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Zusammenfassung:

In diesem Forschungsbericht geht es um die Frage der Lernortkooperation in der dänischen Berufsbildung. Es werden einige historische Bedingungen aufgewiesen, die auf den traditionell starken Einfluss lokaler Interessengruppen in der Beruflichen Bildung verweisen. Im Anschluss werden strukturelle Bedingungen der Lernortkooperation in Dänemark aufgezeigt wie z. B. die curriculare Organisation, die Schulverwaltung und -steuerung sowie die Finanzierung der Beruflichen Bildung und die Ausbildung und Rekrutierung der Lehrer. Verschiedene Formen der Lernortkooperation werden anhand von mit dänischen Lehrern geführten Interviews vorgestellt und beschrieben. Am Schluss werden einige jüngere Trends in der beruflichen Bildung in Dänemark vorgestellt und im Hinblick auf ihre Auswirkungen für die Lernortkooperation überprüft. Außerdem werden einige Schlüsse im Hinblick auf die empirische Operationalisierung von „Lernortkooperation" gezogen. Eine gekürzte Version dieses Berichtes erscheint im Laufe diesen Jahres in einem zweibändigen Buch zum Thema von Herrn Prof. Euler, St. Gallen. Dieser Aufsatz erschien in deutscher Sprache bereits als Nr. 09/2003 in dieser Reihe.

Abstract:

Although Denmark is generally described as a "dual system" of vocational training, there are relatively substantial structural and cultural differences in relation to German vocational training. These differences are also reflected in Danish co-operation between enterprises and vocational schools. The institutional, staff-related and cultural conditions of co-operation between enterprises and vocational schools in Danish vocational training and their impacts on vocational training practice are analysed in this paper.

1 Tradition and cultural context – Macrostructural and cultural conditions for co-operation between enterprises and vocational schools in Danish vocational training

1.1 Historical conditions of Danish vocational training policy and practice

Sören Nielsen (2000) has designated the Danish system of vocational training as a "bridge between the school systems of vocational education in Scandinavia and the dual system of vocational training". In fact, the school plays a different, possibly more significant role in vocational training in Denmark as compared to Germany. There are historical reasons for this as well as a number of structural conditions in the current situation of Danish vocational training.

In principle, the Danish social system is based on a consensus-oriented understanding between the various interest groups, particularly management and labour, i.e. the Danish federation of trade unions, Landsorganisationen i Danmark, and the Danish employers' organisation, Dansk Arbejdsgiverforening.

This orientation to consensus is also reflected at the various levels of vocational training. The co-operation between enterprises, vocational schools, associations, local authorities and government supervisory bodies is systematically organised accordingly. The co-operation between employers and employees in so-called special committees with equal representation must be underlined. The representatives of the regional economy have a decisive influence on the structuring of the functions of vocational schools (Erhvervsskoler) or – as they are called today – the vocational colleges. In a regional vocational training advisory council (lokale uddannelsesudvalg) as well as in special advisory councils (faglige udvalg) the representatives of the employer and employees are represented in the management of the vocational schools. The vocational training advisory council, for example, must be consulted in connection with the optional vocational training courses offered in school. The integration into regional structures stems from the influence which Danish farmers had on the development of the education system and vocational training and how they were represented by priest and philosopher Nikolai Frederik Severin Grundtvig, who at the same time acted as a spokesperson for the interests and mentality of the rural population. A liberal conception of the state, a high degree of pragmatism and the idea of social partnership are the key societal and cultural determinants of Danish vocational training. The establishment of a general school system and the introduction of compulsory school attendance for all children were viewed sceptically by the rural population, not least of all because of the fear regarding the labour provided by the young generation on the farms (Tveit, 1991). Financial sanctions (mulkt) were introduced by the state for cases where parents or guardians violated compulsory school attendance. However, these sanctions were not consistently enforced everywhere and soon it became clear that there was no connection between the intensity of local school attendance and the consistency of application of these sanctions (Frisch, 1875). As a result, the attempts to break resistance were soon replaced by a transfer of the competencies for school administration to the local authorities or directly to the landowners. While the German "Realschule" (secondary school up to tenth school year) was the key force at the beginning of the period of formation of a modern education system (Rýdl, 1999), this

