	35.3			
5. The teacher who seems to be in charge of most of the lessons							10.77	2	.005
Students without SEN	125	67.9	21	11.4	38	20.7			
Students with SEN	31	62.0	0	0.0	19	38.0			
Students with SEN	156	66.7	21	9.0	57	24.4			
Total									
6. When I need help, I ask							3.88	2	.144
Students without SEN	43	23.4	13	7.1	128	69.6			
Students with SEN	7	13.7	7	13.7	37	72.5			
Total	50	21.3	20	8.5	165	70.2			
7. The teacher who walks around and helps students the most							2.03	2	.363
Students without SEN	31	16.8	30	16.3	123	66.8			
Students without SEN	11	22.0	11	22.0	28	56.0			
Students with SEN	42	17.9	41	17.5	151	64.5			
Total									
8. The teacher who explains things most of the time							0.86	2	.651
Students without SEN	69	37.7	29	15.8	85	46.4			
Students with SEN	18	35.3	6	11.8	27	52.9			
Total	87	37.2	35	15.0	112	47.9			
9. The teacher who explains things in different ways							1.76	2	.415
Students without SEN	43	23.5	54	29.5	86	47.0			
Students with SEN	11	21.6	11	21.6	29	56.9			
Total	54	23.1	65	27.8	115	49.1			

SEN = special educational needs.

Note: Adapted from the Co-Teacher Student Questionnaire as used in King-Sears and Strogilos, (2020).

response from the GET while most students with SEN indicated that both teachers respond to their schoolwork. None of the students with SEN perceived that the SET alone seems to be in charge of the lessons compared to 11.4% of the students without SEN.

Students' perceptions of their own learning and participation and the social climate during co-teaching lessons

A repeated measures ANOVA showed that there were significant differences in how students perceived *learning* ($M = 3.76$), *participation* ($M = 2.90$) and *social climate* ($M =$

Table 4. Students' perceptions of their learning, participation and social climate during co-teaching lessons.

Measures	Students without SEN			Students with SEN			Total sample		
	N	M	SD	N	M	SD	N	M	SD
Learning									
2–3 lessons	67	3.50	.75	20	3.89	.54	87	3.59	.73
4–5 lessons	75	3.86	.70	18	3.96	.67	93	3.88	.69
>5 lessons	41	3.91	.78	13	3.54	.85	54	3.82	.81
Total	183	3.74	.76	51	3.82	.69	234	3.76	.74
Participation									
2–3 lessons	67	2.74	.85	20	3.12	.78	87	2.83	.85
4–5 lessons	75	2.86	.85	18	3.39	1.04	93	2.96	.91
>5 lessons	41	2.91	.98	13	2.92	1.02	54	2.92	.98
Total	183	2.83	.88	51	3.17	.94	234	2.90	.91
Social climate									
2–3 lessons	67	3.56	.92	20	4.14	.45	87	3.70	.87
4–5 lessons	75	3.95	.58	18	4.11	.76	93	3.98	.62
>5 lessons	41	3.98	.70	13	3.78	.74	54	3.93	.71
Total	183	3.82	.77	51	4.04	.67	234	3.86	.75

SEN = special educational needs.

3.86) during co-teaching lessons, ($F [1.69, 408.18] = 194.84; p < .001; \eta_p^2 = 0.45$). Pairwise comparisons showed that students considered their learning and the social climate to be better during co-teaching lessons compared to their academic activity and interactions with teachers and peers (participation; $p < .001$). The difference between *learning* and *social climate* was close to being significant ($p = .054$).

Table 4 presents how students with and without SEN perceive their own learning, participation and the social climate in the co-taught classroom, and how students' perceptions vary according to the number of co-taught lessons weekly.

Learning

There were no significant differences in *learning* with regard to the number of co-teaching lessons weekly, ($F [2, 228] = 1.45; p = .24; \eta_p^2 = .013$) nor between student groups ($F [1, 228] = .09; p = .76; \eta_p^2 = .000$). The interaction between co-teaching lessons and student groups for *learning* was significant ($F [2, 228] = 3.27; p < .05; \eta_p^2 = .028$). Students without SEN perceive *learning* more positively the more co-teaching lessons they receive per week, while students with SEN are most positive when they receive four to five co-teaching lessons per week.

Participation

There were no significant differences in participation with regard to the number of co-teaching lessons weekly ($F [2, 228] = 0.87; p = .42; \eta_p^2 = .008$). Significant differences were seen between the student groups regarding *participation*, ($F [1, 228] = 4.49; p < .05; \eta_p^2 = .019$); students with SEN perceive higher participation compared to students without SEN. There was no interaction effect regarding the number of co-teaching lessons received by each student group on participation ($F [2.228] = 1.02; p = .36; \eta_p^2 = .009$).

