

National overview of education systems and the requirement/demand for natural sciences in the curriculum - LATVIA

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	GENERAL DESCRIPTION
1	Define what ‘vocational’ or ‘work-related’ education means in your cultural context

The task of vocational education is to give opportunities for continuation of education after graduation of elementary school or secondary school in order to obtain initial professional qualification, develop capacities for professional continuing education and get rights to continue education at higher level.

Different vocational education and training programmes are developed and offered for all branches of the national economy of Latvia. The National Standard of the vocational education and the Occupational Standards (*Profesijas standart*s) determine the curriculum/content of vocational education programmes. Vocational education in Latvia is divided into basic vocational education and Secondary vocational education. Majority vocational education schools in Latvia provide 4 and 3 years vocational education (secondary vocational education and training programmes and only some programmes are designed for the basic vocational education and training purposes.

Basic vocational education

Basic vocational education lasts 3 years and is intended to provide training in simple trades for pupils who have not finished compulsory nine-year basic education by the age of 15. By successfully completing this educational programme, the pupil obtains a basic education certificate and besides acquiring Level 1 or 2 of vocational qualification students also have the opportunity to accomplish the basic education and may go on to secondary education. The aim of this form of education is to prevent marginalisation of a particular group of pupils.

Secondary vocational education

Latvia offers two sorts of vocational education at secondary level:

1. Vocational programmes, lasting two or three years are offered to students who have completed the basic education and provide the opportunity to acquire Level 2 of vocational qualification. Education can be continued in **2-year programmes** leading to qualification Level 3 or **1-2 year programmes** leading to a Certificate of the secondary education. Programmes provide theoretical and practical knowledge required for becoming a skilled worker. On completing such a vocational education programme, the pupil has not, however, obtained a full secondary education. For this, further schooling is required.
2. Secondary vocational programmes, lasting at least four years are offered to those students who have successfully completed compulsory basic education in vocational secondary schools. Graduates of these programmes have an opportunity to combine acquisition of Level 3 of vocational qualification and besides this is a full secondary education programme, so the school-leaver is entitled to enter a higher education institution. These provide much wider theoretical knowledge and practical skills in the particular profession. The

pupil is prepared not only to implement the tasks of skilled workers, but also to plan and organise work.

Depending on the type of vocational education programme, all students who have passed the final subject and qualification exams are awarded a diploma or certificate: a diploma of vocational secondary education, a certificate of vocational basic education and training, a certificate of vocational initial education and training.

