

Evaluating the effectiveness of multichannel learning systems

The best evaluation
is to recognize
the methodic-didactical concept



Plan

- Personal Assistant Learning
- evaluation process (problem definition)
- Challenge to define Learning Success
- Factors influencing e-Learning effectiveness
- Hypothetical construct of learning success (based on knowledge forms)
- Conclusion: How to develop an evaluation concept?
- 3 steps of evaluation
- Goal of an evaluation concept

What I do and what I did...

- paedagogical practice of mediated and technical learning content over the last 15 years...
- Development of learning CDs, Webbased trainings
- Organisation and Managing of e-Learning and blended learning
- in different learning institutions: private, public and government
- especially for self-learning centres and small- and medium sized enterprises
- University Teaching: media development from a methodical-didactical point of view
- Evaluation: Hypothetical constructs, Indicator-, category- and question-development

Personal Assistant Learning

“just the right content, on just the right device, for just the right person, at just the right time.”

- Wayne Hodgins, "The Future of Learning Objects," presentation at the Learning Objects Forum, Menlo Park, California, September 3, 2002.



An evaluation process...(problem definition)

The requirements of evaluation:

A Hypothetical Construct

- A clear understanding of the investigated object and possible external influences (Learning Success)

B Measurement concept

- Therefore biunique indicators
- Validate and reliable instruments, methods and data to measure (instruments, methods, data,....)

If A isn't correct, the measurement measure something else...

Challenge define learning success

What is our hypothetical construct of learning success?

...what is learning success?

- reaching the learning target?
- Understanding all of briefing?
- ...

Something between my personal vision and institutional requirements of training and living in the US



Learning success: Personal and Institutional

Institutional:

- Prepare students for living in the US
- Prepare for their responsibilities and training in the US

Personal (maybe):

- same as above
- Prepare for my rights
- Prepare for getting social (private and Study/Job)
- ...

And possible different top priorities....

All Factors influencing e-Learning effectiveness

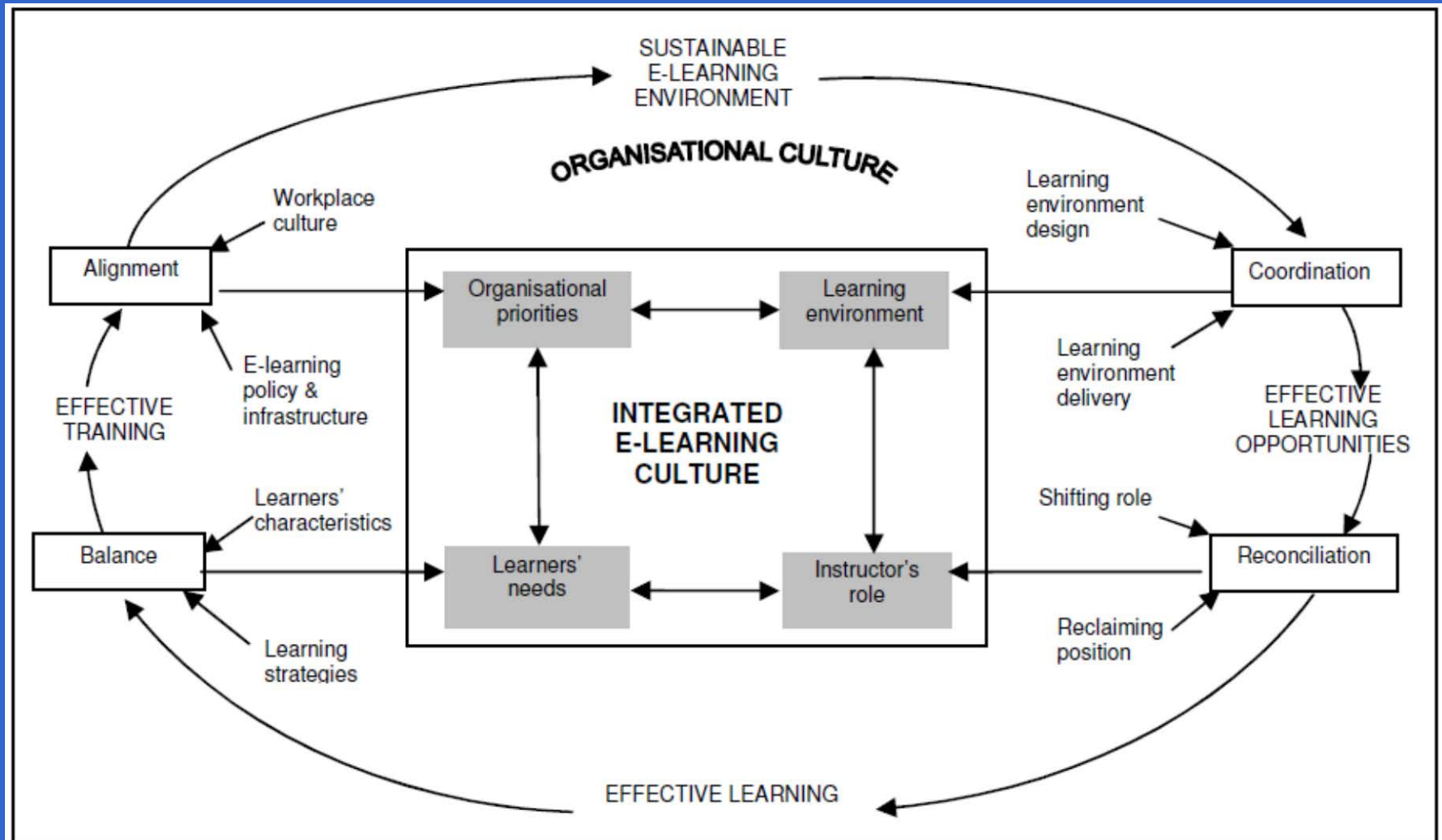


Figure 1: A model for developing an integrated e-learning culture in a large organisation (Newton, 2007)



Learning success: Scientific View

In my opinion it doesn't exist a clear and completely understanding of learning.

