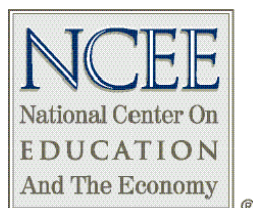


Denmark Summary Report

National Center on Education and the Economy



DENMARK

A Skills Strategy to Power Their Nation to the Front Rank of Economic Success

As matters stand today, the Danes have one of the most successful economies on earth. Only the United States, Switzerland and Japan, among the OECD nations, produce more per capita. To accomplish this victory, the Danes had to pull off one of the most impressive economic revolutions in history, transforming themselves from a nation of farmers after World War II into a modern high technology, post-industrial nation today. Until the 1960s, Danish agricultural products accounted for the majority of its exports. Today it is less than 40 percent (which is very impressive, considering that agriculture employs less than 6 percent of the work force). What is remarkable is that upwards of 80 percent of Danish industrial production is now exported. The value of Danish foreign trade is now, on a per capita basis, among the highest in the world. A great deal of this production is high technology goods manufactured to very high quality standards, much of it parts made for final products produced by other nations. But a growing share is also taken by the export of services.

To do this, the Danes have a highly educated and trained work force, people who are broadly knowledgeable and deeply skilled, people who can take leadership at every level of the economic system and respond quickly to changing circumstances as they arise.

The already rapidly growing Danish economy took off in 1995, largely owing to the government's tight fiscal policy. Growth rates over the last five years have outstripped even the widely admired U. S. economy. The inflation rate has been held to below 2.2 percent for the last four years. Unemployment dropped from 12 percent in 1994 to 7.7 percent in 1997 and again to a projected 6.0 percent in 2000, a 50 percent drop in just six years. Private investment, disposable incomes and consumption have all been growing rapidly in recent years. Few nations on earth have done as well as the Danes in providing for their people.

Education seems almost to have attained the status of a national religion in this country. The Danes cannot provide enough of it or get enough of it. Almost all of it is free or nearly so. And government provides substantial subsidies for students, both in the form of living allowances and grants to cover costs of education that are not otherwise covered. As we will show in more detail below, government has made sure that there is considerable overcapacity in the education and training system, so that it will be easy for young people who have started one route through the education and training system to change their mind and start again. Or to add another diploma, degree or certificate to the ones they already have. The result is that the average age at which a young person leaves full time education to begin a career in earnest is close to 30, the most advanced age in the OECD nations. And they do not stop there. The Danes practically invented lifelong education when N.F.S. Gruntvig, the great Danish nineteenth century educational theorist, advocated the Folk High School -- what he called a "school for life," a school that adults could use to develop every aspect of their social, cultural and cognitive skills. This tradition continues, both in the form of the

traditional folk high schools and more conventional adult education, which is designed in such a way that anyone, anywhere, who wants to complete an interrupted education or go on to further education can do so, during the day or at night, full time or part time, at no cost or little cost to themselves.

Danish education policy embraces two overarching goals, to (1) to raise the proportion of Danish who receive either an educational qualification to go on to tertiary education or a vocational qualification from 79 percent to 95 percent, and (2) to raise the proportion of those who complete tertiary education from 39 percent to 50 percent.

The Structure of the Danish Education and Training System

In this section, we sketch in the main elements of the formal institutional structure of the system. It is far from a complete description, but our purpose is only to help the reader who is not familiar with Danish education. Training and labor market institutions gain a basic understanding.

Pre-school Education Before the age of compulsory education, several options are available to young Danes: day nurseries for children between the ages of 0 and 3, Kindergartens for children between ages of 3 and 7, and a one year pre-school class for children between 5 and 7. Children can also be taken care of by registered childminders.

Primary and Lower Secondary Education: The Folkeskole Compulsory education in Denmark begins at the age of 7. It takes place in the Folkeskole and lasts nine years. Students can choose to stay in the Folkeskole for an optional tenth year and a large number of students are deciding to do just that.

Most students attend the same Folkeskole for the whole nine years, staying with the same class they entered with for all or much of that time. Each class has its own "class teacher," who stays with the class for at least six years and often longer. If the period is less than nine years, another class teacher takes over and stays with the class until the end of compulsory education. Classes are mixed ability through the whole Folkeskole experience. It is against the law for the compulsory schools to screen their students for admission or to separate them for instructional purposes based on their ability. Older students are expected to help younger ones.

