

## **European Lifelong Learning Policy – Case study Sweden**

# **Validation of Construction workers**

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**LL**-RADAR

**Regional Arrangements for Dissemination and Application of Lifelong Learning Strategies**

**Project funded by the European Commission under the frame of LLP Key Activity 1 "Studies and Comparative Research"**

# National lifelong learning strategies

## Case study: Validation in Sweden

### LLL Radar

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## LLL radar Case Study Sweden: Validation of construction workers

### 1 Introduction

#### 1.1 Background

In Sweden there is a great presence of foreign construction companies and construction workers with foreign professional background. The need to validate professional competence has been called upon from both a labour market perspective and from a union/payment perspective.

The construction industry in Sweden has the organization and procedures for the practical validation of professional construction workers in most construction trades. The Swedish Construction Industry Training Board (BYN) is an organization set up by the construction industry partners responsible for overall training and validation issues in the construction industry.

#### 1.2 Purpose

The purpose of this case study is to describe how the validation of professional skills in construction works and discuss important criteria, results and experiences. The report describes the validation of professional qualifications of workers in practice and relates and discusses the validation process from a public education system's perspective, and from labour market and mobility perspective.

#### 1.3 Implementation

The study is based on industry data and interviews with coordinating stakeholders and personnel that carry out validations and will discuss:

- benefits of validation,
- value for various stakeholders,
- possibility of development for the validation model for skilled workers in the Swedish construction industry.

### 2 The Swedish construction industry

#### 2.1 Business and employees

Major stakeholders in the Swedish construction sector are

- construction industry, i.e. construction companies for buildings and civil engineering,
- real estate / management,
- architects,
- technical consultants and
- building materials manufacturers.

The construction sector in Sweden employs around 500 000 people, representing about 10 percent of total employment in Sweden [1a]. The construction industry alone employed over 300 000 people in 2008 and construction investments represented 8 percent of total GDP. [1a]

According to statistics of 2008, the construction sector comprises of 8% of businesses throughout the Swedish economy. Out of these firms were small businesses with up to 4 employees' comprises 88%, which is 16% of the employees in the construction sector. [1a, h]

Many foreign companies are operating on the Swedish construction market. In 2008, 40 foreign construction companies held a membership in the employer organization Swedish Construction Federation; this represents 1.3 percent of the member companies. [1a]

The construction industry has a high proportion of self-employed in 2008 and the distribution of employees was as follows [1a]:

- Self-employed 20%
- White-collar workers 18%
- Skilled workers 62%

The temporarily foreign skilled workers in Sweden comes both from within the EU and from non-EU countries. There is no statistics available on how many construction workers from other countries that is active in Sweden. Many of them work temporarily in larger project. Some are working through manning agencies or with foreign companies that are not connected to the Swedish Construction Federation.

In 2007, the share of women was less than 16% of the employed in the entire construction sector. In the construction industry there was approximately 8% women, but among construction workers / craftsmen only 0.7% was women. [1h]

There are a relatively large number of employees working in the construction industry that will retire over the next few years. This applies both to the construction industry and construction sector as a whole. The proportion is highest in services sector where 3-4% of employed persons reach their retirement age every year [1c, d, e]. The need for among others supervisors, site managers, engineers and technicians is therefore estimated to increase over the next 5-10 years [1h].

Table 1. Occupations and job positions in the construction sector and industry [1c, d]

<b>Job/occupation</b>	<b>Construction sector (%)</b>	<b>Construction industry (%)</b>
CEO and management	6.1	5.3
Work that requires specialist skills, at engineering master level	8.6	2.2
Work that requires shorter university education, such as engineers and technicians at bachelor level	13.8	9.1
Office, sales, service	8.8	7.4
Craftwork and manufacturing	38.3	54.2
Plant, machine operator, transportation	11.1	7.5
Work by unskilled workers	3.1	2.4
Occupation unknown	10.1	12.0
<b>Sum</b>	<b>100%</b>	<b>100%</b>

## 2.2 Organization and construction forms

The construction companies in Sweden have previously mainly been on its own staff. In recent years the trend has however been to procure sub-contractors for various construction elements and responsibilities in the projects. Both main contractors and subcontractors also hire more and more workers employed by manning agencies. A large proportion of the skilled workers on the Swedish construction sites today are non-Swedish citizens. One problem in the industry has been how to verify competence in order to align with agreements and contractual wages.

According to the Swedish Building Worker's Union [7b], no one really knows what percentage of professional workers in Sweden come from abroad. The share of non-European construction workers looking for work authorization through the Immigration Service has increased considerably in recent years. It is difficult to verify that those who are employed by foreign companies are contractually paid when they work in Sweden. In individual cases, wage levels down to 10% of the current contractual level have occurred.

## 2.3 A construction market in transition

In a report from 2005, the Swedish Construction Federation challenged Sweden's competitiveness in the construction market in the new Europe [1f]. The report describes the structural changes that were to be expected in the construction sector in line with the fact that the Swedish population becomes

increasingly multicultural, and the increased international competition and the anticipated labour shortages in the future.

Some expected impacts of globalization on the construction and the labour market [1f]:

- Pressed pricing and an inhibitory effect on wages over time
- Increased use of foreign workers through manning agencies
- Increased division of contracts – sub-contracts and special contractors
- Increased competition on the market and elimination of weaker contractors and subcontractors
- Difficulties for pupils and apprentices to enter the labour market where there are a higher proportion of short-term businesses and companies with fewer employees than earlier.
- Acceleration of structural change in the construction sector

### 3 Professions and education/training in construction

#### 3.1 Occupations in the construction industry

Over a decade the education level in the construction industry has increased. [1a] In particular, the proportion of people with secondary education has increased. The increase in the number of people with tertiary education has taken place since the possibility of engineering education at upper secondary schools was removed.

Statistical comparisons show that the level of education in the construction industry is generally lower than in many other industries such as manufacturing. [1a] One explanation for this may be, according to the Swedish Construction Federation, that the statistics of the construction industry does not include all the graduates from university and university college who work as consultants in the construction industry but only those who work in construction companies where the majority are skilled worker. In manufacturing, the designer and other specialist functions are often of the same company and thus belong to the industry in the statistics as well.

Much of the development of competence in the construction sector takes place internally in the companies or through industry bodies

Table 2 Examples of occupations in the construction industry in Sweden [6].

