



Erasmus+ Project - Methods For ESD Competences and Curricula (MetESD)

Country Reports

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1. Introduction

"Vocational education is a life-long process and thus an important building block in the educational biography of a human being. The professional world is an important place of learning, space for experience and design, and closely linked to social transformation."¹

Anchoring education for sustainable development in vocational education and training is therefore an essential aspect of educational policy work, since only through the attitude of each individual can a transformation process be initiated.

Young people undergoing vocational training will be in key positions in the future, e.g. in craft trades, in industry, in commercial professions or in social professions, where they can initiate, continue, expand or even block sustainable processes.

In order to ultimately develop sustainable employability, trainees must understand the idea and principles of sustainability. They need to be given Gestaltungskompetenzen² that empower them to learn, test, and develop competent skills. In the future, they will be able to assume responsibility for their professional (industry-specific), social and private activities in the sense of sustainability.

"Vocational training in Germany (as well as other European countries) is characterized by the practical relevance of the contents, a high degree of networking of the actors and the intensive involvement of the social partners in the design of training and further education. Due to its operational positioning, it has a special transformative role to play in sustainable development in view of the 2030 Agenda and the Sustainable Development Goals (SDGs) that it seeks to achieve."³

The World Action Program (WAP) Education for Sustainable Development

The five-year UNESCO World Action Program Education for Sustainable Development (2015-2019) focuses on the following five areas of action to bring education for sustainable development from the project to the structures of the education sectors:

- Political support
- Holistic transformation of teaching and learning environment
- Competence development for teachers and multipliers
- Strengthening and mobilizing youth
- Promoting sustainable development at local level

1 www.bne-portal.de/de/einstieg/bildungsbereiche/berufliche-bildung

2 www.globaleslernen.de/sites/default/files/files/link-elements/die_zwoelf_kompetenzen_der_bne_de_haan.pdf

3 www.bmbf.de/files/Nationaler_Aktionsplan_Bildung_für_nachhaltige_Entwicklung.pdf, S. 41



According to the KMK 2017, the WAP's goal is to initiate and intensify activities at all levels and in all areas of education to accelerate the process towards sustainable development. A two-fold approach should be followed:⁴

1. Reorientation of education and learning so that everyone has the opportunity to acquire the knowledge, skills, values and attitudes needed to contribute to sustainable development.
2. Strengthening the role of education and learning in all projects, programs and activities that promote sustainable development.

2. Country Reports

2.1. Germany

Vocational education in Germany

The term vocational school in Germany includes vocational schools in the dual system - so-called "part-time vocational schools" - as well as the vocational preparation year (BVJ) and the vocational basic education year (BGJ).

If one considers the part-time vocational schools in the dual system of vocational training, the learning place "vocational school" today is based on two central pedagogical concepts.

The learning place cooperation:

"A key part-time vocational school educational concept is the learning place cooperation. Through this, company needs, questions and further development are to be transformed into the education of the children and taken up here as learning objects. As a result, companies are supported by an independent, publicly funded learning location during their training."⁵

The learning field concept:

"The learning field concept resulted from the concern to anchor action orientation more strongly in vocational school lessons. By deducing lesson content from occupational fields of activity based on company work and business processes, the usual focus on vocational

⁴ www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2017/2017_03_17-Bericht-BNE-2017.pdf, S. 2
⁵ Pätzold, Günter; Walden, Günther (Hrsg.): Lernortkooperationen – Neugestaltung beruflicher Bildung. S. 12



*education was abandoned in the 1990s. Connected to the learning field concept is an activity-oriented and an interdisciplinary teaching based on company teaching / learning tasks, which is often also project- organized. In the meantime, didactics geared towards this has become established in vocational school teacher training."*⁶

The schooling situation in part-time vocational schools:

*"As a rule, schooling takes place in professional or subject-area or subject-specific classes in the regional catchment area of the training company and the place of residence of the trainees. For occupations with a small number of apprentices, in addition to internal measures such as the creation of district or national subject classes, the establishment of transnational specialist classes is one of the strategies of the federal states to secure vocational training."*⁷

Education for Sustainable Development (ESD) in German vocational schools

Structurally anchoring education for sustainable development (ESD) in German schools is actually a national task. In order to implement the program in Germany, the Federal Ministry of Education and Research has set up a National Platform, which in 2017 developed a National Action Plan⁸ (adopted on 20 June 2017). Experts support this work on the different educational areas in the so-called forums.⁹

The Professional Forum for Vocational Education / Training for Sustainable Development (BBNE)

- develops priority fields of action,
- develops concrete goals and implementation strategies for the education sector,
- identifies examples of good practice
- and stimulates new educational and learning formats.

In order to identify approaches to education for sustainable development in VET, best practice examples have been collected by the Professional Education Forum, focusing on:

- Vocational training potentials for sustainable development

6 Pätzold, Günter: Lernfelder – Lernortkooperationen. Neugestaltung beruflicher Bildung. S. 13
7 Hackel, Monika; u.a.: Berufsschule im dualen System – Daten, Strukturen, Konzepte. S. 14
8 vgl. www.bmbf.de/files/Nationaler_Aktionsplan_Bildung_für_nachhaltige_Entwicklung.pdf
9 vgl. im Folgenden: www.bne-portal.de/de/einstieg/bildungsbereiche/berufliche-bildung



- Establish companies and vocational schools as sustainable learning places
- Establish competence requirements for sustainability
- Curricula and didactic implementation of occupational ESD

In addition, the expert forums work together with partner networks in the following areas:

- Vocational education and training
- Media
- Economy and consumption
- Biological diversity
- Cultural education
- Cultural policy

In this way, the actors should be networked with each other and provide impetus for local implementation.

Vocational education and training for sustainable development (BBNE) in the individual federal states

According to the Basic Law, education is a state matter in Germany. Germany is thus providing 16 education systems. There are hundreds of curricula for more than 30 types of schools.

The federalism jungle in Germany also affects vocational schools in this context, and if we examine ESD in the sense of the National Action Plan for Education for Sustainable Development, we find very different educational approaches in the individual federal states.

Excerpts from the request of the Conference of Ministers of Education (2017) to the States

To clarify the diverse (federal) educational policy approaches of the individual federal states, structurally anchoring education for sustainable development, some excerpts from the request of the Conference of Ministers of Education (KMK) (2017) to the federal states are presented below.¹⁰

¹⁰ vgl. im Folgenden: www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2017/2017_03_17-Bericht-BNE-2017.pdf, S. 3-7



How is education for sustainable development (ESD) integrated into the political decision-making and implementation committees?

ESD is integrated into the educational structure of the respective federal state in a variety of different ways. ESD is the subject of current coalition agreements and, if available, part of the sustainability strategies of the federal states. The sustainability strategy processes are an important driver for the implementation and establishment of ESD. In addition, it can be stated that ESD is taken into account in further strategy processes in the federal states (e.g. development policy guidelines, nature conservation and biodiversity strategies, energy and climate protection programs).

Is there a national ESD strategy, an action plan, something similar, or is it planned. In the case of a country strategy or an action plan: Which structures are to be implemented (e.g. committees) and which plans (milestones, implementation steps, etc.) are there?

North Rhine-Westphalia is currently the first country in which a so-called ESD state strategy has been adopted. Baden-Württemberg and Saxony will start developing a ESD country strategy, and Berlin is planning to develop a sustainability strategy. In Schleswig-Holstein an ESD concept is available to the state government. In addition, so-called action plans have been developed in a number of states in recent years (e.g. Baden-Württemberg, Bavaria, Hamburg, Saxony-Anhalt and Schleswig-Holstein).

What is the cooperation between schools and civil society actors in education for sustainable development?

In all countries, cooperation with civil society actors plays an important and self-evident role and is seen as a useful complement to educational work in the formal education sector. This cooperation with schools is promoted in the countries through different approaches and diverse activities. In connection with the use of extra-curricular educational offers, some countries, i.a. expressly pointed to the self-responsibility of the school. In addition, the all-day school is specifically used to involve extracurricular education partners in the pedagogical work "on site".

How is education for sustainable development and the related competence orientation anchored in the curricula and curricula of general and vocational schools?

In the meantime, ESD has found its way into the teaching and education plans of general education schools in all states and is to be taken into account in forthcoming revisions. In this context, ESD-typical content and (key) topics as well as ESD-relevant competence descriptions are taken into account based on the concept of Gestaltungskompetenz (design competence) or the orientation framework for the learning area "global Development". A closer look reveals differences in how ESD is anchored. There are



approaches to mainstreaming ESD broadly, for example, as a guiding perspective in process and content-related competencies in all subjects, in the form of overarching topics, as part of interdisciplinary competence development or as a basic orientation for teaching. In addition, there are approaches in some states in which the anchoring of ESD is implicit and explicit in individual subjects (e.g. social studies, geography, biology, physics). It can also be seen that, in some states, the framework for the learning area “global development” within the framework of ESD has played a special role with its global perspective.

To anchor ESD in the field of vocational training, states give different feedback. Here, the anchoring of ESD, for example, as a cross-cutting task or as a general task or in selected areas of education (e.g. vocational college) and in subjects (e.g. vocational school). In addition, it is noted that the concept of Gestaltungskompetenz (design competence) or the framework for the learning area “global development” should be taken up in further revisions of VET curricula.

How is education for sustainable development integrated into teacher training, including vocational training?

ESD is involved in teacher training in a variety of ways across states. The offers essentially depend on the state-specific framework conditions and respective organizational structures. In this context, for example, various state agencies regularly offer nationwide, regional and / or school-based services. ESD is implicitly and explicitly part of subject-related and cross-curricular teacher training and qualification measures of school counsellors and headteachers. Remarkable in some states are efforts to integrate ESD systematically and in a structured way into existing teacher training and not to base ESD exclusively as an "additional" offer. The range of services offered in the classic continuing education sector is supplemented by formats that are carried out in collaboration with other ministries and within the framework of theme-specific (school) programs or campaigns and, to a special degree, through the inclusion of extracurricular education providers from the various areas of ESD. In addition, conferences and congresses at regional and national level will provide impulses. In addition, some states have so-called ESD multipliers, which provide training opportunities within the scope of their respective responsibilities.

Education requirements for sustainable development in VET (BBNE)

Competences and sustainable learning places

The Federal Ministry of Education and Research (BMBF), in connection with the Education for Sustainable Development in Vocational Education and Training (BBNE),



calls for the imparting of competences and educational cooperation with sustainable learning places:

"Not only executives, but also employees and apprentices can take responsibility for sustainable action in their workplace. Trainers, teachers, executives and employees in companies are role models for their trainees. They convey what sustainable action actually means in everyday professional life. Therefore, training and further education go hand in hand with sustainable work.

This is best achieved if their education and training is embedded in a sustainable learning location. The Federal Ministry of Education and Research, together with the Federal Institute for Vocational Training and partners from science and practice, is examining how this place of learning should be shaped and which sustainability-related competences need to be conveyed in a model pilot project. Scientifically accompanied, this deals with the organizational-personnel design of in particular company and inter-company learning places. In addition, teaching and learning concepts are developed for the integral imparting of knowledge and competences for sustainability in company-based training."¹¹

Lower Saxony's attitude to education for sustainable development in (vocational) school education

To clarify Lower Saxony's educational policy approach of anchoring education in the structure for sustainable development, some excerpts from the request of the Conference of Ministers of Education (KMK) 2017 to Lower Saxony will be presented.¹²

How is education for sustainable development (ESD) integrated into the political decision-making and implementation committees?

Education for Sustainable Development (ESD) is a specialist task in all levels of education administration in Lower Saxony.

Lower Saxony Ministry of Education: Responsibility: Unit 23, Education for Sustainable Development, Global Learning, Mobility. Unit 25, Subject Area Intercultural Education. In 2013, the fields of action ESD/ environmental education, global learning and mobility were merged in Unit 23.

Niedersächsische Landesschulbehörde (NLSchB): In the four regional departments Braunschweig, Hannover, Lüneburg and Osnabrück, in each case, a specialist ESD consultant and a departmental expert for the thematic focus of ESD work in the school department 2. In addition, in each of the four regional departments one expert advisor for mobility for the general education schools and one national counselling service for

¹¹ www.bmbf.de/de/nachhaltigkeit-in-der-beruflichen-bildung-3518.html

¹² see: www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2017/2017_03_17-Bericht-BNE-2017.pdf, S. 8-63



the vocational schools on the basis of credit hours are provided. For certain projects, the state of Lower Saxony uses state coordination. I.a. for the project “Environmental School in Europe / International Agenda 21 – School”, for the field of sustainable student companies and student cooperatives and for the network of UNESCO project schools. The activities in these networks are additionally supervised regionally by teachers. In order to manage national activities in the area of ESD, regular meetings are held between the Ministry of Culture, the NLSchB and the Lower Saxony State Institute for Quality Development and Teacher Training (NLQ), as well as NLSchB and coordinators and consultants. In the Ministry of Culture there is regularly an ESD working group with representatives of the ministries, NLSchB, universities, non-governmental organizations, associations etc. to coordinate the nationwide activities in the area of ESD and mutual information.

