

TEACHERS' COOPERATION IN BADEN-WUERTTEMBERG, GERMANY: DOES SCHOOL TYPE MATTER?

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Abstract – Professional teachers do not teach, assess, analyze and educate all by themselves. They need to work together to get support and constantly reflect their doing in a professional community. This paper has a closer look at German teachers in Baden-Wuerttemberg and their cooperation. The comprehensive question to be answered is if teachers in different schools cooperate differently. The text shows how teachers actually work together on different levels. It is based on 1400 teachers' questionnaires with quantitative data. Interestingly we will see that school type seems to matter but not the different university education these teachers have.

Keywords – Teacher Cooperation, Exchange, Coordinate, Co-Construct

1. INTRODUCTION

Knowledge society does not only create new jobs and change those who are part of free economy. It has a great influence on teaching as teachers need to prepare students to these times. Cooperation, constant mutual and individual learning and adapting to unknown problems and situations will be part of our lives, no matter the profession. Teachers do not only have to be role models, they also have to adapt to new situations, stay learning and cooperate with each other.

Teaching and learning take part all over the world. However, it can get very specific and culturally based. The following text deals with teachers' cooperation in the German state Baden-Wuerttemberg. Baden-Wuerttemberg faces many challenges. Among others there are teacher shortages, refugees to be integrated into schools and the need to tackle digitalization. Research and best practice in different countries show that collaborating could be one approach to face challenges. This study asked teachers in different school types how they actually work together. Its aim is to learn more about teachers' real-life cooperation and their attitude towards it. The State of Baden-Wuerttemberg was chosen because its teacher education is unique in Germany. It is the only state with Universities of Education next to regular universities.

Within this text Baden-Wuerttemberg's school system and its teacher education is shortly introduced. After that a current state of research is presented. The study, i.e. research questions, methods and its findings follow. In the end the findings are discussed and further research needs are shown.

Received: March 31, 2020
Reviewed: May 29, 2020
Accepted: June 7, 2020



2. GERMAN SCHOOL SYSTEM AND ITS TEACHERS

Germany has a federalist school system, which means that each state has its own school law. Nonetheless, schools are mostly similar throughout the whole country. The following research focuses on Baden-Wuerttemberg, a state in the south. Children normally start school in primary school, which is from class one to class four. In class, five students can go to either *Hauptschule*, *Realschule*, *Gemeinschaftsschule* or *Gymnasium*. *Hauptschule* has five more school years, *Realschule* six more and *Gymnasium* has eight or nine additional years until graduation. *Gemeinschaftsschule* has a flexible graduation opportunity after five to nine years. All schools have their own diplomas; however, university access is only possible with a *Gymnasium* graduation. There is a graduated system that can go to which school: to get access to *Gymnasium* best marks in primary school are needed. *Hauptschule* is open to anyone.

Children with special needs go conventionally to special needs schools. These schools have different *foci*, from learning difficulties up to blindness or deafness. Children go there from class one until graduation.

In the following study, we distinguish between primary school teachers, special needs teachers, high school teachers (*Gymnasium*) and secondary school teachers (*Hauptschule*, *Realschule* and *Gemeinschaftsschule*). This classification goes along with the teacher education.

Baden-Wuerttemberg is the only state that educates its teachers in two different university types high school teachers graduate from regular universities. All other teachers graduate from universities of education. The big difference is not only the school they are about to teach at, but also the definition of needed professional knowledge during their studies.

According to Shulman's conceptualization [1], teachers' professional knowledge can be broken down into the facets of content knowledge, pedagogical content knowledge and generic pedagogical knowledge. In regular universities, there is a focus on content knowledge. Teachers are domain experts. Pedagogical content knowledge and generic pedagogical knowledge, which is named educational sciences, embrace only 15% respectively 10% of their studies.