Social climate

There were no significant differences in perceived social climate related to the number of co-teaching lessons weekly ($F [2, 228] = 1.01$; $p = .36$; $\eta_p^2 = .009$) nor between student groups ($F [1, 228] = 2.32$; $p = .13$; $\eta_p^2 = .010$). The interaction effect of co-teaching lessons by student group on *social climate* was significant ($F [2, 228] = 3.48$; $p < .05$; $\eta_p^2 = .030$). Students with SEN perceive a more positive social climate compared to students without SEN when they receive two to three co-teaching lessons weekly.

Discussion

This study investigated students' perceptions of teachers' roles and responsibilities during co-taught lessons and students' perceptions of their own learning, participation and the social climate in co-taught settings. The findings related to teachers' roles and responsibilities revealed that both student groups perceive that they learn equally well from both teachers. However, a higher percentage of students without SEN compared to students with SEN perceive they learn best from the GET, while a higher percentage of students with SEN compared to students without SEN perceive they learn best from the SET or both teachers. According to the findings, the GET predominantly gives instruction to the class and seems to plan and is in charge of most lessons. These results align with earlier research disclosing the SET's role as an assistant in co-taught settings (King-Sears and Strogilos 2018; Strogilos, Stefanidis, and Tragoulia 2016; Takala and Uusitalo-Malmivaara 2012). Nevertheless, the students perceive that they receive support from both teachers. This was also found in the interview study with middle school students by Strogilos and King-Sears (2019). While SETs are seldom the lead teacher, the One Teach – One Assist co-teaching model can be effective when active support is provided to all students. Most students without SEN perceive they mostly receive response from the GET, while most students with SEN perceive that both teachers respond to their schoolwork. These results indicate that the SET focuses more on students with SEN, while the GET heeds to all students in the class. Sharma and Salend (2016) found that if teachers' predominantly use the One Teach, One Assist approach, students with SEN will interact more with the SET compared to students without SEN. When students with SEN interact more intensively with the SET, they are less likely to interact with classmates (Feldman et al. 2016). It can be assumed that more balanced teacher roles would promote more equal teacher-student interactions and facilitate interactions between students with and without SEN.

Findings related to students' perceptions of their own learning, participation and social climate based on the number of weekly co-teaching lessons revealed that all students perceive co-teaching positively. This could be explained by the presence of two teachers in the classroom enabling the students to receive more direct support when needed. This is also supported by earlier research (Strogilos and Avramidis 2016; Wilson and Michaels 2006).

Students without SEN are more positive about their learning the more co-teaching they receive per week, while the same applies to students with SEN when they receive four to five co-taught lessons per week. Based on the students' answers about who provides instruction, seems to be in charge and seems to plan the lessons, we can assume that the teachers in this study use the One Teach, One Assist model most frequently and

that the SET has more of an assistant role in the classroom. These different teacher roles may affect the perceptions of students with SEN regarding co-teaching if they receive more than five co-taught lessons weekly. The SET can consciously choose to give the GET more space, but this risks that the special educational knowledge and skills regarding differentiation and individualisation are not getting a place in the common classroom. If the SET adopts the role of an assistant, it may lead to insufficient support for students with SEN (Embury and Kroeger 2012; Sharma and Salend 2016; Wexler et al. 2018). Perhaps the SET and GET can develop their differentiation skills and provide sufficient support to all students if the SET takes a more active role during co-teaching lessons.

There were differences between participation and learning and between participation and social climate, as participation clearly received the lowest values. Students with SEN reported higher levels of participation than students without SEN. It is un-surprising that students with SEN feel more involved than students without SEN during co-taught lessons, because without the use of a co-teaching approach this group of students are taught individually or in small groups outside the common classroom (Paloniemi et al. 2021; Sundqvist, Björk-Åman, and Ström 2019).

The students' allocated the highest values to the social climate followed by learning. With regard to the social climate, students with SEN are more positive than students without SEN when they receive two to three co-taught lessons per week. Both student groups gave the social climate the highest ratings, which indicates that they consider it positive to have two teachers in class; the learning environment becomes calmer, and the teaching is more varied. The fact that co-teaching contributes positively to students' behaviour has been reported in earlier research (Keeley, Brown, and Knapp 2017; Strogilos and Avramidis 2016).