School board / Schools: For advice and support of the Lower Saxon schools, staff is available both in the Ministry and in the Lower Saxony Landesschulbehoerde. In addition, about 150 teachers receive an hourly discharge from their teaching obligation in order to work, for example, in the 17 regional working groups for sustainable student companies, in the about 60 recognized out-of-school ESD learning locations or other projects and measures.

Is there a national strategy ESD, an action plan, something similar, or is it planned? In the case of a country strategy or an action plan: Which structures are to be implemented (eg committees) and which plans (milestones, implementation steps, etc.) are there?

In August 2015, it was decided to develop a new, indicator-based sustainability strategy for Lower Saxony. From chapter B2.6 "Education for Sustainable Development - Preservation of the Natural Livelihoods as Basis of Education and Educational Objective" the further plans in the field of ESD for Lower Saxony can be derived. In addition, development policy guidelines for Lower Saxony came into force in 2015. Here too, the education and youth field of action includes target formulations in the area of education for sustainable development with a focus on global learning and international cooperation. Implementation strategies with measures and indicators are currently being developed in expert working groups together with civil society actors. The legal requirements, which reflect education for sustainable development in Lower Saxony, are § 2 of the Lower Saxony School Act (NSchG), § 2 of the Apprenticeship and Examination Regulation (APVO-Lehr), the Orientation Framework School Quality in Lower Saxony, the Lower Saxony Curriculum Mobility and the curricular requirements for the school subjects of the general and vocational schools. Education for sustainable development is anchored there in various forms.



What is the cooperation between schools and civil society actors in education for sustainable development?

In Lower Saxony, there is a nationwide network of extracurricular educational actors in the field of Education for Sustainable Development, Global Learning and Mobility with a diverse range of core curricula. Shorthanded follow examples in which the state of Lower Saxony, together with other partners, brings the topic of ESD into a different context.

- *Extra-curricular learning locations in the area of ESD*
Since the beginning of the 1990s, a network of out-of-school environmental learning sites has been established in Lower Saxony. These are disinterested entities formally recognized by the country as "Regional Environmental Education Centers (RUZ)". Over time, the work and the offers have expanded. The RUZs today include all areas of education for sustainable development. In the meantime, the learning locations have expanded to become ESD competence centers and today they are known as the recognized out-of-school ESD learning location. At present, 58 learning sites are recognized by the Ministry of Culture and equipped with teaching sessions for educational work. The network is currently expanding and also includes learning locations that have a focus on global learning or mobility.
- *Project "Environmental School in Europe / International Agenda 21 School"*
In Lower Saxony, 353 schools of all types are currently involved in the project. The participating schools have to work on two fields of activity in the fields of human and climate, biodiversity, waste, water, mobility, global learning, international affairs, nature, sustainable development, fair trade, participation and health within two years. Each of the 12 fields of action contains a multitude of topics. The ESD reference stems from the theme chosen and is also clearly highlighted by many participating schools. The fields of action relate to the core curricula of schools of all types of schools and involve almost all subjects through a cross-curricular, action-oriented approach.
www.umweltschule.niedersachsen.de
- *Sustainable student companies (NaSch)*
In Lower Saxony, there are more than 400 sustainable student companies in schools of all types. The network is managed by a country coordinator and 15 regional coordinators who work with school teachers nationwide. Within the sustainable student companies more than 50 companies are organized in the legal form of a cooperative. In Lower Saxony, the Lower Saxony Ministry of Culture cooperates with the Genossenschaftsverband e.V. and the



Genossenschaftsverband Weser-Ems. There are regular regional student company fairs.

<http://www.schuelergenossenschaften.de>; <http://www.nasch21.de>

- *Creating transparency - from the shop counter to the producer*

A cooperation and education project for Lower Saxony and Bremen. In Lower Saxony and Bremen, regional education providers from the fields of environmental education and agriculture are undertaking a variety of explorations on the cultivation and processing of food, directly on site, for example, on farms or when visiting companies in the food industry. The aim of the project is to bring consumers and farmers together and, for example, to include rural women, processors and restaurateurs as experts. The project aims to create a basis for the well-informed consumer. Children and young adults learn how and where food is produced. Through this project, Lower Saxony schools gain the opportunity to acquaint students with the topic in an action-oriented way.

<http://www.transparenz-schaffen.de>

- *Further cooperation with learning locations*

Within the framework of the cooperation with the Lower Saxony State Forestry Institutes, an ESD-based offer for schools was created for the 10 forest pedagogy centers existing in Lower Saxony. There is also a forest pedagogy certificate. It is planned to include the 10 forest pedagogy centers of the Lower Saxon State Forests as well as the 18 national park houses and visitor centers of the Wattenmeer National Park Administration in the network of recognized extracurricular learning locations in the area of ESD.

How is education for sustainable development and the related competence orientation anchored in the curricula and curricula of general and vocational schools?

The curriculum commissions are aware of ESD and have also received the orientation framework for the learning area “global development”. For several years, every newly developed core curriculum refers to ESD in the educational contribution of the respective subject and / or in the competence formulations. As an example, here an excerpt for the subject Geography:

The field of geography contributes - as well as other subjects - in the context of sustainability education and promotes a space-responsible action competence of the pupils, so that they learn to shape the future of the earth in a sustainable manner, in order to develop opportunities for future generations. The geography department plays a bridging role with regard to the school subjects.



Lower Saxony core curricula can be found at the following address:

<http://db2.nibis.de/1db/cuvo/ausgabe/index.php?mat1=9>

Furthermore, the curriculum “mobility”, updated in 2016, offers a special didactic offer in the context of education for sustainable development. Through its modular structure with ten building blocks, it offers all forms of schooling and years a comprehensive orientation to thematise developments in the field of mobility in a subject-related and interdisciplinary way and to reflect them from the perspective of sustainable development. The curriculum can be found at:

<http://www.nibis.de/nibis.php?menid=8374>

How is education for sustainable development integrated into teacher training, including vocational training?

Teacher training on ESD is offered, for example, in the out-of-school learning locations. In Lower Saxony, regional teacher training is located in competence centers at various universities and educational institutions. There are also offers for ESD. Furthermore, the Lower Saxony State Institute for School Quality Development (NLQ) offers qualification measures such as advanced training, specialist conferences or exchanges at learning locations.

Bavaria's attitude to education for sustainable development in (vocational) school education

To clarify the Bavarian educational policy approach of anchoring education in the structure for sustainable development, some excerpts from the request of the Conference of Ministers of Education (KMK) 2017 to Bavaria will be presented.¹³

How is education for sustainable development (ESD) integrated into the political decision-making and implementation committees?

Since 2002, the working group "Education for Sustainable Development", which emerged from the Environmental Forum Bavaria, is under the auspices of the Bavarian State Ministry for the Environment and Consumer Protection. In addition to the relevant ministries, there are also associations from the fields of education, the environment and nature conservation, One World as well as representatives of business, universities, trade unions and the churches. A picture of activities in the field of ESD is provided by

13 see: www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2017/2017_03_17-Bericht-BNE-2017.pdf, S. 8-63



the Bavarian action plan prepared for the UN Decade at the time, available on the website <http://www.dekade-bayern.de>.

In this context, cross-departmental development cooperation should also be mentioned. The coordination of the area is in the hands of the Bavarian State Chancellery. She works with external organizations such as the One World network Bavaria e. V. and Engagement Global and promotes dialogue and coordination on development work within the ministries involved.

Is there a national strategy ESD, an action plan, something similar, or is it planned? In the case of a country strategy or an action plan: Which structures are to be implemented (eg committees) and which plans (milestones, implementation steps, etc.) are there?

The Bavarian Action Plan (<http://www.dekade-bayern.de>) is also valid beyond the UN Decade. The upcoming update of the Bavarian Sustainability Strategy should take into account the implications of the National Action Plan for BNE.

What is the cooperation between schools and civil society actors in education for sustainable development?

ESD is socially linked to a large number of non-governmental organizations (NGOs). For example, they are involved in fields such as environmental policy, globalization or development cooperation, and in this context are also active in education. These topics provide an ideal starting point for contacting and cooperating with NGOs. This can be, for example, by inviting experts to class and / or visiting extracurricular learning venues (e.g. national parks).

In addition to these NGO contacts, cooperation with state and parastatal extracurricular educational institutions is also an option within the framework of the placement of ESD. These include, for example, organizations such as "Engagement Global" or the German Environmental Foundation, which provide schools with valuable advisory but also partially financial help in designing and implementing ESD projects.

The Bavarian "Europa-Portal - Democracy Education at Schools in Bavaria" (see: www.bayern-in-europa.de) sets relevant accents, e.g., in the fields of teaching, competitions and training.

In-school coordination and cooperation is achieved above all by interdisciplinary and multi-stage measures (project lessons). Particularly in the W- and P-seminars of the upper secondary school (for the latter, cooperation with external partners is a fixed requirement), numerous teachers and schools cooperate closely with relevant experts in the case of ESD-relevant projects or invite them to class. The UNESCO project schools can also serve as a living example of the fact that ESD is also being implemented across Bavaria in cross-school projects (e.g. during the UNESCO project days or the UNESCO Youth Forum). Best-practice examples of UNESCO schools and also non-networked



schools are accessible via the internet (Guide of the State Institute for School Quality and Educational Research Munich).

A model experiment for better cooperation between school and environmental station, where state teachers were seconded to environmental stations, has led to evidence for teachers and environmental stations to facilitate their cooperation.

How is education for sustainable development and the related competence orientation anchored in the curricula and curricula of general and vocational schools?

The new curricula for all general education schools include both the interdisciplinary education and training goals "Education for Sustainable Development", "Everyday Competency and Life Economy", "Economic Consumer Education" (www.lehrplanplus.bayern.de/schulart/grundschule/inhalt/uebergreifende-ziele) as well as the associated competencies are explicitly and extensively anchored.

In addition, there are guidelines for environmental education, which are binding for the Bavarian schools. Here it says i.a.:

"Since 1990, the guidelines for environmental education at the Bavarian schools are in force. Agenda 21, developed at the 1992 Rio de Janeiro Conference on Environment and Development and endorsed in Johannesburg in 2002, has given a new dimension to environmental education: the main goal is Sustainable Development: to meet the needs of the present without risking that future generations will no longer be able to meet their own needs. "(Report of the World Commission on Environment and Development, 1987). The treasures of nature, which are often used by humans unilaterally on economic terms, have their own value. They are entrusted to us humans, so that we care for them, treat them carefully and protect them from abuse and destruction. Therefore, environmental education, like any other education, needs an ethical foundation and is embedded in an overall social process in which the school has an important role to play" (see also http://www.km.bayern.de/download/495_19.pdf). In addition, the "Orientation Framework for Global Learning" is considered a guideline of the Bavarian education policy and within the framework of the cross-curricular educational and educational goal of ESD. It should be emphasized that an examination of the objectives of the orientation framework or "Education for Sustainable Development" takes place in various subjects or subject associations and is also designed as a cross-curricular educational goal or teaching principle. For example, the curriculum for the high school includes for each grade so-called "subject-linking and interdisciplinary teaching projects" which address relevant topics (www.kompetenz-interkulturell.de/index.php?Seite=7140&).



How is education for sustainable development integrated into teacher training, including vocational training?

Examination-relevant aspects of education for sustainable development are anchored in Bavaria in all phases of teacher training. In addition to the relevant subjects from the natural and social sciences, this also applies to the subject-related didactics of all subjects as well as the study of educational science in all teaching posts. By way of example, reference should be made to the curriculum in the core curriculum for the study of educational science, i.a. requirements "Competence development over the lifespan", "Values and norms and reflection of self-determined judgment and action", "Values education in plural society" or the substantive examination requirements for the subject Ethics: "Conditions of human action in the light of nature -, human, social and engineering sciences, building on this core problems of applied ethics in two of the following areas: a) bioethics and medical ethics, b) business ethics, c) environmental ethics / technical ethics, d) media and information ethics".

For the second phase of teacher training (preparatory service), reference is made by way of example to the admission and training regulations for teachers at grammar schools (ZALG). This includes the obligation for subject-specific education that "the contribution of each subject to the interdisciplinary educational and educational tasks, such as, on environmental education, political education, media education, methodological skills and the acquisition of key skills. Special teaching contents such as on "environmental education" as well as "basic economic and sociological problems of society" are also mandatory as subjects of general education in the subjects pedagogy, psychology, school law and secondary education as well as basic questions of civic education.

Outlook

Anchoring education for sustainable development as a pedagogical-didactic concept in German school education and, in particular, into the VET structure is a major challenge due to the federal educational system. State sovereignty in educational matters faces national interests. For this reason, the approach and implementation of ESD and BBNE will continue to be geared at state level in the future.

