Flip IT!

Flipped Classroom
in the European Vocational Education

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ERASMUS+ Strategic Partnership

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State-of-art
Country Report

Hungary

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Author:	iTStudy, Számalk, Magyula, FM-Kaszk, edited by Mária Hartyányi
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Table of Content

1 Country education and vocational training system

1.1 Background of the Educational system (legal education) in the country

Recent legislation has led to more centralised vocational education and training (VET) governance. Since January 2013, the State has replaced local government in governance of schools. It has the right to employ head-teachers and pays pedagogical staff's salaries. Central administration of VET (and adult training) is led by the Minister for the National Economy, who shares responsibility with ministries for specific vocational qualifications and with the Minister for Human Resources on learning outcomes and framework curricula. Since the 1990s, business and industry have been involved in national advisory bodies and, increasingly, in decision-making on VET-related issues. The Chamber of Commerce and Industry presently plays a dominant role in shaping VET and adult training.

VET for young people
At age 14, learners decide if they wish to enter VET and what type of VET to choose. Around two thirds choose a VET pathway. Nearly one third of all 14-year-olds enter the track that prepares directly for manual jobs at upper secondary level. Recent legislation has introduced fundamental changes into the structure, governance and funding of upper, post-secondary and tertiary VET, effective from September 2013. The programmes are:

- **vocational school** (SZI) programmes leading to ISCED 3C (or 2C) level national qualifications register (OKJ) qualifications. They do not allow direct access to higher education. The new three-year programme is inspired by the 'dual principle'. It combines general education and vocational training throughout the three years and reinforces practical training;
- **secondary vocational school** (SZKI) programmes span upper and post-secondary level. The programme now combines VET and general education from the start, leading to a 'vocational secondary school leaving examination' (ISCED 3A) which does not award an OKJ qualification, but allows access to at least one occupation, higher education studies, or 'VET grades' awarding ISCED 4C level OKJ qualifications. 'VET grades' are also open to graduates from general upper secondary education. From September 2012, ISCED 4C level programmes are open to students who do not hold a secondary school leaving certificate, but have obtained a master craftsperson certificate and have at least five years' relevant work experience;
- **apprenticeships** can be offered in all types of VET. Practical training is organised in enterprises and/or school workshops depending on availability of places and learners' and schools' decisions. Currently, most SZI students do (part of) their practical training in an enterprise;
- **higher education** VET, previously advanced vocational programmes (FSZ), are now exclusively provided by higher education institutions and are regulated by the Higher Education Act of 2011. Programmes require a
- **secondary school** leaving certificate and award ISCED 5B level higher education vocational qualifications. Graduates can transfer credits to a bachelor (BA/BSc) programme in the same field.

Continuing its major reform for the promotion of VET paths, the government adopted a new concept paper in March 2015 and the VET law of 2011 has been amended accordingly. Vocational schools and vocational upper secondary schools will be managed by the Ministry of National Economy instead of the Ministry of Human Capacities with the aim of bringing VET closer to the labour market. The number of places has been increased in vocationally oriented upper secondary programmes. It is not known how these changes will influence the number of available study places in general upper secondary schools. The new teacher career system is planned also to apply to VET trainers and teachers.

The current vocational school types are being renamed without changes in the curricula. In the new system, szakgimnázium leads to a **professional upper secondary school-leaving qualification** (4+1 year), while the three-year szakközépiskola, in which pupils could enrol as of September 2012, offers a vocational qualification. A new decision is that pupils in szakközépiskola automatically continue their studies in the same school (unless they request it otherwise). They focus only on four study subjects for two extra years and can sit the upper secondary school leaving examination in the same school. This is a positive development as it opens the door to further education and better employment opportunities for pupils in this programme. However, without boosting the basic skills content of the current 3-year curriculum, pupils will not be able to acquire the level of key competences necessary for mastering subjects usually required for the upper secondary school-leaving exam. While structural barriers have been removed, the increasingly strict admission criteria for higher education give little chance for students from this school type to enter into higher education.

VET for adults

Formal education offers adults the same options as young people, in part-time or distance education. Adult training outside the formal school system comprises, among others: VET programmes which lead to OKJ qualifications; courses run by economic chambers preparing for master craftsperson exams; training awarding other (inter)nationally-recognised qualifications and licences, regulated by legislation; mandatory further training programmes for a given occupation; and other vocational, language and general courses. A new Adult Training Act was passed in 2013. It defines the legal framework for training provision regarding courses that award an OKJ qualification or a language proficiency certificate or those that have been financially supported by national/EU funds. The State supports vulnerable groups' and SMEs' training through grants.

1.2 Diagram of the country education and vocational training system.
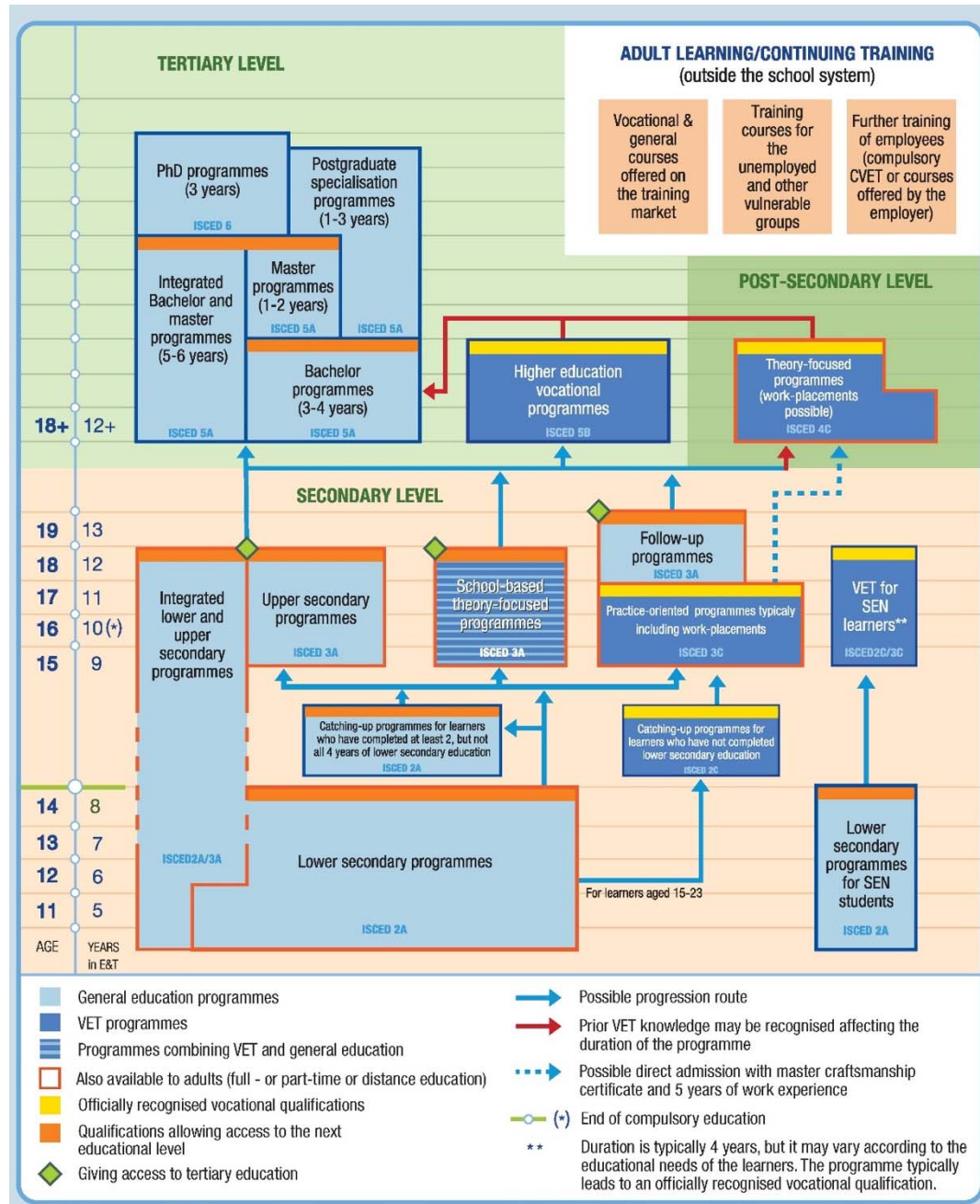
Several changes regarding the education system have been initiated in 2010. These changes aim to influence and transform all education levels; activities include the renewal of the National Core Curriculum, the Act of Public Education and of Higher Education, along with creating a teacher career profile, while the vocational training system is also under transformation. The new laws introduced new regulations on content, supplementing the National Core Curriculum with compulsory elements of basic content and a system of mandatory framework curricula. The new regulation considers the state as the responsible entity that may outsource some schools to the local authorities for a certain period by contract. The nomination of the school principals is the responsibility of the state, which performs its duty via the county government offices. The government centralizes the pedagogical services of the country.