Skilled workers - examples of professions	White-collar workers - examples of professions
Road pavement workers	Supervisor
Concrete workers	Structural engineer
Floor layer	Real estate manager
Machine operator	Electrical consultant
Mason	Purchaser
Painter	Installation Coordinator
Tiler	Measurement Engineering
Scaffolder	Site manager
Construction wood worker	Project Manager
Ceiling Fitter	Design Coordinator
Civil engineering workers	HVAC consultant

#### 3.2 Education routes

##### 3.2.1 The Swedish educational routes

The most common route to a career in the construction industry goes through upper secondary school and on through university and university college for those who want to become engineers. A full description of the Swedish educational system is given in Appendix 1. After a secondary education with a focus in any professional craft, those who want to become a skilled worker apprentice search for employment at construction companies. There is also a possibility to work as a so called “traditional apprentice” with no requirements of previous education.

### 3.2.2 Upper secondary school (Gymnasium)

It is particularly the construction programme in upper secondary school that is related to the construction industry professions. Machine operators and the electricity and energy programmes are also areas that are vocational in the construction industry, within electrical engineering, plumbing and refrigeration.

The technical program and other programmes can authorize to engineering education at university and university college.

The vocationally oriented upper secondary school programs lathes theoretical and practical parts. It includes 15 weeks of workplace training. Many of the professional orientations have an apprenticeship of 1-3 years after completion of upper secondary school. In addition to the municipal upper secondary school programs there are a number of training providers approved by *The Swedish Construction Industry Training Board (BYN)*.

#### Construction program - specialisations:

**Civil engineering** - Focusing on construction of roads, railways, bridges, water pipes and sewers, and constructing parks and squares. Rock works is also included.

**Construction** - Specialising in wood, concrete, masonry, glazing or floor laying.

**Painting** - Specialising in painting (both indoors and outdoors), glazing and flooring.

**Sheet metal plating** - Specialising in sheet metal, insulation and ventilation.

#### Technical program

The technical program has no nationally-set specialisations. Each school decides which specialisations to offer. The program prepares for further studies at universities and university colleges. By reading the optional subjects, the pupils can prequalify for engineering education at university level.

A new option is introduced starting autumn 2011 where the students are offered an extra year of vocational education.

### 3.2.3 Higher vocational education (Yrkeshögskola)

Since the courses offered at higher vocational education (YH) is determined by demand in the labour market the availability of different courses varies. Advanced Vocational Education (KY) is being phased out by 2013 when it will be replaced by higher vocational education (YH). The difference between these educational systems is that they are governed by different regulations. Educationally they are quite similar.

Table 3 Examples of Higher vocational education - New (YH) and old (KY) system [3]

Examples of Higher vocational education (YH)	Examples of Advanced Vocational Education (KY)
Site manager civil engineering and rock work	Civil engineering diver
Site manager construction	Site manager civil engineering
CAD Designer - Construction	Site manager construction
Computer aided measurement and mapping	Production management construction
Energy Consultant	Elevator Technician
Facilities Engineer	Railway technician - Embankment, electrical, signal
Installation Engineer	Land surveying engineering - Land parceling
Railway consultant	Project managers in construction and installation
Plumbing-designer	HVAC design consultant
HVAC designer	

The National Authority for Higher Vocational Education is responsible to establish Europass supplement to the educations. They issue an “Appendix to Diploma” which is not one of the six components of Europass. The “Appendix to Diploma” is very similar to a Certificate Supplement. Examples of “Appendix to Diploma” issued for occupations in the construction field are:

- Supervisor – civil engineering
- Energy Efficiency Specialist
- Real Estate Technician
- Installation Engineer
- Production Manager Building construction
- Piping Engineer for Water Supply and Sewage Management
- Water Supply and Sewage Management Planner.

### 3.2.4 University and University college (Universitet, Högskola)

Construction and civil engineering at Bachelor or Masters level, Architect and Surveying educations are examples of higher education related to the construction industry.

#### Technical base year (Tekniskt basår)

Technical base year (Tekniskt basår) base is a complementary pre-tertiary education to give students necessary pre-requirements to be admitted to technical education to Bachelor and Master level at technical universities. The training takes one year and the mainly includes math, physics and chemistry and is targeted at those who do not have acquired necessary prior knowledge in Upper secondary school.

#### Bachelor Degree in construction (Högskoleingenjör)

A Bachelor of Science degree from a University or University College last at least three years, i.e. at least 180 credits according to the Bologna model. Different qualification requirements apply to different university colleges and courses. In comparison to the Master degree programme the Bachelor programme is more practically oriented and does not have as much maths and physics.

#### Master Degree in Construction Sciences (Civilingenjör)

Master of Science programmes in Construction Sciences comprises 300 university credits which correspond to 5 years education. The Master educations in construction are given at the major Universities. The focus is directed to construction of various buildings, civil engineering and projects such as roads, railways, bridges, ports. The various universities choose their profile.

#### Architectural education (Arkitekt)

Architects are educated at four universities in Sweden. The education takes 5 years, corresponding to 300 university credits. Admission to the education is via scores from upper secondary school, through a “national test”, or via a special architectural test, with a third of the seats each.

#### Surveying Education (Lantmätare)

Surveying education is available at 5 universities with varying content and length (up to 5.5 years) and eligibility requirements depending on campus. Surveying training leads to Bachelor or Master degrees.

### 3.3 A skilled workers route to professional qualifications

A construction worker is considered fully trained when his/her vocational certificate *Proof of Education* (Yrkesbevis) is issued. The proof of education is obtained after completing training, including apprenticeship. The construction worker is also fully paid according to trade union agreement.

There are three formal pathways for construction workers in Sweden:

- Gymnasium apprenticeship - Upper secondary school construction program (three years) + 5,500 hours apprenticeship.
- Traditional apprenticeship - Compulsory school and distance learning + 6,000 hours apprenticeship for younger and 4,500 hours for older apprentices.

All routes include, or end with an apprenticeship period in the chosen profession. Apprentice work hours and education from other countries can be validated and included in the work.

BYN educates and guides those who supervise an apprentice on site. The apprentice receives an “apprentice log” used in planning the various stage of training to be carried out and results of these

efforts. The supervisor prepares a training plan in cooperation with the apprentice. The apprentice receives salary according to a scale related to the number of hours completed.

### **Vocational test (YTP= YrkesTeoretiskt Prov)**

After completing an apprenticeship, a vocational theoretical test (YTP) is required. When this is approved the apprentice receives his/her Proof of education and is fully paid as a skilled worker. Until the end of 2010/11 there is exempt from the vocational theoretical test (YTP) and the apprentices who have completed their apprentice log can currently get their Proof of education without doing the test. One reason for this is that the design of the test has been criticized and many have failed the test, even those considered to be skilled workers!