If one looks at the example of the Bavarian education policy approach to education for sustainable development on the part of the Bavarian State Ministry of Education and Culture, it is striking that global learning, environmental education and development education replace or even are set equal to the pedagogical-didactic concept of ESD. Education for sustainable development has no unique selling proposition in either



general education or vocational education and is not understood as a higher education concept for sustainable development.¹⁴

As part of a national anchoring of an educational concept for Education for Sustainable Development (ESD) there is still a fundamental need for clarification in the context of the federal approach in Germany in the question:
"What is Education for Sustainable Development?"

The German-language network "Teacher Training for Sustainable Development" (LeNa) is playing a pioneering role in coordinating and developing a common pedagogical-didactic concept of ESD through the exchange of experiences and concepts. Teachers are structurally involved in teacher education in the education policy discourse on structuring education for sustainable development.

Goals and tasks of LeNa are:¹⁵

- Exchange on different approaches to the implementation of education for sustainable development in teacher education - with the aim of learning from each other
- Joint initiatives towards education policy actors to anchor education for sustainable development in curricula and examination regulations for teacher education
- Joint initiatives towards science policy actors and research funding organizations to address key research areas and quality development in teacher education research for sustainable development
- Joint initiatives that encourage and promote the implementation of education for sustainable development in teacher education in higher education
- Further development of the concept of education for sustainable development for teacher education - also in international cooperation

Exchange, mutual learning, understanding and further development of the concept of Education for Sustainable Development - also in an international context - is a prerequisite for the didactic-pedagogical concept of ESD in order to structurally anchor it in the future in all areas of education.

14 see: www.dekade-bayern.de/, www.km.bayern.de/download/495_19.pdf, www.km.bayern.de/lehrer/erziehung-und-bildung/umwelt.html, <http://www.bte-bayern.de/>

15 see: www.bne-portal.de/de/akteure/profil/deutschsprachiges-netzwerk-lehrerinnenbildung-für-eine-nachhaltige-entwicklung-lena, www.leuphana.de/lena.html, www.leuphana.de/fileadmin/user_upload/PERSONALPAGES/Fakultaet_3/Stoltenberg_Ute/files/LeNa_Publikation_2017.pdf



2.2. Latvia

Documents for planning and implementing sustainable education in Latvia

The implementation of ESD in Latvia is determined by major institutions active in the field of education (UNESCO, UNECE), and national governments who have a duty to develop national ESD Strategies and join the process of implementation of the European Strategy on ESD. The Rio+20 Treaty on Higher Education presents the collective vision of educational networks, groups and institutions that are seeking to build more sustainable futures.

Democratic processes of discussion were taking place in Latvia in order to clarify problematic points in reaching a consensus on the formulation the strategy of sustainability for Latvia until 2030. A group of experts led by associate professor Roberts Ķīlis, in accordance with the task of the Ministry of Regional Development and Local Government, have developed the draft of Sustainable Development Strategy of Latvia "Latvija 2030". Persons involved in a discussion process represented different age groups and professions from around Latvia. Sustainable Development Strategy of Latvia until 2030 (Latvija2030) is the highest long term development planning document in Latvia (Development Planning System Law) Latvia 2030 that was approved by Saeima the Latvian Parliament in June 10, 2010. Multiple stakeholders such as scientists, researchers, teaching staff, state administration specialists, regional and Local government specialists, social partners and entrepreneurs, students and pupils, NGOs, formulated more than 600 proposals in public discussion prior to adopting a strategy. Strategy reveals global tendencies and tendencies in Latvia, future challenges, long-term objectives, action directions and possible solutions. The strategy stresses that the main capital are people: their skills, knowledge and talents, the source of growth are nature, environment, cultural heritage and creativity and the ability to co-operate and to do something jointly. The core of sustainable development of Latvia: improvement of the productivity of human, economic, social and nature (including location and space) capitals, thus responding to the challenges caused by global tendencies. National Strategy for Sustainable Development was build to harmonize the various sectoral economic, social, and environmental policies and plans that are operating in the country.

Latvian National Development Plan 2014-2020 is a short term developmental document that sets Sectoral and Regional Development Priorities.

Sustainability in Latvia is implemented by the bottom-up character and many networks of HE institutions can be considered as important drivers in ESD. Within the European Strategy on ESD these networks and associations were recognized as key actors which can contribute to important strategic decisions on the European level. The role of ESD networks is to raise necessary capacities support team building and efficiently work with varied resources and expertise. Networks can also assist mutual



support over the network. Sharing of good practices among network members is one of the possibilities to systemize the innovations.

For example, one of a good cases of practice which can be mentioned is BBCC (Baltic and Black Sea Consortium in Educational Research). For example, the example of good practice in implementing sustainability agenda is

The Baltic and Black sea Circle Consortium (BBCC) that is an international network that unites researchers and practitioners in the fields of teacher education and education for sustainable development (ESD). Since its creation in 2005, the consortium has become a platform for experience exchange among researchers and experts in ESD from more than 20 countries around the world.

BBCC members meet every year at the annual international scientific conference "[Sustainable Development. Culture. Education](#)", which is hosted by a different consortium member state each year. Everyone who participates in this conference becomes a member of BBCC (receives a membership card). The member's status gives an opportunity to join a 'family' of like-minded enthusiasts, get involved in collaborative research and international networking in the sphere of ESD.

The Baltic and Black Sea Circle Consortium was established in 2005 as an initiative in international cooperation between educational research and development institutions in the Baltic and Black Sea region, initially drawn from the countries around and near the Baltic Sea and the Black Sea. BBCC historically was created on the basis of the cooperation network of the Journal of Teacher Education and Training (JTET) which was established in 2002 (since 2007 – Journal of Teacher Education for Sustainability or JTEFS). BBCC has evolved into a platform for experience exchange for international researchers and experts from the fields of education and sustainable development including the following countries: Latvia, Lithuania, Estonia, Finland, Norway, Denmark, Germany, The Netherlands, France, Russia, Belarus, Slovenia, Slovakia, Poland, Hungary, Greece, Spain, Italy, Turkey, Malta, USA, Canada, South Africa, Kenya, Nigeria, Sweden, Brazil, Costa-Rica, Jamaica, Australia, United Kingdom, Ireland, New Zealand, Hong Kong, Malaysia, Thailand, Taiwan, Malaysia, Iran.

In line with the strategic documents on ESD in Latvia and Europe, further developments and the strategy of the vocational school should be designed in line with the local and global documents and strategies of promoting ESD and competencies for ESD.

It should be rooted in the educational priorities set by the United Nation's Decade of ESD that was implemented through **the Strategy on Education for Sustainable Development** with the aim to "encourage UNECE Member States to develop and incorporate ESD into their formal education systems, in all relevant subjects, and in non-formal and informal education" (UNECE, 2005, p. 2) The aim of the strategy was to equip educators with the competences to include sustainable development in their teaching.

It needs to take into account the priorities set in the Global Action Programme (GAP) on ESD endorsed by UNESCO Member States as a follow-up to the Decade of Education for Sustainable Development.



ESD is also part of the post-2015 sustainable development agenda – aimed at the 2030 Agenda for Sustainable Development that should be a part of a planning process in the vocational school.

In planning the strategy and further developments a vocational school needs to work in the framework of the Sustainable Development Goals (SDG) where education is considered as a one of the crucial factors to meet the set SDGs within the new 2030 Agenda.

The further developmental agenda of a vocational school as a center of excellency of the region should be in line also with a national level legislation of ESD, namely, the Sustainability strategy until 2030 of Latvia. New teaching methods and approaches should address the need for a holistic perspective in implementing sustainable development in a vocational school.

The strategy of a vocation school should focus on smart development – focused on the change of thinking and behavior, which can be achieved by investments in education, creative industries, as well as by developing entrepreneurial thinking, by promoting the goal of global connectedness and openness – focused on openness and the use of global opportunities by the region, place and individuals, which can be achieved by establishing cooperation-driven management, oriented toward energy efficiency – from low resource processing to high resource processing, from energy consumption to energy saving.

Competence Centre of Vocational Education "Daugavpils Technical School": Historical background, school structure, implemented education programs and activities

Competence Centre of Vocational Education "Daugavpils Technical School" (further in the text – CCVE "Daugavpils Technical School") is an educational establishment founded by the State of Latvia under the Ministry of Education and Science for implementation of vocational educational programs with more than 90 years of history.

Daugavpils Technical School was established on September 2, 2011 by the State under the Ministry of Education and Science for implementation of the vocational educational programs. Based on the education standards and professional standards, the aim of the Technical School is to structure the educational environment, organize and implement education that ensures achievement of the objectives of the vocational education.

Since January 1st, 2015, Daugavpils Technical School has been awarded the title of a Competence Centre of Vocational Education „Daugavpils Technical School” the main priority of which is to develop a conception of vocational education, by learning the best experience from the vocational institutions in EU and implementing innovative teaching



methods and forms in the educational practice as well as learning from the examples of a good practice in Europe, for adopting curricula and improving innovative methods not only for the school, but also sharing new experience with other schools. Competence Centre of Vocational Education “Daugavpils Technical School” is the second largest professional education institution in the country. In Daugavpils Technical School there are 122 teachers and 1694 students and it offers 21 educational programs: fields of railway transport, motor transport, metal-fabricating, information technology, transportation, energetics and electrotechnics, hairdressing and sewing service.

History of most significant educational programs and current trends of the development of the transport and logistics sector at CCVE “Daugavpils Technical School”

Major part of the currently implemented vocational secondary education programs and specialities at the CCVE “Daugavpils Technical School” historically were and still is linked to the sector of transport and logistics, especially the railway transport, which has an essential role in the economics of Latvia – the actual price of the GDP in the transport and logistics sector in 2014 constituted 8,3 % of the common GDP of Latvia and rail freight transport constituted 47,81 % of the common quantity (Research “Vocational education” *Sector of transport and logistics*, 2015,7).

If recently the industry of transport and logistics remained stable, the need for the development of vocational educational programs was evident and programs corresponded to the labour market demand, then in the first part of 2015 the rates of the transport and logistics sector, in comparison with previous year, worsened – in the first quarter of 2015 the amount of provided services declined by 1,6 %, in its turn, in the second quarter – by 4,6 %, when compared with the same period in 2014. The decrease of volume of services was observed in ports, railway, and road freight transport. (Research “Vocational education” *Sector of transport and logistics*, 2015, 7).

An essential decline of export by railway transportation is observed. In 2015 by rail freight transportation were carried 55,6 million tonnes, which is less by 2,4 % than in 2014, but the inland loads increased by more than 33 % (1,7 million tonnes of freight) because transportation of timber and grain increased. In turn, the amount of international railway transportation freight decreased up to 53,9 million tonnes – by 3,2 % less than in 2014 (The Central Statistical Agency, 2016). Although these indicators are not critical, in total, the development of the transport and logistics sector is projected to be slow, predicting that in 2016 the development of this sector will be influenced by a geopolitical situation in Europe and Russia. The development of transport and logistics sector in the nearest perspective will be affected by the conflict situation between Russia and Ukraine, as well, by the economic development of Russia.

Demand of the labour market for the professions in the sector of transport and logistics and sustainability of educational programs at CCVE “Daugavpils Technical School”



The highest proportion of the demanded jobs in the transport and logistics sector is registered in land transportation – 26,5 thousand work places or 28 % of the employed representatives in the national economy sector. Less represented jobs in the transport and logistics sector are: engineer of the railway electric systems, technician of the railway transport automation, telemechanics and communication, technician of the locomotive facilities, technician of the transport carriages, assistant of the railway transport engine driver, engine driver of the steam locomotive. As the most rare representatives in the sector of the railway transportation are mentioned – an instructor of the railway transport engine driver, railway transport engine driver, assistant of the railway transport engine driver and rigger of the railroad (Research “Vocational education” *Sector of transport and logistics*, 2015, 12; 17).

After evaluating sustainability of the educational programmes of the CCVE “Daugavpils Technical School” in the sector of transport and logistics, the demand and offer of the labor market in future should be emphasized. According to the predictions of the Ministry of Economics of the Republic of Latvia in the medium and long term in the labour market of the transport and logistics sector, the demand for workforce will exceed by 2,7 % in 2020 compared to 2014. Evaluating the demand for the workforce in absolute numbers, the demand in the transport and logistics sector in 2014 was 85 thousand, the forecast in 2020 is 87 thousand, but in 2030 – 91 thousand. Demand for the specialists in the railway transport infrastructure and services will remain at the same level as now. (Research “Vocational education” *Sector of transport and logistics*, 2015, 31).

At present Daugavpils Technical School provides vocational education and secondary vocational education. In total 21 educational programmes are offered for students (Motor engineer, Tailor, Programming technician, Computer technician, Railway track technician, Electrician, Technician of holding the locomotive, Commercial employee of the transport operation, Hairdresser, Transport wagons technician, Customer service specialist, Metal working specialist, Carpenter’s assistant, The organization of railway transport and traffic safety technician, Data entry operator, Assistant of the sewer).

