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Working Paper

**Pupils' cooperatives and the acquisition of
competences for sustainable development**

Nicole GÖLER von RAVENSBURG

CIRIEC N° 2017/01

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**Pupils' cooperatives and the acquisition of competences
for sustainable development**

Nicole Göler von Ravensburg^{*}

Working paper CIRIEC N° 2017/01

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Abstract

About 20 years ago Education for Sustainable Development (ESD) became a new educational aim for secondary school education in Germany (Programm Transfer 21). 14 different ESD learning arrangements were experimentally tested from 2002 to 2005 in secondary schools. School firms ranked highest (BLK Transfer 21 (Eds.) 2005). However, school firms for ESD for some time only developed in Niedersachsen, where they had originally been tested in said experiment. Work in these centred on ethical and resource efficient interactions with the social, economic and ecological environment (de Haan/Grundmann/Plesse 2009: 64-65).

Pupils' cooperatives (PC) are special school firms, modelled on the German real world cooperative modus including quasi-registration, annual audit, partnership with real-world coops etc. Some ESD school firms have existed before transforming into pupils cooperatives, while others have been started in a cooperative manner right away. The waiting list of ESD School firms wanting to become PC is long, but the promoting cooperative federations usually limit the numbers newly accepted each year. Examples of PC's business ideas are making string puppets and performing with them, felting sheep wool, bee keeping, the making of apple juice, breeding of mushrooms, building steel barbecues, running computer courses for senior citizens, catering, event management and so forth. Business ideas thus are not much different to those of other school firms focused on ESD. The attractiveness of the cooperative form seems to be linked to initiators believing that the cooperative way of organizing is particularly conducive to ESD.

The objective of this paper is to screen the results of three rounds of scientific project evaluation so far undertaken in Niedersachsen and Nordrhein-Westfalen in regard to this belief. Using a mixed method approach these evaluations identify the most significant factors driving this belief. Furthermore they detail the self-assessment of pupils and teachers in regard to the acquisition of competencies, verify the degree to which PCs work cooperatively and shed light on the interactions between PCs and "grown-up" partner coops. The paper discusses the relevance of these aspects and outlines further (comparative) research needs.

Keywords: school firm, mini company, education, social entrepreneurship, community of practice, learning outcome, Gestaltungskompetenz.

JEL Codes: P 130, O 350, A 210, I 250

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1. Introduction

a. Problem statement

A significant number of national and regional initiatives exist in Germany to support schools, teachers and pupils in entrepreneurship education (BMW 2010). They largely originated in the 1990s and early 2000s, when due to high unemployment rates and under the influence of re-unification some importance was placed on young people acquiring entrepreneurial competencies in order to be well prepared for both, self-employment as well as dependent employment (Kuratorium der Deutschen Wirtschaft für Berufsbildung 2006). Although, unlike many European Union member states, Germany has no national strategy for entrepreneurship education in schools (EACEA 2012: 48)¹, the national *Ministry of Economic Affairs and Technology* supports the work of these initiatives by hosting them on the internet² and organizing a regular network meeting at the ministry.

Several promotion programmes were and still are centred on the concept of **school firms** or mini companies, as the *European Commission* used to call them (e.g. EC 2005, EACEA 2012: 48, Initiativkreis 2015)³. Several Federal States' school regulations stipulate in which way school firms can be incorporated into school-curricula, and frequently mini companies are run in a combination of curricular and extracurricular activity (Göler von Ravensburg 2014: 64-66). Schools decide themselves whether to have any or even several school firms, how to combine this learning arrangement with curricular subjects, what educational goals they want to follow, and how much time teachers and pupils may give to this.

Yet, school firms are not undisputed among German educators, a fate they share with general economic education (Graupe 2015; Scherb 2015). Many German heads of school and teachers are somewhat wary that mini companies might trim pupils into uncritical young capitalists (e.g. Liebel 2008), while school authorities have only recently begun to allow teachers' time to be spent on this learning arrangement. Empirical studies showed that a positive impact on entrepreneurial propensity of school firms is not self-evident but rather depends on the framework conditions (Oosterbeek/ van Praag/Ijsselstein 2008). At the same time serious research into the effects of school firms show significant increases in general competences (e.g. Osburg 2001). Several studies even

¹ Most likely this is because in Germany school education is the domain of the federal states.

² See http://www.unternehmergeist-macht-schule.de/DE/Startseite/home_node.html (last accessed 4.1.2017).

³ The percentage of German schools running a school firm is estimated at about 12% (De Haan, G./ Grundmann, D./ Plesse, M. 2009: 16), which is relatively low compared to Norway's 42% for instance (Røe Ødegård 2007: 16). There are virtually no school firms at primary schools, which means that about a quarter of all secondary schools have a school firm (De Haan, G./ Grundmann, D./ Plesse, M., 2009: 16).

demonstrated advances in specific non-cognitive skills, such as persistence, creativity and pro-activity⁴.

About 20 years ago Education for Sustainable Development (ESD) became a new educational aim for secondary school education in Germany (Programm Transfer 21 w.y.). Fourteen different ESD learning arrangements were experimentally tested from 2002 to 2005 in secondary schools. School firms ranked highest (BLK Transfer 21 (Eds.) 2005). However, school firms for ESD were for some time only developed in Niedersachsen, where they had originally been tested in said experiment. Work in these centred on ethical and resource efficient interactions with the social, economic and ecological environment (de Haan/Grundmann/Plesse 2009: 64-65).

Pupils' cooperatives (PC) are special school firms, modelled on the German real world cooperative modus including quasi-registration, annual audit, partnership with real-world coops etc. Some ESD school firms had existed before transforming into pupils cooperatives, while others have been started in a cooperative manner right away. The waiting list of ESD school firms wanting to become PC is long, but the promoting cooperative federations usually limit the numbers newly accepted each year. Examples of PCs' business ideas are making string puppets and performing with them, felting sheep wool, beekeeping, making apple juice, breeding mushrooms, building steel barbecues, running computer courses for senior citizens, catering, event management and so forth. Business ideas thus are not much different to those of other school firms focussed on ESD. The attractiveness of the cooperative form seems to be linked to initiators believing that the cooperative way of organizing is particularly conducive to ESD.

b. Objective

The objective of this paper is to screen the results of three rounds of scientific project evaluation so far undertaken in Niedersachsen and Nordrhein-Westfalen in regard to this belief. Although this implies a positive selection of survey subjects and with it a mere interior view by participating pupils, teachers and cooperative partners, it does, however, allow the identification of the most significant factors driving this belief and as such can serve further comparative research by producing standards of comparison.

⁴ These were chosen because they seem to be increasingly relevant determinants not just for a successful entrepreneurial career but for labour market outcomes in general (Huber/Sloof/van Praag 2012; Heckman/Hesse/Rubinstein 2000; Heckmann/Rubinstein 2001; Duismann 2002, Duismann 2007).

c. Content

Following this introduction, the paper will outline the basic concepts of ESD and PC as well as the dissemination of either (part two). Part three will explain the idea of school firm learning, critically discuss how far learning outcomes of school firms can be ascertained, and discuss how assessments of the didactic setting might give clues to the possibility of certain competency developments. The methodological approach for this paper's underlying field research is explained in part four, while its results are described in part five. Part six draws conclusions and points to further research needs.

2. Terminological basics

a. Educational for sustainable development in German Schools

The international understanding of Sustainable Development encompasses at least ecological, economic and social if not political sustainability. Education for Sustainable Development (ESD) is to *“allow every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future”* (UNESCO w.y.). Germany made the principle of sustainability a national objective in 1994 by including it into the German Constitution (article 20a of the Grundgesetz). In 1998 a first framework document for Education for Sustainable Development (ESD) was published (Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung 1998). More recently the *Transfer 21 Quality Team* summarized the objectives of ESD as follows (The Transfer-21 Programme's 'Quality and competences' Working Group 2007: 10):

“Education for sustainable development (ESD) enables the individual to participate actively in analysing and assessing non-sustainable development processes, to follow criteria of sustainability in their own life, and to initiate sustainable development processes together with others at both local and global levels. This makes education for sustainable development a significant component of general education.”