The curriculum in the Folkeskole is fixed by regulations issued by the Ministry of Education. But this guidance is now much lighter than it used to be. Only a few pages are used to describe the curriculum for several years in a particular subject.

The following subjects are compulsory in the Folkeskole: Danish, English, Christian studies, social studies, history, physical education and sport, music, art, textile design, wood/metalwork, home economics, mathematics, science, geography, biology, and physics/chemistry. In addition, all schools must offer German and may offer French. The Ministry's curriculum regulations specify that, in mathematics, all students must study arithmetic, fractions, algebra, geometry, statistics, probability and differentiation. The curriculum, according to those regulations, must provide not only for the study of the required subjects, but also for student projects, designed to make sure that the

students can apply what they know from several disciplines in a coherent way to real-life problems.

Apart from the national curriculum framework, the primary means of regulating the Folkeskole are the national examinations, constructed every year by the Ministry. At the end of the ninth year, the students leaving the Folkeskole may sit for written and oral examinations in Danish, mathematics, English, German (or French) and physics/chemistry (this is the LE). At the end of the 10th year, they may sit for the Advanced Leaving Examination (ALE) in the same topics or take the LE for a second time, to improve their scores from the previous year. Students are not required to take any examinations, but virtually all do so, because, as one student explained to us, "The employers and later schools all require them, and so you must take them if you expect to amount to anything."

When the student leaves the Folkeskole, he or she is given a school leaving certificate that contains information about the educational activities the student has participated in, the grades received on the leaving exams that were taken and the most recent proficiency marks given in all courses, including those in which the exams were taken.

Every Folkeskole has at least one guidance counselor, who is also a regular classroom teacher. That person's job is to provide counseling assistance to the students who need it as well as help the other classroom teachers develop the specialized skill and knowledge needed to advise their students. One week in the 8th year and another in the 9th are set aside for students to visit workplaces and upper-secondary and vocational institutions in order to decide what education that wish to pursue following the 9th year. Each municipality is free to organize the use of this time in any way they wish. The school is also free to use other time in the school year for this purpose, and to invite representatives of employers and educational institutions to the school to talk with the students.

There has been a virtual explosion of interest in attending the optional 10th year among Danish students recently. Little used in its early years, when it was for boarding school students, it is now the "in thing" among the students. Some attend to approve their scores, some to take more time to decide what to do next, some because they are aiming at a semi-professional education, which has the ALE exam as an entrance requirement, some because they want to participate in a short form of the general upper secondary school (HF) after leaving the Folkeskole, and an unknown number because they want to stay with their friends, are not in a hurry to go on, and expect to enjoy themselves in their 10th year.

The public Folkeskoles are run by the municipalities. The Ministry of Education's role is to set the curriculum framework and the exams. The rest is up to the municipality. About 15 percent of the compulsory schools are privately run, with a large subsidy from the government.

Youth Education: An Introduction Following the Folkeskole, 95 percent of young Danes go on to what the Danes call "Youth Education." This is in turn broken down into Upper Secondary Education and Vocational Education. Upper Secondary Education in turn consists of General Upper Secondary Education (provided in the

regular gymnasium), the programs leading to the Higher Preparatory Examinations (the HF, also provided in the regular gymnasium), the programs leading to the Higher Commercial Examinations (provided in the commercial gymnasium) and the programs leading to the Higher Technical (provided in the technical gymnasium). Vocational Education consists of a dual system of coursework taken in a commercial college or technical college, and apprentice work in a workplace, leading to a journeyman's examination and certificate in one of more than 80 trades and occupations.

Students wishing to prepare for the Upper Secondary School Leaving Examination and those preparing for the Higher Preparatory Examination go to the regular gymnasium. Those wishing to prepare for the Higher Commercial Examinations and the journeyman's exams in the commercial fields attend the commercial gymnasiums. Those wishing to prepare for the Higher Technical Examinations or the journeyman's exams in a technical trade or occupation go to the technical colleges.

To further complicate the picture, the exams for the Upper Secondary School Leaving Examination, the HF, the Higher Commercial Examination and the Higher Technical Examination. While written by different people and intended for somewhat different purposes, are all regarded as set to the same standard by Denmark's universities and all therefore constitute valid pathways to university admission.

About 60 percent of the students leaving Folkeskole and entering youth education today choose the general gymnasium or one of the commercial or technical gymnasium programs. The rest enter the dual system vocational program.

