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Apprenticeship, History and Development of

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Apprenticeship, History and Development of

The concept of apprenticeship originates from the training of master craftsmen developed by the medieval guilds. This craft apprenticeship became the model of vocational training in many modern industrial countries. This type of vocational training takes place after compulsory schooling or education at the secondary school level. Apprenticeship training as initial vocational training is in competition with training offered in full-time vocational schools and, in some countries, with higher education schemes. As opposed to short-term training for semi-skilled work or on-the-job training, it aims at a qualification for a skilled occupation such as blacksmith, mechanic, butcher, or tradesperson. It concentrates on the imparting of skills, knowledge, and work attitudes. The average training period is about three years, but a duration of five years is also possible. The training takes place primarily at the workplace, but apprentice workshops and vocational schools are often integrated. The youth or young adult starting an apprenticeship enters into a training agreement with an employer who may be a master craftsperson in trade and industry or a self-employed craftsperson. After completion of the apprenticeship the trainee will acquire the status of a worker who, after a few more years of work, can acquire the qualification of a master craftsperson.

1. Historical Roots of Apprenticeship and its Adaptation to the Training Systems of Industrial Countries

Apprenticeship training has its roots in the medieval guilds. In the division of social classes within towns guilds represented free associations, mostly of independent craftsmen, but also of almost all other vocations such as merchants, musicians, and notaries. The compulsory membership and statutes of the guilds created cartel-like conditions. A great number of rights and duties governed the coexistence of the guild members—apprentices, journeymen, and master craftsmen. At that time all privileges rested with the master craftsmen. The earliest German, English, and French documents about the guilds

originate from the eleventh and twelfth centuries. It was inside these closed shops that guidance and management of young talent took place in the form of apprenticeship. The vocational education also included general education. The apprentices were educated appropriately for their social class. To this end the apprentices were accommodated in the masters' families and they were classified into apprentices, and eventually journeymen and master craftsmen.

When, at the end of the Middle Ages, economic conditions changed, owing basically to the fact that production was now directed toward the market and not the individual customer, the guilds showed clear signs of disintegration in all European countries. As early as the eighteenth century, freedom of trade prevailed as a result of economic liberalism (Baethge 1970). The guilds lost all their importance in the countries which had them though it should be noted that in the United States guilds had never existed.

Gradually new bodies came into existence to represent the interests of the craftsmen; these were the chambers of crafts. From these roots sprang new forms of apprenticeship training in European countries and the United States. These modifications and adaptations were most pronounced in Central Europe, and developments in Germany became particularly marked. They are accordingly analyzed in brief for Germany before turning to the parallel experience of other economies.

1.1 The German Example

The social changes in the wake of the Industrial Revolution had plunged apprenticeship training into a deep crisis in the nineteenth century. The quality of training was neglected. The beginning of economic expansion created an increasing demand for qualified skilled labor (Rinneberg 1985). Thus, attempts were being made from the middle of the nineteenth century to bring apprenticeship training back on the right track. With the government assuming regulatory functions, the liberal economic policy of the nineteenth century, which regarded vocational training as part of the labor market mechanism (to be agreed upon by the master and the apprentice at their own free will), was abandoned (Stratmann 1982). With the industrial code of 1869, Prussia and the German Reich set up a legal structure for apprenticeship training. The organization and training in the apprenticeable occupations were largely left to the chambers as the self-administering bodies in the private sector (Ebertzeder 1983). In parallel, the individual states of the German Reich established their own legal structures to regulate the vocational school system. Thus the foundation for the system of vocational education and training extent in the late twentieth century, the dual system, was laid. This distribution of power between government and

private industry has remained practically unchanged (Schriewer 1986).

Structural changes in the national economy caused by the Industrial Revolution, together with the steady decline in the importance of the agricultural sector and the constant growth of the industrial and services sectors, led to a fundamental readjustment in the demand for a labor force. After overcoming its original limitation to the craft and commercial occupations, the apprenticeship system extended to almost all sectors of the economy from the nineteenth century. The companies and the technical and commercial vocational schools cooperating with them are thus able to train the skilled labor force they need (Kell 1988).

With the term "dual system" the system of initial vocational training was given a new name. It indicated that the company-based training of apprentices was to be complemented by a training school element. From the nineteenth century there had also been a demand for legislation to establish uniform regulations for apprenticeship training (Kümmel 1981). The trade unions had taken up this cause after the First World War. This introduces another important element in the dual system; the workers and their representatives, the trade unions.