Vocational education (Arodizglītība) programmes. These programmes are two or three years long and lead to Level II vocational qualifications (theoretical and practical skills required for independent work as a skilled worker). These programmes include elements of general secondary education but not a full course of it; therefore the graduates do not have a direct access to higher education.

(Source: http://www.aic.lv/ENIC/en/enic/ed_in_Latv.htm)

Secondary vocational (vidējā profesionālā izglītība) programmes are of four year duration. They lead to Level III vocational qualifications (an advanced level of



theoretical knowledge and skills in the profession allowing not only to execute tasks, but also to plan and to organise the work). Holders of vocational secondary education diplomas have completed a full general secondary education course and are therefore eligible for access to higher education studies.

(Source: http://www.aic.lv/ENIC/en/enic/ed_in_Latv.htm)

Non formal education

1. An applicant wants to evaluate practical knowledge and competencies in the chosen profession
2. An applicant can attend two consultations (each 60 minutes long) about the requirements of the standard of chosen profession and other administrative issues as well as about the procedure of qualifying examination.
3. An applicant applies for evaluation of professional competence and takes professional qualifying examination.
4. An applicant, whose professional qualifying examination mark is not lower than 5 (satisfactory), receives state approved the first, second or third level professional qualification diploma from the professional competence evaluating institution according to the procedure of professional qualification issuing as stated in normative acts.

(Source: <http://www.daugvt.lv/index.php/lv/arpus-formala-izglitiba-lv>)

Part time education

Part time form of studying. Applicants should have secondary education. Duration of studies – 2 years (4 terms.) There is a study fee. Application to enrol is to be completed, there is no entrance examination. During the first study year there are five study sessions (each two weeks): theory and practical works, studies take place on weekdays in October, February, April, and June.

During the second study year there are four study sessions (each two weeks) in September, November, January and March. From March till June there is qualification training (14 weeks). In June students take qualifying examination. Issued document – vocational secondary education diploma, it certifies the acquisition of the third level professional qualification.

(Source: <http://www.daugvt.lv/index.php/lv/naklatiene>)



Currently existing elementary and secondary vocational education programmes ensure acquiring of the professional qualification in the sector of transport and logistics, however, there are no further opportunities to continue education in the higher education level in the speciality of transport and logistics in Latgale region. Such opportunities for continuing studies in higher education establishment are currently available only in Kurzeme and Riga. It is projected that the demand for highly qualified specialists in the sector of transport and logistics will increase, the demand for specialists with average skills will not increase, however, the demand for low qualification jobs will decrease by 2030, thereby, it is suggested for the administration of the CCVE “Daugavpils Technical School” to consider cooperation based on existing agreements with Riga Technical University, Institute of Transport and Communications and Daugavpils University, to deepen cooperation with higher education institutions and using the current material and technical base and potential of the teaching staff of the CCVE “Daugavpils Technical School” to develop the college level study programs, thereby, ensure opportunity for the graduates to continue education in the specialization and acquire the first level of the higher vocational education.

The tendencies in the number of students and features of the graduates’ employment in vocational education in Latvia

The number of students, comparing the study year 2010/2011 to 2014/2015 on the vocational secondary level (continuing education has not been included) in Latvia has increased a little bit (by 4 %), except the education program “Railway transport”, where the number of students has decreased. Although the number of students in higher vocational education is increasing (by 28 %), the number of students on this level has decreased in several programs. The major decrease in the number of students has been observed in such educational programs as “Railway electrosystems” and “Logistics of transport and business” (Research “Vocational education” *Sector of transport and logistics*, 2015, 30).

Analyzing the offered educational programs in the sector of transport and logistics and their quantitative compliance with the requirements in this sector, it is worth mentioning that in the study year of 2014/2015 in Latgale region there were 34 % of the total number of students in elementary vocational, professional/vocational and secondary vocational education in Latvia, however, only 7 % workplaces were registered in Latgale region, but in Riga and its suburbs it was 76 % (Research “Vocational education” *Sector of transport and logistics*, 2015, 29).

Following the provisional information after summarizing the number of graduates who acquired qualification in vocational education in railway transport section, 18 % of graduates continue their education in vocational education sphere, 53 % from the qualified graduates have started work in their specialization in Latvia. Following the

employees' survey data, the most important reason why people do not work in their specialization, is a difficulty to find the job according to one's acquired qualification, job is lowly paid, and without any potential for career or professional development. Following information provided by employees, the most important reasons why graduates do not work in their specialization is discrepancy between professional qualification and offered payment. (Research "Vocational education" *Sector of transport and logistics*, 2015, 36; 37).

Young specialists in the sector of transport and logistics are recruited by Daugavpils un Rezekne cities in Latgale region where the transport infrastructure is an intersection not only for freight, but also for passenger service locally and internationally. Additional influence for the demand of specialists in the transport and logistics sector is generated by the special economic zone of Rezekne, but a part of the alumni of the CCVE "Daugavpils Technical School" have to go to Riga and its suburbs to look for jobs if they want to work in their spacialization. A very significant factor is the wage differences in various regions of Latvia.

Following the data provided by the Central Statistical Agency, the employee's average gross weight salary in 2014 was EUR 765, since the crisis period the salary has the tendency to increase. By comparing the average pay in regions, the pay is above the gross weight in Riga, close to the average – in the region near Riga, in its turn, the lowest wage is in Latgale region (EUR 522). In the sector of transport and logistics where the alumni of the CCVE "Daugavpils Technical School" would be potentially employed the wage is higher than the average pay in the national economy, which is about EUR 831. The best paid jobs in the sector of transport and logistics in 2014 were the operator of the electric train (engine driver) and operator of the diesel-engine train (engine driver). The amount of wage in regions reflects tendency in the country, namely, the highest pay is in Riga and its region, in its turn, the lowest pay is in Latgale and Vidzeme regions. If the average hourly rate in the sector of transport and logistics is 5,03 EUR/h (2014), then the hourly rate in Riga was 5,54 EUR/h, but in Latgale region – 3,11 EUR/h (Research "Vocational education" *Sector of transport and logistics*, 2015, 20; 21). Notwithstanding variations in the cost of living and consumer prices, it is an essential difference, which in long term could lead to the drain of the working power of the alumni of the CCVE "Daugavpils Technical School" from Latgale because the target group of Daugavpils Technical School is the following:

- 60% of students come from Daugavpils and Daugavpils region, 20% from Latgale region and 20% from other regions of Latvia;
- 55% of students come from city/town schools, 45% from village schools;
- Students of different nationalities study at the school.

Competence development of the students and graduates in partnership with employers

In connection with the competences acquired during the secondary vocational education, employers expect the ability to take decisions, to react rapidly and



communicate, to take responsibility for one's work, skills for building relationships as well as with clients as partners, foreign language knowledge (English, Latvian, Russian), computer literacy, communication skills, apprehension of the fundamentals of logistics, knowledge about normative acts and their application in practice. As an essential positive aspect in the CCVE "Daugavpils Technical School" is an opportunity to learn Russian as a foreign language in the local community by communicating on everyday basis with native speakers because inability of Russian limits one's opportunity to find a job.

The most valued experience by the enterprises is cooperation during the professional qualification practice and practice (practical lessons) during the studies, the majority of companies have positive attitude towards cooperation with vocational education establishments (Research "Vocational education" *Sector of transport and logistics*, 2015, 41).

The most common form of cooperation for secondary vocational schools is a field trip or excursion to the enterprises and visiting lectures provided by the enterprise representatives in schools, less frequently some practical activities in the enterprise and professional development of the company staff are provided during the study process. According to the assessment of the educational establishments, cooperation with employers is valued as successful, however, it is emphasized that schools would expect more initiatives from the employers in order to implement different forms of cooperation, and they would wish to implement definite activities more regularly. Although the employers and vocational education establishments indicate on successful cooperation, quite high number of the enterprises is not ready to get involved in implementing vocational education programs, if they had such opportunity (Research "Vocational education" *Sector of transport and logistics*, 2015, 44).

A strategy of cooperation is established to provide a strong theoretical and practical base among companies, industry associations and universities. Daugavpils Technical School successfully cooperates with different companies in the country to provide practice sites for students in the competitive labour market conditions. Involvement of multiple stakeholders will contribute to implementing a new strategy of a vocational school with an emphasis on a sustainable development of the vocational school.

One of reliable partners of the school is Latvian railway concern. They provide 80% of the practice places for our students. Support is also provided by cooperation with industry associations – Association of Mechanical Engineering and Metalworking Industries of Latvia, Latvian Association of Light Industry Enterprises and Latvian Association of Electricity and Energy. Agreements of cooperation with Riga Technical University, Daugavpils University and Institute of Transport and Communications are signed.



The study process is closely connected with practice that enables students to get introduced with contemporary requirement of the labour market. Accordingly the professional field students have two approaches to practical training. During the first and second year they use to participate in school based training activities. For instance, railway specialists use to work in school workshops and professionals from railway structures are invited to evaluate their achievements. Hairdressers develop practical skills working in our classes where people are invited to have a hair-cut for free. In that kind of apprenticeship students have strong links with their teachers. Having studied for 3-4 years students have access to our partners' companies. Students use to spend approximately 6 months in companies, which are helping to develop professional skills. In most cases the apprenticeship is a bridge to real labour market. 80% of our students from railway department are invited to Latvian Railway. The company book and accept all our study programs. Unfortunately, we have no big companies in local Labour market. As a result students go to the private sectors or work as a self-employed. School is developing relations with Energy, Client service and Transport companies. But labour market capacity is limiting our possibilities to arrange the work for all our students. Students who are 18 years old use to have part-time summer job abroad. School arranges monthly grants for students; extra grants targeted to 3-5 the best students in each railway department. From 3 till 5% of our graduates continue education in Riga Technical University. Our school offers wide range of sport activities for young people. Our physical training teachers are professionals in volleyball, soccer, etc. Students use to achieve good results in different local and international competitions.

The Competence Centre of Vocational Education "Daugavpils Technical School" provides following extra curricular opportunities:

1. Participation in local and international projects.
2. Extra curricular activities in study subjects and education interest groups.
3. The library's book fund.
4. Participation in the students' self governance.
5. Use of the sports facilities.
6. Canteen services.

As more useful skills and knowledge that are acquired during the study process in vocational schools graduates name the skills of reading and compiling drawings – electric circuits, to maintain blocking devices, to plan different itineraries, to deploy and move freight/cargo, to perform financial calculations, to meet the labour protection, electrical safety and fire safety regulations. Whereas, some knowlwdge and skills that were missing during the study process, but which are necessary at work were named skills to complete technical documentation, to do technical service of the equipment, to maintain stations of the electrical appliances, where the lack of practical skills has been often observed (Research "Vocational education" *Sector of transport and logistics*, 2015, 35).



Employees – the graduates of the vocational education programs in the sector of transport and logistics name several proposals that should be taken into account in order to gain more fulfilled knowledge and skills that would promote competitive capacity. In employees' discretion, it is relevant to involve teachers/ lecturers who have work experience in appropriate field, the lecturers have to be motivated, as well as the vocational educational establishment has to take care of an appropriate learning environment, including equipment for practical classes and information technologies. Last but not least important aspects there are access to information (e.g., study literature, access to different data bases) and development of personal qualities (e.g., discipline, leadership, sense of responsibility) (Research "Vocational education" *Sector of transport and logistics*, 2015, 33; 35).

The material and technical supply of the educational programs and involvement in projects in the CCVE "Daugavpils Technical School"

As the survey data of the research "Vocational education" *Sector of transport and logistics* testifies, majority of the schools which implement educational programmes in the sector of transport and logistics their material and technical supply base evaluate as "sooner sufficient". 90 % from the surveyed schools have evaluated that their technological equipment and working machines and materials are "sooner sufficient". Survey results testify that all schools that were involved in survey plan to update their material and technical base in next 1-3 years, however, 62 % of these schools plan to realize "little" updates (Research "Vocational education" *Sector of transport and logistics*, 2015, 40).

At the Competence Centre of Vocational Education "Daugavpils Technical School" study process is organized in 3 buildings (6 Stradnieku Street, 1 Mendelejeva Street, 23 Varsavas Street). The school has the Auto Repair workshop building. There are two student hostels where according to the project of financial instrument of the climate change the implementation of energy efficiency improvement measurements took place in 2011. Both hostels provide accommodation for 400 students.

During the period from 2013 to 2015 Daugavpils Technical School has implemented a large-scale project of European Regional Development fund to introduce modern devices, technologies and equipment. In Daugavpils Technical School there are 55 classrooms, 10 computer rooms, 17 training workshops and laboratories, 2 sports halls and a library. All school buildings, classrooms and laboratories are completely renovated that makes it possible to raise the level of vocational education and become competitive in the European labour market. New infrastructure will provide an opportunity for further international cooperation with partner institutions and new possibilities to foster quality education.