In Universities of Education, pedagogical content knowledge and educational sciences are more extensive. Future primary school teachers get 27% of their Credit Points in educational sciences and 16% in pedagogical content knowledge. Secondary school teachers gain 21% of their Credit Points in educational sciences and 16% in pedagogical content knowledge. Special needs teachers have a slightly different emphasis on their subject Educational sciences is about 30% of their studies and special needs in a particular field, which can be compared to pedagogical content knowledge is 19% of all Credit Points (e.g., [2]).

After University, German teacher candidates have an induction that is for one and a half year. They have to teach at school and do courses at a State Seminar. During that time they get marks on theory and practice again. Induction ends with a State Examination. Only with a Master's Degree and the State Examination you can get a job as a teacher. State Examination is very competitive. Cooperation between teachers or team teaching are not supported in this time period.

Taking the perspective of school law, cooperation between teachers is intended since 2013. An administrative regulation stated that all teaching staff at one school are supposed to be there in a particular time frame once a week without being teaching. This common time at school should be an opportunity have conferences, informal meetings or to cooperate. This fixed time together was completely new to teachers: As there are no real working places for teachers in schools, teachers in Germany are supposed to be at school only when teaching. All other duties, like grading tests or preparing lessons, is done in home office. In 2018 an additional regulation determined that cooperation does not mean

that teachers have to be physically at school when working together, nor that they have to cooperate in a specific frequency, time frame or time scope.

3. COOPERATION IN SCHOOLS – CURRENT STATE OF RESEARCH

Cooperation as a means to face challenges in teaching is essential in these times. It is even named one characteristic of the “new professionalism” [3], which means that acting professional as a teacher includes working with colleagues. Positive impact of working together can be found on all three levels of school development (organizational level, staff level and classroom level): Organizing school depends on many people. They can only meet their goals when communicating and cooperating (*e.g.*, [4], [5]). Structures can be stabilized and insecurities reduced. On staff level research shows that job satisfaction rises (*e.g.*, [6]), decisions are more likely to be of high quality (*e.g.*, [7]), effectiveness rises (*e.g.*, [8], [9]) and mutual learning takes place (*e.g.*, [10], [11]).

On classroom level teaching can get more diverse, more effective and more creative, and there is a stronger focus on learning outcomes (*e.g.*, [12]). However, teachers’ cooperation is no predictor on student performance. However, some studies show that student performance rises – this only seems to be the case when the cooperation focuses explicitly on instructional practices and the impact on student learning (*e.g.*, [13]).

However, there is no common definition of what cooperation is. In school context, the term has been used widely for different patterns of behavior or attitudes – some authors even assume that “it means so many things that it [cooperation] doesn’t mean anything anymore” [14]. Getting back to the origin of “co-operate”, meaning working (*operari*) together (co-), we enclose cooperation to actual doing. Literature and case studies show many different approaches and variety in working together. This text follows the tradition of Barnard. He defines cooperation “as a functional system of activities of two or more persons” [15]. Being more precise, one could say that cooperation means working together “with reference to others, to goals or tasks to be achieved together. It is intentional, communicative and requires trust. It requires a certain degree of autonomy and is committed to the norm of reciprocity.” [author’s translation] [16].

Activities based on this definition can be on varying levels of depth. Additionally, research shows different patterns of cooperation. Little [17] describes four different forms of cooperating on a *continuum* from strong autonomy to strong interdependence. It starts with storytelling and scanning for ideas. Aid and Assistance, when asked, and sharing follow. The highest level of interdependence is described as joint work. Teachers decide on a common basis and their work is open to others. Cooperation on this level is collaboration, i.e. their work cannot be completed by dividing tasks between the teachers to solve parts of problems individually. Collaboration means matched up activities in which teachers continuously sustain their communication.

OECD takes for its perspective on cooperation in TALIS two facets that can be set on both ends of Little’s *continuum*. ‘Exchange and co-ordination’ consists of exchange and discussion of teaching material, discussion of the development of individual students, attendance at team conferences, and ensuring common standard ‘Professional collaboration’ as the other facet includes behavior like team teaching, observing other teachers to provide feedback, coordinating homework or activities across classes and age groups [18]. Germany did not take part in TALIS. Information about cooperation among teachers with a focus on *curriculum* and teaching development leads back to Gräsel *et al.* [19]. They assume three forms of cooperation:

- “exchange” as swapping information and teaching material,
- “cooperation with divided responsibilities” meaning that common tasks are divided into single components that are dealt with individually, and

- “co-construction” as a close content-based team work.

