MARCH^ET

Make relevant choices in educational technology

Study guide MARCH^ET module:

Measuring knowledge and understanding

Contents

Introduction

By using technology in your teaching, you can promote active participation by your students. Yet how do you make sure that you use all the possible didactical advantages? In the MARCH^{ET} modules you will work on this issue. You will get to know the different technologies that you can embed into teaching your subjects and you will redesign your own educational setting or course. You will get support from the course moderator and colleague teachers.

Some facts:
- One module will take 12 weeks to complete.
- The total investment for one module will be around 25 hours.
- You can take part in one or more modules.
- In the module you will work specifically on your own educational setting.
- In the module you will work on competencies: designing and evaluating teaching.

This study guide provides you with information on the module Measuring knowledge and understanding. In this module you will learn how you can use technology effectively in measuring knowledge and understanding of your teaching subjects by students. In this study guide you will find general information on the module, e.g. learning objectives, an overview of the different parts of the module and corresponding assignments, time of investment and deadlines. The assignments are in the appendix.

This manual is also available in the virtual learning environment (VLE) of this module. The VLE we use is SURFgroepen. Once you have registered for the module, you will receive an invitation to the SURFgroepen team site *MARCH^{ET} module Measuring knowledge and understanding* where you can find all the information and meet your moderator and fellow participants.

Learning objectives

Overall aim:

The participants are able to use technological tools for measuring knowledge and understanding in a didactically way in their own teaching environment.

After completing the module, participants will be able to:

1. diagnose (pre) knowledge and understanding by students more efficient and accurate and translate this to changes in their teaching strategy
2. appoint available digital tools for measuring knowledge and understanding and indicate the situations in which they are applicable
3. indicate what the influence of formative and summative assessment is on the usefulness of these tools
4. select the most useful tool for his situation and use it didactically correct
5. motivate and activate students to use the chosen tools as intended
6. reflect on the value and the effect of the used tool and give improvement suggestions if necessary

Content of the module

This module starts from the didactical point of view and ends in teaching practice. The use of technology affects teaching, and thus the educational design of a learning situation. The module starts with your own input of a didactical situation (the problem) which you share with your fellow participants. Next, you will make an informed choice based on a tool to improve the learning situation or to solve the didactical problem. After redesigning the educational situation/setting, you will implement the tool in your educational setting and you will evaluate the effect with the help of an impact assessment.

The module consists of 4 online meetings and 11 assignments. The content focuses on orientation on measuring knowledge and understanding and a number of relevant tools. This way you can make a well-founded choice for a tool and you will be able to redesign your teaching activities. After assignment 8, the first part of the module ends. The following activities are optional but strongly recommended. Because once you have redesigned your course or part of it, you will have to put your redesign product into practice and evaluate the result.

By following the eight steps described below, you move along the module.

Step I   Intake procedure
To register, you fill in the registration form available via the link on www.marchet.nl. After registration, one of the moderators will contact you by phone to complete the procedure. This will be followed by an invitation to the VLE.

Step II   Test session video conferencing
In this module you will meet your colleagues online in 4 video conferencing sessions. To make sure your equipment works, we will first have a test session. Once this operates smoothly, you are ready to start the module.

Step III   Orientation on the subject and tools
In this step you will learn more about measuring knowledge and understanding and the tools that can support it. You will study relevant literature on the subject and there is ample time to practice the tools. For this module we selected a range of tools ranging from clickers to digital assessment systems.

You will share your experiences with the other participants about measuring knowledge and understanding in Surfgroepen by using the document library, a wiki, the discussion board and a weblog.

Step IV   Make a relevant choice for a tool
Once you have finished your orientation on the subject and the tools, it is time to select the most effective tool for your educational setting. You will discuss your choice with the moderator and the other participants.

Step V   Redesigning your educational setting
During step 5 you will redesign a part of your testing and assessment activities, using the selected tool(s) effectively. In redesigning, you will take into account the alignment between content, didactics and technology. You will receive feedback from participants and give feedback to two other participants.

You will also work on an evaluation instrument so that you can measure the effect of your redesigned product once you have implemented it.

Step VI   Reflection on the module
In this step you will reflect on your experiences in this module. What was the situation at the start, what is the situation now and what have you learned from it, what do you want to share with your colleagues and future participants?

