



## UNDERSTANDING THE CHALLENGES ASSOCIATED WITH COOPERATIVE LEARNING: AN EMPIRICAL STUDY WITH PRIMARY SCHOOL TEACHERS

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### Abstract/Izvleček

Cooperative learning includes effective methods for increasing student learning in primary school and heterogeneous classrooms. However, teachers do not use it very frequently. The present interview study investigates on which levels of the educational system primary teachers perceive difficulties associated with these methods to be located, and what kinds of conflicting demands they associate with it. The study provides important insights into how challenges related to cooperative learning may be addressed.

### Ključne besede:

sodelovalno učenje, težave pri izvajanju, študija intervjujev, osnovna šola, učitelji

### Razumevanje izzivov, povezanih s sodelovalnim učenjem: empirična študija z osnovnošolskimi učitelji

Sodelovalno učenje vključuje učinkovite metode za izboljšanje učenja učencev v osnovni šoli in heterogenih razredih. Vendar ga učitelji ne uporabljajo pogosto. V pričujoči raziskavi smo z intervjujem raziskovali, na katerih ravneh izobraževalnega sistema se po mnenju osnovnošolskih učiteljev nahajajo težave, povezane s temi metodami, in kakšne nasprotujoče si zahteve povezujejo z njimi. Študija ponuja pomemben vpogled v to, kako bi lahko reševali izzive, povezane s sodelovalnim učenjem.

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## Introduction

Cooperative learning (CL) includes teaching methods that are frequently propagated - especially against the backdrop of current challenges in primary schools, such as dealing with heterogeneous learning conditions (Büttner, Warwas, and Adl-Amini, 2012). However, implementing CL seems to be challenging for teachers; it is comparatively little used in school practice (Buchs et al., 2017). Although several previous studies have already indicated the various difficulties associated with CL from the teacher's perspective (e.g., classroom management, lack of time resources; Ghaith, 2018; Völlinger, Supanc, and Brunstein, 2018), relatively few studies have investigated the perspective of primary school teachers using open-ended questions. Analysis of open-ended questions, such as those used in interviews, have the advantage over close-ended survey questions in that they make it possible to examine difficulties in a more comprehensive and unbiased manner. Furthermore, previous studies on difficulties have rarely investigated the level of the educational system (e.g., the school level, the individual teacher level) on which these challenges exist and which conflicting demands might explain their existence. The present study tries to close these research gaps. It aims at exploring implementation difficulties associated with CL and their background in more detail from a primary school teacher's perspective. Having a better understanding of these difficulties and their background will make it easier to develop appropriate approaches for dealing with them.

## Theoretical background

Cooperative learning (CL) is challenging for both teachers and students. It includes methods in which the school class is divided into small groups with the goal of facilitating collaborative learning activities that lead to maximum learning success for all group members (Johnson and Johnson, 1999; Büttner, Warwas, and Adl-Amini, 2012). Although the term "cooperative learning" is not uniformly defined, there is agreement that not every form of group work can be equated with CL (Lipowsky, 2009). CL requires certain conditions that are often described as the basic elements of CL and have been shown to be highly relevant for the effectiveness of these methods (Veenmann et al., 2002). The two most important elements are positive interdependence and individual accountability.

Positive interdependence exists when all group members depend on each other for goal achievement. Through individual accountability, each group member's contribution to the overall outcome is clearly identifiable (Johnson and Johnson 2009, Slavin, 1995). Moreover, group members must exhibit appropriate social skills, engage in supportive interaction with one another, and reflect the group process (Johnson and Johnson, 2009). In classroom practice, CL is often implemented using specific strategies (e.g., the jigsaw method) to establish these conditions.

