

D7 School portrait Municipal Institute for Technical and Commercial Education (GITHO) in Nijlen

www.githonijlen.be

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1 General characteristics of the school

Identification

The Municipal Institute for Technical and Commercial Education is located in Nijlen, a municipality with a population of 20,000, situated in the north of Belgium.

The school has its historical roots in the flourishing local diamond industry of the last century. Gradually, however, and in part due to the decline of this cottage industry, the school expanded. From being a small trade school, it now provides a broad range of options for studying industry-oriented technical and economic subjects that prepare pupils both for immediate employment and for higher education.

The school's training and educational programme places the emphasis, on the one hand, on a sound technical education and, on the other hand, on the development of social skills (order, discipline, team spirit, the 'we' feeling, self-realization and personal development) and on dynamically preparing pupils for a society that is evolving rapidly. The school is run by the municipal government and is certified and subsidized by the Flemish Community (the National Government responsible for Dutch-language education in Belgium).

In recent years, GITHO Nijlen has gained a reputation as a model school, and is especially credited with its re-evaluation of technical and vocational secondary education. The school has received several awards for this from a number of bodies and organizations.

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The history of ICT in the school

Quite soon after the emergence of the PC in the 1970s, several teachers at the school launched individual initiatives for the use of ICT. In recent years, the school has focused on a more policy-based expansion of ICT integration in all subjects.

The school acknowledges that government initiatives such as PC/KD¹⁷ provided a positive stimulus and also helped to persuade the municipal administration (which runs the school) to provide more ICT support.

Annual costs

In the last five years, the school has spent almost EUR 35,000 annually on ICT materials. Almost 30% of this amount involves specific ICT subsidization from the Flemish Community. The other 70% is from the school's own operating resources and from specific ICT support from the municipal government.

¹⁷ www.innovatie.vlaanderen.be/pckd/ and www.ond.vlaanderen.be/ict/

Every annual school budget includes an item "ICT materials".

Educational philosophy and ICT

In the context of its global educational policy, the school ICT philosophy is founded on the following basic principles:

There are still many pupils who cannot really work with the PC for different reasons¹⁸: They do not have a PC at home and have therefore only been able to use computers sporadically.

They do have a PC at home but use it mainly for games and chatting.

The pupils require an integrated form of computer learning, particularly for technical subjects.

Pupils may continue with their studies and/or may sometimes end up in sectors not related to their education and/or their job profile, in which an extensive knowledge of computer use is required.

To prevent the development of a two-speed information highway and a dual society, the internet must be accessible to everybody.

On the basis of the above, the school formulated the following general objectives.

Pupils who do not have a PC at home must acquire the same skills as the group of pupils that were able to build up a head start in this respect.

It is important that pupils who are skilled with the PC can work with all kinds of aspects of information processing in addition to possessing some elementary concepts and skills related to ICT.

To promote the concept of lifelong learning it is necessary that the pupils quickly gain access to information sources on the one hand, and that they no longer have any initial resistance to using the PC as a tool on the other hand.

Pupils must be able to work with modern and up-to-date software and hardware.

In their "integrated test" (a technical final project in which different subjects are tested), the pupils are obliged to use computer applications.

Following on from the above, the school formulated the following important principles: Information and communication technology must be used in all specialist areas.

ICT integration must be used to provide learning support in the various subjects at the school; therefore, it may not be an aim in itself.

ICT integration will cover all school years and the different branches of study.

Initially, specialist teachers will themselves be responsible for implementing ICT integration.

The school management will provide the necessary infrastructure and support to enable this integration to take place.

By means of monitoring, the school will ensure that ICT is used sensibly. Old values and attitudes should not be discarded.

Description of the ICT plan

In concrete terms, the school has defined the following short-term goals:

Remove the initial resistance of teachers and pupils by designing the school's own portal site. During afternoon sessions, all teachers will be invited to work on this.

Further expand the multimedia classroom.

¹⁸ The school held an extensive ICT survey among all its pupils to acquire this information.

Make electronic learning possible (practice, evaluation, remedial lessons).
 Structure the school's lesson timetable so that every teacher can give every class a lesson in a computer classroom, at least once every trimester.
 Combine all initiatives and ensure they are accessible to everybody.

