

Teaching is like DOMINO



For participants of study point,
Junior Language School Prague,
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In the area of computer technology use for education ([Computer Aided Learning](#)) year 2006 has been the most interesting year in the Czech Republic so far. In Czech schools there were more than 2500 interactive boards used (January 1, 2007).

Based on some research works, ICT in schools increases motivation and overall capabilities.

BECTA researches (2003-2006) states that ICT implementation in schools remarkably increased the overall school work results and especially it

contributed to better pupils' adaptation at the job market. Some researchers in 2007 but also oppose such results: (K. Moss, 2007). Results published in 2007 also say that computer sophisticated learning attracts students, but not to the content of learning, speed of some classes is getting slower and results are not better when compared with classical teaching.

The crucial issue to the success is based on [properly chosen methodology and didactics](#).

If didactic and a reasonable utilization of this technology is omitted, we can face those negative endings which are often discussed e.g. by English headmasters and teachers. According to them pupils become spectators in particular. On the other hand, Czech teachers can first prepare themselves in the ability of how to use the interactive boards effectively. They have time to think about their reasonable usage because it is rather difficult for the boards to come to the Czech schools.

Interactive whiteboard is only an instrument and there is no wisdom in fingertips as it was set in motto of Microsoft few years ago. A pupil must use his own head for learning and he needs to have the knowledge in his mind.

Basic description of interactive teaching

1. Interactive teaching allows presenting displayed data to the whole class and work with them actively. It is possible to use authoring software, projector and even the interactive boards. Teaching with interactive educational content (either own or bought) allows presenting the learning by a new dynamic way. It can emphasize the links and connections and it allow teachers and pupils to work with learning objects.



2. In this way, the extensive sources of educational materials or better said LO's learning objects (texts, pictures, visual and sound clips) are opened up to the teachers and pupils. These sources can be showed in connections and mutual links, whereas the didactic principles are respected.



3. In the matter of teacher's presence, it is not static anymore. With the interactive boards teacher's presence starts to be dynamic, it brings the movement to the lessons as well as the possibility to demonstrate many things in context (for example laws of nature. It leads pupils to solve the real problems and search for correct solutions. Consult cover page of this booklet.

4. Thanks to the interactive content it is possible to create number of projects that cover the section topics given by framework educational program.

5. Pupils can evolve their competences in a more dynamic way; they can use this computer-supported education as an instrument for their ability development. It concerns the CAL – Computer Aided Learning.

6. According to the DOMINO theory (Hausner, 2005, see below), individual Learning objects are inserted in the system of elements as well as the actual lesson is consisted of individual elements (methods).

Suitable educational objects

Although the interactive board is a hardware domain, it is designed for common teachers and pupils that are getting to know the world in its whole, and the computer is their tool. This is the reason why these boards should be installed in the classical common classes, not only there where the monitors just flash.

Particular knowledge, skills and habits assemble the overall competence at our pupils. In the same way it is necessary to look at these particular elements and the teacher has to learn how to assemble from them the contexts. Thereby we allow ourselves to present a basic description of educational object in clear and short definitions.

When is the learning object effectual? When it fulfils the following rule:

- D** ynamic
- O** riginal
- M** otivated
- I** nteractive
- N** arrative
- O** pen to the change

If the learning objects fulfils the points mentioned above, it is allowed to be considered as a very useful for education. The choice of such elements must understandably proceed from school specifications and preferences. It is preferred to have this audit not only for the whole school but for the individual subjects as well because then it is possible to work quite systematically with all teachers at school.

In respects of European dimension we should add another letter to the system - T ("Traveling") object.

When LO's travel well?

Simple "KISS" object (Keep it Small and Simple)
 Less words, much dynamics
 Mainly simulations

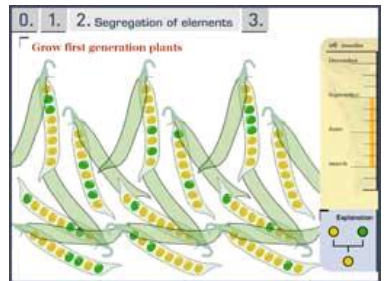
Following recommendations are meant for a school management willing to change their school into modern educational institution.

What to do?