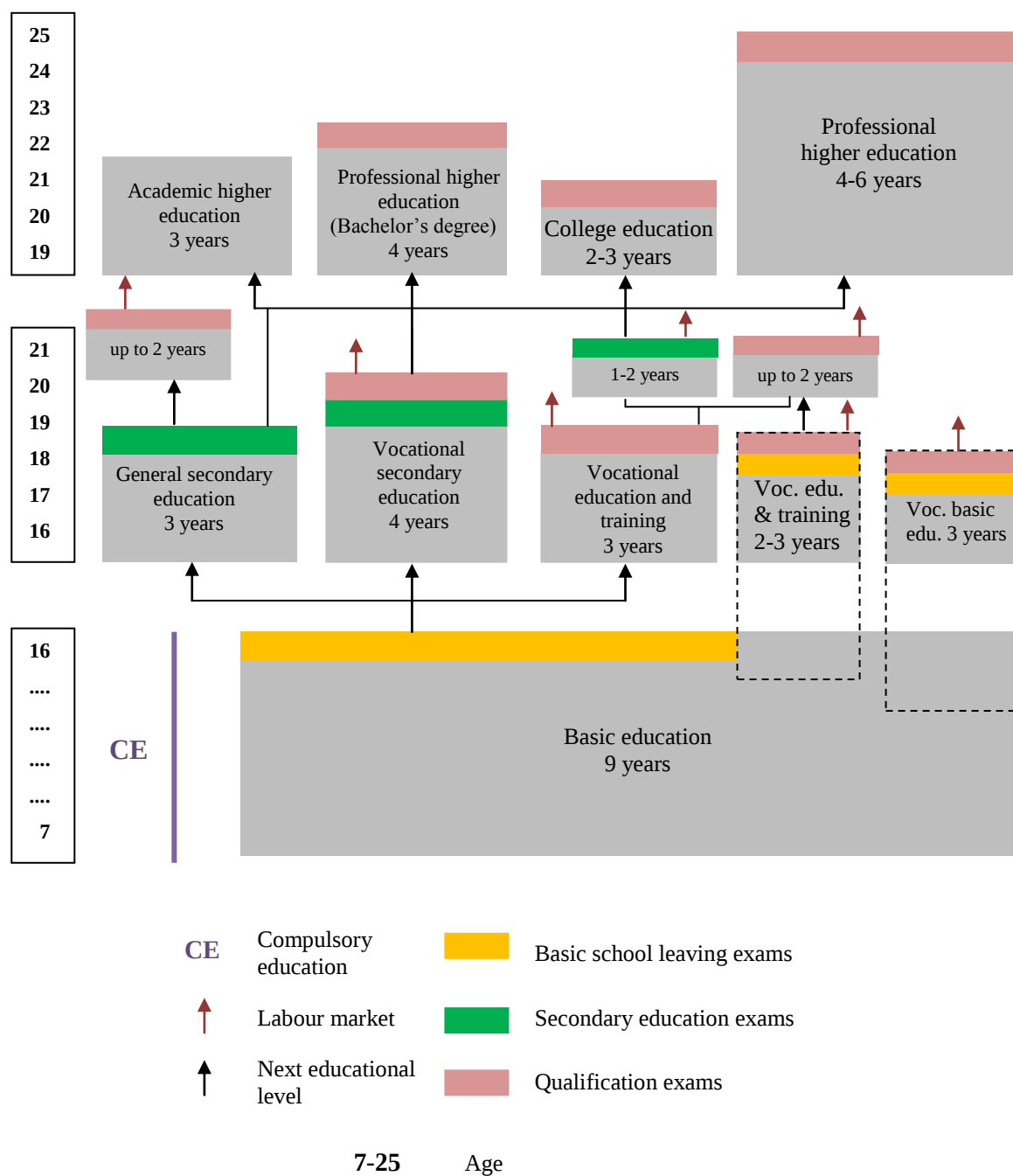
Sources:

<http://izm.izm.gov.lv/nozares-politika/izglitiba.html>

http://www.li.lv/index.php?Itemid=459&id=74&option=com_content&task=view



The Vocational Education System in Latvia



2. Explain the institutional/political framework within which work-related education takes place – who delivers it, who funds it, who controls it etc

The institutional/political framework

Latvian government makes a decision on political framework of education and main educational principles and priorities. Ministry of Education and Science is responsible for implementation of this policies.

Financing of education in Latvia

Responsibility on financing of education lies on both – state it's own and local governments.

Vocational educational institutions are classified as follows:

- State vocational educational institutions - local authority finances both teaching and maintenance of the school;
- Local authority vocational educational institutions - local authority finances both teaching and maintenance of the school;
- Private vocational educational institutions – are maintained and funded by it's owner.

Table. Vocational educational institutions classification by it's statute

Institution by it's statute	Number of schools 1999/2000	Number of schools 2004/2005
State vocational educational institutions	111 (91.8%)	93 (83.8%)
Local authority vocational educational institutions	5 (4.1%)	7 (6.3%)
Private vocational educational institutions	5 (4.1%)	11 (9.9%)
Total	121	111

Survey by European Centre for the Development of Vocational Training "Initial Vocational Education and Training (IVET) in Latvia" (2005)

Political framework

Main laws/decrees governing vocational education:

Decree: Law on Education Year: 1999

Concerns: General educational regulations; a frame law containing definitions of all types and levels of education and laying down the general principles and competences of governing bodies.

Decree: Law of Crafts: 1993

Decree: Law on Professional Education Year: 1999

Concerns: Vocational education institutions, programmes, credentials

Decree: Regulations of Accreditation Year: 1995

Concerns: Procedures of quality assurance and accreditation of programmes and institutions

Decree: Operational programme „Human Resources and Employment” (2007-2013)

Decree: The National Standard of the vocational education and the Occupational - Standards determine the curriculum/content of vocational education programmes.

Institutional Framework

The Department of Vocational and Continuing Education (Profesionālās izglītības un tālākizglītības departaments) and the centre under its supervision, the Vocational Education Centre (Profesionālās izglītības centrs) are responsible for VET within the Ministry of Education and Science.