2 General framework of Technology and Educational Innovation in the country

2.1 -State programs or initiatives (publics or privates) to support the use of the technology in the classroom

The National Core Curriculum (revised in 2007) aimed at acquiring key competences needed for lifelong learning, as recommended by the European Union. This curriculum provides a framework to establish standards at second grade. It outlines skills and competencies and leaves a lot of freedom for the schools to build their own local curricula and fill them with content. There are several types of content-rich frame curricula available that the schools can take up or modify.

The new version of the National Core Curriculum is more prescriptive and tangible, deciding common elements of knowledge that are considered important for everyone undergoing the Hungarian public system. It leaves opportunity for local content only 10%.

The Hungarian school system recognises ICT as a distinct subject (Informatics), while digital literacy is one of the key competencies that are developed in a cross-curricular sense. Among the prioritized overarching key development tasks – in a list of 12 themes – there is Media literacy or Media awareness. The subject called Informatics is taught from grade 3 (in many cases from grade 1) up to the end of the compulsory education, grade 10.

The largest call during the last 5 years in which a significant amount of tools, trainings and mentoring was available was the Social Renewal Operative Programme (TAMOP 3.1.4.) with a total amount of 17.5 billion HUF, roughly 63 million EUR. This initiative was aimed at changing the culture of teaching and learning, fostering the shift toward developing the skills for life-long learning, competency based education through complex development pro-cesses which included learning programmes, materials, teacher trainings and mentors for the schools participating. ICT development was an integral part of the initiative.

The first priority of the overarching Social Infrastructure Operative Program TIOP 2007-2013 - was the development of the infrastructure of the education system as a whole, while the first sub-priority is the "Development of the infrastructure of school-based education – The Intelligent School". This initiative was the main vehicle of equipping schools via different calls and tenders like "Development of the IT infrastructure supporting pedagogical and methodological reforms". In 2009-2010 approximately 27.5 billion HUF (approximately 1 billion European) were spent for this purpose.

Specific ICT Initiatives
Cloud computing

The Közháló (Public Net) service provided all educational institutions with the use of e-mailing and web storage services free of charge for the maintenance of school web pages

The Hungarian State has signed a co-operation agreement with Microsoft Hungary, which allows for an increase of services offered by the company to public education. Microsoft will cooperate with the Hungarian state to develop a national digital portal for public education and will implement the "digital home programme". This programme will aim to provide access to internet and digital technology to

people who did not previously have access. Participating households will not only receive equipment for free or at a reduced price but will also benefit from training. Microsoft is also negotiating with other providers in order to involve them in the project. The "digital home programme" started with a pilot in the town of Miskolc, a post-industrial town in north-eastern Hungary that faces economic difficulties and high unemployment rates.

Network (e.g. Wi-Fi, optical fibre, internet connection)

All educational institutions are centrally equipped with internet access. The development of the network is on-going and is coordinated by the National Information Infrastructure Development Institute (NIIFI).

2.2   Technology-related teacher training programs

ICT is a compulsory part of Hungarian initial teacher education. In Hungarian teacher training programmes, ICT studies are among the mandatory courses that students participate in during undergraduate studies. In addition to this, there are pre-service teacher training courses focusing on developing digital competencies.

There is a system in which every teacher has to accomplish 120 hours of in-service trainings every 7 years. A course on ICT is included: though not compulsory in general, it can be in particular cases.

According to the eLEMÉR research 2011 (see below under 2.3), teachers are not likely to share their self-developed digital learning materials even within the same schools, with colleagues. The culture of sharing is something to be developed. There have been initiatives to provide teachers with open websites to upload and share their materials but the success was not significant. Some teachers have their own websites or blogs and make their materials available for others. One of the most popular sites is the Tanárblog (Teacher blog), owned and edited by two high-profile teachers, Tibor Prievara and Gergely Nádori (available at http://tanarblog.hu/).

Microsoft Partners in Learning ICT Academy – a society of teachers, with around 100 participants, who take part training and mini conferences. The participants learnt together for 6 months, regularly receiving learning materials, newsletters, building their professional network and sharing their ideas on blogs and at conferences.

2.3   - Research groups and networks related to education and technology

The main institutes responsible for public education is the background institution of the ministry: Education Office (EO), which is active in both public and higher education and effectively harmonises the diverse fields of education in Hungary (http://www.oktatas.hu/).

The Education Office started in 2012 the research on "Digital Citizenship" funded in the Social Renewing Program (TÁMOP-3.1.5/12-2012-0001) by involving researchers and experts from the universities.

The strategic research, development and service institution of the education sector is the Institute for Education Research and Development (OFI. The main responsibility of educational research belonged to the Education Research and Development (http://ofi.hu/en).

Beyond the national level research, Hungary is partner in several European educational research and development projects.

An online framework system and assessment tool eLEMÉR, supporting the schools' self-assessment, was developed within the EU-funded project Social Renewal Operative Programme priority 3.1.1. It is a complex online evaluation system that measures the use of IT tools for school development (http://ikt.ofi.hu/english/?cat=10). The idea is to have an indicator of the school's progress regarding the use of ICT for institutional development. <u>The evaluation is carried out annually, in February, and on a voluntary basis.</u> Results enable schools to compare their performance – in terms of school infrastructure, teachers (teaching) and students (learning), as well as the integration of ICT – with that of other schools. This evaluation divides schools into four categories based on their results:

- Schools with the lowest results (an average of 1-2.49 points) are placed in the category "ICT is emerging";
- Schools with an average of 2.5-2.99 points are placed in the category "ICT is applied";
- Schools with an average of 3.00-3.49 are placed in the category "ICT is integrated"
- Schools with the highest score (an average of 3.5-4.0 points) are placed in the category of "ICT-driven change in school".

As a result of the self-review procedure, the eLEMÉR system

- gives an overall picture to the school about how ICT is used in different fields of education;
- provides help to the conscious and self-motivated development of the school;
- shows the ways in which ICT tools can support the development of learning, teaching and the whole school;
- surveys the technical resources and infrastructure necessary to achieve these goals;
- helps the school create its own digital strategy on the basis of the overall picture by providing a template;
- supports the school's participation in a new, national classification system, and with this motivates planned school development.