The infrastructure

At present, the school has two classical computer classrooms, a multimedia classroom and a CAD laboratory. Each of these classrooms has fifteen computers connected to a network and the necessary peripheral equipment. In addition, many ordinary classrooms and technical studios usually have one or two PC's installed. The school administration is also fully automated, and every administrative employee has a PC connected to the separate administrative network.

2 Changes for pupils

Learning process and ICT

The school acknowledges that with the use of ICT, the pupils' learning style is evolving into a more active sense of participation in the lessons. The pupils' interest is particularly stimulated by the fact that ICT gives many activities – in both the technical and the general subjects – a higher reality value.

The pupils' results

The first important result is the school-wide increase in ICT basic skills. All pupils can now use the mouse and keyboard skilfully, they know how a computer configuration works and they can use all the peripheral equipment. All the pupils are also skilled in using a word processor.

A secondary, more general set of attitudes and skills that pupils have noticeably mastered involves gathering and processing information. Pupils can find information more efficiently, classify that information, and then use it to create documents.

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Software and internet sites

The school operating system has always been one or another version of Windows¹⁹ (NT4 or XP). The current application software is the Office package and related programs: Word, Excel, FrontPage, Access, PowerPoint, Visual Basic, Encarta, Publisher, etc. For more technical and scientific typesetting, MathType²⁰ is used.

General computer skills are taught in the Information Science subject using the "Computerwijs"²¹ method, which consists of manuals and specific software. The screen recording program "Wincam"²² is also used very efficiently.

For technical applications, the school has drawing and design software such as Robodraw, Fixocad, Corel Draw, Caddy++. Pupils can also obtain a home licence for some of these programs.

For Economics subjects, the "Excellent"²³ bookkeeping package is used.

In some subjects, the pupils are electronically evaluated using the "Wintoets"²⁴ multimedia testing program.

¹⁹ www.microsoft.com

²⁰ www.mathype.com

²¹ www.computerwijs.be

²² <http://wincam.net/main.html>

²³ www.cubic.be

²⁴ www.drp.nl

For Mathematics, the pupils use the “Derive”²⁵ educational computer algebra software. In the technical studios and lessons, the pupils learn to work with company-specific software and information carriers such as Sysmac, Syswin, Step from Siemens, Festo PLC, Kluwer Autotechnical manual, Elsim (simulation of electrical switches), EDC (simulation of car parts), VT-totaal²⁶, etc.

The use of the internet is controlled and stimulated from the school’s own portal site²⁷ where every teacher can display his or her favourite links.

The use of ICT

In general, ICT is used in a flexible way and this facilitates the learning process. In different subjects in vocational education and general development, the pupils work with professional and educational software. The pupils advance faster and have a greater impact on their own learning process, and this undoubtedly increases the stimulating effect of ICT use. Already at a young age, they seem to possess the necessary computer skills, which means that they quickly understand the way software packages work. In general, the pupils are positive about the use of ICT. They seem to be happy with the hardware and software as well as the infrastructure.

For all the modern languages, ICT is used regularly and in a variety of ways. True, the integration of ICT differs for the respective subjects because it is used in different ways, depending on the individual teacher. Whatever the case, the school management is trying to persuade all the relevant teachers of the didactic advantages of ICT, both in terms of content and on a formal didactic level. It refers to the added value of ICT in language teaching – for example, with respect to explorative and co-operative learning. For Dutch (mother tongue), classes visit newspaper sites and then do vocabulary exercises using online dictionaries²⁸. To promote language fluency, groups of pupils compile a language quiz using ICT. Oral presentations are made using PowerPoint. For English, the school develops its own courses with references to websites and links related to different learning objectives and learning content. The pupils also actually visit those websites, amongst other things to check certain grammar items, which are more attractive to learn in this way. If teachers are ill or absent, the pupils are given interesting and useful assignments combined with ICT search assignments. For example, they watch films with an introduction and a follow-up discussion in English. Then they download information about directors, writers, film scripts, etc. from the internet and talk about them.

For German, new learning resources were recently introduced. Besides a video and CD player, the classes also regularly take a ‘Blick ins Internet’.