Unlike other Western European countries, in which trade unions and employers did not manage to reach an understanding on important protective provisions for young workers and apprentices, with the logical consequence of apprenticeship training being gradually ousted from the shop floor, German trade unions always came back to their demand for comprehensive regulation of the apprenticeship system. In doing so, they have always been in opposition to the employers' associations, which defend the idea of self-administration, that is, of vocational training being their (the employers') own responsibility. Employers, however, have been prepared to take over a large proportion of the training costs of apprenticeship. In 1969 the Vocational Act was finally adopted by Parliament (Offe 1975). It regulates initial vocational training and continuing vocational training, as well as retraining schemes in all industrial sectors.

In the course of time, statutory regulations had also made their way into the vocational schools, the second center of learning under the dual system. An important event in the continuity of this trend was the Act on Compulsory Education in Vocational Schools of 1938 as well as the regulations applicable to the individual federal states.

These developments have led to a rather specialised arrangement of vocational training in Germany. It still includes many elements of traditional apprenticeship training but is distinguished by the fact that it has been adapted to the qualification requirements of post industrial society.

1.2 Apprenticeship and Alternative Training

Before presenting a description and critical appraisal of vocational training under the dual system, the term "dual system" should be differentiated from the terms "alternance" and "cooperative education" (Lauterbach 1985). A characteristic feature of this dual system is the attempt to coordinate the two centers of learning, the firm and the vocational school, and to link both types of training.

Historical developments or reforms of full time school-based or company-based systems of initial vocational training outside universities have brought about the combined forms which exist in various countries. Depending on the pattern of jurisdiction and its degree of incorporation into the school-based or company-based vocational training system, this form, which is often called alternance, can be classified under one of the basic types of vocational training programs.

Generally speaking, there are two basic types of delivery system for vocational training (Lauterbach 1984): (a) vocational education in full-time vocational schools, and (b) vocational training provided by industry. The term "cooperative education," or "alternance," is used for school-based vocational education programs into which periods of work experience in an office or workshop are integrated. These work experience placements at the secondary level are intended to facilitate vocational orientation and career choice. They form part of training courses at the skilled worker, technician, and engineer levels. In the absence of a global system in which coordination of school-based and company-based training structures is a government function, there is no link in most cases between the curricula used in the different places of learning. The work experience placement is thus limited to giving the individual some on-the-job experience in the world of work.

In modern apprenticeship training, by contrast, there is a linkage between the two centers of learning which have to perform different functions under this system. Schools teach the contents of vocational theory and, to some extent, general education subjects, whereas firms place major emphasis on providing job-related training and on complementing vocational theory by practical training. General, binding training and examination regulations have been adopted to prevent training programs from being tailored just to the short-term skilled labor force needs of a company.

The following characteristics of modern apprenticeship training may be identified:

- (a) The responsibility for training rests mainly with the self-administering bodies of the employers (chambers) and partly with the trade unions.
- (b) Financing of company-based training is provided

by the firms. Complementary training in vocational schools is financed with government funds.

- (c) The labor market with its special apprenticeship segment regulates the supply of and demand for training places.
- (d) The choice of a recognized trade or occupation is made by the young person without any restrictions by employers' organizations.
- (e) The apprentices enter into a training contract, and they receive remuneration; holidays are subject to specific protective regulations.
- (f) Training programs are subject to legally binding, company-independent regulations.
- (g) The content of training programs is determined by the basic needs of the modern working world, and is not based on company-specific requirements.
- (h) Centers of learning include at least the company and one training institution at which attendance is compulsory.
- (i) Examination procedures and leaving certificates are subject to legally binding, company-independent regulations.
- (j) The leaving certificates qualify the young people for a skilled occupation and are generally recognized on the labor market.
- (k) Further vocational training and advancement from skilled worker status to master craftsperson are possible.

2. Apprenticeship within the Training Systems of Industrial Countries

This section deals only with countries whose apprenticeship training systems consist of the characteristics outlined above. In countries such as France, Belgium, Italy, and the United States the training of apprentices is in competition with the vocational training offered by schools, with short-term purely company-based training schemes, or with programs set up in order to integrate those leaving general secondary schools into the labor market (Lauterbach 1984, CEDEFOP/EURODICE 1991).

