Symposium and Workshops

The Challenge of Demographic Change Sustainable Life-Long Learning and Digital Media

Symposium

OKAMOTO Toshio: Introduction to the Symposium: The Challenge of Demographic Change – Sustainable Life-Long Learning and Digital Media (ppt-presentation)

SAITO Haruka: Education and ICT in Japan from the Perspective of Life-long Learning Policy (ppt-presentation)

Christian WILK: Technology Enhanced Learning – Change of European Research Perspectiv (ppt-presentation)

Nicolas APOSTOLOPOULOS: E-Learning Support-Structures in Traditional Universities (ppt-presentation)

NISHINOSONO Haruo: Sustainable Life-Long Learning at the Kyoto School of Professional Learning (ppt-presentation)

OKAMOTO Toshio: The Organizational Knowledge Circulated Management System on e-Learning and Human Development (ppt-presentation)

Klaus TOCHTERMANN: The Role of Knowledge Transfer in the Future Internet (ppt-presentation)

Workshop 1

OKAMOTO Toshio: Introduction to the Workshop: Comprehensive Learning Interactive and Group Acitivities as New Ways of Learning (ppt-presentation)

HONDA Toshiaki: Web Based Learning Ecology (WBLE): Suggestion to ePedagogy (ppt-presentation)
(HONDA Toshiaki: abstract)

Denis HELIC: Adapting Web 2.0 Technology in Online Learning: Challenges and Experiences (abstract)

Joachim NIEMEIER: Freeform eLearning – Approach and Building Blocks (ppt-presentation)

NAGATA Naomi: The Quality Assurance Related to e-Learning Contents and Learning Design (ppt-presentation)
(NAGATA Naomi: abstract)

KASHIHARA Akihiro, NAGATOME Keisuke and HASEGAWA Shinobu: Hyperblog for Sharing and Inheriting Kowledge from Research Activities (ppt-presentation)
(KASHIHARA Akihiro: abstract)

Herbert MÜLLER PHILIPPS SOHN: Social Situation and Demand for Further Education. Requirements for eLearning Systems (ppt-presentation)

Ralf KLAMMA: Virtual Campfire – Digital Media Discourses between Cultures, Continents and Generations (ppt-presentation)

WARAGAI Ikumi and OHTA Tasuya: Digital Media and Foreign Language Learning (abstract)

HAYASHI Yuki, KOJIRI Tomoko and WATANABE Toyohide: Interaction-Oriented CSCL Environment Based on Focusing Intentions of Learners (ppt-presentation)
(HAYASHI Yuki: abstract)

Aljoscha BURCHARDT: From Learning in the Net to Learning Networks (ppt-presentation)
(Aljoscha BURCHARDT: abstract)

Workshop 2

NAGAOKA Keizo: What Capabilities Are Emerging Among the Next Generation? Based on a Comparative Survey of Japan and South Korea (ppt-presentation)
(NAGAOKA Keizo: abstract)

Ingo DAHN: Lifelong and Lifewide eLearning – Fire Fighters and Forest Rangers in Rhineland-Palatinate (ppt-presentation)
(Ingo DAHN: abstract)

KAYAMA Mizue, NAGAI Takashi, and ITOH Kazunori: A Basic Study on a Drawing-Skill Learning Support System (ppt-presentation)
(KAYAMA Mizue: abstract)

Einführung
The Joint Symposium & Workshop Between Germany & Japan
10-11 September,2009
in BERLIN
at the JDZB

The Challenge of Demographic Change - Sustainable life-long Learning and Digital Media

Greeting & Rationale

Toshio Okamoto
University of Electro-Communications, Tokyo

The principles of e-Pedagogy from Social computing

Demand Driven

Social Activity and Identity

One Top Access to Real World and Data

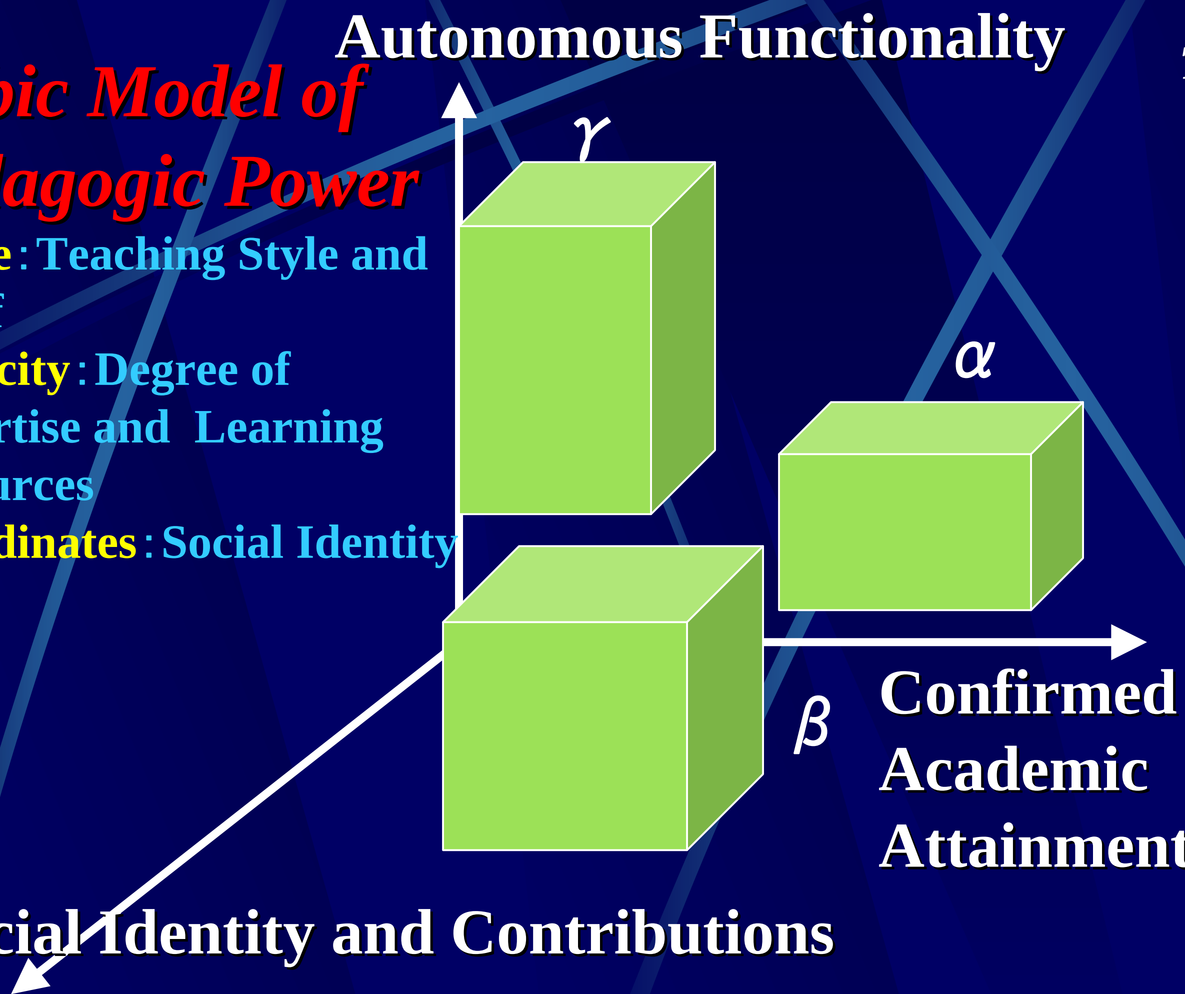
Constructional Conjunction for Semantics and Concept by Interactive activity