For French, ICT is used in the First Grade, amongst others. Use of the computer makes the introduction to the grammar more accessible. Thanks to well-designed software, both the presentation of new learning units and the corresponding exercises and tests are now more attractive and also more efficient. Moreover, pupils also perceive results and receive feedback faster. Instruction, practice sessions and evaluation are now closely correlated. Furthermore, in the larger classes it is still always possible to sit pupils at the computer in pairs so that they can work interactively (sometimes a more skilled pupil can help a weaker pupil to solve certain problems). ICT is also used during the structural remedial lessons for French. In the future, the school aims to

25 www.derive.com

26 www.merkeeducatie.nl

27 At present, only on intranet. A link on the school website www.githonijlen.be is under development.

28 www.vandale.nl

have a battery of (grammar) exercises that the pupils can do at home, where possible, so that more time can be devoted in class to skills and practice.

With regard to “Project General Subjects” (Project Algemene Vakken) in the vocational classes, the use of ICT is based on an integrated and thematic approach. For example, when studying the theme “living”, simple architectural software²⁹ is used to design a house.

ICT is also used for the subject Plastic Training. Using specific software (CorelDraw), the pupils in the First Grade design invitations and posters for all the school’s activities. For History, the pupils also do extracurricular work on historical illustrations – for example, drawing medieval letters.

In the Woodwork (BSO) branch of study, from the first year in the Third Grade the pupils use CAD to make their technical drawings. The lessons are structured in such a way that the pupils’ attention is always focused on the aims of the technical drawing subject. Pupils do not first follow a course on how to use the software package, but instead learn the necessary commands as they go along – that is, as they improve their skills and broaden their knowledge during the technical drawing learning process. The introduction of CAD using the appropriate teaching approach has resulted in a clear learning advantage. Both the productivity of the lessons and the motivation of the pupils have increased in comparison to classical drawing lessons on paper. Moreover, ICT makes the subject more accessible for pupils with weaker co-ordination, who in the past found it difficult to make a good drawing on paper and often failed technical drawing because of this.

In a number of practical subjects in the Automobile and Electricity domains, ICT is used to look for information, using both CD-ROMs and the internet. Manufacturers’ catalogues are now usually issued on CD-ROMs or can be viewed on the companies’ websites. The practical classrooms have a computer (and printer) that the pupils can use to search for information. Thanks to ICT, the pupils can also access a more powerful information environment than that available to them in printed catalogues. After all, links to related subjects, moving images and calculation modules are also part of the ICT information environment. Pupils in the final years use these resources frequently, both in the context of lessons and in the integrated test. The impact of all of this on pupils can be seen in the course material, which is more up to date and more substantial than it used to be. Furthermore, for these pupils it is now a matter of course to use the PC to make presentations and write reports and final projects. Furthermore, stockroom management in the electricity workplace has been automated. The pupils take turns to work as the stockroom manager and operate the system. In a technical subject such as Electronics, ICT is used to develop the lesson subject. The teachers give pupils the necessary instructions and website addresses so that they can carry out assignments independently. With this use of ICT, however, the teacher must provide the pupils with a clear structure and the objectives to be achieved. Besides the fact that ICT is also a means of encouraging pupils to independently organize their own learning process, it also brings them in contact with other information sources relevant or related to the lesson subject.

In the Science subjects, the computer is used as a learning resource in support of the lessons. Besides being used for dynamic PowerPoint presentations, the computer is

also used to create links to scientific university sites. The teacher uses these sites to further expand the practical experiments, which she demonstrates herself, to derive empirical formulas or to have the pupils carry out assignments. This is a good example of a teacher using the computer and the internet in lessons to raise the quality of the lesson. True, these kinds of lessons require more preparation time, but the lessons are a lot more dynamic as a result. It also shows that pupils can be kept interested for an entire lesson in a subject that is not very spectacular, that the pupils experience the lesson in a more active way, and that the lesson material that is presented sinks in more permanently.

The school is also developing software to record the development and psychological and social supervision of every pupil. An electronic pupil monitoring system is being designed to enable all the school's supervisory activities for a pupil to be registered and co-ordinated.

3 Changes for teachers

The school believes that motivating the teachers is its first priority. Besides a limited group of motivated and enthusiastic pioneers, there are still a number of sceptics. The two main arguments for a teacher not to fully support ICT are: the fear that technical deficiencies and calamities in the computer infrastructure will undermine the lessons
the lack of concrete, directly usable examples of computer use in class practice.