For the purpose of school education *de Haan* coined the term *Gestaltungskompetenz* to describe the sum of competencies needed by the individual to understand the ecological, economic and social challenges and (re-)act effectively. His concept guides educators internationally and encompasses ten part competencies (de Haan 2004: 41-42; The Transfer-21 Programme's 'Quality and Competences' Working Group 2007: 12):

1. To create knowledge in a spirit of openness to the world, integrating new perspectives;
2. To think and act in a forward looking manner;
3. To acquire knowledge and act in an interdisciplinary manner;

4. To be able to plan and act in cooperation with others;
5. To be able to participate in decision-making processes;
6. To be able to motivate others to become active;
7. To be able to reflect upon one's own principles and those of others;
8. To be able to plan and act autonomously;
9. To be able to show empathy for and solidarity with the disadvantaged;
10. To be able to motivate oneself to become active.

b. Expectations attached to ESD focussed school firm learning

Formulated by *Manthey* some time ago, four theses describe the expectations, education policy makers usually still follow in regard to sustainable school firms in Niedersachsen (*Manthey* 2000: 2-3 as translated by the author):

- *“For one they enable an activity-oriented relation between ecological, economic and social objectives.*
- *Secondly, school firms offer possibilities to experience how a business can be run in a sustainable way.....*
- *Thirdly, school firms promote a different way of life as well as new attitudes and competences.*
- *By orienting themselves on “sustainability”, school firms become teaching arrangements respectively settings for the acquisition of “Gestaltungskompetenz”, thereby supporting capabilities necessary for solidarity behavior as well as the handling of uncertainty and risks.”*

About one decade later, an explorative survey by the *institut futur* at the *Freie University of Berlin* confirms that sustainability is given a considerable role in various aspects of ESD focussed school firm learning (*de Haan/Grundmann/Plesse* 2009: 64-65):

- the ecological aspect receives attention when school firms decide which product to produce or service to render;
- ecological and social sustainability is also considered frequently when choosing supplies and suppliers;
- in numerous cases school firms purposefully spend their surpluses on ecologic, social or development objectives or projects;

c. Dissemination and socio-economic character of pupils' cooperatives

In 2005 *NaSch21*, the network of ESD-school firms in Niedersachsen (*Nasch 21* (Eds), w.y.), teamed up with one regional cooperative federation (then *Norddeutscher Genossenschaftsverband* e.V., today part of the *Genossenschaftsverband* e.V.) to link the idea of education for sustainable development with a cooperative form of organizing. *NaSch*'s concept of

sustainable entrepreneurship was augmented by cooperative teaching materials, workshops and an advisory service concept designed to give teachers and pupils the opportunity to experience a member-oriented rather than capital driven kind of sustainable, cum social entrepreneurship.

Since then, PC have extended to several additional Federal States, namely Nordrhein-Westfalen, Rheinland-Pfalz and Baden Württemberg. Further interest has been expressed from authorities, teachers' training institutions, heads of schools and teachers in virtually all other Federal States too. This could be seen as a desire for what *Hulgard* would describe as "experimentation with new forms of solidarity, collectivism and social activism" (Hulgard 2014: 80). For some users it might even carry the chance of becoming part of "an alternative economy sector based on a different set of values about the meaning of life" (Castell et al. 2012: 10 as cited in Hulgard 2014: 82). In any case it can be seen as an effort towards a socially creative strategy (Pradel Miquel/Garcia Cabeza/Eizaguiorre Anglada 2014: 157) to promote social entrepreneurship of the kind covered by the EMES understanding of social entrepreneurship, as repeatedly described by *Defourny/Nyssens* (e.g. in Defourny/Nyssens 2014).

d. The concept of pupils' cooperatives

Basic functioning of pupils' cooperatives

The promotional concept for PC is based on internationally accepted ideas about cooperative identity, values and principles (ICA 2014) such as voluntary membership, democratic decision making and participation, solidarity, shared risk and responsibility towards the community. The central objectives of the promoters (Regional cooperative federations, sustainability education project *NaSch21* and – for Nordrhein-Westfalen and Baden-Württemberg – an education trust by the name of *Stiftung Partner für Schule*) are to stipulate learning processes which lead to *Gestaltungskompetenz*, but also generate knowledge about the working world and economic issues as well as generally enhancing basic competencies and social and personal maturity. Unlike many school firms which either have no legal form (according to *de Haan et al.* 2009: 20 this applies to 50 per cent of all school firms) or simulate share holding companies, PC are intended to be run by the pupils themselves (hence the name). This is not self-evident as *de Haan et al.* showed in 2009. Their survey found that in only half of the school firms interviewed pupils are allowed to partake in management, while the other half is managed by teachers (*de Haan et al.* 2009: 20-21).

Every PC has to have at last seven members, a set of statutes, a management board and a supervisory board, each with clearly defined tasks. It must hold at least one general annual meeting where members discuss the annual report and

financial statements, elect board members and decide on the use of any surplus achieved⁵. As a rule, pupils' coops have no own legal personality and registration is "quasi", because their members are minors and the pettiness rule of tax law applies to them as well.

External support

German PC are to be registered and audited annually by a cooperative federation⁶. The audit serves to assess the bookkeeping and the adherence to cooperative norms (as laid down in the model statutes which in turn follow cooperative law). The federation's audit also ensures that the management board has implemented the members' will during the last year and that the supervisory board has fulfilled its role. The audit is supposed to have a counselling character. Of course the requirements are somewhat simplified compared to an audit of a fully-fledged cooperative, and they are implemented in a somewhat flexible way so as to present an adequate challenge to the whole range of secondary school types, from remedial schools to tertiary education institutes.

In order to find the right approach and access to schools the regional coop federations usually enter into cooperation with educational agencies experienced in the promotion of school firms aimed at ESD. Together with pedagogical counterparts, the cooperative teaching and learning materials are continuously being adjusted and adapted to new project areas.

All PC have a real coop as a local partner from their very start. The federation aids in the partner finding process. Most partner-coops are cooperative banks, trading or industrial coops such as for example a cooperative bicycle wholesaler or a pharmacists' wholesale cooperative. Tandems of coop staff and teacher mentors are invited to attend workshops, where start-up requirements are explained and individual partnership terms negotiated by each tandem. The partner cooperative pays for the costs of the external support and audit. Both tandem partners can access the teaching and learning materials provided for pupils' coops on a special internet platform.

Pupils and teachers can turn to their partner-coop in developing a business idea, compiling a business plan and writing up a set of statutes. The degree of detail to be covered in the business plan depends on the age and capabilities of the pupils. Questions of bookkeeping, marketing, business administration or handling the formal cooperative requirements can also usually be solved at local level. Frequently the partner-coops also offer training workshops, for example, in recruitment or marketing or they accommodate or sponsor the PC to attend

⁵ Since this is monitored in the annual audits and forms a precondition for being in the project, it was not necessary to evaluate adherence.

⁶ The annual or bi-annual audit of cooperatives has a long standing tradition in Germany. Cooperative audits were the first legally prescribed business audits (Klose 2007: 137-138).

school firm fairs or participate in competitions. Both, advisors from the cooperative federations and from the educational agencies involved offer telephonic advice and routinely visit the schools one to three times a year, and in the early stages even more often.

3. Contextual framework

a. Popularity of school firms

The aim of entrepreneurship education having been augmented by a whole range of other educational aims school firms have become increasingly popular in Germany over the last decade. Several pragmatic reasons have contributed to this development. For one, indications exist that they assist pupils in the transition from school into apprenticeship or professional, technical or engineering schools⁷. Yet, structural changes in the German school system have also contributed to their popularity: in most Federal States⁸, schools have obtained individual budget authority and now need to compete for pupils, even more so since Germany has a negative demographic growth.

Besides these pragmatic reasons school firms also gained popularity in the wake of a general educational rethinking taking place in Germany ever since the so-called “PISA Schock” in 2000. Many educators have since developed an increasingly reflexive understanding of education. The idea, that learning is based on experiential processes, has contributed to a search for more problem-oriented didactic approaches, such as for example situated and cooperative learning. School firms are seen to be an approach which encompasses both, constituting what *Sembill/Seifried* have termed self-organized learning (Sembill/Seifried 2006). They are complex learning arrangements the educational outcomes of which depend on a series of factors.