If a school is in the "ICT is emerging" category this means that some tools are available but the school management and teachers are only beginning to explore the possibilities of ICT, and ICT is never used

by pupils. If a school is in the "ICT is applied" category, it means that ICT is used by pupils but mostly for activities that have already been carried out before in traditional classroom settings without ICT.
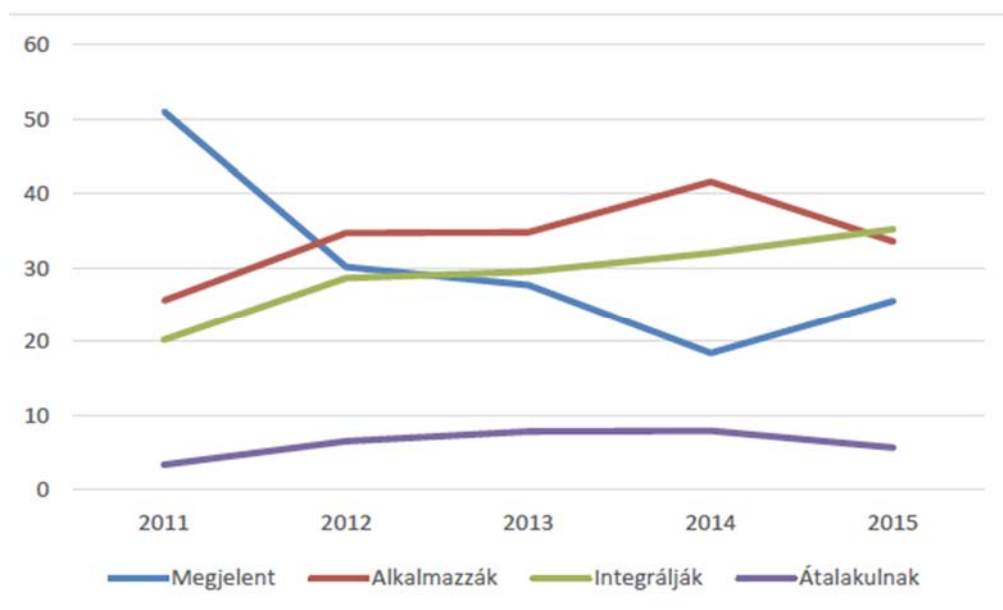
Figure 1. The changes in the numbers of in the four categories calculated from as an average value of the figures given by the respondents on the fields: infrastructure, teachers (teaching) and students (learning), the integration of ICT.

- Blue: "ICT is emerging";
- Red: "ICT is applied";
- Green: "ICT is integrated"
- Purple: "ICT-driven change in school".

The next chart is about the result of the self-assessment on IT infrastructure.

Figure 2. ICT infrastructure (sample size: 618)

The questionnaire contained statements referring to the level/quality of IT infrastructure available in the school for learning/teaching/administration, and the teachers could an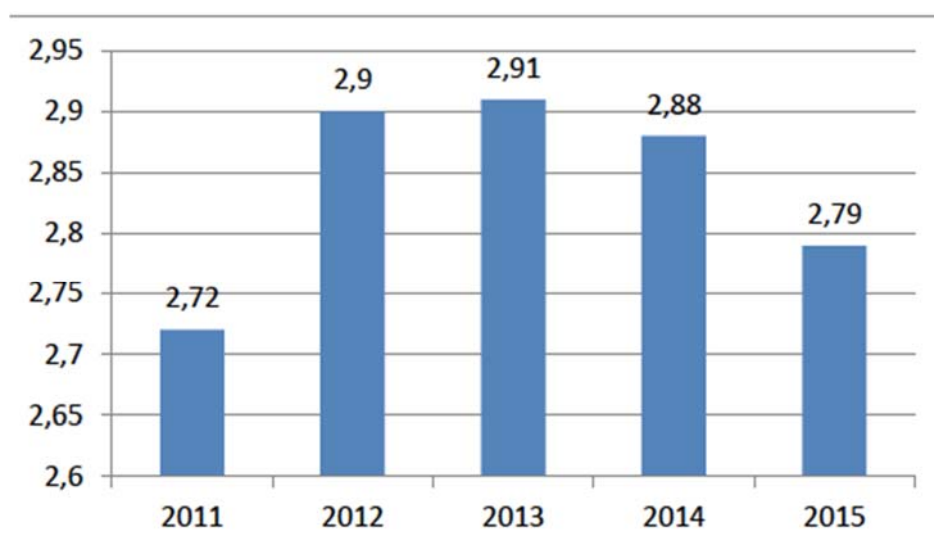swer them by selecting one from the 5 options: 0-No data, 1- Not true, 2-Partly true, 3-Almost true, 4-True. The results above show a significant decrease during the last two years.

Beyond this annually repeated research there are research groups in every higher educational institutes (universities and high schools) with initial teacher education program.

2.4 - Educational innovation projects and technology

The most important innovation project supporting the use of ICT in the classroom started in Hungary started in 2003, the development of Sulinet Digital Database (http://sdt.sulinet.hu), a vital system and the main central source of digital learning materials and assets aimed at the public education of the country. It has been under continuous development – during the last two years was reorganised in order to become a portal where a free and robust content pool is available, operating also as a news portal, a content exchange centre, the latter providing for community building and social content development with Web 2.0 tools. It is being updated to support all elements of the teaching/learning process. It is not only for the consumption of the ready-made learning resources but will soon offer a user friendly editor for the creative teachers who will be able to create and publish their learning materials there. The portal also provides tools, resources and platform for using cooperative techniques and social learning.

The renewed Sulinet portal supports every aspect of the process of teaching and learning with the support of the integrated Sulinet Digital Knowledge Base (SDT). It provides digital teaching materials with inspected content that can be used by teachers, students and parents in the course of work in or

outside of the classroom. With the help of the re-vamped portal, innovative teachers can implement their ideas in an easy to use teaching materials editor and publish the materials prepared, making them searchable by anybody. It offers the opportunity to establish, store, publish and distribute digital content in a common workspace.

The largest call which made available a significant amount of tools, trainings and mentoring programmes, was the Social Renewal Operative Programme 3.1.4.
The implementation period of this programme began in 2009 and ended in 2012. The programme was open to institutions, and aimed at a comprehensive reform of teaching and learning, focusing particularly on developing competences and skills for life-long learning. At a national level the programme was supported by the Social Renewal Operative Programme 3.1.1 through the "21st Century Public Education – Development, Coordination" priority project. It was implemented by the Educatio Public Services Non-Profit LLC and the Institute for Education Research and Development.
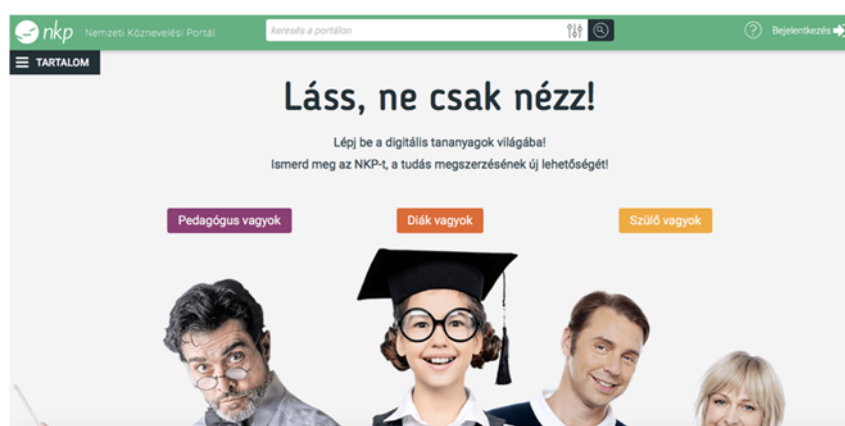

Figure 3. Nationa Public Education portal

In the frame of this project the *National Public Education Portal* started (https://portal.nkp.hu/), that ensures the integration of the results achieved in the field of public education, especially the substantive and methodological developments realised in the frame of other SROP projects.

