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# Cooperative learning in physical education: a study of students' learning journey over 24 lessons

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## ABSTRACT

**Background:** Although a review of literature on Cooperative Learning (CL) in Physical Education (PE) has shown that CL can facilitate student learning in all legitimate learning domains for PE [Casey, A., and V. A. Goodyear. 2015. "Can Cooperative Learning Achieve the Four Learning Outcomes of Physical Education? A Review of Literature." *Quest* 67 (1): 56–72. doi:10.1080/00336297.2014.984733], we need further knowledge about student learning which results from the sustained implementation of the model beyond the initial unit.

**Purpose:** This paper draws on 24 lessons of CL over two academic years investigating students' learning journey through (a) teachers' perceptions on students' learning journey through CL, and (b) students' experiences of their learning journey through CL.

**Method:** The study is part of a larger participatory action research project and follows students through four related six-week interventions in PE. The study draws on different data sources such as interviews, observation notes and the researcher's reflective diary in order to acquire an in-depth understanding of students' learning journey. Through first author's close presence throughout the project, Lars was very familiar with the data. Hence, the analysis adopted an abductive approach [Alvesson, M., and K. Skoldberg. 2018 *Reflexive Methodology: New Vistas for Qualitative Research*. 3rd ed. Los Angeles, CA: Sage] in which the empirical data were examined with the aid of pre-established theoretical concepts.

**Findings:** Three themes emerged from the analysis. The first, 'shifting attitudes' highlighted how students changed their attitudes towards CL from being reluctant to positive. The second, 'the influence of having learning objectives' shows that working systematically with learning objectives over time, helped students understand that physical education is, in fact, a subject for learning. The final theme, 'social- and emotional learning', identified aspects of students' learning that eventually results in all students being capable of working alongside their peers to master academic tasks in physical education.

**Conclusion:** After experiencing learning through CL as meaningful, many students developed a positive attitude towards CL and working with their peers in small groups. The paper shows that having learning objectives is something most students appreciate and value. Nevertheless, working with learning objectives must be undertaken systematically over time so that students understand that they are expected to learn in physical education. While other studies have suggested that it took a few weeks

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for students to work comfortably together [Casey, A., B. Dyson, and A. Campbell. 2009. "Action Research in Physical Education: Focusing Beyond Myself Through Cooperative Learning." *Educational Action Research* 17 (3): 407–423. doi:10.1080/09650790903093508], students in this project required up to 17 lessons before they were able to function in their groups. At the same time, all students, with different motor, social, cognitive and affective challenges, can be capable of learning through CL. However, this did not happen by chance, and the teacher must carefully adapt the delivery of the CL model to meet the needs of all students.

Previous research has highlighted challenges related to how students perceive and experience learning in physical education (PE) (Redelius, Quennerstedt, and Öhman 2015; Smith and Parr 2007). For example, studies show that students perceive PE as a break from academic subjects and that they are left to themselves to understand what they are supposed to learn in PE (Larsson and Karlefors 2015; Lyngstad, Bjerke, and Lagestad 2019). This picture of students' experiences of learning in PE, mirrors what we know about teachers' practices. Studies have especially highlighted how teachers consider keeping levels of physical activity high to be more important than what students learn (Kirk 2010; Larsson and Nyberg 2017). Many scholars reject this emphasis and outline the need to keep a focus on learning, and to develop students' skill and attitudes (Quennerstedt 2019).

Against this backdrop, and a desire to explore how a change of teachers' pedagogical practice promotes student learning, the first author initiated a participatory action research (PAR) project in collaboration with three primary school PE teachers. Over the last decade, there has been a growing consensus that a model-based practice (MBP) is a possible future practice for PE (Casey 2017; Casey, Goodyear, and Dyson 2015; Kirk 2013). A model-based practice can be seen as a pedagogical approach in which the teacher moves away from an emphasis on subject matter (curriculum) or a specific instructional style (e.g. direct instruction), and instead aligns outcomes with the students' needs and teaching style (Casey 2017). MBP has been positioned as a way of promoting physical, cognitive, social and affective learning in PE (Bailey et al. 2009; Kirk 2013). Although an MBP requires use of multiple models, this paper investigates students' learning journey through a single pedagogical model, and more precisely Cooperative Learning (CL). Choosing CL over other models was based on the teachers' desires and the first author's (Lars') training and expertise in CL.

