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The Lack of Collaboration Between Companies and Schools in the German Dual Apprenticeship System: Historical Background and Recent Data

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Abstract: On the macro level (federal level) and exo level (state or regional level), the German Dual Apprenticeship System shows a high degree of institutionalised collaboration. However, the companies and vocational schools on the meso level (institutional level and level of the actors), in contrast, are just loosely coupled with a dominant partner (i.e., companies) and a subordinate partner (i.e., vocational schools). How and why these structures have emerged, established and stabilised is part of a complex historical, societal and economical process. The historical developmental will be elaborated in the article.

The term Dual System was invented in Germany in the 1960s, and the intention was to emphasise equal responsibilities, partnership of equals, lively encounters and close collaboration between companies and schools. This vision is not yet a reality, as the presented empirical survey demonstrates. A majority of companies do not or rather seldom collaborate with 'their' vocational schools. 74.2% of the companies do not or seldom coordinate their work, and 93% of the companies do not or seldom cooperate with the vocational schools.

The German Dual Apprenticeship System operates on the meso level with regard to the collaboration between companies and schools just on the basis of less than 30% of its potentiality. The term 'Parallel Systems' seems therefore to be more appropriate to characterise the actual situation on the meso level than the term Dual System.

Keywords: VET, Vocational Education and Training, Dual System, Germany, Cooperation, Coordination, Co-construction, Survey, Teachers and Trainers

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1 The Emergence of the Dominant–Subordinate Paradigm

In the first part, we will describe how and why the asymmetrical relationship between companies and schools was created. First, we will describe how and why the dominant role of the companies emerged. Second, we will describe how the complementary subordinate role of the vocational schools emerged.

1.1 Emergence of the Dominant Role of the Companies

Apprenticeships have existed in Europe since the early Middle Ages, and until the 20th century, a purely company-based and craft-oriented model was driven for centuries by the guilds (*Gilde/Zunft*). Guilds controlled and guaranteed vocational training and the quality of professional conduct (i.e., 'competent') as well as the compliance with proper behaviour (i.e., 'honourable'). Professional honour shaped professional identity, and professional identity shaped personal identity. A prerequisite for becoming a member of a guild was a training and evaluation period as an apprentice. Additionally, the guilds were powerful; they had their own jurisdiction, controlled the access to a craft, controlled the trade and set the prices on the market. They had control over the economy and the finances (Gessler & Howe, 2013).

The abolition of the guilds' rights was introduced for the whole German Empire with the Industrial Code of the German Empire (*Gewerbeordnung für das Deutsche Reich*) in 1871[1], which led to the deprivation of the guilds' power. With freedom of trade, any person was now permitted to open a trade, guilds no longer had rights to exclude others from practising a trade, the members of the guilds were allowed to withdraw their fellowship (and were protected by the law if they did) and evidence of competence to train an apprentice was no longer required. The guilds were not liquidated, but they lost their power. The freedom of trade was introduced late in Germany, and it was influenced especially by developments in France (Haupt, 2002).

In contrast to other European countries, the tradition of guilds was taken up again in 1881 with the amendment of the Industrial Code of the German Empire, also called the 'law on guilds' (*Innungsgesetz*). The freedom of trade, dating from 1871, was partly withdrawn. The *Innung* (i.e., association of craftsmen) acquired the status of a voluntary public–legal corporation. They were, therefore, new formations within an old tradition with special rights. They were authorised to create courts of arbitration for their members, carry out master craftsman and journeyman examinations and regulate apprenticeships. The motivation for this reintroduction was to improve the economic status of craftsmen and provide a social counterforce to the political workers, trade union movement and emerging social democracy—an economically well-off and stable middle class.[2] The de facto limited scope of regulations, however, proved to be problematic.

[1] In 1869 the Law on Freedom of Occupations (*Gewerbefreiheit*) and the Law on Freedom of Coalition (*Koalitionsfreiheit*) was introduced first in the North German Confederation and was adopted later in 1871, after the foundation of the German Empire (*Deutsches Reich*), into the Industrial Code of the German Empire.

[2] These are the roots of the German Mittelstand which are mostly family-owned SME's which have been successful in transforming themselves into companies with strong export activities (Muzyka, 1997).

The guilds were only given the authorisation to regulate and monitor the apprenticeships of *their own* members; yet, membership was voluntary, and only a small number of craftsmen joined the new guilds because the membership involved more duties and control than rights. As a result, there was no comprehensive control of apprenticeships (Stratmann & Schlösser, 1992).

A further stage of reestablishment and development took place in another amendment of the Industrial Code in 1897 called the Craftsmen Protection Act (*Handwerkerschutzgesetz*). The guilds received the Chamber of Crafts as an umbrella organisation. Members of the Chamber of Crafts are the guilds (*Innung*) and not the craftsmen; the craftsmen are members of the guilds (Rothe, 2011a). The emperor had learned his lesson from the history of the guilds: Without any control, it was dangerous to give power to the guilds. At the same time, the state was not willing to take direct control itself, and the guilds were supposed to help the empire construct a power structure against the socialist workers movement. The solution was an *intermediary organisation* of self-administration in the form of the Chamber of Crafts. The chambers were, however, public legal organisations. The Chamber of Crafts was responsible for drafting expert reports about the status quo of craftsmen for the state, promoting the development of the craft sector and regulating and controlling the craft guilds. The Chamber of Crafts received even broader rights; for example, it was responsible for the formation of examination boards to conduct journeyman examinations, not only for members of the guilds but also for nonguild members, which meant that vocational training in the industry also was controlled by the Chamber of Crafts. The compulsory guild membership—allowed as long as the majority of local craftsmen agreed—also was introduced in this amendment, as were the statutory requirements to execute a written apprenticeship contract and the duration of an apprenticeship (i.e., generally three years and a maximum of four years). With formal rules, it was easier to regulate and control the guilds. The chambers also were allowed to establish schools. The costs for all this engagement had to be covered by the municipality, which then could pass on these costs to the handicraft businesses (Greinert, 1998).

With the amendment of 1897, craftsmanship was used to rebuild a quality system of vocational training, which largely had been shattered in the 19th century, and to give it a certain exclusivity. The Chamber of Crafts received a de facto examination monopoly related to apprenticeships; the master craftsman title was protected by law. A further amendment of the Trade Regulation in 1908 finally reintroduced the evidence of competence; the right to vocational training once again was linked to the medieval master title. The protection of the craftsmen reached so far that the examinations in the new industry sector were, for almost 40 years, under the control of the Chamber of Crafts. In 1936, the Chambers of Commerce and Industry finally received the right to organise their own examination boards and examinations (Rothe, 2011a).

The different chambers, which represent the companies and the employers with legal rights received from the state (i.e., an intermediary public legal institution), established a central role in the Vocational Education and Training System (VET System) in Germany. This position is stable, still valid and mostly unchanged, and was even at the moment when the vocational schools arose.

