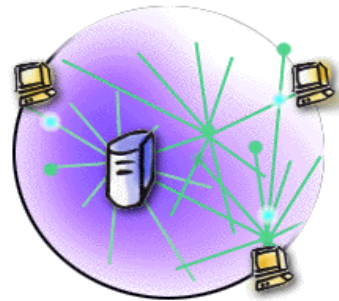# E-Learning -
# On the way to a new learning culture



Prof. Dr. Heinz Mandl

Department Psychology

LMU Munich

*Capital: Berlin*

*Capital of Bavaria: Munich*

**LMU**



# MUNICH

# Ludwig Maximilian University of Munich

# The LMU – founded in 1472

➢ **One of the largest and most traditional universities in Germany**

➢ **– since 2006 Elite University**

   ➢ 40 000 students

   ➢ 15 % international students

   ➢ 700 professors

   ➢ 5000 academic staff, 12 000 non-academic staff

   ➢ 665 Millions Euro resources p.a.

## Institute of Education and Educational Psychology

# Prof. Dr. Heinz Mandl

# Topics on Research and Teaching

- ➤ Knowledge Management

- ➤ Learning with new information & communication technologies

- ➤ Learning Communities

- ➤ Cooperative and Selfguided Learning

- ➤ Monitoring and evaluation of educational measures and systems

- ➤ Development of powerful learning environments

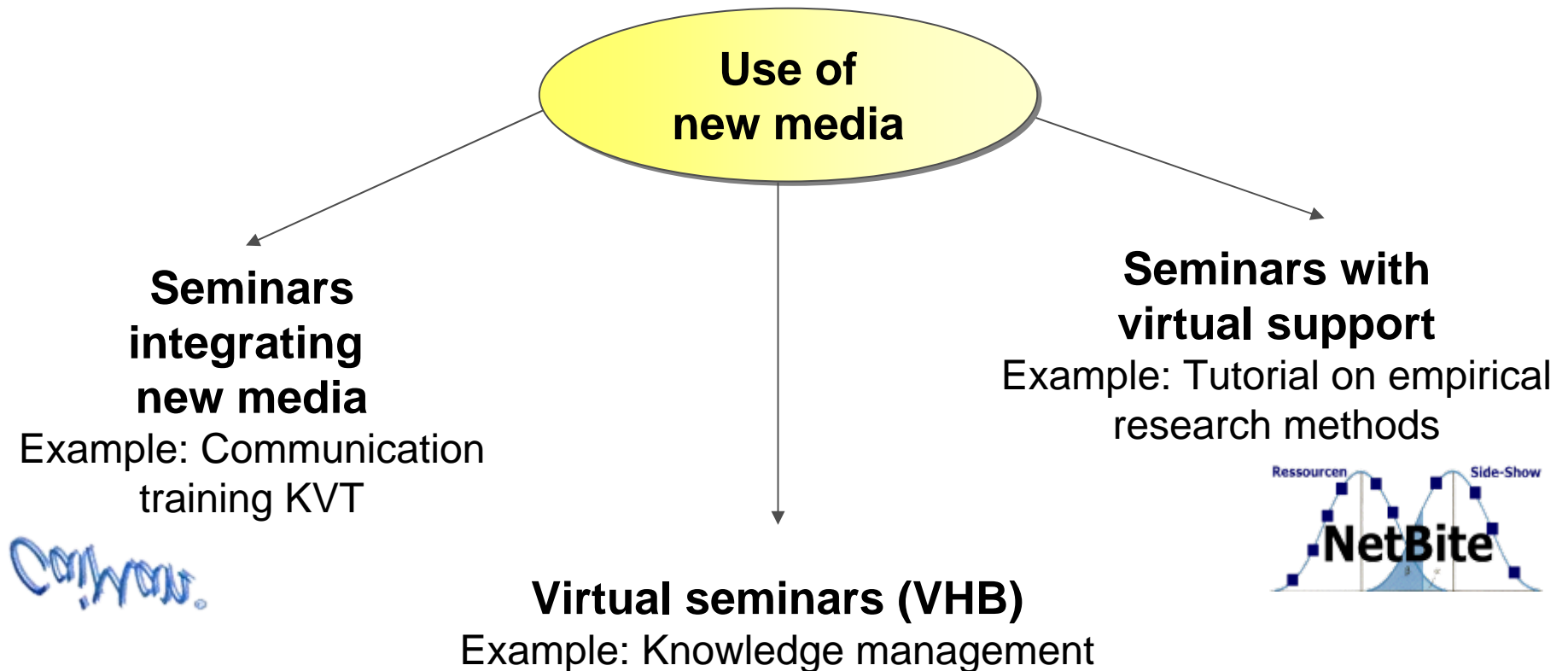# Innovations on learning and teaching

**Use of new media**

**Seminars integrating new media**
Example: Communication training KVT

**Virtual seminars (VHB)**
Example: Knowledge management

**Seminars with virtual support**
Example: Tutorial on empirical research methods

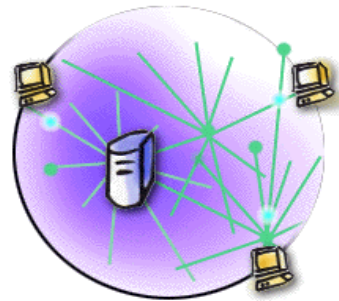# Our philosophy of research

**Basic research**

**Integrative research paradigm**
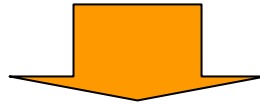
**Applied research**

# E-Learning -
# On the way to a new learning culture

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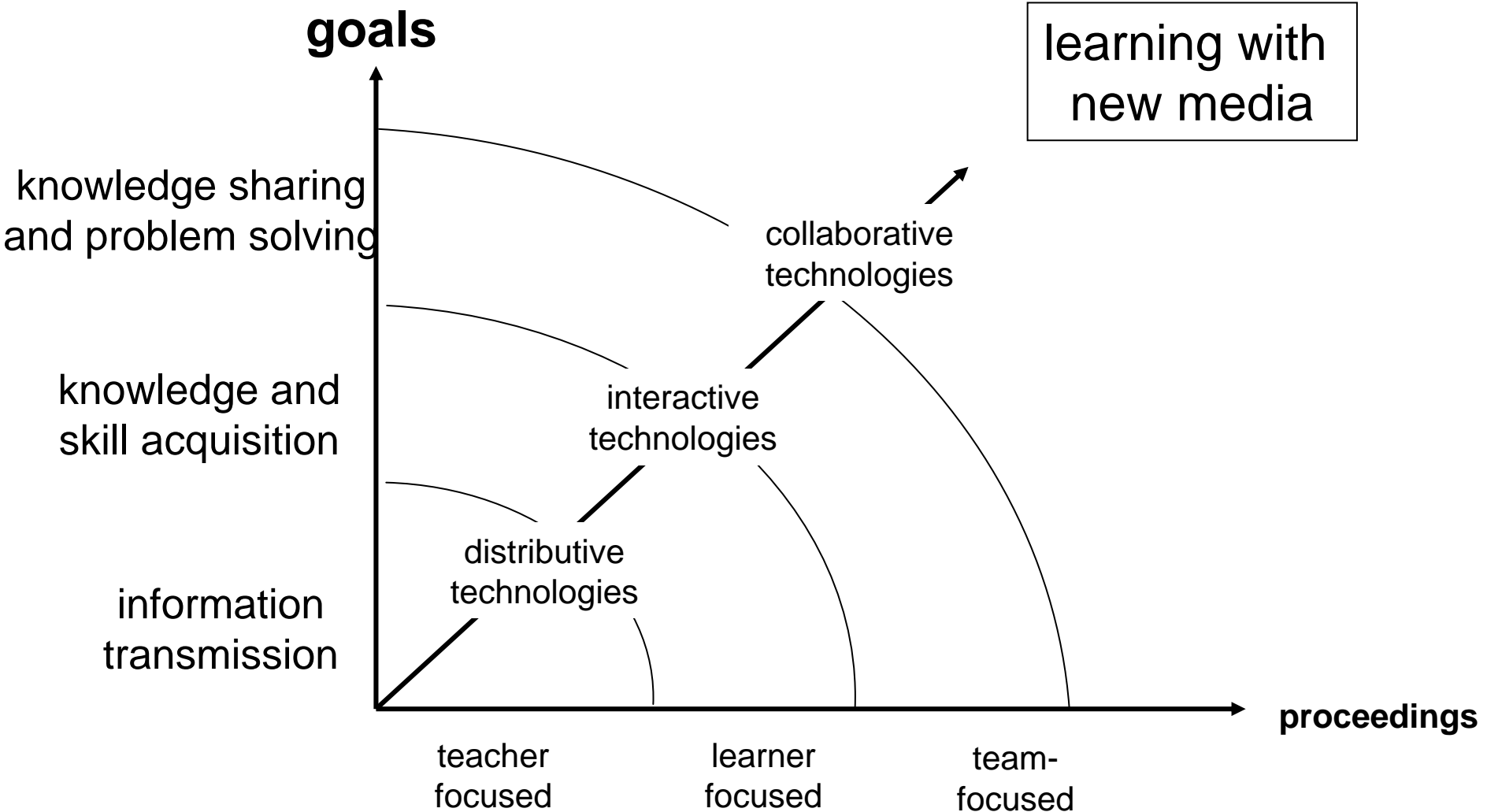
LMU

## E-Learning:

⬇

## Learning with electronic media

## Varying approaches:

- Distributive technologies (data bases)
- Interactive technologies (CBT, WBT)
- Collaborative technologies
  (online learning, CSCL)

# A Challenge for Education: The new media as tools for increasing profit from teaching

**goals**

learning with new media

knowledge sharing and problem solving

knowledge and skill acquisition

information transmission

collaborative technologies

interactive technologies

distributive technologies

**proceedings**

teacher focused

learner focused

team-focused

cf. Back, Seufert & Kramhöller, 1998

# Exspactancies to E-Learning

➢ Independence of time and place

➢ Efficiency of learning

➢ Learning on demand

➢ Individual learning tempo

➢ Decreasing costs

Have the expectancies

concerning E-Learning

been fulfilled?

Till today a broad use
of E-Learning in schools and
university is successful only partly.

E-Learning comprehends more than the use of new

information and communication technology
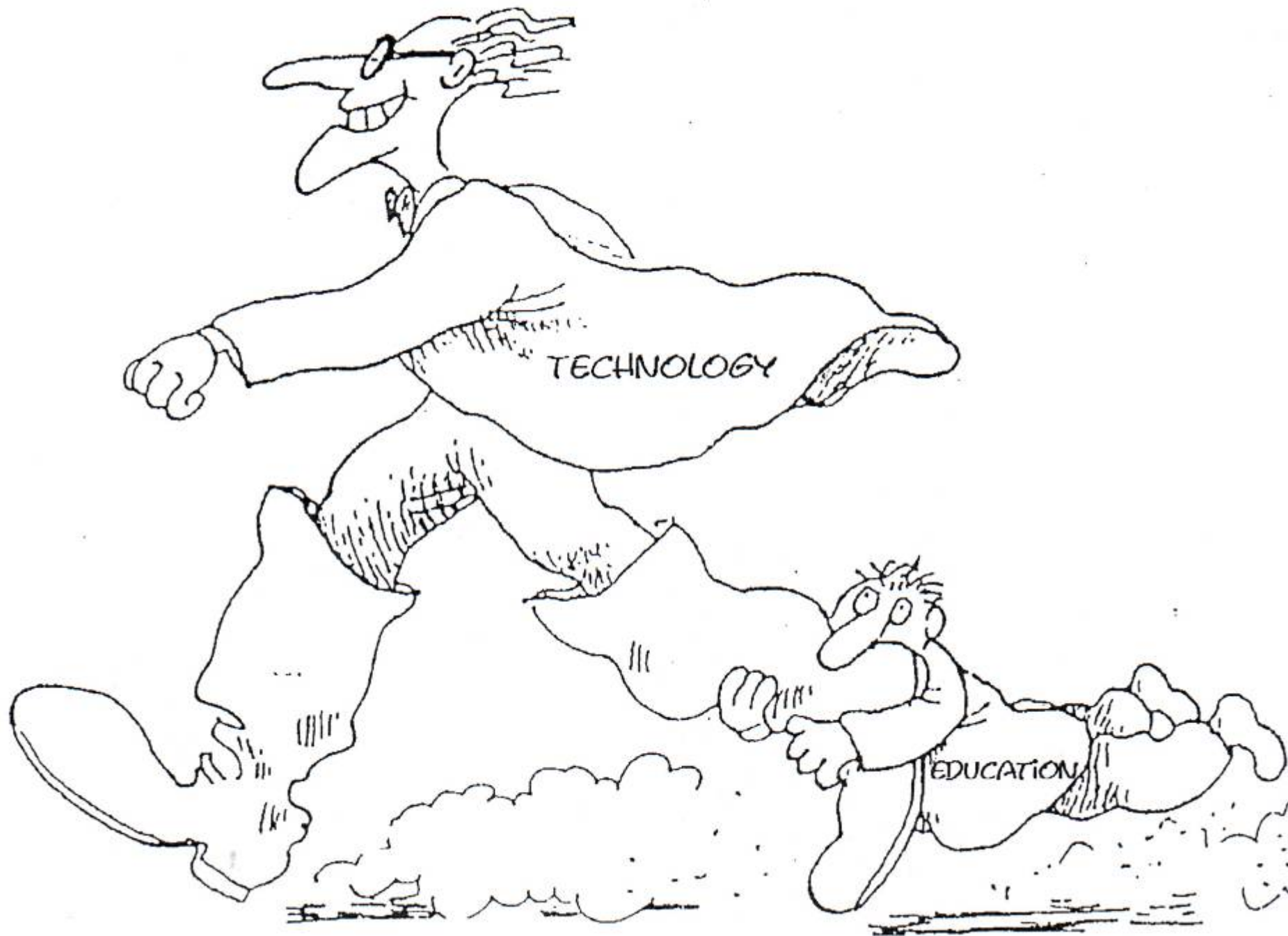
# Three factors for successful use of E-Learning

1.  A moderate constructivist philosophy of learning

2.  An integrative concept: From E-Learning to Blended Learning

3.  Professional implementation strategies

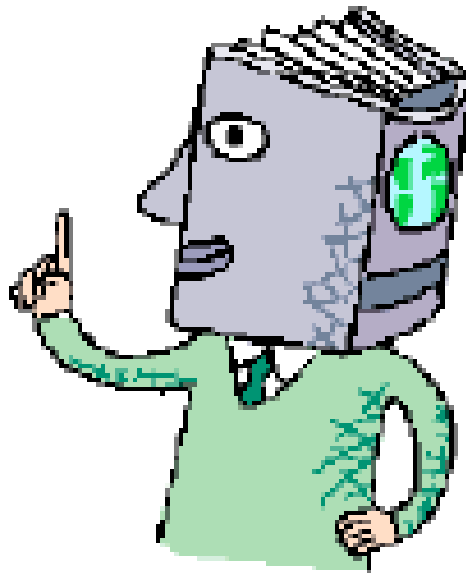# Three factors for successful use of E-Learning

1.  A moderate constructivist philosophy of learning

2.  An integrative concept: From E-Learning to Blended Learning

3.  Professional implementation strategies

# Moderate constructivist philosophy of learning

Using E-Learning successfully:

The development of a new learning culture is

   necessary

based on findings of **brain research** and
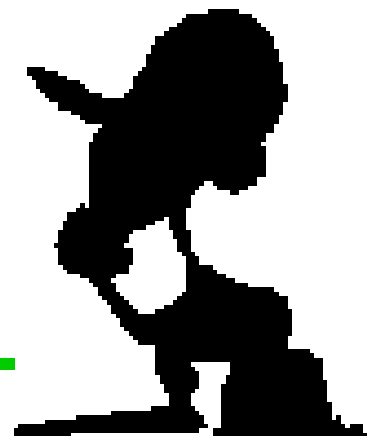
   **psychology**.

