

ENN-ICS E-Learning-Methodology

About this document	<p>The goal of this document is to give a short but understandable overview about the e-learning-methodology used for the ENN-ICS E-Learning-Materials.</p> <p>This document is a help for learners.</p> <p>Goal is not to explain in too much details the didactically and pedagogical theories.</p>
Goal of the e-learning-methodology	<p>The e-learning-methodology is necessary for presenting the e-learning-materials in an effective and pedagogical way.</p> <p>Within this document we will explain the answer of the question:</p> <p><i>“Why is a didactically accentuated structure for e-learning-materials necessary?”</i></p>
Theoretical Basis	<p>The theoretical basis are some pedagogical conceptions (cp. Klauser et al. 2004):</p> <ul style="list-style-type: none">• Learning according to the constructivist perspective,• situated formulation of learning environments and• research about expertise & expert opinions.
Theory of Constructivism	<p>The main aspect is the constructivist perspective.</p> <p>This means an active, socially transmitted and situated process of the individual construction of knowledge (cp. Klauser et al. 2004):</p> <ul style="list-style-type: none">• The learners construct their own knowledge, in that they interpret their experiences according to their own perceptions.• The individual construction of knowledge and the refinement of the ability to do so do not happen passively and autonomously.• Learning is situated. The social, motivational and emotional contextual factors of the learning situation decisively control the ways and means of the learning- and retention-process as well as the use of the knowledge and abilities.• Active construction demands a high level of independence and self-organization.

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Problem of traditional E-Learning-Materials

Up to now in the most cases there is a barrier between pedagogues and information technicians. These both groups developed their Learning-Arrangements in a disciplinary way.

So there were developed many of prototypes and single-solutions they:

- are technical well-engineered, but they are not didactical useful
 - are dependent from platforms and operating-systems regardless to their contents
 - can only operated by the constructors of the systems.
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Deficits of traditional E-Learning-Materials

Main deficits of traditional learning-arrangements (cp. Klauser 1998b, S. 284; Jungmann et al. 2002, S. 4f; Klauser et al. 2004):

- *Teacher-centering* (“pour of information” / “information overload for learners”)

That means only the teacher is the active person. The learners are the passive ones. There is almost no interaction between teacher and learner. An example for that is a traditional lecture at an university.

- *Atomizing and linearization of contents*

That means, the learning materials will present to the learners in small and dependant “bricks”. The bricks are like small black boxes, almost without a logical context. The bricks are presented in a linear way. The learner have to learn all bricks in a given way to reach the learning goals. He has no chance to choose an own (individual) way.

- *Technical and theoretical focusing*

In traditional learning arrangements you can see a strong theoretical focusing. The reference to practical examples is missing. So a learner isn't able to transfer his knowledge. But without transferring knowledge, it's very difficult to use the knowledge in new (and real) situations.

- *Technical centring*

One of the major problems in traditional learning arrangements is the technical centering. That means, the learning materials are full with animations, video etc. But the course-designer forget to include the necessary didactics. It's not so easy to find a good balance for using multimedia components within learning materials.

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What is necessary to be better?

For modern e-learning-offers are didactically accentuated and curricular conceptions necessary (cp. Klausner et al. 2004):

- *Learning Goals, Pre-knowledge, requirements and interests of the learners have to be known.*

Only with the knowledge about these things, it's possible to create motivating materials.

- *Learners have to be activated for self-directed learning.* Interaction between the learner and the learning system is necessary.
- *Learning contents have not to be reduced only to definitions.* The materials should include explanations, examples etc.

Course of study

The ENN-ICS course of study consists of various courses (lections). The learning contents have been transformed into learning objects. Learning objects are thematic and summarized for the further information-technical processing into blocks.