1.2 Emergence of the Subordinate Role of Vocational Schools

By the beginning of the 19th century, most of the German states had introduced compulsory schooling of eight years, up to age 15. From 1873, 'continuation schools' (*Fortbildungsschulen*), offering an additional three years of education, were created to continue schooling to age 18, which would be followed by military service. At first, there was no general obligation to attend these continuation schools. Nevertheless, the Industrial Code of the North German Confederation (1869)—which became, in 1871, the Industrial Code of the German Empire—already mentioned that "apprentices who are still in need of instruction in schools should be given time for it" (Gewerbeordnung für den Norddeutschen Bund, 1869, p. 272). An amendment in 1883 tightened this rule. Companies had to provide apprentices under the age of 18 the necessary time to attend the continuation school (Gewerbeordnung für das Deutsche Reich, 1883, p. 224). The gradual conversion of basic continuation schools into continuation schools focused on work and vocational apprenticeships started at the turn of the 20th century and was closely linked to the work of Munich Municipal School Inspector Georg Kerschensteiner (Gonon, 2002). Even if the continuation school had an extremely modest start (e.g., initially offering lessons only in the evenings or on Sundays), the introduction of schooling served to expand the closed social nature of professional training in companies that previously had been exclusively based on implicit knowledge, practical experience and privacy.

The German Committee for Technical Education (DATSCH) was founded in 1908 by the Association of German Engineers (VDI) and the Association of German Mechanical Engineering Institutes (VDMA). This committee's work would have a long-term effect because it produced standardised documents (e.g., activities of the profession, training curriculum and examination plan) and teaching materials (e.g., standardised courses and teaching materials), along with other materials. The first course (for apprentice machinists) was published in 1919 (Herkner, 2003; Kipp, 2009). Also in 1919, Article 145 of the constitution of the Weimar Republic introduced compulsory general attendance of continuation school students until the age of 18 after graduation from the eight-year basic school (*Volksschule*) (Huber, 1992).

A prototype of the dual system—with learning taking place in two locations—was launched by 1881 with the Trade Guilds Act (*Innungsgesetz*), the reintroduction of workplace training, and the establishment of 'continuation schools'. This was finalised on a legal front in 1919 with the introduction of compulsory school attendance for trainees in the whole republic. Greinert (1998) describes the period as the precursor to the current dual system. At the time, teaching in the continuation schools primarily repeated and deepened what had been taught during the preceding eight years of education, although the quality of the instruction evolved at different rates in the different states of the German Reich. By 1913, for example, Bavaria already had created 'vocational continuation schools' (*Berufsfortbildungsschulen*) that offered (1) practical vocational instruction, (2) theoretical vocational instruction and (3) civic education. Beginning in 1923, Prussia began to call its continuation schools simply 'vocational schools' (*Berufsschulen*). These also began to be specialised in terms of professions (German Committee on Education System, 1966).

At the dawn of the 20th century, industry—with the support of DATSCH—also had begun to build a parallel industrial system, alongside the craftsmanship system, though oriented towards the craftsmanship system. As a result,

> the craftsmanship system itself departed from the decentralised and rather unsystematic apprenticeship, which had been characteristic of the older craftsmanship model, and achieved a far higher degree of centralisation, standardisation, and uniformity—elements, that are considered today as the determining features of the German system. (Thelen, 2006, pp. 402–403; translated by the author)

To that end, *company* vocational schools also were established. These company vocational schools not only were intended to improve workplace training but also were an attempt to take over the public school-based vocational education. With the global economic crisis that erupted in 1929, this approach was abandoned for cost reasons while the task of the state-run continuation schools was now expanding. The continuation schools had to provide instruction until students were 18 and also provide services to unemployed young people. These tasks proved to be such a significant drain on the schools' resources and personnel that their continued existence was seriously in doubt by the start of the 1930s.

This situation changed when the National Socialists came to power in 1933. The schools would now be used to provide training for professional qualifications and indoctrination in National Socialist ideology. In 1938, a new law on compulsory education (*Gesetz über die Schulpflicht im Deutschen Reich*) centralised final control of the schools. The terms *vocational school* (*Berufsschule*) and *compulsory vocational education* (*Berufsschulpflicht*) were now used in general. Apprentices had to attend vocational schools part time until they completed their apprenticeships, even if they were older than 18. Starting in 1937, the vocational school curricula began to undergo revision, and the first national curricula (*Reichslehrpläne*) for vocational schools were issued in 1940. These curricula were orientated towards the requirements of industry and towards the content and structure of in-company training (largely developed by DATSCH). As a result, vocational schools became dependent on companies in terms of curricula, and their educational task was degraded. A 1940 decree mandated eight hours of lessons at a vocational school each week (Greinert & Wolf, 2013).

As a result, the systems of the companies and schools were now integrated in terms of curricula, with the companies as senior partners and the schools as junior partners.

2 The Emergence of the Dual System Paradigm

This asymmetry did not change after the Second World War, and it remains in place to this day. A 1952 opinion commissioned by the Standing Conference of the Ministers of Education and Cultural Affairs (*Kultusministerkonferenz* [KMK][3]) confirmed the domi-

[3]The KMK is a voluntary coordinating body for the state ministries without constitutional status (first congress in 1948).

nant role of the companies and the chambers but also recommended reforms that remain largely ignored (German Committee on Education System, 1966, p. 419). One of these recommendations was for vocational schools to train the company trainers—an approach that certainly would have improved collaboration between the teachers and trainers.

Despite the continued lack of parity, circumstances did change. First, with the enactment of the constitution of the Federal Republic of Germany in 1949, the responsibility for school-based education was transferred back under the umbrella of the cultural sovereignty of the states, eliminating the central control introduced by the National Socialists. The vocational schools regained their educational focus. Second, with the passage of the 1952 Works Constitution Act (*Betriebsverfassungsgesetz*), the trade unions acquired *rights of co-determination* for the implementation of in-company vocational training through the new work councils. The trade unions also demanded, without success, a second day of vocational schooling to improve school-based training and enhance the status of vocational schools. Although the asymmetry between the companies and vocational schools did not change fundamentally, the status of the vocational schools was strengthened by the new role of the trade unions. Third, the status of the chambers as organisers and regulators of the vocational training system and their control of the final examination system remained unchanged (Stratmann & Schlösser, 1992).

2.1 Political Appeal

The term 'Dual System' was first used in 1964 in a report published by the German Committee on Education System. The term Dual System should emphasise that it is a "system of simultaneous training in companies and vocational schools" (German Committee on Education System, 1966, p. 418) whereby the success of the dual training system depends on whether the responsible bodies "interact" (ibid., p. 503). Duality and collaboration of the learning locations characterise the original concept.

The word 'simultaneous' must not hide the fact that the company (then, as it is today) is the dominant partner in the system. This is evident by the fact that:

- the company (and not the vocational school) decides who receives a training place and training contract (followed by a place in the vocational school) and who does not;
- the apprentices spend two thirds of their time in the company and only one-third of their time in the vocational school;[4] and
- the training is only deemed successful if the final examination organised by the chambers (who represent the companies) has been passed by the apprentices.

In 1964, the German Committee on Education System recommended a reform that was formulated as the model for the future:

[4]The framework agreement of the Standing Conference of the Ministers of Education and Cultural Affairs (KMK) states that *at least* 12 hours per week of vocational education in schools must be provided (KMK, 1991, 2015). In the states, however, this orientation value is predominantly implemented with *exactly* 12 hours per week.

> In dual training, the company and the vocational school have a joint responsibility. Their contribution is different, but it constitutes equal obligations and rights. In order to reinforce and make the common ground for responsibility visible, both partners organise a joint examination upon the conclusion of the vocational education and training and issue the final certificate together. (ibid., p. 493; translated by the author)

The model also stated, "In the Dual System, the vocational schools are equal partners of the companies. Both serve the same goal, albeit with different orders and under their own responsibility" (ibid., p. 500). The key words in the description of the Dual System are shared responsibility, balanced obligations and rights, and equal partnership.