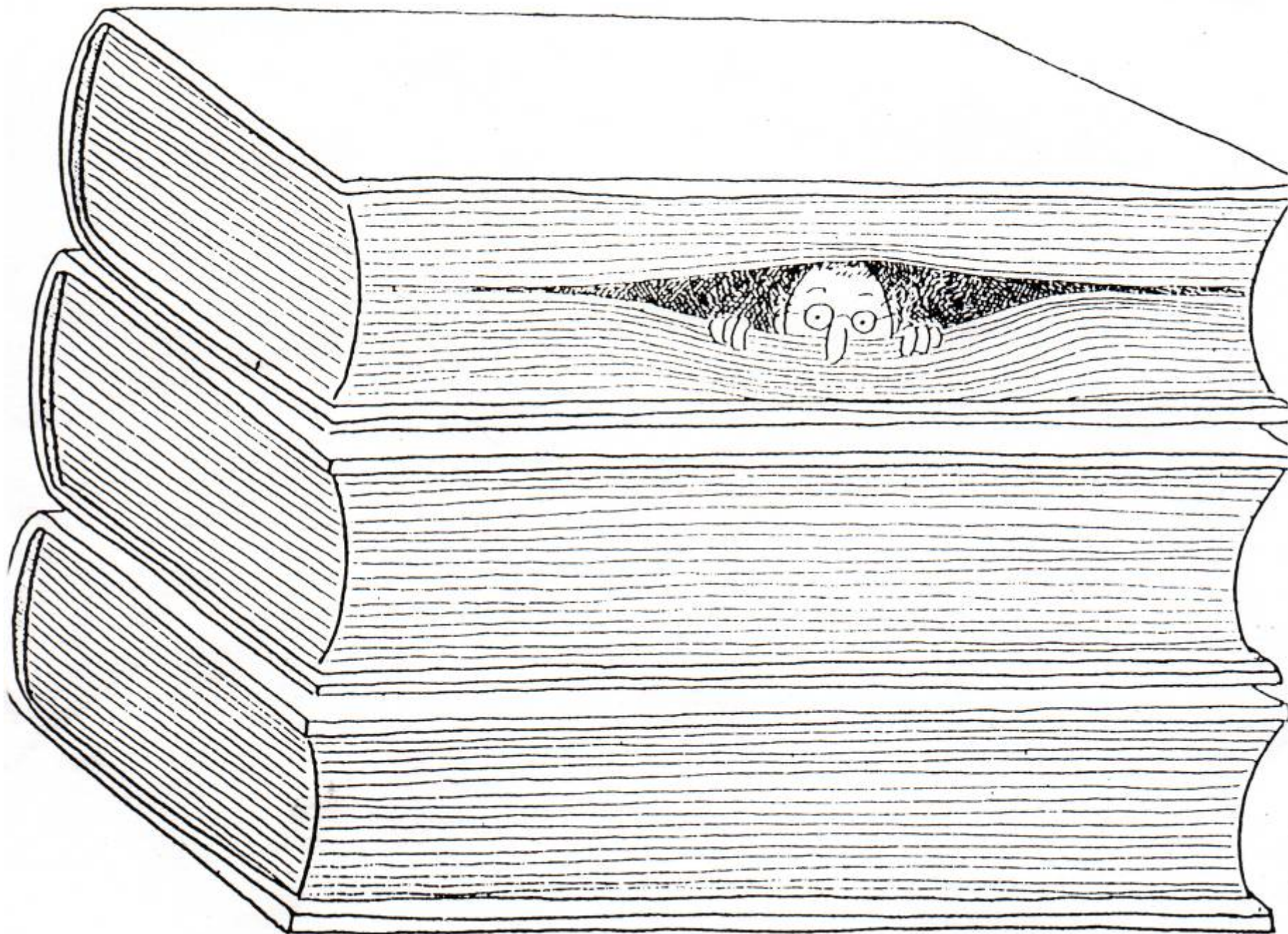# The Traditional View of Teaching and Learning

Knowledge can be transmitted from one person to another like property.

Learners can bridge the gap between theory and practice themselves.

H. Studle

# KNOWING AND DOING

**Teaching**
in the mearning of instructing, presenting, explaining

Active position of the teacher

INSTRUCTION

**Learning**
as a mainly receptive process

Passive position of the learner
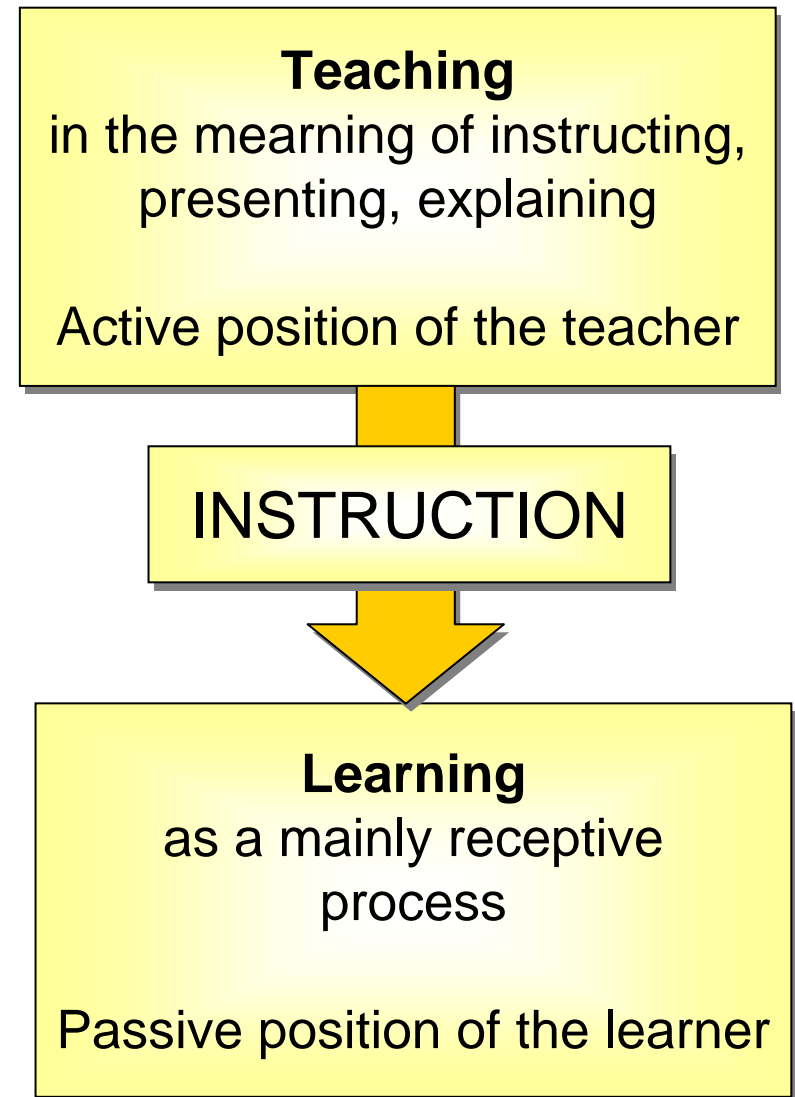
# A new philosophy of teaching and learning

# The constructivist view of teaching and learning
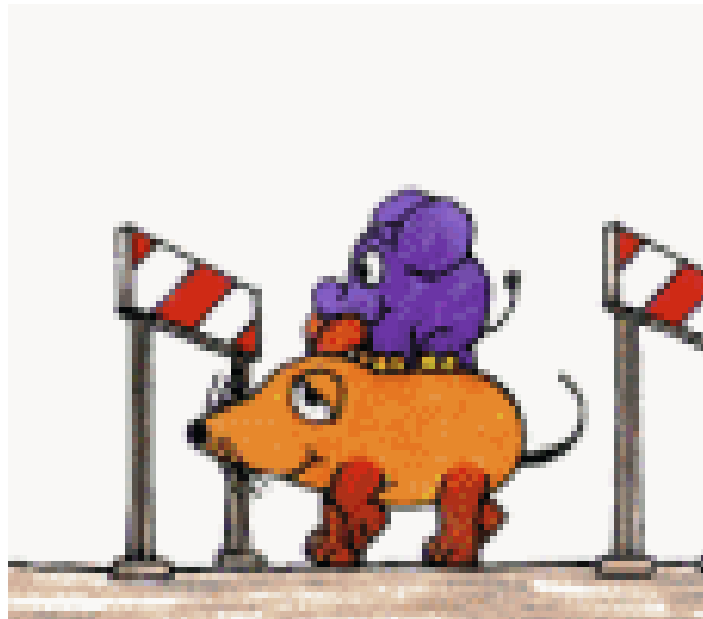
Knowledge is not a product that can be transmitted from one person to another.

LMU
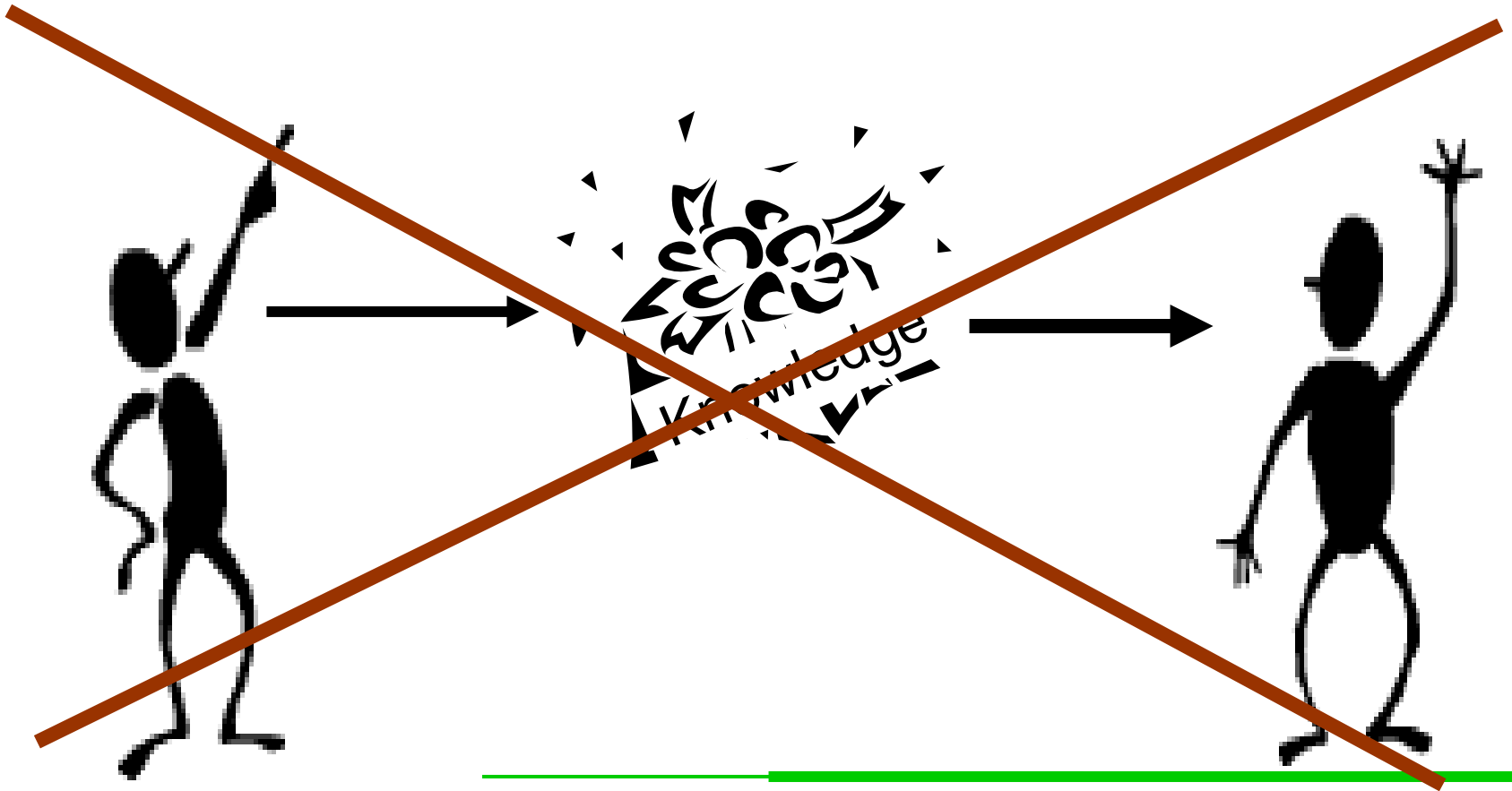
Knowledge is constructed by a learner on the basis of his own experiences.