The Department of Vocational and Continuing Education develops national policy and strategy in VET and delivers it together with other State institutions. The Department supervises State educational institutions, collaborates with employer institutions and trade unions. It provides technical support for the work of the National Tripartite Sub-Council for Co-operation in VET and Employment and the National Tripartite Council for Co-operation, as well as harmonising VET policy according to EU demands.

The Vocational Education Centre organizes the accreditation of VET providers and programmes. It has a number of other tasks including: the development of occupational standards; the provision of content and methodology for qualification exams; the functioning of learning and examination centres; and it organizes the professional development of VET teachers.

Ministry of Education and Science main responsibility covers development of political framework in the field of vocational education. Many schools are also supervised and funded by the Ministry of Education and Science. Depending on its profile there are schools which are supervised and funded by other ministries – the Ministry of Agriculture, the Ministry of Health, the Ministry of Welfare, the Ministry of Culture and the Ministry of Interior.

Sources:

<http://www.li.lv/>

<http://www.tvnet.lv/zinas/printArticle.php?id=517056>

www.aic.lv/refernet/doc/Theme_4-atsk_par05latv.doc

<http://www.izmpic.gov.lv/>

Law on Professional Education Year: 1999 (changed in 2007)

3. What are the main topics in the educational programme for vocational education providers in mathematics, chemistry and physics and what methodologies are used (theoretical or practical exercises, laboratory work):

The main topics in the educational programme in mathematics, chemistry and physics in vocational schools is not publicly available information.

Some methodologies on development of educational programme are publicly available (<http://www.izmpic.gov.lv/index2.html>).

Methodology

A programme for every craft should consist of 4 parts:

- Description of a programme
- Professional subjects
- Practical training
- Qualification practice

Source: <http://www.izmpic.gov.lv/index2.html>

4. Total number of lessons in each subject per all period of subject learning at this speciality at vocational schools; the total number of lessons in each subject in relation to number of lessons overall (all subjects):

The data on total number of lessons in each subject for the Secondary education for typical mathematics and natural sciences educational programme is as follows:

Mathematics – 4 lessons per week (total 140 hours)

Chemistry – 2-3 lessons per week (total 70-105 hours)

Physics – 3-4 lessons per week (total 105-140 hours)

Mathematics:

1. Number of teaching lessons:
 - vocational secondary education 320
 - vocational education & training 170
2. Number of practical training:
 - vocational secondary education 160
 - vocational education & training 40
3. Total:
 - vocational secondary education 480
 - vocational education & training 210

Physics and Chemistry:

1. Number of teaching lessons:
 - vocational secondary education 110
 - vocational education & training 60
2. Number of practical training:
 - vocational secondary education --
 - vocational education & training --
3. Total:
 - vocational secondary education 110
 - vocational education & training 60

Source: <http://www.tukumagimn.lv/Reflektantiem.html#Ex>
<http://www.izmpic.gov.lv/index2.html>
www.r41vsk.ucoz.org/RiGAS41.VIDUSSKOLASIPLICENC.2007.doc

5	Teaching load – number of lessons per week, methodology preparation work and extracurricular activities:
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Number of lessons per week: 21

School hour length: 45 minutes

Source:

www.izaugsme.lv/profesija/profesiju_pasaule/prof_apraksti/sakumskolas_skolotajs.html - 10k -

www.nra.lv/zinas/3408-skolotaju-samaksa-septembri-pieaugst.htm - 30k -

6	Describe the qualifications requirement for teachers; opportunities for improving subject knowledge and CPD (continuing professional development) provided
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Qualifications requirement for teachers in a professional education

Nr. p.k.	Level of education and the trade of a teacher	Necessary education and professional qualification
1. Basic education:		
1.1.	Vocational education teacher	Vocational secondary education or qualification of a craftsman assigned by The Latvian Chamber of Crafts (LCC), which complies with level of a trade expert in a branch and pedagogical education.
2. Secondary education:		
2.1.	Vocational education teacher	Higher education in a branch and pedagogical education or higher education, which is obtained in programmes acquiring which a professional qualification is received in the relevant scientific branch including chemist and physicist.
		Vocational secondary education (qualification of a craftsman assigned by The Latvian Chamber of Crafts (LCC) in a branch and higher pedagogical education
3. Manager of an educational institution (headmaster), substitute of a manager, department manager and methodologist:		
3.1.	Vocational education teacher	Higher pedagogical education (academical or professional) or higher education in a branch
4. Internet teacher:		
4.1.	Vocational education institution	See requirements for vocational education teacher or social teacher qualification