⁷ See for example

http://www.unternehmergeist-macht-schule.de/DE/HilfenundTipps/Expertensicht/Expertensicht_node.html (last download 2017-01-04),

<http://www.koelnernetzwerkschuelerfirmen.de/startseite/koelner-netzwerk-schuelerfirmen/die-schuelerfirmen/> (last download 2017-01-04),

http://www.nebs.de/ASIG_NEBS/Startseite_nebs.php (last download 2017-01-04),

<https://www.junior-programme.de/de/startseite/> (last download 2017-01-04).

⁸ Germany is a Federal Nation with fourteen Federal States (Bundesländer, also called Länder for short). The political responsibility and power for formal education lies with the individual Länder.

b. Limited possibilities to measure ‘learning outcomes’

Student achievement and in particular any assessment of cause and effect relationships in school learning are hotly contested issues (Hattie/Anderman 2013: xx), which cannot be taken up in this paper. Yet, it is useful to take notice of the particular difficulties frequently quoted when it comes to empirical evidence of the ‘learning outcomes’ of school firms.

First of all school firm learning has less of a set curriculum than other types of school teaching, meaning neither objectives, age groups, curricular attachment nor embeddedness in the schools’ timetables are comparable between schools even within one federal state.

Not surprisingly the number of studies relating to educational effects of school firms is very limited. Most existing studies, rather than attempting to measure ‘learning outcomes’, relate to more general educational effects (Göler von Ravensburg 2014: 66-68). One reason for this seems to lie in the high costs of longitudinal surveys involving intricate testing which would be necessary if actual competency development was to be ascertained. This is unlikely to occur seeing that school firms are not central elements of school education. In addition, education in general and education in school firms in particular is far more than the accumulation of knowledge which can be tested. What is more, the development of competencies frequently cannot be attributed to singular learning occasions (Krautz 2009: 92; Uszkurat 2012: 4-5; Erpenbeck/Rosenstiel 2007). This holds especially true for the interactive educative processes common in school firms. These aren’t of a technical nature but represent social processes, something constructivist theory has emphasized ever since *John Dewey* (inter alia Dewey 2002).

The only German study focussed primarily on the effectiveness of school firms for entrepreneurship education was the PhD-research by *Knab* in 2005/6 (Knab 2007). Like virtually all studies on the educational effects of school firms⁹, it was based on a mixture of (retrospective) self-assessment (rather than testing) and assessments of certain parameters of the learning arrangement. The same holds true for studies focussed on ESD in school firms (de Haan/Grundmann/Plesse 2009; Henze 2004; Rode 2005). Nevertheless, they represent good reasons to claim that provided this is their focus, school firms can support the development of competencies necessary for sustainable development.

⁹ See e.g. Henze 2003; Lehmann/Nikolova/Peek 2004; Flierlbeck 2005; Schröder/Nentwig-Gesemann 2006; Regionales Umweltzentrum Hollen e.V. 2003; BLK Transfer 21 2005; Rode 2005; de Haan/Grundmann/Plesse 2009.

c. Underlying concept of ‘learning’

School firm learning contains elements of problem-based¹⁰, experiential, informal, implicit and cooperative learning in a peer group context (e.g. Knab 2007: 49, 90; Manthey 2000: 2-3). Depending on the degree to which pupils determine learning objectives and processes by themselves, it can reach the character of self-organized learning (Sembill/Seifried 2006) or even become a community of practice highly esteemed by educationalists following the pragmatic school, and especially Dewey’s ideas (Dewey 1929/1995 as quoted by Bender 2006: 53). At the same time customers, suppliers, external advisors, and other role players augment the teacher in acting more or less informally as “tutors”. All this makes it difficult to assess cause and effect of particular teacher-induced didactic settings on ‘learning outcomes’, but at the same time renders learning highly authentic. In order to learn more about the possible added value due to cooperative organization we base our analysis on the following constructivist analytical framework¹¹:

Pupils enter a learning arrangement with certain competences. They need a certain amount of motivation and volition to partake and become active. Group dynamics, access to external contacts as well as teacher-behavior will have an influence on the way in which they will want to and can partake, what they can contribute themselves and how they will assess their role and contribution. The learning content and stimulus can be given by the teacher, or, as is more often the case in a school firm, it will arise from the context and the activities undertaken. In essence, the learning arrangement school firm is confronting pupils with real world issues hitherto unknown to them, stimulating them to acquire at once new knowledge, methods, perspectives, attitudes and capabilities. Any growth of personal, social, technical and methodological competences presupposes two things in particular: the pupils are willing and able to take on the challenge and the teacher is a good coach and networker. Pupils themselves will frequently not be aware of their achievement as the acquisition of many competences takes place in a rather implicit way.

Accepting these characteristics of the didactic setting, the self-assessments of pupils, teachers and other resource persons is both, relevant and suitable for identifying specific links existing between the development of *Gestaltungskompetenz* and properties of the cooperative learning arrangement.

¹⁰ On what is known about the efficacy of PBL from meta-studies see Gijbels/van den Bossche/Lovens 2013.

¹¹ This picture of the learning arrangements basic functioning is based on Göler von Ravensburg, 2014, especially pp. 164-179, and further sources to be found there.

d. Relatedness of development of competencies and didactic setting

Schools and teachers tutoring ESD focussed school firms wish to widen or deepen their pupils' *Gestaltungskompetenz*. Due to prior training they are attentive to the ecological aspect especially in regard to the product or service the school firms render, to the ecological and social sustainability, especially when choosing supplies and suppliers, and to the spending of the surpluses on ecologic, social or development objectives. In order for them to organize their school firm in a cooperative form – which by the way causes additional effort not only during the starting phase – only makes sense if the cooperative concept indeed assists in creating favourable framework conditions for

- the creation of motivation and volition with pupils
- high levels of pupils' participation and a change in the teachers' role
- satisfaction with the cooperative setting
- growth in *Gestaltungskompetenz*

Additionally, teachers see the ideal cooperative as a non-capitalist, member-beneficiary form of doing business. Yet proof is to be sought whether cooperative school firms indeed animate the cooperative principles of member benefit, identity, democracy and solidarity. As can be seen with “adult cooperatives” simply following a normative concept of statutes, having elections and audits might not automatically ensure this.

And last, but not least, since schools are expected to work with additional external agents, namely the federations and primary coops, the efficacy of such external partnerships needs to be looked at.

4. Methodological approach

a. Origin of empirical data

The first sustainable PC project was started as a pilot in the State of Niedersachsen in 2006. The author was commissioned to accompany the first two years of project development with a scientific evaluation¹². This evaluation was aimed at obtaining structural data (size of membership, ages, gender etc.) in the eleven partaking secondary schools ranging from Gymnasium to remedial school, and to establish the practicability of the cooperative form in the various school types. The third aim was to establish its conduciveness to the envisaged education for sustainable development, especially its contribution to the development of *Gestaltungskompetenz* (The Transfer Programme's 'Quality and Competences' Working Group (ed.) 2007: 7).

¹² For the report see Göler von Ravensburg/Köppler 2008.

Two rounds of questionnaire surveys were run with teachers ($N_{T1}=18/14$) and pupils ($N_{P1}=118/127$). Pupils at the two remedial schools in the sample were interviewed verbally rather than with a questionnaire, but with the same questions as all the other pupils.

When the project was extended to 50 pupils' coops, the author's team was again commissioned to evaluate from 2010 to 2012 with more or less the same brief¹³. Again two rounds of questionnaire-surveys were conducted, each time one with teachers ($N_{T2}=29/31$), and one with pupils ($N_{P2}=592$). The size of these two evaluations together allowed for fairly solid results on all the said areas of interest.

In 2010 – from our own volition – we also undertook some qualitative research on how cooperativeness is perceived and practiced by the pupils involved, conducting and interpreting 29 group interviews with pupils¹⁴. We wanted to know whether the setting was merely followed mechanically or filled with life, and we hoped to learn more about possible links between cooperativeness and school-type, specific insertion in the curriculum, formal and informal school structures as well as obtain a feeling for the importance of group composition and teachers' behavior.