2.1 Belgium

The training of apprentices is provided by the crafts sector and small industrial firms under supervision of the Ministry of Medium-sized Enterprises in traditional craft and business occupations (e.g., butcher, painter, retail and wholesale merchant, or optician) and in more modern service occupations (e.g., insurance agent or tax adviser). The period of instruction is four years. After signing an appren-

ticeship contract, the trainees work in a company for three to four days a week. Acquisition of the necessary knowledge and skills is aided by model training programs. Parallel to their on-the-job training, the apprentices attend courses held at a continuing education and vocational training center to improve their general knowledge and to acquire the theoretical qualifications needed for their occupations. Training in the general education subjects takes 72 hours in each of the four years of apprenticeship. The subjects taught are mathematics, native language, economics, history, geography, social studies, and health science. Job-related instruction is also provided for 72 hours in the first year of training and is then increased to 132 hours in the following three years. Only about one in thirteen students who complete secondary school take on an apprenticeship.

2.2 The Netherlands

Since the mid 1980s, the unsatisfactory career prospects for school-leavers have led to an increase in the number of trainees in the apprenticeship system being sponsored by employers, trade unions, and the Ministry for Social Affairs. The minimum age at the start of the training period is 16 years. An apprenticeship contract has to be agreed between employers and trainees (or their legal representative). Apprentices receive a remuneration. The training phase, which is subdivided into a two-year basic program and a technical instruction program, takes three years. Its teaching contents are strongly trade- and company-oriented. A uniform structure, as is present in the German dual system, does not exist. No training facilities are available for business and administrative occupations. Training occupations are predominantly crafts oriented. Job-related parttime instruction is provided two days a week, for eight to nine hours, in vocational theory and general education subjects. This takes place at specialized schools (*steete scholen*). If the apprentices have attended their training courses regularly, they are eligible for a final examination. After successful completion of the theoretical and practical parts of the test, they will receive a diploma (*diploma lerningswezen*).

2.3 France

Only about 200,000 young people take part in an apprenticeship (*l'apprentissage*) in the traditional craftsmen's and artisans' vocations. The two to three-year training takes place primarily in firms and training centers (*Centres de formation d'apprentis*). The apprenticeship contract is a work contract providing a minimum remuneration. Two laws adopted in 1971 were the first legal regulations since the French Revolution of 1789 to govern the training of apprentices. These laws include provisions for the better protection and training of apprentices. These initiatives

are intended to obtain a status for apprenticeship training equivalent to the dominant, full-time vocational school training. This is also ratified by the CAP certificate (*certificat d'aptitude professionnelle*) which is acquired mainly at the *lycees d'enseignement professionnels*. Financing is provided through special contributions (CEDEFOP 1989a).

2.4 Switzerland

Apprenticeship is governed by the Federal Act on Vocational Training of 1978. The traditional crafts and trades, industrial as well as technical and commercial occupations, make up about 400 recognized training occupations. About 80 percent of young people decide in favor of vocational training in the form of an apprenticeship. Training on site is financed by the company; all other costs (vocational school, final examination, joint training courses, etc.) are borne by the federal government. Attendance at vocational school is compulsory. Company-based training is governed by a specific "training regulation." The two- to four-year apprenticeship is followed by a final theoretical and practical examination organized by the cantons (Wettstein et al. 1988).

2.5 United States

Apprenticeship training in the United States still contains many traditional structures. Although the federal government has recognized about 450 of the more than 700 registered programs, catering for 300,000 apprentices, these programs are provided and financed exclusively by employers and trade unions. Many of these programs are limited to traditional sectors such as the building trade and the metalworking industry. In an educational system which is characterized by a full-time school system (high school, two-year college, technical college, junior college, community college) or by on-the-job training schemes, special motivations are necessary for deciding in favor of an apprenticeship program. Anyone who takes up this type of training has typically already been active on the labor market without any training, is over 20 years old (average age about 23), and must frequently become a union member and pay a considerable registration fee. Typical signs of closed shops are obvious. As a compensation, trainees will receive a safe job, a fairly well-founded training, and attractive pay.

