TEACHING IN A COMPUTER LAB

Teach for the future

Dr. Hans-Friedrich Vahlensieck

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Foreword

We live in fast times. The evolution of technology and the introduction of the Internet have changed our workplace, our schools and our society. Not since the spread of modern industrialization has our world changed so quickly in such a short period of time. As educators, we must not only react to this change but be pro-active in order to prepare our students for the emerging knowledge-based workforce and the challenges of a global economy.

As a teacher, I believe this requires the active use of new technology tools in my classroom. Students are naturally enthusiastic about new technology so finding ways to channel that energy into learning is a great opportunity for all teachers. However, changing familiar teaching methods can be a challenge. I see the emerging technology available for teachers as a way to ignite my students' curiosity and make my teaching materials more engaging and effective. I've seen the difference in my students' successes as I've introduced new ways to help them learn so I believe that technology has earned a place in the classroom.

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Introduction

It's hard to believe that as late as the 1980's, the overhead projector was considered a progressive teaching tool. Not every classroom was equipped with 'the latest' tools, requiring teachers to find a projector and wheel it into the classroom every time they needed to use it. There were no laser printers either so I remember teachers spending hours writing slides by hand in order to create a single presentation.

Although Information Technology (IT) classes were taught to the higher grades, the school I attended had just two PCs for 1,000 students. Today, not only are projectors standard in most classrooms, but most schools have entire labs of computers available for teacher access and many classrooms are equipped as well. Only 20 years ago we would have thought that this was an impossible luxury. If we have seen these kinds of changes in the last 20 years, what will the next 20 bring? How long will it be before every student has a laptop? Will every school eventually have wireless access as a standard across the campus? Will text books become strictly Web-based? Will students leave their homework at home after they network their home and school computers?

Along with all of the changes in the available tools for teachers comes the challenge of learning how to integrate new technology into our teaching methods. It's a challenge that I am willing to take and I hope that what I've learned helps other teachers.

It's an exciting time to be an educator.

Teaching in a Computer Lab: Requirements and Possibilities

Creating a Presentation for the Computer

A computer presentation can be as diverse as a conventional lesson given from the front of the classroom. There are hardly two teachers who would teach the same material in an identical manner and each teacher chooses the form of presentation that best suits his or her teaching style. The following are ways teachers can incorporate computers into their classroom.

- The teacher can demonstrate a procedure to the students “live” on the computer. For example, how to fill out an exercise sheet or how to access the Internet. This type of presentation is not complex, requires only a little preparation, and is still effective.
- The teacher can create a presentation with a software program such as PowerPoint to use during the lesson. Depending on the type of presentation, this can take a lot of time to prepare, but after it is developed, the teacher can use it again, modify it for another class, or include it in a set of modules.
- The teacher can post presentations and other information to the Internet for students to access.

TIP: Presentations that use multimedia such as video sequences, sound (noise, music), and animation (comics) attract the most attention.

Presentation Media

The simplest and most inexpensive way to include the computer during a lesson is to gather students around the teacher's computer screen. Obviously, this approach is limited to the number of students that can see the screen. Below are other options.

The Video Projector

With the help of a video projector (similar to a slide projector) a teacher can project his or her screen to the front of the classroom. Unless the projector has a high intensity light, the teacher must dim the lights in order that all the students can see the screen. And projectors, particularly those with a high intensity lights, are still very expensive. In addition, the teacher cannot monitor the student computers or direct the students' attention to the presentation, which is possible with the following systems.

The Hardware Video Network

The hardware video network transmits the teacher's screen over a cable to all the computer screens in the classroom; the teacher does not need to dim the lights for students to see the screen. However, this hardware solution is not easily moved between classrooms and its implementation costs can be high.

Classroom Management Software

Classroom management software transfers the contents of the teacher’s computer screen to the student computers. Requirements for this software include an existing network, which is generally already present in school computer labs, and a high-speed connection (preferably 100 Mbps). Unlike the hardware video network, there is no need for additional cables or wires.

Classroom management software has the further advantage that it is independent of the light quality and the arrangement of the student computers. Students who sit in the back of the class have the same view as those sitting in the front. And the teacher can use additional software features for an interactive lesson which goes beyond simple screen sharing.