The school is proud of their new and unique rail training simulator which is the first one in Latvia. The rail training simulator is for the railway transport and railway services educational program which consists of: cabin for the driver, 7d educational class with 24 seats, breaks stand, interactive working places and place for supervisor.



A rail training simulator is a computer based simulation of rail transport operations. They are generally large complicated software packages modelling a virtual reality world, with “play mode” software which lets the user interact by stepping inside the virtual world.

Traffic safety and quality directly depend on the qualification of railway specialists. Up-to-date technologies allow training conditions to be as realistic as possible, and to train locomotive management methods in both standard and emergency situations. The more realistic simulation training allows for better outcome.

In the area of infrastructure development the project of financial instrument on climate change is implemented for the thermal insulation of hotel buildings. Since 2001 school actively implemented the projects of life-long education, e.g., *Leonardo da Vinci* and *Comenius* programs, within the last 15 years 30 projects are implemented. In 2014 projects of ERASMUS+ program were started successfully.

In 2012 the school successfully realized the *The Nordplus* Framework Programme project with Lithuania. In the study year 2015/2016 the school participated in four new Erasmus+ Strategic Partnerships for vocational education and training (KA2) projects. The school has a great experience in providing and supervising different projects.

CCVE “Daugavpils Technical School” has created a wide network of international partners cooperating with Germany, Austria, Poland, Czech Republic, Lithuania, Finland, Italy and Portugal, Russian Federation, Belarus, Afghanistan.

The school is proud of having good partners in Germany: Rotenberg BBS (Berufs Bildende Schulen) and Magdeburg City Council, over 3 years they help to organize the practice places for the students in the companies. The students had the opportunity to acquire the latest technologies and methods in the chosen profession, improve professional knowledge of the German language, improve communication skills and team working ability, broaden their horizons, learn about German history, culture and traditions. The students stay in Germany for one and three months. One of the projects for students practice in 2015 got the State Education Development Agency prize “Spārni 2015” which can be received once in 3 years.

Further development of the CCVE “Daugavpils Technical School” and intentions in the sphere of sustainable education

Further development plan of the CCVE “Daugavpils Technical School” includes quantitative and qualitative advancements towards arrangements for preservation of the status of the competence centre, stabilization of the student number, offering of the professional educational programs according to the demands of the state and labour market in the region, improvement of the professional quality of educators, supporting activities for the youth from low-income families and social risk groups, professionally oriented activities for applicants and adaptation arrangements for the first-year students, sustaining of career education support, participation in the EU projects,

cooperation with such companies as „Lokomotīvu serviss”, „Ditton” (driving chain factory), „Ziegler mašīnbūve”, VAS „Lokomotīve”, beauty saloons, AS „Sadales tīkli” in order to provide the education process based on real work environment, but the most significant intentions are linked to contribution of implementing sustainable education.

In future this Competence Centre will have a strategic role in a sustainable development of the region. Considering the EU priorities and funds related to the development of the infrastructure for the vocational schools and quality education, this Competence Centre will play a significant role in a sustainable development of the city and vocational education. In the process of designing the strategy of further development of this Centre, it is essentially important to integrate sustainability perspective for the development of a vocational school.

By educating responsible, sustainable and qualified specialists, Daugavpils Technical School will contribute to the sustainable development of the region. Therefore, this is essential to integrate sustainability both in the context and to evaluate methods used in a vocational school and to reorient teaching towards sustainability.

Educational institution’s operating SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • CCVE “Daugavpils Technical School” is Latvia’s State founded education establishment under the Ministry of Education and Science that implements professional educational programs during the last 90 years for training professionals, especially in the railway transport specialties. • The vocational establishment has acquired the status of the Centre of Competence, thus ensuring the state financing in implementing educational programs; the prestige and advantages in recruiting students. • The second biggest professional education establishment in Latvia (15 educational programs, 21 specialties, 1694 students, 122 teachers, 79 of whom have master degree, 4 – doctoral degree) <p>Educational content</p> <ul style="list-style-type: none"> • Ensures studies in professional basic, vocational and professional general educational and professional 	<p>Educational content</p> <ul style="list-style-type: none"> • Sustainable development concepts, sustainable education theory and practice have not been yet integrated in the educational programs. <p>Teaching and learning</p> <ul style="list-style-type: none"> • Raising teachers’ professional qualification for quite a small number of staff members (2 teachers) who were awarded the 4th level of qualification that indicates that the capacity of excellence has not reached the highest level. • The level of the English knowledge of staff members limits their opportunities to participate in international educational projects. • Involvement of guest teachers and professionals from foreign partner institutions is not intense. • Part of students need to undertake a higher responsibility about educational results and missing classes. • Students’ achievements in state examinations in the English language are relatively weak, the results are a little bit better in the Latvian language in the 12th

<p>further educational full and part time programs.</p> <ul style="list-style-type: none"> • A vocational school offers diverse educational programs, including transport and logistics, energy and electrical engineering, metalworking, and IT sectors where specialists are demanded. <p>Quality of teaching</p> <ul style="list-style-type: none"> • Evaluation of the educational process in all specialities is taking place on a regular bases according to unified evaluation criteria. • Methodists of education, heads of departments, teachers and students are involved in the evaluation of teaching quality in all subjects. • Teachers are involved in the evaluation of the quality of one’s work by applying for the assessment process of the quality step. • An e-journal is used in the process of organizing the educational process that eases the teachers’ and students’ work and insures cooperation with students and their parents. • Qualification practice is organized in the enterprises in Latvia or abroad. • All students have a practice placement and the school has established a data base of practice placements. • Teachers use various methods of teaching and strategies, use interactive boards, touch screens, document cameras and other technologies. • Teachers regularly produce new teaching aids to work in the MOODLE platform. <p>Quality of learning</p> <ul style="list-style-type: none"> • Students participate in local and international events; within the framework of projects they participate in exchange visits abroad. • School has developed a preventive work with the students who miss classes. • Majority of students undertake a responsibility about their educational results. • Evaluation of educational process is based on certain criteria – educational results have been compared 	<p>grade and in Mathematics.</p> <p>Support provided for students</p> <ul style="list-style-type: none"> • Relatively high students’ dropout rate.
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<p>according to the standards set for the subject, teachers use various methods of evaluation.</p> <ul style="list-style-type: none"> • High achievements of the students in the professional qualification exams. <p>Support for the students</p> <ul style="list-style-type: none"> • School provides psychological and socio pedagogical support for the students and guarantees security of students in the educational establishment. • School offers various activities for the development of the personality of students in extra-curricular activities. <p>Environment in the educational establishment and resources</p> <ul style="list-style-type: none"> • Within the frame of ERDF project all educational buildings and hostels are completely renovated. • The environment of a vocational school is aesthetically arranged, well-shaped, green and is kept in a good order. 	
Opportunities	Threats
<p>Educational content</p> <ul style="list-style-type: none"> • To integrate sustainability content in the educational subjects by fostering integrative approach among professional and academic subjects in vocational education. <p>Teaching and learning</p> <ul style="list-style-type: none"> • To raise teachers' motivation to improve their qualification and claim for the 4th and 5th level of qualification. • Enrichment of the content of subject programs. • Individual work with the students. • Use of various technologies in the learning process. • Mobility of teachers and attraction of visiting teachers, involvement of specialists from the foreign partner institutions. <p>Support provided for the students</p> <ul style="list-style-type: none"> • To motivate students to take part in the professional development activities and extra- curricular school events not only as participants but also as organizers. • To foster career counselling work by organizing group 	<ul style="list-style-type: none"> • How to maintain the status of the centre of competence and its correspondence to the criteria set by the state in raising students' achievements for acquiring general educational establishment. <p>Educational content</p> <ul style="list-style-type: none"> • Ensuring sustainability in the educational programs „Hairdressers' service", "Production technology of the sewn articles" and their organic relatedness to the historical specialization of the educational establishment. <p>Teaching and learning</p> <ul style="list-style-type: none"> • Aging of the pedagogical staff members and limited resources of young specialists by taking into consideration the peculiarities of the railway transport sector. • Relatively low teacher's prestige in the society. • Potential pedagogues with a higher professional education need pedagogical education as well to work in the vocational educational establishment. • Optimal procedure and organization of the



<p>and individual carrier counselling.</p> <ul style="list-style-type: none">• Support activities for youth from low income families and social risk groups.• Professional orientation events for candidate students and adaptation events for the 1st year students.• Promotion of youth interests about the professional education and practical work by helping them to make a meaningful choice to continue education.• To foster the capacity of the institution of career education support to ensure the quality of implementing career education.	<p>educational process since educational process is taking place in several buildings and students and teachers need extra time to travel from one building to another.</p> <ul style="list-style-type: none">• Relatively low achievements of students in state examinations in the English language, Mathematics and the Latvian language in the 12th grade. <p>Support for the students</p> <ul style="list-style-type: none">• Stabilizing the number of students and reducing the number of dropouts.
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2.3. Wales/UK

Background and Context

The UK Government created a partially devolved structure in 1999, which means that certain powers have been transferred from the central Westminster Government in London to directly elected assemblies and parliaments in Wales, Northern Ireland and Scotland. These devolved powers included education and since 1999 there has been a steady divergence in education policy between the four nations that constitute the UK.

This report provides a summary of the policy and the approach to ESD in mainstream education in Wales since devolution. The final section of this report focuses on the main theme of the current Erasmus project 'Met-ESD' which is the implementation of ESD in vocational education in Europe by providing some examples from further education colleges in Wales.

The main provider of vocational education for 16 to 19 year olds in Wales are further education colleges, although many secondary schools offer vocational courses to 14 to 16 year olds and for 16 to 18 year olds where a sixth form (education years 12 and 13) exists in the school. In schools these courses run parallel with the academic courses and offer an alternative education pathway to students. However, in general, further education colleges are able to offer a wider range of vocational courses and more specialist teaching facilities, especially in practical vocational courses such as construction, engineering, hairdressing and catering. In addition to schools and further education colleges there are also private training providers.

Education for Sustainable Development and Global Citizenship (ESDGC)

Sustainable development was enshrined as the central organising principle of the Welsh Assembly Government (WAG) when the devolution of powers took place in 1999. This commitment to sustainable development has been re-affirmed at regular intervals in policy documents including *One Wales: One Planet* (WAG, 2009) and in 2013 the WAG brought forward legislation to further reinforce its commitment to sustainable development, which became the 'Well-being for Future Generations (Wales) Act 2015'. This is directed at public bodies in Wales and it is now the principle legislation for sustainable development.

In 2002 the Qualifications, Curriculum and Assessment Authority for Wales (known by the acronym for its Welsh title, ACCAC) published a document on ESDGC, which listed the following nine key concepts that it believed underpinned ESDGC.

- Interdependence
- Citizenship and stewardship



- Needs and rights
- Diversity
- Sustainable change
- Quality of life
- Uncertainty and precaution
- Values and concepts
- Conflict resolution

In 2004 the WAG had an education panel to oversee ESD and another that was concerned with Global Citizenship (GC) panel. Both panels were conscious of the common aspects in their work and agreed to form a joint ESDGC Panel. The title ESDGC, while it overtly recognised the importance of GC, indicated the coming together of two adjectival education traditions rather than making a step change that would lead teachers to seeing this approach to education as a fully integrated whole.

The ESDGC Panel produced the *Education for Sustainable Development and Global Citizenship Strategy for Wales* in 2006. It covered five sectors of education: schools, youth, further education and work based learning, higher education, and adult and community education. To ensure a whole-institutional approach the Strategy identified actions across the following five 'Common Areas', applicable to all the formal sectors of education.

- Commitment to Leadership
- Teaching and Learning
- Institutional Management
- Partnerships
- Research and Monitoring

In 2006, Estyn (the education inspectorate in Wales) commissioned research from which the outcomes highlighted a lack of understanding about ESDGC at classroom level. In response to this research Estyn published *Update in Inspecting ESDGC* in September 2006, resulting in all school inspections being required to report on ESDGC.

The initial focus on schools following the publication of the ESDGC Strategy was to engage with teachers and achieve a better understanding of what ESDGC meant for primary and secondary schools across Wales. The ESDGC Panel commissioned the research and development of *Education for Sustainable Development and Global Citizenship: A Common Understanding for Schools*, published in July 2008 and sent to all schools in Wales. This was subsequently



followed by similar documents for the other sectors of education including a specific document for further education colleges. While the nine concepts identified by ACCAC were retained in the Common Understanding it was felt that a set of themes, which could cover the broad scope of ESDGC, would provide accessible entry points for teachers to integrate ESDGC into the curriculum and school life generally as well as linking to existing WAG documents such as the Skills Framework for 3 to 19 Year Olds. The following set of seven themes, presented in the Common Understanding document, were used to map the content, skills and values associated with ESDGC.

- Wealth and Poverty
- The Natural Environment
- Identity and Culture
- Health
- Climate Change
- Choices and Decisions
- Consumption and Waste

By 2008 there were a number of supporting policies, guidance, and related drivers to encourage teachers and schools in Wales to engage with and implement ESDGC, including the following examples.