Cubic Model of Pedagogic Power

Shape: Teaching Style and Belief

Capacity: Degree of Expertise and Learning Resources

Coordinates: Social Identity



Teacher's Eye

- ICT utilization
- Investigation
- Analysis
- Design & Integration
- Evaluating
- Documenting & Reporting

Learner's Eye

- Significance of Learning
- Readiness
- Needs & Motivation
- Learning Style

Situational Eye

- Respect, Pride & Shame
- Contributions & Responsibility
- Social Context

α : Basic Competency

β : Balance

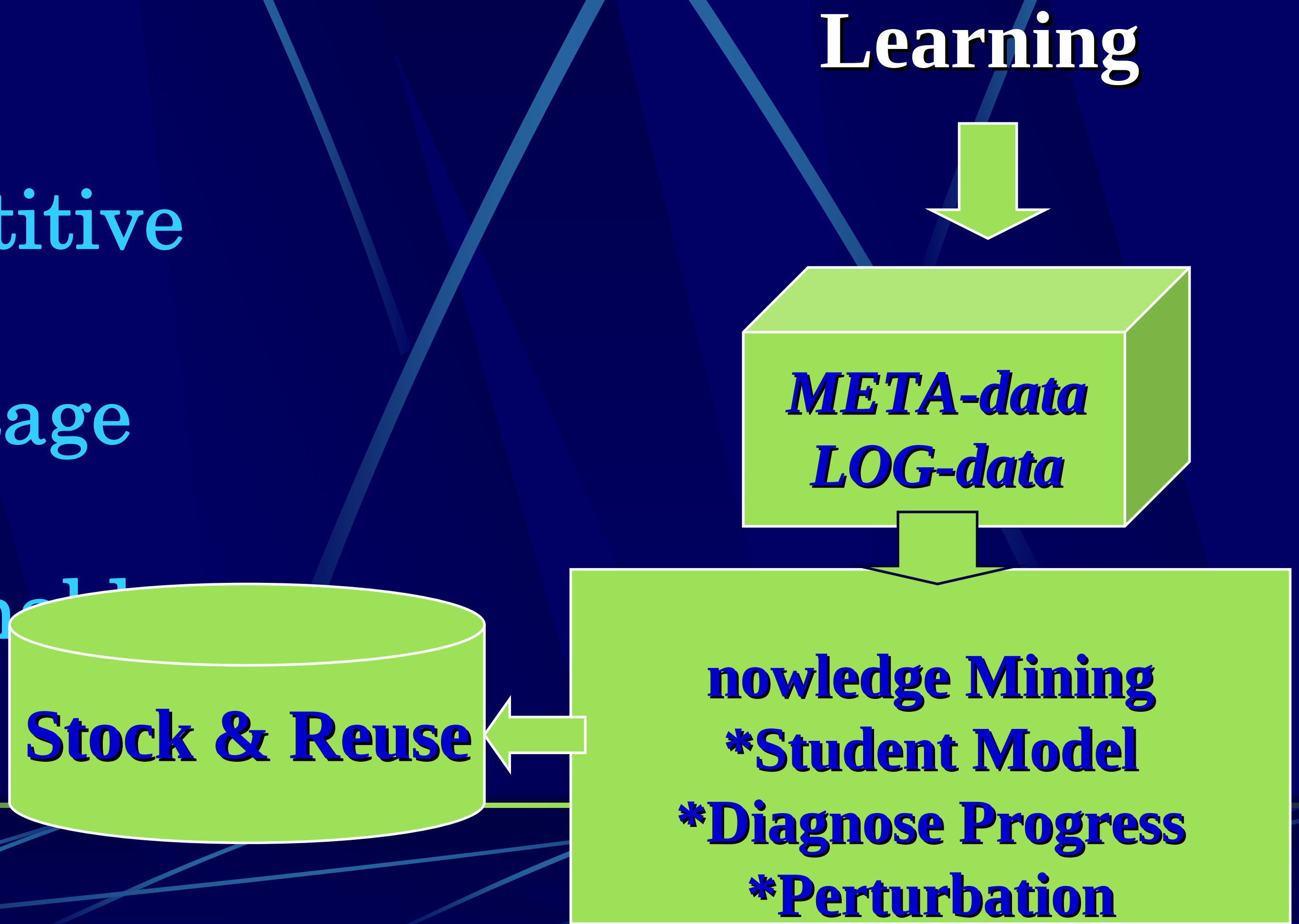
