Procedure to (re)design and develop your course into a blended learning course (D/D-procedure)

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Content

• The 8-steps Design and Development (D/D)- procedure.
• Learning environment: strong foundation for your course
• Meaningful learning is crucial for successful implementation of ICT.
• Some personal experience with the Design and development (D/D-) procedure.
• The 8-steps of the D/D-procedure in detail.
Collect **additional information** about:

- Possibilities ICT
- Didactics and design principles
- Relevant experiences and products from colleagues
- Format and quality criteria of the learning materials and activities.

**D/D-procedure**

1. Select your changes and formulate the expected benefits
2. Think-up how you can realize the selected ideas about using ICT. What are the requirements
3. 2. Describe (and adjust) the Diamond
4. Design the Route Map
5. Develop didactical formats for new learning activities and materials
6. Prepare the Blueprint
7. Develop the final program of the blended learning course
8. Prepare, implement and evaluate the pilot project

3. 2.D: Course description for students and colleagues

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Some rules when performing the procedure

1. You should always formulate the advantages of using ICTedu.

2. The ICTedu activity(ies) will have a proper place in your education with clear and relevant relationships with F2F-activities and tests.

3. Certainly, you need to leave out some F2F-activities from your course.

4. You should be able to handle as a teacher the new F2F and ICTedu-activities. And do you think the students are able to handle them.

5. Don’t forget to check the consequences of your changes for the other courses in the curriculum.
Learning environment: A strong foundation under your course design

1. The learning environment induces the students into the necessary learning processes, helps to maintain the momentum in the learning and supports the learning of students when necessary.

2. The systematic didactical description used in the learning environment is indispensable for the teacher/designer.
   • to design and develop the final version of the course program.
   • To assess if the redesigned course program has enough qualities to play the role as described in (1).
   • To explain the course program to the students, to his/her colleagues and to the accreditation organizations.

Components of a learning environment in MHE

- didactical concept
- expected entry level of the students
- content and how to explain difficult concepts, topics or procedures?
- Sequence topics in the course
- Constraints
- Meaningful teaching learning situations
- Student centred Classroom design
- learning objectives
- assessment (methods and test criteria)
Design situations varies in complexity

1. Use ICTedu-tools as useful additions to your existing course.
2. Blend your complete course.
3. Introduce new content and/or new didactics which changes your course considerably.
4. Prepare a complete new course.
5. Try to solve a sticky problem/wish in your education.

*For different design situation you follows different D/D-procedures.*
My experiences with D/D- procedure

1. There is not one ‘good’ solution. There are many good ideas to design a learning environment. As the teacher, you select the most promising ideas.

2. A design and development process is not a linear process. It is normal, you go back and forth between the 8 steps.

3. You keep control over your design process by checking the consequences of your design ideas for the Diamond. Earl (1987) speaks of the N\textsuperscript{th} version of the Diamond. By doing this

4. Discuss your progress, decisions and products with your colleagues and the manager.
Step 1. Select your changes and formulate the expected benefits

1. (Re)formulate your ideas for the changes you like to introduce in your course? See for example the Matrix or the Moodle book ICT is a Must.
2. (Re)formulate the expected benefits.
3. Select the questions or doubts you like to study into more detail.

✓ No need to suggest a detailed solution. You do this step by step during the D/D- procedure.
✓ Be creative. Use examples to get ideas.
✓ Be realistic, the description should be clear and convincing for you and your colleagues.
Step 2 How can you realize the selected ideas on using ICT?

• In this step you think-up meaningful ideas how you want to realize the selected changes in teaching and learning activities and materials.
• The ICT-activities you think-up to realize your IT-ideas should form a coherent blend with the existing F2F and self-study activities in your course.
• The blend should be effective, efficient, well-liked by you and the students, valued by you and the students and feasible for you and the students.