The effectiveness of CL can be explained by socio-constructivist learning theories. According to these theories, interaction with other (more competent) persons, in the context of which meanings are jointly negotiated, is central to learning (Lipowsky, 2009; Vygotsky, 1978). From a motivational psychology perspective, CL plays a crucial role in learning because it satisfies the basic human psychological needs for autonomy and relatedness (Cohen, 1994; Deci and Ryan, 1993). The importance of CL for social integration and mutual acceptance in heterogeneous learning groups is further justified by the contact hypothesis (Allport, 1954), which states that frequent contact with members of other groups (e.g., ethnic minorities) reduces prejudice towards those groups.

Findings from meta-analyses support the effectiveness of CL in terms of cognitive, motivational, and social learning outcomes compared to other forms of instruction, such as teacher-centred teaching, especially in primary school (Ginsburg-Block, Rohrbeck, and Fantuzzo, 2006; Kyndt et al., 2013). However, implementing CL appears to be challenging for teachers (Buchs et al., 2017). Although empirical evidence shows that teachers seem to value collaborative forms of learning (Völlinger, Supanc, and Brunstein, 2018), CL is still relatively rarely used in practice (e.g., Götz et al., 2005; Völlinger, Supanc, and Brunstein, 2018). For example, Buchs et al. (2017) found that only one-third of their surveyed primary school teachers used CL regularly. This points to the question of potential implementation difficulties.

### *Challenges in the implementation of CL*

Several studies have already investigated difficulties with regard to CL from the teacher's perspective, focusing either on university teachers (Çelik, Aytın, and Bayram, 2013; McLeish, 2009) or on secondary school teachers (e.g., Ghaith, 2018; Gillies and Boyle, 2010; Gray and Otero, 2009; Karmina, 2018; Völlinger, Supanc, and Brunstein, 2018).

Only a few studies (all of which are questionnaire studies) have focused on primary school teachers (Buchs et al., 2017, Veenman, Kenter, and Post, 2000; and to some extent Götz et al., 2005). The study by Veenman, Kenter, and Post (2000) showed that primary school teachers mainly perceived difficulties in the area of monitoring and control. The other two studies with primary school teachers reported challenges in terms of lacking (time/material/space) resources for preparing and conducting CL. This is in line with the findings from studies with secondary and higher education teachers (e.g., Çelik, Aytın, and Bayram, 2013; Ghaith, 2018; Völlinger, Supanc, and Brunstein, 2018). Furthermore, learners' prerequisites, e.g., a lack of motivation or social skills, have frequently been reported as among the challenges (e.g., Gillies and Boyle, 2010; Völlinger, Supanc, and Brunstein, 2018). We are not aware of any interview study evaluating challenges regarding the implementation of CL in primary schools. Overall, the aforementioned studies rarely go beyond simply listing these difficulties. It remains unclear on which levels of the educational system (e.g., individual school, or class) and by which actors (e.g., teachers, or students) these difficulties could be addressed. An interview study with open-ended questions could help to explore this more deeply.

*Locating the challenges on different levels of the educational system and its actors*

The question of how the implementation of complex teaching methods can best succeed in practice is often associated with studying influencing factors on different levels of the educational system (Adl-Amini, 2018; Lendrum and Humphrey, 2012; Schrader et al., 2020). Schrader et al. (2020) build on utilization-of-learning-opportunities models (e.g., Helmke, 2012) to describe and classify such influencing factors on different levels of the educational system. In such models, a macro level (e.g., school laws and curricula) can be distinguished from a meso level (individual school), a micro level (teaching/classroom processes/methods), and an actor level (teachers/students). Implementation difficulties can thus be understood as the interaction of factors and actors at these different levels and need to be investigated accordingly. However, this has rarely been the case in studies on implementation difficulties regarding CL. Thus, it remains unclear, for example, whether the frequently mentioned difficulty of lacking time resources in CL should be considered a problem of the teacher's own time management (actor level), a school organizational problem (poor staff planning; meso level), a problem of the method itself (CL is per se more time-consuming; micro level), a problem of the educational

system (tight curriculum requirements; macro level) or several of these aspects. Only Karmina (2018) partially elaborates different areas (context, teachers, students) from which challenges can emanate. For example, time constraints and pressures were seen as a problem of both the educational system and the teachers themselves by the secondary school teachers in her study (Karmina, 2018). Given the lack of research into the levels on which difficulties with CL are located (and therefore could best be addressed), the present study investigates the levels of the educational system (with its actors) on which primary school teachers perceive such challenges to be located.