Knowledge A

Information

Knowledge A*

# Fish is Fish

Prof. Dr.
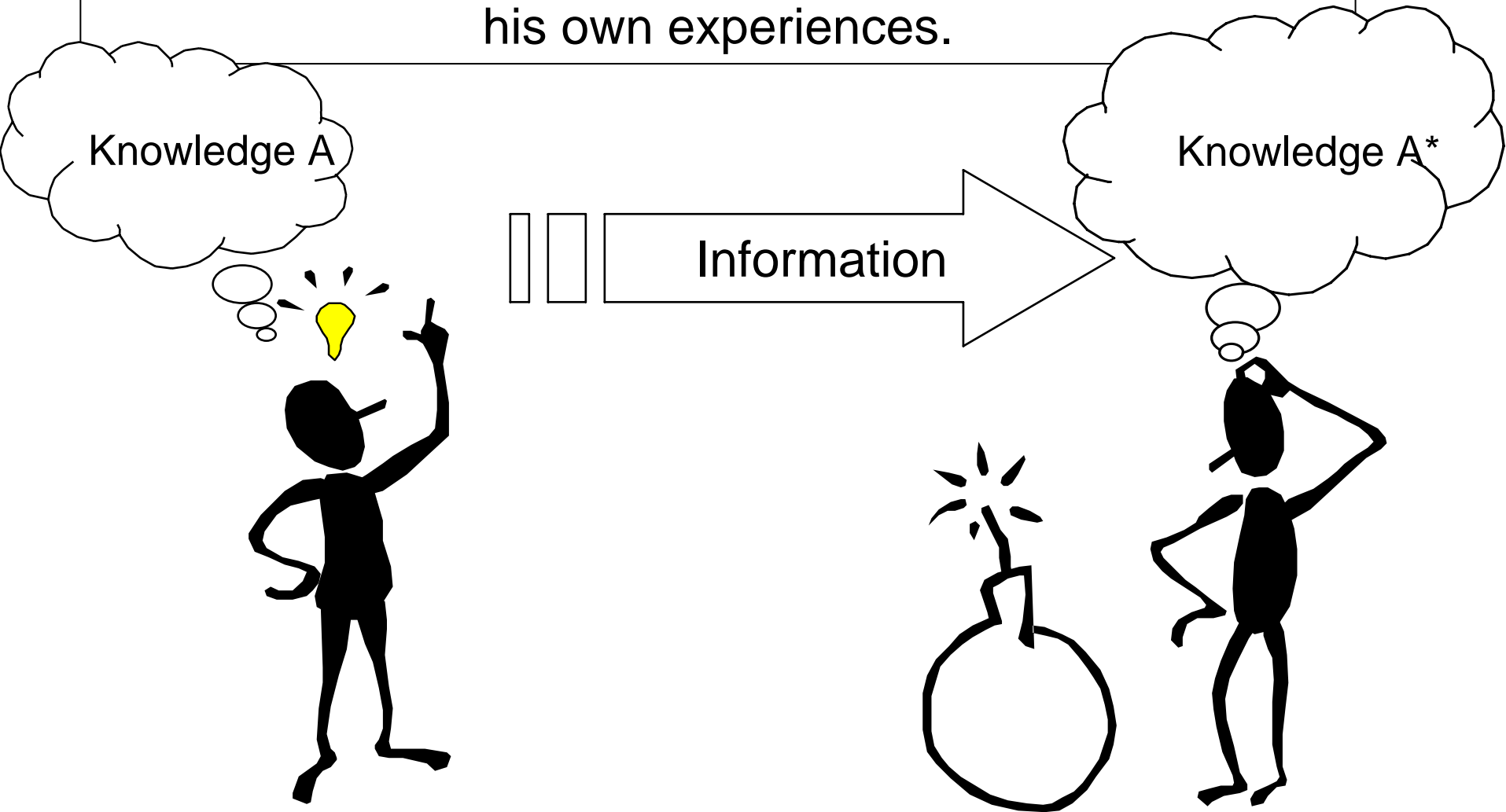
A little tadpole  and a very jung fish lived
in a small pond. They were best friends!
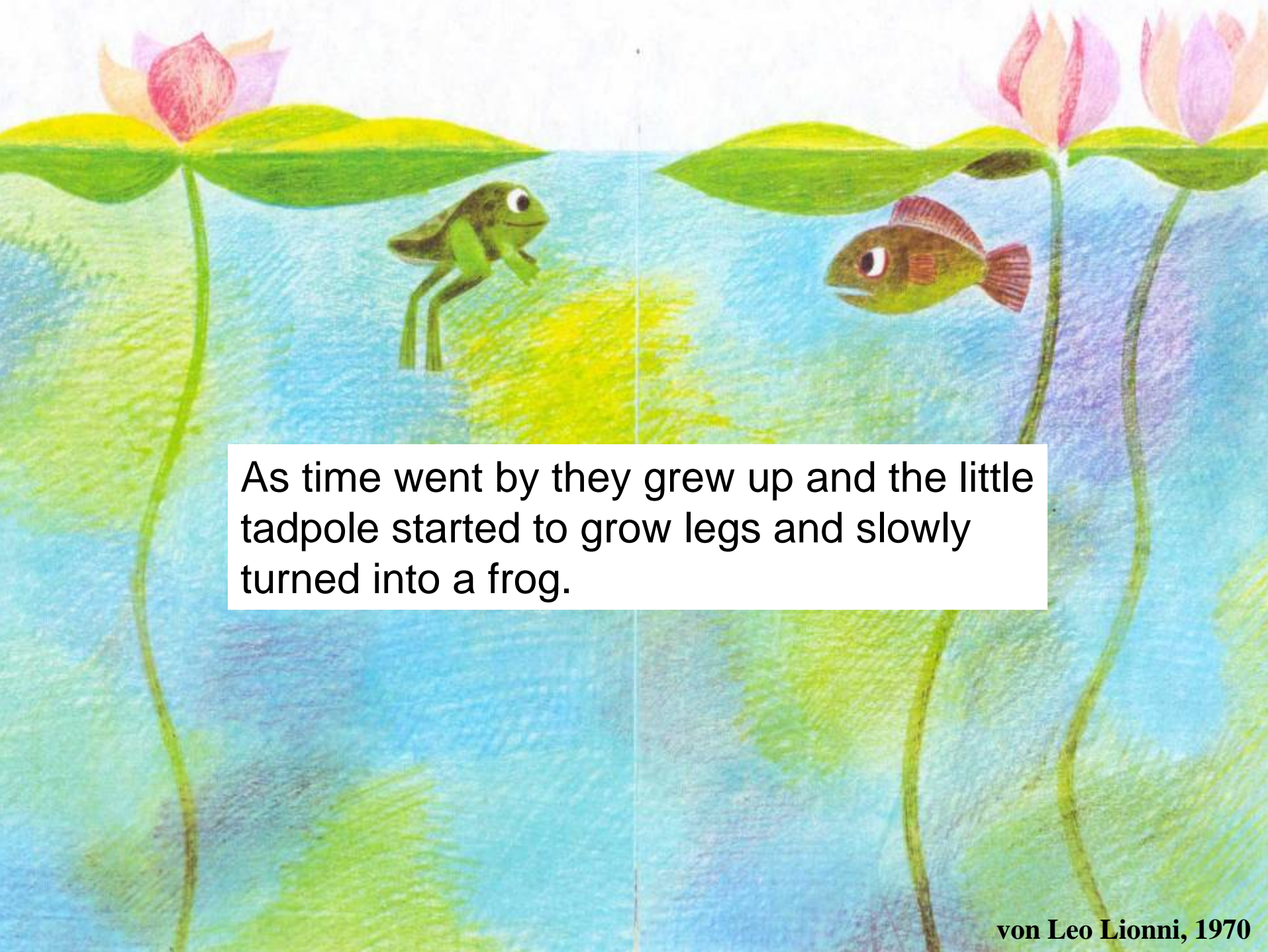
As time went by they grew up and the little tadpole started to grow legs and slowly turned into a frog.

von Leo Lionni, 1970
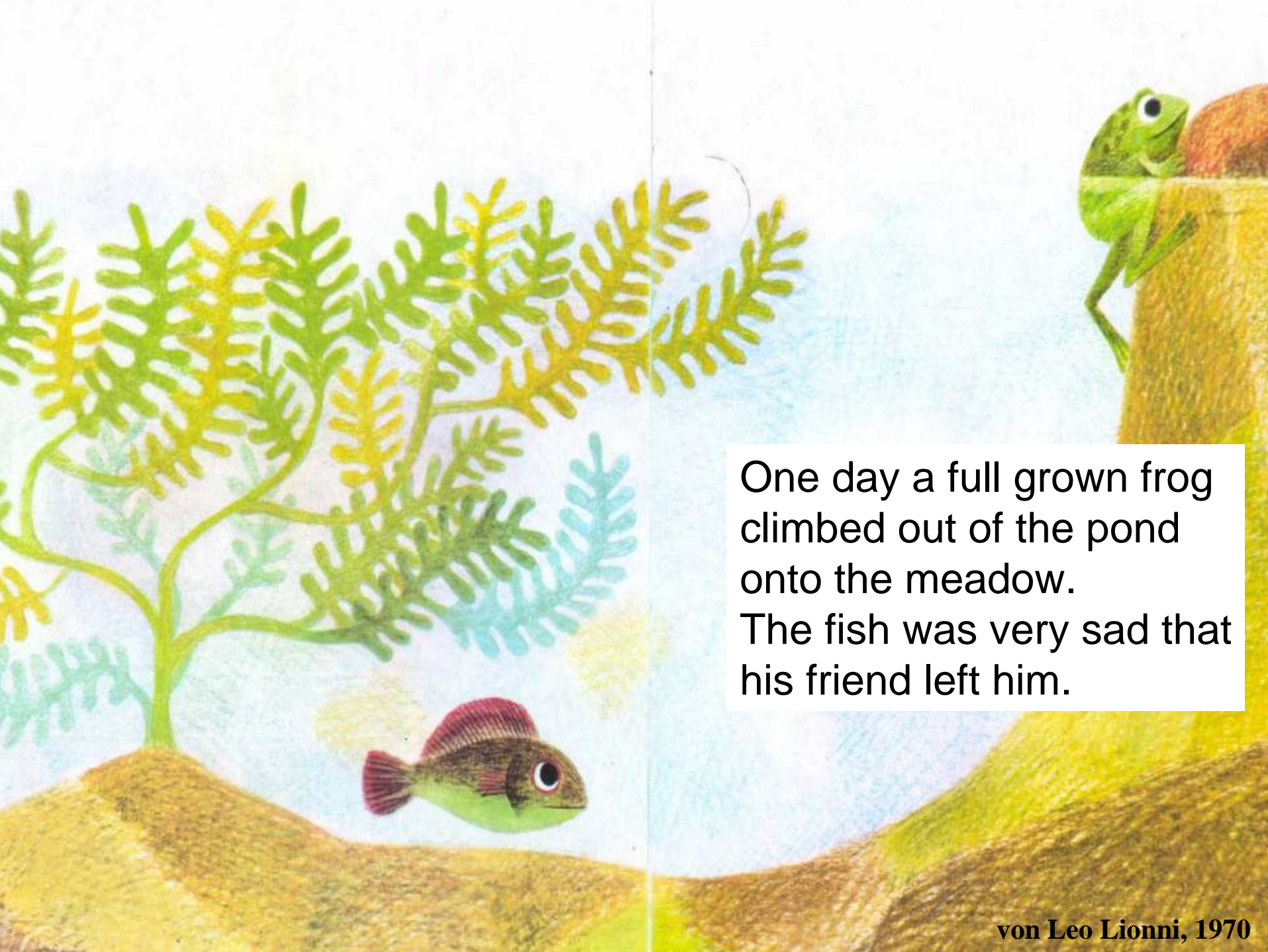
One day a full grown frog
climbed out of the pond
onto the meadow.
The fish was very sad that
his friend left him.

But one day the frog returned to the pond to visit his friend.
„Where have you been?" asked the fish
„I have been everywhere and I saw really weird things",
said the frog.
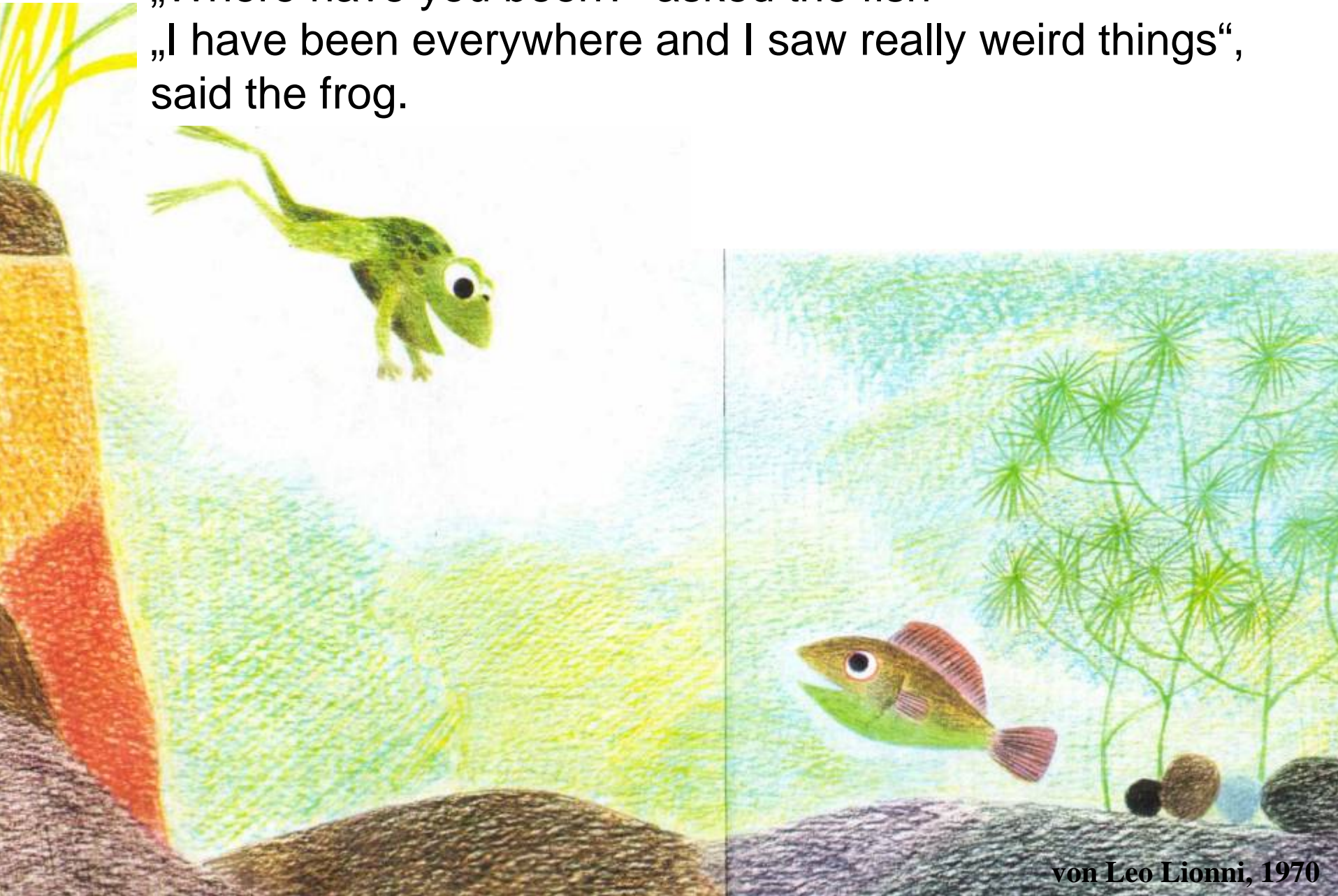
„What did you see?" asked the fish. „Birds" said the frog mysteriously. And he told the fish everything about the birds: „They have wings and two legs and plenty of different colors". While the frog was talking, the fish imagined what the birds looked like. He saw them flying through his head.