To pass the YTP at least 50% correct answers is required within each area of knowledge. Those failing the test had two opportunities to try again. Approximately 40% passed the test at the first time and a total of 88% within three attempts. Those who failed the YTP had no Proof of education and classified as semi-skilled workers. After a further 10,000 hours of service they could do the YTP-test again.

## **3.4 From Skilled worker to the white-collar workers**

A skilled worker who for instance wants to work as a supervisor in the construction industry may choose to do so by further education within the framework of higher vocational education. Employers are free to provide training for their skilled workers that wish to become supervisors and site managers in due course. Unemployed skilled workers can get help with validation and/or further education through the employment office.

### **Example [9]:**

Within NCC, there are two possibilities for construction workers to become supervisors:

- NCC's own supervisor school (two years' paid training). The training is interspersed with practical work / employment as an assistant supervisor.
- Higher vocational education, part-time. Work as an assistant supervisor, do evening studies, and school about 1 day a week - with pay.

The company's experience of allowing skilled workers move on to work as supervisors is good. They most often stay longer in his position than those with higher education (Bachelor degree) are doing.

Which one of those who later work as site managers, depends on personal qualities such as leadership skills and self confidence.

A skilled worker who would like to study engineering must look to the universities or university colleges. A basic competence is and specific knowledge of science in mathematics, physics and chemistry is required. Skills that are not documented can be examined for example in adult education that provides the courses needed to obtain the required prequalification.

## **4 The validation process of Construction Workers**

### **4.1 Validation in construction**

The purpose of validation is to aid those without Proof of education, diplomas or professional degrees to be able to have their skills acknowledged and documented in accordance with the requirements of the industry set for different occupations and salary levels. For individuals, a validation represents for example, to be able to get a job in the construction industry and to be acknowledged at a salary level equivalent to their competence.

The work of the construction industry with validation focuses firstly on acknowledging of documented training and experience - and, secondly, through practical and theoretical tests. Several of those validated in Sweden have a foreign background. Some are content with a superficial assessment of competence as it is often sufficient to obtain a job.

Frequently mentioned reasons why a construction worker wants to validate their skills are:

- To qualify for a job in the Swedish construction market
- Getting a Swedish Proof of education
- Getting the "right" salary

A validation may involve:

- comparing, for example, a documented foreign education and other documents concerning professional experience and evaluate it in comparison to the Swedish conditions and educational levels,
- testing people without education but with a long background in construction or with an older training and documenting relevant qualifications,
- ensuring that skilled workers who work temporarily in Sweden have expertise in the safety criteria that apply to work at a Swedish site.

Validations can lead to different results such as:

- **A Swedish Proof of education** - for construction workers with years of experience in the Swedish construction industry. To get a Swedish Proof of education it is required to pass the Swedish vocational test (YTP). The test is in Swedish.
- **Letter of acknowledgement** - the applicants' training records and/or documented work in construction - such as for foreign construction workers.
- **Validation Certificate** - for everyone who has done a validation and need to provide further documentation or training, but at the time, is not employed when the validation is done.
- **Apprentice log for additional training** - for those who have an employer and work in Sweden and if the validation shows that there are gaps in the skills that can be compensated for in the continued apprenticeship period.
- **Temporary apprentice log** - for skilled workers from other countries with temporary employment in a Swedish construction project. The temporary apprentice log is valid for 6 months or until the validation has been completed.

The usefulness of validation of professional qualifications of a worker may, from the employer's perspective, be to map the competencies of the company. Many employers consider that they already know their employees' qualifications and potential [1]. To give an employee leave of absence to do the validation is both a practical question and a question of cost for both the employee and employer, which must be weighed against the benefits.

There were no statistics available or estimates on how many construction workers that have been validated in Sweden. According to the Validation Centre in Malmö [13], it is more often young people who choose to complete the entire validation process and to supplement with training to acquire a Swedish professional certificate. The elderly are more inclined to settle for getting a job.

Not all those who have jobs but lack the professional certificate have an interest in validating their expertise. An example of this was when the company NCC offered workers without professional certificates to validate their skills. Some accepted the offer but not all; they already received full payment and had worked for many years in business [9].

## 4.2 Involved parties

The overall responsibility for validation issues lies at the Swedish National Agency for Higher Education. BYN is responsible for the validation of the construction workers. It is often municipalities and employment centres that order validation, but also individuals can order a validation of their professional qualifications.

### **The Swedish National Agency for Higher Vocational Education (Myndigheten för yrkeshögskolan)**

The Swedish National Agency for Higher Vocational Education is a relatively new agency that is responsible for matters relating to vocational education, further education and apprenticeships for adults to certain skilled trades. They are also responsible for coordinating and supporting a national structure

for validation, and to be the national focal point for the European Qualifications Framework for lifelong learning, the EQF.

### **The Swedish Construction Industry Training Board (BYN = Byggnadsindustrins YrkesNämnd)**

The Swedish Construction Industry Training Board (BYN) is a joint organization made up of employers' organizations, the Swedish Construction Federation, the Swedish Earth Moving Contractors and the trade unions: Swedish Building Workers' Union and the Union for Service and Communications Trades (SEKO). BYN owns the task of ensuring that there are skilled professional workers in the Swedish construction industry. BYN's overall responsibility is to work with the schools that have construction programmes and enterprises in construction work for the Swedish upper secondary education and apprenticeship, which takes place in construction and to see that the requirements for this industry are met.

BYN is centrally coordinating and controlling the validation process, approves the validators, and develops an assessment portal for recognition of foreign training and documented work experience. BYN is regionally co-operating with local validators and employers and, for example in the task of issuing apprentice log, proof of education and providing knowledge-tests and distance learning.

BYN has developed the validation model that the validators shall use in their work. Today BYN work to gain better control over the various validation providers. This applies to provide quality assurance to the process and ensure that all work in a uniform manner so that the assessments are impartial and at the same level in the whole country.

### **Approved validators**

Approved validators for construction trades can be searched via <http://www.valideringsinfo.se>. These are usually the same companies that also have authorized trainers. A validation of a construction worker can cost between 100 and 300 Euro per day - depending on who is doing the validation.

Anyone who wants to validate his/her professional skills can contact the employment agency or go through municipality or employer. It is also possible for the one who wants to be validated to bear the cost of validation and go directly to approved validators. Approved validators always do assessment of competence for certificate or diploma.