#### *Difficulties as a result of conflicting demands*

In order to explain the implementation difficulties associated with CL, conflicting demands on teachers have been emphasized in the literature. Pauli and Reusser (2000) describe the tasks of the teacher in CL by means of five different roles and point out that the implementation of CL is therefore fraught with decision conflicts. One role, for example, describes the teacher as a manager of the learning process in terms of effective class management, one who is supposed to enable the smooth running of the CL lesson. At the same time, the teacher is described as a “guide on the side” (Johnson and Johnson, 1999, p. 17), who takes a back seat and lets the students interact with each other. The accompanying dilemma between “intervening and not intervening” (Pauli and Reusser, 2000, p. 435) is described not only in terms of classroom management, but also in terms of learning process management and ensuring learning outcomes or group composition (see Buchs et al., 2017; Dann, Diegritz, and Rosenbusch, 1999; Haag, von Hanffstengel, and Dann, 2001). Thus, the role of the teacher or the goals of CL appear at least partially contradictory in CL. To our knowledge, empirical studies with teachers that systematically investigate which contradictions teachers themselves perceive in terms of CL are very limited (e.g., Dann, Diegritz, and Rosenbusch, 1999; Haag, von Hanffstengel, and Dann, 2001). Furthermore, such perceptions of conflicting demands have not been meaningfully linked to reported implementation difficulties in previous studies.

#### *Research questions*

We investigate the following research questions:

- (1) Can the findings of previous studies on the difficulties associated with CL be replicated?

- (2) On which levels of the educational system (curricula/laws – individual schools – classes – teaching methods – teacher/students) do primary school
- (3) teachers localize the difficulties they mention concerning CL implementation?
- (4) To what extent are the reported difficulties associated with conflicting demands concerning CL?

## Method

### *Participants*

Our research includes two studies. Study 1 draws on data from the project »Proliefs (Professional Beliefs)« 2011/2012 (Seiz et al., 2017). For recruitment, primary schools in Hesse, Germany were contacted via telephone. The interview lasted no more than an hour. Participating teachers gave their informed consent to data recording and analysis. Fourteen primary school teachers (13 female) were interviewed. The teachers differed in their professional experience (range: 2-27 years,  $M = 9.7$  years), their studied subjects (Native language instruction: 11 teachers, Mathematics: 6 teachers, general studies: 5 teachers, Foreign languages: 5 teachers, Religion: 5 teachers) as well as in-service training on CL (ten teachers had not participated in any in-service training on the topic of “group work”, one more than five years ago and three in the last two to five years). Since previous studies have pointed out the relevance of these teacher characteristics for the implementation of CL (e.g., Völlinger, Supanc, and Brunstein, 2018), the sample was considered suitable to allow investigation of the research questions.

In addition, data from primary school teachers who took part in a survey in 2022 as part of the project »KoaLa – Cognitively Activating and Collaborative Learning Opportunities« were analysed (Study 2). Recruitment took place via social media and newsletters, and the teachers gave their informed consent to participate in the study. Forty-eight primary school teachers (40 female, 8 male) participated in the study. The teachers differed in age (range: 29-67 years,  $M = 46.63$  years), their teaching subjects (Native language instruction: 39 teachers, Mathematics: 35 teachers, Foreign languages: 12 teachers, Religion: 13 teachers, Biology: 2 teachers, Arts: 26 teachers, Music: 15 teachers, Sports: 14 teachers) as well as the in-service training on CL (20 teachers had never participated in any in-service training on the topic of

“group work”, nine had participated in one training session, nine in two training sessions, two in three training sessions, and five teachers had participated in four or more training sessions, while three teachers did not answer this question).