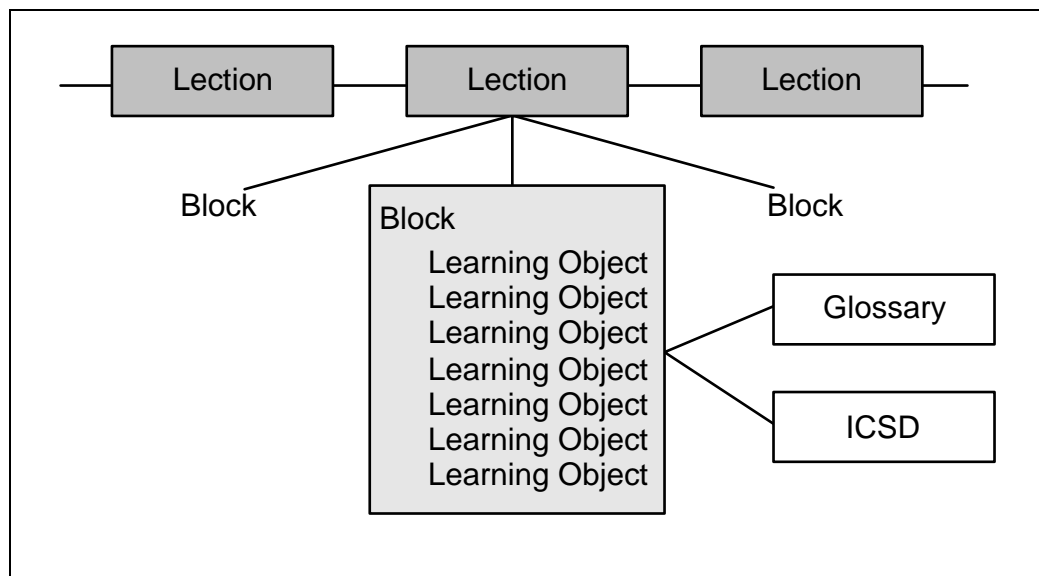


Figure 1: Course of study

- A lecture consists of 1 to n learning objects (where a learning object normally represents a single screen page)
- A block groups one or more learning objects semantically.
- From each Learning Object a link into the glossary or into the ICSD-catalogue is possible.

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Lecture, Block & Learning Object

According to learning psychology, a lecture a lecture should span around 30 minutes of learning time (ranges 20 to 60 minutes) the amount of time calling for a learning break afterwards.

Blocks are necessary for semantic-grouping of the learning objects. A learning object contains around one screen-page. So with blocks the authors of the e-learning-materials have grouped learning objects that belong together.

The blocks are the entry-points for the learner and will be displayed in the Advance Organizer. The learner can freely decide in which order he wants to learn the different blocks.

Inside a block the learner's navigation is linear. He has to learn the learning objects in the sequence the author has defined.

The learning object is the smallest content-related screen unit. In terms of content, the single elements of the learning object should relate to each other so that they build one thematic element.

Didactically Framework

Beside the blocks (with learning objects) there is a didactical framework. Inside the didactical framework there are different didactical elements:

- *Learning Goals*
The goals of each lecture
 - *Pre-knowledge*
What knowledge is necessary to learn and understand the lecture
 - *Complex Problem*
A Learner gets a problem, inside a situated cover story. At this moment the learner can't solve the problem. After processing the lecture he should be able to solve the problem. This is presented whenever needed. Alternatively to the complex problem an objective approach with clear targets will be presented with practical applications to be solved at the end (objective oriented learning).
 - *Advance Organizer*
It's the centre of each lecture. At this point a learner can freely decide which Block he wants to learn for next.
 - *Summary*
Its a summary of the lecture
 - *Self test*
Test for learners about the topics learned in the lecture
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Navigation inside a lesson The following figure shows the didactically founded navigation (and the navigation possibilities)