This software represents one of the most modern and, at the same time, extremely low-priced solutions and is the preferred method. Today's standard for classroom management software is Vision from GenevaLogic. The practical example in this brochure uses this program and the additional tool, Pointer.

Tips for Your Presentation

- Remember that your presentation can be interrupted at any time by a student who has a question. Clarify your points on the board.
- For longer presentations, write the key points on the board to make them visible throughout the presentation.
- Give students the opportunity to take notes; create a hand-out for your presentation.
- Change the medium from time to time to keep the class interested and motivated to learn.

Until now we have only been talking about presentations, that is, teaching from the front of the classroom, but the PC network is equally suitable for group work, projects, and workshops.

Teaching in a Computer Lab: A Practical Example

Below is a sample training session in which I demonstrate my computer training methods. I use Vision software as an instructional tool. This includes Chat, which is an integrated part of Vision.

In my opinion, there is no other product on the market at the moment that comes anywhere near Vision in terms of functionality and speed. A special keypad makes the operation of Vision even easier to operate, but is not required.

The learning environment	Each student has a computer with Internet access.
The subject	A high-level biology lesson (biochemistry).
The goal	The students use the Internet to gather information about carbohydrates.
Assumptions	Most students have experience with targeted searching (browsing) on the Internet, but not necessarily for topics specific to biochemistry.

The Demonstration

The first thing I do is show the students examples of how to use proper search techniques on the Internet. Here I use the computer as a presentation tool for training at the front of the classroom.

To make my computer screen visible to the students, I press the **Demo** key on my Vision keypad. As an alternative, I can also click the **Demo** button on the Vision toolbar.

Almost immediately, the contents of my screen appear on the student computers. The student keyboards and mouse devices are locked. As I begin with the introduction, students cannot work on their computers.

Vision Keypad

To maximize my screen on the student computers, I click the **Full Screen Demo** button.

The **Windowed Demo** button allows me to give students the option to view the presentation in a window while they continue working.

When I click the **Minimized Demo** button, the demonstration screen is available from the students' taskbar, giving students access to the presentation when they need it.

The Presentation Tool Pointer

When a teacher uses an overhead projector, he or she usually needs to point things out on the screen and often uses a pen, laser pointer, or simply physically points at important areas of the screen. In the case of a computer presentation, teachers use the mouse pointer, but because the mouse pointer is usually small and moves quickly, it is easy to lose sight of it.

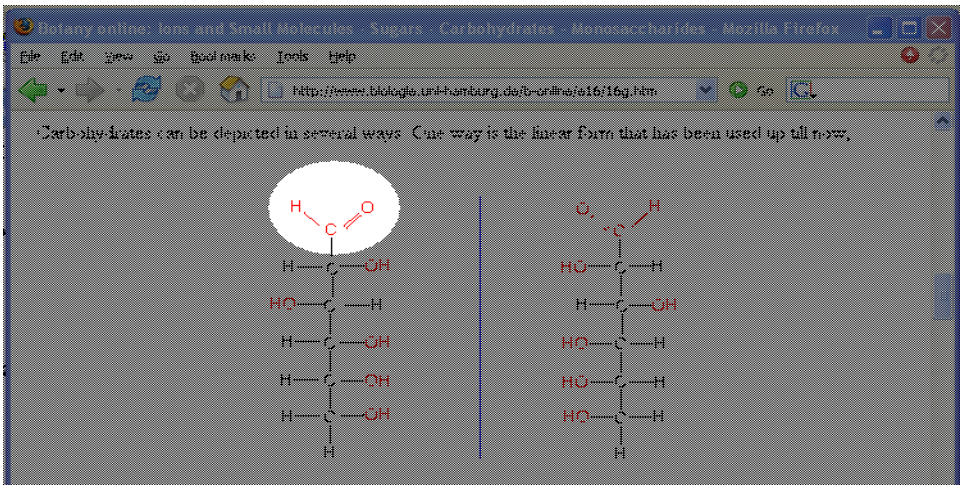
The Pointer program offers the teacher excellent graphic possibilities that help guide the students through the presentation. There are a number of different selection tools to fit any teaching style. The student can easily focus on the most important part of the screen without continually searching for the mouse pointer. These well-visualized points also stick in the student's mind, increasing the degree of learning.