### **The Employment Service**

The Employment Service has national guidelines for validation and validates, if necessary, the people who are unemployed and living in Sweden. Some of these are of foreign origin, some of which may have been employed in Sweden and later then unemployed. According to the procedures of the employment service, a validation should be done when the unemployed has an ambiguous profile, has experience that is difficult to evaluate or have extensive experience in an occupation but have no documentation, no documentation from the relevant education or have a foreign education that is difficult to evaluate on the Swedish labour market.

The general mapping of skills, i.e. self-estimation, is performed by the employment service. If a job-searcher is considered suitable for any work in the construction industry a competency assessment is done by an approved training providers who will give notice of the results, such as proposals for specific professional (if this was not clear earlier), what possible skills gaps and suggestions for additional training/courses. Both the validation and any additional training are normally paid for by the employment service.

### **Municipalities**

The possibility to be validated by the municipality varies from place to place. Some municipalities lack the organization and procedures for validation. Municipalities that offer validation do this either via their education department or through the municipal adult education. To make a validation by the municipality you don't need to be unemployed.

Example:

- In Stockholm City, the Educational board have no validation routines, they consider that there is no greater resource savings through validation - as training

plans are not adapted to students with different abilities, those who have competence corresponding to some of the courses must still follow the whole program. The possible timesaving will therefore be difficult to use for the individual. [8]

- The City of Malmö has validated construction workers since 2004 via both the local upper secondary school and through private training providers. Validation procedures have been developed in consultation with BYN and training providers. The conceptual skill mapping is done at a “Validation Centre”, which uses approved validators to perform the assessment of competence. Both validation and additional training is free for local residents. At the Educational board in Malmö it is considered that validation in conjunction with further studies is both time saving and cost effective - for both the municipality and for the individual who do not have to do the courses he or she already have expertise in. This is since the municipality has a partnership with training providers who can offer additional training in direct connection with validation. [13]

### 4.3 The validation model of the Swedish Construction industry

The official validation model for the construction industry is divided into four stages which is based on the validated's background and the purpose of the validation: [6a]:

1. **General mapping of skills** - often a self-assessment. Those who have documented training or experience or are already established in the construction industry will immediately begin with step 2
2. **In-depth skills mapping** - is done with an in-depth skills survey. Tools: Validation Test on safety and technology, in several languages and BYN assessment portal. The result of step 2: is a *letter of acknowledgement* of foreign professional qualifications and/or Swedish professional certificates of competence tests that must be passed in Swedish.
3. **Assessment of competence for Letter of acknowledgement** - is done both practically and theoretically for those who do not have sufficient documentation to prove their skills as of step 2. The result of step 3: *letter of acknowledgement* of documented foreign professional certificates or equivalent as well as the compensatory measures necessary to obtain a Swedish Proof of education. The person who is employed at the time of the validation obtains an apprentice log in this case.
4. **Assessment of competence for certificate** - practical and exploratory tasks. The results and documentation of completing step 4 is a *validation certificate* for those who are unemployed and *letter of acknowledgement* and apprentice log or a Swedish Proof of education (after written test).

#### General mapping skills - Self-Estimation

The general skills mapping of professional workers who lack documentation is often a self-assessment and is generally made at an employment agency or municipality, for example by those responsible for municipal adult education, sometimes by the employer. Self-estimate forms the basis for assessing whether and how the individual should be validated further.

#### In-depth skills survey – Letter of acknowledgement

Recognition of foreign education as described in step 2 of the validation model could lead to a *letter of acknowledgement* - possibly supplemented by terms and conditions. If the documentation is deemed inadequate or cannot be equated with Swedish education the applicant is referred to Step 3, a more extensive validation in the form of practical and theoretical tests.

The assessment of foreign documents is today made by BYN. BYN is also working to establish an assessment portal with basic documentation and tools for validation and recognition of foreign diplomas and other documentation. The assessment Portal is a long-term development. The assessment portal of

the Swedish National Agency for Higher Education for validation of foreign university degrees has served as an example.

Between the construction industry bodies in Sweden and Norway there is an agreement on recognition of each other's national education and professional certificates. The agreement applies to most construction careers. Similar agreements are taking shape with Iceland and Finland. The exchange between Denmark and Sweden works relatively well - without any special rules or formal recognition of professional documents.

As the number of validated foreign construction workers increases their documentation is collected and used as an example of the BYN assessment portal. Today there are a few complete examples posted in the assessment portal. With the exception of the Nordic countries, Poland is the country for which the ability to assess the educational and professional documents is most advanced.

#### Example Step 2:

Machine operators from other countries who work immediately upon arrival in Sweden can have a temporary apprentice log and must be validated within 6 months. They are required to complete a skills test on safety and technology, which is a requirement to work as a machine operator in Sweden. The test is provided by BYN and is available in different languages. Those who fail the test may receive a letter of acknowledgement with conditions and an apprentice log regarding the qualifications, which are lacking in the individual's competence profile. [6a]

Although many German construction companies and construction workers are active in Sweden, BYN has not yet established a standardised procedure for the recognition of German professional skills in construction trades. One reason for this is that Germany is divided into several states with different educational organisation. This is not a hindrance for German construction companies and German workers. It is only the competence assessment for comparison with, for instance, Swedish wage levels that take time since there are no rules established.

#### **Assessment of competence or certificates**

Competence assessment under stage 3 and 4 is a validation through practical and theoretical aspects. BYN's validation model works as guidance for the validator.

Step 3 is for those who have certain documentation and only needs to validate some of the elements.

Step 4 is a more extensive practical and theoretical validation if there is a complete lack of documentation of previous training or experience.

Assessment of competence is to be performed by approved validators.

#### Example Step 3:

Issued letters of acknowledgement with an apprentice log concerns for example, often tiler, such as from Italy, which often have considerable skill in their field but lack the knowledge in the Swedish building codes and standards. They can then obtain an apprentice log where for example the requirements and technology for moisture protection are the elements that must be learned before they can be equated with a Swedish tiler. It is also common that the apprentice log of foreign workers include safety criteria for a construction site. [6a]

## **4.4 Other validation efforts**

### **Validation of white-collar workers**

Much of the learning process of construction takes place after upper secondary school and is largely an informal learning related to professional development. The need for validation on the white-collar workers is not as obvious as it may be for skilled workers in certain situations.