From 2011 to 2014 we conducted a third evaluation in the State of Nordrhein-Westfalen, where a new project was started in 2010. Apart from again generating structural data and yielding self-assessment of educational effects – which showed results very close to those obtained in the first two evaluations in Niedersachsen, meaning that they might be very robust even in different educational policy environments –, this evaluation was centred on how the local coop partnerships come about, their activities, functioning and needs for external support¹⁵. The relevant items for the questionnaires were based on a four-phase partnership development model, which we tested and improved by means of eight explorative interviews with teachers and representatives of partner-coops. The survey then proceeded with two rounds of questionnaires to teachers ($N=20-22$), as well as one to partner-coop personnel ($N=16-22$) and one to pupils ($N=277$) (Göler von Ravensburg et al. 2014: 10-11). The objectives for partnering up as stated by both groups were compared with the written cooperation agreements.

b. Understanding of competences

In the pilot phase we based our understanding of competencies on the internationally accepted pedagogical definition by *Weinert* (Weinert 2001: 27). He thinks of competencies as

¹³ For the report see Göler von Ravensburg et al. 2012.

¹⁴ The detail on this is included in Göler von Ravensburg et al. 2012: 82-114 and 176-248.

¹⁵ For the report see Göler von Ravensburg et al. 2014.

‘cognitive skills and abilities which the individual possesses or can learn, allowing it to solve certain problems, as well as the attendant motivational, volitional and social skills and abilities required to be able to apply these solutions successfully and responsibly in a range of situations’.

For that part of the survey, tackling competencies for sustainable development we used de Haan’s descriptive items defining *Gestaltungskompetenz* as described above and let ourselves be guided by previous evaluations of school firms in sustainability education (Regionales Umweltzentrum Hollen e.V. 2003; BLK Transfer 21 2005; Rode 2005; de Haan/Grundmann/Plesse 2009).

In the extension phase and especially for the qualitative research part, we progressed to taking into account the peer group effects prevalent in such self-organized learning arrangements (Göler von Ravensburg 2014: 164-171). It thus seemed appropriate to use an understanding of competency which is more action theory-based and sociologically informed than that of *Weinert*. We found this with *Martens/Asbrand* (2009). From their perspective the educational goal ‘*competency*’ is the ability of a person to act adequately within social situations. Situations are shaped by social rules and institutions like organizational, milieu or gender structures. The knowledge necessary to act adequately is characterized by implicitness and latency, to the point where the competent actor is not even aware of possessing such so-called *tacit knowledge* (Martens/Asbrand 2009: 201-217). Apart from ESD effects, we placed a special emphasis on the suitability of the cooperative form for different school types and age groups, the general perceptions of teachers and pupils as to the character of the learning arrangement, their respective assessment of the pupils’ participation, the teachers’ role, as well as their respective satisfaction. The hope was to identify the relevancies and functionalities which the cooperative way of organizing has for teachers and pupils, in other words the impact of cooperativeness to the final user.

c. Methodology applied

Seen in total, the evaluations were based on a mixed method approach. Although largely based on a quantitative self-assessment of partaking groups (all in all six questionnaire campaigns), 29 group interviews with pupils and a documentary analysis of partnership agreements were undertaken.

Quantitative research on structure and development of competences

The items used in the questionnaires (and interviews in remedial schools) to assess the potential of this learning arrangement for the acquisition of *Gestaltungskompetenz* (outlined in part 2.a), were phrased in direct relation to them being operational within the PC. The impression of development of *Gestaltungskompetenz*-items was asked of both, teachers and pupils so as to

relate the group to specific answers. In an attempt to stay within the language familiar to either group, the items were phrased slightly differently for each group, while great care was taken to assure identical meaning (Göler von Ravensburg/Köppler 2008: 39). In all but one single case of questioning the pupils, whether by questionnaire or in interviewing (remedial school pupils), teachers were banned from the classroom and pupils were on their own with the external interviewer. Teachers and partners from partner-coops filled in the questionnaires in their own time and sent them back either by mail or electronically. The latter became possible from the second evaluation onwards.

Qualitative research on cooperativeness

Objectives, design and methodology

The pilot phase survey had indicated three major influences on both, the acquisition of competencies and the potential of pupils' coops to support sustained community of practice (Göler von Ravensburg 2014: 176-177): the integration of the pupils' cooperative into everyday school organization, the cooperation with "real" cooperatives and the group dynamics. Based on these results, it seemed appropriate for this qualitative research part to adopt the action theory-based and sociologically understanding of "learning" informed by *Martens/Asbrand* outlined before (see part 4.b).

The group interviews on the PC's everyday life was aimed at the connections between how much autonomy schools and teachers allow their pupils in the exercise of their coop activities, and the way pupils use the cooperative order imposed on them. The semi-structured interview guide was designed to stimulate narratives connected to the three main principles governing cooperative self-organisation: self-help, self-administration and self-responsibility (ICA 2014; Zerche et al. 1997). To ensure that we did not just capture governance at the boards' level but gained a holistic picture of labour division and decision-making practices, the interview groups were made up of board and non-board members and aimed at oral representations in regard to (a) self-government (board size, organizational norms and rules etc.), (b) decisions at the level of the firm (e.g. about prices, suppliers, marketing and (c) at the level of production (production times, volumes etc.).

The interview passages obtained were carefully paraphrased, and using MAXQDA the cooperative data was organized according to a set of 3x80 codes. We generated typologies by analysing the coop-related content within 80 categories and relating it to the structural data obtained in the questionnaires. The coding system for this was generated partly using fundamental cooperative theory (inter alia ICA 2014; Zerche et al. 1997) and partly generated inductively from the material. The resulting reference system looked like this:

Table 1: Coding reference system group interviews (Cooperativeness & integration into school life), simplified diagram based on Göler von Ravensburg et al. 2012: 178-179.

	Cooperativeness			School	Group
	1. Self-help	2. Self-administration	3. Self-Responsibility		
Start-up phase	1.1	1.2	1.3	1.4	1.5
Takeover	2.1	2.2	2.3	2.4	2.5
Sphere of the firm	3.1	3.2	3.3	3.4	3.5
Membership sphere	4.1	4.2	4.3	4.4	4.5
Production sphere	5.1	5.2	5.3	5.4	5.5

Interview passages, as well as questionnaire results relating to the integration into everyday school life or teacher behavior, were analyzed using six codes generated inductively partly from the questionnaire results and partly from the interview material. Using content analysis in addition to careful reconstructive interpretation, we were able to identify several typical combinations of cooperative practice and integration into school with which to relate educational self-assessment results (see diagram 2 in part 5.d).

Evaluation of partnership development

The evaluation in Nordrhein-Westfalen contained a specific section on the working of partnerships between pupils' coops and partner-coops, examining how partnerships evolve, what objectives the individual partners each and the tandems together a) set for themselves and b) actually achieve in their common endeavour, and how they actually cooperate. In order to capture the processes leading up to and guiding these partnerships, we first developed a four-phase base model of partnership development and tested this in eight initial expert interviews:

Table 2: Four phases in partnership development – Göler von Ravensburg et al. 2014: 9-10.

Phase of partnership development	Interesting issues in each/both organizations
1. Preparatory phase	Debates, imaginations, motivations, intentions, needs
2. Partner finding	What was important in the process of choosing and negotiating with the partner? On what grounds did schools/coops seek each other out? How did schools react to the initiatives from coops?
3. Conceptual development	Conceptualization of partnership, fixation of aims, integration of collective action/common practice into the daily routines of each partner
4. Common activities and cooperation	Practice of cooperation

This approach was useful to identify more critical questions and motives thus improving on the items to be tested in the full survey. Questionnaires were then developed in such a manner as to entice participants to recall thoughts and events of the past.