Limitations

This study has certain limitations that need to be considered when interpreting the results. According to the teachers, all students could read, but we cannot guarantee the quality of the students' reading comprehension. A lack of reading comprehension could explain the missing responses to some questions. Due to the sample size, we were unable to separate the students receiving intensified support (tier 2) and special support (tier 3). Students receiving different tiers of support could perceive co-teaching differently. As for learning, participation and social climate, a comparison of students' responses for co-teaching lessons with those lessons with only one teacher could more clearly illustrate the students' perceptions regarding the teaching model.

Conclusion and recommendations for future research

Co-teaching is emphasised in the national curriculum, but has not been established in Finnish schools. The results of this study indicate that students from schools where co-teaching is used experience the teaching model positively in terms of learning, participation and social climate. Thus, it is worthwhile to continue to develop this teaching model. Although previous studies suggest that equal teacher roles are important during co-teaching, the results of this study, like those of many previous studies, indicate that the GET is the leading educator in the classroom, while the SET seems to have an assistant

role. This raises concerns regarding whether the special education knowledge is used effectively during co-teaching lessons. An important practical implication of this study is to deepen the teachers' knowledge of how they can utilise the knowledge of both teachers and meet the needs of all students in the general classroom using different co-teaching models. If teachers acquire knowledge about students' positive experiences of co-teaching, their motivation to develop the teaching model can be strengthened. To develop co-teaching into a high-quality teaching model, it is vital that co-teaching partners continuously evaluate their students' experiences of co-teaching.

Future co-teaching research from the students' perspective should continue to include both students with and without SEN because all students' opinions are important for the development of co-teaching. To gain further knowledge about students' perceptions regarding learning, participation and social climate, researchers could conduct in-depth interviews with students, regardless of support tier, and collect observations from co-taught lessons, which would provide a deeper understanding of both student groups' answers.

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References

- Björk-Åman, C., and C. Sundqvist. 2019. "Speciallärares organisering av stöd för elever med inlärningssvårigheter i Svenskfinland." *NMI-Bulletin* Special Issue: 40–57. <http://urn.fi/URN:NBN:fi-fe2020100882966>.
- Bottge, B. A., M. D. Toland, L. Gassaway, M. Butler, S. Choo, A. K. Griffen, and X. Ma. 2015. "Impact of Enhanced Anchored Instruction in Inclusive Math Classrooms." *Exceptional Children* 81 (2): 158–175. doi:10.1177/0014402914551742.
- Carty, A., and A. M. Farrell. 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. doi:10.1111/1467-9604.12198.
- Cook, L., and M. Friend. 1995. "Co-Teaching: Guidelines for Effective Practice." *Focus on Exceptional Children* 28 (3): 1–12. doi:10.17161/fec.v28i3.6852.
- Embury, D. C., and S. D. Kroeger. 2012. "Let's Ask the Kids: Consumer Constructions of Co-Teaching." *International Journal of Special Education* 27 (2): 102–112.
- Feldman, R., E. W. Carter, J. Asmus, and M. E. Brock. 2016. "Presence, Proximity, and Peer Interactions of Adolescents with Severe Disabilities in General Education Classrooms." *Exceptional Children* 82 (2): 192–208. doi:10.1177/0014402915585481.