influence was increasingly checked by reservations about German influences1 due to the resistance of the rural population. The results of the installation of a "Large School Commission" in 1789, whose members organised study trips to Austria, Prussia and England, among other things, led to a blend of different conceptions of international origin regarding school in Denmark. In this way, for example, the so-called Bell-Lancaster method from England was introduced in which advanced pupils instructed the others (Waschnitius, 1933). Due to the war, the commission did not conclude its work until 1814. In July 1814 several essential features of the Danish education system were established through a new law that was influenced by the work of this commission. The (re)introduction of compulsory school attendance plays a special role here. This first teacher training college was already established in 1791, but further teacher training colleges were set up particularly in connection with a law dating from 1818. One of the requirements for admission to the teacher training college was proof of at least six months of practical experience, a provision also attributable to the great influence of the rural population:

> "Those who are themselves descended from the people in the country are undoubtedly most suited for being rural schoolteachers, in part because they, of course, can influence the rural population better than others, in part because it is easier for them to live a satisfying life under the miserable conditions with which schoolteachers generally have to be content in the country." (from the General Regulations for schoolteacher training colleges in Denmark, quoted according to Seidenfaden, 1977)

After introduction of the Constitution in 1849 the school laws of 1855 and 1856 were enacted, over which there were fierce disputes in the newly established Danish parliament, the Folketing (Bodenstein, 1982). From then on compulsory school attendance was replaced by general compulsory education (!) in view of the above mentioned non-enforceability and many of the competencies regarding school administration were assigned to the local authorities: district school councils were introduced with a high degree of competencies and also parents were provided with a high degree of co-determination, e.g. through co-determination in the recruitment of teachers. Out of this political mixture and conflicts of interest between the new bourgeoisie and the rural population pedagogical and educational policy cornerstones developed which have remained of significance down to today: school autonomy, skolefrihed, and compulsory education in contrast to compulsory school attendance, on the one hand, as well as great decentralisation of educational administration, on the other hand, in which the national ministry primarily performs a quality assurance function. These regulations are accompanied by a high degree of freedom in the choice of curriculum as well as of teaching aids and methods. Skolefrihed and compulsory education, i.e. the possibility of teaching adolescents at home or also at private schools, are only of minor quantitative significance today. However, in contrast to other Nordic countries, Denmark was thus well prepared for the internationally observed trends towards decentralisation and privatisation in the education system (Brock-Utne, 2000). By the same token, in both institutional and personnel-related terms – with respect to

[1] Two major wars play an important role here: the Seven Years' War from 1807-1814, which led to the loss of Norway, and the German-Danish war over Schleswig Holstein, which ended with Denmark's loss of Schleswig Holstein in 1864.

recruitment – these historical conditions are good prerequisites for the establishment of regional vocational training dialogues.

1.2 Vocational schools between industrial policy interests and state school policy

The history of the present technical vocational schools begins with the introduction of freedom of economic pursuit and elimination of the guilds through the introduction of the law on freedom of economic pursuit and trade (naeringsfrihedsloven) of 1857 (Sørensen, 1988). Though there was previously already an educational institution or two that taught manual skills, after introduction of freedom of economic pursuit the former representatives of the guilds joined together to form trade associations that made the reproduction of their occupationally specific know-how the object of their professional activities, among other things. In some cases the first evening schools in Denmark, for example, came into being in co-operation with the regionally based Sunday schools under the direction of these associations. The function of the schools was initially to teach certain subject matter pertaining to general education that could not be taught in a workshop, such as elementary writing and arithmetic skills, through evening courses.
Three types of institution play a role in the historical shaping of vocational training in Denmark: the efterskoler, the aftenskoler and trade schools set up by industry representatives. The efterskole, the "after-school", which still exists today, is a continuation and for the last two school years an alternative to the regular Folkeskole and stems from Grundtvig's educational reform ideas. The aftenskoler, evening schools, developed out of the rural environment, frequently more because of economic considerations of the local co-operatives, but also Grundtvig's educational ideas had an impact (Begtrup, 1931). The first technical trade schools were set up through the introduction of compulsory school attendance. The law of 1814 contained a section 28, which stipulated that also "confirmed" youth had to attend a school (Banke, 1931). This function was then taken over by the efterskoler, the aftenskoler or technical schools established by trade associations for this purpose. The earlier introduction of evening schools was an element of the loyalisation strategy of employers since due to the elimination of the guild structure apprentices in some cases left their training enterprises before completion of the apprenticeship and assumed journeyman functions in other enterprises (Rýdl, 1999; Sørensen, 1988). As far as the question of co-operation between enterprises and vocational schools is concerned, it must initially be stated here that a number of the newly established schools meet specific historical requirements for such co-operation by virtue of their proximity to industrial policy interests.