...but we know a lot of different kinds of learning

Paradigm of learning based on fundamental paradigm of theory of cognitions, i.e.

- structuralism, system theory
- instructional vs constructivism
- ...

Therefore other didactical settings
(...and other evaluation settings)

And different learning activities between self-determined learning and pilot-controlled

Hypothetical Construct of Learning Success

Conclusion...

The concept of effectiveness implies that there is a desired outcome related to an activity.

An evaluation concept must explain the measure of a reasonable didactical relationship between the outcome (learning success) and their activities to support reaching the outcome (learning process).

1. Activities can be learning activities and
2. Activities to support learning.

Evaluation has to identify those activities.

Measuring activities

Necessary to define what are learning activities (a) and support activities (b)...

(a)

- Memorizing
- read, recognize
- reflection of understanding

(b)

- structure and methodic-didactic elements
- social learner help
- change representation of content (AI)
- change learning path (AI)

Criterion validity and reliability data of Measuring is depend on the size of one learning unit (granularity).



Conclusion: How to develop an evaluation concept?

I prefer a didactical structure evaluation

Learning and support activities gonna happen in methodic-didactical units

Thesis:

It is necessary to define a methodic-didactical unit to separate learning activities from learning support activities

Bad learner or stupid Trainingprogram?

Forms of Knowledge / Types of Knowledge

Definitions:

A representation belongs to different forms of knowledge

A methodic-didactical unit got a reasonable relationship
between...:

1. Target
2. Target-Group
3. Content
4. Representation



Forms of Knowledge / Types of Knowledge and media representation

Abstract:

1. Introductions, terms and condition
=> *textform*
2. Complicated Relationships
=> *chart, figure, graph, diagram*
3. Sequence of Actions
=> *sequence of pictures, video, animation*
4. Work movements
=> *Video, interactive animation, simulation*

Important is the right representation for an individual learner

Forms of Knowledge / Types of Knowledge

Types of Knowledge	Characteristics	Typical Media Representation (methodic-didactic)
0. Orientational knowledge (both: Learning Position, Topic Position)	<ul style="list-style-type: none"> - Introductions (what is the topic?), structure, hints, terms and definitions, shortcuts, etc - instruments to recognize the learning progress and position (where am I?) 	<ul style="list-style-type: none"> - often in text form, different features of orientation and navigation: mark-ups, accentuation. Methods and instruments of sorting and structuring the topics in the head. - Features for a permanent orientation: table of contents, position to the learning target
A Theoretical knowledge (Basics to prepare theoretical-practical modelling and concepts)	<ul style="list-style-type: none"> - Basic knowledge, Terms and Definition, descriptive knowledge, phenomenological description, subject-knowledge, theoretical description of models and concepts, approach to sth. (sequence of actions), i.e. Parameters, properties, formulas. Necessary knowledge for theoretical and practical actions. 	<ul style="list-style-type: none"> - Description of the subject/object, text-form, pictures, photos (less animation and videos) of the same item (various views to achieve all learners).
B Theoretical-Practical knowledge (procedural knowledge)	<ul style="list-style-type: none"> - Preparing instructional actions. Active theoretical doings. Thinking about step-by-step actions and possible effects. Theoretical relationships. Knowledge what, when and how to do it (analytical, situational, specific and decision knowledge). i.e. Practical using of formula in different situations, Sequencing actions, Selections of right items and explaining. 	<ul style="list-style-type: none"> - All exercises to check the theoretical knowledge (easy to difficult) and leading to the case of emergency - All media, but more animations and especially simulations
C Practical application knowledge	<ul style="list-style-type: none"> - Handling, Practicing and Manipulating - Practical Doing of conceptional and procedural activities. 	<ul style="list-style-type: none"> - Real Case on location. Identifying own background and own Qualifying. Understand the relationship between practice, effects and theoretical knowledge. "A Feel of Competency". Count on own knowledge and skills.

Learning Success depends on the right representation and sequence of knowledge-forms

3 Evaluation steps...

1. Pre-Test/-interview
 2. In progress Evaluation (immediate learning succes)
 3. Transfer-Evaluation (after 6-9 months – indirect learning suces)
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1. Make Sure of learners preconditions (...find their basic position to begin the learning way)
 2. Make Sure to move step-by-step forward
 3. Make Sure all learning targets fit with practical doing

Goal of an evaluation Concept

The evaluation concept has to measure both:

- a) Learning success
- b) Didactical Concept

AI-View

- Lots of step-by-step learning success can be identified in the digital eLearning arrangement
- Lots of methodic-didactical changes can be done automatic

Mobil-View

- Need more smaller sized learning objects
- Need more features for orientation

Enough! ?

Thank you very much for listening!

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