The ICT co-ordinators are trying to remove this initial resistance by organizing introductory sessions in the afternoons and the permanence of an immediate service department. Through interaction with their colleagues, the teachers are being stimulated to exchange ideas and experiences. This is part of the wider context within which the school is trying to transform the often individualistic attitudes of teachers into an atmosphere of team spirit and co-operation.

Furthermore, teachers are offered the opportunity to follow external refresher courses.

4 Organisational change

In terms of the school organization, the shift to communication using the PC has been remarkable in recent years. Announcements, notices and documents (annual plans, agendas, evaluation data, etc.) are now distributed rapidly by an increasing number of personnel members and placed on the school intranet. In addition, the amount of mail between pupils and their teachers about assignments for particular subjects is increasing.

The use of ICT is also resulting in changes in the infrastructure,. More and more classrooms are being assigned to a subject rather than to a group of pupils. In this way, teachers can install their subject-specific technology in a designated classroom for immediate demonstrations or for use by pupils. Here, an important catalyst is the intention to provide every classroom with its own internet connection in the long term.

To enable all pupils in all subjects to work on a PC, the available PC classrooms are kept as free as possible in the weekly lesson timetable. At present, for each lesson hour the school can make 1.5 computer classrooms available that can be reserved by any teacher. Due to the increasing interest, however, this will soon be insufficient, which means that expansion of the ICT resources would seem to be inevitable.

This is putting the budget under a lot of pressure. The school certainly appreciates the extra resources designated by the government as an initial stimulus, but considers them to be insufficient in the long term.

The school organization will also have to evolve its personnel policy to alleviate the ICT needs. The traditional function of technical advisor-co-ordinator now also includes responsibility for ICT and a new function of ICT co-ordinator has also been created. Here, too, the government's extra support for personnel is gratefully accepted, but is also considered to be insufficient in the longer term.

5 Changes in co-operation with others

The school has always worked together with many external partners. The implementation of ICT has increased the need for communication with the outside world. The municipal administration, the local government which runs the school, had to be convinced of the need for greater investment. Through the "Educational Secretariat for Cities and Municipalities of the Flemish Community" (OVSG)³⁰ the school has contacted other schools to exchange ideas.

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6 Reflection and ambitions

The initial experiences with the newly designed school portal site are positive with regard to removing the initial resistance of teachers and pupils. Expanding and updating this portal site remains a permanent challenge.

The creation of an autonomous multimedia classroom that is available for almost the entire week has turned out to be very fruitful. Many groups of pupils regularly use the multimedia facilities with different teachers. Here, too, there is the problem that the demand will exceed the supply in the long term. Both financially and infrastructurally, solutions must be found for further expansion.

The platform that was made available to practise, evaluate and then provide remedial lessons in electronic lesson material is being used only to a very limited extent. Further motivation of and extra training for the teachers is necessary here.

Expansion of the ICT infrastructure and organization of the lesson timetable can be improved even more. The aim is to permanently schedule all subjects of three or four hours a week for one hour a week in an ICT classroom. The other subjects can then be reserved ad hoc in the hours that are still free or, if required, the classroom can be exchanged with a three-hour or four-hour subject.

The ICT project is on the right track, thanks to the efforts of the school to combine all the ICT options and make them accessible to everybody. More and more teachers are becoming aware of the added value of this and are joining in. The ambition of the school management is to create an all-inclusive learning environment. How this is to be specifically realized is not yet completely clear.

7 *Appreciation*

The ICT policy of the GITHO Nijlen must be seen in the context of the school's broader educational policy. The school is very conscientious about upholding the positive standing of technical and vocational secondary education. In a very pupil-oriented way, the school is focusing on developing the social skills of its pupils on a daily basis. The use of ICT, with space for group work and other teaching styles based more on coaching, is contributing to this.

An important aspect here is the dynamic-participative attitude of management and middle management. Communication with personnel is good and well structured. Where possible, decisions are made on the basis of consultation and consensus. The school's philosophy and policy plans have not been formulated hastily, but are based on a strong sense of reality and pragmatism.