

INTERACTIVE (WHITE)BOARDS

This module aims to:

- Explain the basic principles of interactive whiteboards
- Introduce the features of interactive whiteboards and the software used to operate them
- Provide examples of how interactive whiteboards and interactive displays can be used in the classroom.

What digital skills does the module support for teachers?

- Continuing professional development
- Creating and editing digital resources
- Introducing digital tools and resources into the classroom
- Developing and experimenting with new teaching formats and pedagogies

What areas of the digital competence of the students can I support with the knowledge I have gained in this module?

- use of commonly used digital devices, applications and services; their use in learning and in engaging with school and society
- using digital technology to facilitate work, automate routine activities, streamline or simplify their workflows and improve the quality of their work
- understanding the importance of digital technologies for human society, becoming familiar with new technologies, critically evaluating their benefits and reflecting on the risks of their use

Introduction

We have introduced the module on interactive textbooks with a glossary entry expressing the importance of this educational element. In the same way, we can introduce a chapter on a didactic technology that has been firmly established in education for almost 20 years: the interactive whiteboard:

An interactive whiteboard is a device similar to a large screen that, in conjunction with a data projector, allows the classroom to project enlarged computer output and, in turn, to control the computer by moving a finger or a light pen across this special board. It combines the functions of a traditional whiteboard, a computer and multimedia devices such as a CD or DVD player. The interactive whiteboard is also often used in conjunction with a polling device, which allows all pupils in the class to be tested in real time or their opinions to be sought. Interactive textbooks are available as professionally produced multimedia content for interactive whiteboards.

Interactive whiteboards in schools

An interactive whiteboard can be thought of as a type of touch screen display that allows you to present lessons in a visual way while actively involving students in the learning process. It is a teaching tool that is often described as a catalyst for shifting learning from the traditional paper model to a digital model. The actual operation of the interactive whiteboard requires a computer equipped with a special program that processes instructions triggered by a control device such as an electronic pen or a simple touch of a finger. The whiteboard can also be controlled by a tablet, a voting device, etc.

Depending on the technological design of the whiteboard, different surfaces can be distinguished (hardness, ability to write with a finger or a pen, support for multiple gestures, ability to write on the whiteboard with an ordinary marker, etc.) as well as projection capabilities. The most commonly used projectors are ultra-short throw projectors. These are placed about half a metre above the board and project the image through a mirror onto the board. The second option is to use a conventional projector, which is cheaper, but the teacher casts a relatively large shadow on the board. The third - and most expensive - option is a whiteboard with a data projector built into the back.



SmartBoard interactive whiteboard with ultra-short projection distance

Newer interactive whiteboards automatically support student collaboration with features such as:

Multi-touch - allows multiple users to type or control at the same time and use multi-touch gestures to rotate and zoom objects.

Smart Touch - automatically recognises touch with your finger for control, a stylus for writing, your palm or a sponge for erasing digital ink. Works simultaneously for multiple users - one writes, one controls, automatically without switching functions.

Successful implementation of interactive whiteboards in the classroom is based on the following three assumptions:

- The right kind of school leadership that has a vision for the development and future possibilities of the school's ICT plan.
- The right way of conducting and organising training for interactive whiteboard users that is accessible in terms of content and technology to all those for whom it is intended.
- Sufficient patience on the part of the management, teachers and pupils who are the target users of interactive whiteboards, because only their thoughtful, long-term and systematic integration into the classroom will bring positive results.

Research agrees that if the methodology of using interactive whiteboards in the classroom is chosen correctly, there will be an increase and improvement:

- attractiveness and responsiveness to pupils' needs,
- pupils' attitudes to learning,
- the effectiveness and pace of learning.

Interactive whiteboards can be seen as a tool whose limits (as with other technologies used in education) are determined by the creativity of the teacher. It can range from a static screen for projecting PowerPoint presentations with explanations, to a multiply enlarged tablet allowing full interactivity of students with the displayed material.