5. Analysis of empirical data collected

Looking at quality effects usually means relating output to structure and process. Whatever form of company organization the school firm learning takes, schools need to give it certain structural preconditions such as rooms, adequate equipment and suitable accommodation in the school's timetable. Teachers need to be prone to self-organized learning arrangements and adequately prepared for such. These structural factors do not constitute unique elements of PC and thus are not relevant to our cognitive interest. Only the main special features structuring cooperative school firms need to be looked at. These are

- the size, internal governance and autonomy of pupils' groups,
- the partnership with a local cooperative and
- the fact, that they are being audited by the federation.

Other relevant differences are likely to originate within the working process (Göler von Ravensburg 2014: 171-172). In mentoring a school firm, all teachers generally face the challenge to create a methodical concept which is based on¹⁶

- authentic problems,
- learning in multiple contexts inside and out of school,
- learning under multiple perspectives,
- learning in social contexts,
- verification of individual learning experience not only by teachers but by the (business) environment.

The following summary of findings will be very brief in outlining self-assessments of teachers and pupils as to their PC's contribution to ESD. Beginning with a brief insight into the quantitative analysis of PCs' sizes and internal governance, a report on pupils' and teachers satisfaction and (self-) assessment of the development of pupils' competences serves to ascertain that a school firm being a PC has not unduly de-motivated or overwhelmed the ESD interest (part 5.a-c). Part 5.d is derived from both, qualitative and quantitative data and deals with the question whether cooperativeness is lived rather than just followed mechanically. Part 5.e turns to the functioning of the partnerships

¹⁶ This list has been synthesized from Deitering 1995: 23; Konrad/Traub 2010: 34-35; Sembill/Seifried 2007: 410.

between pupils' coops and "real" coops and again is based on interviews as well as questionnaire results. All five parts are related to the expectations of the methodical concept listed above.

Neither the effect of the group size, coupled with the effects of several age groups working together (see part 2.d), nor pupils' and teachers' (positive) experiences with the audit can be reported in this paper. Although these have been evaluated and can be seen to be significant contributions of the cooperative setting, this omission must be made due to limited space. However, the lessons learned regarding competency-effects, cooperativeness and partnership development seem more decisive to the question why teachers believe that a cooperative approach is well suited to ESD in school firms. Their belief, however, is no proof that PC are genuinely better suited than school firms in other organizational concepts when it comes to positive competency effects. Final comparative testing of such a hypothesis is still outstanding (see part 6.c).

For easier reading, the references to our evaluation reports and the ensuing book (Göler von Ravensburg 2014) which meticulously relates to the reports will be kept to a minimum. We trust the interested reader will go back to the original reports, as they are available on the internet (www.genoatschool.de).

a. Size and internal governance

In comparison to the "standard" type school firm, a PC frequently does have more members – on average there are 30 members to a PC (Göler von Ravensburg et al. 2012: 11-13/2014: 57)¹⁷ – and can accommodate more pupils in responsible positions. The number of boys and girls in a PC is about equal (Göler von Ravensburg 2014: 57). It frequently works across age groups, something many other school firms do not (Göler von Ravensburg 2014: 74). The ensuing member groups are more heterogeneous than in other types of school firms. They are frequently attended to by more than one teacher, and frequently attached to several curricular subjects.

Every PC is proved to be ruled by a set of statutes developed from model statutes but adjusted to the individual case. There has always been a management board and a supervisory board. (For educational effect, however, even the heads of departments were sometimes elected.) These were very largely composed of pupils (Göler von Ravensburg et al. 2012: 81, diagram 35):

¹⁷ The most comprehensive structural analysis of school firms in Germany found that size usually ranges between 6 and 16 members (de Haan/Grundmann/Plesse 2009: 19).

Diagram 1: Composition of Management Board

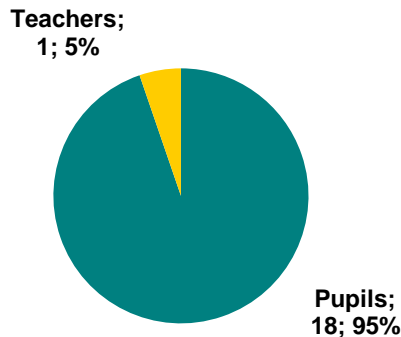
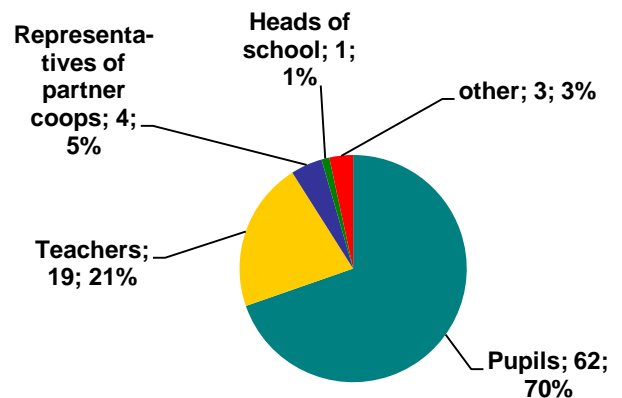


Diagram 2: Composition of Supervisory Board



At least one general annual meeting was held and members reported to have discussed the annual report and financial statements, elected board members and decided on the use of the surplus achieved. Pupils know who the board members are and have a good understanding of the responsibilities assigned to each board and office (Göler von Ravensburg et al. 2012: 90-91,108.).

b. Satisfaction, autonomy of pupils' groups and teachers teaming up

Almost 80 per cent of pupils expressed a very high degree of satisfaction with their pupils' cooperative at the end of the pilot phase (Göler von Ravensburg 2014: 251). This level was almost reached in the extension phase. As the main reasons for their satisfaction, participants in the pilot survey named opportunities for practical work, far reaching freedom from teachers' interventions and group experiences. In the extension survey, the most frequently stated reasons included practical work followed by the experience of success coupled with self-responsibility and thirdly self-determination. Then pupils further expressed their conviction that the practical work also improved their chances in trainee or job applications beyond their mere career orientation.

Three quarters of the teachers answered that they are completely or very largely satisfied with their working situation in the pupils' cooperative. They hold the cooperative organizational structure responsible for them no longer being "*held accountable for everything*" (Göler von Ravensburg 2014: 252). Remarkably a large number of teachers saw their own satisfaction closely related to the high

levels of motivation and self-reliance of the pupils, and to the possibility to exchange with other teachers.

In their overall assessment teachers and pupils agreed in surprisingly many areas, though not in all (Göler von Ravensburg et al. 2012: 56). All study participants valued proximity to reality and motivational aspects particularly highly. There was agreement that pupils' self-perception is becoming more realistic as is the awareness of others and that more responsible self-determination and autonomy is achieved (pupils' view) or can be demanded (teachers' view) without overtaxing the pupils.

Last but by no means least it should be mentioned that PC, due to their larger size when compared to other school forms and the fact that they frequently have members from various standards, classes or even school forms (in comprehensive schools (German: Gesamtschule)), are increasingly being mentored by more than one teacher, thus making a positive contribution to opening school up on the inside (Göler von Ravensburg et al. 2012: 38-41).

c. Effect on competencies

Since the project partners in Niedersachsen place special emphasis on education for sustainable development and in particular on the acquisition of *Gestaltungskompetenz*, we informed the corresponding part of our research on de Haan's concept of *Gestaltungskompetenz* as outlined in part 1 above.

The central question was how far tasks, problems and situations pupils encounter in their coop are suited to exercise and further develop *Gestaltungskompetenz*. These questions were central to our evaluation in both, the pilot and the extension phase (Göler von Ravensburg/Köppler 2008: 36-43; Göler von Ravensburg et al. 2012: 55-60).

Since it is most likely that the acquisition of many of the part competencies of *Gestaltungskompetenz* happens in an implicit way, because – as explained above – competency measurement is methodically difficult anyway and because our means only allowed for quantitative research on this, our evaluations concentrated on:

- a) the importance teachers give to education for sustainability in this learning arrangement,
- b) how they as well as the pupils assess the potential of this learning arrangement for the acquisition of such competencies,
- c) what both groups think in terms of growth of competencies due to the pupils' coop.