Source: The Minister of Cabinets law Nr.347 (03.10.2000. changed 30.12.2006)



7	Explain the exam framework (internal and external), monitoring and , laboratory based assessment activities among vocational education providers? <u>Framework:</u> In order to ensure state final examination which is foreseen in secondary vocational education programme in subjects of general education, pupils are obliged to pass following exams: 1. Required unitary exams (Latvian language/ literature, first foreign language) 2. Two in subjects chosen by a pupil: unitary exams - physics, chemistry, biology, mathematics, second foreign language, history; exams - geography, Russian language/ literature) The Vocational Education Centre or Public cultural education centre of Ministry of Culture (<i>Kultūras ministrijas Valsts kultūrizglītības centrs</i>) in the field of art, music and choreography in cooperation with Vocational education and employment triangular cooperation subcouncil (<i>Profesionālās izglītības un nodarbinātības trīspusējās sadarbības apakšpadomi</i>) develop the programme of an exam. The programme contains aim and scheme of an exam, description of theoretical and applied parts, performance time, elements tested, assessment order and criteria. <u>Assessment order:</u> Sum of points gathered within theoretical and applied parts of an exam determine estimation by points in accordance with a certain estimation scale according to professional qualification level. This estimation scale is unitary for all professional qualifications in the framework of a certain to professional qualification level. Exam is passed if estimation is not less than 5 point (indifferently). <u>Sources:</u> www.izmpic.gov.lv/Kvalif_Eksameni2/07-08_rikojums_par_valsts_nosl_parbaud.doc: order Nr.1197 „Par valsts noslēguma pārbaudījumiem vispārizglītojošos mācību priekšmetos Izglītības un zinātnes ministrijas padotībā esošajās profesionālās izglītības iestādēs” (17.12.2007) http://www.likumi.lv/doc.php?id=20244: The MC Nr. 211 „Noteikumi par valsts profesionālās vidējās izglītības standartu un valsts arodizglītības standartu” (27.06.2000) www.izmpic.lv/Kvalif_Eksameni/CPKE_programma: order Nr.356 „Centralizētā profesionālās kvalifikācijas eksāmena programma” (17.12.2007)
8	How long does it take a teacher to prepare an exam, mark it or to supervise and evaluate laboratory based assesment?

No information has been found about statistics on duration of exam preparation or evaluation for a teacher. As it has been stated during an interview with teachers of one of secondary schools of Riga there is certain additional payment that is given to a teacher for this type of „extra work” such as exam preparation or evaluation and the value of this additional payment depends only on type of exam (school exam, state exam, centralized exam) and not on duration of preparation/evaluation.



9	Could GenExis be used to improve systems/resource use and learning outcomes?
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Theoretically, for sure. But practically there might appear problems in installation of GenExis on computers of certain vocational schools because statistics show that in vocational schools at the end of 2007/2008 studying year there were 36 % of computers which are older than 5 years by its release date (information about private vocational schools not included). But still there is a slight progress in this topic because at the end of 2006/2007 studying year the percentage of old computers (older than 5 years) was 5 % higher (41 %). The situation concerning Internet connection unfortunately is more dramatic: 50 % of total Internet connections in vocational schools in 2007/2008 studying year had a low speed rate of 128-512 Kbps (it was 57 % in 2006/2007 for the same category).

Source: <http://izm.izm.gov.lv/registri-statistika/statistika-profesionala.html>

10	What systems of monitoring/testing/examination do vocational education providers use?
	There are no ICT systems used for monitoring/testing/examination in vocational schools for physics, chemistry and mathematics.