In 2016, these forms were verified in secondary schools in whole Germany [20]. As many other international studies (*e.g.*, [18]), it could be confirmed that exchange is more common in schools than more intensive forms of cooperation. In German, schools 82% of the teachers witness exchange, cooperation with divided responsibilities is experienced by 77% of the teachers and 50% of them perceive co-constructive behavior.

Teachers in schools with inclusive programs show stronger collaborative behavior than those without. A higher level of collaborative behavior can be found at compulsory all-day schools [20].

4. RESEARCH QUESTION AND METHODS

This study follows the pattern of the German studies presented above ([19], [20]). It opens the view by asking what teachers do themselves and not only to rely on what they witness in their school.

Against the background of theory and the current state of research, two hypotheses were formulated that frame the overall question: Does school type matter?

(a) Less intensive forms of cooperation are more common in schools than more intensive ones, no matter the school;

(b) Teachers who graduated from Universities of Education work together differently than those who graduated from regular Universities. Thus, high school teachers act differently than other ones.

Research design is based on a quantitative questionnaire. Next to school type, team size and attitudes, three scales on cooperation (exchange, discussion and coordination, co-construction) are interesting in this paper. The scales are taken from Richter and Pant's work in 2016 [20] and allow a closer look to all school types in one state.

The questionnaire was sent electronically to schools in the state of Baden-Wuerttemberg. Teachers were asked to participate in the online survey in spring 2019. 1400 teachers of all school types took part (primary school: N=483; secondary school: N=404; high school: N=237; special needs school: N=108). It is likely that those who answered are more interested in working together than those who did not take part. This leads to the assumption that findings of the study are probably more positive than a full survey of all teachers would be. However, the participation of different teachers from different schools throughout the state is representative.

Data analysis based on a structural equation modeling, namely a confirmatory factor analysis. It verified all scales. Reliability and validity for each scale are presented in the following subchapter. Next to the scales, some items were analyzed in frequencies of answer-patterns. All items had to be rated in a likert-like interval scale, having four dimensions to avoid a tendency towards the center. All items of the questionnaire can be seen in Appendix A.

5. FINDINGS

The following findings are presented mainly descriptively. Firstly, the attitude towards cooperation and the goal of teamwork are described. After that, the three forms of cooperation are depicted in their entirety as well as single items that show differences between types of schools more in detail.

A. Attitude Towards Cooperation

Many teachers completely agree that it is very important to work together with colleagues. It's 50% in high schools, 55% in secondary schools, 70% in primary schools and 81% in special needs schools.

When being asked, 67 % of all teachers say that they work in a team (special needs school: 78%, primary school 72%, secondary school: 61%, High school: 57%). Between 59% and 68% of the teachers depict their team size as 2 or 3 teachers.

Teachers do not always have a goal for their meetings. 38% of all teachers confirm that they set goals. The primary school teachers and special needs teachers primarily totally agree, with 44% and 45% respectively, that they have clear targets. High school teachers and secondary school teachers do 'rather' have a goal (47% and 45%) when working together. All of them would rather not plan lessons or units. They are more likely to talk and advise.

B. Different forms of cooperation

Analysis of the questionnaire confirmed the three forms of cooperation. The terms "exchange" and "co-construct" were also taken whereas the middle category "cooperation with divided responsibilities", as Gräsel *et al.* (2006) call it, was renamed in "discuss and coordinate". All three forms now describe in their title the actual doing. All three factors are valid and reliable (see Fig. 1).