### *Interviews (Study 1)*

The teachers were interviewed by three project staff members on the basis of guided interviews. In the formulation of the interview questions, the term “group work” was used instead of “cooperative learning” because this term is more commonly used by teachers in practice. However, teachers were asked about their understanding of the term at the beginning of the interview to ensure that they understood it to mean CL and not just the social form of group work. The interview guide included questions about the understanding of group work, its use and goals, as well as the teacher’s experience with group work. Furthermore, the teachers were asked about their own role and about any challenges with using group work.

### *Survey (Study 2)*

Teachers who participated in the online survey were asked in an open-ended question to give arguments for or against the implementation of CL. For the present analysis, the arguments against CL, that is, the perceived difficulties of CL, are of importance. A definition of the term “cooperative learning” was provided in advance to ensure an adequate reference (“In cooperative learning, students work together in pairs or small groups with a common goal and support each other”).

### *Data analysis*

The data from Study 1 were analysed based on structuring qualitative content analysis (Kuckartz, 2018). An initial structuring of the material was carried out by four project staff members by identifying the main categories in four interview transcripts. Subsequently, all interviews were divided among the four persons, and the text passages that carried the content were paraphrased. The main categories were tested on the entire material and modified. For this purpose, all text passages were assigned to the three main categories of *difficulties*, *goals*, and *role* of the teacher, if two persons agreed that they belonged to the respective category. These text passages formed the basis for further analysis. Subcategories were inductively formed by one person on the basis of the text passages within a main category, and the assignment of the text passages to the respective subcategory was carried out by

another person to allow calculation of inter-rater reliability. The inter-rater reliabilities for the assignment of the text passages to the respective subcategories were good ( $\kappa_{\text{difficulties}} = .83$ ;  $\kappa_{\text{role}} = .81$ ;  $\kappa_{\text{goals}} = .80$ ). The responses given by teachers in the online survey (Study 2) were analysed using the main category “difficulties” and its subcategories as derived from the described coding scheme. Together, these analyses form the basis for answering research question 1.

To answer research questions 2 and 3, we used the rich data body of the interview study (Study 1). In particular, to answer research question 2, we analysed on which levels of the educational system (school laws/curricula, individual school, class, teaching processes/method, individual teacher/students) the teachers perceived the challenges to be located. Since the teachers were not explicitly asked in the interview to locate the difficulties on specific levels, it was not possible to derive a clear assignment to a level from all content-bearing text passages. Therefore, the results refer only to those text passages where this was possible. The assignment was made across all interviews by one person and subsequently communicatively validated within the project team.

To answer research question 3, conflicting demands associated with CL were identified in the interviews (whether or not the teachers themselves labelled them explicitly as being contradictory). Cue words and phrases that pointed to the perception of conflicting demands were, for example, “balance” or “on the one hand - on the other hand”. The respective text passages were clustered into three contentual categories and communicatively validated.

## Results

### *Challenges in the implementation of CL*

We identified nine subcategories of difficulties in the data. Thirteen teachers reported difficulties associated with “Management/Control”; twelve teachers reported “Preparation Effort” to be a difficulty; eleven teachers perceived “Student Competency” to be a difficulty; nine teachers pointed to difficulties associated with “Prerequisites/Heterogeneity of the Group”; eight teachers named “Fit to content/school subject” as a difficulty; six teachers perceived difficulties associated with “Time Effort/Pressure”; six teachers named “Teacher Competency” as a difficulty; five teachers pointed to challenges associated with “Organizational Conditions/Setting”, and three teachers mentioned difficulties with student



“Performance Evaluation”. Examples of each category are presented in Table 1. We basically replicate these findings in our larger and more current sample in Study 2. In this sample, 25 teachers reported difficulties associated with “Management/Control”, and 22 teachers perceived “Student Competency” as an argument against the use of cooperative learning. Thirteen teachers reported “preparation effort” and 10 teachers “time effort/time pressure” during class time to be among the challenges of CL. Nine teachers pointed to difficulties associated with “Prerequisites/Heterogeneity of the Group”. Eight teachers pointed to difficulties associated with “Organizational Conditions/Setting”; seven teachers named “Teacher Competency” as a difficulty; five teachers mentioned difficulties with student “Performance Evaluation”, and three teachers named “Fit to content/school subject” as a problem of cooperative learning implementation.