In 1956 the present Danish vocational training system was finally established. One of the major changes was the changeover from evening courses to subject-oriented day school lessons at the technical schools. Furthermore, the role of the special advisory councils was strengthened since from now on they were co-responsible for deciding on curricular matters (Nielsen, 1998; Rassmussen, 1969). The institutional dimensions have also changed by virtue of the change in the functions assigned to vocational schools since 1956. In 1955 there were 370 vocational schools. Due to the introduction of subject-oriented teaching, the greater vocational orientation of school lessons and the provision of accommodation at schools, the number of vocational schools dwindled to sixty by 1965.

2 Curricular and organisational conditions of the co-operation between enterprises and vocational schools

2.1 Curricular conditions of the co-operation between enterprises and vocational schools

Denmark was awarded the Carl Bertelsmann Prize for innovations in vocational training in the year 2000. Besides the initial historical conditions mentioned, the so-called Reform 2000 must be seen in connection with a number of smaller reform steps taken in Denmark in the 1990s. Table 1 provides an outline of the chronology of the reforms.

Table 1 Chronology of reforms and programmes in vocational training in the 1990s (continuation from Grollmann, 2001)

Year	Reform step	Reform goals and content
1991	Combining school-controlled basic vocational training (Erhvervsfaglig Grunduddannelse) and traditional apprentice training on the basis of the new legislation of 1989	Integration of different competing paths into an integrative system; equal value of general education and vocational training
1993	Introduction of the programme education for everyone (Uddannelse til Alle, UTA)	Comprehensive programme with a wide variety of measures for increasing participation in education and enhancement of attractiveness of secondary school attendance
1994	Introduction of the programme Free Youth Education (fri ungdomsuddannelse, FUU)	Introduction of flexible two-year programmes tailored to individual needs with a high degree of flexibility and possible eligibility for admission to institutions of higher education (taken advantage of by 2,514 pupils in 1996, and by 3,620 in 1997), abolished by the liberal-conservative government in 2001
1996	Reform of commercial training	Changeover of didactic systematisation from a structure geared to activities and qualifications to a structure of occupational areas of competence to act

In view of the repeatedly observed orientation problems of young persons and frequent horizontal change between different occupations and occupational fields (Pilegaard Jensen, Holm, & Blix Mogensen, 1997), the orientation phase has been improved in the first year of vocational training courses at the secondary school II level. The pupils have to decide on one of seven occupational fields during the first phase. Specialisation in a specific training occupation does not take place until the following period. The occupational field structure consists of the following occupational fields:

– Technology and communication (Teknologi og kommunikation);
– Building and plant sector (Bygge og anlæg);
– Skilled trades and engineering (Håndværk og teknik);
– Food production, gastronomy (Fra jord til bord – hotel, køkken, levnedsmiddel og jordbrug);
– Mechanical engineering, transport and logistics (Mekanik, transport og logistik);
– Service sector (Service);
– Business and trade (Det merkantile område – handel, kontor og finans).

Fig. 1 illustrates the new structure of vocational training in Denmark. The orientation phase or basic vocational education (grundforløb) of the vocational school is organised on a full-time school basis and ends with a final certificate. Depending on the occupational field selected and the final decision of the pupil in favour of a certain occupation, this basic vocational education can be completed within twenty, forty or sixty weeks (normally twenty and ten if the pupil has already completed grammar school). After that the trainees enter the vocational qualification part of the training, the main training. In accordance with UTA (see above), all occupations have been open to each pupil up to now. However, management and labour are currently discussing the establishment of a system of restricted admission. The trainees sign a contract with a company in order to commence the main vocational training. The school assists the trainee in finding a training vacancy. If trainees do not find a trainee position in a company, it is additionally possible to conclude a contract with the respective school (skolepraktik, SKP). The majority of the main vocational training takes place in a company (around two thirds) and a maximum of sixty weeks in the school. Altogether, i.e. including the basic vocational education, the training lasts a maximum of four and a half years. On completion of training there is an examination to become a journeyman, which is held by the regional industry committee.