iTEC project

Hungary takes part in iTEC (Innovative Technologies for an Engaging Classroom), which is a European Schoolnet project, based on international cooperation. It aims at creating real and virtual learning environments that answer the needs and challenges of the 21st century education. Hungary is represented by the Education Social Service Public Utility Company where the National Service Point for the e-Twinning action is also operated. ICT is a compulsory part of Hungarian initial teacher education. In Hungarian teacher training programmes, ICT studies are among the mandatory courses that students participate in during undergraduate studies. In addition to this, there are pre-service teacher training courses focusing on developing digital competencies. There is a system in which every teacher has to accomplish 120 hours of in-service trainings every 7 years. A course on ICT is included: though not compulsory in general, it can be in particular cases. In recent years the mentor and advisor system has been introduced. One to one mentoring is very successful; the advisor can also do a lot to help the school principal and the management board. The unfortunate timing and late delivery of equipment made this option less successful, but it is still more efficient than trainings located outside the school.
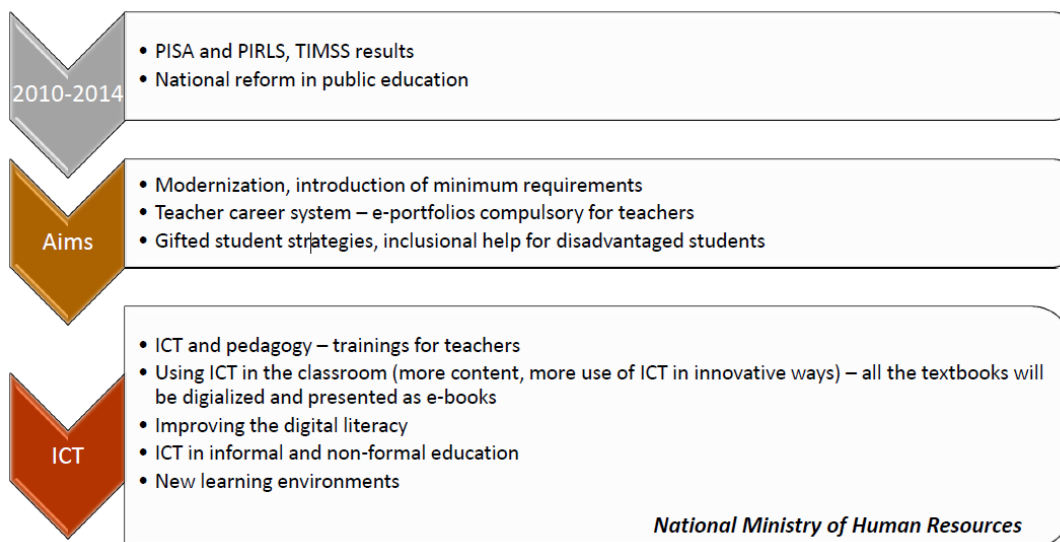
CIDREE project

Hungary is partner in the CIDREE (the Consortium of Institutions for Development and Research in Education in Europe) project, which organized its annual conference in Budapest, hosted by Hungarian Institute for Education Research and Development (HIERD), its Hungarian member organisation.

The main Hungarian strategic documents related to the new national ICT initiatives aligned with the EU 2020 strategy elaborated by the Hungarian government for the developments of next years:

Based on these documents the National Educational Strategy (NES) has been published, and a national level consultation is going on in these months about the "Digital Educational Strategy" what is a crucial part of NES.

National Educational Strategy 2014-2020

2010-2014
- PISA and PIRLS, TIMSS results
- National reform in public education

Aims
- Modernization, introduction of minimum requirements
- Teacher career system – e-portfolios compulsory for teachers
- Gifted student strategies, inclusional help for disadvantaged students

ICT
- ICT and pedagogy – trainings for teachers
- Using ICT in the classroom (more content, more use of ICT in innovative ways) – all the textbooks will be digialized and presented as e-books
- Improving the digital literacy
- ICT in informal and non-formal education
- New learning environments

National Ministry of Human Resources

3 Literature review on Flipped classroom (3-6 pages)

The flipped classroom methodology is in research phase in Hungary, there are only very few experiences, and the first studies are coming from the higher education. There is no unified terminology, the flipped classroom is translated into Hungarian as "fordított", "megfordított", "tükrözött", kifordított osztályterem, in English: reversed, inverted, mirrored, twisted classroom.

For a Google search on the keywords give the hits as follows:

Fordított osztályterem (reversed classroom): 5530
Megfordított osztályterem (inverted classroom): 9210
Tükrözött osztályterem (mirrored classroom): 861
Kifordított osztályterem (twisted classroom): 1220

Only a few studies are available about ongoing FC research in Hungary, some of them about concrete experiments in the higher education (Tóth, R. , 2014), but most of them includes theoretical descriptions on the methodology.

The first free, online course (MOOC) on FC methodology was started at the beginning of 2016 for teachers by a professor of the Faculty of Education and Psychology of Eötvös Loránd University for Science (https://www.ppk.elte.hu/) on the Sulinet portal.

In the Flip-IT! Project we organised a multiplier event for teachers of the vocational education for which there was a high interest of vocational schools from all regions of Hungary. The conclusion of the event was, that the teachers are open to use FC methodology, but they need both pedagogical and technological support for their work.

Summary

Flipped classroom methodology has not been integrated yet into the daily practice of the teachers in Hungary in the vocational education, Hungary is at the first steps to learn this new method. However, there is a strong need in Hungary for renewing and modernizing the pedagogical methods as the schools are forced to reflect on the needs of the 21st century students.

4 Case studies in your country/in your institute/school

Among 5 and 7 case studies on ICT and/or network based learning or technology enhanced learning/teaching (TEL) and/or on flipped classroom methods (in VET when possible) with detailed information about their methodology and results (2-4 pages).

4.1 Case study 1

Educational level (primary, secondary, VET, undergraduate, graduate)
VET
Knowledge area (program name/subject)
Sugar beet harvest, Engineering and architectural skills, Agriculture
Learning option (on-site, blended, online)
Blended
Methodology

Venue of the training:
Central Hungarian Regional Agricultural Vocational Training Center (FM KASZK) - Táncsics Mihály Agricultural Technical School (H-2600 Vác, Telep utca 2-4.), two ordinary classrooms

Date:
Wednesday, 27th January, 2016. 6th lesson according to school schedule

Participants:
2nd year students of Farming VET, age: 16 – 17

Explanation of the thematic concept:

Within the frame of Farming VET students get acquainted with crop production, animal husbandry, agricultural engineering and architectural skills, horticulture and management skills. The training ends with a vocational examination, where examinees have to solve theoretical and practical tasks of the above subjects. In the curriculum the harvest of root crops followed, thus the chosen topic fell fully within the logical structure of the training. Our students have already gained a wide range of up-to-date knowledge of harvesting different crops so we had the opportunity to take a closer look at the specialities. Among root crops sugar beet was chosen because Hungary has almost completely stopped producing it, consequently students are slightly familiar with its production. With this choice we wanted to avoid that farming students gain an advantage over the ones whose primary source of information is education at school.

Owing to this, the interest and attention of students are more likely to be maintained in the classroom.

Practical implementation:

During the practical training the 2nd year Farming VET class (10d) is divided into two learning groups and students are instructed by two vocational teachers. The theoretical lesson on the harvest of sugar beet was held in these previously formed groups (Group 1 and Group 2). The number and the composition of students within the groups is mostly balanced, however current absences and the number of students at weekly practice slightly modified it at the time of the study. Balancing the two groups was not recommended as it might have distracted students' attention and interest. Thus the groups were separated in two classrooms and were instructed by different methods. The topic was revealed the previous day and the students were told that their knowledge would be tested by a set of questions.