#### *Localization of the challenges on different levels of the educational system*

The data analysis of Study 1 revealed that each of the identified difficulties is often located on several levels of the educational system and not simply on one. Many difficulties (management/control, preparation effort, time effort, student competences, fit to content) are perceived to be linked to the CL method itself by the primary school teachers. A comparable number of difficulties are also perceived to be linked to the individual teacher level (competence, management/control, preparation effort, organizational conditions, fit to content) and the school law/curricula level (preparation effort, time effort, performance evaluation). Table 1 shows for each difficulty on which separate levels it is perceived to be located. Furthermore, Table 1 presents examples that illustrate the rationale for assigning the challenge to the particular level.

Table 1. Localization of challenges associated with cooperative learning on different levels of the educational system

<i>Difficulty</i>	<i>Level</i>	<i>Examples</i>
<i>Management/ control</i>	Method	“...because in group work it is perhaps a bit busier and louder than in teacher-centred instruction; that is quite clear.” (Teacher 7).
	Teacher	“...then I also have to take a back seat during this time, which is something I do not necessarily succeed in with these children.” (Teacher 8).
	Students	“...when children just don’t discipline themselves.” (Teacher 10).
	Method	“...and the time required beforehand. But I always have that with free work.” (Teacher 6).

<i>Preparation effort</i>	Curricula/laws	“It’s also laborious in terms of material preparation because there isn’t any; I have to sort of write a book at the end of the day.” (Teacher 14)
	Teacher	“I didn’t ... prepare that part thoroughly, yes.” (Teacher 10).
<i>Student Competency</i>	Method	“Children have to be introduced to it. So, they can’t do it overnight....” (Teacher 7)
	Students	“...there are also individual children, adolescents, whom you simply have to take out, who perhaps cannot bear it if they are unable to do things.” (Teacher 1)
<i>Prerequisites of the group/</i>	Class	“There is often a huge gap, so it’s really hard to find any kind of middle ground.” (Teacher 2)
<i>Fit with content/school subject</i>	Method	“...I think group work is quite important for certain topics. For other phases, it is not suitable.” (Teacher 13)
	Teacher	“Sometimes I expect too much from a topic and think more will come out of it.” (Teacher 12)
<i>Time effort/pressure</i>	Method	“And group work takes a good hour and a half at least.” (Teacher 14)
	Curricula/laws	“...that even in primary schools, teachers are already under too much pressure to go through a certain amount of material.” (Teacher 5)
<i>Teacher competence</i>	Teacher	“Maybe I’m not that creative in terms of, you know, offering group work.” (Teacher 3)
<i>Organizational conditions</i>	School	“I think that these external things are also important. Well, we [...] have such an old school building.” (Teacher 2)
	Teacher	“Well, not every classroom necessarily has group tables [...] So, I could imagine that people would say, oh no, it’s too much effort for me.”
<i>Performance evaluation</i>	Curricula/laws	“But since our school system is grade-oriented, I am inevitably in this predicament that I have to write exams.” (Teacher 1)

Source: Own illustration

### *Association between challenges and conflicting demands*

The primary teachers’ statements in Study 1 suggest that some of the perceived difficulties arise from conflicting demands concerning the teacher’s role in CL and the goals of CL. Overall, three categories of conflicting demands were identified, one associated with the teacher’s role in CL and two associated with the goals of CL.