1. Carry out an audit of your learning objects elements, instruments and sources and determine which ones are missing in your school (subject).
2. Individual subjects identify the **priority elements** and the ways of their acquirement with regard to the age group, method of working, etc.
3. Software sources audit will help you with the **question of legality of the software used at school**.
4. **It is necessary to educate teachers in the area of copyright.**
5. Further to the ICT school plan it is suitable to determine a procedure how to acquire particular tutorials as well as software licenses to the education sources online, to the encyclopedias, and so on.
6. Examine the tutorials compatibility with your hardware base.
7. Within the frame of audit it is suitable to examine even the proper tutorial integration in the school teaching; in which areas it is usable, how to identify the tutorial, whether there are some supporting materials, and so on.
8. It is also necessary to solve the question of costs, what forms of license are suitable, and so on.

Succes Factors

- ✓ Knowledgeable users with adequate self confidence
- ✓ Adequate motivation
- ✓ Flexibility and willingness to change the groovy stereotype of the school schedule - it means the knowledgeable school management
- ✓ Appropriate technical support



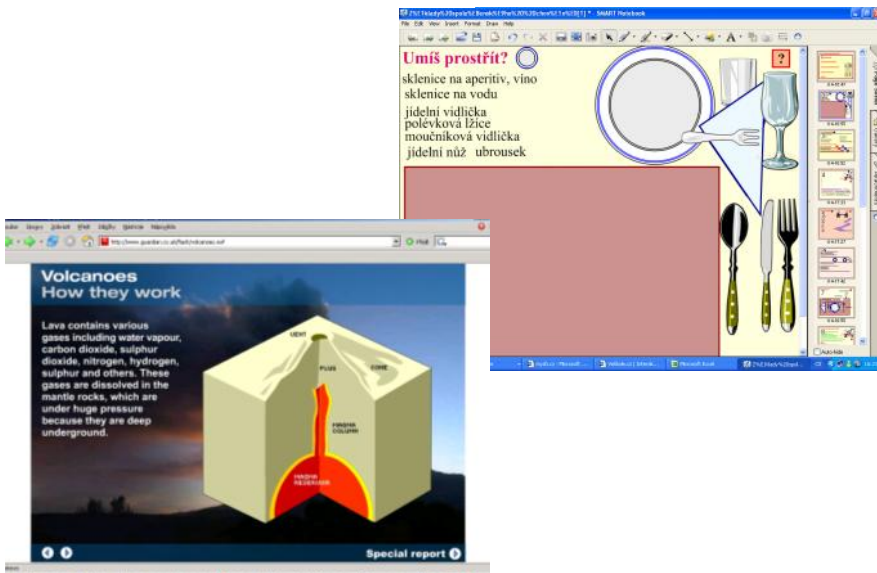
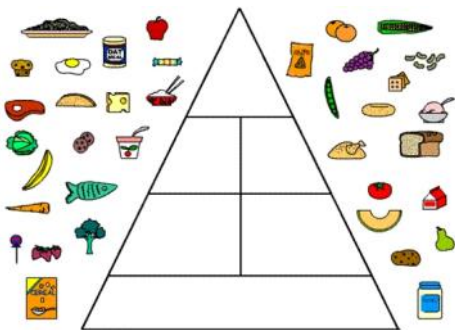
Failure Factors

- ✗ Users unknowing final data output though with excellent ICT knowledge
- ✗ Inadequate ratio between motivation and management push to implement such technology into education

“Effective process is to show teachers what all a computer is able to offer them and then the teachers will learn the rest.”

Naturally, a knowledgeable teacher starts from a role of knowledgeable school management. In the area of ICT introduction the role of school management is entirely fundamental. IF the headmaster is not absolutely convinced that this step is inevitable and effectual, then it is rather problematic to establish such a role. Methodology is not about bite, bytes or whatever, but is about “flashware” - nice and polite ladies who are really afraid of technology. Support must be therefore more psychological (lets say ‘educational’) regardless of fact, that teachers are the worth students ever seen in schools.

The teacher’s capability to convert himself into new teaching conditions is, without any doubt, the deciding factor.



What to do?

- Interaction is mainly a dialogue between a pupil and a teacher and that is the initial point in the proper lesson preparation. Interaction is not when something is acting on screen.
- The core of lesson preparation must be created by questions: why, how, what for but not when, where and who.
- It is possible to find the right solution in different ways. The teacher's role is just to show the way.
- Self-opinions and ideas can lead to success if they have the proprietary feedback.
- Boards enable the teamwork.
- Let's start discussion about solution from the very well known things with the help of clearly expressed tasks.
- Conflict is a core of understanding.