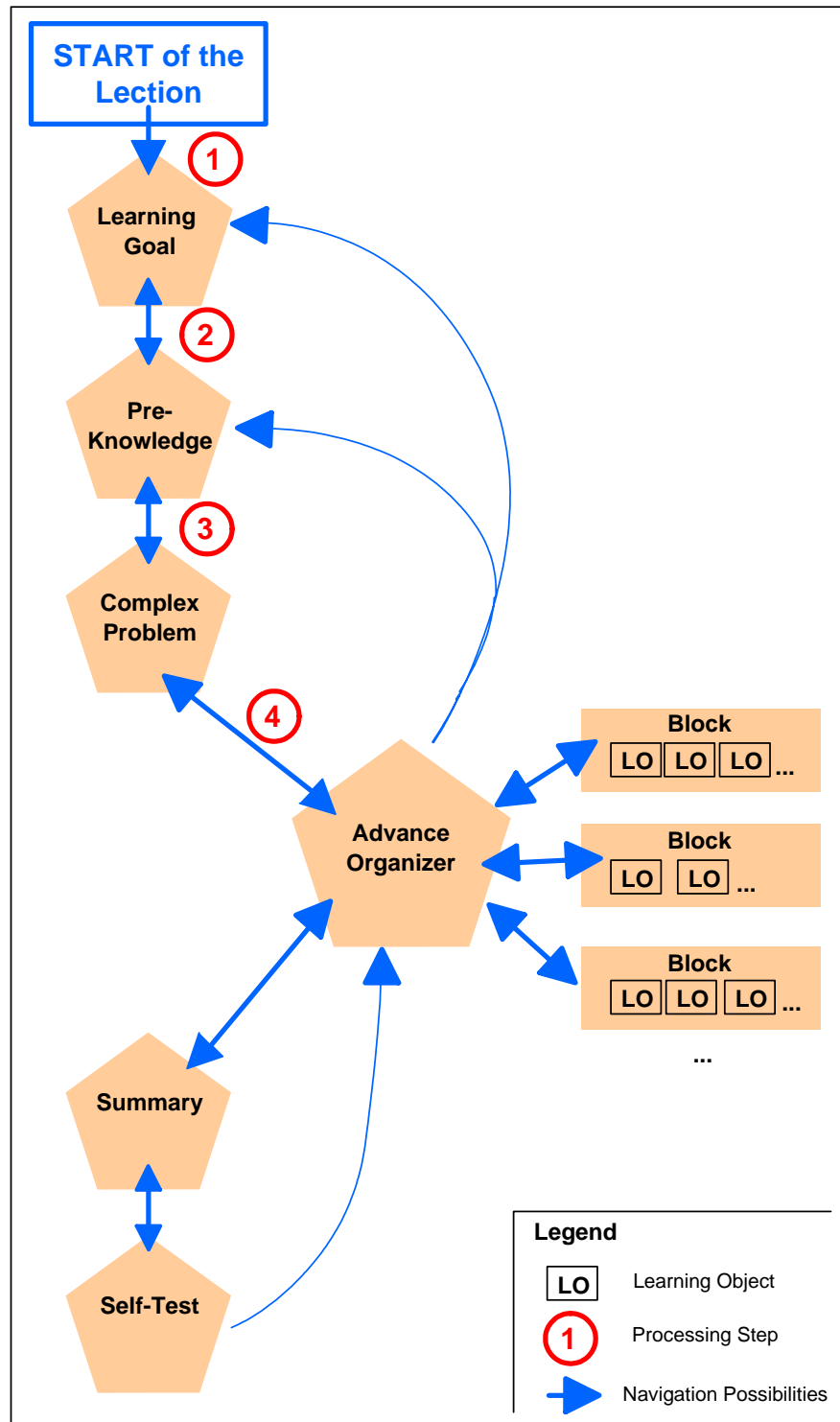


Figure 2: Navigation

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Navigation inside a lection (continued)

Explanation:

Like you can see in the Learning Management System, processing of the lection starts with selecting *START*.

- *Step 1:* the *Learning Goal* will be shown, so the learner can inform himself about the goals of the chose lection. The Blocks (with the real content) are not shown and can not be selected!
 - *Step 2:* the learner reaches the *Pre-Knowledge* (the Blocks can not be selected)!
 - *Step 3:* the learner reaches the *Complex Problem* (the Blocks can not be selected)! But have in mind: not all lections have a Complex Problem, because it's an optional element.
 - *Step 4:* the learner reaches the center of the lection, the *Advance Organizer*. Please have in mind, the *Advance Organizer* is not an element, it's more a condition. That means at the moment you reach the Advance Organizer the Blocks are shown and can be selected, but there is no special page were is written that's the *Advance Organizer*!
The learner can freely decide in which order he want to learn the Blocks!
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Important! More Information

Very soon an e-learning-course about the e-learning-methodology will be available!

Currently we have the German version in preparation, the English one is under translation!

Within this course you can inform yourself in very detailed way about the e-learning-methodology!

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References

Jungmann, B.; Wirth, K.; Klauser, F. & Schoop, E. (2002): IKURS: Integrative Konzeption und Umsetzung curricularer, didaktisch-methodischer und informationstechnischer Aspekte in Richtlinien und Strukturmodelle für die Ausgestaltung multimedialer Lehr-Lern-Arrangements. Osnabrück, (Research Report Impuls^{EC} 2).

Klauser, F. (1998b): „Anchored Instruction“ – eine Möglichkeit zur effektiven Gestaltung der Lehr-Lern-Prozesse in der kaufmännischen Ausbildung. In: Erziehungswissenschaft und Beruf, (46), S. 283-305.

Klauser, F.; Schoop, E.; Gersdorf, R.; Jungmann, B. & Wirth, K. (2004): The Construction of Complex Internet-Based Learning Environments in the field of Tension of Pedagogical and technical Rationality, Research Report Impuls^{EC} 10, Osnabrück, 2004.
