

A few exercises to start with

While the previous chapter dealt with general aspects of educational Web use and with a personal orientation, this section is devoted to a few practical exercises illustrating different types of educational use of the Web. The goal is to experience in the role of a pupil the practicalities and difficulties in using the Web in different ways.

It should be acknowledged that, although the use of the Web in education may look quite simple, in practice quite a number of obstacles and potential problems need to be overcome. For teachers it is important to explore how the Web fits into their current teaching style and to what extent particular uses of the Web may have consequences for the teaching style of teachers.

The Web and teaching style



The challenges education systems are facing in an information society result in a need for new definitions of education: a new balance is needed between 'old' (reproductive) knowledge and 'new' (productive) knowledge, and between existing and alternative forms of education (see Appendix 1). They are also calling for new forms of teacher education and new forms of support in education. Information and communication technology (ICT) has the potential to play a role in every stage of the change process needed. It is the purpose of the WWW-train project to provide a (small) contribution to these developments in the countries participating in the project.

A FEW EXERCISES TO START WITH

One of the aims of the WWW-train project is to develop in each of the participating countries a (training) course for teacher educators to train teacher education students and teachers (in an in-service setting) in skills to utilize the WWW in their teaching with secondary school pupils. More specifically, we aim at introducing teacher trainees and in-service teachers amongst others to innovative didactical/pedagogical practices that can be realized by utilizing ICT, especially the Web.

Below is a concise summary of the shift in pedagogical orientation that may be needed if education wants to meet the needs of an information society. In Appendix 2 (taken from Plomp & ten Brummelhuis, 2001) some of the key ideas are elaborated more extensively.

Before starting to read this section, please be aware that the application of 'constructivist' innovative didactics (focused on student-centred, 'active' learning approaches) is not a condition sine qua non for using the Web. Rather, the Web may be used in traditional didactical approaches as well. In addition the Web may play a facilitating role in the implementation of innovative didactics.

A terminological point: the concepts of didactics (didactical) and pedagogy (pedagogical) are used as synonymous in this memo.

A new vision on the learning process

This section presents how Voogt (in press) summarizes the shift in vision on what are learning processes in the school of the future.

Demands from society for independent and flexible citizens imply a challenge for education. In a traditional learning setting, there is a relative high emphasis on learning in the form of transfer of knowledge and skills from teachers to students. In prominently constructivist approaches to teaching and learning, which are nicely fitting the needs of education in an information society, students are held responsible for their own learning. In a constructivist approach authentic learning and learner centred forms of instruction are applied through offering complex learning environments to students. In these learning environments complex interactions take place between the teacher, the student, peers, curriculum content and goals and the materials. Based on an extended literature review Voogt & Odenthal (1997; see Appendix 1) distinguished a number of educational elements that foster learning in these kinds of environments. In table 1 these components are organized in such a way that they show the characteristics of a pedagogical approach that is expected to be more dominant in an information society versus a pedagogical approach that suits an industrial society. By using the words 'less' and 'more' the table also indicates that education nowadays is searching for a new balance between 'traditional' and 'emerging' pedagogy. In addition, one may argue that the 'less-more' approach also helps in getting the desired changes implemented in due time. As change is a process, the right column can be looked at as a long-term goal, towards which one can work by conducting projects that over time show 'less' of the traditional pedagogy and 'more' of the emerging pedagogy. Such a gradual approach may encourage those educational practitioners who are hesitant to

A FEW EXERCISES TO START WITH

adopt too drastic changes and who prefer to follow an approach that is congruent with their capacities of absorbing changes.

Table 1

Overview of pedagogy in the industrial versus the information society (adapted from Voogt and Odenthal, 1997, Wijnen et al., 1999)

<i>Aspect</i>	<i>Less ('traditional pedagogy')</i>	<i>More ('emerging pedagogy' for the information society)</i>
<i>Active</i>	<ul style="list-style-type: none"> • Activities prescribed by teacher • Whole class instruction • Little variation in activities • Pace determined by the program 	<ul style="list-style-type: none"> • Activities determined by learners • Small groups • Many different activities • Pace determined by learners
<i>Collaborative</i>	<ul style="list-style-type: none"> • Individual • Homogeneous groups • Everyone for him/herself 	<ul style="list-style-type: none"> • Working in teams • Heterogeneous groups • Supporting each other
<i>Creative</i>	<ul style="list-style-type: none"> • Reproductive learning • Apply known solutions to problems 	<ul style="list-style-type: none"> • Productive learning • Find new solutions to problems
<i>Integrative</i>	<ul style="list-style-type: none"> • No link between theory and practice • Separate subjects • Discipline-based • Individual teachers 	<ul style="list-style-type: none"> • Integrating theory and practice • Relations between subjects • Thematic • Teams of teachers
<i>Evaluative</i>	<ul style="list-style-type: none"> • Teacher - directed • Summative 	<ul style="list-style-type: none"> • Student – directed • Diagnostic