## Cooperative learning

In CL, students work in small, structured, heterogeneous groups to master subject content (Dyson and Casey 2016). Working together, students are not only responsible for learning the content themselves, but also assist peers in their learning processes. Research on CL is extensive, and research from the late nineteenth century shows that working cooperatively effects learning positively (Dyson and Casey 2016; Johnson and Johnson 2009). However, it was not until the twenty-first century that CL began to develop in PE (Dyson and Casey 2016). CL is centred around five principles deriving from the work of Johnson and Johnson (2009) on the conceptual approach to CL. In this approach, it is assumed that teachers can learn the five key principles of structuring CL, and then adapt these to their own classrooms (Table 1).

A recent review of CL literature in PE summarized learning outcomes as 'an academic achievement (an ability to apply and understand content), interpersonal skill development and relations (communication skills and/or peer relations), enhanced participation (engagement with learning tasks), and an improvement in young people's psychological health (self-esteem and/or motivation) (Casey and Goodyear 2015, 57).

More specifically, studies have highlighted the importance of lesson goals to facilitate student learning through CL (Dyson 2001; Darnis and Lafont 2015). Dyson (2001) found that students

**Table 1.** Key principles for CL.

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<i>Positive interdependence</i> means that members of a group are linked together in such a way that they 'sink or swim' together; one student cannot succeed unless the other group members do.
<i>Face-to-face promotive interaction</i> is the students being head-to-head, toe-to-toe or knee-to-knee. In order to succeed, the students must share resources, help, support, encourage and praise each other's efforts.
<i>Individual and group accountability</i> refers to the group being accountable for achieving its goals at the same time as each individual must be responsible for completing their part of the total work.
Students must learn <i>interpersonal and small-group skills</i> to function in their group. They must know how to lead effectively, make decisions, build trust, communicate and solve conflicts
<i>Group processing</i> refer to students discussing how well they work together and to what extent they have reached the learning objectives

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Source: Johnson and Johnson (2009) and Dyson and Casey (2016).

began to articulate and reflect upon the learning objectives in CL lessons. Having both psychomotor and social goals made 'both content achievements and cooperative success' important criteria for students (270). In a similar vein, Darnis and Lafont (2015) highlighted how group goals influenced social interaction between the students, which in turn enhanced their motor learning. However, for lesson goals to have such an impact, there seems to be a need for creating a shared understanding of the lesson goals between teachers and students (Dyson 2001).

Many studies of CL report on students' social learning. This includes developing interpersonal skills, improved relations between students, listening skills, sharing ideas and collectively developing new meaning and understanding (Casey and Goodyear 2015). For example, several studies have shown how CL creates a trusting and respecting atmosphere within the classes (Dyson 2001; Fernandez-Rio et al. 2017; Goudas and Magotsiou 2009). For example, Velázquez Callado (2012) discovered that increasing levels of 'prosocial behaviours and inclusion of pupils with educational needs' (80). Inclusion was also the focus of Grenier and Yeaton's (2012) study, in which the authors highlighted how CL could be differentiated to give all students meaningful tasks. In another study, Goudas and Magotsiou (2009) found that students developed empathy with and towards other students. The same study also revealed that students who participated in a CL learning programme developed positivity towards group-work in PE.

Learning social skills have been found to act as a catalyst supporting students' academic learning through the model. The development of these skills takes time 'although there is no definitive timeline for this' (Casey and Goodyear 2015, 63). Casey, Dyson, and Campbell (2009) however, suggested that it took a few weeks before the students were comfortable working and learning alongside their peers.

Although CL has received increased attention from researchers within the PE field over the last few decades, very few studies report on sequential learning over time as most interventions last typically for between six and ten lessons (Casey and Goodyear 2015). Hence, one of the conclusions in the review of literature on CL in PE is that we need further knowledge about student learning which results from sustained implementation of the model beyond the initial unit (Casey and Goodyear 2015). To address this, the purpose of this paper is to explore students' learning journey through 24 lessons of CL over two academic years. More precisely, the paper explores (a) teachers' perceptions of students' learning journey through CL, and (b) students' experiences of their learning journey through CL.

At this point, it is necessary to highlight how learning is understood in this paper. We draw on the work of Casey and Quennerstedt (2020) who recently suggested that in studying students' learning through CL, emphasis should be more about the learning journey rather than the specific learning aspiration. Hence, this paper investigates students' learning as a journey of doing CL for related 24 lessons.

## Method

This section commences with a short description of the participants in the study prior to a discussion of the research design. Data collection and analysis are then described, before trustworthiness and

ethical considerations are highlighted. Finally, we draw on the work of Hastie and Casey (2014) in a discussion of model fidelity.