Youth Education: The Gymnasium The Gymnasium has its origins in the cathedral and monastery schools established in the early Middle Ages. In 1809, these church schools were transformed into "Civil Servants Schools" by legislation. In 1871, Denmark's developing technological needs led to the division of the gymnasium program into two lines, the languages line and the mathematics and science line. This division defines the basic nature of the gymnasium program to this day. The languages taught by the modern gymnasium are English, German and French, in addition, of course, to Danish. About 60 percent of gymnasium students elect to take the mathematics and science line.

The required courses in the mathematics line include religious education, classical civilization, Danish, English, another language (German, French, Spanish or Russian), history, geography, biology, physics, chemistry, mathematics, music, figurative art, and physical education. Less than 20 percent of the entire curriculum is set aside for elective courses. Students choosing the languages line must take all of the same subjects, but take more language courses and fewer mathematics and science courses. Students may elect to take many courses at either the advanced or the regular level.

The basic legislation establishing the modern gymnasium makes it clear that the primary mission of the institution is to prepare students for the tertiary education system. However, as in many other nations, as an ever greater fraction of the youth cohort goes to the gymnasium, a larger and large fraction of those who get in do not go on to university studies, at least not right away. Today, growing numbers of

gymnasium students leave to go on to some form of vocational education at the upper secondary level or to enter the labor market.

Not all who wish to go to the gymnasium from Folkeskole can do so. Admission depends on the scores one makes on one's school leaving examinations and the recommendations of the faculty of the Folkeskole. The decision is made by the gymnasium. The program takes three years to complete and ends with another set of examinations (the studentereksamen), which serve both as leaving examinations and tertiary level entrance examinations. The students must take at least ten separate examinations in order to pass the studenteksamen. A small number of gymnasium students take a two-year program leading to the HF exam instead. This exam also qualifies the student to go on to tertiary studies, but does not appear to be held in the same regard as the studentereksamen.

The gymnasiums are run by the counties, but the ministry appears to have rather more direct control of the gymnasiums than of the Folkeskole.

Youth Education: The Business Colleges and Technical Colleges The technical and business colleges may operate many programs, but the most important and largest are the sandwich programs and the technical and vocational gymnasiums. The sandwich programs are the traditional vocational programs of Denmark, design to prepare young people for a particular trade or occupation using a combination of classwork and apprenticeship at a work place. The technical and vocational gymnasiums are aimed at preparing their students for exams (the HHX for the commercial gymnasium students and the HTX for the technical gymnasium students) that will qualify them to go on to tertiary education. What mainly distinguishes the technical and commercial gymnasiums from the regular gymnasium is a more technical orientation, a more applied curriculum, a more product-based pedagogy and access to the workshops of the technical or commercial college in which they are based.

The technical and business colleges have their origins in the medieval guilds, which developed apprentice systems in order to assure themselves of an adequate supply of skilled labor for the crafts and trades. The basic principle involved was that the experienced craftspeople should assume responsibility for the training of their successors, and that the primary form of that training should be to practice the craft under the supervision of experienced craftspeople. The guilds laid down the training time for the apprentices, their pay and conditions of work and the disciplines they were to be taught. The guilds also set and held the examinations for the journeyman's certificate. The guild system eventually fell apart, but all the functions just described continue to this day, organized by the social partners (representatives of management and labor) under the auspices of the Ministry of Education, and centered on the commercial and technical colleges.

The primary purpose of the technical and commercial colleges is to prepare their students for the journeyman's examinations in their chosen trades and occupations, and therefore for rewarding employment and further education, and to provide employers and labor with a continuous supply of well-trained workers.

Admission to the sandwich programs of the business and technical colleges is open to all who have attended the Folkeskol, whether or not they have passed the leaving examinations. There are more than 80 different trades and occupations for which one can train. These training programs can last as long as four and one half years. Each of them culminates in a written and oral examination, conducted by the teacher, a representative of labor and an employer representative. These examinations can last for days. They typically call upon the student to demonstrate a command of the underlying theory and to produce an appropriate product to set -- and high -- quality standard. The culinary students cooks the specified dishes and the metal worker a finely machined part. Students can and do fail these examinations. They get up to three chances to pass. If they then fail, they cannot try again, the employer with whom they have apprenticed is fined and their right to host an apprentice program is reviewed.