γ : Establishing Independence

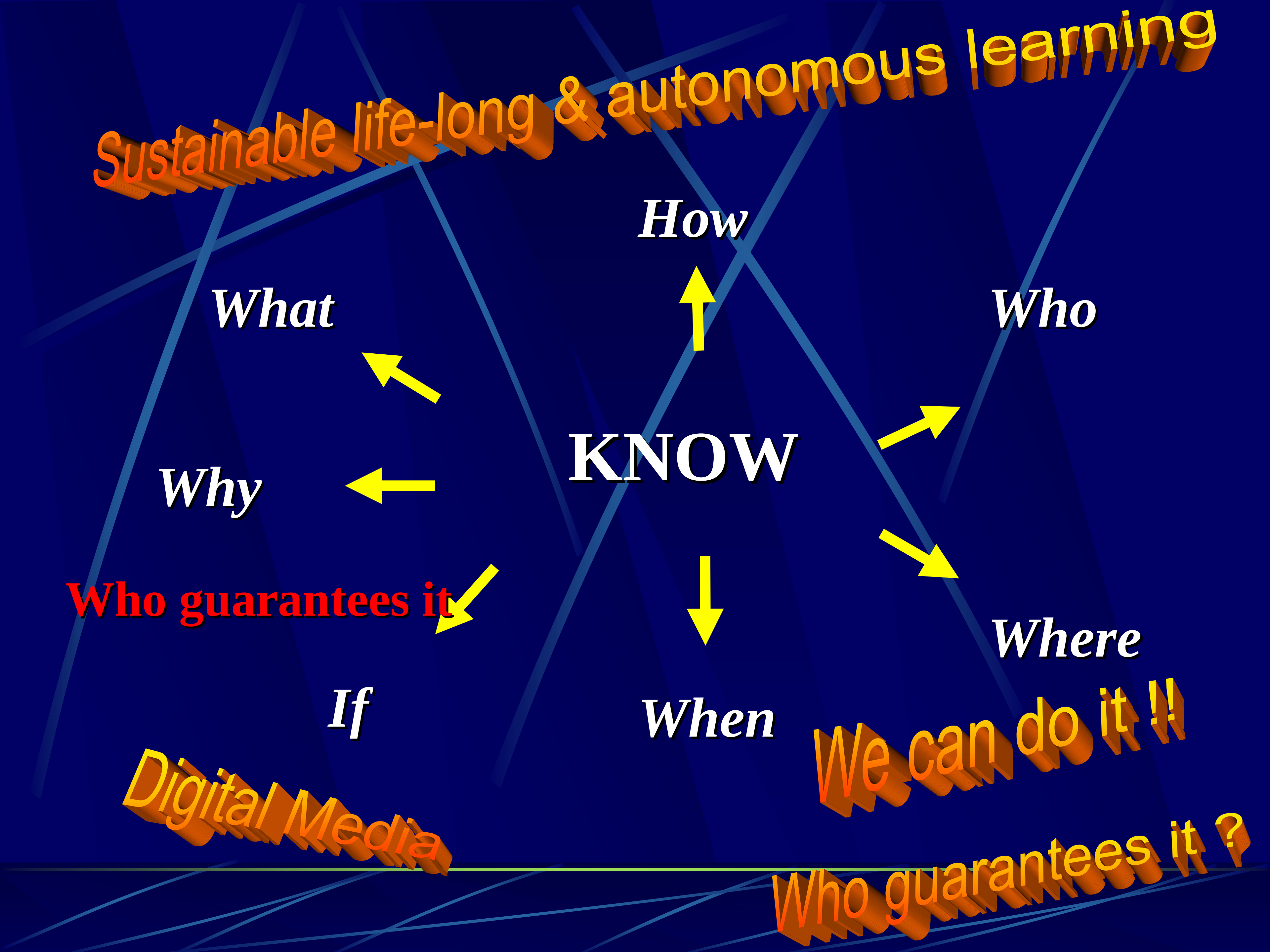
The Conditions of Learning Organization

Competitive

Advantage

Sustain




Sustainable life-long & autonomous learning
How
What
Who
KNOW
Why
Who guarantees it
Where
If
When
We can do it !!
Digital Media
Who guarantees it ?

Thank you very much

Education and ICT in Japan from the Perspective of Life-long Learning Policy

Haruka SAITO

Director, Educational Media and Information Policy Division,
Life-long Learning Policy Bureau,
Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan

Japanese-German Center Berlin
September 10, 2009

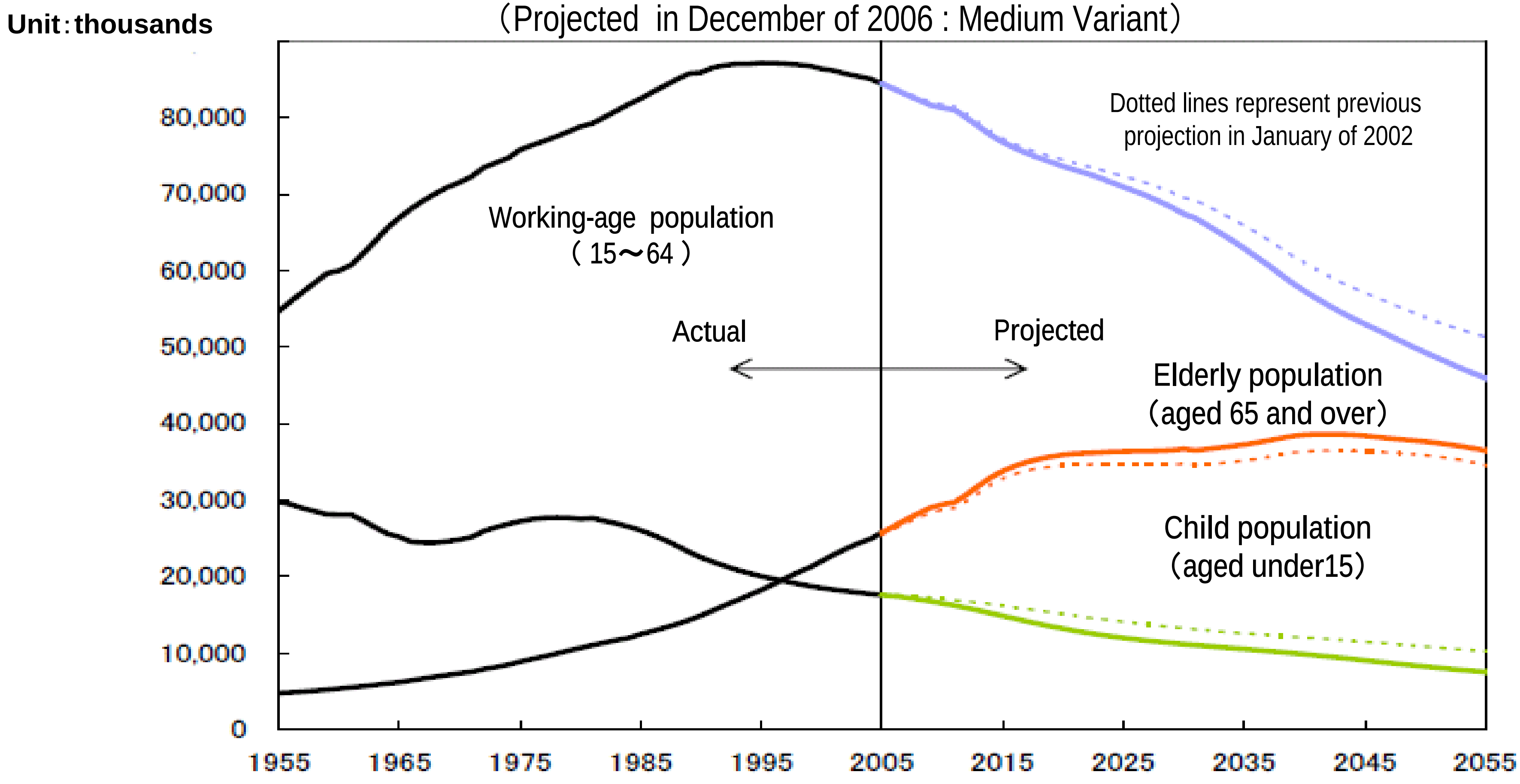
Table of Contents

Actual and Projected Population of Japan

Japan's population is decreasing. The low birthrate and longevity continue unabated.

The total population in 2005 was 127 million. In 50 years（2055), it will be 90 million. The population of children (aged under 15) will be 7.5 million (8.4% of the total population); the working-age population (15~64) will be 46 million (51.1% of the total population); and the aged population (65 and over) will be 36 million (40.5% of the total population).

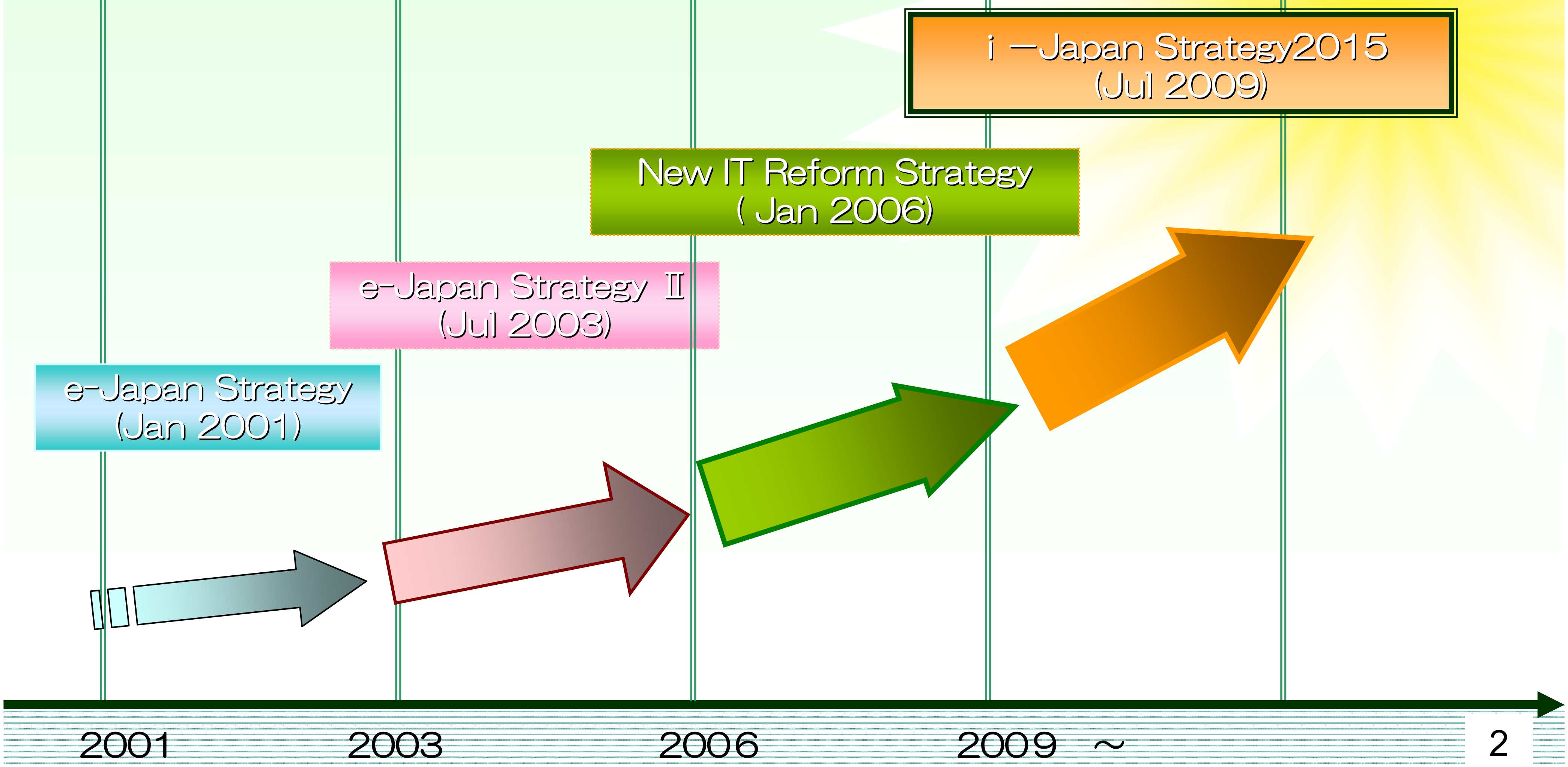
Population Trends of Japan
（Projected in December of 2006 : Medium Variant）