We can use the interactive whiteboard for the following purposes:

- Explain the curriculum (show presentations, videos, websites, digital materials...)
- practise with different activities
- store and revise the output produced

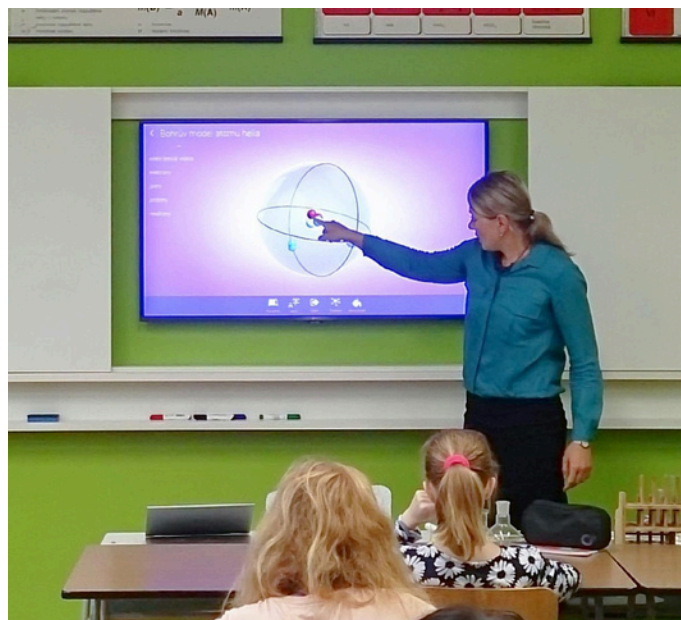
If the students have connected devices (laptops, tablets, smartphones), the teacher can see them and start a prepared activity for the students to work on individually and at their own pace on their devices. Once they have completed the activity, they receive immediate feedback on the correctness of the solution.

Examples of such activities are:

- Fill in the blanks - students drag words or numbers into the gaps
- Turning over flashcards
- Matching - making correct pairs, sorting items into two categories
- Sorting - students arrange items in the correct order
- Quizzes with questions - students work in teams, e.g. on individual devices, can also be used for quick revision (all answers are recorded in a table which the teacher saves)
- Engage - students use their devices to send in contributions or pictures (brainstorming)



Interactive game for children



Corinth's 3D model - students can view/control it on the whiteboard as well as on their devices

Interactive SMART Board

It is probably the most widely used model of interactive whiteboard in the Czech Republic. The SMART Board interactive whiteboard for school environments comes with the SMART Educational Software package, which includes:

- **SMART Notebook** – includes tools for writing, drawing, painting, tracing, tools for drawing shapes, tools for mathematics including functions, graphs and geometry, image gallery, safe Internet video search engine, exercise recording tool with audio commentary, mind maps, etc.
- **SMART lab** – is a tool for teachers and students to create interactive exercises. The LAB includes templates for flipping cards to find the correct answer, sorting objects, placing objects in the correct order, filling in the blanks in a word or sentence, or the Shout It Out! app, which allows students to share their ideas, text and pictures using their mobile devices directly in SMART Notebook.
- **SMART response 2** – is a voting and testing system using student devices with answer scoring - yes/no questions, choice of one or more correct answers, opinion questions, short answer questions. Pictures can be added to the questions.

- **Lumio by SMART** – environment available through a Web browser, no installation is required. It includes unified SMART Notebook tools and a tool for adding interactive activities to PDF and PPT files. It serves as a cloud-based repository for assignments and tutorials.

Creating digital learning materials is time-consuming, so it's good to know where teachers are sharing their materials. For example, you can get inspiration from the following website:

- Learning corner https://learning-corner.learning.europa.eu/index_en - this is a source of teaching material for all ages if you want to help your students learn about the EU and how it works.

TIP:

For a more in-depth look at this topic, I suggest you have a look at this article:

[Can a digital whiteboard foster student engagement?](#)

Interactive display, multi-touch table

Classrooms can also be equipped with a large-format touchscreen, reducing the need for a projector. The dimensions of the display are smaller than those of interactive whiteboards. Interactive displays are not usually designed for marker use. The advantage of an interactive display is that it is self-contained, requiring only a computer as an image source (and sometimes not even that - some displays have built-in applications that allow you to work on the display without a computer connected at all). One such example is Whiteboard - a digital whiteboard with the ability to save notes on the display or on a connected smartphone, share the notes, or return to them to continue working as required).

The interactive display can also be mounted on a mobile stand, making it mobile (even within the classroom), which is a welcome model especially for hybrid learning needs. The image projected by the projector is often illegible in direct sunlight, whereas the interactive display is legible in the same adverse conditions. Multi-touch is a given and several dozen touches can be used simultaneously.

Similarly, the interactive (multi-touch) table works in a horizontal position. In some cases it is simply a tilted interactive display. Compared to the vertical position, the interactive table provides space for collaboration between several students standing around it. The table is either connected to a computer or contains pre-installed applications and can be operated as a stand-alone digital device.



Interactive display on mobile stand



Multi-touch tables arranged to work in nests