	ICT IN VOCATIONAL EDUCATION SCHOOLS
11	Significance of government/relevant ministries in introducing and promoting use of new technologies within work vocational education providers:
	Low level of significance. The main function of the Ministry of Education and Science is funding. The most significant institution in introducing and promoting use of new technologies within work vocational education providers is Vocational Education Centre (VEC) which is an independent administrative establishment subordinate to the Ministry of Education and Science
12	Which organization is responsible for application of technologies in vocational education providers:
	There is a specific public foundation called Education Innovation Fund which is supervised by the Cabinet of Ministers which aim is to provide with financial support innovational projects in the field of education. This fund also develops methodological guides for project applications and announces calls. According to the Decree of the Fund it facilitates “implementation and use of modern technologies in the educational process” Source: http://www.iifonds.lv/par.html



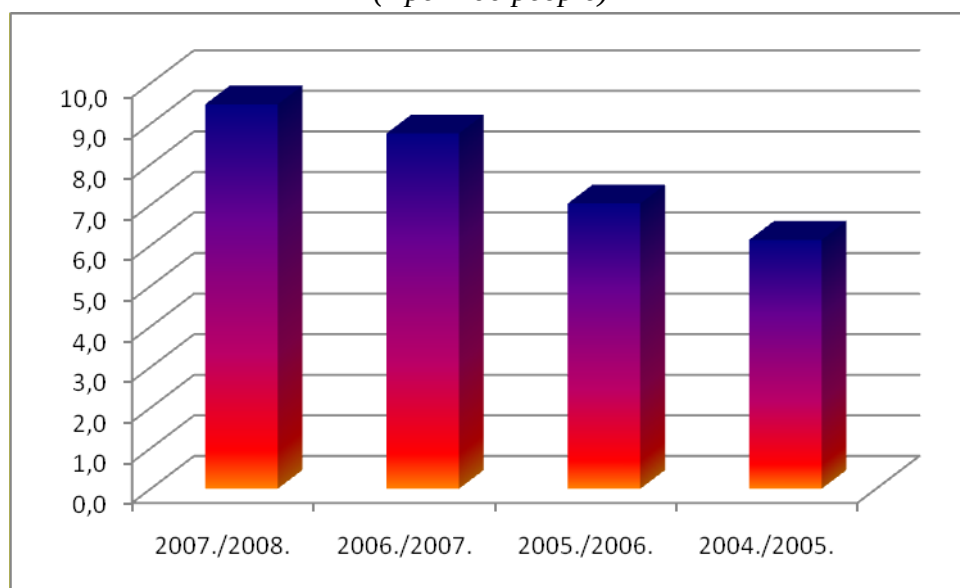
13	Are there any programmes or projects aimed at introduction and application of ICT, computer facilities and training of teachers and pupils? <u>OPERATIONAL PROGRAMME „HUMAN RESOURCES AND EMPLOYMENT”</u> <u>Measure 2.1. “Development of Vocational Education and General Skills”</u> <u>Activity 1.</u> Development of vocational educational system, improvement of quality, conformity and attraction. <u>Objective:</u> to increase proportion of students in vocational educational programmes and promote conformity of vocational qualification with labour market demands, thus improving national qualifications system, standards of profession, educational programmes and examination, improving attractiveness of vocational educational programmes and quality of implementation by competence raise of vocational educators and internship managers involved in vocational education for implementation of modernised curricula, promotion of innovative solutions in vocational education and provision of access to the training correspondent to qualification demands, as well as improve capacity and cooperation between institutions, i.e. social partners, involved in vocational education. <u>Activity 2.</u> Improvement of general knowledge and skills. <u>Objective:</u> improve general knowledge and skills and youth participation in secondary education by implementation of general secondary education reform, thus improving content and programmes, improvement of teaching methods and evaluation system of study achievements, emphasizing knowledge application in practice , and promote interest in natural sciences, technologies and foreign languages; ensure sufficiency of educators and involvement of young educators in school work, as well as support to competence raise of general educators to implement modernized educational content and promote innovative solutions in education. <i>Source: OPERATIONAL PROGRAMME „HUMAN RESOURCES AND EMPLOYMENT”: ANALYSIS OF THE CURRENT SITUATION IN THE SECTORS COVERED BY THE OPERATIONAL PROGRAMME “HUMAN RESOURCES AND EMPLOYMENT”</i>
	<u>Project</u> • KIPNIS (<i>Ensurance of Career educational programmes in educational system</i>) is ESF structural funds national programme project 3.2.7.1. (<i>Support of implementation of professional orientation and career education in educational system</i>) that is implemented by State Education Development Agency (VIAA). <u>Aim:</u> improve availability and quality of career education in all types of educational institutions in the context of lifelong education. <u>Duration:</u> 9.02.2005 – 20.08.2008 <u>Funding:</u> 2287357.56 LVL <u>Project results:</u> Methodological materials in DVD format (27000 copies), e-consultations platform and data base have been developed. <i>Source: http://www.viaa.gov.lv/Euroguidance/kipnis/index.htm</i>
	SITUATION within vocational education providers
14	Is ICT used in learning process; if so in what ways:
	Basically all ICT resources are situated in computer rooms where informatics lessons take place. ICT in learning process is basically used as PowerPoint presentations, photoshoots and videoclips demonstrations during lectures.