Source: National Institute of Population and Social Security Research, "Actual and Projected Population of Japan "

Process behind Japan's IT Strategy

- ◆ Basic Law on the Formation of an Advanced Information and Telecommunications Network Society (Jan 2001)
- ◆ Establishment of the IT Strategic Headquarters (Jan 2001)
  (Director-General : Prime Minister Members : Ministers and Experts)



School ICT Installation and Use

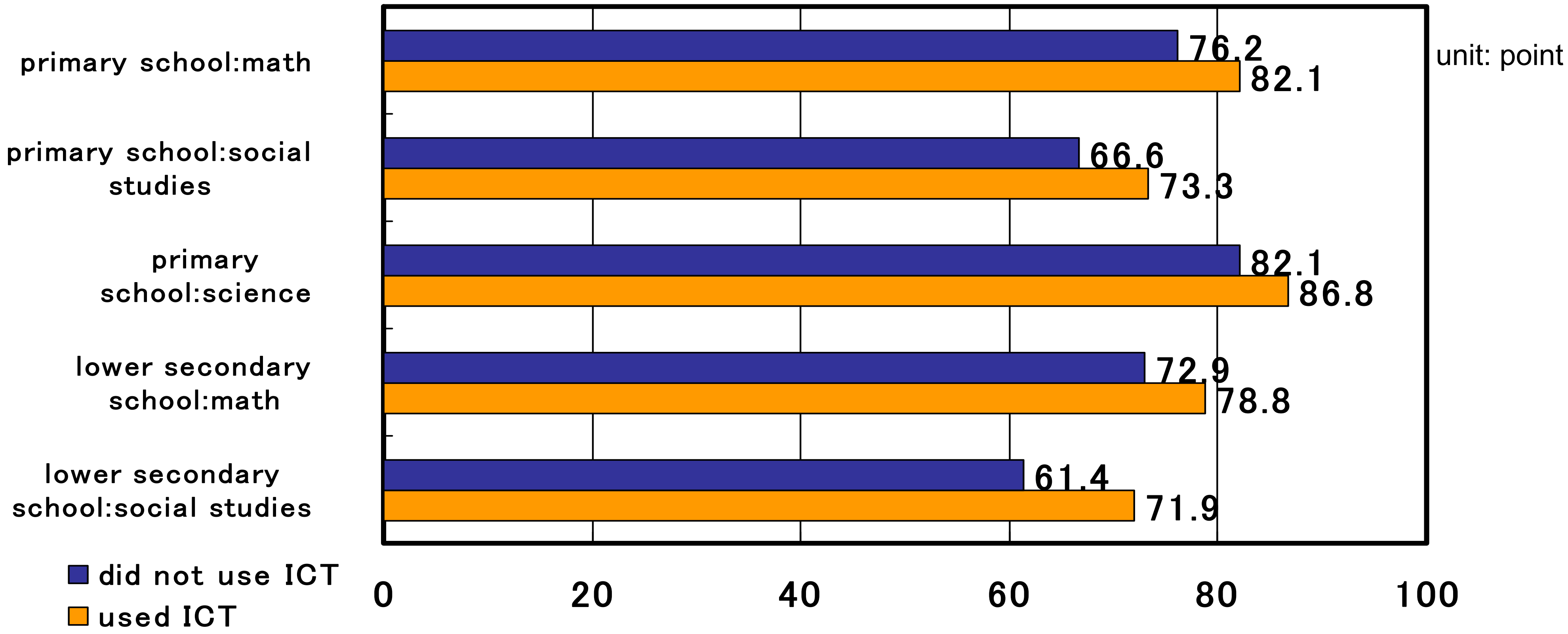
	JAPAN	U.S.A.	U.K.	Republic of Korea
Time of research	March of 2009	Autumn of 2005	June of 2008	April of 2008
Student-computer ratio	primary school 8.7 : 1 lower secondary school 6.8 : 1 upper secondary school 5.2 : 1 overall 7.2 : 1	primary school 4.1 : 1 secondary school 3.3 : 1 overall 3.8 : 1	primary school 6.25 : 1 secondary school 3.6 : 1 as of Jan. 2008	primary school 6.2 : 1 lower secondary school 6.0 : 1 upper secondary school 4.1 : 1 overall 5.4 : 1
Percentage of schools connected to school LANS	primary school 58.4% lower secondary school 60.7% upper secondary school 87.2% overall 64.0%	primary school 93% secondary school 95% overall 94%	primary school 85% secondary school 92% ※percentage of computers that connect to the internet	overall 100% as of Dec. 2005
Ultra high-speed Internet connectivity rate	（over 30Mbps） primary school 60.2% lower secondary school 61.7% upper secondary school 59.6% overall 60.5%	（over 1.5Mbps） primary school 97 % secondary school 99 % overall 97 %	Mean speed primary school 3.2 Mbps secondary school 15.7 Mbps	（over 2Mbps） 97% as of Dec. 2005