The first year of the dual program takes place entirely at the college. It is a time for career exploration and catching up on schoolwork that is needed before the worksite part of the program can begin. After that, the program alternates between some weeks at school and some weeks at the employer site, until the program is complete. The classwork part of the program is intended to do more than simply support the worksite training. The college is obligated to provide a academic program that constitutes the basis of a well rounded education, supports the role of the student as a citizen and family member, and enables the student to enjoy all that life has to offer. It is also the case that the technical training is intended not just to prepare the student for his or her first job, but to prepare that student for many of the tasks and responsibilities that will come later.

The technical gymnasium and business gymnasium are considered by the ministry to be part of the general upper secondary program and not part of the vocational system. So, from an institutional point of view, the rules governing the operation of these specialized gymnasiums have more in common with the rules governing the regular gymnasium than the vocational program. As is the case with the regular gymnasium, admission is based on scores on the school leaving examinations and the recommendations of the Folkeskole staff, the program is three years long, the students must take a demanding academic program and there is no workplace-based component. But there are great differences. The program has a much more applied flavor, and the pedagogy is much more project-based. Students typically spend a lot of their time making things and solving problems related to the disciplines of the commercial colleges. Many if not most of these projects are student initiated. The problems posed by these projects might lead them into academic work not often done by the regular gymnasium students until they get to university. When the students in these specialized gymnasiums finish their program, they take examinations that are different from the ones given to the regular gymnasium students, but regarded by the universities as set to a comparable standard, and therefore acceptable as the basis for admission to the universities.

Though the technical and business gymnasium programs were designed as routes into the tertiary system of education, a growing number of students are taking a vocational qualification after they complete the technical or business gymnasium. Many of these then go on to tertiary education with the knowledge that they have had an education that is academically sound and which also provides them with a strong vocational

qualification. These students are very appealing to employers, and, increasingly, to universities and other providers of tertiary education.

It is technically possible for students admitted from the traditional sandwich vocational system to transfer to the technical or business gymnasium, but few do so. This is mainly because their academic qualifications are not as strong when they enter the college and the gap between their academic qualifications and those of the gymnasium students widens swiftly as the years go by.

The technical and business colleges are also part of the tertiary education system, offering so-called "short cycle" programs of one to three years duration. The programs offered by the technical colleges include construction, production planning, methodological development, quality control, and productions and systems planning, among others. The programs offered by the business colleges include a two-year program in sales and marketing, a two-year program for computer specialists and various special purpose programs in such areas as tourism, international marketing, retailing, logistics, advertising and communication.

Tertiary Education Higher education in Denmark is divided into three levels: (1) short cycle higher education at the non-university level (just described), medium-cycle education at the non-university level (three or four years), medium cycle education at the university level (3 year BA and Bsc programs), and long cycle education at the university (3 year bachelor program plus 2 further years).

The institutions at university level include five universities with multiple faculties, an engineering university, a veterinary and agricultural university, a school of pharmacy, three business schools, and one school of educational studies. The medium cycle institutions include, among others, teacher training institutions, colleges for the training of textile designers, schools of social work, colleges of engineering, a school of journalism, design schools, and so on.

The Danish tertiary education system seems not yet to have made up its mind as to whether to adopt the European system of academic qualifications or the American system. In some parts of the system, the Kandidat degree, roughly equivalent to the American master's degree, still prevails. This degree program normally takes five years. In 1992, however, a modification of the American system was introduced, calling for a three-year bachelor's degree, followed by a two-year master's degree. The new structure has been introduced in the social sciences, humanities, law and the natural science. The old structure still prevails in medicine, architecture and a variety of other fields. One of the reasons for introducing the new system was to reduce the time spent in higher education, since the practice in America is to accept the bachelor's degree as the terminal degree for a great many occupations. But the old way evidently absorbed the new, in that most students simply went directly from their bachelor's program into a master's program and employers continued to expect them to do so.

The Adult Education and Job Training System The adult education system in Denmark is within the sphere of the Ministry of Education, whereas the job training system lies within the orbit of the Ministry of Labor.

The Danish adult education school is known as a VUC. The VUCs offer all the examinable courses needed to complete a modern Folkeskole education and to take the Folkeskole school leaving exams at the advanced level. They also offer all the examinable courses needed to take the HF form of the gymnasium school-leaving examinations (these exams, in fact, were originally developed for adult students). The programs at the VUC are designed to offer the student one-course-at-a-time, course after course if need be. In this way, students can start when they like and end when they like, and proceed at their own pace. Most are interested simply in picking up the few courses that they lack for the purposes they have in mind, but others will take all the courses needed to make it possible for them to sit for the exams just mentioned. Every course ends in an exam, written or oral or both. The charges for the courses are nominal.