Voogt (in press) continues by stating that ICT is considered to facilitate the realization and implementation of the emerging pedagogy (Office of Technology Assessment, 1995; Panel on Educational Technology, 1997; Watson, 1996, Davis, 1997). This is well reflected in Dede's (2000) list of ICT capabilities for enhancing learning: centering the curriculum around authentic problems parallel to those in real world settings; involving students in virtual communities of practice, using advanced tools similar to those in today's high-tech workplaces; facilitating guided, reflective inquiry through extended projects that inculcate sophisticated concepts and skills and generate complex products; utilizing modeling and visualization as powerful means of bridging between experience and abstraction; enhancing students' collaborative construction of meaning via different perspectives on shared experiences; including pupils as partners in developing learning experiences and generating knowledge; and fostering success for all students through special measures to aid the disabled and the disenfranchised.

The exercises



Below are a number of exercises that could be examples of assignments that are given to pupils. The first exercise is very much teacher directed and involves not much demands on pupils for working independently and self-directed. The last tasks demand a high degree of self-directed production-oriented activity that requires probably much coaching and guidance from the teacher. The goal of these exercises is to gain experiences with each of these tasks and to raise awareness of what types of tasks might be valuable to start with in real educational practice.

Your experiences

While doing the tasks ask yourself which types of tasks would best fit in your current teaching style.

Assuming that you as a teacher need to discover how the WWW may add value to your own lessons, it is important (while doing the tasks as listed below) to make notes for your self on a number of aspects like the following: where does this fit in the curriculum of secondary schools, is this attractive for pupils, what is added value compared with the traditional approaches to teaching and learning, which types of variations are relevant in my country, etc..

It should be noted that the following exercises were selected because they can be done in a relatively short amount of time, which is necessary for the evaluation sessions for which this manual is primarily used. Other exercises that may be more challenging but also much more time consuming can be found at the workspace of the project (<http://bscw.gmd.de>).

Exercise 1: teacher directed and individual

Title

The Louvre current expositions

Introduction

On the Web you can learn a lot about events that are currently going on. If you are interested in art, many museums provide information on the Web about current expositions, which you may want to preview before going there.

Description

Go to the Web site of the museum the Louvre (<http://www.louvre.fr>) which is located in Paris in France. Read the home page carefully and try to answer the questions that are stated below.

Time: 15 minutes

What you need to produce

1. Mention maximally three expositions that currently take place
2. Choose the exposition you like the best to visit. Read the information about this exposition. Look for information, which is new to you.

Finish the next sentences-

- I was at the website of the Louvre and I found out that
- I was at the website of the Louvre and I found out that

Write your answers in an e-mail and send it to your classmates.

The exercise above is rather simple and comparable to reading a brochure about current expositions in the Louvre museum. There are, of course, many variations

A FEW EXERCISES TO START WITH

possible, such as writing a short paper by cutting and pasting information, making a PowerPoint presentation of highlights from the Louvre, etc. Instead of sending their answers by e-mail the pupils may be asked to write answers on a sheet of paper.

Exercise 2: student directed and individual

Title

Interactive games on the Web

Introduction

There are plenty of websites for many school subjects, but only a small part of them are really interactive. QUIA offers lots of web-based games for pupils.

Time: 20 minutes

Description

Go to the website of QUIA (<http://www.quia.com/dir/>) and try out three games that are located there.

Decide for yourself, which games are the most interesting for you and whether you learned something by playing them.

What you need to produce

Mention at least three games and the topics that you liked most!

Suggest a few types of task for pupils playing these games for the subject you teach or taught.!

Write your name and answers in a text file and mail it to your classmates.

Although the task above is not completely student-directed, because the Web site is given and the instructions on what to produce are prescribed, there is a rather large amount of freedom for pupils to stroll around at the site and make their own decisions on what to do. There are many variations of this type of exercise possible. Mention a few and discuss these with others. For instance for all kind of subject areas there are applets that allow students to experiment a bit themselves. See for instance: <http://www.mste.uiuc.edu/java/>, or enter for instance the words *+applets +education +portal* in the Google Search Engine and you will find a lot of websites with all kind of applets.

A FEW EXERCISES TO START WITH

Exercise 3: student directed and cooperative at the spot

Title

Environmental disasters in Europe 1990-2000

Introduction

In the last decade a number of really sad cases of environmental pollution or disasters occurred. These events made us think whether we use the best, the "greenest" technology.

Time

50 minutes

Description

Work together with another pupil from your class, and discuss how to find answers to the following question: Which environmental disasters occurred in Europe in the period 1990-2000? Distribute the tasks.

What you need to produce

1 Mention at least 4 different cases.

2 Both of you choose one case you want to know more about.

Try to find answers on the following questions:

What were the reasons of the disaster?

Was the disaster inevitable?

Which damages occurred?

Compare both cases. What are your conclusions?

Write a short text file about the two disasters to inform your classmates. Include pictures to illustrate the information. Send the file containing the answers and conclusions to your teacher. Subject of the e-mail is: your names, date and the word 'disaster'

Exercise 4: student directed and cooperative at distance

Below are two examples of potential assignments. Note that example 1 will take too much time to execute during the evaluation session. Therefore it is better to only do Example 2.