Factor	Validity			Reliability	
	Chi ²	RMSEA	CFI	Pearson α	
Exchange	v= 241.364/ df = 16 p= 0.000	0.070	0.969	0.816	
Discuss and Coordinate	Value = 6.968/ df = 2 P= 0.0307	0.029	0.998	0.711	
Co-Construct	Value= 5.254/ df = 1 p= 0.0219	0.039	0.999	0.809	
Attitude towards teamwork	Value = 4.472/ df = 1 p = 0.0354	0.0335	0.999	0.679	

Fig. 1 Factors on Working Together

We must take into consideration that probably teachers having a positive attitude towards cooperation answered the questionnaire.

This assumption is verified through the factor 'attitudes towards cooperation' (Fig. 1). 91% of all teachers confirm that working together is important for them being a teacher.

When it comes to the three forms of cooperation it gets obvious that exchange is the most common form of cooperating in all four types of schools (see Fig. 2). Co-construction is rarely performed in any type. Secondary school teachers and high school teachers are much less involved in 'exchange' and 'discuss and cooperate' than primary or special needs teachers.

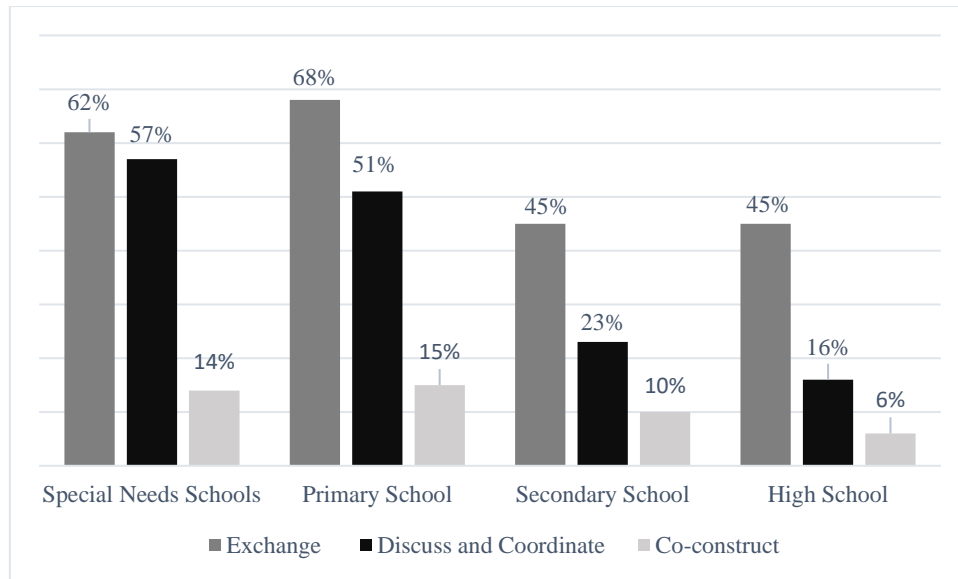


Fig. 2 Forms of Cooperation in Different School Types

Special needs teachers and primary school teachers seem to have similar profiles, while secondary school teachers and high school teachers seem to work similarly.

C. Exchanging Ideas, Information and Material

Analyzing single items of the three factors give a closer look at teachers' behavior. The factor 'Exchange' includes statements on talking about students' progress, their strengths and weaknesses. About half of the teachers at special needs schools, primary schools and secondary schools completely agree that they exchange their perception on that. About half of high school teachers rather agree while more than ten percent would rather not agree.

'Exchange' also is about exchanging material. About half of the primary school teachers and special needs teachers completely confess doing that. 38% of secondary school teachers and 34% of high school teachers rather agree, 28% of secondary school teachers and 34% of high school teachers state that they would rather not exchange material. The exchange of information given in teachers' training or exchanging individual ideas are rather not done in secondary schools (37%) and high schools (45%). In Secondary schools, even 24% of the teachers say that they rather not give information to others or talk about ideas on learning. In Primary schools and special needs schools, more than half of all teachers completely agree.

D. Discussing on Coordinating Learning

'Discussing and coordinating' cover on the one hand the adjustment of content between teachers who teach different subject matters in one class. This can refer to giving different perspectives on same topics in different subjects. It can also mean to teach comprehensive project. On the other hand, this factor includes teachers' talking about how single students can be supported either in one subject area or across different subjects.