### **Participants**

Two trained PE teachers from the same PE department (grades 5–7), signed a declaration of consent to participate in the study. David, the 5th-grade PE teacher was newly qualified as a teacher with one year of teaching experience. Erik, the 6th-grade teacher had approximately 25 years' teaching experience.

Through the recruitment of the teachers into the project, two 5th-grade classes and one 6th-grade class were included in the study. Hence, the study draws on a sample of 41 5th-grade students (10–11 years) and 23 6th-grade students (11–12 years). Of the total of 64 students, 20 5th-grade students and seventeen 6th-grade students together with their parents signed the declaration of consent to participate in group interviews. These students were organized into two groups of four or five students in each class. Dialogue with their teachers ensured that the individual group characteristics were similar to those of the group as a whole in respect of gender, background and ability (Cohen et al. 2018).

Lars, the first author, had the role of being the facilitator in the project. Lars is a qualified PE teacher with six years of teaching experience from primary school. He has been a teacher-educator since 2013. Lars's role in the project was influenced by Kemmis and McTaggart's (2008) notion of a facilitator: they view his role as a co-participant with particular knowledge that is helpful for the teachers as they develop their practices.

### **Design and data collection**

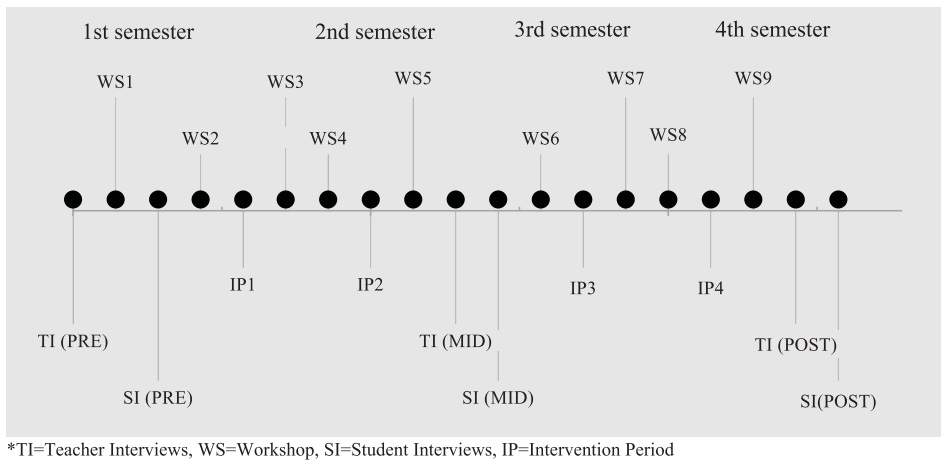
The project was designed by Lars in close collaboration with the teachers. As PAR pays specific attention to the participatory and collaborative nature of action research (Kemmis and McTaggart 2008), the project was designed with an emphasis on creating structures for dialogue, analysis and negotiation between the teachers, and between teachers and Lars (Ax, Ponte, and Brouwer 2008).

Being a PAR project, it was designed to serve both a practical and an academic objective: (a) to facilitate teachers' professional development through CL, and (b) enable Lars to collect the data used in this paper (Kemmis and McTaggart 2008). To provide clarity in our writing, we therefore first present how PAR was operationalized to serve the practical purpose. Then, we outline different methods for collecting data. Simultaneously, we acknowledge that there was an interplay between the practical and academic objectives. For example, Lars used the collected data as a starting point for discussion, analysis and negotiation with the participating teachers (Ax, Ponte, and Brouwer 2008) to facilitate their pedagogical development. Figure 1 illustrates how PAR was operationalized in practice.

For professional development purposes, both teacher and student interviews were used to gather information on how they experienced the project. For example, Lars presented student voices from the mid-interviews to the teachers before planning the next unit (i.e. how they experienced different CL structures and tasks). The workshops, in which both teachers were present together with Lars, were used to discuss CL theoretically, collaboratively think and plan units in accordance with CL (Workshops 2, 4, 6 and 8), as well as evaluating and reflecting on the completed units (Workshops 3, 5, 7 and 9). Each of the four intervention periods (units) consisted of six lessons and were spread over the two academic years in order to best fit the teachers and class schedules. In all other lessons that were not part of the project, the teachers were free to choose how they taught PE. Based on our on-going conversations, it was clear that they mostly used direct instruction in these lessons.

For the academic purpose, data were collected from several sources as shown in Table 2.