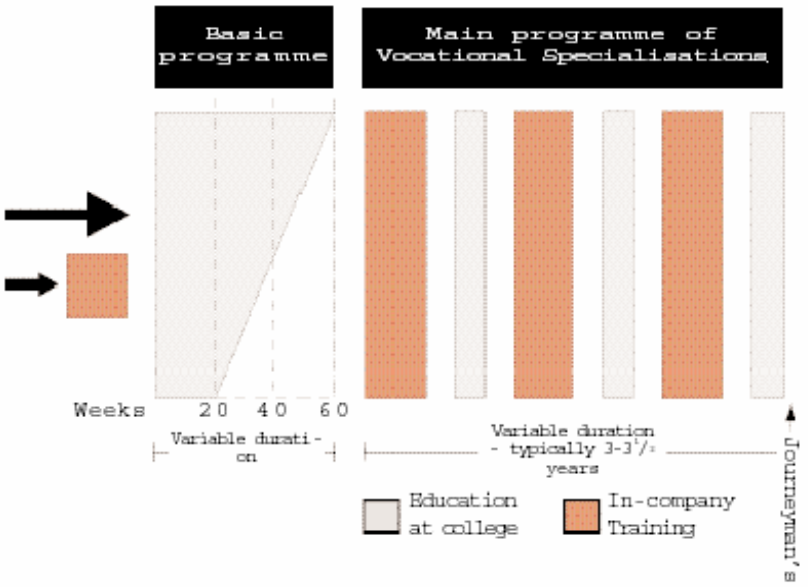

Fig. 1: The new curricular structure of Danish vocational training (from Nielsen, 2000)

Additional qualifications have been introduced for high achievers through Reform 2000. They serve the purpose of acquiring additional competencies in related occupational fields (erhvervsrettet påbygning) or preparing for later studies at one of the vocational academies (studekompetencegivende påbygning). These additional qualifications are also offered at regional labour market centres in some cases and are developed as regards content by the regional special advisory councils. To take part in such programmes, the trainees need the approval of their employers since this may extend the school phases by up to four weeks. Through the most recent legislation concerning vocational training an additional qualification level has been introduced for less competitive pupils or trainees, making it possible to acquire a partial qualification. This partial qualification must first be recognised by the respective special committee as proof of occupational competence on the labour market and secondly it must enable the trainee, with recognition of already acquired performance records, to carry out further training for acquisition of the full journeyman's certificate or skilled worker's certificate without loss of time.

2.2 Organisational conditions for co-operation between enterprises and vocational schools

The special committees with equal representation are organised around the vocational colleges and perform functions similar to those of the German chambers at the regional level of vocational training. For example, the need for new training courses or changes in existing training courses is also determined and decided on in the special committees after examination of qualitative and quantitative data. A technical working group, composed of vocational school teachers and company representatives, drafts an initial occupational profile. A ministerial directive lays down the framework for the goals and structure as well as the content, the vocational training council (EUR), which also has equal representation, makes an assessment and the Ministry of Education approves the draft.

Currently there is a structural problem in Denmark with regard to the readiness of industry to provide training. A lack of traineeships can be observed in a number of training occupations, such as automobile servicing, in the IT sector and in graphic design training. In such cases the vocational school can conclude a training contract with the trainees[2] so that in many cases the "dual" training can be transformed into full-time school training. The great readiness of representatives of industry to participate in shaping training at the schools is certainly connected with the method of financing vocational training in Denmark. Denmark has a system of training charges similar to that demanded in Germany from time to time by Social Democrats and trade unions: the Arbejdsgivernes Elevrefusion (AER). Every public or private enterprise pays into this fund in proportion to its number of employees. The funds are managed and redistributed by a foundation established for this purpose in 1977[3]. On the one hand, the costs of attendance of vocational school by the trainees is covered through the fund, i.e. training remuneration is paid during these periods, and, on the other hand, subsidies are paid to companies that provide traineeships. In the case that trainees complete vocational school training due to a lack of traineeships, all remuneration and

[2] Unfortunately no official figures are available in this connection at present.