The coordination of topics in one age group is rather done in primary and secondary schools (both 45%). Secondary school teachers and high school teachers rather not reconcile their topics to be taught (45% and 48% respectively). 26% of high school teachers say that they do not do it at all.

Different teachers of one subject discussing how to support single students is "rather" realized in all schools (between 36% in secondary and high schools up to 47% in primary school). However, a similarly big group of teachers in secondary schools and high schools rather do not do it (34% and 36%).

Different teachers of one class discussing how to support single students is also “rather” the fact in all schools (44% to 46%) except for special needs teachers. Almost half of them say that they do it. In secondary schools and high schools almost 30% of the teachers say they rather do not discuss supporting student.

E. Co-construction

The factor ‘co-construct’ includes items like working on common standards for assessment, developing learning units, working on strategies to meet challenges or working together in subject matter teams or age group team. In contrast to the proceeding, two factors high schools and special needs schools seem to be much more alike than primary and secondary schools.

Working on assessment and the development of learning units is more common in primary schools and secondary schools (for example - assessment: primary school: 51% complete approval, secondary school 39% approval) than in high schools or special needs schools (high school: 41% rather do it, 38% rather not; special needs schools: 33% rather do it, 29% rather not). Learning units are much less a topic of teamwork than assessment.

Professional challenges are more likely to be met in primary schools (37% rather yes) and secondary schools (39% rather yes) than in high schools (43% rather no) or special needs schools (38% rather no).

Only when it comes to working in subject matter teams or age group teams secondary school and high schools are more alike as well as primary schools and special needs school. The last ones seem ‘rather not’ to work more intensively in subject matter teams (44% special needs, 33% primary schools). The first ones are ‘rather’ approving (33% secondary school, 35% high schools).

6. DISCUSSION

The first thesis of this paper was that less intensive forms of cooperation, like exchange are more common than intensive forms of cooperation, like co-construction. This study confirms findings of other studies and stresses the thesis. This is not very surprising, as exchange can be done quickly while co-construction needs time. However, the current study shows much less intensity in working together than it was perceived in Richter & Pant’s study [20]. This might be because teachers are not asked what they witness but what they actually do. Perception can be interpreted more positively than what is actually happening and furthermore, single actions might be perceived by more people – this could lead to an image of much action which goes back to few people. Nonetheless, the image of working together seems to be better than what is described by Baden-Wuerttemberg’s teachers. A positive image and a positive attitude towards cooperation might be first steps to actually change behavior. Teachers describe small team sizes. Regular communication in fixed settings amongst all teachers might be a starting point to get more in touch with the whole teaching community. Teachers could learn more about themselves and the others and get easier to discussing, coordinating and co-constructing with those they did not work with before.

The intensity of cooperation decreases the more intensive it gets. This finding is similar in all types of schools. Secondary school teachers and high school teachers show much less intensity in all three forms than those in primary schools and special needs schools. This finding leads to the second thesis.

It is assumed that graduating from different universities leads to differing behavior. This hypothesis cannot be confirmed. Data shows that secondary school teachers and high school teachers seem to act similarly as well as primary school teachers and special needs teachers do. Being rather a pedagogical expert than a domain expert does not seem to make a difference in working together.

The question arising is why teachers of younger students work together more intensively than those of older students. One reason could be that younger students need more support because they are at the very beginning of their formal education. They might be taught more holistically, not only when it comes to content but also when it comes to being together at school. Another reason could be that primary and special needs teachers often have to teach subjects they did not study at university. Their work is more aligned on age group than on their core subject. This might lead to the need of mutual support.

A closer look to the three different forms of cooperation show that in “exchange” most of the items are seen similarly from high school teachers and secondary school teachers. Same is true for primary school teachers and special needs teachers. Only when it comes to talking about learning progress, secondary school teachers are more willing to cooperate than high school teachers. A possible explanation could be the difference in the students due to the school system. Secondary school students might need more support than those in high schools when it comes to learning. The other item that shows difference between secondary schools and high schools is good advice from colleagues. Secondary school teachers rather do not get good advice. This goes along with talking about teaching methods. In secondary schools, teachers do not seem to talk about methods very thoroughly. Same attitudes can be found in high schools.