The long-term wage growth and promotions is based on individual performance and prior experience - rather than on past training and diploma. The informal learning is documented in the CV and can be verified through previous employment and other references.

An occasion when validation of informal learning of white-collar workers is done is when someone wants to study further for example to immerse them in an area by studying at university or university college. Assessment of prior learning at university colleges is still in its infancy, schools for higher vocational education have more flexibility in this regard.

#### 4.5 Validation and NQF

One thing that needs to be developed regarding validation is to create a national structure to assure equivalent assessments, and to streamline the process. According to the National Agency for Higher Vocational education, which has overall responsibility for validation, an independent (third) party is needed who can verify and ensure the consistent quality of validations.

In the long run, the results of a validation will be possible to relate to an NQF. A proposal for a NQF is under consideration since June 2010. When the proposal is presented to the government it remains to link public education to the different levels (1-8). The various criteria that must be valued according to NQF are Knowledge, Skill and Competence [6a]

### 5 Description of the validation of a selected field of construction works

*Construction wood workers are the largest single occupational category among construction workers in Sweden. All approved (by BYN) training providers are also authorized to validate construction wood workers. The examples from the validation of construction wood workers are based on interviews with managers at the Validation Centre in Malmö, Employment Agency Section Engineering in Malmö, and with the responsible validators for construction wood workers at Lernia in Kävlinge and at Hermods in Malmö. All the actors have developed validation procedures in consultation with regional BYN.*

#### 5.1 Basis for validation of construction wood workers

Various documents describe what, at various levels of education, is part of construction workers skills, such as:

- The training program of the upper secondary school
- The Europass Certificate supplement
- The construction industry's goal statements for various construction professions skills profiles
- The vocational theoretical test, YTP (not applicable at present)

Europass certificate supplement is available in both Swedish and English to download from the website or the Swedish National Agency for Education (Skolverket). The vocational theoretical test (YTP) is not applied at present but still describes the expected qualifications for construction wood workers who have completed all their training and are qualified for the Swedish professional certificates.

On the website or the National Agency for Education the descriptions of different educational programmes for construction are available. In addition to the skills that are common to several occupations in the construction program the following targets are set for pupils in the area of "Structural timber and concrete", which is two thirds of the total program for construction wood workers:

Pupils should:[4b]

- be able to carry out work on wood and concrete constructions and where needed the erection of scaffolding.
- be able to carry out tasks in accordance with drawings, descriptions and specifications.
- be able to carry out calculations, measurement, and foundations.
- based on drawings and specifications.
- be able to handle and interpret different sources of information concerning construction.
- be able to assess the properties and areas of use of different materials.
- be able to carry out calculations on the use of materials and handle materials as economically as possible.
- be able to choose working methods and use the right tools and machinery for work tasks.
- be able to work with hand signals and understand safety regulations when using building cranes.
- be able to carry out work in accordance with safety and environmental requirements.

The Europass certificate supplement defines construction wood workers qualifications as follows:

<p>The holder of this document has: [4a]</p> <ul style="list-style-type: none"> <li>• a basic knowledge of working with wood based on drawings and regulations when working with new buildings, conversions and extensions</li> <li>• a knowledge of different types of building materials and their importance for architecture, building construction and living environments</li> <li>• a knowledge of measuring and foundations based on drawings and specifications</li> <li>• knowledge of signal systems when using building cranes</li> <li>• a knowledge of how different occupations work together in the building process</li> <li>• knowledge of choosing materials based on use of resources and recycling</li> <li>• the ability to carry out work based on quality, the environment and safety factors</li> <li>• the ability to use Swedish and English in a functional way in the profession</li> <li>• the ability to use information and communications technology in their professional work</li> <li>• the ability to formulate, analyse and solve mathematical problems of importance when working as construction wood worker</li> <li>• the ability to work both independently and together with others</li> <li>• the ability to adopt problem solving approaches</li> </ul>
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**Skill levels after completed training – construction wood workers**

In BYN’s goal statement for construction wood worker’s skills after completed apprenticeship period it describes what construction wood workers shall know and understand. General areas of knowledge for various construction workers are also summarized by the former vocational theoretical tests, e.g. for construction wood workers [6e].

Common knowledge - all the construction professions:	Profession-specific skills – construction wood workers:
Safety and health Building knowledge & Building physics Drawing reading & measurements Mathematics for construction workers	Reinforcement & concrete Formwork Flooring & joinery Insulation Stud wall & cladding

**5.2 Validation of construction wood workers**

The following examples describe the part of the validation process that begins after the general skills mapping and validation of documented previous training or experience. The Municipality, the Employment agency and/or BYN make the initial identification of individuals’ skills. The “client” is the municipality or the employment agency that pays for validation.

**5.2.1 Competence assessment - Example from Lernia**

Lernia validates according to upper secondary education or on the BYN goal statement for construction wood workers, depending on whether the validation is done in educational or employment purpose. The following examples are based on validation against upper secondary school.

**Step 1 - Vocational Assessment**

Lernia first makes a so called *vocational assessment* which consists of self-assessment and practical elements and is made in order to assess whether the validation candidate is qualified to undertake a full validation of their professional practice.

The vocational assessment for construction wood workers takes five days. After the self-assessment that is done according to a template three practical tasks are done – the independent production of:

- a trestle
- a form wall, based on drawings and verbal instructions as a basis.
- a plaster stud wall including a door frame

After the vocational assessment a report with findings is established given both to the client and the validation candidate. The assessment criteria include:

- if at least one third of the tests have been completed it can be judged that the validation candidate can pursue the validation process,
- otherwise, a validation candidate must do all the basic training to get diploma and graduation.

**Step 2 - Validation of certificate or evidence**

The total time for validation of the certificates or evidence for construction wood workers is 5-6 weeks (this is from initiation till finished validation). Validation is done against the training curricula for the construction wood workers in upper secondary school and leading to upper secondary school grades for completed parts, and a final grade when all parts of a course are completed. Otherwise, a validation certificate is issued indicating the courses according to training plan that are missing in the validation candidate’s skills profile.

The validation is carried out through practical tests and theoretical tests in accordance with the upper secondary school curriculum for construction wood workers.

At Lernia they always try to offer continuing education directly related to the validation. This is often desirable also from the client’s side.

**5.2.2 Competence assessment - Example from Hermods**

Validation by Hermods can be done at different levels and for different purposes. Various validations will therefore take time, depending on the background of the validation candidate and what specifically is validated. A general validation of a construction wood worker is based on BYNs entire goal statement for construction wood workers. Hermods also makes an initial vocational assessment to determine a prognosis of the validations candidates’ possibility to progress and manage a complete validation.