Teachers and student interviews included questions about student learning and experiences from the CL lessons. All interviews were recorded and transcribed verbatim. All of the nine professional



**Figure 1.** Timeline. Notes: TI = Teacher Interviews, WS = Workshop, SI = Student Interviews, IP = Intervention Period.

development workshops were recorded using a voice recorder. These workshops included discussions about students' learning journey following a completed unit. After each lesson, the PLTA (Dyson 1994) investigated questions such as: Did you observe any learning occurring among the students today? Due to the large amount of data (about 25 hours workshop and 72 post-lesson teaching analyses), neither the workshops nor the PLTA were transcribed in their entirety. However, key aspects of the events (such as teachers' sharing their perceptions of student learning) were noted continuously. These notes made it possible for Lars to return to specific parts of the recordings for further investigation. In addition, Lars wrote down a reflective summary after each event.

Lars observed all lessons personally and wrote down observations from the 72 lessons. These observation notes included student comments, conversations and actions relevant to the investigation of their learning journey. Finally, Lars's reflective diary recorded informal conversations, events or incidents that were not captured by the other data sources, since they occurred outside the interviews, workshops or PE lessons.

### Data analysis

The analyses have been a cyclical process undertaken at different times to serve different purposes (Kemmis and McTaggart 2008). At an ongoing level, lessons and units have been continuously analysed to facilitate teachers' professional development.

After the project was concluded, Lars took one-step back to re-investigate the data related to the students' learning journey. In order to investigate changes throughout the duration of the project, data were organized chronologically before being analysed. As the ongoing analysis had created some preconceptions, that were also informed by prior research on student learning through CL, the analysis at this point moved into what Alvesson and Sköldbberg (2018) label 'an abductive approach'. Through the abductive approach, the empirical data were examined with the aid of preliminary established theoretical concepts such as 'social learning', 'motor learning' and 'time'. At the same time, Lars sought to develop, elaborate and adjust these themes to the empirical data (Alvesson and Sköldbberg 2018). One example is how 'social learning' through the analyses developed into 'social and emotional learning' since this framework, as proposed by Dyson (2019), better encapsulated the span of the data. The constant comparison method (Lincoln and Guba 1985) helped investigate how the ongoing theorizing was supported or contradicted in the different data sources. As the student learning journey is the focus of this paper, the four legitimate learning domains of PE (Bailey et al. 2009) acted as an analytical lens through the comprehensive data material. However, the first

**Table 2.** Data collection methods.

Method	Detail
Teacher interviews (pre, mid and post)	Individual interviews, typically 25–35 min.
Student interviews (pre, mid and post)	Group interviews of 4 or 5 students, typically lasting for 15–20 min.
Workshops	Nine recorded professional development workshops (each lasting 2–3 h). X were present alongside all participating teachers.
Post-lesson teaching analysis	A modified version of Dyson (1994) post-lesson teaching analysis (PLTA) was used after each lesson
Observation notes	First author's observation notes from 72 lessons (about 100 computer written pages)
Researchers reflective diary	Researcher's reflective diary from the entire project (about 95 computer written pages)

author remained open to other findings outside of the analytical scope by writing down codes and themes that were not always related to the four learning domains. At this stage, both first and second authors discussed the themes identified and tried to refine them accordingly. Finally, putting all analyses together, three themes were identified: 'shifting attitudes towards CL', 'the influence of having learning objectives' and 'the development of social and emotional skills'.

### *Trustworthiness and ethics*

Several actions were taken to address trustworthiness (Lincoln and Guba 1985). Lars's reflective diary helped maintain a reflexive attitude to establish confirmability. To address credibility, Lars sought to create an open and free dialogue with both students and teachers so that they would share how they actually experienced the learning journey through CL, and not only what the first author wanted to hear. Eric (the 6th-grade teacher) highlighted Lars's prolonged presence as a strength when he suggested that 'you would never get these honest answers [from students and teachers] if you just had dropped by once' (post-interview). Moreover, the triangulation of data sources also helps to establish the credibility of the findings. Discussions between teachers and Lars, as well as between Lars and the second author, enhanced the study's dependability. Finally, we seek to provide a rich description of the programme context in order to address transferability (Lincoln and Guba 1985).

The study was approved by the Norwegian Centre for Research Data and follows the ethical guidelines provided by the Norwegian National Research Ethics Committees. Parents were informed about and given the opportunity to ask questions about the project at a parental meeting for each class. All participants could withdraw at any time without consequences.

### *Cooperative learning model fidelity*

Hastie and Casey (2014) provide a guide for reporting research on MBP by identifying three key elements that should be included in every methods section as a minimum. It is important to add that model fidelity is not concerned with 'getting it right', but to show what has been done in order to identify one's own model (Hastie and Casey 2014).