Primary school teachers and special needs teachers are much more intense in working together. An interesting fact is that on item level co-construction seems to be more similar between primary and secondary school and between special needs schools and high schools. The variety between the teachers is bigger there. When behavior gets tied to factors, there is more people having the same profile in agreeing or not agreeing than the differentiated single item based view would show.

Altogether teachers seem to have a positive attitude towards cooperation. They think it is important for being a successful teacher and many of them have the feeling they are in teams. Only when getting deeper into their actual work, it becomes clear that their perception of cooperating is rather superficial. They do not necessarily have goals or strategies for working together and they mostly talk about their students, which does not go along with developing strategies for their learning or classroom units. School type only makes a small difference, initial teacher education does not make a difference at all.

7. CONCLUSION AND FURTHER RESEARCH

Even though the idea of cooperating is set by state regulations since 2013, teachers in Germany are not used to working together in teams intensively.

Considering research on student achievement and cooperation, it seems to be absolutely necessary that the focus of teamwork is on instructional practices and on considering individual student’s growth and how to support it. The current study shows that this clear focus is not there yet. Teachers might be insecure about what it means to cooperate and what they should be looking at to get the most out of it for their students’ learning.

On the other hand, we can see that teachers in Baden-Wuerttemberg tend to cooperate with maintaining their biggest possible autonomy. The deeper cooperation gets the more teachers have to open up, to make compromise and to “de-center” themselves. Therefore it could be interesting to analyze different aspects of cooperation regarding to teachers’ profiles. Additionally, further studies are needed to understand the background of teachers’ behavior. Interview studies are planned to get to know more about feelings, attitudes and what they actually do when being in a team. It will be especially interesting to learn about the differences amongst teachers of older and younger students.

Professional development in Baden-Wuerttemberg could be arranged around both aspects: How to work together and how to build up teams, what to work on to get the positive attitude towards cooperation into real action.

Next to a deeper analysis we could learn a lot about cooperation within the bigger content of this study. Following Baden-Wuerttemberg as a starting point, teachers in Japan, Ethiopia and Finland took part in the online questionnaire. Further analysis will show in what way there are similarities and differences and what we all can learn from each other.

APPENDIX A

Attitude towards Cooperation	strongly agree	agree	rather not agree	do not agree
It is important to me to work together with my colleagues.				
Providing collegial support is an important part of teaching.				
Working with colleagues demands a lot of effort, which is seldom worth it.				
Working with other teachers is not necessary, the individual teacher is responsible for his/her lessons on his/her own.				

Working together	strongly agree	agree	rather not agree	do not agree
My colleagues provide me with guidelines about strengths and weaknesses of individual students.				
I discuss learning processes of certain students with my colleagues.				
We share information from education workshops between colleagues.				
My colleagues already gave me useful recommendations for my lessons.				
We regularly share teaching materials between teachers, who teach the same subject.				
With colleagues, who teach the same subject, I regularly talk about the content of substitution hours.				
Colleagues teaching the same subject recommend helpful literature.				
We vividly discuss special teaching methods and learning techniques.				
We work with other teachers in my school to ensure common standards in evaluations for assessing student progress.				
I intentionally try to coordinate teaching contents with teachers of other subjects in my class.				
Together with my colleagues I develop concepts for new teaching series or lessons.				
Colleagues teaching the same subject think about how to support specific students.				
My colleagues and I discuss teaching strategies in an interdisciplinary setting to support learning outcomes of specific students.				
Our interdisciplinary (team-)work is based on common topics.				
We regularly discuss and agree on subject related content and learning outcomes as well as their assembly in regard to the individual class levels.				
Together with colleagues teaching the same subject I develop and work on strategies to accomplish job-related challenges.				
We work with teachers from other schools to improve our teaching.				
In our school, we intensively work in subject-related teams.				

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