The teacher/designer:
1. Selects the ICT, F2F and self-study learning activities and materials necessary to realize the selected changes.
2. Explains why you select these activities and materials.
3. Updates his selection and description of the requirements and constraints.
Possible Educational functions which are supported by ICT

<table>
<thead>
<tr>
<th>Give information or explanations</th>
<th>Strengthen the preparation with the working field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present digital texts, syllabi, articles, et cetera</td>
<td>Show work setting, problems, issues, ....</td>
</tr>
<tr>
<td>Present additional digital explanations</td>
<td>Connect with websites and (professional) software</td>
</tr>
<tr>
<td>Present presentations teachers or quest lecturer</td>
<td></td>
</tr>
<tr>
<td>Present case studies</td>
<td>Communicate students/students and students/teacher</td>
</tr>
<tr>
<td>Present images, video, audio, schemes</td>
<td>Send file documents to students and/or teacher(s)</td>
</tr>
<tr>
<td>Present the course plan, notifications, FAQ</td>
<td>Divide students in (sub)groups</td>
</tr>
<tr>
<td>Use of hyperlinks</td>
<td>Assess study results by the fellow-students</td>
</tr>
<tr>
<td>Present the glossary with (defined) concepts</td>
<td>Support the group work with all kinds of plugins</td>
</tr>
<tr>
<td>Connect with various search possibilities</td>
<td>Enable discussion through a discussion forum</td>
</tr>
</tbody>
</table>

**Support self-study and classroom study**

<table>
<thead>
<tr>
<th>Test and give feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer (extra) assignments/exercises</td>
</tr>
<tr>
<td>Offer remedial teaching to acquire the entry level</td>
</tr>
<tr>
<td>Present study questions and study assignments</td>
</tr>
<tr>
<td>Opportunity to send ‘results’ to the teacher and/or colleague students</td>
</tr>
<tr>
<td>Apply fixed deadlines for delivering an assignment</td>
</tr>
<tr>
<td>Give the correct answers for the study questions</td>
</tr>
<tr>
<td>Realize adaptively in exercises or tests</td>
</tr>
</tbody>
</table>

See:
1. The *Moodle Book* 'ICT is a Must!'
2. The *matrix* 'Functions versus ICTedu-tools'
3. The *text* 'What are the possibilities for blended learning'
4. There are various sources of IT-learning materials available on Internet. See for example [http://bl.curriculumdesignhe.eu/ict-possibilites-in-education](http://bl.curriculumdesignhe.eu/ict-possibilites-in-education) look for MOOCs and OER.
Example of Meaningful learning activities

1. Present in the classroom a video-recording of a nurse working with a patient.
2. Video stops at critical event.
3. Students try to analyse the approach of the nurse. Was it OK? What will be the next step of the nurse and why?
4. The teacher will give her feed back.
5. Self-study and F2F (feed-back)

Teacher/designer:
• is focused on the activities which support the learning process of the students.
• Apply research evidences and available experiences
Step 3. Describe the Diamond

An up-to-date Learning environment acts as the foundation to design the Prototypes of your course:
1. The Outline,
2. the Route Plan,
3. the Blueprint, and
4. the Final version (learning environment) of your course.
In the Diamond the five crucial components from the learning environment are described (see the image)

The teacher/designer:
• Gives a short description of the design environment elements (see next slide)
• Checks the coherence.
• Studies the design principles for additional ideas for her or his course.
# Learning environment

1. During the D/D-procedure, you make several didactical analyses which helps you to decide how you want to support the learning process of the (various groups of) students. The learning environment summarize or combines these didactical elements.