Below is an example of the Pointer toolbar. You can customize the tools and move the toolbar anywhere on your desktop. The toolbar hides itself when not in use and can easily be displayed when you click on the Pointer title bar.

Pointer Toolbar

You select the tool you want and point out the area of importance on your screen. The following examples demonstrate how to use Pointer during a presentation.

The Oval Spotlight tool is the one I use to explain a particular point on the screen. It lights up the area of focus and darkens the rest of the screen.

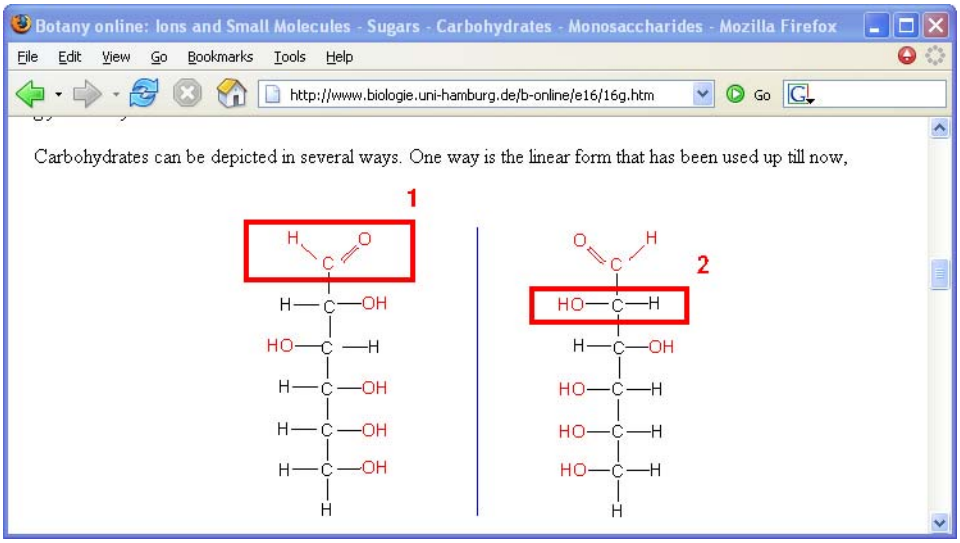


An example of the Oval Spotlight tool.

TIP: To adjust the size of the spotlight, right-click and drag the light to the size you want.

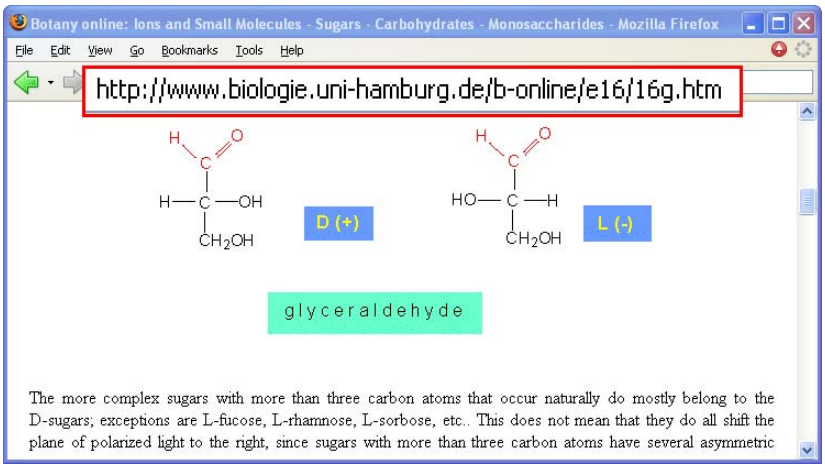
When I finish explaining chemical groups, I summarize the most important points. The Numbering tool helps me point out various sections of the presentation in consecutively numbered frames.

This function is excellently suited for explaining a number of consecutive steps, such as the desired order in which a student should fill out a worksheet.



Here the numbering tool is used in combination with the rectangle outline tool. The individual frames are automatically allocated a number.

Finally, the last thing I like to do is to enlarge the Web site address I am using because online text is often too small to read during a presentation. I use the Magnifier tool to do this.



TIP: Pointer can also capture images of the screen, which you can save and print.

To stop the demonstration, I simply press the **Stop** button on the Vision keypad. Students regain control of their computers.