*Role: retaining vs. relinquishing control.* The most frequently mentioned conflicting demand for teachers concerning CL is relinquishing some control over what is learned and social/interactional processes while at the same time retaining enough of it. The teachers describe their own role in CL as active and passive at the same time. The role conflict or difficulty in finding a balance between “intervening” and “letting things happen” is explicitly mentioned several times. This conflicting demand become evident in terms of *classroom management* and group behaviour, as the following comment shows:

But I've really come to know that it's good for the children, that they also feel like there's a dynamic in the group, but that of course one has to be after it and, above all, one has to evaluate it. I have also seen that you have to talk about how things are going in the group, but in itself, I am prepared to hand over this leadership. This classroom management to the groups themselves. (Teacher 6)

The same conflicting demands become evident in terms of the *learning processes* during CL and not only in terms of classroom management-related issues, e.g.:

Finding the right moment to say, no, this is going too far for me, so that it doesn't get out of hand, but on the other hand also to find the point to just let it go and see what happens. So, to find this, this balance (...) that is - I think - not so easy. (Teacher 4)

*Goals: time-efficient vs. sustainable learning.* A conflicting demand concerning the goals of CL was described as the amount of material to be mastered in a time-efficient manner, including the need for individual performance assessment in relation to the aspiration of CL to foster sustainable learning (e.g., through self-regulated learning and social interaction). The following example illustrates this conflicting demand:

My experience has shown that it often takes more time. Of course, it is then also more sustainable. That is then again, the other thing. (...) So there is always this interaction. But since our school system is grade-oriented, I am inevitably in this predicament that I have to write exams, and then at some point there is this learning to the test. Wherever possible, of course, you can open up, but somewhere there has to be something to show for it. (Teacher 1)

In this context, CL was also perceived as a valuable "sanctuary" for students beyond immediate assessment pressure.

*Goals: require vs. promote social competencies.* Another conflicting demand concerning the goals associated with CL is that students' social competences are described as a

prerequisite, on the one hand, and as a hoped-for effect, on the other. Almost all teachers named the promotion of social skills as a goal of CL. This goal is often considered to be more relevant than subject-related goals. On the other hand, the teachers described the students' social and communicative competences as necessary requirements in order for the students to participate in the (socially beneficial) CL method. This conflicting demand becomes clear from the following comment:

The crux is always, do I use group work or do I want to use group work to promote the social climate, but that doesn't mean that nothing has to be basic. That is, if nothing is present, so a little bit of empathy or yes, a connection to one another has to be there already, otherwise I cannot expect them to work together. (Teacher 1)

## **Discussion**

Previous research on the challenges associated with CL in primary school hardly went beyond a mere listing of such difficulties and did not go beyond close-ended survey questions when investigating the perspective of primary school teachers. However, this seems important in order for appropriate measures to be taken that can deal with these difficulties. The present study addressed these research gaps.

### *Interpretation*

The findings of our research on the challenges associated with CL are largely consistent with those from previous interview studies among secondary school teachers. The following three central difficulties emerged: issues related to management/control during CL (see Veenman, Kenter, and Post, 2000), additional (material/time) effort in the preparation and implementation of CL (see Buchs et al., 2017), and the necessary student competences (see Gillies and Boyle, 2010). However, the present study also extends the findings of these previous studies by exploring more deeply on which levels of the educational systems the teachers perceive the difficulties to be located and how far they are associated with the conflicting demands of CL. Furthermore, we find an additional challenge that has not been mentioned by the teachers in previous studies: "fit to content/school subject". This seems to be a difficulty that primary school teachers may notice more strongly than secondary teachers because they usually teach many different subjects. Thus, it may be important to develop material for CL that is specific to certain school

subjects. Furthermore, teacher training on CL may need to have a subject-specific focus, since teachers may not generalize their knowledge about CL to all the subjects they teach. In the following sections, we will more deeply interpret these three most central challenges.