While the following section of this paper will largely report the relevant results obtained from 2009 to 2012, as these are more significant due to larger numbers

involved, the trends observed from 2006 to 2008 pointed in an identical direction in most respects and most results were later supported by the evaluation following in Nordrhein-Westfalen (NRW) from 2011 to 2014. In some points, the level of positive assessment proved a little higher in the pilot phase than later. This can, however, be explained with the self-selection process of participation in the pilot project. Yet, the difference is remarkably small taking into account the rapid growth of numbers and the differences in project management applied in Niedersachsen and Nordrhein-Westfalen.

Importance attached to education for sustainability

In general, teachers mentoring pupils' coops seem to assign high importance to sustainability aspects (Göler von Ravensburg et al. 2012: 54-55). Results show 90 per cent of them find it important that everyone should reflect on questions of sustainable development. Some 80 per cent believe that they give regular stimuli to the coop-pupils to reflect on aspects of sustainability. A further 72.5 per cent believe that sustainability aspects form part of the coop's daily practice. With 70 per cent believing that partaking in the PC influences the pupils' level of knowledge about sustainability and their attitude towards it. Whilst 60 per cent agree that the majority of involved pupils do see the importance of sustainability issues.

Assessment of the potential of pupils' coop in regard to education for sustainability

One remarkable result was the unanimity with which teachers and pupils assessed the potential of the pupils' coop for the development of all part competencies (Göler von Ravensburg et al. 2012: 56). However, teachers' assessments were generally somewhat more optimistic than those of the pupils. Both groups rated statements aimed at the stimulation of participation-competencies highest. Both groups, but more so the teachers (84 per cent), saw this as the most important contribution of pupils' coops. The potential for the pupils' coops to induce a future-oriented way of thinking and working got the second and third highest support. The descriptive item aimed at planning and implementing goals also received very high ratings. Forethought in planning was rated slightly lower, yet still high.

Actual growth of competencies

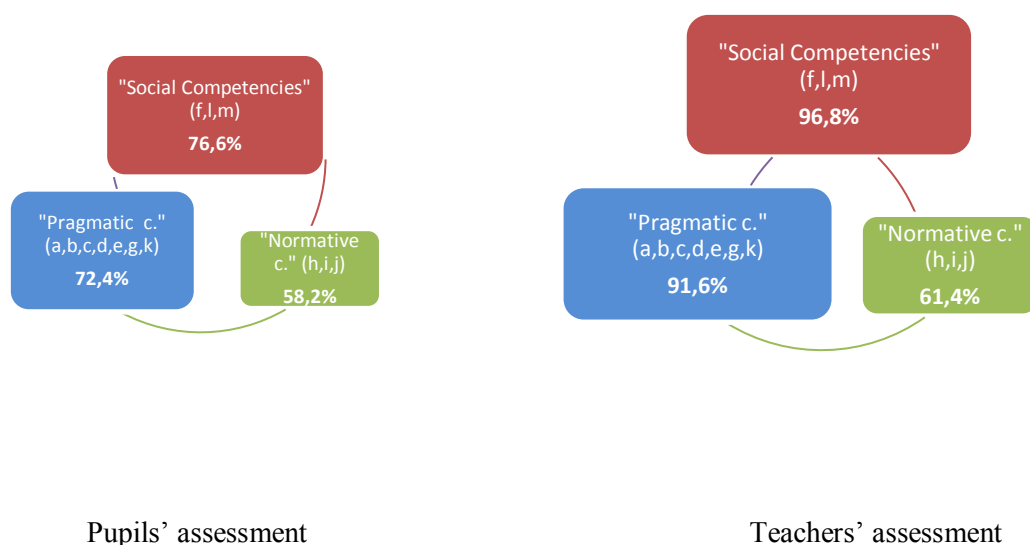
Yet how do teachers and pupils see the actual growth of *Gestaltungskompetenz*? Asked after about nine months of participating in a pupils' coop, 84.1 per cent of teachers and 67 per cent of pupils in the pilot phase said that there had been overall growth in *Gestaltungskompetenz* (Göler von Ravensburg/Köppler 2008: 44-45). One year later even 86.9 per cent of teachers and 74.3 per cent of pupils stated so (Göler von Ravensburg et al. 2012: 61).

Both groups again agreed on certain competency areas which have grown more than others. In the second round of questioning, teachers and pupils saw most progress made in those competencies related to teamwork and common problem-solving skills as well as in competencies to do with presenting one's own projects and their results (Göler von Ravensburg et al. 2012: 61-62).

Similarities in answer tendencies between teachers and pupils can also be seen regarding 'improvement in the understanding of worldwide environmental changes' and 'assessment whether technological developments will have positive or negative consequences'. Both these items reached the lowest of all ratings in both groups (Göler von Ravensburg et al. 2012: 62). These ratings are in line with the ratings on the same items obtained in the pilot phase.

In order to make this more accessible to pedagogical design, those seven of our questions relating to planning, organizing, implementing and presenting the practical work can be grouped together to form a cluster of pragmatic competencies. This cluster hence encompasses technical, methodological and personal competencies bound to the individual. A further group of questions addressed interactions with other team members, with other pupils, teachers and external partners. These can be gathered up into a social competencies-pole. Finally, the concept of *Gestaltungskompetenz* includes a bundle of part competencies related to the awareness for and appraisal of ecological and societal framework conditions. These part-competencies can be gathered under the heading "normative competencies". Diagram 1 shows what percentage of teachers and pupils thought that the pupils' coops had given pupils' significant growth in competencies within these three clusters.

Diagram 3: Weighted Areas of *Gestaltungskompetenz*, Göler von Ravensburg et al. 2012: 63



The pupils' self-assessment shows an emphasis on the social competencies followed closely by the pragmatic competencies. They are more reluctant in their acknowledgment of achievements with regard to their awareness for and appraisal of ecological and societal framework conditions. The teachers' assessment largely supports these tendencies but is generally more optimistic.

d. Realization of cooperativeness and educational relevance¹⁸

Results from questionnaires

In school firms pupils are expected to self-organize many of their learning processes. This in turn presupposes that they can significantly influence all decisions concerning whether, what, when, how and towards what they are to learn and thereby know that their decisions will indeed have consequences (Weinert 1982: 102-103). Teachers ideally instruct little, while mainly assuming a coaching role.

In the questionnaires pupils and teachers clearly emphasized that the cooperative organizational form was an opportunity to implement democratic principles, in situations which are perceived relevant by the pupils and to gain experience in behaving democratically (Göler von Ravensburg et al. 2012: 100). The fact that each pupil has one voice in the general assembly was mentioned as one important facet. Yet, it was also emphasized that members are workers at the same time, and that this brings a great deal of self-determination and self-responsibility as well as the need for a frequent change of perspective.

The fact that there are more tasks to be distributed and posts to fill than in other types of school firms was seen very positively by teachers and pupils alike, since this gives more pupils the opportunity to take on responsibility, thus avoiding potentially de-motivating dominance of a few pupils over the rest. Thus the cooperative structure directly contributes to a self-generated learning momentum (Göler von Ravensburg 2014: 158).

The teachers also emphasized that, due to the fact that in the cooperative form of organizing pupils co-determines the rules of cooperation, they exercise significantly more influence in shaping the learning situation than in other type of school firms. Analogous to their answers the respective responsibility pupils accept for such tasks as running the accounts, making purchases, designing product or handling money were very positive (Göler von Ravensburg et al. 2012: 69-73).

In regard to social competencies, teachers believed the coop setting to promote a more foresighted attitude as well as the ability to negotiate common objectives,

¹⁸ The original report (Göler von Ravensburg et al. 2012) deals with this focus from p. 82 to p. 114.

thereby motivating others. According to them, there was more readiness in PC to accept new ideas in terms of planning, communicating and conflict resolution (Göler von Ravensburg et al. 2012: 56-58). Both, pupils and teachers thought that it is possible in the pupils' cooperative to solve conflict by negotiation and that pupils do benefit greatly in terms of communicative skills.