- Finnish National Agency of Education. 2016. *National Core Curriculum for Basic Education 2014*. Helsinki: Opetushallitus.
- Friend, M., L. Cook, D. Hurley-Chamberlain, and C. Shamberger. 2010. "Co-Teaching: An Illustration of the Complexity of Collaboration in Special Education." *Journal of Educational & Psychological Consultation* 20 (1): 9–27. doi:10.1080/10474410903535380.
- Hang, Q., and K. Rabren. 2009. "An Examination of Co-Teaching: Perspectives and Efficacy Indicators." *Remedial and Special Education* 30 (5): 259–268. doi:10.1177/0741932508321018.
- Hattie, J. 2009. *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*. New York, NY: Routledge Press.
- Keeley, R. G., M. R. Brown, and D. Knapp. 2017. "Evaluation of the Student Experience in the Co-Taught Classroom." *International Journal of Special Education* 32 (3): 520–537.
- King-Sears, M. E., A. Brawand, M. C. Jenkins, and S. Preston-Smith. 2014. "Co-Teaching Perspectives from Secondary Science Co-Teachers and Their Students with Disabilities." *Journal of Science Teacher Education* 25 (6): 651–680. doi:10.1007/s10972-014-9391-2.
- King-Sears, M. E., M. C. Jenkins, and A. Brawand. 2020. "Co-Teaching Perspectives from Middle School Algebra Co-Teachers and Their Students with and Without Disabilities." *International Journal of Inclusive Education* 24 (4): 427–442. doi:10.1080/13603116.2018.1465134.
- King-Sears, M. E., A. Stefanidis, S. Berkeley, and V. Strogilos. 2021. "Does Co-Teaching Improve Academic Achievement for Students with Disabilities? A Meta-Analysis." *Educational Research Review* 34: 100405. doi:10.1016/j.edurev.2021.100405.
- King-Sears, M. E., and V. Strogilos. 2020. "An Exploratory Study of Self-Efficacy, School Belongingness, and Co-Teaching Perspectives from Middle School Students and Teachers in a Mathematics Co-Taught Classroom." *International Journal of Inclusive Education* 24 (2): 162–180. doi:10.1080/13603116.2018.1453553.
- Kokko, M., M. Takala, and P. Pihlaja. 2021. "Finnish Teachers' Views on Co-Teaching." *British Journal of Special Education* 48 (1): 112–132. doi:10.1111/1467-8578.12348.
- Lochner, W. W., W. W. Murawski, and J. T. Daley. 2019. "The Effect of Co-Teaching on Student Cognitive Engagement." *Theory and Practice in Rural Education* 9 (2): 6–19. doi:10.3776/tpre.2019.v9n2p6-19.
- Losinski, M., S. Sanders, R. Parks-Ennis, N. Wiseman, and A. Katsiyannis. 2019. "An Investigation of Co-Teaching to Improve Academic Achievement of Students with Disabilities: A Meta-Analysis." *Journal of the American Academy of Special Education Professionals* 149–170. <https://www.naset.org/index.php?id=5158>.
- Monsen, J. J., D. L. Ewing, and M. Kwoka. 2014. "Teachers' Attitudes Towards Inclusion, Perceived Adequacy of Support and Classroom Learning Environment." *Learning Environments Research* 17 (1): 113–126. doi:10.1007/s10984-013-9144-8.
- Murawski, W. W. 2006. "Students' Outcomes in Co-Taught Secondary English Classes: How Can We Improve?" *Reading & Writing Quarterly* 22 (3): 227–247. doi:10.1080/10573560500455703.
- Murawski, W. W., and H. Lee Swanson. 2001. "A Meta-Analysis of Co-Teaching Research - Where are the Data?" *Remedial and Special Education* 22 (5): 258–267.
- Paloniemi, A., J. Pulkkinen, E. Kärnä, and P. M. Björn. 2021. "The Work of Special Education Teachers in the Tiered Support System: The Finnish Case." *Scandinavian Journal of Educational Research* 67 (1): 35–50. doi:10.1080/00313831.2021.1983649.
- Pratt, S. 2014. "Achieving Symbiosis: Working Through Challenges Found in Co-Teaching to Achieve Effective Co-Teaching Relationships." *Teaching & Teacher Education* 41: 1–12. doi:10.1016/j.tate.2014.02.006.
- Rytivaara, A., J. Pulkkinen, and I. Palmu. 2021. "Learning About Students in Co-Teaching Teams." *International Journal of Inclusive Education* 1–16. doi:10.1080/13603116.2021.1878299.
- Saloviita, T. 2018. "How Common are Inclusive Educational Practices Among Finnish Teachers?" *International Journal of Inclusive Education* 22 (5): 560–575. doi:10.1080/13603116.2017.1390001.
- Saloviita, T., and M. Takala. 2010. "Frequency of Co-Teaching in Different Teacher Categories." *European Journal of Special Needs Education* 25 (4): 389–396. doi:10.1080/08856257.2010.513546.
- Scruggs, T. E., and M. A. Mastropieri. 2017. "Making Inclusion Work with Co-Teaching." *TEACHING Exceptional Children* 49 (4): 284–293. doi:10.1177/0040059916685065.