This concept from the 1960s is still used today to characterise the Dual System by means of the duality of the learning locations and the division of practice in companies and theory in schools (e.g. Ryan, 2011). This does not take into account (1) that the training often takes places at three or more locations of learning (e.g., intercompany training institutions and training in another company in the context of a training alliance or training network), (2) that, with the introduction of the didactic principle of 'learning areas' in vocational schools in 1996, the separation between theory and practice was abolished and (3) that the relationship between company and school is asymmetrical, and not equal. Today's concept of the term Dual System is more complex and, depending on the conceptualisation, comprises five (BMBF, 2013) or six 'core principles' (Dehnbostel, & Lindemann, 2016), six 'criteria' (Gonon, 2014) or even 11 'essential elements' (Euler, 2013).

The term 'locations of learning' or 'learning venue' (*Lernort*), introduced in 1974 by the German Education Council (GEC, 1974), was criticised even at an early stage, since the learning locations designated as company and school consisted of a number of different learning locations (e.g., company includes training workshops, workplaces and courses; 'school' includes classrooms, workshops and virtual learning rooms). In this sense, the term 'plural system' (Kutscha, 1999) could be used; however, this term already applies to every school. Schools offer a set of learning places, and many companies do as well. Another criticism was that either 'location of teaching' or 'teaching venues' would be a more appropriate term (Beck, 1984). Despite this criticism, the term 'location of learning' was established and formed the basis for the term 'cooperation of locations of learning' (*Lernortkooperation*).

The emphasis on the term locations of learning (used for both companies and schools) also carries the risk that other dualities are hidden. For example, the cooperation of the social partners (employers/employees), the corporatist governance (employer and employee association/government), federal constitution (federal government/governments of the states), cooperative financing (public/private), the teaching/learning arrangement (experience-based/systematic), the disadvantage in the transition into the system (transitional system/apprenticeship), and the discrimination in the system (such as payment for 'male professions'/'female professions'). Taken together, these dualities form a further duality, namely, between visible aspects (e.g., financing) and rather hidden system characteristics (e.g., discrimination). The principle of duality of the two learning locations—

company and school—nevertheless, forms the beginning and core of the Dual System despite the necessary complementary differentiation.

A major step forward in the quality of vocational education came with the introduction of the National Vocational Training Act (*Berufsbildungsgesetz*) of 1969.

2.2 Political Act

The *trade unions* initiated discussions with a draft of the law in 1959. In 1962, the Social Democratic Party (SPD) and, ultimately, the German parliament (*Bundestag*) asked the government (composed of a coalition between the CDU, Christian Democratic Union, and the FDP, Liberal Democratic Party) to present draft vocational training legislation. In 1964, when the term Dual System was coined, it was still unclear what the new law would look like. The first draft was submitted by the SPD in 1966, and it was finally adopted in 1969 by a CDU–SPD coalition government (Herkner, 2009).

The purpose of this act was to provide national regulation and public accountability of in-company training, similar to that imposed on education within schools. The matter up for debate was whether a federal law should be created to cover both training in the workplace and school education or whether a law regulating workplace training on a federal level would be sufficient (or would have to be sufficient) while the states retained responsibility for school-based training. The upshot was that the federal law only regulated workplace training while traditional schooling remained the states' responsibility (Roeßler, 1973).

Initially, this federal law was opposed by the chambers and employers' associations, which warned of the nationalisation of workplace training. The trade professions, meanwhile, remained opposed to the legislation. They had just completed a comprehensive overhaul of the Crafts Code (*Handwerksordnung*) in 1965, already had established rules (and accomplished facts) for workplace training and wanted the existing responsibilities to be preserved. The result was that the new federal law was only legally binding for the industrial sector and not for the trade sector (Zabeck, 2009). This division still exists today.

Therefore, it is not surprising, given these fundamental challenges, that the issue of company–school collaboration is not mentioned anywhere in the 1969 Act. It is also not surprising, given the history of vocational education in Germany, that it is the company that is legally given *sole responsibility* for the success of the training. According to the law, the company must ensure that "the trainees are taught the skills and knowledge required to achieve the goal of the training" (Berufsbildungsgesetz, 1969, p. 1113). Apart from this continuation of the status quo at the local level, the new law introduced the principle of corporatist governance with the involvement of trade unions at several levels:

- The new law led to the establishment of a Federal Institute for Vocational Education and Training Research, which (1) clarify the basic principles of vocational education, (2) identify its content and objectives and (3) work on the adaptation of the VET system to changes in technology, the economy and society (ibid., p. 1122). Founded in 1970, the institute was renamed the Federal Institute for Vocational

Education and Training (*BIBB Bundesinstitut für Berufsbildung*)[5] in 1976. One body of the institute is its Main Committee (*Hauptausschuss*), which makes decisions on institute-related matters and works out recommendations to improve the system. The Main Committee initially consisted of representatives of employers, workers and the federal government. The states (responsible for schooling) were not included in the beginning.

- The new law also led to the establishment of vocational training committees at the federal and state levels. These committees included employer and worker representatives. At the federal level, they also had representatives from the federal and state governments, while at the state level, the grouping included, besides the employers and employees, representatives of the highest state authority (ibid., p. 1120). The schools were involved in these committees through the state representatives.
- Vocational training committees also were set up for the local organisations responsible for vocational training: the chambers (i.e., competent authority). These were made up of equal numbers of employer, worker and school representatives, although the latter were only granted an advisory role in 1969 (ibid., p. 1121).
- The makeup of the examination committees for the approval of final examinations also was stipulated. At least one teacher had to be involved, and two thirds of the committee had to be employer and worker representatives. Its decisions were made by a simple majority, akin to decision-making on federal and state levels. One possible composition of the committee, in line with this regulation, could be four employer and worker representatives and one school representative. Unlike the vocational training committees for the responsible body (i.e., competent authority), on the examination committee, the school representative did enjoy full voting rights (ibid.).

The principle of collaboration in the field of vocational training, thus, was introduced on several levels (the federal government, the state, the responsible body and the examination committees). Only one area remained unaffected by these changes: direct school–workplace collaboration. On the ground, the principle remained that the responsibility for the success of vocational training lay solely with the company.

2.3 Political Activities

As a result of the determination of the division of responsibility between the federal government (in-company training) and the states (schooling), the federal government

[5] As of 31 December 2014, the BIBB had 334 positions and employed 618 people. Approximately one third of the positions are classified as academic posts. The current tasks of the BIBB are the reorganisation of the training professions, participation in the preparation of the national vocational training report, implementation of the vocational training statistics, participation in international cooperation relating to vocational education and training, the promotion of pilot projects and supra-workplace vocational educational centres, the management of the index of recognised training occupations, and applied research. The BIBB also coordinates the implementation of the Erasmus+ programme in vocational education and training (Wissenschaftsrat, 2017).

and the Standing Conference of the Ministers of Education and Cultural Affairs (KMK) agreed in 1972, as part of a joint results log (*Gemeinsames Ergebnisprotoll*), to establish a process to ensure that company training regulations (federal government) and frameworks for vocational school curricula (states) were coordinated with each other. They also introduced a provision that the bodies responsible for developing the curricula and training regulations would hold joint meetings, and representatives of one side would always be able to participate in an advisory capacity in the meetings of the other. Finally, they agreed that discussions between the representatives of the federal government and the states would take place if the coordinating committee could not reach an agreement (KMK, 1972).