Methods:

Group 1:
This group was taught by ordinary teaching methods. Students were to put down the title of the topic (Harvesting of sugar beet), then for a few minutes they tried to answer the teacher's questions and during the discussion started to get acquainted with the curriculum. The details were presented by frontal teaching method supported by projection. The presentation consisted of 18 slides, 10 of which contained textual information and 8 of which showed pictures to help general understanding. The students were made to copy the contents of all 10 textual slides in their exercise book. The monotony of the lesson was broken and students' attention was maintained by detailed explanation of the pictures shown. At the end of the lesson a consolidation period helped to deepen the knowledge with the active participation of the students. Finally the teacher gave a short summary of the topic and told the students to learn their notes as homework.

Group 2
With Group 2 a slightly modified version of flipped classroom was applied: students as a group were to watch a ten-minute video about sugar beet harvest before the lesson. We found this modification reasonable because not all VET students have an access to ITC tools or internet outside the school. Another reason for changing the method was the very low level of students' motivation. They definitely would not have dealt with the previously submitted videos or tasks. Because of the low number of students in the groups the above method had to be followed to avoid misleading significance in the mean of the results. We think that under-motivated, incurious students would have taken the test without any previous knowledge.
The lesson took place as follows:
The students were seated in a classroom and asked to put down the title of the topic (Harvesting of sugar beet) in their exercise book. They were explained that two short videos were going to be shown, one on video player and the second one via PC. After watching the films we would discuss what they had seen and try to answer the teacher's and their own questions. They were also asked to pay attention to details and take notes if necessary. After giving these instructions we watched the films. The first one discussed almost all important steps of the harvesting process of sugar beet, however some details were only mentioned by the teacher and not shown in the film. To eliminate this deficiency the second film gave a more detailed explanation of the single cut harvest method. The information of the two films was analysed by the method of discussion led by the teacher, whose questions and complementary explanations helped the students to understand the process. This took two third of the lesson,

in the remaining time a presentation of 25 slides was projected. One of the slides contained textual information – students were asked to copy its content- and the rest showed harvesting tools and machines in pictures and graphic illustrations. While watching, the harvesting process was discussed with active participation on behalf of the students, taking notes was optional. At the end of the lesson a consolidation period helped to deepen the knowledge. Finally the teacher gave a short summary of the topic and told the students to study the relevant pages of their coursebook and take notes if necessary as homework. As an optional extra task they were asked to collect information in connection with the topic from the internet.

Educational activities

Watching a film prior to activity

Discussion, argument, consolidation, asking and answering questions, conversation, taking notes, watching videos during the activity.

Homework, coursebook study, taking notes, surfing the Net after the activity.

Tools, software

Lenovo laptop, EPSON projector, JVC video player,

LibreOffice Writer, LibreOffice Impress, LibreOffice Calc, GIMP image editing, VLC media player, Youtube channel, eXe eXeLearning, SDT Sulinet Digital Database,

Results

The lessons with the different teaching approaches were evaluated on the fifth day. Therefore students had enough time to do their homework and collect further information. Their level of knowledge was measured by a 15-question test, in which there were open- and closed-ended questions, such as creating a text, completion, simple, multiple and alternative choices, sorting, image recognition. The students were divided into two groups (see above), then they took the test under their teacher's supervision. At the evaluation we paid attention to the different difficulty level of the tasks and gave points from 1 to 5 for each. 30 points might have been achieved as a total score. The overall mean results of the two groups can be seen in Figure 1.

Figure 1: Overall mean of test results
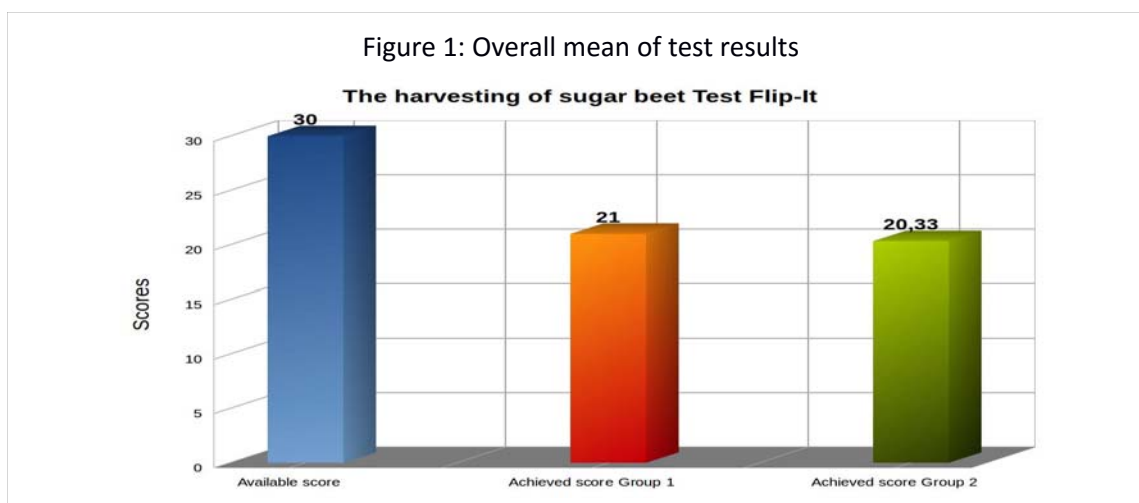
The graph shows clearly, that the mean results of the two groups were almost the same. The students of Group 1, instructed by traditional teaching methods, achieved an average of 21 points out of 30, while Group 2, instructed by flipped classroom method, achieved an average of 20,33 points. Taking a closer look at the individual scores of the participants a higher standard deviation can be observed among the members of Group 2. Its value in Group 1 is 2,75, while in Group 2 it is 4,15. The weakest result in Group 2 was 14 points, which would not have been

enough for the passing mark, however the best result: 26 points can also be found in this group. In Group 1 the least successful test scored 16 points, while the best managed to achieve 25 points. We also observed the results of each question in the test. (Fig. 2.)

Figure 2: Results of tasks within the two groups

The sugar beet test per job distribution between the two groups (Flip-It)
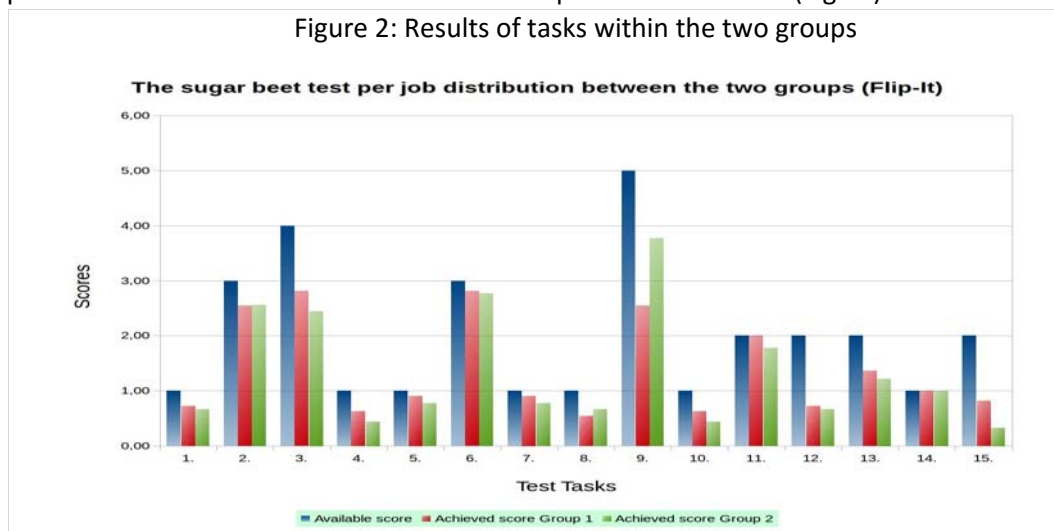
This figure shows that except for Questions 8 and 9 Group 2 managed to achieve less scores than Group 1. These two tasks focused on the process of cleaning and picking up sugar beet, which was well detailed and emphasized in the two videos. Comparing and contrasting the two methods could be done from further aspects as well, however the difference between the two groups was not at all significant thus far-reaching conclusions must not be drawn.