After this step, the group process ends. The next steps are optional and will take place during and after the period where you implement your redesigned product.

Step VII   Implementation and evaluation
You will implement your redesigned product and evaluate the effects. This takes place during the period in which you teach your course and take the assessment.

Step VIII   Presentation of the results: MARCH^{ET} conference
We will invite you to the MARCH[ET] conference. During the conference you will share your experiences in the module and your results of the evaluation with other teachers by giving and attending presentations about this subject.
For the latest information, program and important dates please visit Conference website
http://www.conference.marchet.nl

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Appendix 1: Assignments

Assignment 1: Introduction

In this assigment you introduce yourself to the other participants and you describe the educational setting you want to redesign. You also prepare yourself for the first videoconference.

   a. Pass your eye over the information in the virtual learning environment (Surfgroepen) of this module. Have a quick look at the digital assessment landscape and the assignments. Also look at the calendar to organize your study time.
   b. Create a PowerPoint presentation of 3 or 4 slides to introduce yourself and to introduce the educational setting that you want to redesign. Include the reasons why you want to redesign you educational setting and give insight in the situation around digital assessment at your department (e.g. Are there tools that are already being used? In what way and how often?).
   c. Upload your presentation in the document library of assignment 1. Use this presentation to introduce yourself in max. 3 minutes during the first video conferencing meeting.

Video conference meeting: Introduction
   - One of the moderators will give a short introduction about the module, the learning objectives, the expectations of the participants and the moderators
   - The moderators and the participants introduce themselves using the PowerPoint presentations
   - The dates and deadlines will be discussed

Assignment 2: Orientation on the theme

Open the wiki 'Digital Assessment Landscape'. In this wiki you find information about 4 forms of testing and assessment. Orientate yourself and read the information by clicking on hyperlinks in the wiki. Select the information that fits your educational setting.

   a. Does measuring knowledge and understanding using digital tools appeal to you as a teacher?
   b. Explain why and how digital measuring of knowledge and understanding can be used in your own educational setting.
   c. What benefits are there for students and for you as a teacher?
   d. Post your contribution in the wiki of assignment 2.
   e. Read the contributions of other participants. Reply by supplementing.

Assignment 3 Tool Orientation

Before using a tool environment for testing and assessing knowledge and understanding, you must first familiarize with the tool. It is best to start practicing in a safe environment, trying things out and becoming more experienced and proficient.

   a. In Assignment 2 you have familiarized yourself with methods of testing and assessment of knowledge and understanding. Use the Overview of (Digital)

Assessment Landscape to select at least 2 tools to practice with. Take into account the facilities of your own institute.

b. Use the list of digital assessment tools. You get information on the tool and sometimes you can try a free trial.

c. Write a short report of your experiences with the selected tools, taking into account your own educational setting and reflecting on advantages/ disadvantages, and possibilities/impossibilities.

d. Share your findings, ideas and opinions with your colleague participants in the discussion board of assignment 3.

e. Read and comment on the contributions of other participants.

Assignment 4: Tool choice argumentation

After the orientation you make your definite tool choice and motivate your choice. Answer the following questions in a short report:

- Which tool did you choose?
- Which advantages are there for using this specific tool, in particular in your educational setting? Are their any disadvantages?
- What do you want to achieve using this tool and what are your expectations?

Upload your short report on your tool selection and your argumentation in the document library of assignment 4. We use the tool choice argumentation in the discussion during the second video conferencing meeting.

Video conference meeting: Tool choice

Discuss your tool choice and argumentation in this meeting.

Assignment 5: Global Redesign of educational setting

We ask you to redesign a part of your testing and assessment activities, using the selected tool(s) effectively. For each of these activities, do the following:

a. Formulate the goal(s), optionally by referring to Bloom's taxonomy and distinguishing formative and summative assessment, and the educational setting in which you (plan to) apply it.

b. Select the type (open/closed questions, automated verification and/or feedback, adaptive and/or algorithmically parametrized items, …) and the instrument (web-based, classroom response system, …).

c. Create (sample) test items and a test: experiment with various item types, modes of user interaction, and user's feedback for one and the same subject; test the items and explore the various options that the tool environment offers or does not provide (although you would like them to be available).

d. In case the activities are part of a larger plan for assessment of student achievements in a course of yours, explain their position in the assessment matrix based on learning goals/competencies.

e. Do a SWOT (strengths/weaknesses, opportunities/threads) analysis of your digital testing and assessment, also taking into account the way you (plan to) conduct the test or your assessment activities (you can think of issues like authenticity, plagiarism, efficiency, rostering, administration of marks, feedback to students, ease of use, motivational effects, sample tests for students, and so on).

f. Share your materials, underpinning documents and your reflections with other participants in the discussion board of assignment 5. Open a new topic and upload your redesign and the constructed materials as attachments in this topic.