The programs recognized by the federal government satisfy certain minimum standards. These refer to, among other things, the duration of training and instruction, the training contract, the qualifications of the training center, and the examination procedures. Having successfully completed an officially recognized program, the apprentices receive a certificate of completion of apprenticeship from the Bureau of Apprenticeship and Training. The Fitzgerald Act of 1937 provides the legal basis for the National

Apprenticeship Program. In addition to these countrywide training schemes, a number of apprenticeship programs is offered at the local level by the community colleges. Characteristic of this agreement is the linkage by working contract to a company in connection with job-related instructions at a community college. In addition to the employers, the trade unions are almost always involved. No final examinations are held though these are typical in Europe. Certificates are awarded after the required number of credits have been obtained. Apprenticeship programs are only of marginal importance for the development of job qualifications (Lauterbach 1985).

2.6 Denmark

In Denmark there exists a well-developed vocational training system which also allows for apprenticeship training. After leaving lower secondary school (9th school year) about 45 percent of young people transfer to one of the basic forms of vocational training. Most youths choose the basic vocational training which is subdivided into eight occupational fields for about 200 vocations.

In a similar manner to Germany, however, it was also possible to extend the traditionally craft-and trade-oriented training occupations to other industrial sectors. Almost 10 percent of the lower secondary school leavers start with a three-or four-year apprenticeship. The legal basis for the training of apprentices is provided by the Apprentices' Law of 1956. The employer has to conclude a training contract with the apprentice, which provides for, among other things, payment of a remuneration. Training is based on a specified plan within the company and at the vocational school. In addition to job-related theoretical and practical instruction, there are compulsory general subjects like native language and foreign languages, sports, mathematics, civics, and work management, beside further optional subjects. After completion of the apprenticeship, other certificates may be acquired to qualify the individual as a technician or master craftsperson. The Ministries for Education and Labor are responsible for the various activities in initial and further vocational training. Employers and trade unions are included in the training schemes (CEDEFOP 1988a).

2.7 Austria

Apprenticeship training in Austria is also called the dual system. The 227 recognized training occupations are concentrated on the traditional activities in business, trade, and commerce. This restriction is explained by the competition from the full-time vocational schools, which were founded in the second half of the eighteenth century. These schools provide training for office, administrative, and technical occupations. Whereas the number of students in these schools increases steadily, the number of

apprentices is constant. Since 1962 the Vocational Training Act has provided the legal foundation for apprenticeship training. It prescribes the structures of training ordinances, compulsory attendance at vocational schools, the form of training contract between master and apprentice, remuneration, and the final examination procedure.

About 20 percent of the training time is allocated to vocational school attendance. In addition to the job-specific instruction, general subjects such as social studies and work management are taught. Since training takes place in many small and medium-sized firms, practical work is complemented by instruction in the vocational school. As in other countries, the principle of duality is applied in financing. Whereas the vocational schools are financed from public funds, the on-site training is always the financial responsibility of businesses. All groups involved in apprenticeship training (employers and unions among others) are represented in the decision-making bodies at the national level (CEDEFOP 1989b).

2.8 Italy

In Italy, too, a traditional apprenticeship scheme exists in trade and small businesses. It is governed by a law adopted in 1955. Since the provisions of this law concerning the safety and health of young people at work are constantly ignored, the trade unions reached, by collective agreement, a reduction of the apprenticeship period and an increase in wages. As a result, apprenticeship was driven out of the large companies and now exists only in the crafts and trade sector.

2.9 United Kingdom

In the United Kingdom the medieval apprenticeship originating from the existence of the guilds has continuously dwindled in importance since the freedom to set up businesses was granted to all. It represents a marginal form of training. It never became at any time a public responsibility. Where it exists at all, it is regulated by collective agreements (CEDEFOP 1988b).

3. Apprenticeship in the Former COMECON Countries

In the central East European countries, Hungary, Poland, and the former Czechoslovakia, the concept of apprenticeship has a long tradition. Similar to Austria, with which close ties exist in educational history, these countries offer well-established full-time vocational schools beside the apprenticeship scheme.

In the early 1990s, great problems are being caused by the transition from centralized planning to a free market economy. The existing firms, which were detached from the large collective combines, are

hardly capable of taking over the tasks to be performed in on-site apprenticeship training, such as the conclusion of contracts, systematic job-related training, and remuneration of trainees. Similar difficulties arise when the central administration transfers the basic responsibility for on-site apprenticeship training to the newly founded chambers (of commerce, and of crafts). These problems are aggravated by the enormous economic difficulties which many companies are facing in their adaptation to the market laws of a free economy.