The pedagogical environment in the VUCs is very different from that in the Folkeskoler or the upper secondary system. A student can take a course as an independent student, using self-study methods, supplemented by a student counselor. They have access to workshops that provide all the equipment necessary for self-study as well as qualified teachers in all subjects. Or they can join a study circle in which the teaching is organized in seminar fashion, with study circles in between seminars.

There is a special -- and new -- program for employed people who have not completed the modern Folkeskole program. The program takes 16 weeks full time or up to two years part time. The Danish government pays full unemployment benefits to the person's employer and the employer pays the person's regular salary to the individual. This program is growing very quickly.

The adult training center, (AMU) has something of the same feeling to it that the VUC has, but its program is very different. There are 24 of these centers in Denmark. Ninety percent of their funding comes from the labor market Authority, with the rest scattered among the regional labor market committees, the municipalities, training committees and enterprises. Whereas general education lies at the core of the VUC, vocational training is the mission of the AMU.

Each center is organized to offer programs designed to help people obtain the qualifications they need for the field they have chosen to train in. The curriculum is organized quite differently from that followed by the technical and business colleges. Here, the curriculum for a line of work is organized into modules, each of which can be completed in days or weeks. A qualification is earned by completing the necessary modules and then taking the appropriate examination.

In those cases in which the AMU and the technical and business colleges offer programs leading to the same qualification, the program at the AMU is typically of much shorter duration. This because the AMU is not an educational institution, and, unlike the college, has no obligation to provide general education for the student. It is straight-ahead skill training directed solely at enabling the student to pass the examination and get the qualification. It is also because the student comes with years of relevant experience and the form of the instruction is designed to capitalize on that experience.

Not all students come to the AMU for a qualification. Most come to take one or a few modules of instruction, to qualify for a particular job at their workplace or in the hopes of broadening their skills for some future purpose.

In many cases, the training is provided to people who are employed. The government will pay one hundred percent of an individual's unemployment allowance to the employing firm if the firm will continue to pay the salary or wage of that employee while in training. If the cost of the salary or wage exceeds the amount of the unemployment insurance, the employer will usually pay the difference for the employee.

The Local Labor Market Center The Danish Labor Market Authority operates walk-in establishments to make sure that the unemployed get into training or into a job as quickly and efficiently as possible. It is up to the local authorities, working under the aegis of the Danish Ministry of Social Affairs, to administer the so-called "activation" system. What that means is that various people receiving various forms of social benefits, unemployment insurance for example, must accept the government's offer of an appropriate job or appropriate education or training. If they do not, their benefits are terminated. A person is activated at the point when the government asks them to report for a counseling session that will result in the offer of education, training or a job. The local authorities are in many cases responsible for finding such people. The local labor market center is typically the place that provides the counseling and the referrals. It also has the authority to actually enroll the individual and authorize the release of funds to the provider of the education and training services. It is the switching center, or one of the major switching centers, for the whole labor market system.

With respect to many benefit programs, the government is shortening the time, sometimes drastically, that an individual can remain on benefits without being activated. Thus the pressure on the labor market centers is increasing as time goes on.

A Model Vocational Education System

The Danes appear to have evolved and structure for vocational and technical education that has much to recommend. In part, this is a story about a particular way to involve the social partners, in part about the way their qualifications system works and in part a story about institutional design.

Remember, the Danish training system for educating and training skilled workers evolved not from the education side of their system but from the artisans guilds. That was a system owned not by government or educators, but rather by independent business people who were also skilled workers. In effect, the secret of success of the Danish system rests on the fact that, despite all the changes that have taken place since the middle ages, the system for training skilled workers is still in the hands of the business people and the skilled workers.

It begins with the setting of standards for some 80 occupations and groups of occupations. Training regulations are developed for each of the 80 occupations or groups of occupations by a committee composed equally of representatives of

management and labor, under the general supervision of the Ministry of Education. These regulations are fairly brief, but they describe what the people who do this sort of work must know and be able to do, how long the preparation period must be, the program of study that must be offered to prepare such a person, and the things that the examiner must examine and the criteria the examiners must use when determining whether the person who has completed the program of study meets the standard required to be called a journeyman.