The first central difficulty – issues related to management and control – seems to be primarily linked to the CL method itself, but also to the teacher and the student level from the primary teachers' perspective. The difficulty is further associated with conflicting demands concerning the role of the teacher in CL (e.g., active and passive) when it comes to managing behaviour and learning. Similar conflicting demands have been described in Dann, Diegritz, and Rosenbusch (1999) and Haag, von Hanffstengel, and Dann (2001) as the dilemma of intervention and non-intervention. Concrete strategies for teachers to support participation and productive interactions of their students could reduce teacher uncertainty and help them in monitoring CL (Büttner, Warwas, and Adl-Amini, 2012).

The second central difficulty – additional effort in preparation (e.g., material selection) and the time effort in implementation (independent elaboration of the learning content by the students) – has frequently been mentioned in our study as well as in previous studies. As the analysis of educational system levels in our interview study shows, primary school teachers perceive the time-consuming implementation of CL to be something inherent to the CL method, which, however, contradicts requirements on the system level (e.g., school laws, curricula, individual marks), such as having to cover an appropriate amount of learning material in a certain amount of time. Thus, according to the teachers' statements, an image of CL as a kind of pedagogically valuable “sanctuary” is formed, which, however, is poorly suited to the daily school routine. It can only be used as an “add on”. Such an image could explain why even trained teachers are hesitant to use CL despite their positive attitude towards it (Ghaith, 2018). However, evidence-based teaching material for CL, i.e., Peer-Assisted Learning Strategies (Fuchs and Fuchs, 2000), could help teachers to reduce preparation time and structure CL for improved planning feasibility. The third central difficulty – insufficient competences among the students – is perceived by the teachers to be located on the level CL itself (i.e., the method is full of competence prerequisites) but also on the level of the students (i.e., students show low social skills). This seems to be further fraught with conflicting demands arising from the goals of CL (social competences as both a prerequisite and a primary goal). This finding may explain why CL is less often implemented in classes with

students that have low cognitive and social skills, although CL has been evaluated as particularly effective for these classes (Adl-Amini, 2018). Results by Gillies (2000) seem promising in which primary school children who had received modest training in cooperative skills showed more supportive behaviours and better learning outcomes in subsequent cooperative learning phases in the long term than untrained children.

Overall, the present study indicates that the individual difficulties associated with CL can each be located at several levels of the educational system at the same time and are accompanied by conflicting demands. However, it must be noted that the sample in Study 1 is rather small and old. Nevertheless, the findings on the type and frequency of perceived challenges are highly consistent with those from more recent studies and also our own recent research (Study 2). Thus, analysing these difficulties in more detail as we did in our interview study seems highly justified and provides valuable insights into how these still current difficulties can be dealt with.

### *Implications*

Measures for improving the implementation of CL in practice, ones which address the level of the individual teacher, have already been proposed and investigated as teacher training programs (e.g., Ishler, Johnson, and Johnson, 1998). However, according to the present research's results, addressing teacher competence alone seems insufficient. The teachers in our interview study emphasized that problems associated with CL may also arise at other levels of the educational system. In particular, taking measures on several levels at the same time seems necessary (see Desimone, 2009; Lipowsky, 2011) in order to deal with one and the same difficulty. For example, the systematic provision of teaching material (e.g., workbooks) and time resources for CL seems necessary at the educational system level (law/curricula), whereas collegial processing and mutual support in implementing CL seem necessary at the individual school level. Thus, these examples show how the difficulty associated with preparation effort and time-efficiency can be addressed on two different levels.

The results from the interview study also imply that difficulties arise from (conflicting) role expectations as well as from the goals associated with CL. In this respect, it stands to reason that not all challenges may be fully resolved with the help of interventions/measures. Theoretical approaches to dealing with conflicting demands of teachers point to the need for reflexive processing and endurance

(Helsper, 2016). Accordingly, an implication for practice could be ongoing discussion of these conflicting demands and a reflection of corresponding practice situations in teacher training.

Overall, according to our research, CL should not be viewed one-dimensionally as a teaching method to be applied by the teacher in instruction, but rather as a complex design action in the classroom that takes place under certain conditions in the educational system and requires multiple prerequisites in order to function with few difficulties.

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