The joint results log obviously didn't change much, and during the 1980s, school-based education within the Dual System was the target of heavy criticism. Industry representatives were particularly critical of school-based education, saying that it was too theory intensive, too far removed from real-world practice and did not help apprentices tackle the challenges of working in industry. In other words, the schools were not serving the needs of the customer (Gerds, 2001; Hüster & Gravert, 2001). In 1991, the Standing Conference of the Ministers of Education and Cultural Affairs passed a framework agreement for the vocational schools in which vocational schools should enable students to fulfil their tasks and meet the challenges of the workplace as well as participate in shaping both the work environment and society with a sense of social and environmental responsibility. To reach this goal, the teaching and learning should be oriented towards activities and self-reliance (independent planning, conducting/implementing, monitoring and evaluating), and the two learning locations should collaborate (KMK 1991; see also Rauner, 1988). On this basis, the concept of 'areas of learning' [Lernfeldkonzept] was introduced in 1996. This concept replaced subjects (related to academic disciplins) as the structural foundation for the framework curricula, and introduced action and work-orientation (related to the workplace) as the structural foundation for the framework[6]. The traditional distinction between theoretical, school-based learning and practical, workplace-based learning was eliminated in favour of orientating the content delivered by the schools to meet the practical requirements of the profession and workplace. This reform introduced a work-centred and competence-based reform of the school-based component of the dual vocational education and training system (Gessler, 2017a).

The Federal Committee for Vocational Education and Training merged with the Main Committee of the BIBB in 1976 and has since continued as the Main Committee of the BIBB. The four-way principle of the federal committee (i.e., the involvement of employer and employee representatives, and representatives of both the federal government and the states) has continued. The Main Committee advises the federal government, addresses questions of principle and makes recommendations on them. It also partly determines

[6]The framework curricula of the KMK are *a kind of* federal curricula. They are just *a kind of* federal curricula, on the one hand, because education is under the cultural sovereignty of the different states, and the KMK has no legal rights, it is just a voluntary institution of the state ministers. A federal curricula is therefore, by law, not possible. On the other hand, they *are* just a framework; means, content and time unites are defined roughly and methods are not mentioned. In contrast, the federal training regulations for the companies are very comprehensive.

the work of the BIBB (including the research programme). In 1997, the Main Committee issued the 'Recommendations of the Main Committee of the Federal Institute for Vocational Training on Cooperation between Learning Locations (*Lernortkooperation*)'. Although the Main Committee only issued one recommendation on school-workplace cooperation in its nearly 50-year history (out of 169 recommendations between 1971 and 2017 in total), this recommendation was very comprehensive (BIBB, 1997, p. 4):

- The continuous exchange of information between trainers and vocational school teachers about organisational matters. Questions of teaching methodology can be improved by setting up joint task forces for trainers and vocational school teachers.

- The implementation of joint training projects is particularly suitable for deepening cooperation regarding teaching methods by developing these projects through collaboration between the learning locations involved.

- Trainer and teacher participation in joint continuing education events is especially advantageous for establishing common guidelines and breaking down possible prejudices against the other side.

- The state committees for vocational training and the responsible bodies' vocational training and examination committees, as well as the school conferences, should be used more intensively to address questions related to cooperation between learning locations.

- The participation of vocational school teachers in company placements is a sensible way of updating the knowledge of the teachers of company procedures and workflows; this would also expand and improve contact with workplace trainers.

- Practitioners would be asked to come to the schools to address certain topics in order to ensure the practical relevance of vocational school instruction and to intensify contact between learning facilities.

In the late 1990s, several development projects to improve the collaboration between schools and companies began. Some projects were financed by a commission that represented both the federal and state levels (Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung). An example of this activity is a programme with 28 singular projects that ran from 1999 to 2003. In this programme, concepts and tools were developed and tested in practice (Euler, 2003).

These reforms and activities, however, did not alter the status of the vocational school within the dual training system. In 2004, Hermann Schmidt, Secretary General of BIBB (1977–1997), clearly stated that there was an unequal power relationship, where the companies and the federal government had the authority to set the standards, leaving the vocational schools and states only able to react accordingly. His conclusion was that "this is not a cooperation among equals" (Schmidt, 2004, p. 46).

2.4 Reformed Political Act

In 2005, the Reformed National Vocational Training Act (*Berufsbildungsreformgesetz*) that had been initiated and reformed by the SPD government took effect. The 2004 draft legislation failed to mention school-workplace cooperation (Deutscher Bundestag, 2004). It was only in the version of the Reformed National Vocational Training Act, actually promulgated in 2005, that the relevant provision—still in place to this day—was included; vocational education and training locations (e.g., business enterprises, vocational schools, and other vocational training institutions outside of the school and company settings) 'collaborate in the execution of vocational education and training (cooperation of the learning locations)' (Berufsbildungsreformgesetz, 2005, p. 933). The aim and hope of this enactment was to increase the value placed on vocational schools and to improve collaboration (Deutscher Bundestag, 2005).

At the same time, however, it should be noted that the 'sole responsibility of companies' for the success of vocational training was left in place (§14). This both weakened the position of school-based education and caused difficulties for companies unable to keep up with increasing specialist requirements. For example, the President of the German Chamber of Commerce and Industry[7] (DIHK Deutscher Industrie- und Handelskammertag), Ludwig Georg Braun, said in 2007:

> Many companies are hardly able to cope with the requirements of such overloaded training regulations. The modernisation of job profiles is clearly out of control if, for example, a company that trains an plant mechanic apprentice has to deal with 72 pages of training regulations. (Braun quoted in Rothe 2011b, p. 123; translated by the author)

Overall, however, the 2005 Act was an attempt to strengthen the position of the vocational school. One innovation was the right of the apprentice to ask the chamber to include his or her performance in vocational school on his or her final chamber diploma (§37,3). It was also added that a 'third-party expert opinion' (e.g., performance in the vocational school) could be included in the final chamber examination to substitute for certain parts (§39,2). The new innovations were only optional and have never been put into practice (Severing, 2011).

Finally, it is significant that the guiding concept of 'professional capacity for action' has created a shared, connecting objective to establish grounded work-based learning in both locations (Gessler & Howe, 2015). The 1969 version of the law, for example, is formulated as follows: "The final examination is to determine whether the candidate has mastered the necessary skills". In the 2005 version, the paragraph (§38) reads: "The final examination is to determine whether the candidate has acquired the professional capacity to act". While the old version set the development of skills as the uppermost training goal (i.e., something that would primarily be acquired in workplace training),

[7]The DIHK is the coalition of all German Chambers of Commerce and Industry with the status of a private legal association. The Chambers of Commerce and Industry themselves, by contrast, are corporations formed under public law.

the new version of the law calls for the development of professional capacity made up of skills, knowledge, attitude and abilities developed both at the workplace and in school.

We have described the historical development and the stabilisation of the asymmetrical Dual System after the Second World War. Since the 1970s, a special effort of the system development was to give the private training in the companies a public framing, involve the trade unions and to implement steering committees on all levels. Since the 1990s, a special interest was to strengthen the role of the schools within the duality. The question now is: What does this mean in quantitative figures?

2.5 Results

In 2017, the German Chamber of Commerce and Industry (GCCI) published results of an online survey involving 10,561 companies (GCCI, 2017). According to this study, 86% of the companies are satisfied or very satisfied with the work of the vocational schools. When questioned on potential for improvement, however, 63% would like more intensive communication between the school and the company. According to the study of the GCCI, it is apparent that "cooperation between learning locations of schools and companies can be intensified" (GCCI, 2017, p. 16). Cooperation is interpreted here as communication. How exactly the communication could be improved was not part of the inquiry.