Source: （U.S.A）U.S. Department of Education (Nov.2006) : Internet Access in U.S. Public Schools and Classrooms：1994- 2005.
（U.K.） Harnessing technology : school survey 2008
BESA Information and Communication Technology in UK State Schools October 2008 Summary Report
（Korea）Ministry of Education and Human Resources Development : Education in Korea 2007~2008
Ministry of Education , Science and Technology & KEDI : Brief Statistics on Korea Education 2008

ICT Environment in Primary/Secondary Education in Japan

	Mar 2009		Target of 'New IT Reform Strategy' and 'i-Japan Strategy 2015' (~ March of 2011)
Student-computer ratio	primary school lower secondary school upper secondary school overall	8.7 : 1 6.8 : 1 5.2 : 1 7.2 : 1	3.6 : 1
Computers available for school duty/affair	primary school lower secondary school upper secondary school overall	55.8% 56.2% 85.3% 61.6%	1 teacher : 1 computer
Percentage of schools connected to school LANS	primary school lower secondary school upper secondary school overall	58.4% 60.7% 87.2% 64.0%	Approximately 100%
Ultra high-speed internet connectivity rate	(over 30Mbps) primary school lower secondary school upper secondary school overall	 60.2% 61.7% 59.6% 60.5 %	(over 30Mbps) Approximately 100%

Comparative Study of the Effects of ICT in Classes (based on objective tests)



Results of objective tests that were conducted after classes demonstrate the effectiveness of ICT in the following areas: "skills & presentation (e.g., arithmetic)" and "knowledge & comprehension (e.g., the growth of butterflies , the structure of society)"
Number of subjects : 2,991

Source: National Institute of Multimedia Education, "Research on the Effects of Classes Utilizing ICT Utilization to Foster Academic Ability" (March, 2006)

An Electronic Blackboard in Use in the Classroom

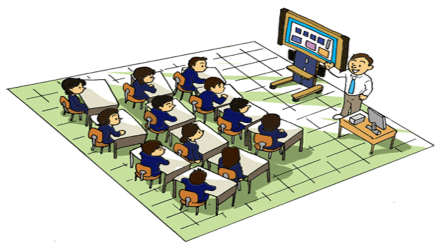
Revisions to the Course of Study

(March of 2008 & March of 2009)

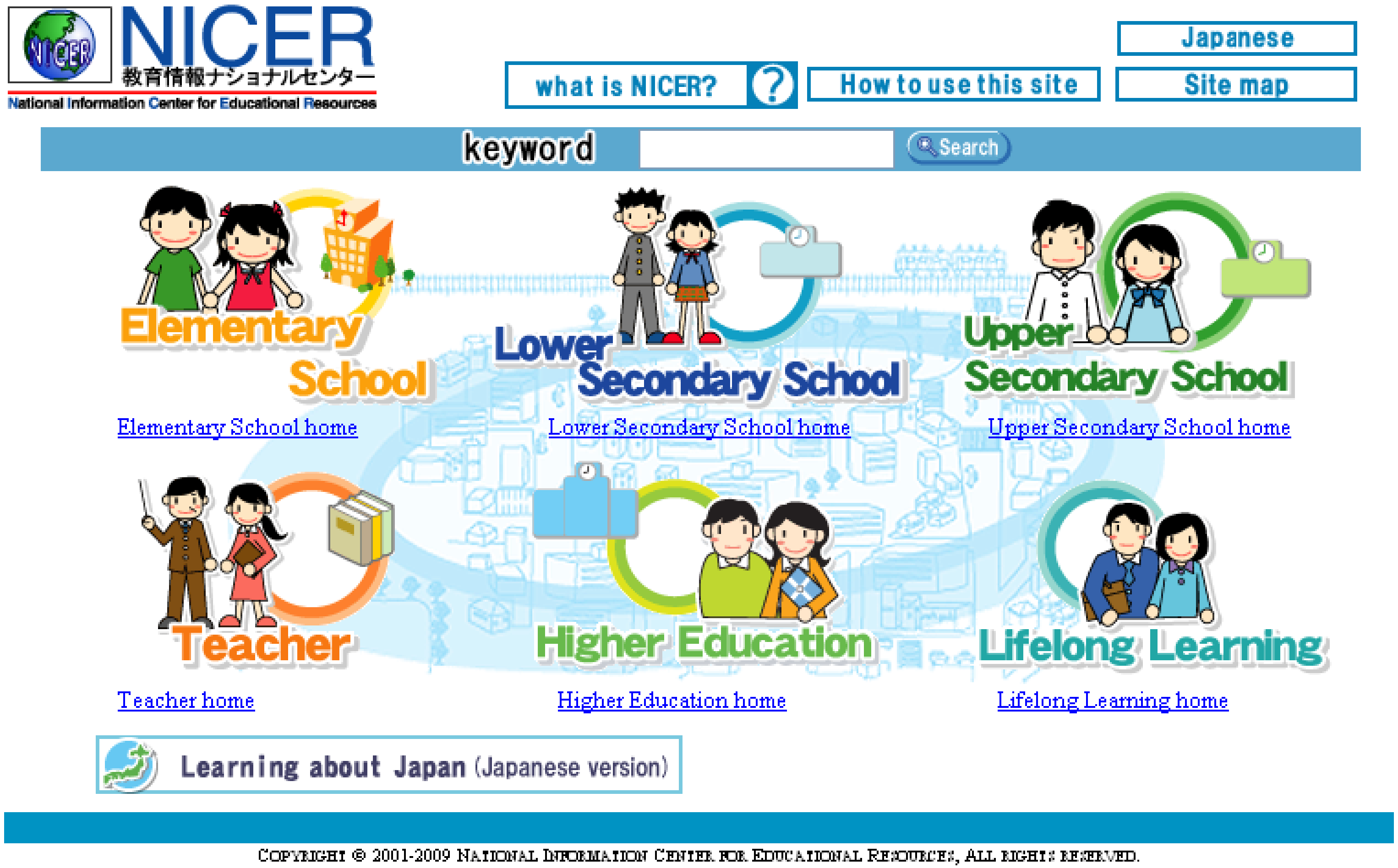
Education for information-utilization is extremely important to a child's development from the standpoint of "thriving in an environment of life-long learning"

e.g. : Requirement for Elementary School

- Teaching basic computer operation
- Utilizing ICT in classes for various subjects
- Teaching information morals during Ethics classes