Assignment 6: Giving feedback

Give feedback (in the <u>discussion board of assignment 5</u>) on the work of 2 other participants regarding testing and assessment using the following questions:

    a. Are the assessment type and the selected tool environment appropriate with respect to the educational setting and the specified goals?
    b. Are test items clearly formulated and do they clearly assess certain aspects of knowledge?
    c. Do the test items function correctly and as expected in the selected tool environment?
    d. Do you have suggestions for the (re)design of the assessment matrix?
    e. Do you agree with the SWOT analysis?
    f. Which suggestions do you have to improve the (re)design of individual test items and/or a whole test?

Assignment 7: Final redesign educational setting

Take good notice of the feedback you receive from your colleague participants.

    a. Adjust your (re)design and the accompanied item bank and assessment(s) based on this information.
    b. Share your final (re)design, bank of test items, and assembled test(s) that you plan to use in your teaching practice with the other participants. Upload your documents in the document library of assignment 7.

Video conference meeting: Final redesign

A discussion takes place at the third video conferencing meeting where you will be asked to present your final redesign and what you did with the given feedback in max. 3 minutes.

Assignment 8: Student questionnaire and own expectations

After implementation of your redesign you have to evaluate your students' experiences. For this evaluation you need a questionnaire.
    a. To develop this questionnaire, you can use <u>this format</u>. Add the questions which are specific for your educational setting. Upload the questionnaire in the document library of assignment 8.
    b. For yourself, formulate the expectations you have at the start of the implementation. You can use these <u>guidelines</u>.

Assignment 9: Reflection of the module

What are your experiences in this module? What was the situation at the start, what is the situation now and what have you learned from it
    • Are you satisfied with the result?

- Did the literature, the information in the digital assessment landscape and assignments help you to get insight in measuring knowledge and understanding using digital tools?
- Did the feedback you received from your moderator and the other participants help you?
- Would you recommend this MarchET-module to a colleague? Please motivate.

Post your personal reflection into the blog of assignment 9.

Video conference meeting: Reflection

In this final meeting we will discuss your reflection and hopefully this will result in tips and tricks which will benefit the next group.

Assignment 10: Implementation of the redesign and tool

Implement your redesign. After completion of your redesigned course and/or assessment, please ask your students to fill in the student-evaluation questionnaire you developed in assignment 8.

Assignment 11: Evaluation of the implementation

Evaluate the success of your redesign by describing:
- the original educational setting (as described in assignment 1)
- the expectations with regard to the tool (as described in assignment 4)
- the expected results of the redesign (as described in assignment 8)
- the effect of the implementation of the redesign using the experiences of your students (assignment 10), your personal experiences and possibly assessment results.

Upload your document in the document library of assignment 11.

Appendix 2: Test session videoconferencing

Goal
In this session we test whether the equipment you need for a videoconferencing meeting works. You will also receive instructions on how you can share documents with your fellow participants and we will discuss a protocol for successful VC-meetings.

Time
The test session takes place March 29, 2011. Your moderator will be online from 9.30 until 11.00 h. You can log in at any time, but make sure to do so before 10.30 am. Once you are logged in, you will receive further instructions.

Preparation
Please read the protocol for successful VC-meetings. You can find the protocol in this document, after the technical instructions.

For the session you need a webcam and a headset.

Instructions on logging in

Entering the meeting
Log in at www.surfgroepen.nl and go to team site 'Module Measuring knowledge and understanding'.

Click in the upper bar on the tab of your group
(Group B).

Click on the Webconferencing icon on the right sight of your screen.

(be sure to have your popup-blocker disabled for this site)

You will now be asked to log in again.