„And I saw cows", said the frog. „They have four legs, horns and eat grass and they carry pink bags full of milk."

„ And I saw humans" added the frog „Men, women and children" and he carried on with his story until the pond got dark. But the fish could not sleep, because his head was buzzing with the pictures he imagined.

von Leo Lionni, 1970

# New constructivist approaches

# Constructivist view of learning

**Learning**
as constructive, situated an social process

Active position of the learner

⬇

CONSTRUCTION

⬇

**Teaching**
in the meaning of supporting, encouraging, consulting

Reactive position of the teacher

# The development of a new culture of learning and teaching

**Construction**

learning as active, self-regulated, constructive, situated, and social process.

Alternation between mainly active and temporarily receptive position of the learners

Design of problem-based learning environments

**Instruction**

teaching in the meaning of encouraging, supporting, and consulting as well as instructing, presenting, and explaining.
Situated alternation between reactive and active position of the teacher

# The concept of problem based learning

Multiple contexts

Social context

Authentic context

Instructional context

**Problem-based learning**
Balance of construction and instruction

Self-regulated learning

Learning with new media

Cooperative learning

# Advantages of problem-based learning
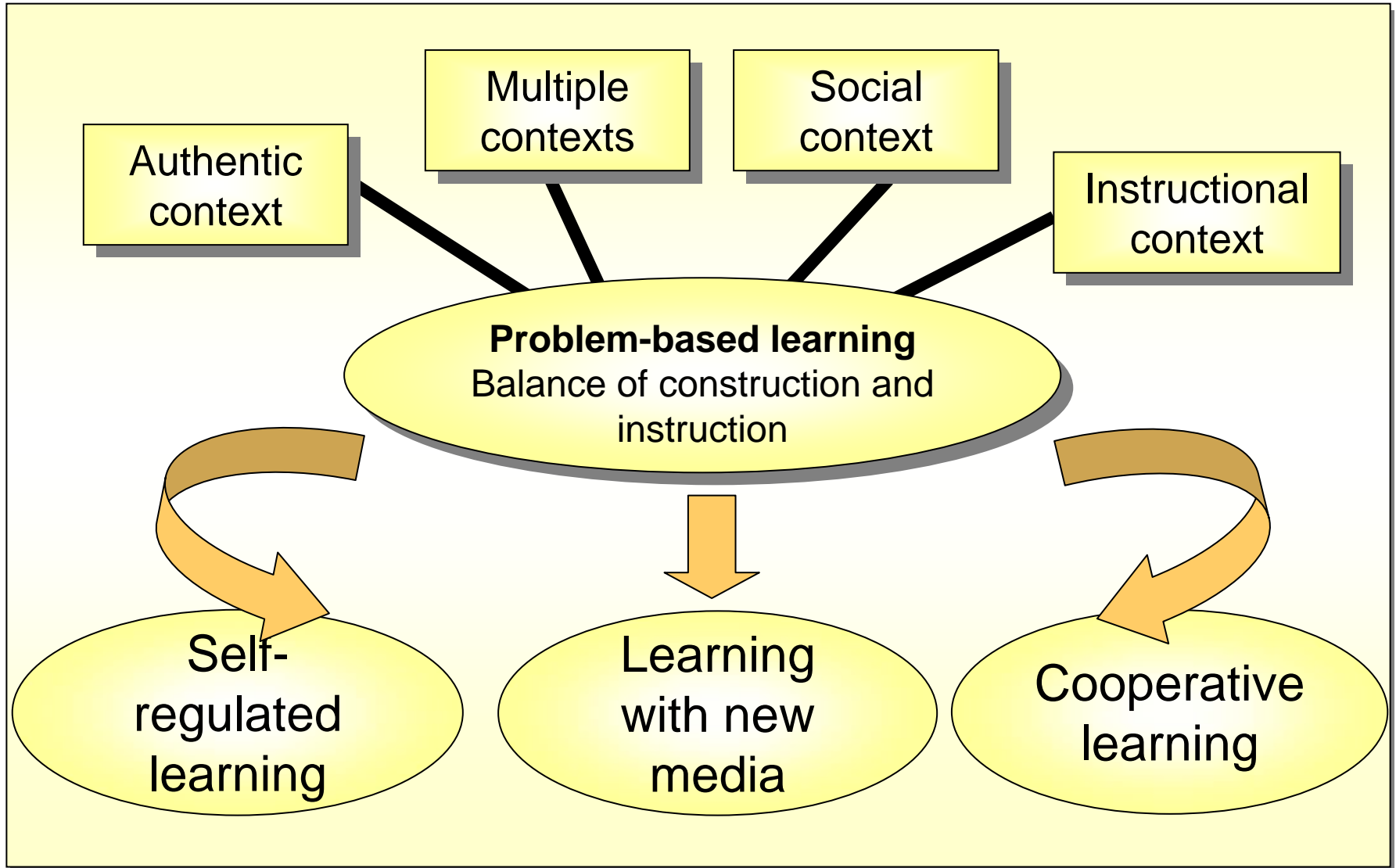
➢ Acquisition of applicable knowledge

➢ Promotion of interest and motivation

➢ Promotion of self-regulated learning

➢ Promotion of cooperative learning

➢ Insight in complex problems

# Examples for problem-based learning

➢ Harvard Curriculum (LMU, medicine)

➢ Problem-based learning in the context of the further training of engine drivers at „Deutsche Bahn AG"

➢ Virtual seminars (vhb, knowledge management)

➢ Knowledge Master (Siemens AG)

# Three factors for successful use of E-Learning

1. A moderate constructivist philosophy of learning

2. An integrative concept: From E-Learning to Blended Learning

3. Professional implementation strategies

# Is Blended Learning a solution?



**Number of inquiries concerning Blended Learning in the www**

2003    2004    2005

# Blended Learning: Definition
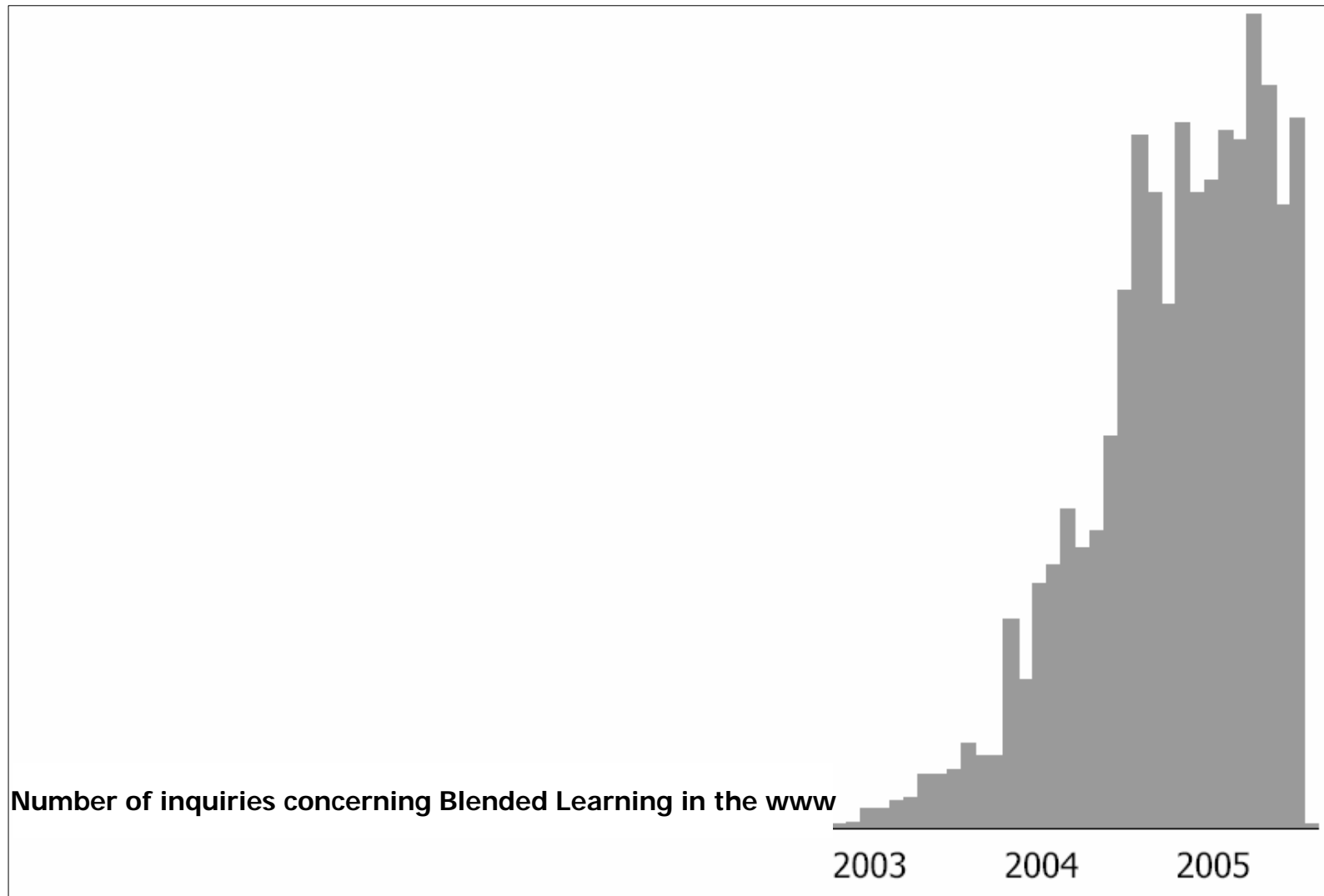
➢ „To blend" comparable with the production of whine or whiskey.

➢ The aim is to develop a product out of two or more ingredients, which is of higher quality (e. g. taste) than its single ingredients.

Wikipedia (21.10.2005)

# Blended Learning: Combination of face-to-face lecture and E-Learning

**Face-to-face lecture**

Group-learning

Lecturer

**E-Learning**

Self-guided learning

Group-learning

Support by E-Tutor

**Face-to-face lecture**

Group-learning

Exchange of experience

Lecture /Seminar

Lecturer

**E-Learning**
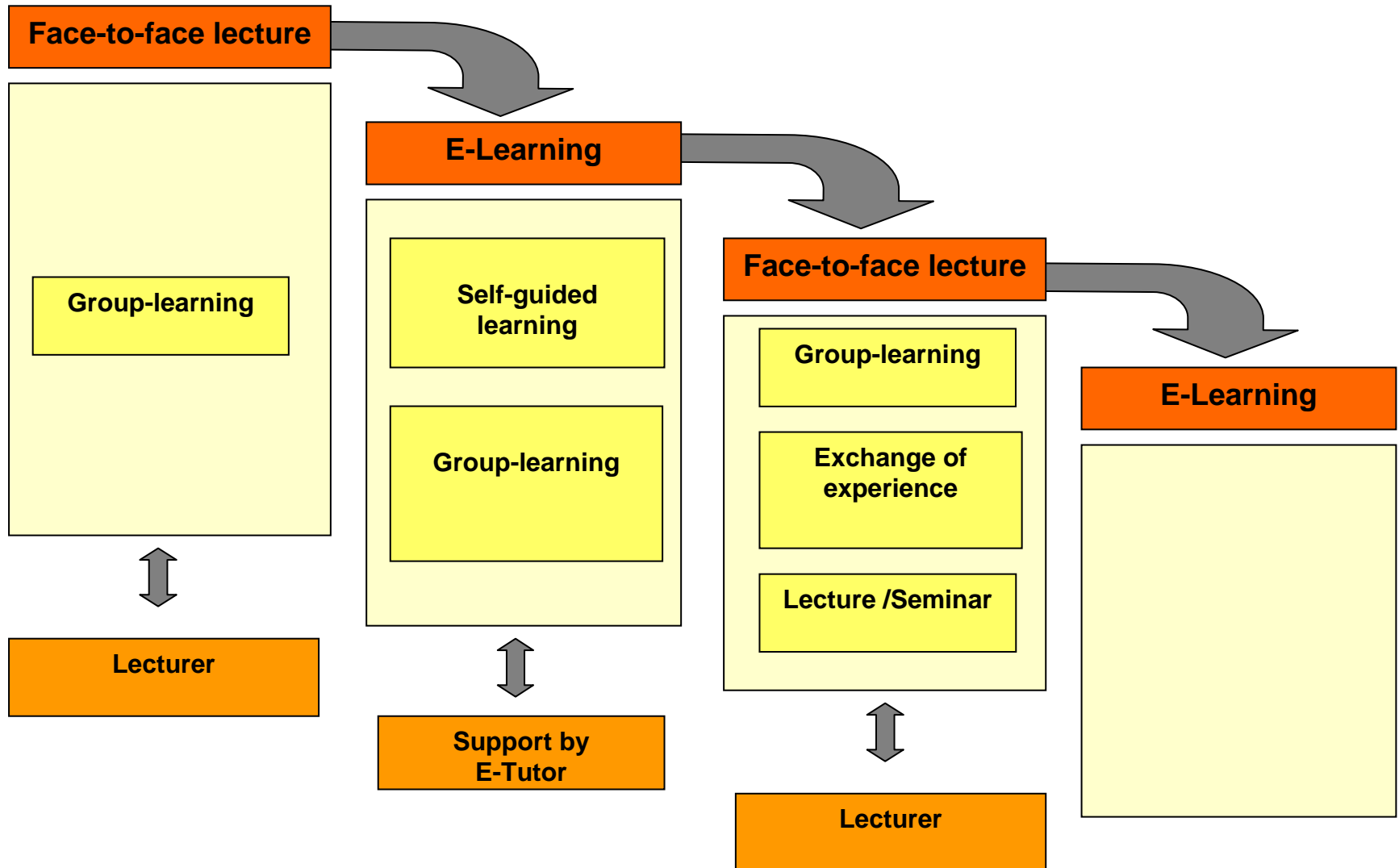
# Knowledge Master –
# a Further Education Program
# on Knowledge Management

## University of Munich (LMU) and
## Siemens Qualification and Training (SQT)
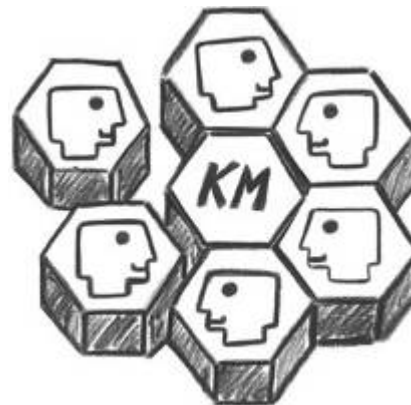
Siemens Qualification
& Training (SQT)

University of Munich
(LMU)