The following comments refer to the existing situation which has its roots in the old educational and training system. They also indicate changes possible in the future.

3.1 Czech Republic and Slovakian Republic

Most students leaving primary school transfer to the intermediate vocational school. These are the most important institutions providing training for qualified skilled workers and craft workers. The list of recognized occupations contains a total of 165 training and graduate occupations (occupations with a 2.5- to 4-year training). This training is broken down into one third general education and two thirds job-related instruction.

Trainees at vocational schools receive a remuneration, the amount being determined by their examination results, that is, by their productive work.

Practical activities in the company are engaged in to the following extent: one day a week for the first year, two to two and a half days for the second year and two and a half days for the third year. During the four months of job-related specialization, training on site is provided on five days.

The intermediate vocational schools, as independent organizational entities, are sponsored and financed by the companies. However, the planned reforms have as an objective that by the middle of the 1990s about one third of the young skilled workers will be trained once more in apprenticeships.

3.2 Poland

Vocational training qualifying an individual for craft worker and skilled worker occupations is provided by company-run vocational schools. While theoretical instruction is provided in these schools, practical training takes place in apprentice workshops or directly on the job. The young people employed by the company receive a monthly wage.

This training is based on uniform government training guidelines. Altogether 238 training occupations are recognized. One third of the training period is allotted to general education and the remaining time to job-related activities.

The planned educational reform may lead to an abandonment of apprenticeship training as it is intended to set up technical secondary schools as full-time vocational schools.

3.3 Hungary

Training for craft workers and skilled workers in 35 select occupations still traditionally takes place at the technical secondary school (leaving certificate qualifying for craft worker occupations and university entrance). Parents find this training scheme attractive because it also allows the university entrance qualification to be acquired.

After completion of elementary school, however, most young people enter the vocational schools. Within a period of three years apprentices are trained to become craft workers and skilled workers. No training contracts are concluded with sponsoring firms. There is a list of 142 recognized training occupations for craft workers. The apprenticeship period is devoted to general education (30%) and occupational theory and practice. The craft worker examination is organized by the occupational school.

The educational reform started in 1992 is intended to modify the old system. The new Vocational Training Law restricts the state vocational schools to teaching subjects concerned with vocational theory. Practical training in the state-recognized training occupations is to be taken over by companies. The activities will be supervised by self-administering bodies of the industry, the newly founded chambers. The apprentices enter into a training contract with the company. Examinations are centrally organized. Typically, apprenticeship financing is provided by two sources; the government maintains the vocational schools, whereas on-site training is paid for by the firms.

This shows that the Czech and Slovakian Republics and Hungary continue in a modified form the old traditions of apprenticeship training which existed before the communists came to power.

4. Apprenticeship within Turkey: A Model for Developing Countries

The Turkish educational and occupational training system is characterized by formal qualification certificates which are acquired at general education and full-time occupational schools. Staff careers in the companies are determined more by the rank of the school attended than by the vocational qualification of the applicants. Full-time instruction in the upper secondary vocational school is closely linked with the organizational structure of the general education system. Occupational qualifications are not precisely defined. In the light of this situation it was not possible in the past to devise systematic schemes for the training of skilled workers and craft workers. For parents and students, training schemes that do not lead to formal certificates, opening up good career prospects, are unattractive. However, training for narrowly limited activities means for most firms an adequate vocational training. Investments in a broad and systematic vocational training are unusual.

Neither the traditional unsystematic apprenticeship training nor the full-time vocational schools have been able so far to make a decisive contribution to the development of a broad and systematic training for qualified craft workers and skilled workers. The government repeatedly took the initiative to achieve a reform of vocational training, with the emphasis being laid on the qualification component and specific skilled worker training. The only successful attempt was the law on apprenticeship and vocational training of 1986. It created the formal framework for the development of the modern vocational training system with "dual" orientation. Since 1986 more than 60 training occupations have been recognized. Also, the number of apprentices has increased from 13,700 (1986) to 180,000 (1990–91). A similarly successful development can be observed for the vocational secondary schools. In 1990–91 they were attended by 250,000 pupils. For more than half of the 415 vocational secondary schools, the practical part of training took place already in the companies. Through such cooperation, this course of training, which has previously been fully confined to school instruction, will, on a medium-term basis, more and more resemble apprenticeship training (Lauterbach 1993).