- The legitimacy offered by the WAG's commitment to sustainable development.
- Estyn inspecting and reporting on ESDGC.
- The ESDGC Panel, including the Minister for Children, Education, Lifelong Learning and Skills, setting strategy and administering the ESDGC Action Plan and awarding small grants for ESDGC projects.
- An ESDGC Champion delivering the Action Plan and providing a central point of contact for all aspects of ESDGC in Wales.
- A common document in all schools outlining the content and approach of ESDGC.
- The Directors of Education in the 22 local authorities in Wales nominating a representative to be a conduit for disseminating ESDGC information.

While there was central support and drivers to implement ESDGC, it was left to individual local authorities and schools to decide how to respond to the ESDGC agenda, with some local authorities giving it a higher priority than others. There were other initiatives that supported various aspects of ESDGC such as



EcoSchools, Forest Schools and international school linking. What ESDGC added to these initiatives was the fact that it was broader than any one individual initiative and it was an on-going approach to education that was not completed when an award was achieved.

During this period the WAG continued to produce guidance and support materials that contributed to ESDGC in schools as well as other sectors of education. These included *Out of Classroom Learning* (DCELLS, October 2007) and *ESDGC: Information for Teacher Trainees and New Teachers in Wales* (DCELLS, July 2008b).

The ESDGC Panel submitted a response to the consultation on the review of the National Curriculum in Wales conducted in 2007. The new Curriculum integrated ESDGC into Science and Geography and featured it prominently in Personal and Social Education. ESDGC also figured in the Learning Pathways 14 – 19 and the Welsh Baccalaureate. The ESDGC in the curriculum was a significant contribution to Teaching and Learning, but that was only one of the five Common Areas in the 2006 Strategy and the overall aim for schools was to embed ESDGC across all the five Common Areas.

The appointment of a new Minister for Children, Education and Lifelong Learning in 2010 saw a decline in the priority and resource given to ESDGC by WAG. The results from 2010 PISA (the OECD Programme for International School Assessment), which focus on Literacy, Numeracy and Science, placed Wales well down the rankings. The response of the new Minister was to boost the policies and resources in these subject areas, in part at the expense of other initiatives such as ESDGC.

The continued profile of ESDGC in schools up to the present day is a result of the extent to which ESDGC has been genuinely embedded, the enthusiasm for this approach to education by some teachers, headteachers and local authority leaders, and the continued inclusion of ESDGC in Estyn inspections. The most recent comprehensive review of the state of ESDGC in Welsh schools was carried out by Estyn in 2014. The main findings from this report are in the box below.

Main findings of the Estyn Report on 'Progress in ESDGC' – June 2014

Pupils' understanding of sustainable development and global citizenship

1. In the majority of the schools visited for this survey, pupils' understanding of the key concepts of sustainable development and global citizenship develops appropriately as pupils progress through school and is generally secure for each of the seven themes for ESDGC. There is now no significant difference between pupils' understanding of sustainable development and their understanding of global citizenship. This is an improvement since 2006 when understanding of global citizenship was not as well developed.

Sustainable development

2. Pupils are often very interested in the **natural environment** and their understanding of it is generally good. Almost all pupils understand that they depend on the environment for energy, food and other resources. Many pupils understand the need to conserve energy, but often in terms of saving money rather than resources.

3. In the best schools, pupils' understanding of **consumption and waste** develops well. They understand where the things they consume come from and where waste goes, although only a minority understand the interdependence of producers and consumers. Few understand the difference between 'standard of living' and 'quality of life.'

4. Few Foundation Phase or key stage 2 pupils understand the difference between climate and weather, but almost all pupils in the secondary schools visited understand the concept of **climate change** and global warming and many can explain the implications for the way we live.

Global citizenship

5. Pupils in all key stages generally have an appropriate understanding of the concepts of **wealth and poverty** and some of their implications. Almost all pupils have an understanding of the effects of inequality on people's lives and understand the types of support charities can provide for people in need. Almost all pupils in the secondary schools visited have a good understanding of the inequalities that exist between people in different countries, and between people within countries.

6. Pupils in schools with a high proportion of ethnic minority pupils generally have a better understanding of the effect of discrimination and prejudice on individuals than pupils in other schools. Few pupils at key stages 3 and 4 have a good understanding of **identity and culture**, including complex concepts such as the link between culture, faith and individual value systems and beliefs.

7. Almost all pupils in the schools visited can give examples of ways in which they make **choices and decisions** that affect school life. They influence the work of the school through groups such as the school council, eco-committee or healthy living group.

They realise that actions have consequences and generally know how to minimise personal conflicts.

8. Almost all pupils in the schools visited understand the principles of how to care for their own **health** and that of others. They have a secure understanding of the importance of eating healthily and taking regular exercise. Almost all key stage 2 pupils understand about the negative effects of pollution, tobacco and alcohol on their health and most pupils at key stages 3 and 4 understand that there are ways in which health and quality of life can be improved in countries around the world.

Vision, policy, planning and promoting ESDGC

9. In most of the schools visited, leaders have a clear vision for promoting ESDGC. The schools with the most effective policies for developing ESDGC have a clear definition and understanding of ESDGC and what it means for their staff and pupils in the context of their school and beyond. This clarity in understanding ESDGC has improved since 2006.

10. The majority of the schools visited have effective plans for developing and delivering ESDGC. Almost all schools teach aspects of ESDGC effectively through a variety of subjects. In a minority of the schools, planning is not systematic and relies too much on discrete and uncoordinated projects for coverage. This results in pupils having a limited understanding of the impact of their actions in respect of ESDGC. Where planning in secondary schools is most effective, teachers who specialise in specific subjects plan the coverage of ESDGC together. This strengthens the provision and ensures that teachers who have a stronger understanding of the more complex aspects of ESDGC teach them. This results in pupils having a deeper understanding of these aspects.

11. Schools with the most effective planning include opportunities for pupils to develop their numeracy, literacy and thinking skills within cross-curricular thematic projects that focus on ESDGC. However, in many of the schools visited, teachers do not incorporate good enough opportunities for pupils to use their literacy and numeracy skills in ESDGC work. This has not improved since 2006.

12. All the schools visited provide a wide range of extra-curricular and other activities to promote ESDGC and extend pupils' knowledge and experience. All the schools visited follow at least one accredited scheme in areas related to ESDGC. However, few schools collect evidence to assess the impact that following these schemes has had on pupils' understanding of ESDGC concepts.

Leadership, management and support for ESDGC

13. Where schools have identified members of staff with clear responsibility for leading and developing ESDGC, the provision is generally effective and pupils' understanding of key concepts is at least good. Where responsibilities are not clear enough, this is not the case.



14. The confidence of teachers in delivering ESDGC is high in many of the schools visited. Where training has not been a priority, members of staff lack confidence in teaching the more complex concepts related to ESDGC. Most schools visited would benefit from further training in specific aspects of ESDGC. A directory of good practice contacts would be helpful.

15. Most of the schools visited include aspects of ESDGC within their self-evaluation procedures. Leaders generally evaluate the planning and delivery, but very few schools evaluate the impact of provision on pupils' understanding of ESDGC

16. Many of the schools visited have a member of the governing body with particular responsibility for ESDGC. Very few governors have received training other than from the school or feel confident enough to challenge the schools in relation to ESDGC.

Examples of implementing ESDGC in further education colleges in Wales

In response to the ESDGC guidance from WAG, the further education colleges have reviewed their curricula and integrated aspects of sustainable development and global citizenship in courses across the range of vocational subjects. The following examples illustrate the diversity of activities.

Coleg Sir Benfro has 2,000 full time students who attend its campus in Haverfordwest. In 2011 a new Construction and Technology Centre was built on the campus to a high sustainable standard known as BREEAM Excellent. All full time students complete an induction programme, which includes activities designed to engage them with the sustainability aspects of the building. The activities use the building as a resource to raise awareness of sustainability issues.

Coleg Ceredigion, which has around 1,000 full time students and from 2007 onwards teaching staff have used lesson-planning proformas, which include reference to ESDGC. A number of sustainability projects have been undertaken including the furniture-making course building a solar kiln to season wood.

Coleg Llandrillo on the North Wales coast has conducted a comprehensive curriculum audit, which reflects ESDGC being incorporated into vocational courses such as the core values section of the Travel and Tourism courses. The college delivers both the International Baccalaureate and the Welsh Baccalaureate, which involves students interacting with local and global partners.



2.4. Austria

Current challenges for vocational schools

There are currently two main topics:

1. Introduction of a competence-oriented learning model / educational standards
2. Introduction of ongoing quality assurance and development

Ad 1:

The goal is to record those core competences that students should acquire sustainably at the end of their education program. In addition, educational standards in VET make an important contribution to supporting competence-based teaching.

(See section on: Required Competencies / Educational Standards)

Ad 2:

The QIBB - QUALITY INITIATIVE VOCATIONAL TRAINING - takes place in coordination with developments at European VET policy level. QIBB is an element of the National Strategy for the implementation of the European Parliament and Council Recommendation on the establishment of a European Quality Assurance Reference Framework for Vocational Education and Training adopted in the context of the Copenhagen Process.¹⁶

(See section on: QIBB)

Current societal / political requirements for graduates of vocational schools

Here, as in the QIBB, for example, are references made to European / national policies as well as the World Action Program (see below), and it is also intended to refer to the ESD Decade Report and the chapter "Assessment of the Success of the Educational Decade by Experts" (ESD Decade Report AT p55).

Priority areas of action in the World Action Program

From: UNESCO Roadmap to Implement the World Action Program

In order to facilitate a strategic focus and to promote stakeholder engagement, the WAP has identified five priority areas for action to drive ESD.

16 https://www.qibb.at/de/ueber_qibb/europaeischer_kontext/eqavet.html



- Field of action 1
 - Policy support: Integrating the ESD concept into education and sustainable development policies to create a favourable environment for ESD and bring about systemic change
- Field of action 2
 - Holistic transformation of learning and teaching environments: Integration of sustainability principles into educational and training contexts
- Field of action 3
 - Competence development among teachers and multipliers: strengthening the competences of educators and multipliers for more effective outcomes in the field of ESD
- Field of action 4
 - Empowering and mobilizing young people: introducing further youth ESD measures
- Field of action 5
 - Promoting sustainable development at local level: Expanding ESD programs and networks at the level of cities, municipalities and regions.

Assessment of the success of the education decade by experts

As part of a diploma thesis, a qualitative survey was produced on the results of the Decade of Education for Sustainable Development. For this purpose, seven expert interviews were conducted with seven persons who have long been active in the field of education for sustainable development. In order to achieve the widest possible diversification, people from different fields of work were interviewed, namely from school, university, university of education as well as persons working in NGOs or GOs, in sustainable community and regional development, environmental education, development educational work and the global learning. In addition, a broad regional spread (Austria, large and small town) was sought. Due to the regional distance, the survey was mainly conducted by telephone, the interviews lasted between 20 and 40 minutes, were transcribed and analysed by content analysis. A summary of the results was published in the "ESD Decade Report AT", see also the UNECE final report.

Required competencies / educational standards

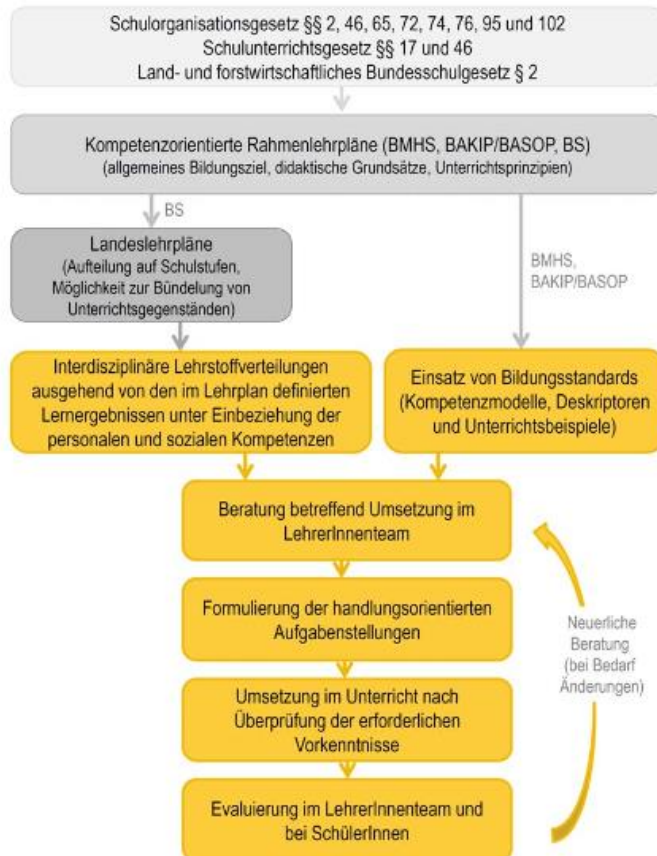
Background:¹⁷

The European Qualifications Framework (EQF) offers the possibility of assigning acquired qualifications (knowledge, skills and competences) or learning outcomes to an eight-level reference framework, thus achieving greater comparability of the individual systems within the EU. The EQF defines a set of descriptors that describe relevant learning outcomes and that are required to obtain the appropriate qualifications.