[3] http://www.atp.dk

other collectively agreed benefits are financed for the trainees from the fund. This remuneration is somewhat below that paid in companies. However, currently there is discussion over reducing the pay of full-time pupils to half of that paid in companies. Furthermore, the additional costs incurred by the vocational schools for the necessary infrastructure and instruction are paid from the fund. Table 1 shows that the expenses for apprentice pay approximates the expenses for pay and expenditures for full-time school apprentices. The total costs of full-time school training account for considerably more than a third of the total expenditures.

Table 2: Expenses of Danish training fund from 1998-2002 (Arbejdsgivernes Elevrefusion, 2003)

Expenses in million DKK / year	1998	1999	2000	2001	2002
Apprentice pay	1,222	1,363	1,436	1,453	1,534
Travel allowance	69	74	75	75	75
Subsidies for traineeships	601	233	73	4	0
Constant subsidies	12	19	26	31	35
Apprentice pay for full-time pupils	272	338	477	538	615
Expenses for schools and instruction for full-time pupils	202	295	407	344	346
Mobility-promoting measures	15	16	17	19	18
Traineeship bonus	-	-	-	16	24
Debts	-120	35	-93	16	26
Total	2,273	2,373	2,418	2,496	2,673

Due to a lack of traineeships, the Danish Vocational Training Act was amended in 1992 to provide the opportunity of completing the company training entirely or in part abroad. The PIU programme (praktik i udlandet) assures trainees the right to a stay abroad in an EU or EFTA country with credit for the competencies and qualifications acquired during the practical work experience abroad. In Germany an appropriate educational network has been set up for this purpose, e.g. in several Länder, with companies, the Chamber of Commerce and the Employment Office as partners. PIU offers the following options:

– The trainees can complete the entire company training abroad.
– The trainees can complete selected sequences abroad.

Vocational school instruction is provided through both variants in Denmark. The costs of the stay abroad are financed via the programme. Travel expenses incurred for a job interview, the stays in Denmark for vocational school instruction, half of the expenses for rent abroad as well as the costs of the examination to become a journeyman are paid. Thus far approx. 12,000 trainees have taken advantage of the opportunities offered by PIU. A initial evaluation of the 1999/2000 programme shows quantitatively that the number of those who complete the training is stagnating and the funds for transnational activities are not exhausted. At the qualitative level all users (trainees, enterprises/host enterprises, vocational schools) assess the programme very positively.

3 Various forms of co-operation between teachers, enterprises and the regional environment

3.1 Co-operation in terms of occupational choice and orientation

Dropping out of school is one of the core problems with which vocational training is faced even after Reform 2000. This problem is addressed in a recently issued report of the Danish association of small and medium-sized enterprises (Håndværksrådet). One of the causes is seen in the unrealistic expectations of the young persons and one of the most important conclusions is the demand for greater co-operation between schools and enterprises, i.e. also between teachers and trainers (Håndværksrådet, 1999). Since there is no traineeship market in the classical sense, training is provided in some sectors that are especially popular above the actual level of demand in the economy. In view of the shortage of traineeships (praktikplads) and the problems mentioned, teachers play a greater role in supporting pupils in connection with their occupational orientation and finally concluding a traineeship contract with a company than in Germany. Although there are departments within the schools that are involved in placement of trainees, provision of occupational information and orientation assistance are among the core functions of Danish vocational school teachers. Thus, part of the co-operation practised between enterprises and vocational schools covers this aspect. A Danish teacher describes this as follows:

> "Yes, we have a great deal to do with employers and employees. For example, employers who wish to have a new apprentice. They come to us and ask. They come and sometimes also hold a lecture on the plant or practice. They advertise, come to us. And then we have a meeting here. The pupils ask and we also ask questions about what the company does and what it demands of the pupils. What can the pupils demand of it. (…) First they look at the marks and then the job interviews, but sometimes also talks with the teachers." (Grollmann, in preparation)4.

He documents the placement efforts of the vocational school as follows:

> "Yes, we have an office that arranges for practical work experience. It helps the pupils. Sometimes it is done via the teacher, but usually via the central office. The enterprises call there and say we have needs there and there. However, how many of them there are, that is a problem. In the case of data mechanics, very many. Here there are too many. For the school it is not possible to say we will not do that. We are not allowed to do that. Unfortunately.(…) No, everyone can come in. That is not good. We can say that is not possible. You will not get a traineeship. 'That is not your problem.' This would be the answer. This is what the pupils say: 'That is not your problem.' (Grollmann, in preparation)

The social partnership is also firmly established in such activities. Orientation talks are also conducted with the representatives of the respective trade unions. A Danish teacher describes this as follows. She also refers to orientation problems of young people:

> "I still talk with - I work as much as I can with the union, introducing the students to what real life is. I sometimes go to the union and one of the people working there, to explain some things to the students and have some really nice discussions, or I invite some of the employers there; representatives and they do one thing or

[4] The interviews on which these quotes are based were conducted either in German or English. Some places were "polished up" linguistically for reasons of comprehension and readability. This did not result in any changes in the content of the statements.