A complete validation for construction wood workers covers general knowledge for all skilled workers and specific skills for the profession. The following areas of knowledge are the basis for validation:

Table 4. Areas of knowledge used by Hermods in validation of construction wood workers. (¹Hermods assessment base - common grounds [11b], ²BYN goal Statement for construction wood workers [6d])

<b>Common - construction and related trades<sup>1</sup></b>	<b>Common-construction<sup>1</sup></b>	<b>Construction wood workers<sup>2</sup></b>
Construction documents	Reinforcement	Building engineering and calculations
Construction machinery and tools	Concrete casting	Facades
Building materials and external environment	Construction documents	Interior
Construction process	Building materials and external environment	Interior finishes
Building engineering and calculations	Formwork	Internal walls
Health and safety	Health and safety	Structural framework
	Interior	Roof
	Insulation Work	

For construction wood workers from outside Sweden the validation usually start with the practical skills. If the first step of the validation is passed then the validation can continue with the more theoretical knowledge requirements. Where knowledge gaps are established they can be compensated for by training and education. Some knowledge gaps are also suited to be added in the apprentice log.

Within each column in table 4, there are several different knowledge areas and skills specified. Instead of ratings used a scoring system that describes the degree to which the validation candidate qualifications are equivalent to the definition for construction wood workers.

The following three levels are used to describe each qualification:

- To a high degree
- To some extent
- Not at all

The validation process includes the assessment of entrepreneurship and initiative, teamwork and communication, responsibility, ability and learning. How well the individual meet these criteria is assessed in the same way as the specific vocational qualifications - with the difference that personal characteristics have four levels of assessment in which "To a very high degree" is the highest.

The occupations or skills that for practical reasons cannot be validated at Hermods own training facilities are carried out in cooperation with a construction site.

A problem surrounding validation can be that the validation candidate has a lack in language skills in Swedish. To manage such cases and minimize the need for interpreters, validation has been designed so that it is primarily based on practical elements, which compensatory measures which can be subject to agreement with the validation candidate and the client for the validation.

### 5.3 Result of validation

After validation the results are summarized and if skills are lacking in any area a proposed compensatory measures or additional courses required for the validation candidate to be able to continue their education towards a Swedish professional certificate. After validation the identity of the validated person is sent to BYN regionally. Consultation is always done with BYN regarding the assessment of educational and if a proof of education or a validation certificate with an apprentice logbook is to be issued.

Some of those validated have both long experience and well-developed skills and they can have their Swedish proof of education immediately after validation. Others get an apprentice logbook to use during the apprenticeship that remains before the professional certificate can be issued. If the validation candidate is unemployed, he/she can instead acquire a validation certificate.

### 5.4 Reflections

The purpose of a validation may be different from case to case. Validation can be done in different ways, at different skill levels and with different results. As in the examples mentioned validation can be to validate a course, come at the right level of training and to minimize training time, or to find work as soon as possible, and that labour can efficiently utilize existing qualification.

- A validation of upper secondary school certificate may be useful for individuals, for example as it also gives rights to further studying, but in the short term, it also means that he/she does not formally qualify as apprentice, that is, if not all training modules have been completed.
- A validation against the goal statement for skilled workers generally qualifies to an apprentice service or proof of education, depending on professional background and number of hours in the industry.
- A validation of the curriculum for upper secondary school involves clearly defined skill requirements but also place heavy demands on the process and the person doing the validation. A reliable set of basic data should be available in order to be able to do the assessment. Not all trainers and validators are empowered to award certificates.
- A validation against the goal statement for a skilled worker normally qualifies for a work in the construction industry throughout the country as a validation of secondary education qualify for further studies, such as later in life, and perhaps greater opportunity to verify qualifications, certificate and diplomas in other countries.

## 6 Conclusions and discussion

*Validation is used in many industries in Sweden. In the construction industry there are several approved validators. Procedures for validation have been developed for years in collaboration between approved education providers and BYN (the Swedish construction industry training board). Validation is intended not only for foreign skilled workers, there is sometimes a need to validate even skilled foreign construction workers with regard to safety aspects and specific requirements/quality.*

### 6.1 Factors to consider

There are both national and international factors that indicate the need for validation of professional expertise in the construction sector. The real issue is how to implement a validation in the most efficient way and with the greatest possible "outcome" of each case.

This study concludes that there is an effective but uneven system of validation of construction workers' skills in Sweden. The validation system has flaws and needs to be developed if the validation process shall be more cost-effective, flexible and create the best possible value for both the individual and the labour market.

It may take time for the validation process to be optimized completely while achieving flexibility. With the development of the EQF into a national qualification framework NQF and the comparability and recognition of foreign education it seems likely that the conditions will improve to make a successful validation viable throughout Europe - no matter in what country it is done. However there is a long way to go before this is realised.

### 6.2 The development potential of the Swedish validation model

#### A national structure to be produced

From the side of the National agency for higher vocational training believe that it is important to establish a national structure for validation. BYN is working on its part to ensure quality of the validation process so that performance and results should become more even.

The studied cases show that validation can be performed in different ways, for example depending on whether the validation is for educational or employment purposes. In one case, validation is done at upper secondary school level, in the second on the apprentice level or to proof of education.

Different purposes of validation have different requirements on the implementation and assessment. It is therefore important to distinguish distinctly different validation purposes and levels of validation when developing models to design optimal processes for each purpose.

#### Clarity can be improved

Greater clarity and consistency of information and documentation can streamline the work on validation and simplify implementation. This study has reflected on imprecise information about validation and the prerequisites for this, examples:

- Lack of synchronization between the different formulation of the objectives of professional worker qualifications, for example in the curricula and the Europass certificate supplement.
- It is also difficult to discern what the description of objectives, which distinguishes the different qualifications differ between upper secondary school and completed training (after apprentice period).
- Terms used in description of the validation model, such as certificates, diplomas and grades do not have appropriate and clear definitions, making it difficult to understand what validation actually leads to when comparing e.g. internationally.
- The concepts of vocational theoretical test and skills tests without clear distinction applied in training and validating - both at the same level of education, i.e. in relation to professional qualifications.