2. Types of information to be described by the teacher/designer according the main learning theories:

<table>
<thead>
<tr>
<th>Didactical elements in the Diamond:</th>
<th>Selected didactical principles to be realized in the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Learning objectives</td>
<td>• Entry level of the students and the consequences</td>
</tr>
<tr>
<td>• Teaching and learning methods</td>
<td>• <em>The Learning process</em>: to be described in the Route map, the Blueprint and finally in the course program.</td>
</tr>
<tr>
<td>• Content and structure of the course</td>
<td></td>
</tr>
<tr>
<td>• Formative and summative tests</td>
<td></td>
</tr>
<tr>
<td>• Requirements/constraints</td>
<td></td>
</tr>
</tbody>
</table>

3. If necessary, the collected information is analysed into more detail. During the D/D-process the teacher designer develop more insight in the D/D-tasks. If so the design environment have to be updated (Nth-version)
Step 4. Design your Route Map and formulate requirements

The Road Map or outline describes the main lines of your course:

- The main topics and learning activities.
- Where you want to introduce your ICT-edu tools.
- The sequence of the topics in time.
- The learning process(es) as thought up by you as teacher.

The teacher/designer:
1. Describes per learning objective the learning process.
2. Thinks-up the sequence of the topics in the course.
3. Thinks-up an organizer (if possible).
4. Prepares the first concept of the Route Map.
5. Checks in the Moodle-book if there are still some interesting possibilities to apply ICT in your course.
6. Checks alignment (see Design environment).
7. Formulates and explains the requirements.
The Learning environment reflects the Teachers’ plan or scenario for his or her course

The main purpose of designing a course is to find an learning environment which:

- Evoke by the students the necessary learning processes;
- Support their learning process.
- Maintain the momentum in the learning process.

to achieve the expected learning results.

The learning environment can be considered to be teachers’ plan or scenario for the course.
Beforehand insight in learning objectives, test criteria and learning activities in the VLE

Present Remedial lessons through the VLE

Support self-study and group work through the VLE

Blended learning

Tutor video with extra explanation

Organize formative and end tests with help of ICT

• ICT offers many possibilities to support learning
• Realize an optimal blend
Look for an ‘Organizer’

An Organizer is a ‘bit of content crucial in your course’. It might be:

- working procedure
- problem
- systematic overview of contents
- process
- special cases
- poem
- et cetera.

See the examples in the Moodle course.

**Two unique properties** for the ‘teacher designer’.

1. It enables the teacher-designer to ‘see’ how she or he is going to set up the learning experiences of the students in the course.

2. It gives the students a clear and correct insight in what they are going to learn and why.

Step 5. Develop didactical formats for more complex and new learning activities and material

Often, you will need extra time to develop teaching and learning situations and materials which are new for you. You have to think-up the didactical approach(es) you want to follow to support the learning of the students.

The teacher/designer:
- Prepare and check the learning activities which are new for you.
- Check the type of level of the learning activities using the list of verbs in step 1 and the list of verbs indicating the type of learning activities (see next slide)
- Look for possibilities to use existing learning materials available on internet. (zee intermezzo)
Learning activities

In general, there are three types of learning activities: cognitive, affective and metacognitive or regulative. Below an overview is given for the three types using relevant verbs (Vermunt, 1998 and Verloop and Lowyck, 2003).

1. Cognitive learning activities:
   Relating, structuring, analyzing, concretizing, applying, memorizing, critical processing, selecting.

2. Affective learning activities:
   Attributing, motivating, concentrating, judging oneself, appraising, exerting effort, generating emotions, expecting.

3. Metacognitive or regulative learning activities:
   Orienting, planning, monitoring, testing, diagnosing, adjusting, evaluating, reflecting.

(See also the list of Verbs to be used in learning objectives in Step 3 Diamond).
Step 6. Prepare the Blueprint

The (selected) Route Map of the course is elaborated into the Blueprint.

The teacher/designer:
- Prepares the Blueprint see next slides
- Checks the coherence of the course.
- Looks for the organizer.
- Checks whether he like the design.
- Evaluates if the learning process is realistic, motivational for the students.
- Does it fit the needs of different groups of students.
- Looks if teaching activities are feasible for you and the students.
- Checks if you have realized your expectations.
- Changes the program where necessary.

This is a good moment to discuss the program with your colleagues in the study program and the management.
In the **Blueprint**, per topic a description is given of:

1. the necessary learning of the students
2. the expected learning results
3. the teaching activities
4. the use of ICT, practical exercises et cetera.