How to create „a good educational object“

- You cannot get along without a good idea. Interactive teaching is not about projection but about DOMINO rules.
- Specify the lesson purpose, duration and the method how to use the board during the lesson.
- Think about the instruments and objects you will need.
- Consider where you will find the objects (text, longer parts of the text, pictures – diagrams, shapes, animations, flash presentations).
- Create a file directory to save these objects.

Dynamics, activity and interaction

Even very difficult and complicated phenomenon can be simplified to **schemes, flowcharts** that are possible to present by simulation or deduction. It is natural that the choice of simplification must correspond to the pupil's age. But oversimplification may lead to incorrectly presented relations and too complex schemes may lead to lower clarity.

The crucial point of presentation as a good educational object is a measure of **interaction**. A well-prepared lesson must contain the instructions – how to work with the presentation, because pupil has to know what to do.

Dynamic presentation brings much more stimulations than the static illustration. If it is completed with some activities (work sheets, laboratory experiment) then the acquirement of subject matter is even more spread. Usage of interactive board lead to the variety of teaching manners – auditory, visual, textual.

Graphic solution lucidity is a condition of a valuable education object.

Interactive educational objects suppose **utilization of colors**. Some principles must be followed because environment overstuffed by colors makes orientation more difficult.

The essence of the work on the interactive board in all subjects is **possibility of movement** of single educational elements (text, picture) across the overall area of the board. **Work with basic objects** (rectangles, circles etc.) is very important. videoclip or acoustic clip can be replayed on the interactive board. Size of replayed files must be also taken into account.

- It is advisable for beginners to start with „**didactic kiss**“. To start, it is enough when you use the simple picture and text putting together.
- Use the board as a **common space for writing**.
- Use the board for handling objects.
- Combine handling objects and their descriptions.
- Learn how to change shapes, colors and places of different objects.
- Try different helping instruments for proper lesson (for instance blinds, reflectors and others), special instruments as well (font recognition and so on)
- The proper lesson tape on the video to your self-control.



Galleries and free resources

Important components are galleries of various mediums of your choice. These galleries are either part of software or teacher can create them as own resources. Copyrights for learning area must be followed.

There are some sources which can be effectively used for your presentation:



<http://calibrate.eun.org/>

Calibrate Project

<http://www.veskole.cz/>

At-School.org portal

<http://www.3Dscience.com/>

3D Science

<http://cgl.microsoft.com/>

Microsoft Office Clip Art and Media

<http://www.clipartforteachers.com/> Lesson Specific Clip Art

It is necessary to mention also copyright issues. Because of the laws are not completely same, it is quite difficult to set some generally valid use. There is a new licensing used in Europe — ?.

Details about such licensing you will find on this URL: <http://creativecommons.org/>.

The entirely new phenomenon among teachers is also use of so called community webs. The new community launched for learning objects can be found f.e. on <http://lemill.net>. It is easy to use and this is so good opportunity to work new tools.

Portal www.veskole.cz has launched also an English version and there is also a possibility to create network of school cooperating in implementation of LO's into education. This is real good start for a new European project and to ask for some funding.

Text book or electronic media?

Electronic media are everywhere, but horse sense is elsewhere missing. The best learning material was, is and still will be the just "ordinary" book. You can read it, page it from beginning, from page 33 or from the final page. Choice is entirely on you. So the best symbol of a good book is dog ears.

That is why we are convinced that the IWB should be used for

- ✓ items that are not in the textbook
- ✓ things that must be shown in movement
- ✓ interactive exercises (with text, pictures, video or sounds)

Internet Resources

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<http://www.veskole.cz/>

[At-School.org portal](#)

<http://www.prometheanworld.com/>

[Promethean's IWB](#)

<http://www.smartech.com/>

[Smart Boards](#)

<http://www.becta.org/postnuke/index.php>

[Bringing Educational Creativity to All](#)

and various others.

References

Hausner M. Why interactive board? JLS Prague 2005, Czech

Hausner M: Learning objects in education, Venkovský proctor 2007, Liberec, Czech

Hausner M: ICT in project education (Charles University, CSM Prague, 2006, Czech)

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