- (1) A rich description of the curricular elements of the units

Table 3 illustrates themes and objectives for each of the four six-lesson units in this study. The participating teachers decided on content, objectives and CL structures in dialogue with Lars.

The teachers purposefully selected heterogeneous groups in all of the four units. Students spent most of the time in groups of 4 or 5, but some pair-work was also included. Different versions of worksheets and team-folders (including aims, group rules and names, description of roles, tasks and reflective questions) developed by teachers and the researcher collaboratively, were used in all units.

## (2) A detailed validation of model implementation

In order to assess and maintain model fidelity, the first author observed all lessons in person. Lars's observations made it possible assess to what extent model fidelity had been achieved through recording how the five CL features and additional features were present (Casey, Goodyear, and Dyson 2015). While fidelity, in general, was high throughout the project, there were a few examples where this was not the case. For example, students were not always given time for group processing in the first unit. When examples of lower fidelity were observed, this was a topic for discussion in the PLTA or the following workshop. Altogether, we support Casey, Goodyear, and Dyson (2015) who suggest that although full fidelity was not achieved in every lesson, we are confident that the student learning in the four units under investigation occurred as a result of CL.

## (3) A detailed description of the programme context including previous experiences of the teacher and students with Cooperative Learning.

The study was conducted at Forest Primary School (pseudonym). This is an average-sized Norwegian state school with 225 pupils (grades 1–7, ages 6–12) located in a medium-size municipality in Norway. PE was compulsory and typically taught in co-ed classes once a week for approximately 1 hour. Prior to the study, PE was taught through a multi-activity approach, using mainly direct instruction. According to the participating teachers, the classes included in this study were very heterogeneous in terms of ability, ethnicity and gender.

None of the teachers nor students had prior knowledge or experience of CL as a pedagogical model, although Eric had 'touched upon CL in some other school subjects' [his own words]. Through extensive reading of CL literature and a three-month exchange period at Loughborough University working closely with Dr. Ashley Casey (an expert on CL in PE), Lars had a good understanding of CL.

## Findings

In presenting our three themes, we place emphasis on the students' learning journey over 24 lessons of CL. Although the students progressed an academic year throughout the project, they are consistently referred to as 5th- or 6th-grade students.

**Table 3.** Curricular elements for each unit.

Unit	Theme	Student unit objectives	CL structures
1	Floorball	Master basic skills in floorball (passing, dribbling and shooting) Help other students learn. Give and receive feedback. Contribute to cooperation and team play. Know basic rules for floorball. Know key moments for passing, dribbling and shooting in floorball.	JIGSAW, Think Pair-Share, Numbered Heads Together, Learning Pairs.
2	Athletics	We will together as a team practice different forms of athletic. We will do our best each time. We will respect each other's roles. We will help each other learn. We will learn key points for executing six different athletic activities.	Students Team Achievement Division (STAD)
3	Cooperation (orienteering, parkour/freerunning, dance, acrobatics)	We will give and receive feedback that promote other students learning. We show positive attitude towards other group members. We know how our group work well together	Learning pairs, Learning Teams
4	Cooperation (skates, play, snow cave, skiing)	We will work together as a group to learn. We will do our best each lesson so that the group reaches the goals. We will learn about how group work support our learning	Learning Teams, Learning Pairs



### **Shifting attitudes towards CL**

The change from being a *participant* in a PE programme that emphasized high levels of activity, play and having fun, towards becoming a *learner* in cooperative groups, was significant and challenging. This challenge was particularly problematic in the first few lessons where there seemed to be a broad gap between how students expected PE to be, and how PE was experienced through CL. For example, the first author overheard a male 5th-grade student arguing at the end of the first lessons that ‘expert groups [a way of structuring a class using JIGSAW] takes time away from PE’, as ‘you don’t get physically fit by using time in expert groups’ [observation notes] His frustration was shared by many of his peers, as the amount of what they considered ‘time thieves’ (tasks that did not include physical activity such as doing group processing) was significantly higher in their teacher’s new pedagogical approach.

The students’ problematic view of the first lessons of CL was shared by their teachers. In evaluating and reflecting on unit 1 the teachers suggested that they believed students had experienced CL as ‘irrelevant, unsafe, demanding, and even boring’ (workshop 3). To address these concerns, a number of improvements were suggested before planning the next unit. The following actions were discussed (workshop 4) and actioned (intervention period 2): (a) create new groups based on experiences from unit 1; (b) return to a modified version of ‘Lesson Zero’ (Dyson and Casey 2016) as the first lesson of unit 2 so as to improve group affiliation and atmosphere; (c) attach more emphasis to social goals, and add ‘we’ to all objectives (see Table 3); (d) use STAD as the CL structure to emphasize different roles (coach, encourager, warm up responsibility and secretary) rather than all students being responsible for a piece of the content; and (e) discuss social skills needed to succeed more explicitly with the students.