> another with the students, but I find it difficult with the employers, because the students have too much respect and they don't really participate in the discussion, so it's very – you know – so I prefer the union, but I try to do both, but I find it more difficult to make an appointment with the employers, because they are all too busy."

An interesting aspect is that the "youth phenomenon" in Denmark, nevertheless, obviously takes on other characteristic forms than in Germany. In the results of a project on the Danish style of innovation this is described as follows:
"Young people are expected to be independent and responsible in Denmark. International studies show that they spend little time on homework but a lot of time on small jobs to get their own income. When finished with high school, they often take a year off and work or go abroad before getting higher education. They rate quite weakly (the extent and causes are still under debate among educationalists) in international tests on skills in reading and mathematics. But they seem to be extremely well prepared for working in a turbulent economy where there is a need to delegate responsibility to the lower levels in the organisation. They are used to communicating directly and freely also with authorities (teachers and employers)." (Lundvall, 1999).
The importance of the respective specific social construction of youth for vocational training and thus also for the type and substance of co-operation between enterprises and vocational schools becomes evident.

3.2 Classical forms of co-operation between enterprises and vocational schools

More precise empirical indications of such forms of co-operation between enterprises and vocational schools that point directly to co-ordination of the learning process of the individual pupils between school and company or hovedforløb and virksomhed are rare. However, Vibe Aarkrog (1998) points out that it is frequently difficult for trainees to establish a connection between what they learn in the school and what they learn at the company. Often the co-operation is restricted to administrative matters, such as the time-related co-ordination of the instruction phases with the periods at the company. As a rule, this co-operation is initiated by the school. In some cases, especially when larger enterprises are involved with a higher number of trainees, there are increased co-operative activities, which, on the one hand, lead in turn to a better mixture of company-based and school-based learning, but in some cases, on the other hand, run the risk of being geared too intensively to the specific needs of the respective company. In some commercial training programmes a trainer is even assigned to instruct the trainees together with the teacher at school in some cases (Aakrog, 1998).
Reference must be made to two special implementation conditions in Danish vocational training:
Firstly, instruction in Danish vocational schools usually takes place in the form of subject-oriented teaching (see Fig. 1). This is an important requirement for enabling the radical individualisation of learning processes that is targeted in Reform 2000;
secondly, school lessons frequently take place at a regional distance from the training enterprises. This applies in particular to occupations with lower training figures. This will increase in future since more far-reaching subject-related concentration processes are targeted through reorganisation into regional competence centres.

Reform 2000 has resulted in the introduction of some tools that are aimed at supporting the targeted individualisation as well as the co-ordination between practical and school-based training. In particular, they include the logbook (uddannelsesbog), the education plan (uddannelsesplan) and the new role of the contact teacher. The contact teacher is comparable to a tutor who accompanies the individual trainees throughout the course of training and advises them with respect to their individual education plan and logbook. The goals of the specific training phases in school and enterprise are specified in the education plan in co-ordination with the individual pupil. The logbook documents the competencies actually acquired in a kind of portfolio approach. Furthermore, an Internet-based system, the elevplan5, exists for management of these specific tools. It is envisaged that each teacher will assume this contact teacher function for 10-15 pupils. Some enterprises integrate these new tools into their own training staff development activities. However, the utilisation of these opportunities by companies has not been well documented thus far (Cort, 2002). The trainer function in Danish enterprises has not been extensively professionalised in formal terms. In some cases, however, the enterprises provide their training staff with further training, either on their own initiative or by sending them to courses held at vocational colleges.