### **The value of a validation can be increased**

Another reflection of this study is that validation, often by a single person at a time, can be a relatively resource-intensive process. Many actors are involved in the validation and contribute in determining the final assessment and certification. It may therefore be reason both to evaluate the costs versus the benefits of each case and to streamline the process. One approach would be to create greater value of the validation. Examples of value-adding steps:

- Working for a validation certificate is valid in several countries, e.g. by working with Europass concepts.
- Review the opportunity to grade some validations by established grading system in upper secondary school or higher vocational education or via the ECVET, in such a way as to validate not only applies to entry into the labour market today, but also can facilitate the assessment of actual competence and validate university courses.

These proposed measures would provide validation of greater value for the individual and promote resource saving in the EU and in education.

### **6.3 Validation from an international perspective**

#### **ECVET**

ECVET (European Credit Transfer System for Vocational Education and Training) aims to promote mobility between countries, within education systems among others by taking advantage of the informal learning that occurred within the work. ECVET is an EU-wide performance point system (units) for vocational education. This study has not found any cases in validation of construction workers that are linked to ECVET units.

#### **Mobility**

Mobility is adopted in the current situation largely due to cyclical reasons and the demand for labour. Not if the workforce is competent or not. At the moment, no statistics is available over how many foreign construction workers who are employed in Swedish construction projects. Many come from EU countries but the Building Workers' Union [7b] handle a growing flood of applications for work permits that come through the Immigration Service and regarding non-European construction workers.

In relation to the large number of foreign construction workers who are active in Sweden temporarily or more permanently, and the relatively few validations made, it can be assumed that there are very few of those who have undergone validation. Given that the process for both the recognition of foreign professional qualifications and that practical validation is time consuming and costly, it is not certain that a validation in itself would promote the existing mobility.

Any requirement for validation would in fact very well be inhibiting the mobility perspective - at least in comparison with mobility in the Swedish construction labour market today. One explanation for this assumption is that many of the workers who come to Sweden are paid less than a national construction worker. Costly validations, with any pay raises for the individual as a result, perhaps is not in the employers, such as temporary work agencies, interest. Thus, from a short-term perspective validating might rather be likely to affect mobility adversely.

#### **NQF**

One way to create a higher value around validating and improving the mobility is being able to connect validation to an NQF. Today, work is underway to link the formal training to NQF.

The definition of "competence" in the context of EQF/NQF is often discussed in Sweden. This is since the word is used in many other educational contexts, often in a broader sense. The National authority for higher vocational education has presented its proposal for a Swedish National Qualifications Framework [3a] following the application of interpretation of "Competes" (*translated*):

"Competence means: being able to use knowledge and skills in a work or study situation, where responsibility, independence and measurement capacity is key."

This explanation of the word competence is used in the NQF context and accords both to the Bologna process and the EU's key competences.

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Appendix 1 - The Swedish education system

**An overview of the Swedish education system**

Education organised by municipalities and the Swedish state is free of charge. All forms of studies after compulsory school are voluntary and students are eligible to financial support from the State.

Compulsory school, upper secondary school and adult municipal education are governed by the Swedish National Agency for Education (Skolverket). Generally, a certificate from the previous lower level of education is required to become qualified for next level of higher education. Assessment of real competence occurs at the higher vocational training and to some extent in higher education. The Swedish education system is described in Figure 1.

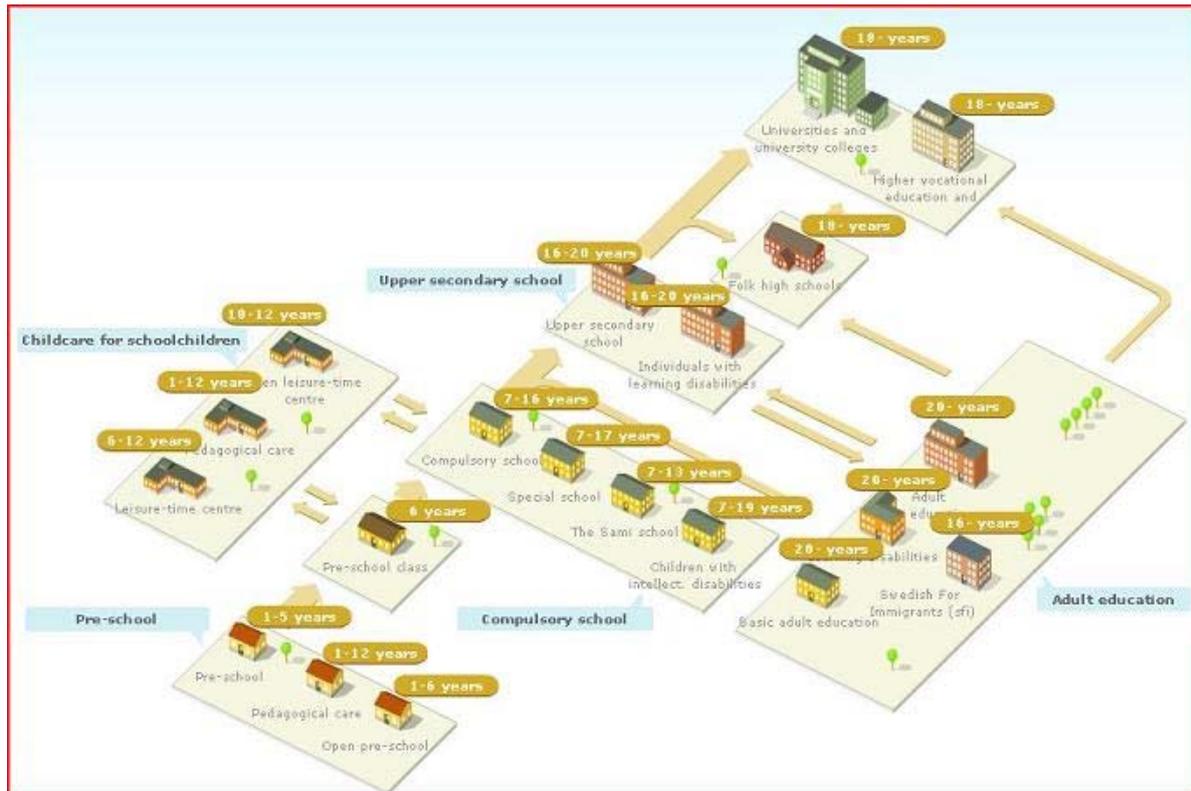


Figure 1. An overview of the Swedish education system. [Skolverket 2010]

**Compulsory school**

Compulsory schools are run by municipal or privately, nine years for all children between 7 and 16 years. The compulsory school is free of charge for the pupils regardless whether they are run by the municipal or privately. The school revenues are based on the number of pupils. A so-called "skolpeng" (translated "school fee") is reserved for each pupil and goes to the school of the pupil.