After applying these improvements, many students finally experienced learning through CL as something positive. This is one example of how the teacher’s involvement with PAR enabled them to continuously address how they could enhance students’ experiences of learning through CL. This development from unit 2 was further reinforced in units 3 and 4, which eventually facilitated a change in attitude towards CL. One strong example of this change in attitude was found outside PE towards the end of the project. The 6th-grade class had struggled with many internal conflicts between the students. When Eric (the teacher) discussed with the class how these problems could be addressed, the students themselves suggested working in ‘cooperative groups’ (as they referred to them) consisting of students who did not know each other very well. Furthermore, they had suggested having different roles and tasks with different team-building activities in order to get to know each other and learn how to interact together with students with whom they had never worked together before (reflective diary). A similar change in attitude was observed in the 6th-grade class. David described the change in students’ attitudes towards CL from ‘what is this [CL]? I do not want to participate [in these lessons]’ in the first unit, to students having a ‘generally positive attitude towards CL’ at the end (post-interview).

### **The influence of having learning objectives**

A clear finding in the pre-interviews was that the students did not perceive PE as a subject for learning. Instead, ‘having fun’, ‘get in shape’ and ‘have a break’ were the ways in which they talked about the subject and hence the primary reasons for having PE. Michael, a 6<sup>th</sup>-grade student, even argued that ‘we do not consider PE a subject, so we don’t really feel that we learn anything’ (pre-interview). This lack of focus on learning is in many ways confirmed by David, the 5th-grade teacher who, in the PLTA after a lesson in unit 1, stated: ‘I guess they are used to the teacher opening the equipment room and just say ‘go ahead’. They are not used to learning things in PE’

However, in the post-interview, after participating in 4 six-week units with CL over two years, a few students expressed a different view on learning in PE. One of them, Turid, a 6th-grade girl suggested that

there is definitely something to learn in all subjects – even in PE. ... We have noticed that now. Even rules are something we need to learn. And, how you do different things. ... I think that has become clear through working in groups with specific objectives for the stuff we have done. What we have done has not been so incidental and based on what we want to do.

Peter, a 6th-grade boy, claimed that he had changed his mind and he now believed that ‘it [PE] is definitely a subject’. When asked more about why he had changed his opinion, now arguing that PE was in fact ‘a subject’, one of his classmates, John, interrupted and argued that ‘because it is almost like maths; you learn something. You learn new things, stay physically active and use your brain’ (post-interview). Several other students highlighted that ‘using your brain’ was something they associated with learning, and that through CL PE demanded more use of cognitive skills than traditional PE. Jonas (a 7th-grade male student) even argued that ‘having objectives as in maths and English makes it easier to understand that PE is a subject’ (post-interview). However, although some students changed their view, for most students PE was still a subject for merely being active and having fun – if they considered PE as a subject at all.

Many students expressed that having ‘specific objectives’ was something they appreciated as these objectives made them aware of what they were supposed to learn in the PE lessons. During a high-jump lesson in unit 2, one female student was, for example, anxious about whether or not she could make it over the bar. The coach (a student role in STAD) approached her and told her that ‘to get over the bar is not the most important, but that you try. The objective is to practice high-jump [not to make it]’ [observation notes]. This is one of many similar examples of how having defined objectives guided students towards what they were supposed to do, and what they were supposed to learn. Eric, the 7th-grade teacher, suggested in his post-interview that having these objectives was quite different from what students were used to, especially experiencing the objectives being explicitly communicated at the beginning of the lesson, and having objectives related to different learning domains. Both teachers experienced learning objectives as key for their students’ learning journey. One example is how teachers came to realize that the learning objectives for the first unit had been too much oriented towards individual motor learning (see Table 3). Thus, in creating objectives for unit 2, teachers added ‘we’ to the objectives, in addition to placing social objectives more explicitly in the foreground. Moreover, discussions on how to communicate, explain and discuss these objectives with the students emphasized how the teachers could create a mutual understanding of the objectives of the lessons.