In 2015, the GCCI also surveyed 11,541 companies in an online survey to gather positive and critical aspects of satisfaction with the regional vocational school situation. In this survey, only 38% of the companies indicated that there was a regular and trusting exchange of information between the vocational school and the company, while 48% specified that cooperation needed improvement. Precisely what kind of exchange of information was meant remains unclear. It also remains unclear how exchange of information was to be improved. The cooperation between learning locations was limited to a specific item in this survey (in addition to those mentioned). In this item, the question was whether the companies are satisfied with the vocational school situation in the region, because "there are joint projects between the vocational school and the company (cooperation of locations of learning [Lernortkooperation])" (GCCI, 2015, p. 8). Five percent of the companies surveyed chose this item as the reason for their satisfaction. In this survey, cooperation between learning locations was equated with joint projects.

The comparison of these two studies shows that the concept of cooperation between learning locations is used differently (i.e., communication/joint projects). On the other hand, the two studies have similarities; 62% of the companies say that there is no regular and trustworthy exchange between the vocational school and the company (GCCI, 2015), and 63% would like more intensive communication (GCCI, 2017).

The most recent study by the Federal Institute for Vocational Education and Training (BIBB), from the perspective of the company (N = 1.362), is based on a survey from 2008! On a scale of 1 to 6 (1 = not at all; 6 = very strong agree), cooperation between learning locations is rated 2 on average. In this study, cooperation between learning locations has been operationalized by means of the following: (1) the implementation of joint projects, (2) the coordination of teaching and training plans, (3) the involvement

of industry practitioners in teaching, (4) combined working groups/task forces, (5) the exchange of information on the behaviour and achievement of apprentices and (6) training projects with companies in the region (Ebbinghaus, 2009, p. 43).

The first representative studies of collaboration between learning locations arose at the beginning of the 1990s in cooperation between the BIBB, the University of Dortmund, and Humboldt University in Berlin. Results from these studies are still used as a reference (Euler, 2017; Rauner, 2017) since comparable up-to-date studies are scarce or completely lacking. Major results of these studies were:

- Only 8% of the apprentices interviewed (N = 3,300) were of the opinion that the learning locations are closely coordinated with each other in terms of time and content (Autsch et al., 1993; Walden & Brandes, 1995).

- Sixty-eight percent of the trainers (N = 2,624) and 75% of the teachers (N = 1,622) contacted each other because the apprentices had *learning difficulties*; another 47% of the trainers' reasons to get in contact and 54% of the teachers' reasons to get in contact were the result of *disciplinary problems* with the apprentices, while only 20% of the trainers' reasons and 9% of the teachers' reasons to get in contact were to provide *coordination of content* (Pätzold, Drees & Thiele, 1993).

- Twenty-six percent of the companies surveyed (N = 1,500) have no contact at all with the vocational school, while 31% have sporadic contact, another 7% cooperate if there are problems, and only 35% have continuous cooperation (Berger & Walden, 1995). In a later study, this system was also used for the typology of teachers: According to the later study, 8% of teachers had no contact, 31% had only sporadic contact, 9% cooperate if problems exist, and 51% had continuous cooperation (Walden, 1999).

The results of Berger and Walden (1995) fit in with the above studies of the GCCI (2015), according to which 62% of companies do not have a regular and trustworthy exchange of information between the vocational school and the company.

Recent studies further demonstrate that the situation has not improved from the point of view of the apprentices. In the study carried out by Beicht et al. (2009), 11% of the trainees (N = about 6,000 apprentices) specified, for example, that there was a very strong or strong cooperation between company and school. Thirty-two percent viewed the cooperation as rather strong, and 57% as rather small, small, or absent. On a scale of 1 to 6 (1 = very strong; 6 = not at all), the mean value was 3.8. Collaboration between learning locations received the worst value of all quality variables recorded (range: 2.6 to 3.8). A series of studies carried out between 2012 and 2014 yielded similarly poor results. Apprentices (N = approx. 4,000) were also interviewed, and criticism was levelled at the structural and content-related shortcomings of the cooperation between learning locations (Rauner & Piening, 2015).

There seems to have been little improvement since the 1990s. There are gaps in the data, however; the most recent differentiated survey of companies dates back to 2008. This lack of data corresponds to a loss of interest in the last 15 years in the research

field and also in the public discussion. We did an analysis of the largest database for educational publications in Germany (Fachinformationssystem Bildung), and 2016 was the first time since 1990 that no publication appeared related to the collaboration between companies and schools (Figure 1).

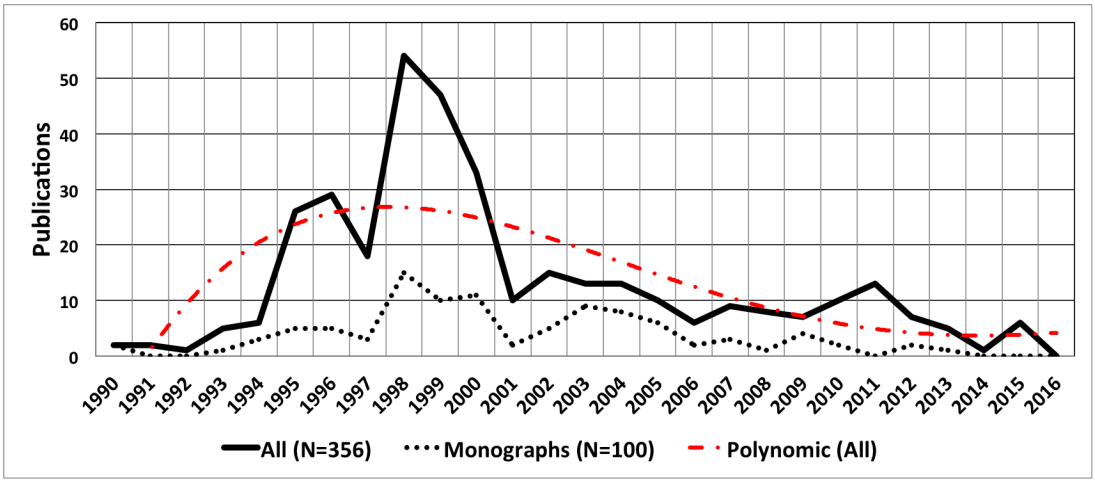

Figure 1: Publications Related to Collaboration between Companies and Schools in the Dual Apprenticeship System

The loss of research interest began in the first half of 2000. At the same time, a growth of research interest related to the political mainstream topic 'output- and outcome-orientation' (e.g., qualification framework, competence measurement) began. The actual status of collaboration observed by the companies and schools is unclear. Another fundamental problem of research in this field is that an underlying theory of collaboration is missing.

3 Empirical Study

A basic problem was how the concept 'cooperation' or 'collaboration' could be elaborated and theoretically framed. We use 'collaboration' as the broader term, which includes different collaborative activities such as coordination, cooperation and co-construction. Another question was which economic sector (agriculture, crafts, industry, services) should be examined. In principle, all sectors are eligible as the Dual System is implemented in all sectors. Due to the importance of the industrial sector in Germany, we have decided on a survey in this sector.

3.1 Research Design

3.1.1 Level of Investigation and Research Question

The Dual System can be investigated, first, under the perspective of immediate and mediate collaboration, and, second, on different levels.

- On a macro-level, the immediate collaboration related to the process to develop federal training regulations for the companies on the one side and the process to develop framework curricula for the schools on the other side could be questioned. Another focus on this level would be the mediate collaboration between the four stakeholder groups (federal government, state governments, federal employers' association and federal employees' association) within the joint committee, the Main Committee of the BIBB.

