

ppc@school



*Tiny
computers
for tiny
hands*





Pocket-PC at School – a pilot project

In 2004 the Experimental Primary School of the Pedagogical Academy of the Archdiocese Vienna (ÜVS) started a pilot project that was unique in Austria: for the first time easy-to-use minicomputers, so-called Pocket PCs, were employed for instruction at school. Now a first report on experiences with the project "ppc@school" is available.



*Computer lab,
furnished with the
support of the
BMBWK*

Even before working with Pocket PCs the ÜVS had made a name for itself through the use of modern information technologies such as multimedia application and the Web for regular instruction. The findings of the evaluation, which were presented

to the Austrian educational experts at national educational events (e.g. Interpädagogica) and at international educational meetings (e.g. ED-Media) made a stir and were met with great approval and lent wings to the creative potential of the teachers and especially of the pupils involved.

The experiences and the findings of the ÜVS were described and illustrated with countless examples from practical experience and complemented by reports on the use of computers in other Austrian

primary schools in the (meanwhile out-of-print) specialised book "Computereinsatz an österreichischen Grundschulen – gestern, heute, morgen" ("Employment of Computers at Austrian Primary Schools – Yesterday- Today-Tomorrow").



*Computers at
Primary Schools –
the definitive book*

Inspired by this, a trend-setting project initiative for the use of the latest information technology (IT) for educational purposes at school developed, which eventually led to a unique project of cooperation between the educational system and the IT-economy.

In the course of a generous donation Hewlett-Packard supplied a whole class, the 2a of the ÜVS, in the summer term of 2004 with Pocket PCs of the type hp ipaq 2210. With the support of the Federal Ministry of Education, Science and Culture the pool of resources was extended by flap keyboards, slip on cameras and additional memory cards.

These devices were supposed to be employed in several well-chosen subjects – in Elementary Science, German, Mathematics and Art – in the meantime, however, the pupils have been using their Pocket PCs also in private.

The current project which is expected to run until summer term 2006 will be thoroughly documented and scientifically analyzed and evaluated.



*Children at their
computers.
They are quick on
the uptake and
they handle them
flexibly.*



Pocket-PC at School

Under the title "ppc@school" – spoken: "Pocket PC at school" – the ÜVS initiated an innovative instruction project. The idea behind it: learning and teaching with the help of Pocket PCs are put to the test at a primary school. On the one hand, new pedagogical and didactic possibilities in child-centered, media-supported instruction should be demonstrated, on the other hand, the possibilities and limitations of employing comparable mobile devices should be made evident.

Multi-purpose application

The aim is the wide-ranging use of Pocket PCs in nearly all spheres of school life – for individual subjects as for instance for instruction in one's mother tongue, but also for interdisciplinary teaching or for project work. The devices are not supposed to function as a replacement of well-introduced methods and media, but they are meant to complement and accompany traditional instruction. At the same time the necessary skills for the application of the new information and communication technologies are trained.

Equal chances for everyone

It is of special importance for the Pocket PC Project that all pupils of the project class have a device of their own at their disposal and they cannot only use it at school, but also privately. With that, each child has equal chances; there are no technical barriers based on social differences.

User-friendly light-weights

When deciding on the hardware, Pocket PCs were preferred since they meet several basic demands of

primary education. The most obvious advantages are the size – ideal for the tiny hands of kids – and the light weight. Special stress was put on their user-friendly handling, which is guaranteed both by the use of a touchscreen and of a Stylus (Eingabestift), and by Microsoft Windows Mobile 2003 operating system (following the world's most widespread PC operating system).

Robust and reasonably priced

Economic considerations also played a part in the decision. Pocket PCs are suited for the major part of everyday and mobile use as well as for educational purposes, which are normally covered by notebooks, however, they cause clearly lower purchasing and maintenance costs. As Pocket PCs scarcely have mechanical parts, they are far more robust and durable than other devices.

Documentation and evaluation

The target of the project is not restricted to the multi-purpose use of Pocket PCs, but it also includes the documentation and evaluation of the application of Pocket PCs, e.g. with a view of their ergonomic aspects etc. The communicative facilities which Pocket PCs offer are to be put to the test with regard to the rapid technical development and the increasing relevance of being able to work together in a team. So far, all expectations (for example as far as motivation of the pupils, user-friendly application, maintenance or robustness are concerned) have been exceeded – which indicates that the adopted course with "ppc@school" in fact opens up new perspectives.



Prof. Ilse Bailicz: Learning with the pupils

For me as the teacher of the project class "ppc@school" provides an interesting task, but also a great challenge.