Several students emphasized having the same objective for several consecutive lessons as useful. Turid described this as having ‘something specific for a longer period, contrary to us [the students] just agreeing with the teacher on something each time’. One example of how giving students the same objective for several lessons was effective was found in unit 2. To reach the learning object ‘we will help each other learn’, one of the groups identified ‘listening to each other’ as something they needed to improve for three consecutive lessons. After the fourth lesson, I noted that the group finally wrote in their team-folder that they had reached the objective and commented that ‘today, everything was perfect’ (observation notes). This example also shows how the group processing in CL was efficient as students collectively reflected and learned from their learning journeys. These processes were found to be most efficient when group processing was based upon previous group processing, allowing the students to work with their challenges over time (observation notes).

### ***The development of social and emotional skills***

The most prominent finding directly related to students’ learning was the development of social and emotional skills. The following example from the first author’s observation notes from unit 3 highlights how several subsequent CL lessons had facilitated students’ social and emotional skills. The story is from a creative dancing lesson:

Due to a colleague’s illness, the teacher had to move today’s lesson forward one hour at short notice. Thus, I was not able to arrive on time and arrived a little too late. I entered the gym and the teacher approached me with a

big smile on his face: ‘Lars – I am so sorry – you should have been here from the beginning. This is just unbelievable’. I’m a little confused, but the teacher continued ‘I had never believed that this could happen’. What the teacher referred to was how every individual in all the groups participated equally part in creating a dance routine. Students who normally had much trouble interacting with others, suddenly held their arms around their peers, smiled and resolved their particular role exemplarily.

Although this story shows how a classroom might appear when students work together in CL groups, the story itself needs to be understood and placed in a larger context. This particular lesson was the seventeenth of the total of 24, and was the first evidence of all students being able to work constructively together in their group. In the opinion of the teacher, this 6th-grade class is a very heterogeneous class with several physical, social, emotional and cognitive challenges. In such a mixed group, some students were comfortable working together after only a few lessons, while others needed much time, experience and guidance from the teacher and their peers. However, as the story above illustrates, all students, regardless of background or ability, showed evidence of being able to learn through CL.

In order to understand more of the students’ journey, some aspects related to students’ development of social and emotional skills need to be acknowledged. One of these was students learning how to treat, take care of, and support each other. An example was found in unit 4 when the 5<sup>th</sup>-grade students were supposed to create an ice-dance routine using learning teams. In the post-interview, David pointed to this lesson as being one of his strongest memories from the project when an African student, who did not speak Norwegian, had her first experience on ice skates. David remembered this lesson especially for ‘students flocking around her to help her get the skates to move forward as they all wanted her to have a good experience and feel pleasure’ (post-interview). This was corroborated in the first author’s observation notes which stated that ‘the group supported her, adapted own tasks so that she could take part in the dancing routine, encouraged her when she fell and provided positive feedback for effort and progress. Her face was just one big smile’.

Similar evidence of a supportive group climate was also found in the 6th-grade class. According to Erik, this atmosphere was quite different from how it used to be two years earlier: ‘I remember the class being full of strong individualistic students. We had challenges with comments and body language when students were organized into teams and groups’ (post-interview). However, Eric suggested that

we have worked specifically with this over so many lessons now, and I think that is the main reason for why both individual students and the class as a whole has changed. We have made enormous progress in how we treat each other.

A repetitive topic throughout the project was how teachers should address group composition. In many of the lessons as well as in the interviews, students expressed a desire to be grouped with their best friend. However, in the post-interviews some of the students said that although they still preferred to work with their best friends, they had learned to work together with others. The following dialogue from the post-interview of students between two 6th-grade students and the first author shows how students experienced learning together with different students in different groups:

Turid: We have cooperated with everyone. It has not always been your best friend, but you learn to cooperate with everyone.

Jonas: When you are grouped with them – you kind of have to cooperate with them.

First author: How was that?

Jonas: ‘So-and-so’ [a mixed blessing]

Turid: It was hard in the beginning, to cooperate with those who you do not want to be together with in the same group with. I think that was really hard, and sometimes someone did not want to do what we were supposed to do. But then, it started to work, after doing it more and more.

[...]

Jonas: I have become better at working together with people I did not used to cooperate with. Now, I do not work with the same people all the time.

Turid: We have not done that before, in PE; cooperation has been more in other subjects – if there is something special we are supposed to do. So in PE, we have just been on our own before and then you can be with whoever you want to be with.

Developing the ability to work together with different people with different tasks was also noted by the teachers. In his post-interview, the 6th-grade teacher, Erik, explains:

I remember really well you talking about that the students either sink or swim together. In the first period, a lot of students sank [laughter]. No doubt about it. But then, after that I believe that most students mostly have stayed floating.