15 How many computers do vocational education providers have (x per 100 people):

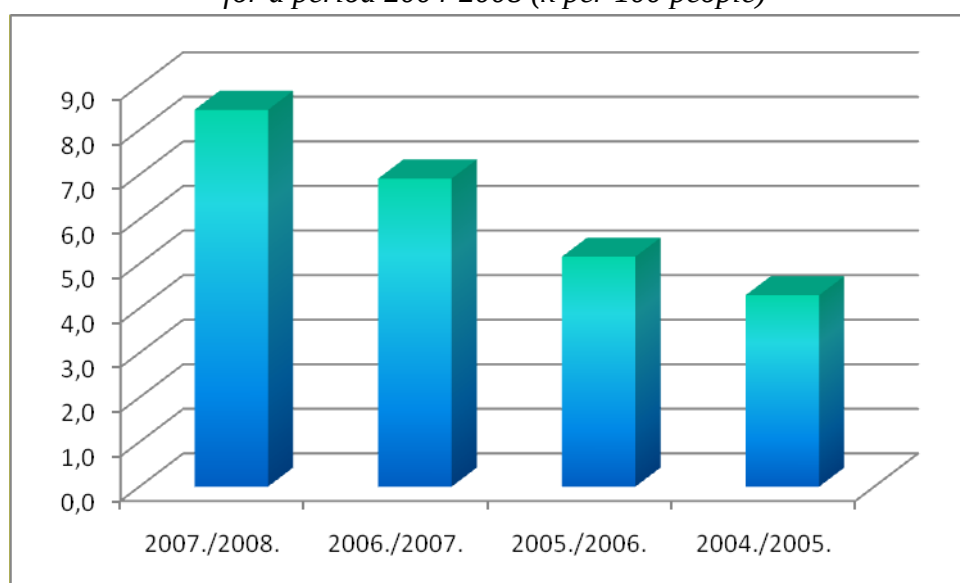
The vocational education institutions lack provision of computers and software, which constitutes a serious obstacle to training of students in compliance with the European Computer Driving Licence (ECDL).

In 2007/2008 studying in Latvia there were 37667 students in vocational education schools and 3570 computers and 3185 internet connections foreseen for the learning process. That means that only 9,4 computers and 8,5 internet connections are available for each 100 people.

*Diagram. Number of computers in vocational schools for a period 2004-2008
(x per 100 people)*



*Diagram. Number of Internet connections in vocational schools
for a period 2004-2008 (x per 100 people)*



Source: <http://izm.izm.gov.lv/registri-statistika/statistika-profesionala.html>

16	Are there separate computer rooms in each vocational education providers; are they easily accessible?
	Generally there are 1-2 separate computer rooms in each vocational school which are initially made up for teaching informatics and out of lesson time all computers usually are easily available for pupils needs. There are also some computers available for pupils in school library as well.
17	Are there separate classrooms for mathematics, physics and chemistry:
	There are separate classrooms for physics, chemistry and mathematics. Although classrooms which are initially made up for teaching of mathematics are traditionally used for teaching almost any other subject (except practice lessons for physics, chemistry and informatics).

18 What sort of Material and technical equipment is provided in physics, chemistry and mathematics classrooms (are essential technical and practical aids provided; is there a separate laboratory and lab assistant):

The National Strategic Reference Framework for 2007-2013 and operational programme “Human Resources and Employment” determine current situation analysis identifying the following problems in the development of vocational education and general skills:

- National qualification system and educational programmes not correspondent to the labour market demands, as well as insufficient cooperation between educational establishments and employers concerning improvement of education;
- Significant proportion of youth involvement in labour market without any qualification and insufficient general knowledge for further education;
- Insufficient youth involvement in secondary education, low prestige of vocational education and inadequate quality of education, low number of intended students;
- General and vocational educators qualification not correspondent to contemporary needs, shortage and aging of teaching staff.