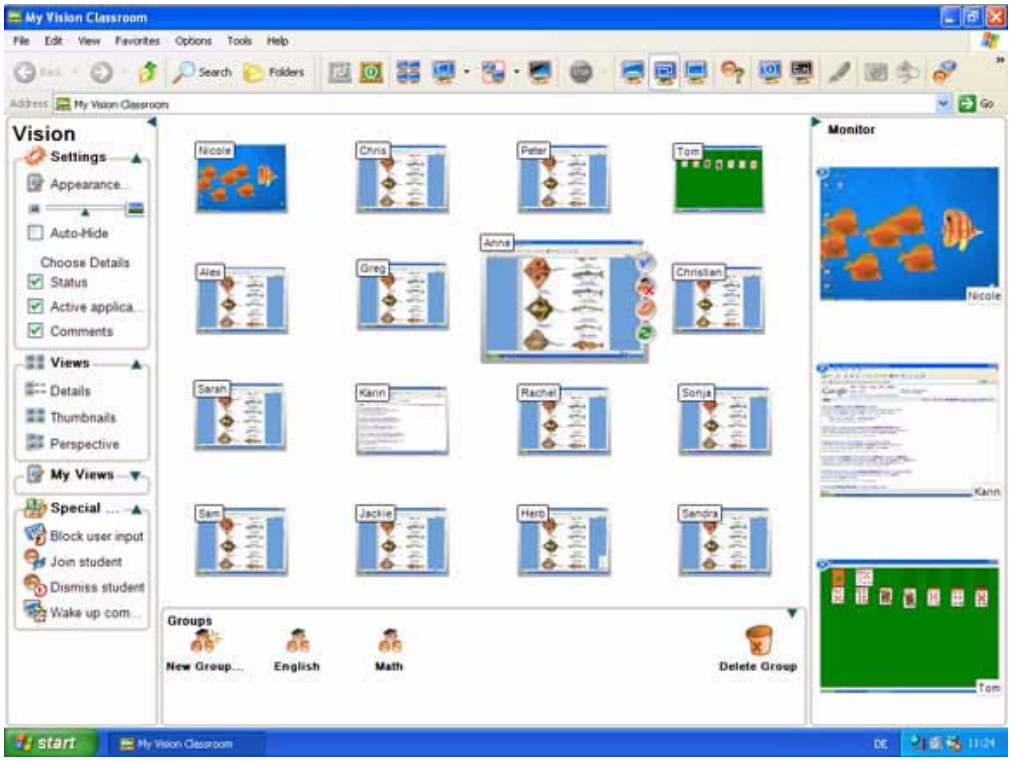
The Practice Phase for Students

At this point in the lesson, students put what they have learned into practice and work on their own computers. If a student asks a question that applies to everyone in the classroom, I can easily return to the Demo feature and focus everyone's attention to my screen.

As students continue their work, I can monitor their progress from the dashboard. This feature allows me to see all of the student screens as a group of “thumbnails” on my screen. From this view, I can monitor what each student is doing.

If I see activities that have nothing to do with the lesson, such as computer games or unrelated Internet surfing, I can stop them immediately. And I can do this from my computer instead of physically checking each student computer, which can disrupt learning.

Below is an example of the dashboard. Aha! Tom is playing Solitaire.



Offering Help

The dashboard enables me to observe all students at a glance. I can take a closer look at particular students at work and see who has trouble with the assignment. I can do this without asking the entire class, “Who has questions about the assignment?” This is helpful when some students become unsure or nervous when the teacher calls on them in front of the class or when the teacher looks over their shoulder.

I can also monitor the effects of my lesson and see where I have explained material well and what points I have overlooked.

The dashboard is an effective tool when used in addition to personal contact with students, such as walking around the classroom and answering individual questions. Teachers can run computer presentations remotely. For example, a teacher can walk around the room but continue to control the presentation using a wireless mouse. This can make the lesson more relaxed and personal when learning barriers such as the teacher standing at the front of the classroom are reduced.