Example 1

Title

Cooperation via e-mail

Introduction

Nowadays and in the future people have to collaborate on distance. This means that they need to communicate via e-mail. The task below is aimed at simulating cooperation in a virtual world in order to contribute to developing e-mail skills and negotiating strategies.

Time: 2 lessons**Description**

1. The teacher wants pupils to produce a web-guide. The webguide has descriptions and addresses of websites with information about topics in the textbooks.
The teacher has web-addresses and names of the websites.
The task for the pupils is: visit a website and make a short article about the content of the website. For which topics in the books is the website a source for more information? Do you recommend the webpage to your classmates? Why yes or why not?
2. Pupils are not allowed to communicate orally, only via e-mail.
3. The teacher forms groups of 2 pupils and gives them names. For each group he appoints a co-ordinator.
4. The teacher sends a set of topics from the textbook all group-coordinators.
5. Pupils in each group select a topic by negotiating with one another.
6. Both pupils work on their topics.
7. The co-ordinator of each group invites 2 reviewers from other groups via e-mail.
8. The groups send their articles to reviewers.
9. The reviewers and authors of the articles negotiate the content via e-mail.
10. At the end the co-ordinator sends the article to the teacher.
11. The teacher sends the articles to all pupils.
12. The teacher and the pupils evaluate their performance in a discussion.

A FEW EXERCISES TO START WITH

What do you need to produce?

Every team needs to produce two short articles with description of a website. The article is reviewed by a classmate of another team. You negotiate with the team member about the content of the article. When you agree about the content, both articles will be sent to the teacher and all of your classmates.

You will discuss and evaluate this task in a class discussion.

Example 2

Title

Cooperation via e-mail

Introduction

Simulating a discussion will allow you to experience the kind of problems that teachers and pupils may encounter when they need to communicate by e-mail. Prepare the discussion about this morning session by e-mail.

Time: 60 minutes

Description

Work in groups of 3-5

1. Compare the tasks you did this morning. Mention for every task strong and weak points. Explain why you think so.
2. Send your comment to your teammates by e-mail.
3. Collect the e-mails and comment on every email and send it back.
4. Read the comments on your e-mail.
5. What conclusions and questions do you have for the discussion? Mark the most important conclusions and questions. Send them to your team members.
6. Decide together which conclusion and question you will use for the discussion.

Reflection

Which problem did you encounter by using electronic communication. What are the implications for the organisation of electronic communication for a task like this for pupils?

What you need to produce

By each group:

Conclusions and questions for the discussion

Answers on the reflection questions

Every team member: copies of the sent and received e-mails

A FEW EXERCISES TO START WITH

Possible variations on the examples given above

You probably can imagine that the examples above can be elaborated and varied in many different ways. In thinking about possible variations you may want to distinguish the following aspects:

Structure <ul style="list-style-type: none"> ○ High ○ Medium ○ Low Cooperation <ul style="list-style-type: none"> ○ High ○ Medium ○ Low Reflection <ul style="list-style-type: none"> ○ Yes ○ No Communication <ul style="list-style-type: none"> ○ E-mail ○ Presentation ○ On paper ○ Lecture 	Subject <ul style="list-style-type: none"> ○ Personal ○ Domain: _____ Expected time needed _____ minutes Type of Web use <ul style="list-style-type: none"> ○ Web referral ○ Web quest-short ○ Web quest-long ○ Web exploration ○ E-mail project ○ Collaboratory 	Entrance skills <ul style="list-style-type: none"> ○ ICT-Basic ○ ICT-Advanced Reading level <ul style="list-style-type: none"> ○ Low ○ Medium ○ High Target group <ul style="list-style-type: none"> ○ Low ability ○ Medium ability ○ High ability Materials needed <ul style="list-style-type: none"> ○ Internet ○ Library ○ Textbook
--	--	---

As you probably can imagine: almost every combination of the aspects that are mentioned above is thinkable. Therefore it is important, before you start the following chapter, to reflect a bit on what might be most appropriate for you to start with if you initiate the use of WWW in your lessons. Do you prefer assignments that can be done with the whole class or individually or in small groups? Do you want that pupils spend a couple of hours over a longer period or do you want to spend a small part of the lesson? Our advice is: start simple (that is: stay close to your already existing experiences), set intermediate goals (to be realized in a year or so) that may be a bit challenging for you and your pupils and set challenging goals for the long term (to be realized in a couple of years).



Reflection

Finalize the exercises above by answering the reflection-questions about 'Exercises to start with' that were given to you by the writers of this manual. Important note for organizers of the training session: make sure that each participant receives a (temporary) e-mail address and check before the meeting if the addresses are correct. Make sure that the participants answer questions about the

A FEW EXERCISES TO START WITH

proceeding of each phase in this training session. The information that is collected in this way will be used for the evaluation part of the final report of this project and will be important to develop plans for a continuation of the project in the forthcoming years.