- On an exo-level, the immediate collaboration related to the process to control the executing institutions (companies and vocational schools) would be a focal point, especially the work of the chambers on the one side and the work of the education authorities on the other side. On this level the mediate collaboration between the three stakeholders groups (state government, local employers' association and local employees' association) within the state committee for vocational education and training could be another topic.

- On the meso-level, the immediate collaboration between the executing institutions (companies and vocational schools) and their actors (trainers and teachers) would be central. On this level, there also exist a joint committee to facilitate, promote and foster mediate collaboration, the committee of the competent authority with three stakeholder groups (representatives of local employers' association, representatives of the local employees' association, and representatives of the schools, normally the principals of the vocational schools). Another possible unit of investigation could be the examination boards, where, besides the VET experts for the employers' and employees' sides, at least one teacher be present.

- On the micro-level, the level of the apprentices/students, the main question would be how these actors integrate the information they get from the two separate institutions into their individual knowledge base, how they connect the different experiences and how they form a professional identity within and across the different locations.

With regard to the design and the success of the learning processes at the micro-level, the levels interact on the one hand, and on the other hand, the intensity of the effect on the learning process decreases with increasing distance from the micro-level. The macro-level has the least influence on the learning process and learning performance, although this creates necessary conditions to promote collaboration on the exo- and meso-levels.

The focus of this study is the immediate collaboration between the actors of the companies (trainers) and schools (teachers) who organize and implement the training and teaching processes. The investigation is thus located on the meso-level.

3.1.2 The Concept 'Collaboration' and the Development of the Questionnaire

Collaboration can be considered from three perspectives. On a *societal level*, the concept is embedded in a historical process with a principle of quasi-natural social specialisation

and differentiation of work, the division of labour, and the mutual need of collaboration as a consequence of the restrictions of individual resources. On an *organizational level*, collaboration is embedded in a principle of efficiency with the purpose of optimization of joint activities to improve performance and products. Our approach investigates collaboration on the *action level* with the focus on the actors and social processes. Actions are embedded in evolved formal structures, which must be subjectively redefined and recontextualized in everyday practice. The societal and the organizational level are also relevant contexts for this recontextualisation. Our concept of 'collaboration' is based on and inspired by works from scholars in cultural-historical activity theory (Fichtner, 1984; Engeström 1987; Wehner et al., 1998; Wehner et al. 2000).

Actions are embedded in evolved formal structures. Actions are not 'free in space'. The pre-configuration of collaboration between teachers and trainers, we call 'initial coordinatedness' (Wehner et al. 1998) or 'implicit collaboration', was formed in a complex historical process (see sections one and two of this article). The history, tradition and framework set by law and regulations at the macro-level and the exo-level are not determining directly the actions, but they create a shared means and overlapping tasks between teachers and trainers. In the initial status of coordinatedness, companies and schools can participate and contribute to the Dual System without direct collaboration. Activities are executed without communication and without orientation to the concrete partner. The activities are nevertheless roughly integrated through the common framework on the macro- and meso-levels, and are nevertheless related through the historical process (see Table 1).

This 'initial coordinatedness' forms a rough joint context and orientation for teachers and trainers, and must be redefined and recontextualised in the face of contingent, unexpected events in daily practice. Explicit coordinative activities arise. We distinguish between 'corrective coordination', driven by unexpected events, and 'expansive coordination', based on the anticipation of unintended events. The corrective coordination is problem-driven and past-oriented, while the expansive coordination is goal-driven and future-oriented. On the surface of the observable actions, these two orientations cannot be distinguished, but they become visible if the underlying motivation, goal-orientation and time line are analysed. Experience is a necessary pre-condition for the expansive coordination. We therefore expect that the expansive coordination started once as a corrective coordination. The problem-driven and past-oriented corrective coordination is therefore more than just the situative solution or a single action. It is a valuable resource for expansive coordination. Examples for coordinative actions are the exchange of information between teacher and trainer on the social behaviour, professional performance, and the engagement and discipline of the apprentice. Other examples are visits of teachers in companies to improve their understanding of the work and situation in the company (exploration of the companies), clarification of organisational issues (e.g., examination date) or the offer of an open consultation day for trainers in the schools. These consultation days are normally done with the idea of improving coordination. Shared expectations and intentions with divided responsibilities on the basis of the given traditional initial coordinatedness are the common characteristics of corrective and expansive coordination. Expansive coordination can lay the groundwork for cooperation.

Table 1: The Concept Collaboration

	Collaboration				
	Implicit	**Explicit**			
Form	**Initial Co-ordinatedness**	**Coordination**		**Cooperation**	**Co-construction**
		Corrective	Expansive		
Character of collaboration	Self-reliance & no personal relation	Reactive & referencing	Active & adjustment	Proactive & interdependent	Innovative & intertwining
Implementation of collaboration	Parallel activities & implicit expectations	Explicit expectations & harmonized activitites	Harmonized activitites & anticipatory perspective	Anticipatory perspective & integrated work processes	Integrated work processes & transformed roles
Catalyst of collaboration	Need or opportunity not existent or ignored	Need and opportunity to solve a problem	Need and opportunity to avoid common problems	Need and opportunity to improve quality	Need and opportunity to improve the division of labour / initial coordinatedness
Grounding of collaboration	Accepted role within the tradition and structure of the dual system	Shared expectations	Shared intentions	Shared objectives	Shared goals

Examples for such cooperative activities are cross-institutional learning projects, joint events in the school or in the company, the coordination, tuning and matching of company training plan and school curriculum and joint development of training and teaching materials. Shared objectives with a high degree of interdependence on the basis of the given traditional initial coordinatedness are the common characteristics of cooperation.

The last form of collaboration is 'co-construction'. We expect that this form can either emergent bottom-up if the partners in the phase of cooperation reflect their role and the initial coordinatedness due to unsatisfactory cooperative practice as a result of the basic division of labour and the incorporated division of responsibility. The orientation towards a common goal could trigger revision of the given roles. As a result, the partners now act towards a common goal within a unified institution. Examples for this form of collaboration are joint and institutionalised working groups/task forces, further joint training, the involvement of trainers in the schools, and internships of teachers and teacher students at the company. The boundaries between school and companies lose their relevance. Another option for the establishment of this type of collaboration could be a top-down approach through legislative regulations. This intervention is, in our opinion, problematic, as this type of collaboration not only needs institutions/structures,

it also needs a common mindset. Top-down approaches should therefore be accompanied by intensive coaching support.

Based on this theoretical approach, we can now clarify our research question: How do experts for in-company training in companies (such as trainers, instructors, HRM) evaluate the immediate explicit collaboration (captured as coordination, cooperation and co-construction) between teachers and trainers, and what measures do they consider important to intensify immediate explicit collaboration between the two learning locations and their actors? As a result, we will get a frist impression of the recent state of the art. Underlying factors, such as goal clarity, goal orientation, motivation, engagement, conflicts, commitment, trust and culture, will not be considered.

First, items were collected on the basis of the studies already carried out (Pätzold, Drees, & Thiele, 1993; Walden & Brandes, 1995; Walden, 1999; Ebbinghaus, 2009). A further source was the recommendation of the Main Committee of the Federal Institute for Vocational Education and Training (1997). In the next step, the items were categorised on the basis of the three groups of collaboration: coordination, cooperation and co-construction. The structured items were than discussed with three instructors from companies of differing sizes (<50, 50–250, >250). The structure was confirmed and some items were adjusted. Finally, a test for intelligibility was carried out with six instructors. Misleading statements were revised and discussed again with the instructors until all items were deemed understandable.