**Upper secondary school**

The upper secondary school is a voluntary school for adolescents normally between 16 and 20 years. All municipalities are obliged by law to offer Upper secondary schooling after compulsory school. Upper secondary education is available from municipals or is privately run and managed in the same economic conditions as compulsory school. There are a total of 17 national programs, all 3-year programmes that give whatever direction basic admission right to university. Some programmes are also pre-vocational.

**Adult Education**

The State and municipals offers adult education for employment training, staff training and skills development in working life. The municipal adult education (komvux), for adults over 20 years, has the

same curriculum as upper secondary school. Many people read only a few courses to supplement earlier education or professional experience to qualify for higher education.

### **Folk high school**

Folk high school is intended for adults over 18 years, often through social movements, NGOs, foundations or associations. Each folk high school has its own profile. Specifically is the educational environment characterized by experienced based learning, cohesive study groups, conversation-based and interdisciplinary teaching. The Swedish National Council of Adult Education has overall responsibility for oversight and funding. For the general courses folk high schools have no special entry requirements. You can start at different levels depending on previous education background. Among the more specialized courses are sometimes required on previous knowledge or work sample.

### **Higher vocational education**

Higher vocational education is for anyone who has a certificate from upper secondary school. Higher vocational educational courses (HVEC) are designed in cooperation with industry and society. Direction and content of training can vary over time, i.e. according to the situation on the labour market and industry needs. Today there are about 800 educations in various industries. For some of these special admission rules apply. A student can compensate for lacking formal background by referring to equivalent knowledge and skills from other training or profession. It is up to the individual education provider to determine the selection and admission criteria. They can also offer the possibility of validation of competence for courses in the education.

The National agency for higher vocational education is responsible for the assessment of foreign qualifications from tertiary education – if the purpose of assessment is to look for employment. If the aim is further education the assessment is done by the Agency for higher education which also assesses foreign upper secondary school grades for admission to universities and higher vocational training.

Education providers are municipalities, private training providers and universities in collaboration with industry. The Swedish national agency for higher vocational education supervises the different educations, approves providers and which educations that may start.

Vocational education is given state subsidies and the organizer has the right to issue a certificate/diploma after completed studies.

There are both higher vocational education courses (HVEC courses) and qualified vocational courses (KY courses).

- If the HVEC course lasts for one year, it can result in a vocational university college diploma.
- If the HVEC course lasts for two years, it can result in a qualified vocational university college diploma. The education must in this case include a minimum of 25% LAW (Learning at work) and the production of a thesis.

An earlier form of higher vocational education is now being substituted by HVEC is (Advanced Vocational education KY) - Advanced Vocational courses is offered during a transition period until 2013, when HVEC will be the only system

### **University and university colleges**

The education at universities and university colleges are free to Swedish and EU-students and consists of courses and educational programs. Higher education is subject to the National Agency for Higher Education.

For an education program to lead to a degree/diploma a predetermined number of credits must be attained, within a main area and a specialisation area. University credits are adapted to the Bologna model, one week of full-time study equivalent to 1.5 credits and a full academic year 60 credits.

Basic level (2-3 years):

- University Diploma (Högskoleexamen - 120 credits)
- Degree of Bachelor (Kandidatexamen - 180 credits)

Advanced level (1-2 years – after Basic level):

Degree of Master (one year) (Magisterexamen -60 credits)

Degree of Master (two years) (Masterexamen - 120 credits)

Research level (2-4 years – after Advanced level):

Degree of Licentiate (Licentiatexamen - 120 credits)

Degree of Doctor (PhD, Doktorsexamen - 240 credits)

In addition to the general degrees there are a number of professional degrees. These are courses that focus on occupations where there are different forms of legitimately schemes or eligibility requirements. Examples of such professions are pharmacists, architect and psychologist.

#### *Eligibility and selection*

To gain access to higher education, a general basic competence with certification from secondary higher school or adult education is required. Many programs and courses within the University also require special prerequisite knowledge/courses.

Admission is determined via prior grades, a central “university test”. If many applicants have equal qualifications selection of applicants is made in a random selection procedure. There are also possibilities to design special admission procedures for some education. As of autumn 2010, it has become harder to be accepted at the university with secondary higher school grades issued before 2003.

Foreign grades may authorize for studies at the university. The national agency for higher educations has an assessment portal, for foreign degree evaluated.

#### *Validation and evaluation of real competence*

Assessment of real competence is a validation method that is today used in some universities. This is primarily done to assess someone's competence and ability to follow a specific course or educational program. It is up to each university and course managers to make that assessment.

The work with evaluation of real competence is hindered by the lack of national guidelines. Those who do the assessment have the impression that it is unclear what is to be assessed and how the student must exhibit this. In addition, it is difficult to guarantee equal assessment for everybody. It is perceived as a contradiction to assess each individual by his/her environment and trying to deal with everybody in an equal manner. [Skolverket 2009]

As part of an education program it is in individual cases possible to take into account parts of the course or courses - through validation. It is up to each institution to decide and assess. There is no general right for an individual to have her/his knowledge tested against a grade or university credits for those who are not already enrolled in an educational program. For higher education institutions validation that does not result in recruitment incurs costs alone.

#### **Discussions on rules of university and university college admission**

In the discussion of eligibility criteria and selection for higher studies there are arguments that the validation has become increasingly important and should be used more, the random system and that some language study in upper secondary school gives general merit points, is unfair. Flexibility in admissions should be increased e.g. through entrance test.

Criticism of the new admission rules to the university, which came into force in 2010, is mainly that the rules have become more "exclusive" than before. It has become harder to get into university for adults with older upper secondary school grades and for younger students who have had to supplement with complimentary studies.

The work on widening recruitment and validation of real skills and recognition of foreign education can improve the conditions for mobility between education systems.

**Grading**

Compulsory school, upper secondary school and adult education	Higher vocational education, universities and university colleges
Fail (IG) Pass (G) Passed with distinction (VG) Passed with special distinction (MVG)	Fail - Pass Fail - Pass - Pass with distinction

The compulsory school assigns grades from the eighth year of studying. There are proposals from the present government to introduce grades earlier. The folk high school does not give grades at all but issues a certificate of studies completed. After courses that comply with the basic or special admission provision of university studies a certificate of basic and special eligibility is issued.

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