- Sharma, U., and S. J. Salend. 2016. "Teaching Assistants in Inclusive Classrooms: A Systematic Analysis of the International Research." *Australian Journal of Teacher Education* 41 (8): 118–134. doi:10.14221/ajte.2016v41n8.7.
- Sirkko, R., M. Takala, and K. Wickman. 2018. "Co-Teaching in Northern Rural Finnish Schools." *Education in the North* 25 (1–2): 217–238.
- Spörer, N., T. Henke, and S. Bosse. 2020. "Is There a Dark Side of Co-Teaching? A Study on the Social Participation of Primary School Students and Their Interactions with Teachers and Classmates." *Learning & Instruction* 71: 101393. doi:10.1016/j.learninstruc.2020.101393.
- Statistics Finland. 2021. *Comprehensive school pupils having received intensified or special support, 2020–2021*. https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__erop/statfin_erop_pxt_13n6.px/.
- Strogilos, V., and E. Avramidis. 2016. "Teaching Experiences of Students with Special Educational Needs in Co-Taught and Non-Co-Taught Classes." *Journal of Research in Special Educational Needs* 16 (1): 24–33. doi:10.1111/1471-3802.12052.
- Strogilos, V., and M. E. King-Sears. 2019. "Co-Teaching is Extra Help and Fun: Perspectives on Co-Teaching from Middle School Students and Co-Teachers." *Journal of Research in Special Educational Needs* 19 (2): 92–102. doi:10.1111/1471-3802.12427.
- Strogilos, V., A. Stefanidis, and E. Tragoulia. 2016. "Co-Teachers' Attitudes Towards Planning and Instructional Activities for Students with Disabilities." *European Journal of Special Needs Education* 31 (3): 344–359. doi:10.1080/08856257.2016.1141512.
- Sundqvist, C., C. Björk-Åman, and K. Ström. 2019. "The Three-Tiered Support System and Special Education Teachers' Role in Swedish-Speaking Schools in Finland." *European Journal of Special Needs Education* 34 (5): 601–616. doi:10.1080/08856257.2019.1572094.
- Sundqvist, C., C. Björk-Åman, and K. Ström. 2021. "Special Teachers and the Use of Co-Teaching in Swedish-Speaking Schools in Finland." *Education Inquiry* 12 (2): 11–126. doi:10.1080/20004508.2020.1793490.
- Sweigart, C. A., and T. J. Landrum. 2015. "The Impact of Number of Adults on Instruction: Implications for Co-Teaching." *Preventing School Failure* 59 (1): 22–29. doi:10.1080/1045988X.2014.919139.
- Szumski, G., J. Smogorzewska, and M. Karwowski. 2017. "Academic Achievement of Students Without Special Educational Needs in Inclusive Classrooms: A Meta-Analysis." *Educational Research Review* 21 (1): 33–54. doi:10.1016/j.edurev.2017.02.004.
- Takala, M., and L. Uusitalo-Malmivaara. 2012. "A One-Year Study of the Development of Co-Teaching in Four Finnish Schools." *European Journal of Special Needs Education* 27 (3): 373–390. doi:10.1080/08856257.2012.691233.
- UNESCO. 1994. *The Salamanca Statement and Framework for Action on Special Needs Education*. Salamanca: UNESCO, Ministry of Education and Science.
- Villa, R., J. Thousand, and A. Nevin. 2013. *A Guide to Co-Teaching: New Lessons and Strategies to Facilitate Student Learning*. Thousand Oaks, CA: Corwin Press.
- Wexler, J., D. M. Kearns, C. J. Lemons, M. Mitchell, E. Clancy, K. A. Davidson, A. C. Sinclair, and Y. Wei. 2018. "Reading Comprehension and Co-Teaching Practices in Middle School English Language Arts Classrooms." *Exceptional Children* 84 (4): 384–402. doi:10.1177/0014402918771543.
- Wilson, G. L., and C. A. Michaels. 2006. "General and Special Education Students' Perceptions of Co-Teaching: Implications for Secondary-Level Literacy Instruction." *Reading & Writing Quarterly* 22 (3): 205–225. doi:10.1080/10573560500455695.

Appendix 1

My Learning

- (1) I learn more when I am in this class with two teachers
- (2) I get help faster with two teachers in the class
- (3) The two teachers use more ways to teach than when I am in classes where there is only one teacher
- (4) I would rather have only one teacher in the classroom
- (5) I wish I always had two teachers in the class
- (6) It is hard to have two teachers at the same time
- (7) Having two teachers makes me sometimes confused

Participation

- (1) It is easier for me to ask for help with two teachers in the class
- (2) I collaborate more with my classmates when I am in a class with two teachers
- (3) I participate more actively in the teaching when I am in a class with two teachers
- (4) I find it easier to express my opinion with two teachers in the class

Social climate

- (1) I believe both teachers enjoy teaching the class
 - (2) I enjoy having two teachers in the class
 - (3) Students seem to behave better when there are two teachers in the class
 - (4) The learning environment becomes more peaceful with two teachers
 - (5) The teaching becomes more varied with two teachers in the class
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Note: Adapted from the Co-Teacher Student Questionnaire as used in King-Sears and Strogilos, 2020.