3.1.3 Data Collection

The investigation was carried out in the city state of Bremen (one of the 16 states in Germany). Even though the results cannot be representative of Germany because of the regional limitations, the data is suitable for establishing tendencies: (1) In a city state the distances are short. This favours collaboration, which should lead to somewhat better values when compared to larger states (e.g., Lower Saxony). (2) According to a study conducted by the GEI German Economic Institute (*Institut der Deutschen Wirtschaft*), Bremen is ranked number one in the federal rankings in the performance indicator 'apprenticeship rates' (GEI, 2016). This placement makes clear that the companies in Bremen have a high level of engagement in vocational training. This is an aspect that favours collaboration, which is why it can be assumed that the results are better compared to other federal states.

The competent authority for vocational training in the industrial sector is the Chamber of Industry and Commerce (in Bremen, the Bremen Chamber of Commerce – CCI for Bremen and Bremerhaven). For this reason, we asked for support for the survey and received it.

The survey took place online and anonymously in the first half of 2017 using the platform, Questback. All companies offering dual apprenticeships in Bremen in the industrial sector (N = 2,131) were invited in writing to participate in the survey by the Bremen Chamber of Commerce – CCI for Bremen and Bremerhaven.

3.1.4 Sample Data

The sample size should have at least 326 responses (population: 2,131, sampling error: 5%, confidence interval: 95%, distribution: 50%). As Table 2 indicates, 389 companies contributed to the survey. The limit was reached (sampling error: 4,49%). Table 2 describes the sample data in detail.

Table 2: Data sample of the Survey

Sex		**Frequency**	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Valid	Male	217	55.8	58.3	58.3
	Female	155	39.8	41.7	41.7
	Total	372	95.6	100	100
99		9	2.3		
		8	2.1		
		17	4.4		
Total		389	100		
Age					
Valid	Younger than 35 years	81	20.8	21.5	21.5
	35 to 49 years	145	37.3	38.6	60.1
	50 years and older	150	38.6	39.9	100
	Total	376	96.7	100	
99	No statement	11	2.8		
	Missing	2	0.5		
	Total	13	3.3		
Total		389	100		
Business Position					
Valid	Head of HRM / Training	249	64.0	66.4	66.4
	Trainer	118	30.3	31.5	97.9
	Other position	8	2.1	2.1	100
	Total	375	96.4	100	
99	No statement	12	3.1		
	Missing	2	0.5		
	Total	14	3.6		
Total		389	100		
Company size					
Valid	1 to 49 employees	204	52.4	53.3	53.3
	50 to 249 employees	129	33.2	33.7	86.9
	250 or more employees	50	12.9	13.1	100
	Total	383	98.5	100	
99	Missing	6	1.5		
Total		389	100		

Interesting is the number of participants with leadership positions (64%). This can be interpreted as a high interest of the companies in the topic 'collaboration between companies and vocational schools'. The distribution between the small (1 to 49 employees), medium sized (50 to 249 employes) and large companies represents the structural distribution within the population in Bremen and in Germany.

3.1.5 Reliability

In the table 3, the data of the questionnaire are shown (scale: 1 = unimportant, 2 = rather unimportant, 3 = rather important, 4 = important).

Table 3: Data sample of the Survey

Category	**Examples and number of items**		**M**	**SD**	α
COOR: Coordination (N=375)	• Exchange of information on the professional performance of apprentices • Defined time slots of the availability of the contact persons of the vocational school • Teachers visit the training companies (company survey) • The vocational school invites the trainers to an open consultation day	9	3.33	.42	.77
COOP: Cooperation (N=369)	• Carry out cross-institutional learning projects • Coduct joint events in the vocational school or in the company • Tuning of company training plan and school curriculum	6	2.83	.60	.82
COCO: Co-construction (N=369)	• Trainers (instructors) and teachers take part in further joint training courses • Institutionalised joint working teams • Participation of company practitioners in vocational school teaching • Internships of student teachers in the companies	9	2.65	.67	.89

The internal consistence (Cronbachs α) is acceptable (coordination) and good (cooperation and co-construction). A view on the means show that less inventive measures with a higher degree of independence, such as coordination, are more preferred than high inventive measures with a high degree of intertwining, such as co-construction.

3.2 Results

We asked the experts who should initiate the first contact. The asymmetrical relation between the companies and schools within the Dual System was already described. Indepedent of this framing, 77.9% of the respondents are of the opinion that the teacher should initiate the first contact. Just 22.1% of the respondents see the responsibility on the companies.

3.2.1 The Lack of Collaboration

We asked the companies which collaborative measures already existed (scale: 1 = exists completely, 2 = exists rather frequently, 3 = exists rather seldom, 4 = does not exist). To identify the lack of explicit collaboration, we grouped the measures into the three categories 'coordination', 'cooperation' and 'co-construction' and analysed the answers ('exists rather seldom' and 'does not exist') group by group (company size). The results are presented in Table 4.

Table 4: Lack of Explicit Collaboration

		Company Size (employees) *			
		1 – 49	50 – 249	> 250	All **
Coordination	**Lack (total)**	**76.5 %**	**71.1 %**	**71.4 %**	**74.2 %**
	Does not exist	39.8 %	36.8 %	29.3 %	37.6 %
	Exists rather seldom	36.7 %	34.3 %	42.1 %	36.6 %
Cooperation	**Lack (total)**	**93.1 %**	**91.9 %**	**94.6 %**	**93 %**
	Does not exist	63.8 %	59.7 %	67.7 %	63.1 %
	Exists rather seldom	29.3 %	32.2 %	26.9 %	29.9 %
Co-construction	**Lack (total)**	**94.4 %**	**95.7 %**	**94.4 %**	**94.8 %**
	Does not exist	74.5 %	81.0 %	71.5 %	76.3 %
	Exists rather seldom	19.9 %	14.7 %	22.9 %	18.5 %

* = percentage based on valid data per category

** = percentage based on valid data in the sample

The lack of explicit collaboration is high (all: 74.2%, 93%, 94.8%). The two learning locations (companies and vocational schools) are mostly operating within the given political framework without an orientation to face contingent and unexpected events in the daily practice together (coordination), to improve together the quality of the system (cooperation) or to implement together innovative practices based on a reformed division of labour (co-construction).

The lack of collaboration illustrates the actual and recent partnerschip situation. Which measures should be undertaken in the perspective of the companies to change this situation?

3.2.2 Ranking List of Collaborative Measures

To what extent a measure already exists ('exists completely' until 'does not exist'), indicates the need. The importance of a measure ('unimportant' to 'important') was also asked. The values were recoded (see Table 5) and multiplied by each other to obtain a ranking of the necessary and desired collaborative measures.

Table 5: Decision Table

		Importance			
		0=unimportant	*0=rather unimportant*	*1=rather important*	*2=important*
Need	*4 = does not exist*	0	0	4	8
	3 = exists rather seldom	0	0	3	6
	2 = exists rather frequently	0	0	2	4
	1 = exists completely	0	0	1	2

Unimportant and rather unimportant rated measures are given by the multiplication 0. The rank value '8' corresponds to an important collaborative measure that does not yet exist. Ranking values from '3' (highlighted in gray in the table) indicate actions that must be initiated or intensified. In the table 6, the necessary measures are ordered in descending order according to their ranking values.