NICER（National Information Center for Educational Resources）



For further information, pls. visit:
http://www.nicer.go.jp

Percentage of Departments & Research Courses that Utilize ICT for Remote Education over the Internet

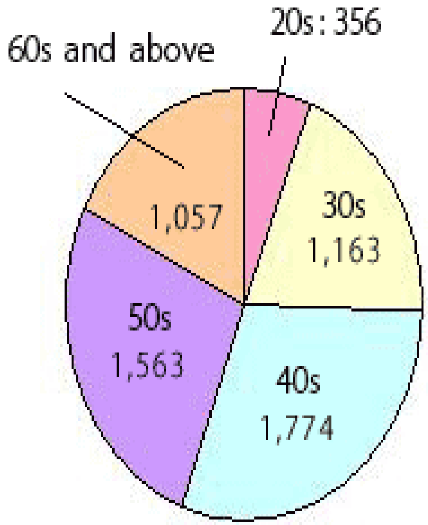
	FY2006	FY2007	FY2008
All departments & research courses	3,570	3,669	3,778
Departments & researches courses that utilize ICT for remote education over the internet	589	669	853
Percentages	16.5%	18.2%	22.6%

Number of Universities that Utilize Remote Education Implemented by Domestic/Foreign Universities

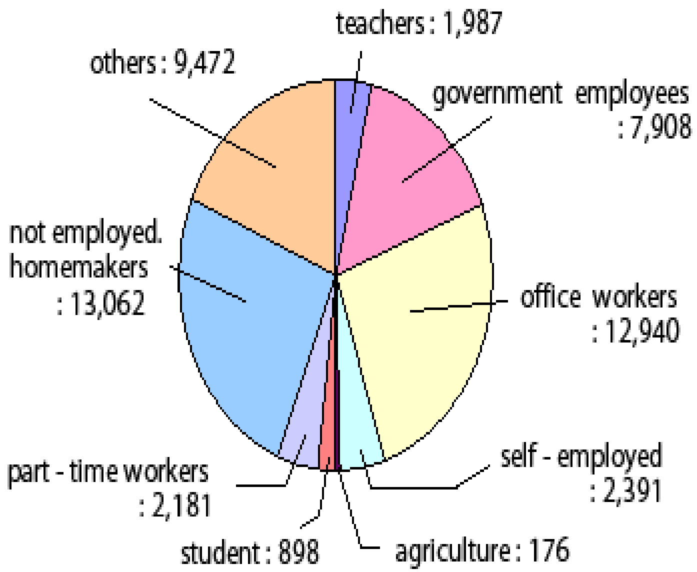
	FY2006	FY2007
Number of responses of higher learning	915	910
Number of universities that utilize remote education implemented by domestic/foreign universities	109 （11.9%）	126 （13.8%）
Number of universities that utilize internet, etc. for the above-mentioned purpose	82 （9.0%）	103 (11.3%)

Source: National Institute of Multimedia Education : Report on education using ICT including e-Learning

The Open University of Japan



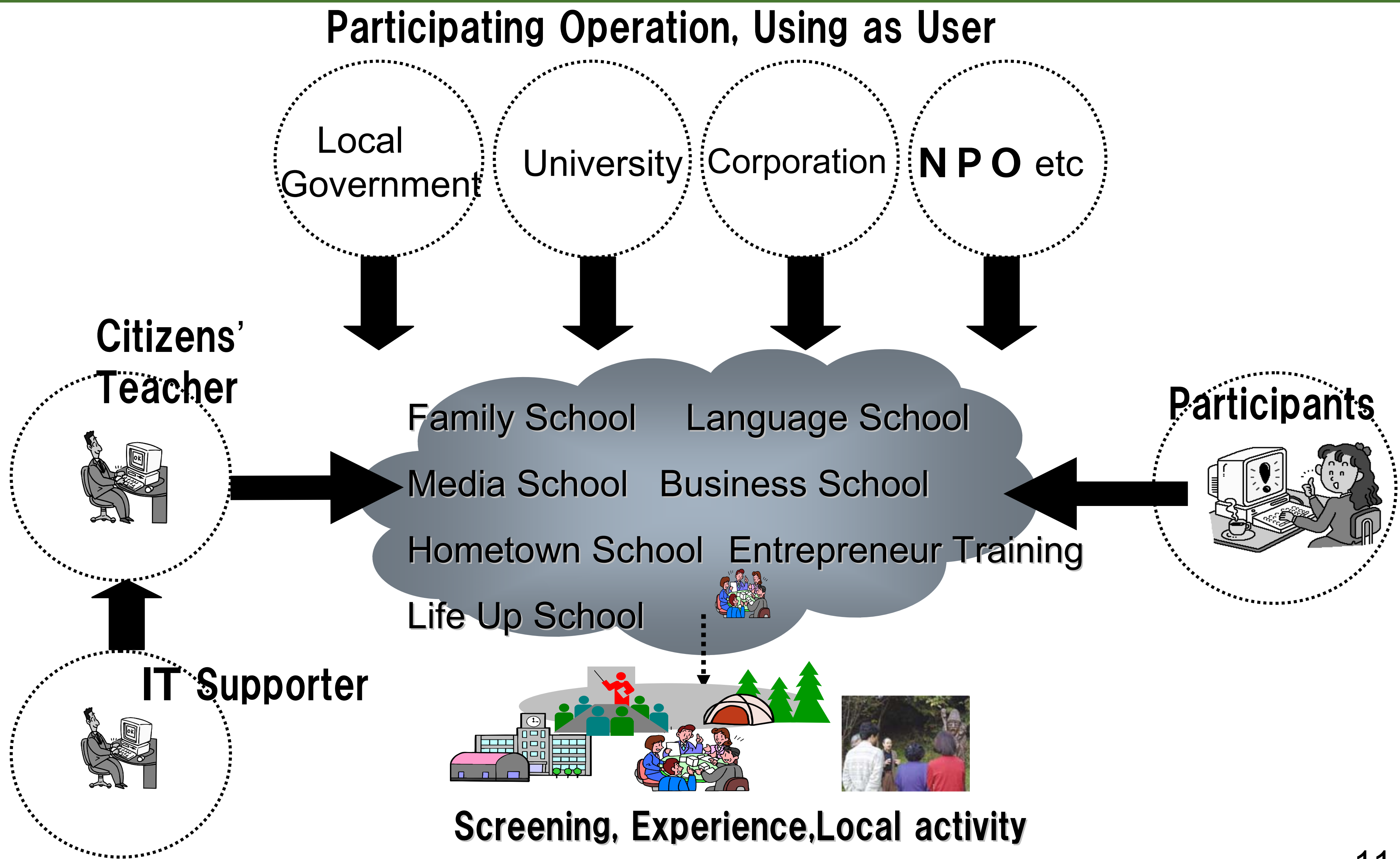
Age
Students of the Faculty of Liberal Arts
（as of 2nd semester, 2008）