Assessment

Evaluating the results, the effectiveness of the two teaching methods did not differ significantly in the case of the 2nd year Farming VET students. However it must be emphasized, that these methods were applied in one class and only once. Thus conclusions cannot be drawn due to the lack of information. However, the flipped classroom method includes several advanced approaches for transferring knowledge and it is worth trying to apply its elements in the future. A severe dilemma in the classroom is whether to make students take notes when printed or electronic curriculum can be available for them. It is also becoming more and more widespread that students take high quality photos of the tasks and/or the outlines of the lessons with their smartphones.

4.2 Case study 2

Educational level (primary, secondary, VET, undergraduate, graduate)
Secondary VET
Knowledge area (program name/subject)
Globalisation / Social studies
Learning option (on-site, blended, online)
Blended
Methodology
Venue of the training:
Central Hungarian Regional Agricultural Vocational Training Center (FM KASZK) - Táncsics Mihály Agricultural Technical School (H-2600 Vác, Telep utca 2-4.), an ordinary and an IT classroom

Date:
Wednesday, 27th January, 2016. 5th lesson according to school schedule

Participants:
4th year students of Secondary VET, age: 17 – 18

Explanation of the thematic concept:

Globalisation as a topic can be well-known for students for they can meet it in films or news reports. There is not a separate coursebook for Social Studies: this topic is covered in the relevant chapter of the history coursebook they use. The text does not make students be interested and it is only poorly complemented by images and graphic illustrations. However important the topic is this text in the coursebook is unable to make students enthusiastic about it. Luckily several good videos are available on the internet to solve this problem.
Our experiment aimed at studying the results and effectiveness of two teaching methods when presenting this topic.

Practical implementation:

The two groups were separated and seated in two different classrooms and the students were instructed by different teaching methods. The topic was revealed on the previous day and the students were told that their knowledge would be tested by a set of questions.

The students of Group 1 were seated in the IT classroom, which was an unusual venue for their Social Studies class. On the previous day the students were asked to find and watch a video on the internet, focus on keywords and be prepared to take a test on the topic. At the beginning of the lesson its aim was emphasized again and they were given 20 minutes to make further inquires individually on the net.
For answering the questions of the test the group was given limited time, 20 minutes.

The other group had a 30-minute lesson of traditional frontal teaching and learning environment. Because they were given less time for the test (15 minutes), they also had less questions. Besides the teacher's explanation they could use their history coursebook, analyse and interpret its pictures and illustrations. Due to the lack of time they could not take notes or make an outline of the lesson.

Methods:
Group 1
   With Group 1 a slightly modified version of flipped classroom was applied: voluntary students were to watch an eighteen-minute video about globalisation at home before the lesson. We found this modification reasonable because not all Secondary VET students have an access to ITC tools or internet outside the school. Another reason for changing the method was the very low level of some students' motivation. If the whole class had been given the task of watching the film, the majority definitely would not have dealt with the previously submitted video.

The lessons took place as follows:
Group 1
   The students were seated in the IT classroom, each at a desk with a PC. After distributing the test sheets the students had 20 minutes to do individual research on the internet. Some students aimed at finding the relevant information by only reading, others took notes in their exercise books. After switching off the computers they had 25 minutes to answer 10 questions in the test.

Group 2
   This group was taught by ordinary teaching methods. Students were to put down the title of the topic (Globalisation) then with the help of the teacher's explanations and the method of discussion they started to get acquainted with the curriculum. The students were asked to take notes individually and pay special attention to the keywords. The monotony of the lesson was broken and students' attention was maintained by detailed explanation of the pictures and graphic illustrations. At the end of the 30-minute lesson the students took a 15-minute test and since they had less time than the others, they were given only eight tasks.

Educational activities
   Group 1
   While getting acquainted with the task: Discussion, asking and answering questions.
   Homework: watching a film prior to the activity, taking notes, surfing the net, collecting information.
   During the lesson: surfing the net, answering questions, creating texts

   Group 2
   Making an outline, taking notes, reading comprehension, interpret illustrations, discussion, answering questions, creating texts
Tools, software
   Lenovo laptop, EPSON projector, JVC video player,
   LibreOffice Writer, LibreOffice Impress, GIMP editor, VLC media player, Youtube channel, eXe eXeLearning, SDT Sulinet Digital Database,

Assessment
   The two tables below show a significant difference in the results of the students instructed by traditional, frontal teaching and of the ones instructed by flipped classroom method. The latter were more successful in tasks which required previous knowledge (Task 2: local problems, Task 3: multinational companies, Task 4: drawbacks of globalisation). Individually, without the help of the coursebook or pre-studying the former were unable to figure out important keywords and phrases.

In the case of IT-supported learning there was not a huge difference among the tasks. If a concept or phenomenon was unknown, the students could easily check its meaning on the internet and remember it more efficiently from their research than from teacher's explanation. Thus visualisation seems to help memorising information: students could remember the drawbacks of globalisation more successfully, since they were discussed in details and the lecturer in the video emphasized the relevant images.

Results

Group 2 (traditional frontal teaching method)

Number of task	1.	2.	3.	4	5.	6.	7.	8.	Total score
Total available scores per task	2	2	2	5	4	2	2	2	21 points
Total score of all students per task	20	20	20	50	40	20	20	20	210 points
Student 1	0	0	0	0	0	0	0	0	0 points
Student 2	0	1	0	3	0	0	0	0	4 points
Student 3	0	1	0	4	0	0	0	0	5 points
Student 4	0	1	0	4	0	0	0	0	5 points
Student 5	0	1	0	4	0	0	0	0	5 points
Student 6	1	0	2	1	0	2	0	0	6 points
Student 7	1	2	2	3	0	1	0	0	9 points
Student 8	1	2	2	2	2	1	2	0	12 points
Student 9	1	2	2	3	2	1	2	0	13 points
Student 10	1	2	2	3	2	1	2	1	14 points
Total	5	12	10	27	6	6	6	1	73 points
Percentage	25%	60%	50%	54%	15%	30%	30%	5%	34 %

Group 1 (flipped classroom method)

Number of task	1.	2.	3.	4	5.	6.	7.	8.	9.	10.	Total score
Total available scores per task	4	4	2	3	2	5	4	2	2	2	30 points
Total score of all students per task	56	56	28	42	28	70	56	28	28	28	420 points
Student 1	1	1	1	0	0	1	0	1	0	0	5 points
Student 2	1	1	1	0	2	4	2	0	0	0	11 points
Student 3	1	1	1	0	0	4	1	1	2	2	13 points
Student 4	0	0	2	2	0	4	0	1	2	2	13 points
Student 5	1	2	2	0	2	5	0	1	1	0	14 points
Student 6	1	3	2	1	0	4	2	1	1	0	15 points
Student 7	2	1	2	1	1	5	1	1	1	0	15 points
Student 8	2	1	2	1	2	5	1	0	1	0	15 points
Student 9	2	1	1	2	2	5	1	1	1	0	16 points
Student 10	1	0	2	1	0	5	2	1	2	2	16points
Student 11	2	1	2	2	2	4	2	0	2	0	17 points
Student 12	2	1	2	2	1	5	3	1	0	0	17 points
Student 13	1	1	2	1	2	4	2	1	2	2	18 points
Student 14	1	1	2	0	2	5	4	2	1	2	20 points
Total	18	15	24	13	16	60	21	12	16	10	205 points

Percentage	32	26	85	30	57	85	37	42	57	35	48 %

4.3 Case study 3

Talent Development training methods in vocational education- enrichment of multiple intelligence areas (SZÁMALK-Salesian Post-Secondary Vocational School)

Educational level (primary, secondary, VET, undergraduate, graduate)
Primary (first profession) graduate, ISCED level 4, EQF Level 4

Knowledge area (program name/subject)
Creative web development talent workshop

• Web application development
• Database Design
• Graphic Design
• Project Management

Learning option (on-site, blended, online)
Blended

Methodology
Work in small groups, individual design, development, talent development with "enrichment" method (multiple intelligence - mathematical, interpersonal, visual - joint development of these areas + professional skills development applications.