3.3 Co-operation between enterprises and vocational schools in regional innovation processes

Danish economist Bengt-Åke Lundvall (Lundvall & Nielsen, 1999) has introduced the term "learning economy" in the European discussion. He points out the significance of learning and training for the economic development and competitiveness of regions and economies. In a project on the Danish style of innovation he draws the following conclusions, among others:

> "There are obvious problems with the present division of labour between the firms and the public system for adult training and vocational training. Even so, we warn against just cutting down the public part of the system. There is no guarantee that the private firms will take over the responsibility and this would weaken the efforts to establish life-long learning and especially the low skilled workers would get even more exposed to social exclusion. Again, we point to the need for experimenting and generalising from experiments. The working of the Danish human resource development system (high inter-firm but low geographical mobility) tends to reinforce the formation of 'industrial districts' (Medicon Valley around Copenhagen, MobileCom Valley around Aalborg, etc.). This points to the potential for regional experiments trying out new constellations of collaboration between firms, schools and public authorities and new forms of co-ordination of industrial policy, labour market policy and education policy respectively at the regional level. We also propose the creation of a system for adult and vocational training where a part of the system should explicitly aim at serving firms that are engaged in on-going technical and organisational change." (Lundvall, 1999)

The guiding principle of a "learning economy" based on innovative regions is also to be applied in Denmark through vocational training institutions. In some sectors so-called academies, which have a semi-academic orientation and lead to qualifications at the technician level, are currently being set up within the framework of post-secondary vocational training. This so-called short-cycle higher education has become increasingly

[5] www.elevplan.dk

popular in recent years and is to be expanded. Translated literally, these training programmes are designated as vocational academies and are administered by a national council with equal representation, the Erhvervsakademirådet. These training programmes are based on completed vocational training or completion of the "Fachabitur" (entrance qualification for a specific field of study at a higher education institution) and are organised on a full-time school basis. The further establishment of these academies must be seen in connection with the concentration processes mentioned with regard to the specialised competencies of the individual schools. The vocational academies have their institutional location at the vocational colleges and are aimed at finding a place in regional learning and innovation processes. The department head of a newly set-up academy for graphic design occupations describes his activities in this respect as follows:

> "Then we have been creating a place together with the town administration and the other educational institutions in the city. It is a communication laboratory, we call it, where you can come as a student, as a teacher, or as a company. It is a marketplace for information or brokerage of information. We believe that this kind of informal way of meeting is a good way for our teachers, too, to keep in touch with the companies and keep up with the development in their fields. (…) They don't have to meet. They can go there, it is provided and it is voluntary, if you want to know about the opportunities, but it is not required. But the school pays a member fee, so the teachers can go there."

Another teacher is involved in the work of the regional further training and labour market administration as a member of the regional section of the Danish federation of trade unions:

> „One of my tasks is that we have a state-aided institution, "Arbeitsvermittlung". They are re-structuring at the moment. It is a little double role. Because I am related to the union, we have a mandate in this, I represent this in a regional, political structure above this institution. But also we have some interest as a school in this structure, because they use a lot of money in buying courses and education in the institutions. I can use information from here in that work and I can use information, which I get from that work to the structures here at the school to say: 'Oh, you should be aware, that …'. But I also work together with this institution and unions and representatives of the factories in developing courses for employed and unemployed to get a higher level in their education. So they could go to jobs and the industry. It is less now, because I have this new job. I have been in direct contact with the greater industries or the state institutions about making plans for the education for the workers. For instance, we do some things for the training company. These workers we have here some weeks to upgrade their level about certain things, how to use them. We have developed this kind of course in co-operation with the leaders in their institution."

In this quote this teacher also refers to another function of the Danish colleges. Besides the courses leading to formal qualifications and eligibility, the colleges also offer tailored further training programmes for which participation in regional or national specialised discussions is essential.

4 Development projects for co-operation between enterprises and vocational schools

Because the co-ordination between school-based and company-based training is viewed as inadequate, the Danish Ministry of Education supports development projects aimed at improving the co-operation between enterprises and vocational schools. As a rule, such development projects are not given scientific support. However, they are frequently carried out jointly with the Danish Institute for the Training of Vocational School Teachers (DEL). These aspects contribute to a tight intertwining of teacher training and school development in terms of time and content. At the schools teachers are released for participation in such development projects or they receive reduced working hours. The opportunities for participation in such initiatives have become more flexible through the introduction of an annual working hour account. At a workshop on this issue held by the Ministry of Education development projects related to the co-operation between enterprises and vocational schools were allocated retrospectively to the following groups:

– Projects in which new ideas, methods and tools were developed for co-operation between enterprises and vocational schools
– Projects involving the attitude of teachers, pupils and employers
– Projects in which specific existing projects on co-operation between enterprises and vocational schools were further developed
– Projects in which the focus was place in particular on company-based learning or school-based learning (Gottlieb & Bjerre, 2002).