Note: When using Adobe Connect for the first time on a PC, you will be asked to install an Adobe Acrobat Connect plug-in. Please, install the plug-in so to make sharing possible.

Activating camera and sound
The webcam and the microphone are inactive (default) and must still be activated.

To activate your camera and microphone, click the Start my camera and voice-button in the Camera and Voice window.

Note: Before activating the camera and microphone it is important to configure the settings for optimal image and sound during the session.
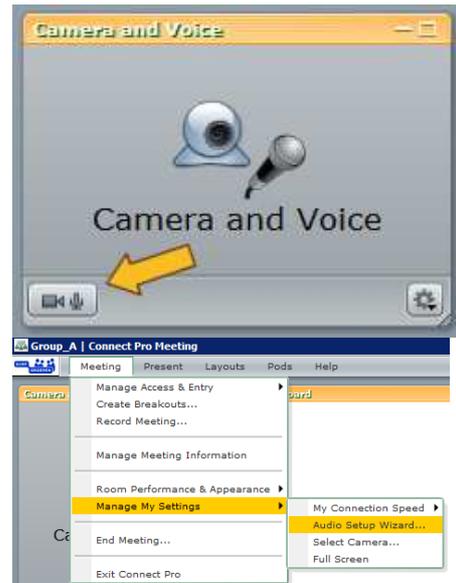
To configure the settings, click Menu *Meeting, Manage My Setting* and choose *Audio Setup Wizard* and/or *Select Camera* and carry out the on-screen instructions.

A notice now appears that surfgroepen.nl is requesting access to your camera and microphone. Click to *Allow*.

The camera will now be activated.

To avoid having to repeat these actions, the settings can be saved.

To save the settings, right mouse click anywhere in the VC-room and click *Settings.*

Choose *Remember* to save the settings to the computer you are working on.

The microphone can be operated by pressing:
- Hands-free button (lock)
- Hold to Talk button (mic)

When the microphone is active a green bar underneath the buttons indicates the sound level. Also, behind the name in the *Attendee List* window a microphone will now be visible.

Sharing files and applications
More information on sharing files and applications can be found in the Quick Start Adobe Connect. During the test session the moderator will instruct you further on this subject.

Appendix 3: Protocol videoconferencing (vc)

To make sure that a VC-meeting is conducted in the most effective way, we have developed the following protocol.

Protocol

- Everyone is on time in the online meeting space. This means that you will have to check beforehand whether your camera and audio works.

    o Check the sound of your computer. If necessary, go through the audio set up wizard again (upper bar: meeting, manage my settings, audio set up wizard)
    o Check your camera.
    o Check the role you have. Only the moderator is host, the other participants are presenters (upper bar: present, make me a presenter).

- The moderator prepares the meeting. This means that the moderator:

    o determines the lay-out of the VC
    o presents the agenda
    o uploads presentations (see 'sharing information')

- One of the presenters will be appointed as minutes writer. This person writes down the most important conclusions in the notes-field.

- At the start of the meeting the moderator will check the following things:

    o Check whether every participant can hear the other participants clearly. The participants might have to adapt the volume on their computer.
    o Does the moderator have all the information that has to be shared and is this information uploaded?
    o Appoint a minutes writer.
    o Check whether the meeting needs to be recorded (the moderator records).

- To make sure the conversation runs smoothly we make the following agreements:

    o When a person speaks, the others turn off their microphones.
    o If you want to speak you can click the 'raise your hand' button. The moderator will make sure you get your turn.
    o In discussions it might be useful sometimes not to use the raise your hand button. The alternative is to turn on your mic. The others will see that you want to speak by the volume icon behind your name.
    o In the beginning of the meeting we will discuss whether we will use the raise your hand button or not.

- The moderator is the only one who can modify the lay out or the content of the page during the meeting.

Sharing information
- Before meetings the moderator will upload the presentations of the participants.

In case you want to videoconference with other participants, you can upload files in the following way:

- PowerPoint files can be uploaded and shared directly.

- Word, Excel, webpages etc. have to be converted in Macromedia Adobe Flashpaper. You can download this for free at:
  https://connect.surfgroepen.nl/admin/home/homepage/FlashPaper.exe

- During the meetings you can share other programs/applications with 'Share Screen'. This way you share your computer screen with the other participants.