Educational activities
Four groups-WEB Application Developer, Database Designer, Graphic Designer, Project Management- and their combination developed a web-store. In the framework of planning and developing our knowledge continuously enriched. (particularly the practical application of their ability) They learned the process of problem solving, the project management steps, their collaboration capabilities and personal competence improved. The teachers' were present as managing consultants.

Tools, software
• Computer (laptop, tablet)
• Wacom tablet
• ADOBE software package
• PHP, HTML, CSS, MYSQL
• Digital camera

Results
• A specific web-application and its documentation (marketable product)
• Added value for students: work skills development and knowledge growth, personal and social competencies & professional reference about their role in the project.

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- pedagogical innovation, students and teachers, students and pupils (not the same profession students), a new type of cooperation, communication, creative, effective professional work.
- The school's talent workshop's introduction on the "Talent Day"
- The experience can be used for planning and launching new talent workshops

Reference (website, publication) see the rule in 3.
Web page (http://e-learning.szamalk-szki.hu) + + professional report on the "Talent Day" presentations, lectures

Evaluation

Inner evaluation: The four small groups evaluated each other's work separately, then they evaluated the collective results (interim and final) results (potential problems). The evaluation of the entire project was done in several ways, based on ongoing assessment phase boundaries and test results, at the end of the project.

External evaluation: The school won a tender for the financial support of the work of The Talent workshop. It proves its importance. The pedagogical innovation project's expert report and results were audited and the supporter accepted them.

Talent Day, which is an opportunity for our students and also a marketing event for the school. It strengthens and proves the innovative institutional status.

4.4   Case study 4

ICT use in teaching professional English and vocational subjects (Nagykátai Industrial Vocational and Technical School)

Educational level (primary, secondary, VET, undergraduate, graduate)
Primary (first profession) graduate, ISCED Level 3, EQF Level 3

Knowledge area (program name/subject)
Training: **Ladies' Tailor**
Course: **Professional English**
Topics:

- How to learn a foreign language?
- My wardrobe from summer to winter
- Choose a profession!
- Finally, It is summer!

Learning option (on-site, blended, online)
Many kinds of learning opportunities were provided. Blended (mixed) and online learning, as well, but the location was changing: from the school building to the museum and the students' homes.

Methodology
- Forming groups and groupwork (working on a specific era)
- Brainstorming (What is culture?) - Mind mapping
- Exploring, researching (collecting material for the selected era, taking photos, making montages)
- Creative work in groups (making a ppt about the chosen era, + logo, making a word cloud)
- Presentation (in groups)
- Making an English speaking video
- Documentation of the results with an English glossary
- Museum pedagogy activities about fashion (making Photos and Videos)
- Making a mind-map about the field trip. A debate on this topic
- Word test
- Making a poster from paper
- Watching and listening to videos videos, analyzing the ages.
- Pupils prepare PowerPoint games about the given era, they present them to the other groups then try them
- Assessment, awards
- Finally they watched a movie about the life of Coco Chanel

Educational activities
Tasks, related to the development of complex area of learning

- Using foreign language in communicative situations related to the topics
- Thematic vocabulary expansion
- Intercultural Development of Competence

Specific questions, explicating the curriculum's issues:

- How a particular historical period's clothing and accessories were characterized by?
- What did people wear at certain age (eg. Rococo) and what is left for today of these outfits, assessories?
- How did the clothes effect the English language (vocabulary, idioms)?
- Who are the most important fashion icons of that age?

Tools, software
- Camera,
- Camcorder,
- Computer
- image processor, desktop publisher, word processor, e-mail program, PowerPoint,
- SMART Notebook software,
- Google form, mind map maker (Popplet.com, Coggle.it).
- Group device (TeamUp.aalto.fi, evaluation tool, ClassDojo.com)
- Online image editor (Fotor.com,
- Word Cloud Generator (Tagxedó.com)
- Puzzle Games (Jigsawplanet.com)
- Talking imaging (Blabberize.com)
- Collage Maker (Microsoft Autocollage)
- Music Collection (Jamendo.com)
- Picture Collection (Flickr.com)
- video editing software (Windows Movie Maker)
- Video sharing (Youtube.com)

Aids

- Fashion shows video recordings
- GoldbergerTextileCollection

Assessment

The assessment concept is based on the idea of gamification. The students can earn up to 151 points during the project with various produktum. It is an important rule, that any deficiencies are compensable if the student is actively involved in other tasks. The points, earned during the project can be converted into grades at the end of the project.

It is interesting for the students that they compete during the project, earning points sustains their motivation.At the end of the project the most outstanding pupils were awarded wit a students' award. (Classbadges) For example the best English speaking, the best fashion expert, the best fashion historian). In addition to scoring, the students evaluated their own presentations and voted for who was best in what.

At the end of the project there was a self-reflection questionnaire on Google: What did I learn during the project? Was I able to realize my ideas? How can I utilize my knowledge in practice?

Results

These ninth-grade students came from difficult social and cultural backgrounds. Most struggle with learning difficulties, their knowledge is insufficient. They are not even aware with the basic behavioral norms. This social disadvantage is reflected in their digital knowledge. The project aimed to enable students to acquire practical skills which they can utilize in their profession, while using IT tools, as well as to reduce the social and cultural disadvantages.

The field trip provided an opportunity for the students for raising on issues related to fashion during the museum pedagogy attendance.

By using ICT tools, students try to understand the connection between historical eras, fashion and language, they also organize their acquired information. The project combines the technical, practical and general knowledge of and offsets the negative learning experiences.

The project improved the students' cooperative skills and adaptibility. The variety of learning and evaluation methods provided an opportunity for them to develop their critical thinking and self-esteem.

Reference (website, publication) see the rule in 3.
ICT Workshop 2014 (project pedagogy supported by ICT tools), Budapest, Educatio Nonprofit Kft. 2014 (ISSN 2062-6568)

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4.5 Case Study 5

In order to improve the teaching-learning process, besides the contact lessons, Moodle framework was introduced on three higher education courses on the „Business Communication" seminar of „Budapest Business School of Foreign Trade". (advertisement organizer manager, international freight forwarding and logistics executive, external economic salesperson)

Skill levels (primary, secondary, VET, graduate, post-graduate)

Primary (first occupation) graduate, higher education ISCED level 5, EQF level 5.

The program is called:

Moodle in higher vocational training

Knowledge area:

Business communication

Learning possibility:

mixed (blended) training

Methodology:

Application of Learning Management (LMS) system in the process of knowledge acquisition

Tools, Software:

Moodle framework

Evaluation

The aim was to enrich the students existing knowledge about the participation-based and network communication, as well as the appearance of new media in business communication. To enrich this knowledge by active participation and their own experiences. But the teachers and the students were inexperienced in using of the system. This is why they could not really promote the aim.