In order to improve quality, contents and programmes of general education there will be implemented reform of secondary educational contents in general education emphasizing application of knowledge, improvement of teaching methods and evaluation system of study achievements, promoting interest in subjects of natural sciences and technologies as well as acquisition of foreign languages, turning to practical application of theoretical knowledge.

In order to make vocational education institutions more attractive, to raise their image in the eyes of the community, and to increase the number of students of vocational education programmes, it is necessary not only to improve the content of the educational programmes but also to modernise the material and technical base of studies through cooperation with employers, to use the newest technologies in study internships. Decreasing of the number of inhabitants with low level of basic skills and those who have not completed educational institutions requires development and implementation of comparative educational programmes which would allow people with unfinished primary education to acquire vocational education. It is material also to foster provision of education supply as close as possible to the place of residence and integration into acquisition of vocational education of the groups of people at risk of social exclusion. Substantial improvement of the quality and material & technical supply of vocational education will decrease the number of the unemployed young people; qualification of the labour force will correspond with the labour market demands.

The learning materials and classroom equipment at the disposal of sciences teachers do not provide the opportunity to implement contemporary study content. The study material (devices for demonstrations, accessories for lab works etc.) is badly worn-out at schools in general and little replenished over the last 10–15 years. The classrooms have no computers, video projectors or other technical equipment for implementation of study content. The stocks of lab equipment, dishes, reagents and biological preparations are replenished insufficiently. The visual aids at schools are outdated.

Source: <http://www.esfondi.lv>

19	What type of teaching aids and materials are used in the teaching of mathematics, physics and chemistry:
	There are no strict prescriptions concerning teaching aids used in the teaching of mathematics, physics and chemistry. But there are mainly books and practical work/laboratories aids that are used in the teaching process, there are no software used in these three topics. But still during the last couple of years there were several software teaching aids developed by vocational schools in the framework of European Social Fund (ESF) funded projects. For example: • Mathematics (Author: Riga Pardaugava vocational school (Olga Kozlovskā); Release year: 2007; Target occupations (professions): unlimited; Description: methodological material which is also added in CD format, which includes theory, examples of tasks, tasks for comprehension check) • Physics (Author: Riga Pardaugava vocational school (Jānis Brants); Release year: 2007; Target occupations (professions): unlimited; Description: methodological material which is also added in CD format, which includes theory, examples of tasks, tasks for comprehension check) • Chemistry (Author: Riga Pardaugava vocational school (Mihails Basmanovs); Release year: 2006; Target occupations (professions): unlimited; Description: methodological material on the theme “Groups of complex chemical compounds”, which includes both theory and practice, auxiliary materials have been developed for interactive lessons in PowerPoint environment, which includes theory, examples of tasks, tests) Source: http://izm.izm.gov.lv/nozares-politika/izglitiba/profesionala-izglitiba.html



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Is there any information about further education or graduates' work careers (how do they use acquired knowledge):

This type of information is traditionally gathered by the the Latvian National Observatory. The latest available data concerning graduates' unemployment gathered by the Latvian National Observatory was reviewed in 2005 and showed that Latvia needs more qualified workers and that the qualification level of those employed should be increased significantly, particularly in the fields of natural sciences and engineering. Latvia needs more professional people with higher professional education. Research conducted by employers shows that the labour market needs a better qualified labour force in many areas, for example, accountancy, engineering, ICT, etc.

Unemployed graduates by education level

Education	2002/2003	2003/2004
Secondary vocational education	2,7 % (graduated = 13069; unemployed = 346*)	2,1 % (graduated = 12436; unemployed = 266*)
Secondary general education	3,2 % (graduated = 14342; unemployed = 459)**	2,5 % (graduated = 13665; unemployed = 341)**

Survey by European Centre for the Development of Vocational Training “Initial Vocational Education and Training (IVET) in Latvia” (2005)

The State Employment Agency (<http://www.nva.lv/>) information in May of 2006 revealed that there is a tendency for decrease in number of unemployed among graduates of both Secondary vocational and Secondary general education. The main cause why these graduates become unemployed is explained by lack of practice which is in its turn caused by poor technical provision in schools.

Sources:

*<http://izm.izm.gov.lv/registri-statistika/statistika-profesionala.html>

**<http://izm.izm.gov.lv/registri-statistika/statistika-vispareja/2004.html>

<http://www.apollo.lv/portal/life/articles/100029>

www.aic.lv/refernet/doc/Theme_4-atsk_par_05angl.doc