Eric highlighted their development in being able to listen to each other, showing respect, caring, sharing opinions, discussing and then agreeing on their various choices as significant. Moreover, he describes a positive ‘spiral’ in which students gradually attacked the tasks with an expectation of succeeding together, something which was confirmed over and over again, leading to a feeling of ‘yes, we can make it!’, regardless of whom they worked together with.

A final finding related to the development of social and emotional skills was how the teachers experienced CL as an inclusive pedagogy that gave all students the possibility to ‘shine’. Having taught CL for 24 lessons, this was one of the greatest experiences for both teachers. The teachers used the term ‘to shine’ to describe how different roles with fixed limits in small groups created a safe learning environment for all students in which they could master their assigned piece of work or role. Scaffolding different student roles made it possible for all students, regardless of ability, to master their assigned role. According to Erik, this ‘gave them a great sense of mastery and good feelings about themselves’ (post-interview). However, as David also mentioned in the post-interview, it could also have the opposite effect. What he referred to was especially evident in unit 1 when students worked in JIGSAW groups to learn basic floorball skills. When returning to their home group, only a few students managed to teach the other group members their assigned material, due both to the complexity of the task and lack of social skills among the students (observation notes). David suggested that these experiences might ‘harm students’ self-image’ (post-interview).

## Discussion

This paper is based on data from 24 lessons of CL organized in four units over two academic years. The purpose is to explore students learning journey through: (a) teachers’ perceptions on students’ learning journey through CL and (b) students’ experiences of their learning journey through CL.

Students’ first experiences of learning through CL was characterized by a mismatch between how students previously had experienced being *participants* in a subject that emphasized high levels of activity (Larsson and Nyberg 2017), and how they experienced being a *learner* in CL lessons that focused on learning for, with, and by other students (Dyson and Casey 2016). Implementing CL certainly did not work in a mechanical way ‘where a certain input [...] produces a certain outcome’ (Quennerstedt 2019, 613). Although several challenges occurred, the teachers’ involvement with PAR enabled them to find practical solutions. As the study progressed, repeated positive experiences of learning through CL led to the students to gradually change their attitude towards CL. Similar to what Goudas and Magotsiou (2009) reported, students began to appreciate working in cooperative groups.

While previous studies have suggested that students perceive PE as just a break from academic subjects (e.g. Lyngstad, Bjerke, and Ligestad 2019), this paper shows how changing the teachers’ pedagogical practice made some students change their perception of PE. One key in this change was the impact of having learning objectives. While this was new to the students, the majority valued and

appreciated it. The learning objectives gave students direction and guided their actions within the lessons, especially when students worked towards the same objectives over several consecutive lessons. Similar to what has been found in other studies, having both motor- and social learning objectives, made students evaluate their own learning across different domains (Dyson 2001). For example, the students reflected on their social relations through group processing which, in turn, facilitated the development of their social skills (Darnis and Lafont 2015). However, the study also shows that working with learning objectives must be undertaken systematically over time to make students aware that they are supposed to learn something in PE (Larsson and Karlefors 2015). Moreover, as other studies have suggested, there is a need for teachers to discuss explicitly the learning objectives with their students. These discussions help students to become aware of the learning objective, and to understand what they are supposed to learn (Dyson 2001; Lyngstad, Bjerke, and Ligestad 2019; Redelius, Quennerstedt, and Öhman 2015). Although learning objectives had an impact, it must also be acknowledged that even though some students developed their perceptions of PE towards a subject for learning, most students still associated PE with merely being physically active and having fun.

Addressing students' learning more directly, the study shows a great development of social- and emotional skills. While previous research has suggested that several weeks lapsed before students began to work comfortably together (Casey, Dyson, and Campbell 2009), students in this study used up to 17 lessons before they were able to apply the skills needed to function in their group. At the same time, all 64 participating students in this study, regardless of physical, social, cognitive or affective challenges, eventually started to work constructively in their groups.

Three aspects of the students' social and emotional learning need to be highlighted in order to understand more of the students' journey. First, the study mirrors other studies that show how students develop their ability to treat each other respectfully, take care of each other and support each other (Dyson 2001; Goudas and Magotsiou 2009; Velázquez Callado 2012). The teachers highlight how CL had created a change from an individual-oriented to a cooperative-oriented class environment over the project. Second, similar to what Fernandez-Rio et al. (2017) highlighted, the students' report that they have learned to cooperate with all students, and not merely with their best friend. This led to a positive spiral in which students expected to succeed, regardless of whom they were grouped with. Third, the study supports other studies that have shown how CL is an inclusive pedagogy (i.e. Grenier and Yeaton 2012). According to the teachers, giving different students differentiated tasks that fit their needs, made it possible for all students to 'shine' simultaneously.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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