**Goal**     To become a Knowledge Master

**Target Group**     Middle management of companies, organisations, and students

- Sensitization for Knowledge Management

- Mediation of concepts, tools and strategies for Knowledge Management

- Preparation for Knowledge Management projects

**Multidisciplinarity**

Chair of Economics

Chair of Information Technologies

Chair of Educational Psychology

**Technology**

**Organisation**

**Knowledge Management**

**Individual**

**Society**

LMU

# Methodical Design of the Knowledge Master
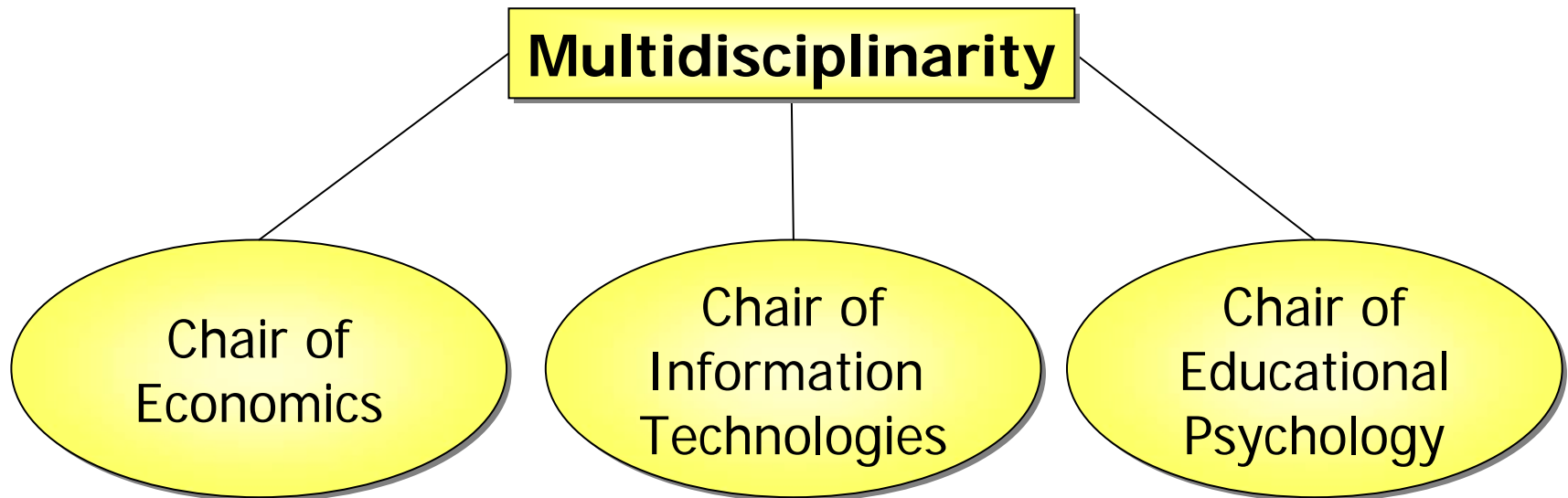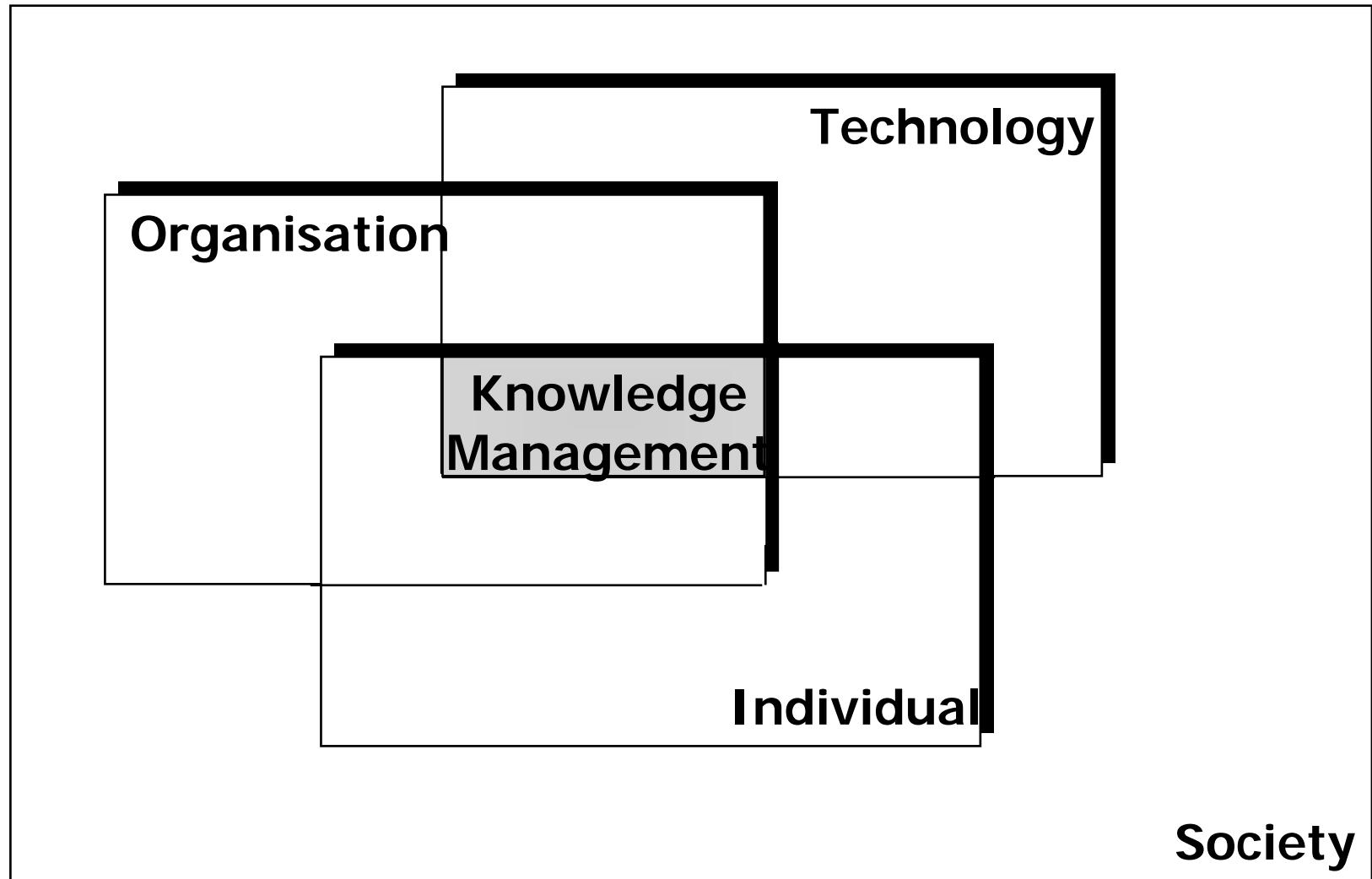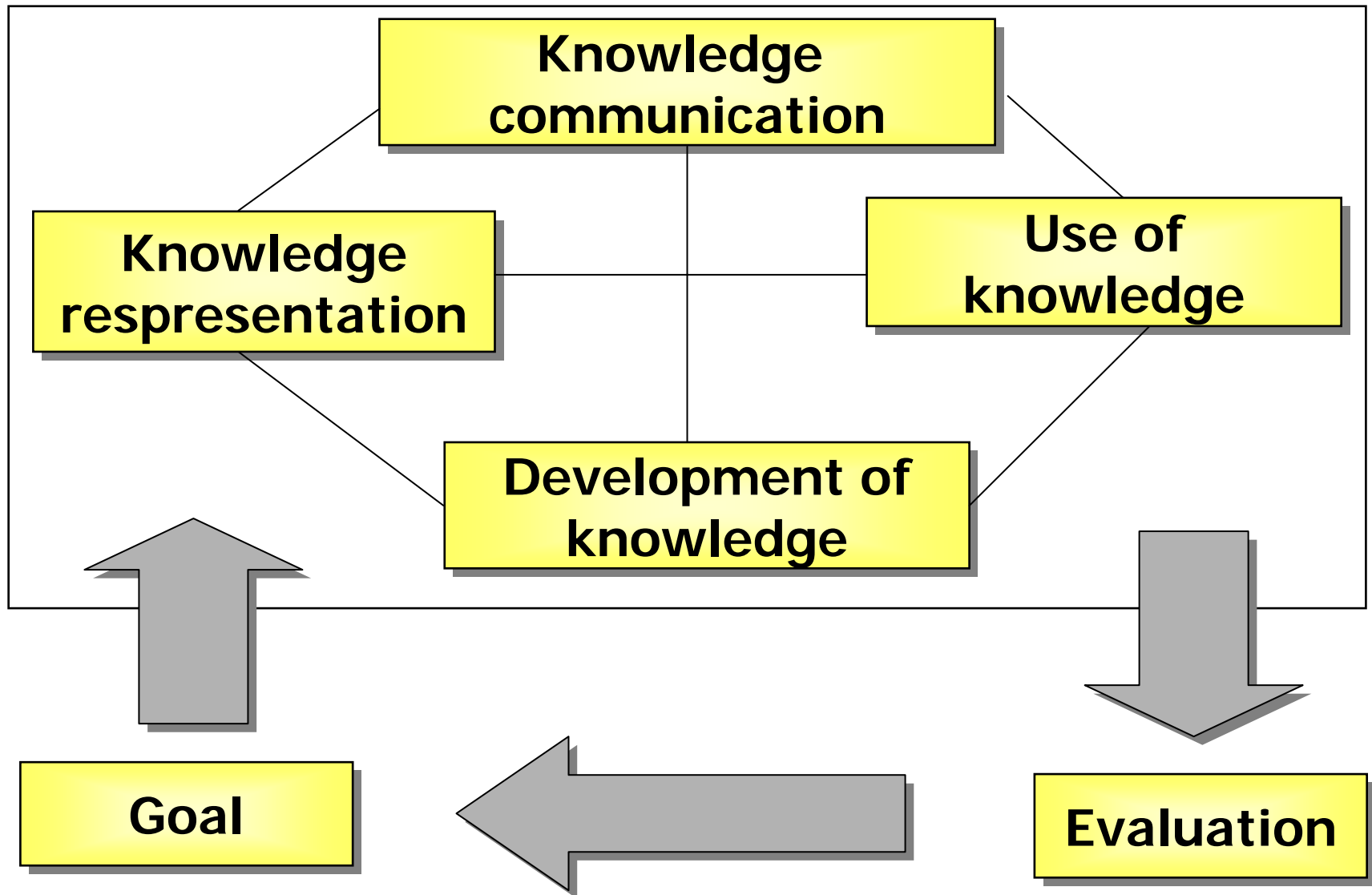
**Face-to-face phases**

**Web-based group learning with real cases**

- forum for small group learning
- discussion forum
- forum for the plenum
- chat function
- comprehensive support

**LMU**

## Face-to-face & virtual phases

Kick-off (ftf)

Feedback-Workshop (ftf)

Go-on (ftf)

Virtual-Workshop (ftf)

Go-on (ftf)

Final-Workshop (ftf)

**Base Module**

**Module Communication & Motivation**

**Module Integration**

**Certificate Knowledge Master**

Transfer I

Transfer II

LMU
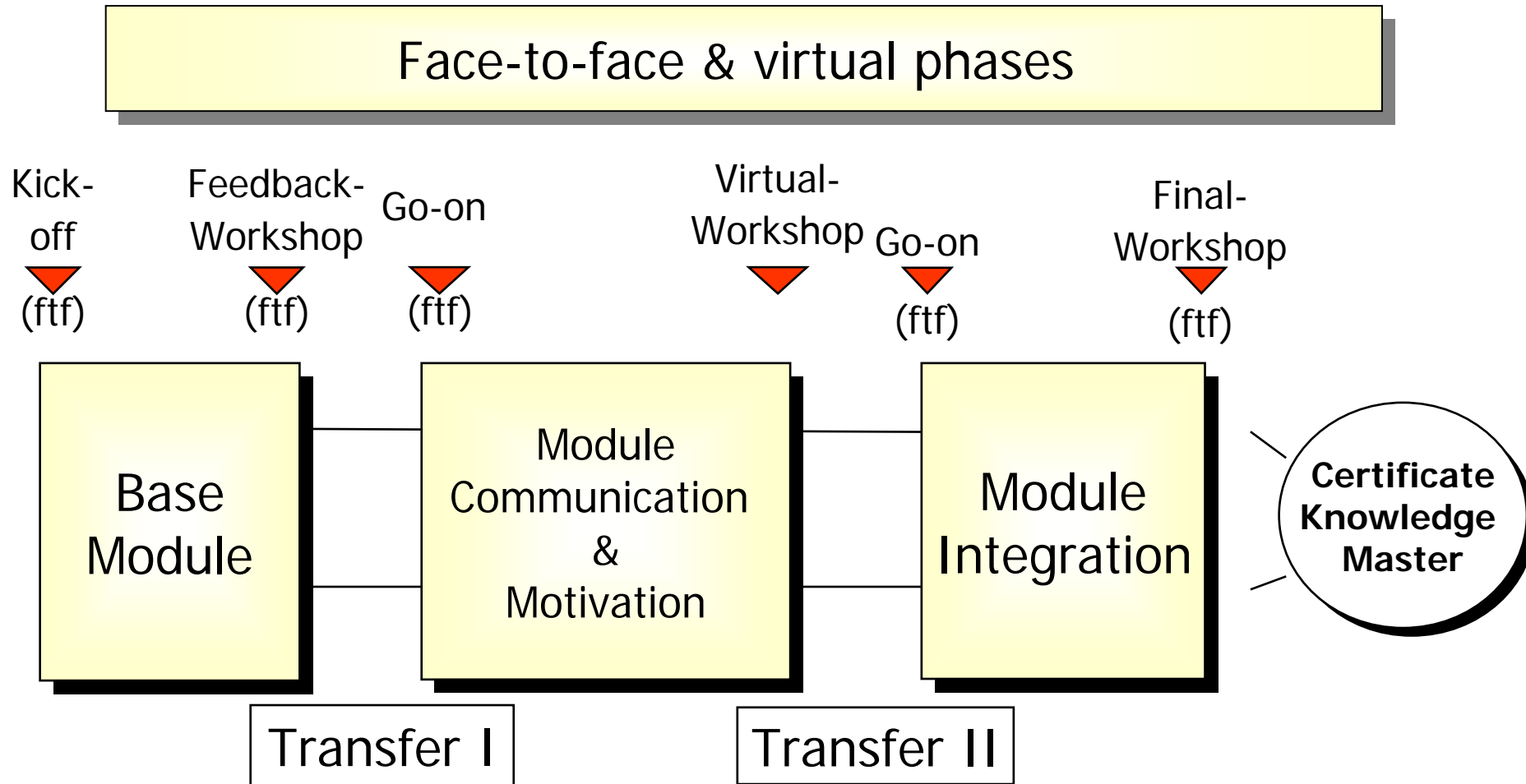
## Constructivis Philosophy of Learning