Descriptors defining levels in the European Qualifications Framework			
Level	Knowledge	Skills	Competences
Level 1	Basic general knowledge	basic skills required to carry out simple tasks	work or study under direct supervision in a structured context
Level 2	Basic factual knowledge of a field of work or study	basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	work or study under supervision with some autonomy
Level 3	Knowledge of facts, principles, processes and general concepts, in a field of work or study	a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	take responsibility for completion of tasks in work or study; adapt own behaviour to circumstances in solving problems
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study	a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

¹⁷ http://www.bildungsstandards.berufsbildendeschulen.at/fileadmin/content/bbs/KU/KU-Grundlagenpapier_16.7.2012.pdf

The starting point of each lesson planning is the curriculum, which defines the educational goal of the entire education of the respective school form as well as the individual subjects or groups of objects for one school grade or semester. Based on these legal principles, the networked planning takes place in the team at the school location.



The AVIVA model (phases of learning) is the basis for the detailed planning process:

Phasen	Instruktion: «Direktes Vorgehen»	Selbstgesteuertes Lernen: «Indirektes Vorgehen»
A Ankommen und einstimmen	Lernziele und Programm werden bekannt gegeben.	Die Situation, das Problem wird vorgestellt; die Lernenden bestim- men Ziele und Vorgehen weitge- hend selbst.
V Vorwissen aktivie- ren	Die Lernenden aktivieren ihr Vorwissen unter Anleitung und strukturiert durch die Methoden der Lehrperson.	Die Lernenden aktivieren ihr Vorwissen selbständig.
I Informieren	Ressourcen werden gemein- sam entwickelt oder erweitert, die Lehrperson gibt dabei den Weg vor.	Die Lernenden bestimmen selbst, welche Ressourcen sie sich noch aneignen müssen, und bestimmen, wie sie konkret vorgehen wollen.
V Verarbeiten	Aktiver Umgang der Lernen- den mit den vorgegebenen Ressourcen: verarbeiten, vertiefen, üben, anwenden, konsolidieren.	Aktiver Umgang der Lernenden mit den neuen Ressourcen: verarbei- ten, vertiefen, üben, anwenden, diskutieren.
A Auswerten	Ziele, Vorgehen und Lern- erfolg überprüfen.	Ziele, Vorgehen und Lernerfolg überprüfen.

Criteria for competence-oriented teaching¹⁸

When planning competency-based education, the following criteria are relevant:

- Align lesson planning with the intended acquisition of competences
- Structure lessons and provide clarity about learning objectives (learners know why and wherefore they acquire this competence)
- Use a variety of methods: Design learning and working forms variably
 - Allow and support self-directed learning
 - Enable collaborative learning in groups
 - Promote special forms of work in VET (e.g. workshops, labs, practice firms) (Lessons are action-oriented and application-oriented and are characterized by a high task-based activity on the part of learners - thus they often have the opportunity to show and experience their skills.)
- Integrate learning into meaningful contexts (students are most attentive when engaging in learning tasks that are personally meaningful to them).
- (Systematic) Applying what you have learned in both life and work situations (systematic learning and learning in "real" situations are always part of one another because it is the only way to clarify the relevance of the content to the learner.)
- Varied practice and training
- Link study materials vertically
- Separate learning and performance situations

¹⁸ http://www.berufsbildendeschulen.at/fileadmin/content/bbs/KU/KU-Grundlagenpapier_16.7.2012.pdf



- Discuss solutions together
- Evaluate learning actions and provide credible feedback
- Allow time for learning
- Encourage criticism
- Create a learning-friendly climate (learners need to feel that teachers are seriously interested in their progress and have confidence in their skills.)

Competency models and educational standards in detail¹⁹

Here are the most diverse competence models for different subjects described. Partially very detailed, sometimes less. Mostly very specific - a contradiction in terms. The evaluation reports are very thin and problematic from the question as well as the target groups.

QIBB²⁰

In education, quality management means introducing structures, methods and tools that enable a systematic reflection of learning and working conditions, processes and outcomes. Developing quality means working cooperatively to improve the framework conditions for education and learning. "This task - to organize the conditions for education - is fulfilled when the educational organization has aligned all its processes and structures with the support of the educational needs of the learners and has become itself a learning organization" [Zech, R. (2010): Manual management in continuing education. Weinheim, Basel, p. 277]. That is what QIBB is about - and it is about establishing common quality development as a basic principle of professional work.

Managing the implementation of QIBB is a cooperative task of all VET leaders. An important prerequisite for the successful realization is the common conviction that quality management means maintaining a quality culture. Such a culture can only emerge if everyone involved in educational, teaching and administrative processes in the school system can actively participate in the safeguarding and development of quality.

The mission statement formulates the long-term goal orientation and the core messages on the mission and self-image of an organization. The core QIBB mission statement for school vocational training, which is valid throughout Austria, describes the core messages as "vision and mission".

¹⁹ see: <https://www.bildungsstandards.berufsbildendeschulen.at/kompetenzmodelle/schulartenubergreifende-bildungsstandards>

²⁰ see: <https://www.qibb.at/de/home.html> and https://www.qibb.at/de/ueber_qibb/qibb_auf_einen_blick.html



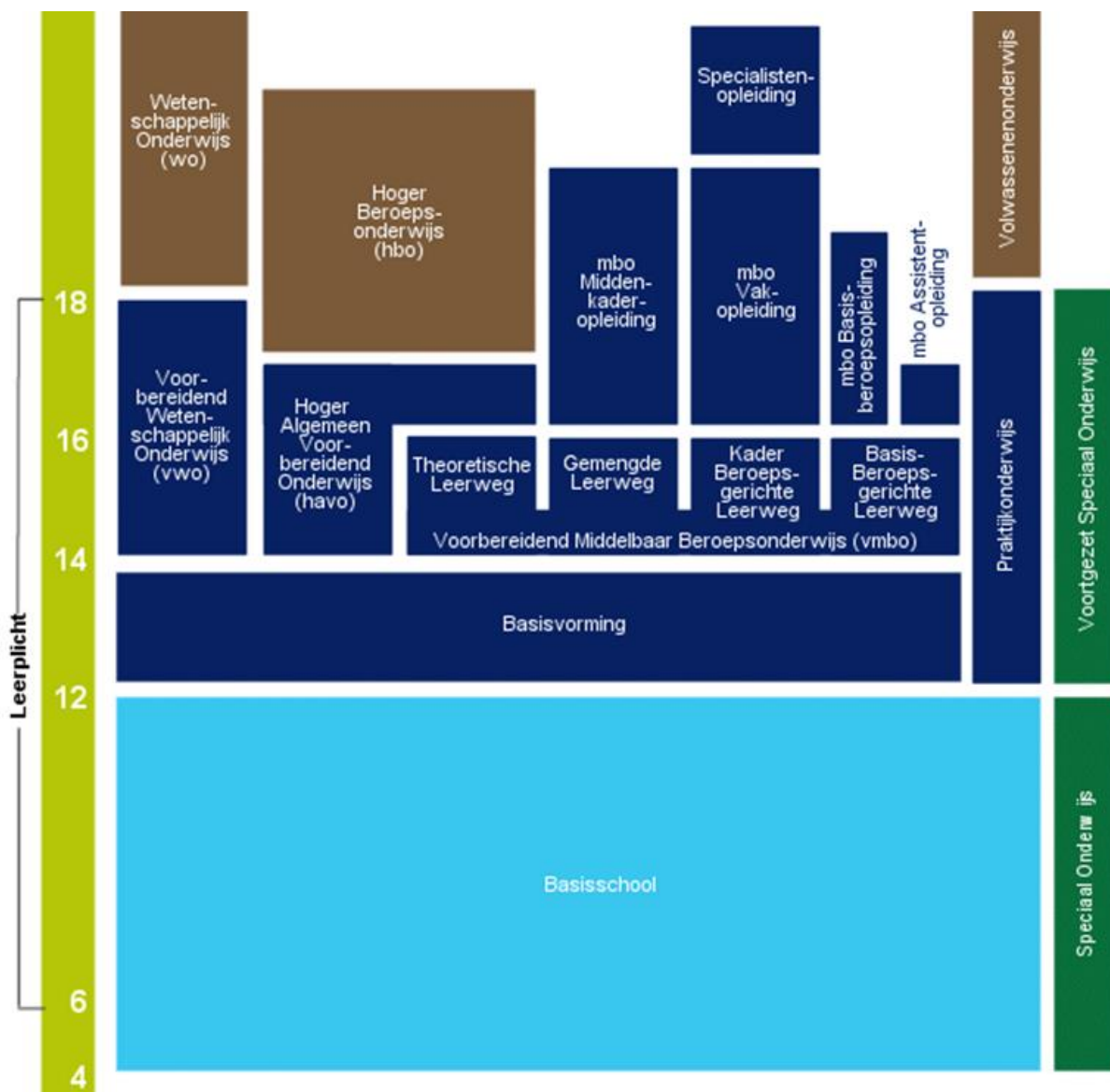
The QIBB mission statement contains statements on four fields of action:

- Teaching and learning
- Quality
- Economy and society
- Internationality

The mission statements of the school types are based on the QIBB mission statement, which in turn can be modified and supplemented by the schools on a site-specific basis.

2.5. Netherlands

In order to understand the place and function of the Dutch system for VET, it is important to understand the positioning of this function in the whole of the formal-education landscape. Both horizontally (especially in the age-range 14-16) as well as vertical through the system, VET is not positioned as a unique, solitary placed 'school', but more as an educational-line in a number of variations. If to be compared with VET-schools in others countries, one can focus best on the 'MBO Vakopleiding' ('middle vocational schooling') that formally starts at the age of app. 16. However, the phase coming before that in the structure (see graph below), named 'VMBO', is splitting, seeking to link the educational process with the MBO as of the age of approximately 14. Therewith we see the creation of a more fluid structure from ages 14-21 (including the Specialist Training that follows MBO).





VET in the Netherlands

The Structure

The Dutch, European and international labour markets demand highly educated workers who are prepared for the future. As introduced above the Netherlands there have put in place government-funded colleges for secondary VET and adult education in the Netherlands. In vocational education in the Netherlands, students can acquire competency in specialised job fields through a combination of theory and work experience. MBO (Middelbaar Beroeps Onderwijs) is the abbreviation for secondary VET in the Netherlands. As of the age of 12 students can enter the preparatory education of this MBO structure, named vMBO. They first study in a basic phase for 2 years and then choose a more specific line of studies, already pointing towards labour-market segments.

Especially in the region of the schools active in the MetESD-project, substantial shifts in VET have been prepared during previous years, now leading to the integration of the 2nd phase of vMBO, therefore concerning students age ap. 14, with the first year of the MBO. Therewith schools, regional government and industry hope to better and more completely educate and qualify students for future jobs.

In general VET is the main supplier to the labour market, often regarded as the 'foundation of the economy': approximately 40 percent of the Dutch working population have completed a vocational course to at least a secondary vocational training level.

There are currently 630,000 students in the VET sector, 485,000 of whom take part in regular VET courses. The remainder follow adult education programmes. The government invests about EUR 2.6 billion annually in this sector--approximately 12 percent of the total budget for education--which forms the linchpin between pre-vocational secondary education and higher professional education.

The VET sector consists of 70 colleges, comprising VET colleges ("ROCs"), agricultural VET colleges ("AOCs") and specialised vocational colleges. The ROCs offer VET in Technology, Economics, Personal and Social Services, Health Care and Adult Education.

The agricultural VET colleges already offer pre-vocational secondary and VET in the agricultural and food technology sectors. Specialised colleges offer programmes for a specific industry-branch, such as graphic art and design, butchery, house painting, furniture making, fishing or shipping and transport.

The Programs

VET provides several programmes for young people from the age of 14 respectively 16 to develop their skills and increase their employability. Students can choose between a school-based learning route with full-time education (BOL) and a



work-based route (BBL) in which students combine work and study. In both routes and at every training level, students must spend part of their time on work experience in order to obtain a diploma, so that all students acquire competency in a work environment.

The duration of the courses varies from six months to four years, depending on the course level:

Level 1: Assistant training

Level 2: Basic vocational training

Level 3: Full professional training

Level 4: Middle management and specialist training

Adult education

Adult education is accessible for adults from the age of 18 onwards and encompasses, for example, introductory courses for immigrants to the Netherlands, language and literacy courses at various levels and second-chance secondary education. It plays a major role in integration issues and contributes to social cohesion.

Education on a contract basis

The colleges also offer education and courses on a contract basis, such as refresher courses, in-service training for employees and training programmes for the unemployed, providing life-long learning opportunities.