It is characteristic of vocational training in developing countries such as Turkey that the government takes the initiative and that there is reluctance by private companies to take over responsibility and financing. Thus, the principal feature of the dual system as applied in Germany, that is, the joint commitment of state institutions, employers, and trade unions, does not exist.

A positive change has emerged for craft businesses and small-scale industrial enterprises, however. The Crafts and Small Business Law of 1964 was amended in 1991. It deals with questions of vocational training in the crafts and small-scale business sector. The latter has now been given more authority in relation to the government than before. Of special significance for future vocational training are the following:

- (a) Practical training in companies is no longer planned, performed, and supervised exclusively by the government but by the chambers of crafts and small businesses together with the Ministry of Education and its local institutions.
- (b) Each chamber has to set up a training department. It will be responsible for questions of advice and supervision of the companies providing vocational training.
- (c) Foundation and performance of as well as participation in the training in industry-wide centers was transferred to the jurisdiction of the chambers and their member firms. The vocational school is obliged to release appren-

tics for attendance of courses at these industry-wide training centers, as are the companies.

- (d) The local chambers and associations of crafts and small businesses are obliged to take over part of the financing of industry-wide training.
- (e) The Confederation of the Turkish Crafts and Small Businesses (umbrella organization of all crafts and small scale industrial businesses) has set up a training fund. It is intended to support the development of vocational training in craft and small-scale industrial businesses by promoting formal vocational training in the firms of their sector, in the vocational school as well as in interplant training centers.

Thus, the Vocational Training Reform of 1986 and the intensive discussion of model projects have noticeably increased the consciousness of those responsible for educational and training matters. The opportunities for the development of vocational training have markedly improved.

5. Conclusion

Apprenticeship has a centuries-old tradition. After introduction of free access to trade and business in the eighteenth and nineteenth centuries the apprenticeship structures were facing disintegration. Only when, after the start of industrialization, an increasing demand for qualified labor set in, did apprenticeship experience a kind of renaissance. In the process, different forms developed in the individual countries. They are the result of solid political and economic structures. Of special significance for the status of apprenticeship are its integration into the education and training system and the competition by other forms of initial vocational training, for instance full-time vocational schools.

Very different versions of apprenticeship can be found in almost all European countries and in North America. Furthermore, developing countries have adapted the training schemes of industrialized countries. These apprenticeship systems can be characterized as follows.

Traditional forms of apprenticeship do not only provide an occupational qualification. They also assume, as in the medieval master apprenticeship of the guilds, functions of social security and guaranteed income. A typical example of this is the apprenticeship existing in the United States. In Europe those who manage to find an entry into this training scheme also gain a position of social security. Employers and unions still play the role of the medieval guild, in this respect.

In many countries, efficient vocational schools developed after introduction of free access to trade and industry and the growing industrialization.

There was no need for other forms of training.

Training of apprentices was either no longer required or not opportune. Apprenticeship systems disappeared or were confined to traditional small industrial and trade occupations. Apprenticeship in France, Belgium, and the Netherlands fit into this category.

In other countries, although full-time schools are very successful in vocational training, apprenticeship systems are still promoted and further developed. In Austria, for instance there exist apprenticeship training (dual system) and the lower secondary vocational schools, as two equivalent forms of vocational training.

Elsewhere, in a process lasting more than 100 years, the medieval apprenticeship training was adapted to the requirements of postindustrial society. New occupations from nonindustrial branches and new training contents were integrated. Apprenticeship training became a public task and the dominant form of initial vocational training outside the universities. There are always two centers of learning: the firm and the vocational school. Central European countries (Germany and Switzerland), Eastern European countries (Czech and Slovak Republics), and a Northern European country (Denmark) all fall into this category.

Elsewhere again, apprenticeship of the industrialized states has become a model for developing countries. This form of training was adopted in Turkey and adapted to existing conditions. The approach seems to be successful.

Apprenticeship schemes seem to be a very promising form of training. It must not, however, be overlooked that this practice-oriented training is in competition not only with full-time vocational schools but also with the universities.

The changed educational patterns observed in many countries may lead to a situation where training for theory-oriented occupations will increasingly take place in the university domain. Apprenticeship, after a very successful period, may recede again.