(1) Authenticity and Relation to real world situations

(2) Multiple contexts

(3) Social learning groups

(4) Informations- and communication offer

(5) Instruction and Support

# The virtual seminar „Introduction to Knowledge Management"

## Virtual University Bavaria (VHB)

**Prof. Dr. Heinz Mandl**
Chair of Educational Psychology
University of Munich
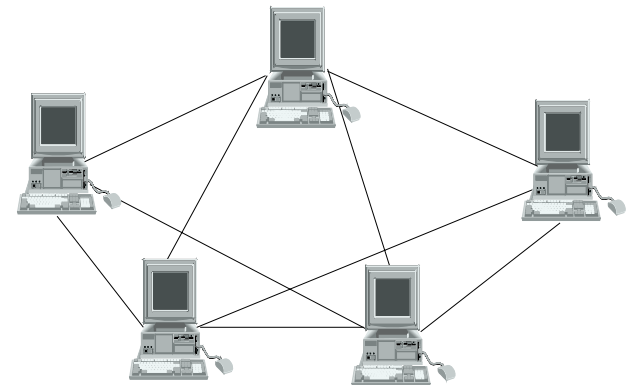
- Introduction to the complex topic knowledge management

- Overview of the major aspects of knowledge management

- Gaining experience in working via computer networks cooperatively

**Target group**   Students of Pedagogy, Psychology and Business Economics

Kick-off Workshop
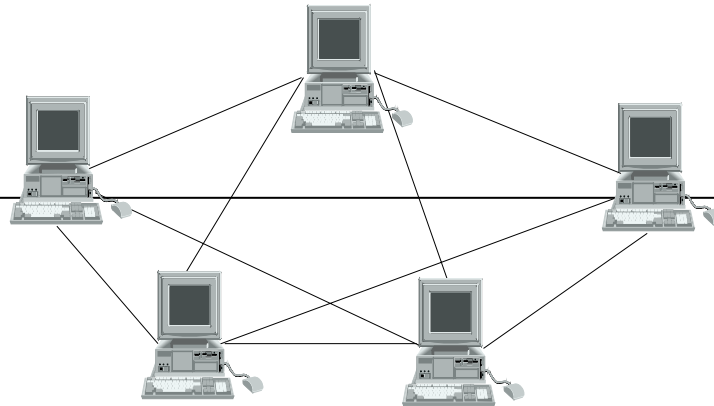
Virtual cooperation in small groups

Final-Workshop

**Instruction and Support**

LMU

Tasks with deadlines

Feedback and strategic Tips

Expert solution to compare own solution

Group rules

# Authenticity by working on authentic cases

**Case
Accenture:**
Optimizing the preperation
of knowledge

Knowledge representation

**Case
Seven Eleven Japan:**
New knowledge sources
by direct exchange

Knowledge communication

**Case Sharp:**
Focus on the development
of new knowledge

Knowledge generation

**Case
Buckman Laboratories**
Promotion of learning process
and processes of
knowledg application

Use of knowledge

# Dates of the course

LMU

| | |
|---|---|
| Untill 4.5. | Registration via E-Mail |
| 5.5 | *Face-to-face Meeting:  Kick off - Workshop* |
| 8.5. - 14.5. | 1. Task: The term „knowledge" |
| 15.5. - 25.5. | 2. Task (Introduction): Workdefinition of KM |
| 26.5. | **First Chat-Meeting** |
| 29.5. - 11.6. | 3. Task (Case 1): Knowledge representation |
| 12.6. - 25.6. | 4. Task (Case 2): Knowledge communication |
| 26.6. - 9.7. | 5. Task (Case 3): Development of knowledge |
| 10.7. - 20.7. | 6. Task (Case 4): Use of knowledge |
| 21.7 | **Second Chat-Meeting** |
| 24.7. 27.7. | Virtual (asynchronous ) Final discussion |
| 28.7. | *Face-to-face Meeting:  Final - Workshop* |

# Three factors for successful use of E-Learning

1. A moderate constructivist philosophy of learning

2. An integrative concept: From E-Learning to Blended Learning

3. Professional implementation strategies

# Aspects of professional implementation

Human resource development

Market

Strategy

Organizational development

Funding
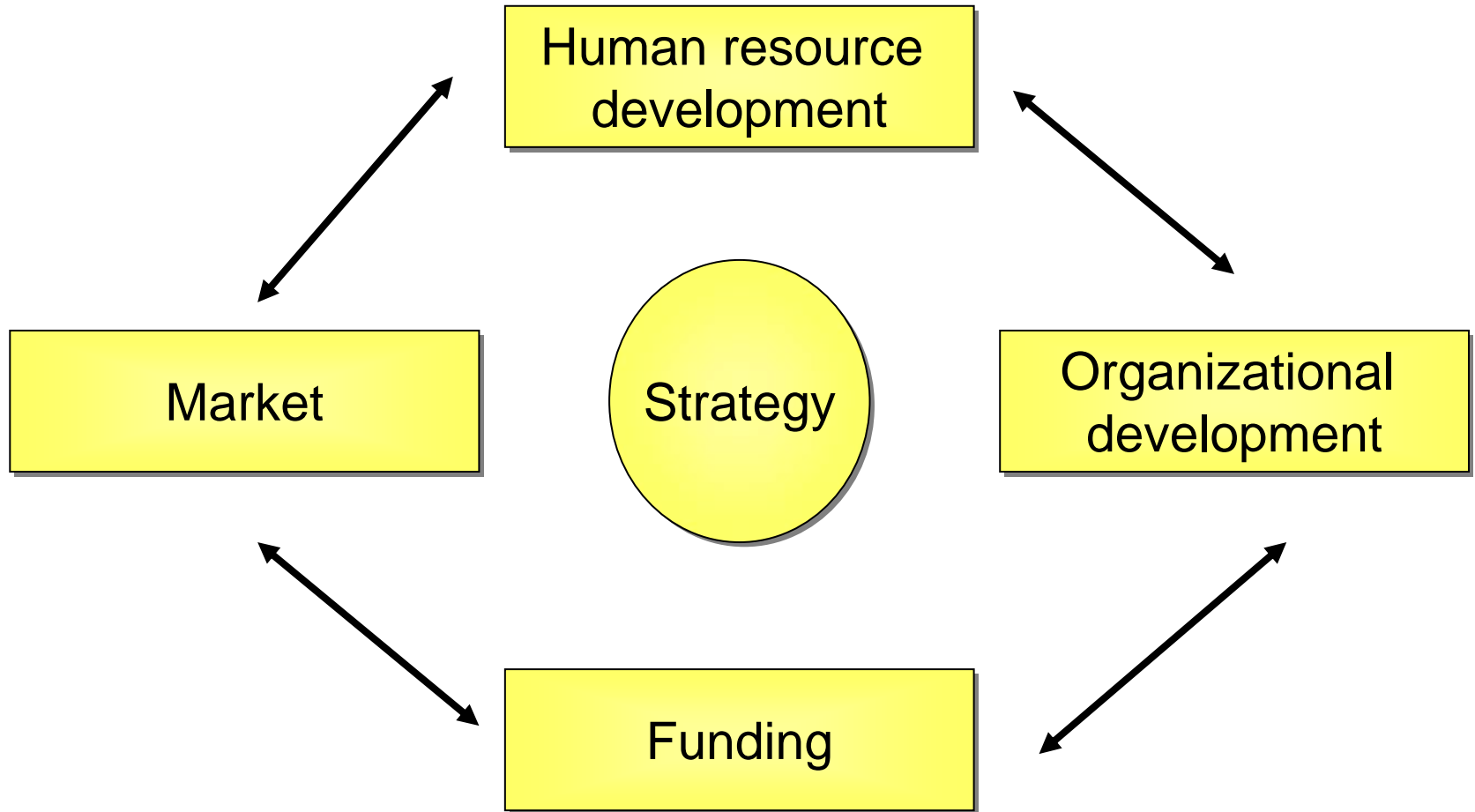
(Programmbeirat BW 2004)

# Market: Is there a need for E-Learning?

- ➢ The development of the market needs strategic planning regarding university's priorities

- ➢ Priorities should reflect university's strengths

# Organizational development
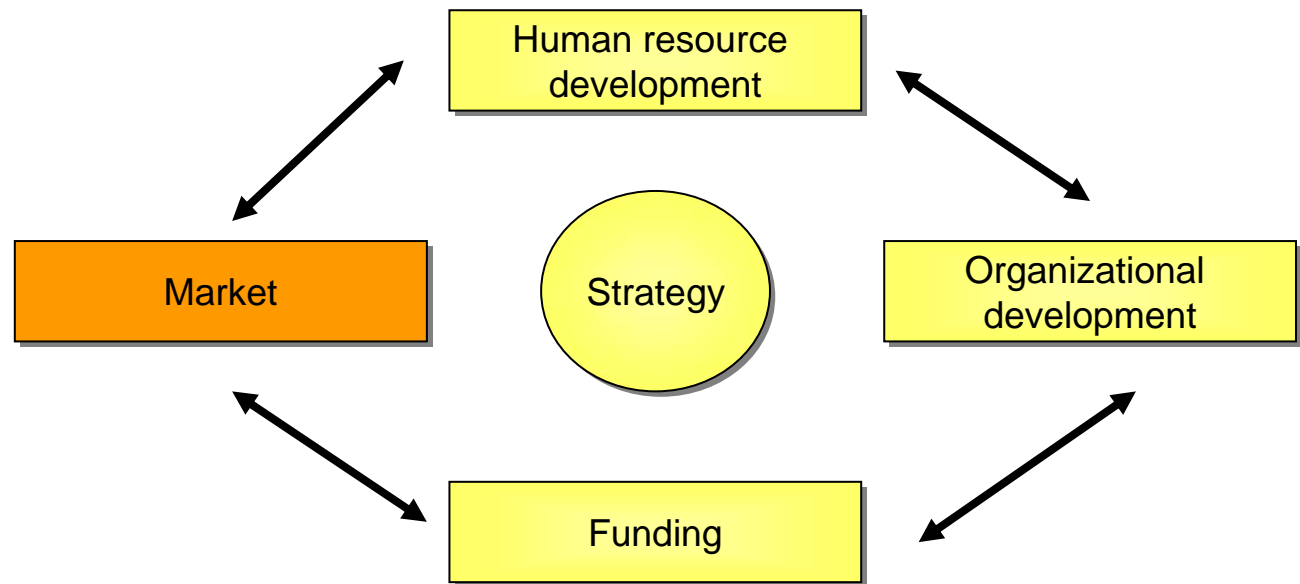
➢ More intensive media use requires new services and organizational structures for educational counseling and implementation

# Human resource development
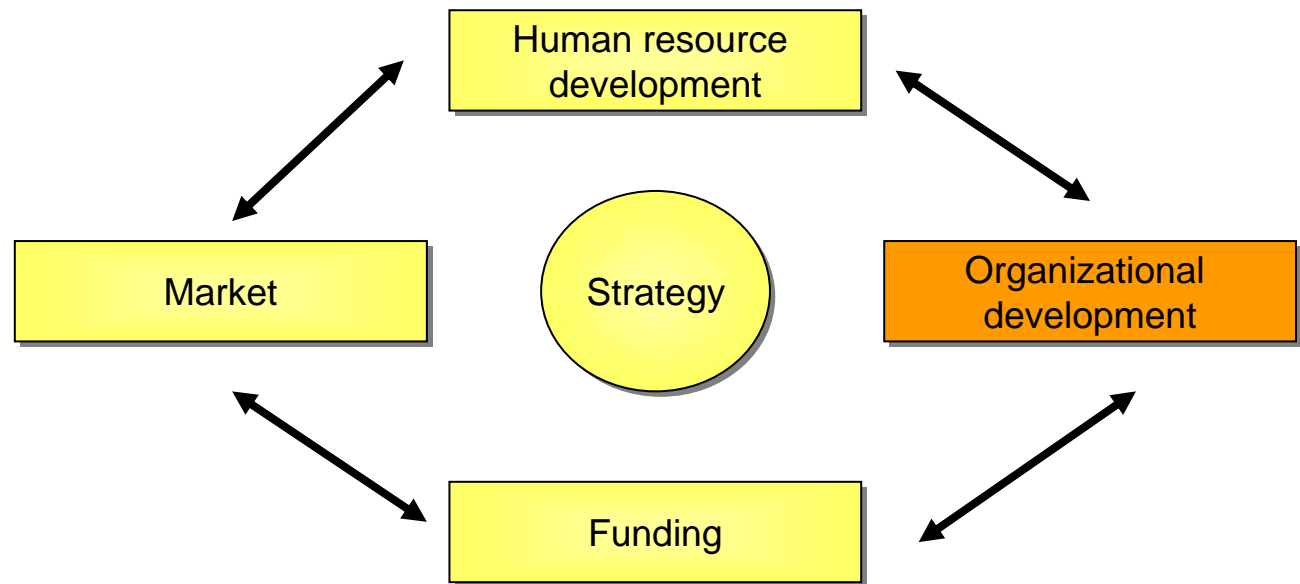
➢ Media-friendly universities need particular professional staff development for implementation, use and maintenance

➢ Media competencies have to be developed for long-term application
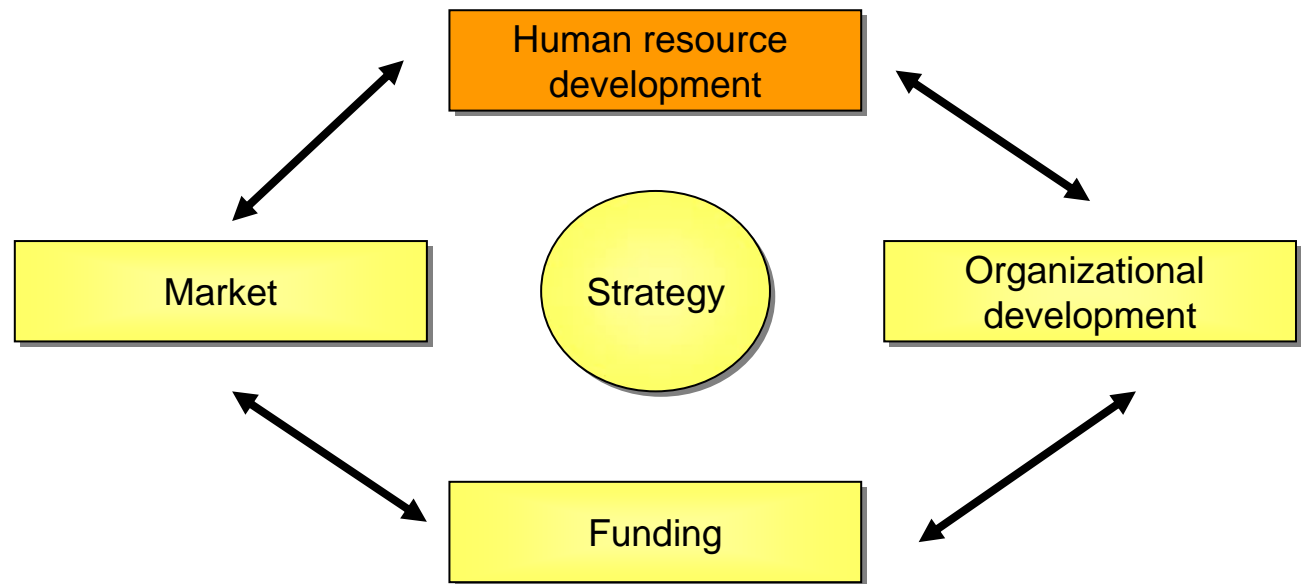
# Funding