The local training committee for the program, made up of the relevant representatives of management and labor, takes responsibility for reviewing the applications of firms to offer apprenticeship training, to see whether that firm is capable of offering a program to the student that will enable the student to reach all of the standards in the training regulation. They will either deny the authority to the firm to offer a program if they find deficiencies, or require the employer to make arrangements with another employer to offer those parts of the required program that they cannot themselves offer.

When the student has completed the program, he or she is examined by a team typically consisting of the teacher, one representative of management, and one representative of labor. All of the reviewers are expected to be experts in their field and to use the regulations as the basis of their assessments of the candidate's competence.

Local training boards and their representatives on the occupational program committees are given quite a lot of latitude in interpreting the national skill standards, as described in the regulations. Nevertheless, it not infrequently happens that a local committee will find that the regulations have not kept up with changes in the state of the art. Because competitiveness increasingly depends on operating right on the cutting edge of such changes, Danish law provides that the local committee can go the rector of the local college with a request for exemption from the training regulations or a request that the national boards change the regulations. The rector must forward such requests to the government and the government must act on them promptly.

This design has some notable features. First, and most important, because the social partners develop the standards, govern the institutions offering the programs as well as the programs themselves, determine what firms are allowed to offer training places and, finally, determine who is allowed to become a journeyman, they feel that they own the whole program. Which they do. And because they do, they continue to offer more than enough training places, when other nations are struggling to do so. They use the skill standards because they wrote them. They hire the products of the system -- the new journeymen and women -- because they have examined them themselves against the standards they wrote and they have found that for themselves that these young people met those standards. Because they are not advisors to the colleges but actually have direct responsibility for governing them and their programs, senior people put in the time needed to make sure that the programs are relevant and meet their needs, and owners of enterprises actually endow many of them with resources way beyond what the government provides. In this way, they are able to get the expensive, up to date equipment that they need and to attract the staff that keeps them on the cutting edge.

What it comes down to is that employers and labor are not window dressing advisors to this system. They run it in all of its important aspects, and, because they do, they are heavily invested in its success. Any country that is looking for ways to get enterprises more effectively involved in vocational education would do well to consider some variant of the Danish system.

The Danes' occupational qualifications systems efficiently sends the right signals to all the relevant actors as to what skills and knowledge are demanded by the labor market and whether an individual actually possesses those skills and that knowledge. And, rather than waiting for years to review qualifications that have appeared as training orders from the ministry, the Danes have encouraged the local training committees to go the rector of the business or technical college when they believe that the pertinent regulation is unduly constraining, because it does not take account of some advance in the state of the art. In this way, the Danes keep authorizing experiments and changing there regulations continuously, in response to changing conditions in the field, rather than freezing their standards in concrete for years at a time.

Their system is very sensitive to advancing technology and work organization, flexible in its administration, and successful in engaging the resources and attention of all kinds of enterprises and results in a highly trained and very competitive group of skilled workers. If there is a downside to this system, it is its complexity and the amount of effort that goes in to its maintenance.

Tackling the Problem of "Parity of Esteem"

In virtually all industrial nations, an academic education leading to a university degree carries more prestige than any form of vocational education that does not carry a university degree. As more and more people in the society get the equivalent of the American baccalaureate, the prestige of the vocational option declines ever further and the children of the new and expanding middle class shun any form of vocational education. This process inevitably produces a surplus of people with bachelor's degrees or their equivalent, and a corresponding shortage of people with the qualifications needed to fill a very wide range of skilled and semiskilled jobs requiring various degrees of technical skill and knowledge. Governments almost everywhere are increasingly concerned about this. They wonder how they can somehow produce parity of esteem for those who hold vocational qualifications, that is, how they can get the society to hold those graduates in the same esteem as they hold those with academic qualifications.

The Danes have created the HTX and HHX programs, each leading to an examination which is accepted by the universities in Denmark and the other tertiary institutions as being the full equivalent of the traditional studentereksamen usually earned after three years in the traditional gymnasium. These exams, however, are taken not after study in a traditional gymnasium, but in the vocational colleges. All the usual subjects are taught in these programs, as have explained, but with a pedagogy that is highly applied, project-based and experiential, using the workshops in the vocational college.

Looked at one way, the technical and business gymnasiums are part of the upper secondary system of preparation for tertiary education. Looked at from another

vantage point, they are an integral part of the vocational education system. This ambiguity obviously has its uses. The Danes have provided an education that has many features of the best vocational education, in a vocational institution, but set to an examination used to determine admission to the universities and other tertiary institutions, and regarded by those institutions as every bit the equivalent in academic rigor.