Teachers and pupils were also in near agreement in regard to the way teachers behave in PCs. Compared with other lessons, the pupils registered that their teachers spend more time watching, assisting, asking Socratic type questions and offering ideas (Göler von Ravensburg et al. 2012: 43-45). The teachers were happy that they need to discipline less and can assist, moderate and watch more than in "normal" lessons. There is good reason to assume that the cooperative form with its clear lines of competences is responsible for them being able to yield charge and governance.

Results from group interviews

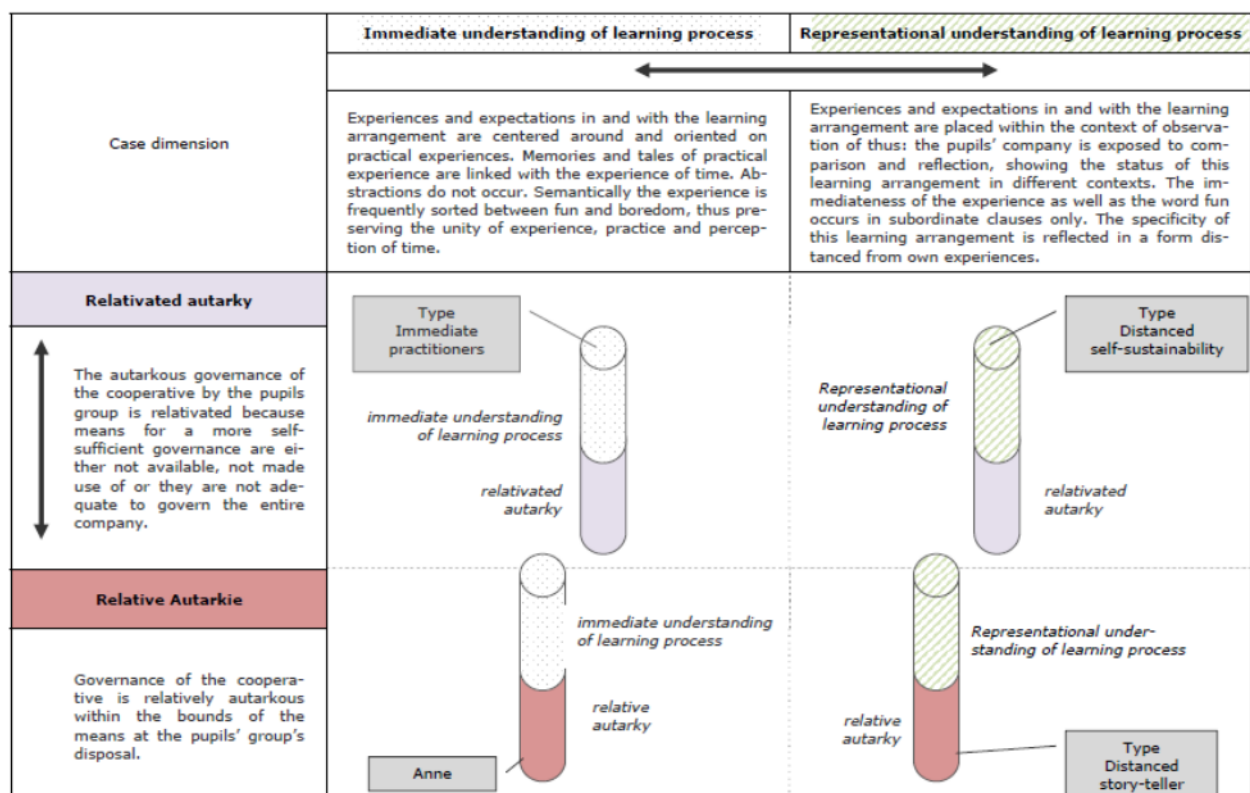
Using the mixed method approach described, it could be shown that the pupils realized a truly cooperative way of running their business. This was all but self-evident given the restrictions school bureaucracy inevitably places on this kind of learning arrangement and the fact that a superimposed cooperative set of rules could also have been followed "by the book", without really either enlarging the pupils' sphere of real decision-making or encouraging them to take on responsibility for their actions. Both, however, is a prerequisite for self-generated interest, which in turn seems essential for sustained shared learning and enriching competencies.

One first indicator of cooperativeness was obtained in the quantitative part of the survey. It showed that with one singular exception all management board members/directors and 70 per cent of all members of supervisory boards are pupils (see part 5.a). The other 30 per cent of supervisory boards' members are either teachers (14 per cent) or representatives from partner cooperatives (12 per cent) or heads of school (3 per cent) or former coop members (1 per cent). This signifies a remarkable level of self-determination keeping in mind that at the same time half of all school firms across Germany were still managed by the teachers involved and not by the pupils at all (de Haan et al. 2009: 20-21).

The first lesson learned from the interviews (Göler von Ravensburg et al. 2012: 107-114) was that one commonly held idea, cannot be sustained, namely the one according to which cooperative practice is so difficult that only learners at more academic type secondary schools, such as *Realschule* (comparable to a junior high school) or *Gymnasium* (grammar school) can understand it. To the contrary: pupils of various school types and age groups rather convincingly accounted for their practices on most levels. All of the pupils knew about responsibilities and duties of departments, directors, supervisory board

members, managers and federation. Moreover, they expressed their conviction that the democratic governance and transparent business model made it easier and more attractive to them individually, and as a group to take over certain economic risks and responsibility. These results fully support the quantitative findings reported above as to the degree of self-organization pupils achieve and the related willingness of teachers to increase autonomy.

Diagram 4: Case dimensions which characterize cooperative practice and learning at school; Göler von Ravensburg et al. 20012: 84



As explained before, educational advances seemed to be more pronounced in the areas of attitudinal development and pragmatic and social competencies, however, than in terms of academic knowledge. There are hints that this might

also have to do with the length to which a PC has existed and the experience of the teachers with it.

e. Partnerships¹⁹

In order to achieve these potentials, virtually all school firm promotion initiatives recommend a systematic cooperation with partners outside of school (BMWi 2010: 9). All school firms are interconnected with the world outside of school due to their need for suppliers and customers. Some of them are also advised by entrepreneurship education initiatives. As explained above, pupils' coops are advised by an educational body and a regional cooperative federation. The latter also undertakes a yearly auditing which is not limited to the economic results. Ever since 2009, PC in all projects also have to partner up with a local cooperative. Apart from this being a structural difference to other types of ESD school firms, such formal partnerships are supposed to positively influence the process quality by increasing authenticity of problems, representing additional thematic and social contexts and perspectives, as well as offering opportunities for pupils to verify group and individual learning experience.

Novel Partnership practices

We found that 38 per cent of schools had had some kind of prior cooperation with the same cooperative they are tandem with now for the sake of a PC. An astonishing 55 per cent of all cooperatives had already had prior cooperation with the same school (Göler von Ravensburg et al. 2014: 9-10). However, these kinds of cooperation seem to have been largely short term: application training, lectures, work experience and workshops on certain matters such as financial literacy. And although about half the schools had had a school firm before, only 10 per cent had been cooperating with partners outside of school for this purpose. So a long-term relationship as envisaged in this project was a novelty to most tandems.

Educational objectives and effects

All the motivational items we suggested were rated highly both by teachers as well as coop-representatives which above all means that the a priori identified motives proved significant. Teachers seem particularly keen on increasing the reality content of their teaching, which came as no surprise. Unexpected though was the result that they find it almost as important for partner enterprise to have a good reputation. The expected motive to gain practical support only ranked third in importance. That the enterprise should follow cooperative ways of doing

¹⁹ The original report on the evaluation in Nordrhein-Westfalen deals with this aspect from p. 9 to p. 28. A German language summary is also available in Göler von Ravensburg 2014: 238-249.

business/be a cooperative seems to be less important to the teachers in the early phase of partnering.

Coop-representatives too, were largely motivated by educational objectives. Selfish motives did not play a major role except the single most important cooperative motive, namely to popularize the cooperative form of organizing. Product placement or service marketing goals did not seem to matter. Two cooperatives agreed that they hoped to interest future trainees or employees through their engagement.

The educational intentions followed by both, teachers and coop-representatives primarily lie in supporting coaching and learning processes and the growth of social and personal competencies, in economic education, career orientation and preparation for tertiary education. However, when we compared this to the written cooperation agreements, we found these more superficial in regard to educative objectives, concentrating rather more on the planned common activities. This discrepancy could be either due to the retrospective research approach, or it is a sign of both partners' preparedness for an explorative approach.