All coordinative measures are listed in the fist section of the measures (3.0 and higher). Also four cooperative measures and two co-constructive measures are in this section. These fiveteen measures (out of 24) seem to be promising to improve the recent situation and could represent a starting point. Another nine measures are below the cut-off point. We name them 'not welcomed approaches'. Popular approaches are in this list of not welcomed approaches: joint events, institutionalised joint working teams / joint task forces and internships of teacher in the companies. Internships of teacher sudents are, in contrary, welcomed.

4 Conclusion

The German Dual Apprenticeship System has a set of basic principles for work division and collaboration on different levels of the system. They include:

Macro-Level (federal level)

(1) The Federal Government is setting the framework for the in-company training through national acts. The Federal Institute for Vocational Education and Training [BIBB] is responsible for the coordination of the development process of training regulations. Representatives from the employers and the employees develop together the training regulations. Apprentices have the obligation to attend part-time vocational schools (normaly 12 hours per week).

Table 6: Ranking List of Collaborative Measures (need x importance)

All items		**Type**	**N**	**M**
1	Exchange of information on the social behaviour of apprentices	COOR	366	4.65
2	Exchange of information on the professional performance of apprentices	COOR	365	4.52
3	List of contact persons of the vocational school	COOR	357	4.39
4	Defined time slots of the availability of the contact persons of the vocational school	COOR	354	4.31
5	Exchange of information on the personal engagement of apprentices	COOR	364	4.25
6	Exchange of information on discipline and punctuality of apprentices	COOR	362	4.24
7	Tuning of company training plan and school curriculum	COOP	357	4.12
8	Teachers visit the training companies (exploration of the companies)	COOR	355	3.91
9	Internships of student teachers in the companies	COCO	357	3.68
10	Carry out cross-institutional learning projects	COOP	365	3.34
11	Participation of company practitioners in vocational school teaching	COCO	355	3.33
12	Clarification of organisational issues (e.g., examination dates)	COOR	363	3.23
13	The vocational school invites the trainers yearly to an open consultation day	COOR	349	3.13
14	Carry out cross-institutional learn and work assignments (exploration tasks)	COOP	359	3.10
15	Joint development of training and teaching material	COOP	362	3.00
16	Trainers (instructors) and teachers take part in further joint training courses	COCO	355	2.90
17	Internships of teacher in the companies	COCO	357	2.84
18	Supervising and supporting team of instructors and teachers who initiate and coordinate cooperative activities with a view to a vocational school classes	COCO	347	2.78
19	Institutionalised joint working teams / joint task forces	COCO	355	2.73
20	Conduct joint events in the vocational school	COOP	361	2.54
21	Teachers discuss the apprentices' self reports (reports about the learning outcomes in the company) with the apprentices	COCO	359	2.52
22	Conduct joint events in the company	COOP	363	2.45
23	Coordinators for cooperation at the vocational schools	COCO	339	2.44
24	Fundamental questions of cooperation are clarified in a cooperation agreement	COCO	341	2.28

(2) The KMK coordinates the development process of school curricula (so called framework curricula). Representatives from the sate governments develop together the framework curricula. The framework curricula and the learning situations in the schools, the content, and methods are (or should be) based on the real work processes of the companies.

(3) Training regulations for the companies and curricula for the schools are developed in a coordinated process (agreement between KMK and federal government). The KMK recommends collaboration between schools and companies (1991). The Main Committee of the Federal Institute of Vocational Education and Training recommends collaboration between companies and schools and defines principles of that collaboration (1997). The Reformed National Vocational Training Act (2005) requires that companies and schools to collaborate in the execution of vocational education and training. Principles are not defined in the act.

Exo-Level (state or regional level)

(1) School-based learning is the sole responsibility of the state governments and separated from the federal responsibility for the in-company training. The state governments set the frameworks for the school-based learning though school acts or regulations within their states. A minority of state school laws have institutionalised the collaboration between schools and companies (e.g., Hamburg in 1997).

(2) Employers, employees, and state governments together build (since 1969) a steering committee on the state level—the State Committee for Vocational Education and Training (*Landesausschuss für Berufsbildung*).

Meso-Level (institutional level/level of the actors)

(1) The companies have the responsibility for the overall success of the vocational education and training. The in-company training is controlled by the Competent Authority (the chambers), which also executes the final trade examinations. Employers, employees and schools together build a steering committee of the Competent Authority (*Berufsbildungsausschuss der zuständigen Stelle*). In 2005, the representatives of the schools received the right to vote within this committee. Employers, employees and schools together also build examination committees of the chamber for the approval of final examinations. At least one teacher must be involved, and two-thirds of the committee must be employer and worker representatives.

(2) The schools are responsible for offering school-based education for the apprentices. State school authorities control the work of the schools.

(3) The level of processes and the collaboration between the actors, trainers, and teachers, are not formalised.

The German Dual Apprenticeship System shows a high degree of institutionalised collaboration on the macro-level and on the exo-level. The in-company training and the school-based learning on the meso-level however, are, in contrast, loosely coupled.

A low degree of regulation and standardisation on the meso-level creates, to put it positively, a space for flexibility, lively encounters based on interest and personal motivation, and correspond to the basic principles of training and education, such as individuality, situatedness, authentic interaction and expertise. Nevertheless, we cannot ignore the fact that the potential of collaboration between the actors (e.g., trainers and teachers) has not been exhausted, and the collaboration has not improved significantly in the last 20 years. The two meso-level systems—companies and schools—are mostly differentiated and separated. Some trainers and teachers are crossing the boundaries between the two worlds, but all students must cross those boundaries weekly—another asymmetry within the system.

Some authors and think tanks articulate the view that the problem of collaboration on the meso-level in Germany is a logical consequence of the division and coordination on the macro- and exo-levels (federal and state governments). The proposed solution—according to this logic of inheritance of qualities—is the centralisation and unification of power on the macro- and exo-levels. The Swiss Dual Apprenticeship System sets a positive example, so these authors, and should serve as a role model for Germany (Bertelsmann Stiftung, 2009; Rauner, 2017). The Swiss Dual Apprenticeship System is on the macro- and exo-levels centrally governed. That may be right, but, current studies show that the problem of collaboration between companies and schools is not solved in the Swiss System either (Sappa & Aprea, 2014; Peter, 2014).

Two perspectives should be clearly distinguished: the perspective of decision-making (structures and government) and the perspective of personal conceptions, interest, motivation, behaviour and immediate collaboration (processes and activities). The two perspectives are two sides of one coin, nevertheless, the logic of determination is in our view an inadequate frame and mindset. Collaboration between companies and schools and joint educational processes can be appreciated, promoted, supported, and valued but not prescribed. Intensive collaboration on the meso-level is even possible without such a framework. Collaboration on the meso-level is then a necessary activity for the implementation, reproduction and continuity of the system. Collaboration on the meso-level can stabilise a fragile system (Gessler, 2017b), but established robust structures on the macro- and exo-level do not produce immediate collaboration on the meso-level.

Intensive collaboration on the meso-level can be created only on the meso-level itself and on a daily basis. This collaboration can and should be nevertheless supported by activities on the macro- and exo-level, not because these activities determine collaboration and solve the problem of collaboration between companies and schools, but because these activities can create the awareness, appreciation and opportunity for collaborative activities on the meso-level. But, there has been, at least in the last ten years, no en-

gagement, no support and also no interest to intensify the collaboration between teachers and trainers, companies and schools. The orientation towards the measurement of output or outcome was more important than the orientation towards the development and improvement of the input and the processes.

The Dual System in Germany is working also without collaboration between companies and vocational schools. The robustness of the system is, for the companies, schools and the apprentices, a blessing and a curse at the same time.

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