For purposes of illustration, the results of such a project are presented in the following: two vocational school teachers, Hans Henrik Koch, toolmaker and graduate of a college of education, and Søren Lundsgaard, teacher at a vocational grammar school, submitted an essay to the periodical "Uddannelse" in connection with such a project (Koch & Lundsgaard, 2000). They point out that since the establishment of dual vocational training in Denmark in 1956 a problem has arisen due to the fact that the pupils perceive school instruction as inferior in comparison to learning at the company. In their view this frequently leads to a generalisation of company experience without thinking and to an attitude of rejection with regard to school instruction. With reference to Donald Schön and Lave and Wenger (Lave & Wenger, 1991; Schön, 1983) they have developed the method of "practical work experience". In principle, what is involved here is the common identification of a training project: in the next to last school training phase the pupils are required to develop and realise a project idea going beyond the specific company requirements in a discussion with their superiors and fellow pupils. The teacher has an advisory function in this connection and must ensure that the proposed projects are compatible with the specified curriculum. The "practical work experience" is then carried out by the trainees in the last company and school training phase. Examples of such projects include:

– Smaller product innovations, prototypes or small market research projects
– Further development of an existing product
– Development of special tools or functions
– Tests and/or experiments with new materials or methods and procedures.

Such projects are then implemented at so-called open learning centres. The individual pupil brings his/her task from the previous company training phase and is now assigned to implement it. The teacher then merely performs an assisting and advisory function in this extensively self-controlled learning process. The pupil's job is now to make use of all resources available at the school to complete the task, i.e. the teacher's advice, the school's information facilities such as libraries and available media, the advice of other trainees with experience from other companies, the available technical equipment such as tools, measuring instruments, etc. Such projects are designed to put learning based on the company's needs in a broader context in that the trainee can acquire competencies at different levels and with varying content.

5 Summary of assessment and prospects

Through a law dating from 1991 and the amendment of 2002 Denmark introduced a national innovation fund for vocational training.[6] Around 50 million Danish crowns were available annually for innovation projects that could be obtained by schools jointly with associations and the Danish Teacher Training Institute for teachers at vocational schools. However, the amount has declined continuously over the years; last year it was about 20 million crowns and this year it will be probably be reduced to approx. 12 million. One of the priorities mentioned in the support plan, which is drawn up every two years, is improvement of the co-operation between schools and enterprises.
A number of measures indicated in the national action plan for the development of the education system submitted during the Danish EU presidency are also related to vocational training and improvement of the co-operation between enterprises and vocational schools:

> "[…] The constant practical training place problems within the technical EUD programmes prove that in spite of the increase in the possibility of flexibility in the EUD Reform 2000 there is a need for an initiative which makes the technical EUD programmes even more flexible. The problems have in particular appeared within new areas of employment and areas where there are great shifts in employment, e.g. the IT-related area of education.An assessment will therefore be made of the practical training place situation, proficiency and competencies, the labour market relevance, etc cutting across all technical EUD programmes with a view to taking initiatives and presenting proposals which ensure flexible courses of education of different duration and depth, and which provide a recognised vocational competence with a possibility of upgrading it later to a higher level." (Undervisnings Ministeriet, 2002)

As it turns out, the traditional form of work and training is also questioned in the Danish vocational training system and thought is being given to more flexible, modular solutions. What these changes will be like and what impacts this will have on questions of co-operation between enterprises and vocational schools are still unclear at present. The example of Denmark, especially in comparison to Germany, shows clearly that there are also great differences in the central European training systems, which are generally designated as "dual", in terms of conditions and forms of implementation of co-operation between enterprises and vocational schools. Besides "hard" conditions, such as the existence of a training levy system or direct integration of the industry

[6] http://www.delud.dk/fou/

committee into the schools, many of the factors seem to be more of a "soft" nature. The question arises as to appropriate empirical access. The term "learning culture (culture of co-operation between enterprises and vocational schools)" appears to be appropriate in this context, though it has not been further operationalised empirically, but rather is encountered in writings with a programmatic orientation.

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