See also: Africa: Traditional Apprenticeship; Vocational Education and Training in Germany: National and International Dimensions; Vocational Training Modes: Sweden, Germany, and Japan; Vocational Education and Training: Eastern and Central Europe; Apprenticeship, Economics of; Vocational Education and Training in Germany: National and International Dimensions

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Approaches to Learning: Nature and Measurement of

Approaches to learning refer to the ways in which students go about their academic tasks, thereby affecting the nature of the learning outcome. "Approach to learning" is often used interchangeably with "learning style," but these terms are quite distinct, as will be discussed below. This general area of student learning has been investigated using four distinct frameworks, deriving from personality, information-processing, phenomenographic theories, and systems theories.

There are thus four models relating to students' approaches to learning, each variously emphasizing the different components in the total teaching-learning context: the person, the teaching context, the learning processes used, and the learning outcome. The nature and measurement of approach to learning thus depends on which of these aspects the model addresses. This entry addresses each model in turn, then examines the relationship between approach and outcome.

1. The Personal Styles Model

The styles model focuses on stable individual traits, such as cognitive style or learning style, that are thought to affect the nature of the outcome and which transcend particular learning contexts or content domains and are independent of general ability.

Cognitive style research commenced in the 1950s and proliferated in the next 10 to 15 years; learning styles replaced and subsumed cognitive styles around the 1970s and later, because learning styles were thought to be more applicable to education and training (Riding and Cheema 1991). Cognitive and learning styles originate in a person's psychodynamic history, and reflect consistent individual differences in the way the world is perceived, how tasks are learned, and how problems are solved (Gardner et al. 1959).

People are classified as "high" or "low" on a style according to their performance on a given criterion task or test, and then compared on how they handle other, especially educational, situations. At least 20 such styles have been reported, but Riding and Cheema (1991) pointed out that both conceptually and empirically cognitive and learning styles may be grouped into two main families: (a) holist-analytic—including field-dependence/individual dependence, reflection-impulsivity, leveling-sharpening, and holist-serialist; (b) verbalizer-imager, which reflects the preferred modality for handling data.

One major difficulty with such styles is that they are conceived as bipolar (e.g., field-dependent vs. field-independent) and as independent of context. For example, field-independent individuals are said to be able to separate relevant from compelling irrelevant cues, and are therefore good at finding simple figures embedded in more complex ones, but manifest poor social skills, such as facial recognition. Cross-cultural studies show, however, that people in highly collectivist societies (requiring field dependence), and which use a character writing system (requiring field independence), such as Japanese and Chinese, manifest a high degree of both field-dependent and field-independent skills (Hansen-Strain 1989). But if a "style" operates according to the specific context in which it is applied, it is no longer a general style, and its unique meaning is lost.

Two other approaches to learning style have been influential, those derived by Pask (1976) and by Kolb (1976). Pask found that students in classification experiments used two basic strategies: testing one limited hypothesis at a time ("serialist"), and testing more complex hypotheses simultaneously ("holist"). When students *habitually* adopted a particular strategy, he said they exhibited a "style" of learning. "Versatile" students were those who switched strategy as appropriate to the task, but those who stuck to one style to the exclusion of the other displayed the pathologies of "improvidence" (excessive use of the serialist strategy, resulting in the student being unable to relate elements to form a whole), or "globo-trotting" (excessive use of the holist strategy, resulting in premature conclusions or unjustified overgeneralizations). Riding and Cheema (1991) saw these styles as belonging to their over-riding holist-serialist group, but in view of their derivation and theory of application, the measurement of Pask's "styles" are considered with Entwistle and Ramsden's (1983) "Approaches to Study Inventory" (Sect. 4 below).

Kolb's (1976) theory of learning styles is based on an "experiential" learning theory requiring four abilities: to experience, to reflect, to conceptualize, and to experiment. These abilities are based on two bipolar dimensions, concrete-abstract and active-reflective, which intersect to yield four quadrants. Learning styles are said to result from the particular quadrant in which a person's cognitive strengths lie: abstract-active yields the "converger," concrete-reflective, the "diverger," abstract-reflective, the "assimilator," and concrete-active, the "accommodator." Optimal performance in different academic subjects is said to require one such style over another.

The styles are measured by the Learning Style Inventory (LSI) (Kolb 1976), but Hudak (1985) in a review concluded that reliabilities were low, and validity questionable. Indeed, he concluded that "the onus is to demonstrate that the construct 'learning

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