Results

The most important outcome of the course is considered to be the recognition, that although the teacher's role is changing in the ICT-assisted education, the post-secondary vocational students are not mature and prepared enough to learn independently or in a group with a mentoring teacher only.

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Notes

In the first semester of 2009/2010, besides the contact lessons, Moodle framework was introduced on three higher education courses of the „Business Communication" seminar of „Budapest Business School of Foreign Trade". (advertisement organizer manager, international freight forwarding and logistics executive, external economic salesperson)

The system was a new area for even the trainers. In order to complete the course it was necessary to use the system actively. The trainer uploaded the lessons' material on the Moodle interface –this material was the base of the end term tests-and the students had to upload their presentations here, as well. It needed for the assessment of the course. Also there was a forum on the interface, where the students could ask questions about the seminar and the material.

All three groups received detailed information regarding the use of the system (since none of them had studied about this before) and during the semester the instructor constantly asked whether there was a problem with using the system, does it need to be impaired At school, there were even more possibilities for them to access the system.

Moodle allows for the teachers to track the students' activities. In doing so, their experience highlighted the following things.

- The students did not use the computer laboratories and the students' computers provided by the school but it did not influence the frequency of the logins

- - In two groups there was a moderately strong correlation between the time spent in the system and in the half-year results. But in most groups there is much stronger positive correlation was found between the classroom presence and in the grades. The third group is completely different from the previous ones: there is a weak link in the time spent in the system, however there was a very strong link between the contact hours presence and the grades. Especially interesting, that the attendance on the system was not even more frequent after they had an unexpected test. In case of the other two groups, using the

- In all three groups there was a tight correlation between the attendance at lessons and the grades. It means that having finished the high school studies, students do not have enough ICT competences, they peferred the traditional edutation forms. Because they were worried about a failure on Moodle, they took advantage of the opportunity that using the system was not compulsory.

- All three groups close link between classroom attendance and grades indicates that students are bypassing the high school, low IT competence Equipped chosen as the best, certainly the traditional forms of education prefer. Because they worried that the Moodle interface failures threaten another space, used that opportunity to not have to use it.

- There was a sign only in one group for the usage of the interface-mainly the length of time spent in the system). In the other two cases the length of time spent in the system was limited to teaching materials, presentations to download. According to this, most of the students were only watcing the interface, thex did not use either the internal messaging system or the

forums, blogs and even a specially designated (and expected) for the purpose presentation upload any surface.

The students passivity in the e-based system is also raising awareness because during the course the e-portfolio, web 2.0 applications and their role in business life were mentioned several times - and still did not feel like participating in editing the system actively.

The most important conclusion of the program is, that the decision, if using an online learning environment or not, can not be left for the students. If the online environment complements the contact lessons' material and the purpose is to improve the students' competences, the teacher continuously has to mentor and assist their activities in the system. The students also have to be forced to use the applications.

4.6 Case Study 6

„Good practice" on the topic of sequence in János Neumann High School

Skill levels (primary, secondary, VET, graduate, post-graduate)
Primary (first occupation), graduate

The program is called:
Let's do the programming playfully!

Knowledge area:
Vocational subjects, data processing, database and software development

Learning possibility:
mixed (blended)

Methodology:
Individual work, discovery learning, learning by doing, cooperative learning

Tools, Software:
a 20-task-package

Evaluation:
Theses, project work in small groups

Results:

Thanks to the program, the disadvantaged class successfully mastered the curriculum and it also raised their interest and attention towards the program so much, that they volunteered to write their own programs within the framework of the school project weeks.

Thanks to the Co-operative groupwork in the classroom, the number of cliques decreased but the cooperation and conflict management between the children became more effective.

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There is a continuous cooperation between the informatics teachers who use these good practices. Therefore the task-bank is continuously expanding with experiences and new ideas.

References

https://iskolataska.educatio.hu/index.php/jogyakorlatotlet/jogyak_print_show/jogyakId/1027/1457087027.edu

Notes

Good practices at vocational education firstly aim to compensate the SEN students' disadvantages. They also can be used in elementary schools and in talent management. The new curriculum makes it compulsory to teach programming for SEN students, because they have to take a matura exam of this subject. This is why the new program was created. The program creators' main aim was to motivate students during the whole programming process. In order to achieve this, they tried to develop a tool which instantly combines practice with theory and also close to the children's visual and emotional world.

In order to do this, while learning the curriculum, it was divided into smaller sections so they provided opportunity to record, deepen and apply those. During the program they combined theory with playful exercises. Besides the non-stop repeating, there was always only a small step forward in the sections, so the students could understand the syllabus well. The costant presence of 2-3 teachers helped to monitor the students' personalized progress.

The good practices affect the mathematical, digital, social, initiative and entrepreneurial competencies and working with the program makes these skills develop.

For the implementation of good practices and for its adoption later, proper environment is essential: adequate infrastructure (computers, visual programming language), as well as human resources: a system administrator, properly trained, empathetic teachers, and teachers for special need if necessary.

4.7   Case Study 7

Practice oriented education of Information Technology on virtual machine, János Neumann High School

Skill levels (primary, secondary, VET, graduate, post-graduate)

>   Primary (first occupation), graduate

The program is called:

>   Information technology oriented teaching practices on virtual machine - good practice

Knowledge area:

>   Using Tools, equipment development

Learning possibility:

>   Blended (mixed)

Methodology:

>   Activity-based learning, experience-based learning, differentiation

Tools, Software:

>   Virtual PC, Windows,

Evaluation

>   Thanks to this program both theoretical and practical classes became more people friendly, which held the students' motivation awake. During the tests there was not only a reproduction of the primary curriculum, but an appropriate level of knowledge for problem solving which can also be used as an employee later. By the end of the tests the aim was to solve a real problem, taking advantage of the opportunities offered by the practice, which will be assessed with its report. In this latter one, there is a possibility for testing and checking theoretical knowledge. The evaluation takes place in the classroom giving students immediate feedback. Teachers and students think through the events together.

Results

>   The positive results of good practices are testified later by school grades, the practical results of those students who continue their studies on accredited trainings and higher education and also by future employees.

>   The improved grades, the results of questionnaires within the framework of the quality assurance program all prove the usefulness of the program. It is also proved by huge professional interest on metropolitan level: in 2009 Ferenc Merei Pedagogical Vocational Institute held workshops and trainings about good practices.

>   As a result of practice-oriented teaching of IT networking skills, students are able to acquire knowledge on skill-level. By possessing practical experience, their knowledge is deeper and more secure.

>   The methodological elements of good practice also appear in education of other operating systems, and can be used in the preparation of talented students as well.

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https://iskolataska.educatio.hu/index.php/jogyakorlatotlet/jogyak_print_show/jogyakId/1075/1457133776.edu

Notes

One of the fundamental aims of the János Neumann High School is the high level of IT development, with the help of ICT tools in order to make use of it. Moodle framework is present in the students' lives from the very first moment of beginning their studies in the school. It is used not only for sharing professional materials, but also for carrying out tasks and testing.

One of the main ideas behind the present good practice is to recognize that the learning efficiency can be increased, if students do so in a safe environment. In „live" environment students are not so confident to master how to install and run a program, because a mistake can be fatal.

The virtual machine was made for this purpose. Making mistakes have no feaful consequences, acquiring the curriculum is stress and risk-free, also easier and deeper. The results can be seen in further education: installing the system in „live" environment is no longer a problem for the students during the accredited training .

Thanks to the experience and routine gained in the safeness of virtual environment, students are able to solve more difficult professional tasks bravely with high competence.

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- Digitális pedagógus konferencia (=): http://digitalispedagogus.hu/
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