➢ Funding has to be considered for long-term development

➢ Funding should be directed to a powerful infrastructure

➢ Particular kick-off funding may be necessary

# Aspects of professional implementation
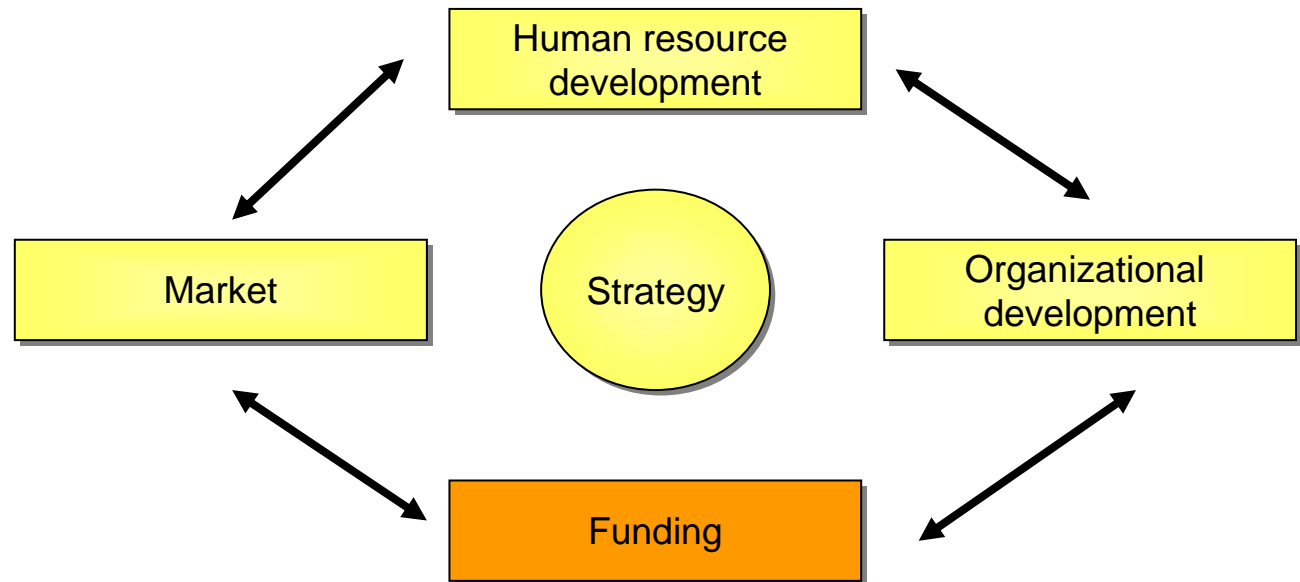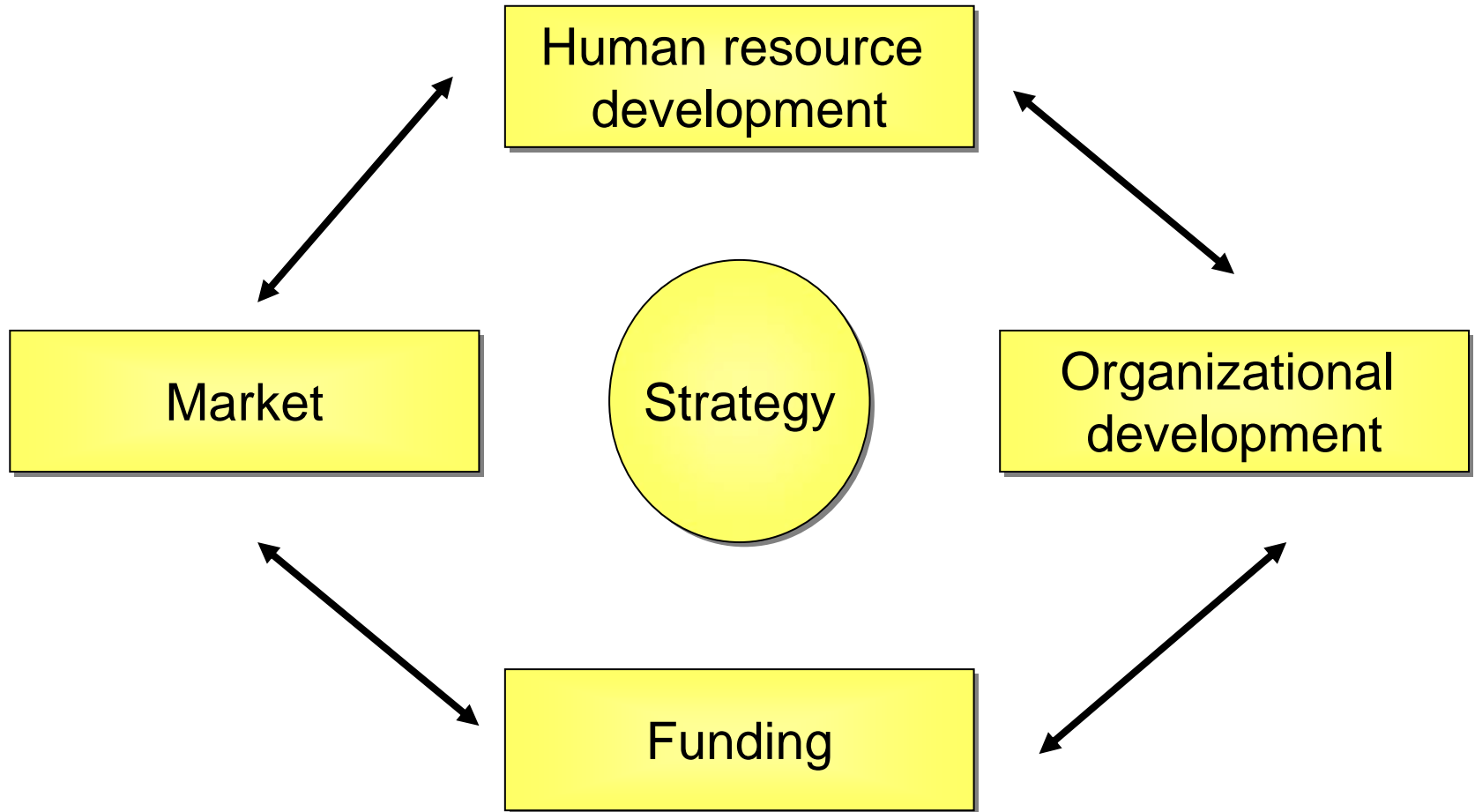
(Programmbeirat BW 2004)

# Employee oriented implementation

Psychological aspects are important:

➢ Perception

➢ Reactance

➢ Conflict

Reactance and resistance

➢ Uncertainity of the amount of change

➢ Anxiety losing autonomy

➢ Missing willingsness to acquire new skills and behaviors

→ Open and hidden resistance

**LMU**

# Implementing Innovative Knowledge Management and E-Learning Concepts at ALTANA Pharma Germany

# The starting point

Konstanz

3 x 120 employees in 3 product lines attend to ca. 40,000 doctors

40 employees attend to ca. 2000 hospitals

28 employees attend to radiologists and clinics

25 employees attend to pharmacies

Vision:

**Enhancing competitiveness**:

Improve training time and quality of face to face training of pharma employees carriing out a new product tool

So far one week training in Konstanz (Germany)

# ALTANA Pharma Germany

**Starting point:**

Introduction of e-learning

**Needs analysis:**

Medical representatives,
regional manager,
management,
marketing,
technology, training

LMU
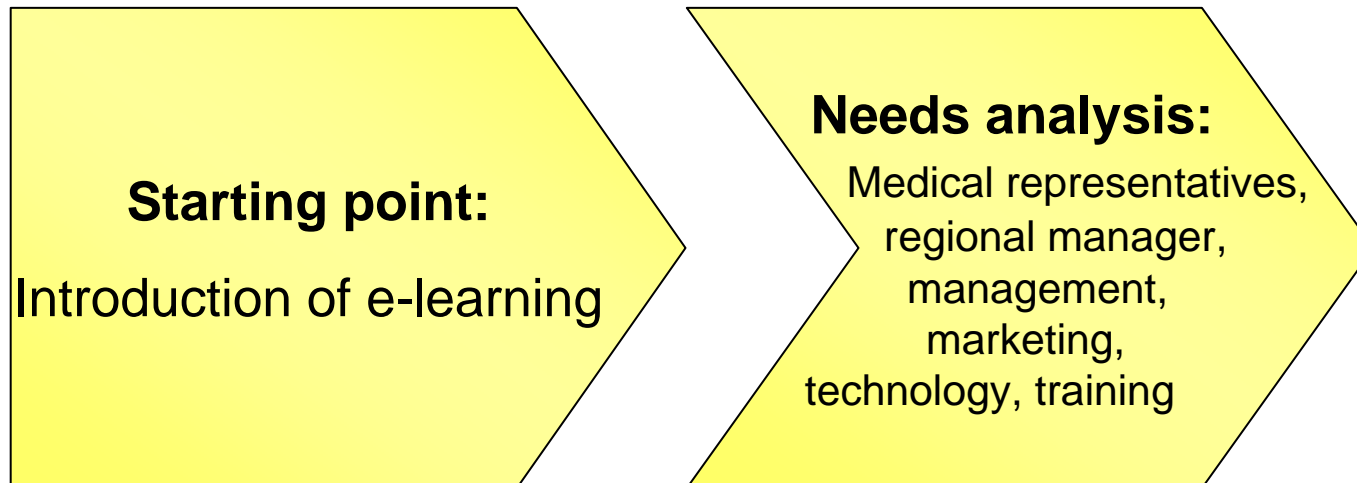
- ➢ Goal: Necessity of improving the consultation sessions with doctors

- ➢ Quicker access to information

- ➢ Fostering exchange and cooperation with other employees

- ➢ Acquisition of need-oriented knowledge

# Knowledge Management Offerings at ALTANA

**Informational Offerings**

(e.g. Folders, newsletters)

**Communication Offerings**

(e.g. Discussions forums, virtual classrooms)

**Educational Offerings**

(e.g. Learning programs)