Connection with the labour market

Among the Dutch educational sectors, VET maintains the closest relations with the labour market. Colleges have frequent contact with companies and organisations where students work and/or have their work experience. Regional trade and industry communicate with the colleges about the quality and content of the courses on offer. Innovative education and training is also developed in close consultation with trade and industry.

This contact between colleges and companies is extremely important in ensuring a close match between the education that colleges provide and the skills that companies need. At the national level, the VET sector liaises with trade and industry on the content of the vocational courses, through a joint council of the MBO's.

Competency-based vocational training

The qualification structure of Dutch vocational training is undergoing extensive remodelling towards competency-based learning, in order to meet society's needs for modern and flexible employees. The competency-structure describes all the occupations for which vocational courses are offered, plus the competences needed to practise those occupations. Qualifications must be broad and robust, and should indicate what qualities and attitudes are needed in the workplace. Therewith the strive is served for vocational



education to be more practical(ly effective) and enable colleges and companies to better tailor education to the needs of the region and the abilities of the student.

Globalisation in the MBO sector

The labour market is globalising rapidly: workers are increasingly internationally mobile and Dutch society encompasses a great variety of nationalities and cultures. As a result, the international dimension in VET has become increasingly important.

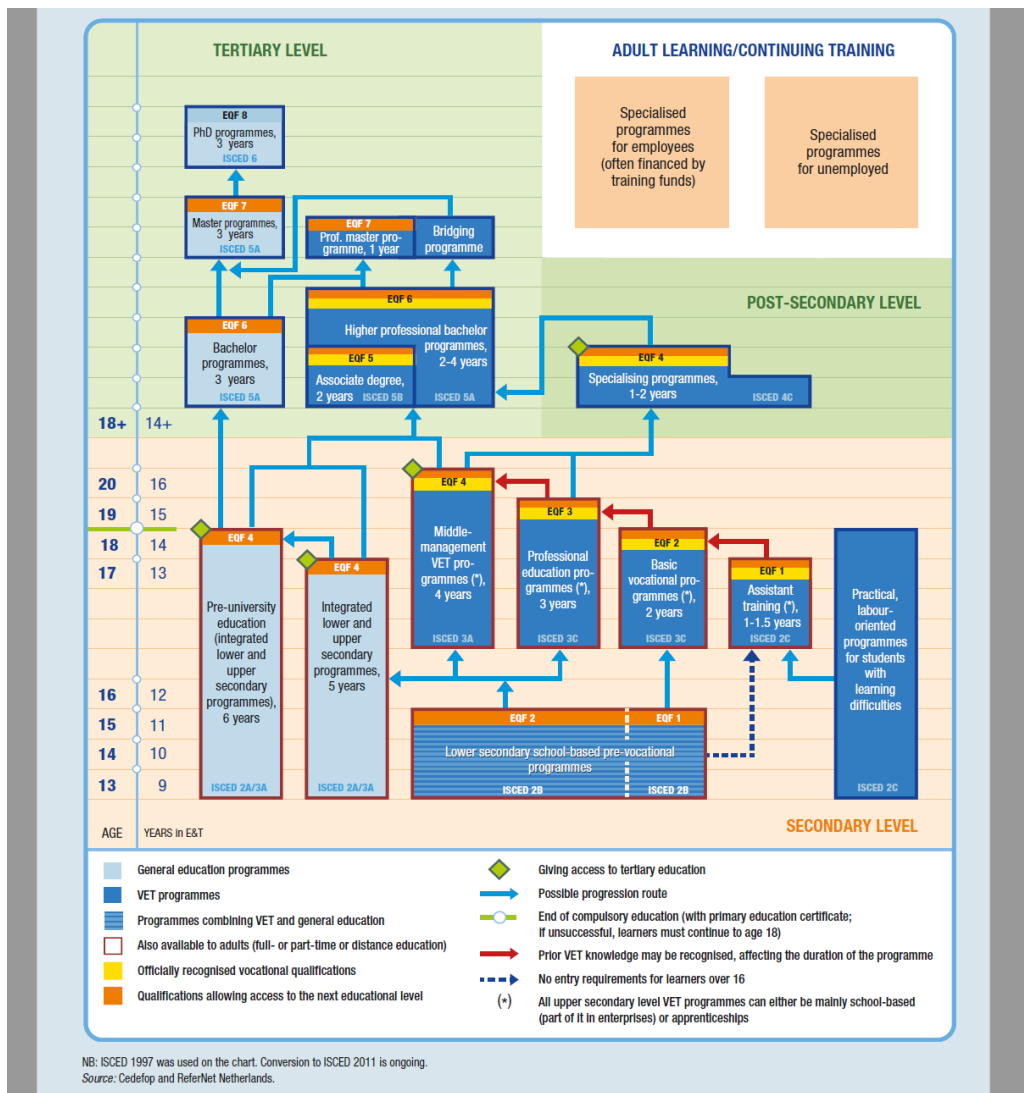
Vocational education has a crucial part to play in making Europe the most competitive economy in the world, an ambition declared by European leaders at the Lisbon Summit in 2000, and in strengthening the knowledge-based economy in Europe. The European and international labour markets demand highly educated workers who are prepared for the future and who take life-long learning seriously. It is the mission of the MBO Raad to support and advise its members in achieving this goal.

Learners leaving primary education at age 12 go on to various schools in the secondary education category. From the third year at lower secondary level (14 year-olds) onwards, about a quarter of students follow programmes that can be characterised as pre-vocational (part of preparatory secondary vocational education (VMBO)). For learners not capable of entering pre-vocational education, separate labour-oriented practical training is offered (praktijkonderwijs). There are two types of programmes at upper secondary level that provide general education: upper secondary general education (HAVO) and pre-university education (VWO). Upper secondary vocational education (MBO) is also available. Three structural elements determine this type of education: differentiation according to level, programme orientation and learning pathway:

- level: upper secondary vocational education has four levels corresponding to EQF levels 1 to 4. At which level students start depends on what prior education they have and the diploma obtained. There are no minimum admission requirements for levels 1 and 2 in this type of education; however, this will change in the near future. From summer 2014 onwards, only the level 1 programmes will be without a threshold. It is possible to move (upwards) within upper secondary vocational education and the highest level 4 (EQF 4) gives access to associate degree or bachelor programmes in higher professional education (HBO) offered by universities of applied sciences;
- programme: vocational training programmes are offered in four sectors; green/agriculture, technology, economics and care and welfare. There are a total of 237 dossiers that describe interrelated qualifications; there are 612 different diplomas;
- learning pathway: upper secondary vocational education has a school-based pathway (BOL) and a dual pathway (BBL). In the school-based pathway, students spend at least 20% of their time on work placement. In the dual pathway,



students have jobs that they combine with a course of study (apprenticeship); this often involves four days' work a week and one day at school. Higher professional education (HBO) is open to students with upper secondary general education diplomas. Transferring to this type of higher education is also possible with a diploma at level 4 of upper secondary vocational education: 50% of students with a qualification at MBO-4 level enter the job market while the other half go on to higher professional education. The majority of these students pursue a four-year professional bachelor degree programme. Moreover, in recent years two-year associate degree programmes have been developed (short-cycle higher education) and students with a bachelor degree can transfer to a professional master degree programme, albeit still to a limited extent. There is no institutional framework for continuing vocational education and training (CVET). Provision is market-driven with many suppliers. Social partners can stimulate CVET with help from their branch-specific training and development funds. Publicly-financed part-time/dual initial VET can also function as CVET for adults. In upper secondary vocational education the national qualification structure defines qualifications' desired outcome. Social partners and education, represented in sectoral institutions, have the legal task to develop and maintain these qualifications. Once determined by the Ministry of Education, Culture and Science/Economic Affairs, schools develop – in cooperation with training firms – curricula based on the qualification profiles.



Compared to other countries, upper secondary VET in the Netherlands has the following special characteristics:

- vocational education and training (VET) is the joint responsibility of government, social partners and educational institutions. The business community plays a relevant part in developing qualifications and providing apprenticeships;
- publicly-funded providers of VET programmes are multisectoral, large regional institutions (averaging 12 000 students at each regional training centre (ROC) and several specialist schools, including agricultural training centres). ROCs provide vocational education for young people and adults (IVET), in addition to general adult education; they are active on the continuing VET market with



privately-funded programmes. Government-regulated IVET programmes are also provided by privately-funded institutions. The heterogeneous and multifunctional nature of upper secondary VET is unique compared to other countries;

- the two learning pathways in upper secondary VET lead to the same diplomas. They operate like a system of communicating vessels so that the learning pathways' volume of intake can move with the economic trend: increase of

students in the school-based pathway during a period of economic recession and decrease in the dual pathway; and the opposite during a period of boom;

- educational institutions are given a high degree of freedom to design vocational education as they see fit. The VET law provides a broad framework only outlining some key elements at system level; institutions receive a lump sum for their tasks.

Three, to some extent conflicting, principles are crucial for the VET system: accessibility, quality and efficiency. Striking a good balance so that each principle is applied optimally is a constant challenge. In practical terms, this means, first, that Dutch upper secondary VET works towards developing talents of its highly heterogeneous student population – from students who transfer to higher education right down to students for whom obtaining a minimal basic qualification is too difficult. VET has to be accessible and attainable for all target groups. At the same time, the challenge is to raise quality and effectiveness of upper secondary VET. Key aspects of this objective are: further reduction in numbers of early school-leavers and more students attaining their diplomas at various vocational education levels. Recently, basic skills requirements (language, elementary mathematics) were tightened to improve quality; central testing of these basic skills is currently being implemented in various forms of education, including upper secondary vocational education. The challenge – related to VET programmes' design – is to find a good balance between generic key skills with a high transfer value and specific knowledge and skills from different vocations. A third challenge lies in increasing efficiency of upper secondary vocational education, where the following developments play a role: moving towards an all-embracing system of qualifications for secondary vocations and corresponding training courses; reducing numbers of qualifications while ensuring they are widely on offer throughout the Netherlands; and decreasing duration of training, in particular longer courses in upper secondary VET. While emphasis in the first decade of this century was on guaranteeing accessibility of the VET system, principles of efficiency and quality have, for the past four years, been receiving more attention.

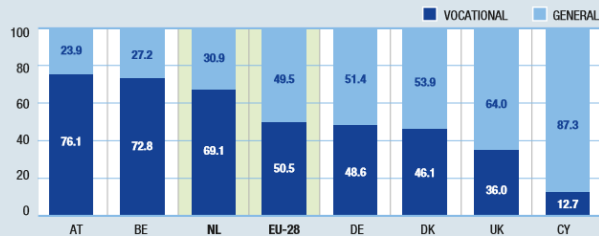


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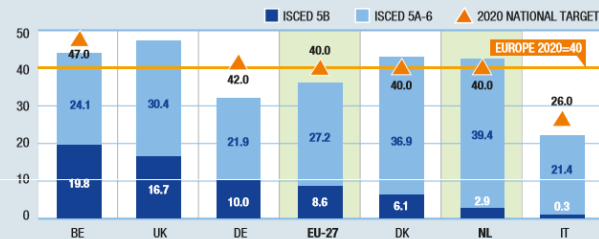
Education and training in figures

Learners in upper secondary education enrolled in vocational and general programmes
% of all students in upper secondary education, 2011



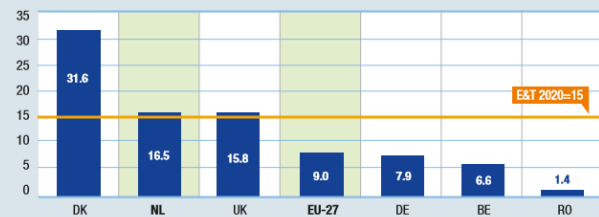
Source: Eurostat, UOE data collection on education systems, date of extraction 28.6.2013.

Tertiary education by type
% of 30-34 year-olds with tertiary education by type, 2012



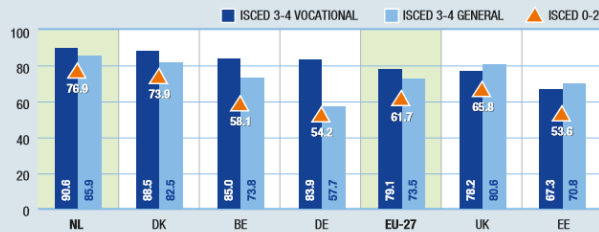
Source: Cedefop calculations based on Eurostat, labour force survey, date of extraction 8.7.2013.

Lifelong learning
% of population aged 25-64 participating in education and training over the four weeks prior to the survey, 2012



NB: Data for NL are provisional.
Source: Eurostat, labour force survey, date of extraction 3.7.2013.

Employment rates by highest level of educational attainment
20-34 year-olds no longer in education by highest level of educational attainment, 2009



Source: Cedefop calculations based on Eurostat, 2009 ad hoc module of the EU labour force survey, date of extraction 19.9.2012.

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