After all, this is not only about the passing on of traditional contents with computers, but about discovering together the possibilities of mobile Pocket PCs together.

The best prerequisite to it is motivation, and so far it has not waned. It is an essential part for the successful outcome of all this joint work. Right from the beginning all the pupils were heart and soul for the Pocket PC, they literally infected me with their enthusiasm. It was amazing to see how fast they learned to use the Pocket PC efficiently. This can be explained by the fact that getting to know and researching the unknown provides a fascination for children.

In the meantime the pupils have a very good command of the fundamental skills needed for working with the Pocket PC, which is a basic requirement

for translating this project into reality. Now it is up to the pupils and to their teachers to convert any further aims of the project into reality.

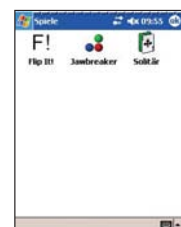
The conception, in which subjects the Pocket PC should be employed and which contents could be taught in a child-adequate form, originated from countless discussions with each other. A certain part of the pre-defined aims has already been put into practice in recent months, as the following examples from various subjects illustrate:

1. Elementary Science

- ▶ school excursions: transferring and working on tasks via infra-red interface to the Pocket PC
- ▶ Project work: gathering and exchanging of information
- ▶ factual and noteworthy texts: processing texts on various topics, preparing and saving them for later usage

2. German/Reading/Writing

- ▶ writing texts: drawing up texts in class, as well as in one's spare time
- ▶ spelling: spelling exercises to consolidate and secure the basic vocabulary
- ▶ grammar: exercises to train the tenses or the various parts of speech or of a sentence etc.
- ▶ reading: reading of stories, texts, e-books; exercises in reading for gist





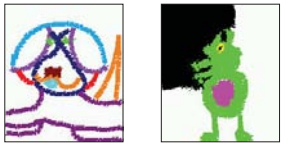
3. Mathematics

- ▶ working on factual examples: finding and taking down meaningful questions for examples, marking catchwords as a help for finding solutions, inventing new examples by changing numbers
- ▶ exercises to train written arithmetical procedures

4. Art

- ▶ painting pictures: creating one's own works of art with the help of the paint programme "Paint"
- ▶ dealing with pictures: touching up photos creatively
- ▶ making cartoons: with the "Flip It!" programme

In the further course of the project the Pocket PC is expected to be employed in other subjects as well and to support the teaching and learning processes in class. As a matter of fact, I am confident that, assisted by the teaching team, our pupils will develop into genuine "Pocket PC experts" in the course of the second year of the current project.



Known throughout the world ...



they are sure to be, these little PC pioneers. They are proud of their new outfit and of course, they are already well versed in using it. Everything else that the pupils tell about learning with Pocket PCs might be read in the following interviews:

"Are you proud to have this equipment?"

Caroline: "Yes, because my sister hasn't got a Pocket PC. She always wants to play with it, but I wouldn't let her."

Christina: "It's great to work with the Pocket PC. Yes, I am proud, because there are many children who don't have this gadget."

Leopold: "Yes, because we are the first form that is testing this device. We are sure to be known all over the world, even in the Web."

"Do you enjoy the lessons more if the Pocket PC is employed?"

Caroline: "No, I always enjoy the lessons."

Christina: "Yes, because I like working with it, and you can do a lot of things with it."

Leopold: "It all depends; sometimes it's also fun to work on a normal computer, because the Pocket PC can't do all the things I want to do."

Which programme do you like best in class?

Caroline: "Word."

Christina: "Word."

Leopold: "Flip It!"

Is learning more fun when you are working on your Pocket PC?

Caroline: "No, I enjoy learning anyway."

Christina: "Yes, because the Pocket PC is new and provides a change."

Leopold: "Yes, The Pocket PC is fun, because it allows you to find out things on your own."

Do you use the Pocket PC in your spare time?

Caroline: "Yes, but only sometimes."

Christina: "Yes, sometimes, but not too often. I like writing stories."

Leopold: "Yes, very much."

Which is your favourite programme in your spare time?

Caroline: "Games, sometimes also Word."

Christina: "Word, Flip It! and Paint."

Leopold: "Games!"

Is the handling of the Pocket PC difficult?

Caroline: "No, not at all."

Christina: "No, because I know what's what."

Leopold: "No, only very rarely. And if I do have problems I use the Softreset – and everything runs smoothly again."

Does the Pocket PC help you with certain tasks?

Caroline: "No, only entering the task is easier and quicker."