# From E-Learning to Knowledge Management

# From E-Learning to Knowledge Management

LMU

# Solution: Blended Learning

LMS using WBTs

Meetings

Face-to-Face Training

Self-Study

Virtual Classroom

**LM**U
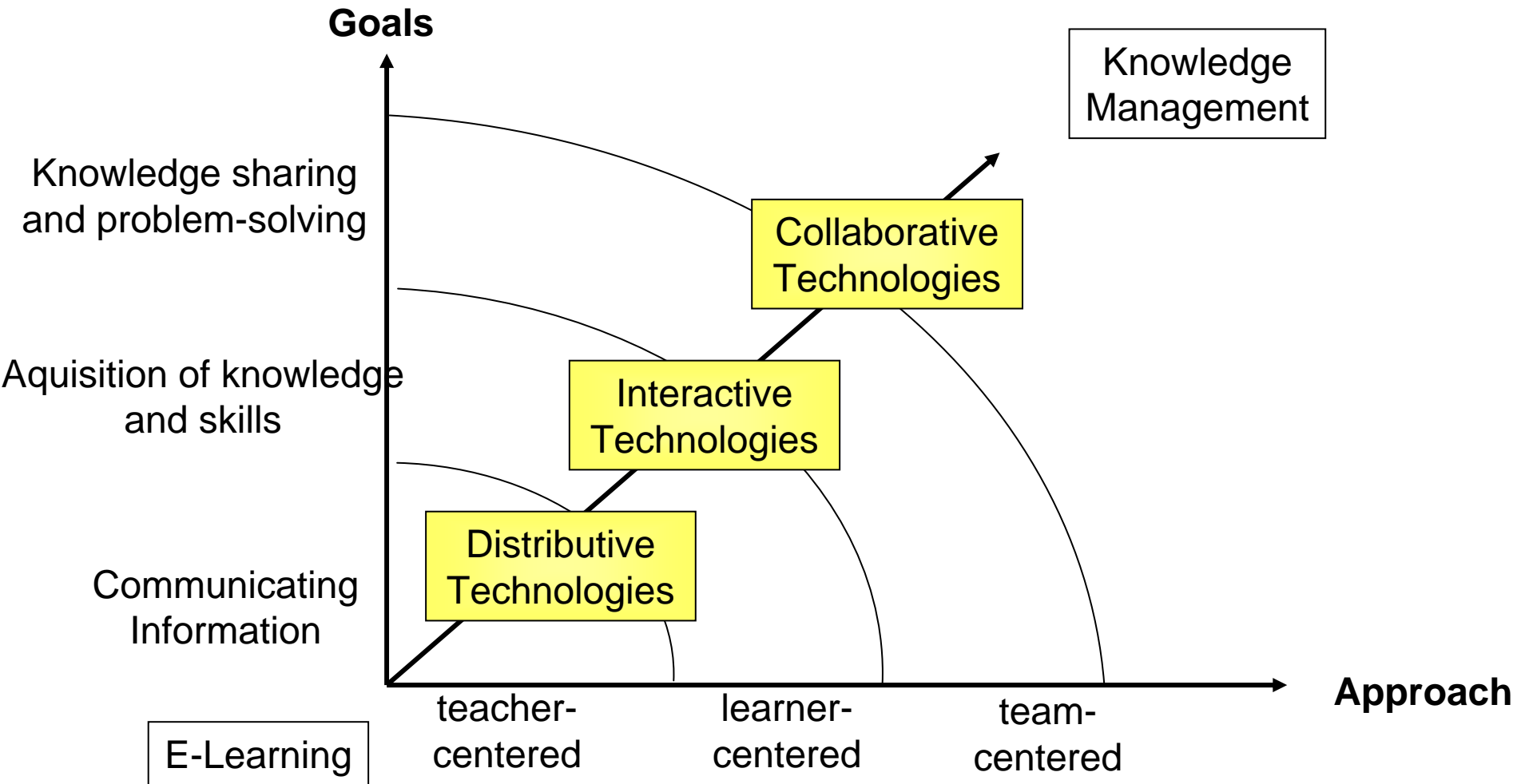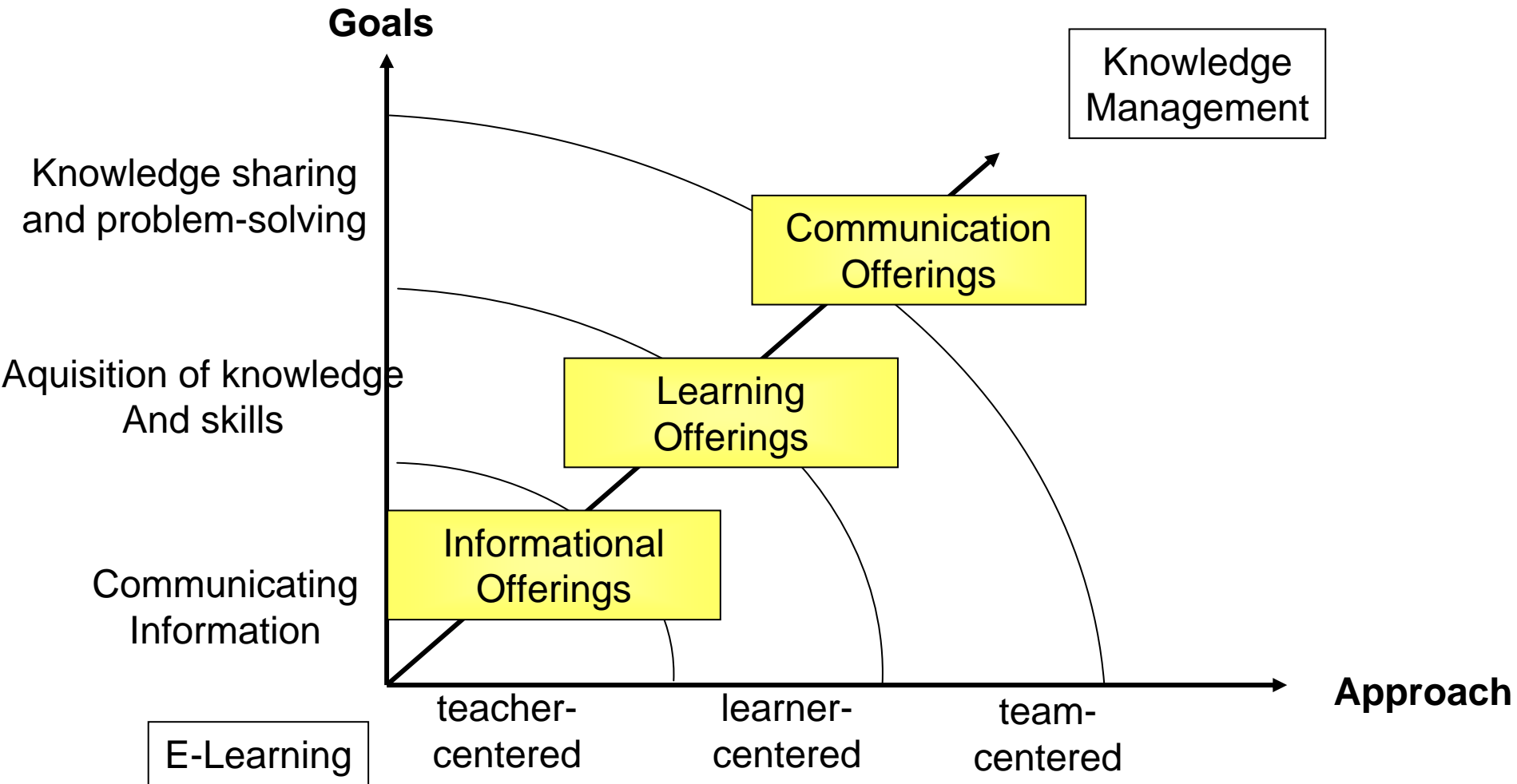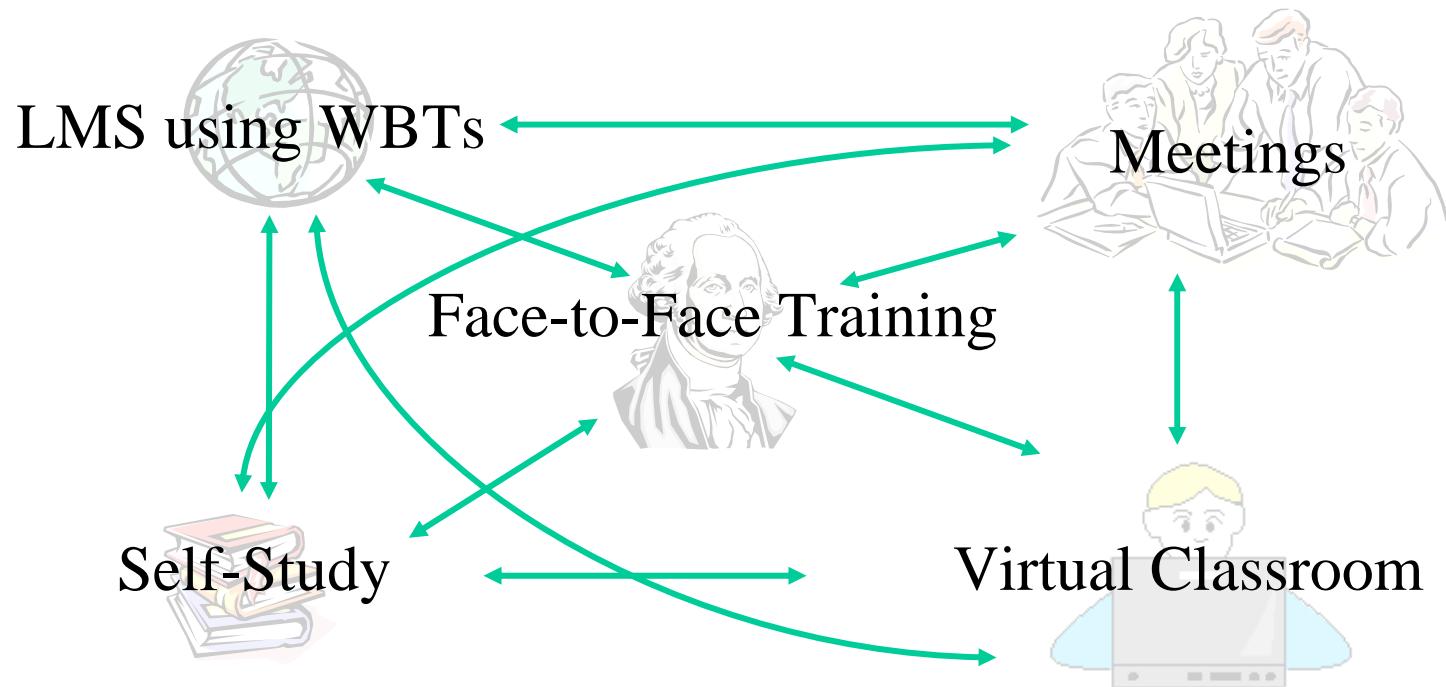


**A**LTANA **P**harma **o**n**l**ine **l**earning **o**ffensive

Ungelesene Beiträge...

| Postfach |
|----------|
|          |

Im Moment sind Sie für folgende Seminare bei folgenden Anbietern eingeschrieben:

| Seminare | Forum | |
|----------|-------|---|
| Excel Basics - Lernprogramm | | Lernteam |
| Feedback Pantozol Klinikgespräch | | Lernteam |
| Feedback Urion/Querto | | Lernteam |
| Internet Explorer Basics - Lernprogramm | | Lernteam |
| Lotus Notes 5 - Lernprogramm | | Lernteam |
| Office 2000 Basics (Überblick für Excel und Word) | | Lernteam |
| PowerPoint-Lernprogramm | | Lernteam |
| Querto Interaktiv | | Lernteam |
| Verabreichung von Pantoprazol via Sonde | 2 ✉ | Lernteam |
| Virtuelles Klassenzimmer | | Lernteam |
| Webline für Klinikreferenten | | Lernteam |
| Webline für Regionalleiter | | Lernteam |
| Windows 2000 Überblick-Lernprogramm | | Lernteam |
| Word 2000 Basics - Lernprogramm | | Lernteam |

Jedem Seminar ist ein Lernstudio zugeordnet.
Klicken Sie auf den Seminarnamen, um das zugeordnete Lernstudio zu betreten.

Im Moment sind Sie folgenden Lerngruppen zugewiesen...

| Lerngruppe | Forum |
|------------|-------|
|            |       |

Hilfe | Unterordner Anzeigen

> What is the process flow for an implementation process?

| Vision/ Strategy | Needs analysis | Conception | Realization | Evaluation |

# Examples of an implementation process

| Initialization | Requirements Analysis | Conception | System Selection | Realization Step 1 | Realization Step 2 |

# Examples of an implementation process

| Initialization | Requirements Analysis | Conception | System Selection | Realization Step 1 | Realization Step 2 |
|---|---|---|---|---|---|

Vision Strategic Planning

Business Case

Steering Group

# Examples of an implementation process

| Initialization | Requirements Analysis | Conception | System Selection | Realization Step 1 | Realization Step 2 |
|---|---|---|---|---|---|

| | |
|---|---|
| Vision Strategic Planning | To-be Analysis (Potential Analysis for E-Learning) |
| Business Case | As-is Analysis Requirements Analysis |
| Steering Group | Target/Actual Comparison |

# Examples of an implementation process

| Initialization | Requirements Analysis | Conception | System Selection | Realization Step 1 | Realization Step 2 |
|---|---|---|---|---|---|
| Vision Strategic Planning | To-be Analysis (Potential Analysis for E-Learning) | Didactic Concept | | | |
| Business Case | As-is Analysis Requirements Analysis | Project Management Concept | | | |
| Steering Group | Target/Actual Comparison | **Acceptance Concept** | | | |

**Conducting measures to promote acceptance**

# Examples of an implementation process

| Initialization | Requirements Analysis | Conception | System Selection | Realization Step 1 | Realization Step 2 |
|---|---|---|---|---|---|
| Vision Strategic Planning | To-be Analysis (Potential Analysis for E-Learning) | Didactic Concept | Learning Platform IT Training Software WBT (Selection Process, Decision und Contract formation) | | |
| Business Case | As-is Analysis Requirements Analysis | Project Management Concept | | | |
| Steering Group | Target/Actual Comparison | **Acceptance Concept** | | | |

**Conducting measures to promote acceptance**

# Examples of an implementation process

| Initialization | Requirements Analysis | Conception | System Selection | Realization Step 1 | Realization Step 2 |
|---|---|---|---|---|---|
| Vision Strategic Planning | To-be Analysis (Potential Analysis for E-Learning) | Didactic Concept | Learning Platform IT Training Software WBT (Selection Process, Decision und Contract formation) | **Learning Platform + IT Training software** | |
| | | | | • Technical Installation • Pilot Phase | Release/ Implementation |
| Business Case | As-is Analysis Requirements Analysis | Project Management Concept | | **Learning Program (WBT)** | |
| | | | | Development Phase | Release/ Implementation |
| Steering Group | Target/Actual Comparison | **Acceptance Concept** | **Conducting measures to promote acceptance** | | |

# Examples of an implementation process

| Initialization | Requirements Analysis | Conception | System Selection | Realization Step 1 | Realization Step 2 |
|---|---|---|---|---|---|
| Vision Strategic Planning | To-be Analysis (Potential Analysis for E-Learning) | Didactic Concept | Learning Platform IT Training Software WBT (Selection Process, Decision und Contract formation) | **Learning Platform + IT Training software** | |
| Business Case | As-is Analysis Requirements Analysis | Project Management Concept | | • Technical Installation • Pilot Phase | Release/ Implementation |
| Steering Group | Target/Actual Comparison | **Acceptance Concept** | | **Learning Program (WBT)** | |
| | | | | Development Phase | Release/ Implementation |

**Conducting measures to promote acceptance**

| Evaluation | |
|---|---|
| **Formative** | **Summative** |
| Quality analysis | Effectiveness Analysis |
| Effectiveness Analysis | Cost-benefit Analysis |

# Implementation of the

# Blended Learning Concept

# LMU

| 1. Online Phase | | 2. Face-to-Face Seminar | 3. Online Phase |
|---|---|---|---|
| Self guided learning with WBT | Test as a entrance requirement | Exercise by role-play | WBT as a Reference book |
| Virtuell, cooperativ learning | | Case-based learning | Exchange of experience |
| Exchange in a virtuell conference room | | Discussion | Exchange in a virtuell conference room |
| Support of a tele-tutor | | Presentation of basics and specific topics | Support of a tele-tutor |

# Implementation of the Acceptance Concept

# Acceptance Elements

- Organizational Aspects

- Aspects of Participation

- Aspects of Qualification

- Technical Aspects

# Organizational Aspects at ALTANA

- Initiated and supported by management

- Integrated into the company's mission statement

- Informing employees (e.g. newsletters,

   information sessions)

- Relevance for the employees' business

   processes

- Material and immaterial incentives
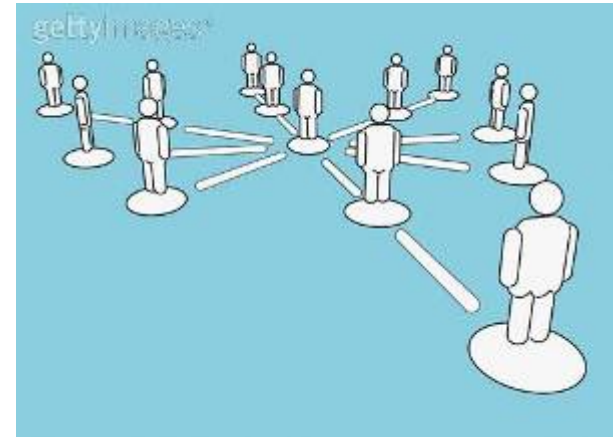
(see Mandl & Winkler, 2003; Tarlatt, 2001; Kraemer & Sprenger, 2003)

# Aspects of Participation at ALTANA

- Envolving employees in the requirements analysis

- Incorporating employee's wishes and proposals into the planning and conception phase

- Pilot rollouts with formative evaluation

- Information Sessions

- Continuous feedback

(see Tarlatt, 2001 ; Reiß, 1997; Rosenstiel, 2000; Niegemann, 2000; VBM, 2000)

# Aspects of Qualification

- Training on how to use the technology

- Training E-Tutors

- Supporting employees by E-Tutors

- Motivating structure of the learning

  environment (case-based approaches)

- Blended Learning

(see Tarlatt, 2001; VBM, 2000)

# Technical Aspects

- Technical requirements analysis (hardware, software)

- Selecting suitable technology

    - Based on employee needs

    - User-friendly

    - Didactic Orientation

- Selection of a Learning Management System

- Procuring necessary technical resources

(see Hinkofer & Mandl, 2003; Schulmeister, 2003; Kraemer & Sprenger, 2003)

# Conclusion

- Employee orientation

- Support the implementation by providing support throughout the process

- Orientation on business processes

LMU

# New learning culture

➢ Moderate constructivist view of learning

➢ Blended Learning

➢ Employee oriented implementation structures

# Thank you for your attention!



## E-Mail: mandl@psy.lmu.de

## http://lsmandl.emp.paed.uni-muenchen.de