The Blueprint should follow your ideas about supporting the learning process of the students.
<table>
<thead>
<tr>
<th>Activities Teacher STIKes Medan</th>
<th>Expected results</th>
<th>Possible advantages in specific T/L-situations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listen to presentations of JN and ask questions, etc</td>
<td>Software is working (Moodle, website, PP, Excel, ...)</td>
<td>Evaluation of self study</td>
</tr>
<tr>
<td>Check connection with Moodle, internet, ...</td>
<td>Some insight what we mean with ICTedu-tools</td>
<td>Listen to a presentation JN: How will technology enhance teaching and learning</td>
</tr>
<tr>
<td>Hands-on-experiences: Look up examples of ICTedu-tools and evaluation</td>
<td></td>
<td>Analyse a specific example of a Moodle course and/or some other examples????</td>
</tr>
<tr>
<td>Self study: surf on Internet.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities teacher PUM</th>
<th></th>
<th>Prepare screen dumps and PP (text McKeachie. Select examples to be analysed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction JN -aanpassen PP and the participants (some activity????)</td>
<td>More insight in the ICTedu-tools and their possible functions</td>
<td></td>
</tr>
<tr>
<td>Presentation Blended learning plus an view examples (aanpassenPP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check connections Moodle, internet, etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example of use Moodle/Blackboard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction practical assignment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities ICTedu support</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-study surf on Internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet should work of local net should work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(But the Moodle should be available for the teachers and JN in advance!!!)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Step 7 Elaborate final format learning activities and materials

In this step you develop and prepare the final program.

The teacher/designer:

1. Insert the final versions of the topics titles, the titles for the learning activities and the materials in Moodle.

2. Prepare the teaching and learning activities and -materials in the format you want, using the available checklist (see below):

| Assignments, Power Points, Story Boards for Video-Lectures, Test (Questions), | Assignments, Case studies, Et cetera |

3. Prepare the Course description in various formats is prepared: the course book for the student, a short course description for the curriculum study guide and for the quality assurance documents.
Checklist for an Assignment

1. Is there a clearly formulated specific learning objective for the study task?
2. Is the importance of the learning objective clear?
3. Are the study activities clearly formulated and practicable?
4. Is the relationship between activities and learning objective clear?
5. Are the expected results of the study task clearly described, including the criteria for assessing results?
6. Is there an explanation how the results are discussed?
7. Are the study tasks (depending on their place in the course):
   • not too easy or too difficult?
   • not too narrow or too broad?
   • achievable in the available time; not too complex or too simple?
   • in harmony with the student’s independent self-development?
8. Is there a good coherence in the study task? The four parts (introduction, teaching objective, activities and follow-up discussion) must logically connect with each other.
Checklist for a Series of assignments

1. The series of assignments supports the students to master the learning objectives effectively and efficiently
   1. Do the learning activities fit the learning objectives?
   2. Do the learning activities fit with each other? Is there a logical learning track?
   3. Are all learning activities necessary to master the learning objectives?
   4. Are the learning activities not too broad or cumbersome?

2. The learning trajectory fits with the entry level of the students

3. The students experience the series of assignments as important and relevant and interesting.

4. The series of assignments stimulates the motivation of the students.

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Step 8. Prepare the pilot project and evaluate the project

How do you want to continue with the pilot project?

✓ Not all activities and materials are ready for use. For this a planning is useful.

✓ The experiences in the pilot projects will be important for the university to decide how to continue with the introduction of blended learning. You have to decide which evaluative information should be collected during the pilot projects and which evaluation instruments are needed.

The teacher/designer:
• Makes an analysis which activities are necessary to complete the blended learning course.
• Decides which evaluative information is collected and how this is done.
• Prepares the plan for the continuation of the pilot project.
• Discuss the project plan with your colleagues and the management.
Literature

- T.A. Travis (Internet 29/6/2018) Classroom design