It seems as though the process of partnering and developing a common concept for the cooperation had in almost all cases been a transparent one. Both sides reported that they were able to adapt their mutual expectations and to develop a constructive way of dealing with the occasional frictions. There was no account of any irritations about conceptual questions.

At the onset schools as well as partner cooperatives hope that their cooperation will increase the real-world content of this activity-oriented learning arrangement and enable cooperative learning of an advanced kind. The teachers do not expect much knowledge transfer from the partner cooperatives to them but rather that partners support the pupils in their development of methodical, social and personal competencies. Both parties tend to negotiate their respective roles in the course of their active cooperation. Cooperatives frequently hold the expectation that their engagement will assist pupils in their professional orientation and preparation for tertiary education as well as popularize the cooperative organizational form. Our research indicates that these expectations are being fulfilled.

With some partnering experience lying behind them, teachers answering the second questionnaire saw the coops' contribution to the pupils' better managing the step from school to professional training slightly greater compared to the pupils themselves. Also, both groups value various aspects of this context a little differently. However, they agree, that the cooperation with the partner-coop assists both, orientation concerning the working world as well as the alignment of self-assessment and external assessment. Somewhat in contrast to their pre-cooperation ideas, however, both groups do no longer believe, that the external partner can make a major contribution towards pupils career orientation with

regard to what field of (professional) occupation to pursue. That intention can only be fulfilled if pupils are to get in contact with various professional or vocational fields.

Functioning of tandems

More than half of partner-coops seem to ask their public relations' staff or their marketing staff to look after the PC, a further third assign this task to personnel departments (for all the following: Göler von Ravensburg 2014: 242-249). On average partner cooperatives invest about 8.7 hours per month into the PC, but this varied widely from 2 to 16 hours per month. Teachers spend about 68 per cent of the total time they allot to the PC in direct contact with the pupils. Coop representatives' share of time allotment spent in direct contact amounts to 42 per cent. Apart from this, both groups spend time on public relations (both about 10 per cent), on communicating with each other (T: 9 per cent, P: 19 per cent), with the cooperatives' federation and the education agency but also with their own colleagues.

Both groups frequently report that there are regular meeting times with the pupils. Beyond this the time they allocate to the PC seems to relate closely to activities planned and needs arising. Time is thus unevenly allotted throughout the school year.

Since the project partners do value reality learning so highly, it was also of interest, whether pupils are allowed or make contact with external partners directly, that is to say without intermediation by teachers. We found that only one quarter of pupils seek direct contact with the coops representatives without intervention by a teacher on a regular basis. More than half of the pupils do communicate directly with the partner-coop on occasion. The most frequent pattern seems regular communication through the teacher and occasional direct communication. Only in one of all surveyed pupils' coops do teachers dominate the communication. Most communication across school boundaries is first initiated by or addressed to the Management Board of the PC, spreading to other coop members from there. However, these questions were asked at a stage when the PC swere running for 6 to 8 months. That means the pupils' autonomy in regard to communications with the partner-coop might well have increased since.

6. Conclusion and need for further research

a. General findings

The complex research effort presented has so far affirmed that cooperative organizing is possible in all secondary school forms. Some of the wished for competencies seem to develop better than others but all in all the cooperative model seems to contribute significantly to their development. It was also possible to obtain first indications as to how the cooperative model was being put into practice, how pupils' groups can become autonomous in the sense of self-organized, sustained shared learning. Much was also learned in Nordrhein-Westfalen about the motives for and the way in which partnerships with real world cooperatives develop. All these results can contribute significantly to focussing the support given to PCs by the external agencies and to multiply the concept beyond the bound of current activity.

b. Evidence of social creativity

The findings of our evaluative research reveal that pupils' coops have impacts on their young members, which go significantly beyond that of other sustainability-oriented school firms. In addition, a somewhat complex multilevel system was developed from small beginnings in order to give schools all they need to operationalize a cooperative learning arrangement. This happened in an unusual cooperation between a cooperative federation, an ESD-oriented school firm network and researchers from a University of Applied Sciences, and would not have been possible without the voluntary and substantial engagement by the teachers involved in the pilot phase.

In most cases, a Regional Cooperative Federation initiating PC in their territory does so from the wish to popularize the cooperative form of organization. Since the German cooperative system is strictly member oriented and governed bottom up, it needs to convince its member cooperatives. All participating primary cooperatives in turn have to engage themselves with money as well as manpower. A substantial number of them think it worthwhile, and the number of PC has increased exponentially over the years, reaching approximately 180 to date.

However, the most important change happens in the schools. Equally participating voluntarily, schools are offered a democratic alternative in entrepreneurship-, economic- and general education. ESD isn't just taught in the form of information transfer. Finding sustainably produced ingredients becomes as much part of entrepreneurial decision-making as does the need to ensure the economic and social survival of the pupils' cooperative. Pupils of a different age and possibly even aiming at different school leaving standards (in comprehensive schools) can mix and benefit from each other in many ways.

Teams of teachers can attain more trans-disciplinary perspectives. Such a pupil- and teacher-driven transformative impetus is a rather unusual occurrence in the German school system.

Schools have to enter into binding relationships with a primary cooperative and the federation, both essentially outsiders to the school system. Being essentially bureaucratic organizations, many schools find it really demanding to accommodate cooperative school firm work. Among the challenges they face: timetables need to be altered to allow pupils of different classes to meet; pupils might have to be granted independent authority over resources like money or school rooms; parents have to be assured of the safety of their children even when outside of school or in periods without a teacher present; teachers must adjust to a coach-role not necessarily familiar so far, and more than half of them organize in content-centred teams, also a novelty for many; pupils need to embrace their new status as co-educators/co-producers of education.

In implementing PC, all role-players have to leave their original comfort zones and adjust to spheres hitherto strange to them. All the same cooperative representatives regularly praise the PC they are partner to and teachers seem very content. Pupils claim to have great fun and pride in their coops. They are showing sustained levels of substantial engagement beyond the obligatory even though they do not earn money, and economic surpluses achieved either remain in the cooperative (regardless of changes in the membership) or are spent on social objectives inside or out of school. Most pupils' coops have successfully dealt with succession issues and none had to be dissolved for economic reasons as yet, and the number of schools waiting to start a PC is increasing constantly.

c. Need for future research

Even though methodically confined to participants' self-assessment and an interior view by project participants, our research results substantiate that the cooperative organizational pattern allows pupils more autonomous practice and contributes significantly to self-organized peer group learning if not to a community of practice. Just how far this reaches beyond the situated, problem-based learning usually associated with (ESD) school firms would need to be established in a survey comparing degrees of pupils' autonomy and self-organization.

Self-assessment of gains in competencies were part of all three evaluations. Although increases can be substantiated due to measurements at two consecutive points in time, no comparison with non-cooperative school firms also aiming at ESD has as yet been undertaken. Yet, the actual descriptions of *Gestaltungskompetenz*-items in the questionnaires for the teachers were copied from earlier research by Rode (Rode 2005: 136). It is thus conceivable that such comparison might be possible if the earlier research results from

BLK Transfer/NASCH 21 were to be made available. Otherwise a comparative questioning would be necessary, which could, however be well-focussed.

The large majority of respondents in our surveys believed that the applied learning arrangement fosters general cooperative attitudes and contributes to the acquisition of key competencies for sustainability. Longitudinal research would be necessary to verify this.

It might be an interesting case in education research to establish whether the phenomena described have long-term effects on schools and the young people involved. It would be especially interesting to research effects on the way schools use their environment to make learning a more everyday experience; to evaluate whether team teaching that begins with PC then extends to other areas of the school curriculum; and analyse whether pupils' cooperatives can heighten young people's inclination towards and increase abilities for civic engagement, sustainable entrepreneurship and socially-sound cooperative behavior.

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Publications

2017/01 Pupils' cooperatives and the acquisition of competences for sustainable development
Nicole GÖLER von RAVENSBURG



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