Christina: "I like using the calendar, it's good that there is one. When making up stories the words which you want to write (note: completion of words) appear there."

Leopold: "Yes, for spelling because you can use a spelling programme."

Does any other child help you when you have problems with the Pocket PC?

Caroline: "Yes, my girl friend helps me."

Christina: "Sometimes my friends help me, but the most part I do on my own."

Leopold: "Yes, Bernhard helps me and shows me new tricks."

What do you expect from the Pocket PC, what are your wishes and ideas?

Caroline: "I want to use the camera and the keyboard."

Christina: "I want to get connected to the internet with the chip card."

Leopold: "It would be nice to take photos during school excursions and later on to print them. PPC-Backup – what's that and how does it work? I want to learn how to use Bluetooth."

Scientifically considered

New information technologies are increasingly gaining importance, both in society and at school. Countless pilot projects, mainly in the USA, prove that technologies like interactivity, multimediality and web-assisted acquisition of knowledge have fundamentally changed and improved learning.

Pedagogical aims

The integration of the new media into school instruction can only take place in a sensible way if it is based on a pedagogical conception. In fact, at "ppc@school" a project team worked out central educational aims:

- ▶ teaching of fundamental media competence via incorporation of the Pocket PC into all classes
- ▶ establishing a reference between learning at school and everyday life of the pupils
- ▶ visualizing the process of learning, differentiation and individualization, team work, working with a partner and communication

Questions guiding the evaluation

A framework of accompanying research examines if the Pocket PC Project really reaches its aims. Since only a part of the complicated changes which the integration of the Pocket PC into school life brings along can be intensively observed and documented, the project team made up a list of questions guiding the evaluation:

- ▶ Does the use of the Pocket PC contribute to the realization of constructivistic and pupil-centered methods of instruction
- ▶ What didactic changes does the introduction of the Pocket PC cause in primary education?
- ▶ In what way does the Pocket PC affect the learning of pupils in and out of school?
- ▶ Does the use of Pocket PCs contribute to the acquisition of competence?
- ▶ Are learning objectives better achieved by employing the Pocket PC, are there any additional objectives?

In this connection the following partial aspects of class instruction must be closely looked at:

1. Learning at school

- ▶ the application of the Pocket PC in class, social forms and patterns of acting, teaching and learning objectives
- ▶ didactic advantages through the employment of Pocket PCs as opposed to PCs
- ▶ influence on the strategies of action of the teacher
- ▶ effect on the zest for learning and on the commitment of the pupils towards instruction at school

2. Learning out of school

- ▶ changes of the learning behaviour and of the ways how the Pocket PC is used in the pupils' spare time
- ▶ duration of work with the Pocket PC in the pupils' spare time (homework, respectively voluntary further education)
- ▶ use of the individual programmes out of school

Methods

The questions guiding evaluation were put in concrete terms and limited to the relevant individual aspects in order to make them empirically verifiable. The result were four partial studies, which complement and validate each other mutually.

- ▶ questionnaire for parents, teachers, pupils on the topics motivation for learning, parental acceptance, spare time behaviour etc.
- ▶ standardized interviews with parents, teachers and pupils
- ▶ analysis of observations of school lessons (in the form of written records or video tapes etc.)
- ▶ checks of competence (knowledge of the device, skills of handling, special tasks etc.)

These studies close a gap in the scientific observation of the new media, because at the moment only few empirically founded studies on the use of information technologies in primary schools are available in Austria.

Hardware employed

The Pocket-PC

Pocket PC:	Hewlett Packard iPAQ 2210
Processor:	400 MHz PXA 255 XScale
Memory:	64 MB RAM, 32 MB (Flash-)ROM
Operating System:	Windows Mobile 2003
Interface type:	USB, serial, Bluetooth, infra-red
Display:	3.5", 16-bit-colour display, 240 x 320 pixels screen resolution, touch-sensitive, transreflective
Power supply:	900-mAh-storage battery (removable), Lithium Ion safety battery
Expansion slots:	SD I/O, CF (useable for memory cards and system expandability)
Weight:	144 gr (5.09 oz)
Dimensions:	115,4 x 76,4 x 15,4 mm (4.54 x 3.01 x .61in)



Hardware accessories:

SD-Memory cards: 128 MB
flap keyboards
SD-Cams:(slip on camera): 1.3 megapixels

Planned expansions:

WLAN-cards (for convenient synchronization resp.
expanded communicative facilities)
Use of mobile communication technologies
based on WLAN and GSM (GPRS)

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