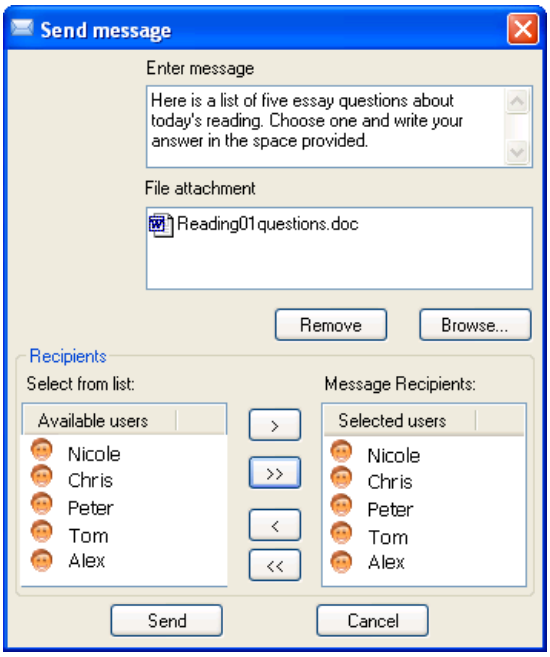
Presentation of the Results

Using Vision, I can also share a student's computer screen with the rest of the class. For example, I can stop the class to point out an interesting Web site that a student has found.

To do so, I select the student's screen, and then click the **Virtual Teacher** button on the toolbar. The student's screen appears on all of the classroom computers allowing the student to act as the virtual teacher. She can explain important points to her classmates while they watch her actions in real time on their computer screens.

When the class is done searching the Internet, I ask students to report the results of their searches in a worksheet I have created. I distribute this worksheet through the network to the students

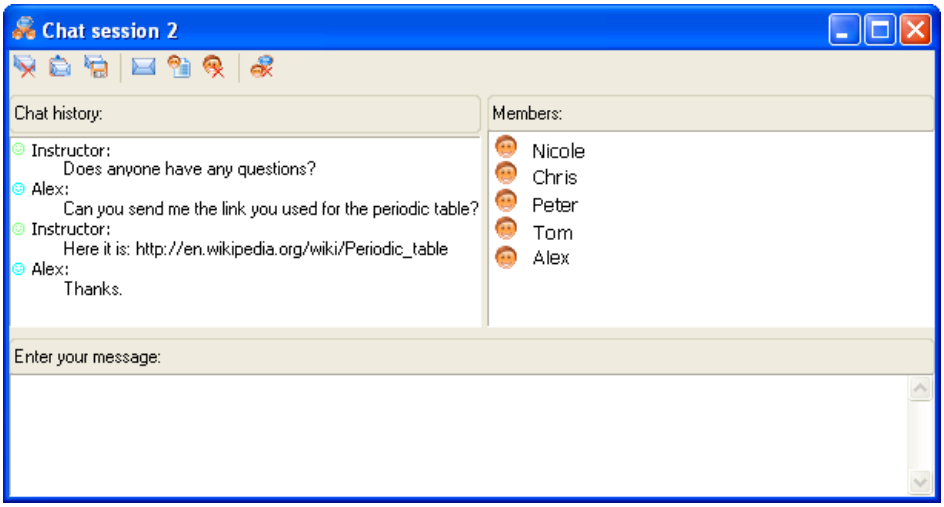
instead of printing out hard copies. The students fill out the worksheet from their computers and save them to a file folder or print them out.



Individual Student Questions

While students fill out their worksheets, I can still use certain Vision features. For example, some students may have questions concerning the worksheet. Vision's Chat feature allows these students to ask me questions directly without disturbing other students as they work.

Chat can also allow students to communicate with each other online. This is a useful tool for lessons in which students learn how to use the mouse and keyboard or practice writing during a foreign language lesson. You can turn this tool on or off.



Final Comments

This concludes my overview of how I use Vision in the classroom. Although Vision software has other useful functions, to cover all of them goes beyond the scope of this brochure. I hope that you have gained some useful tips for teaching in a computer lab.

It is necessary to relearn, reconsider, and probably even revise some of our personal teaching styles in the future. But these efforts are valuable because of the positive impact they have on our teaching.

I will do my best to improve this edition and I welcome any comments you have. I would also be delighted to hear from other teachers and trainers about how they use Vision in the classroom.

Please send your comments to one of the addresses below. I thank you in advance for your support.

I hope you have a lot of fun and success.

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