Occupation
Alumni of the Faculty of Liberal Arts
（as of March, 2008）

http://www.u-air.ac.jp/eng/index.html

Life-long Learning ICT Platform (*Toyama Internet School for Citizens*)



El-net: Education and Learning Network

MEXT delivers educational content over the internet. El-net makes learning possible regardless of location, so long as one connects to the internet. A diverse range of educational content is delivered over channels 1 through 10.

10 channels

1ch From MEXT
2ch NEW!
3ch For Children
4ch Extension Courses
5ch Science Channels
6ch Events
7ch Symposium on Science and Technology
8ch Contests, etc.
9ch Information Morals/Ethics
10ch Digital Content

Visit: http://www.elnet.go.jp

Education for Information Morals/Ethics

e-Net Caravan

- Revised the Course of Study
- Opened the Information Morals Portal Site (http://kayoo.info/moral-guidebook-2007/index.html)
- e-Net Caravan (http://www.e-netcaravan.jp/)
  (workshops for parents, teachers, and other child-care professionals on ways to guide children in safe ways of utilizing the internet and cell phones)

Conclusion

- MEXT aims for the realization of a society abundant in opportunities for life-long learning. For this purpose, ICT plays a critical role through both school and social education.
- ICT shows considerable success in enhancing academic performance in schools, and providing learning opportunities in social education.
- Diffusion and upgrading of the school ICT environment, the acquisition of computer skills, the cultivation of instructors' teaching abilities, etc. are important.
- Consideration of positive and negative aspects of ICT is imperative for the attainment of a sustainable life-long learning system.

Technology Enhanced Learning – Change of European Research Perspective

ICT for Education and Training: major initiatives at EU level

Policy Areas

i2010, The European Qualifications Framework, e-Skills …

Financial Instruments

Lifelong Learning Programme (€7bn)

FP7 7th Research Framework Programme (€9bn ICT)

Research and Technological development: Technology-enhanced learning

Unit E.3

- Unit E.3 manages the funding of research projects under FP7, programme **Information and Communication Technologies (ICT)**. 'Technology-enhanced learning' is one objective (4.2) under Challenge 4 “Digital libraries and content”

- **Call 1: 6 TEL Projects** (started 02-04/2008),
- **Call 3: 7 TEL Projects** (currently in contract preparation phase)
- **FP6, 32 TEL Projects** (some will run until 2010)

What we mean by Technology Enhanced Learning

- **TEL is about**
  - studying how technologies improve the way individuals, organisations and communities learn
  - how we apply the acquired knowledge to our situations, to solve our problems and challenges

- The **overall aim** is to increase learning efficacy and to create a body of evidence as to which approach works, under which circumstances

Context of Objective 4.2
Technology Enhanced Learning

- **Knowledge Society**: The changing nature of our society and the way we do business
- **Modes of interaction:** The way we will learn and the way we will experience life in the future
- **Requirements:** The skills and knowledge needed to operate in very different environments

Rationale

- **Overall**
  - Meeting the Demands of **Education in 21st Century** -
  - Contributing to **fight learning disengagement** (e.g. science, math)
  - **Learning and Innovation**, Creativity, Productivity
  - **Foster Competitiveness** of European Players

- **Research**
  - **From research to innovation**: Support for technology transfer and take-up
  - **Validation** – showcasing, best practices
  - Mobilising a more **extended research community**
  - **Overcoming barriers** for new entrants

Key Elements of the Work Programme 2009-2010

1. Learning in the 21st Century
2. Reinforce Links between Individual and Organisational Learning
3. Adaptive and Intuitive Systems
4. Revolutionary Learning Appliances, including Toys
5. Interdisciplinary Networks
6. Awareness building and Knowledge Management

a) Learning in the 21st Century

- **Topics**
  - Future Classroom
  - Individualization and Collaboration
  - Foster Creativity and Expressiveness
  - Increasingly active, reflective & independent learning activities

- **Research**
  - Innovation in Learning and Teaching
  - Take change processes into account
  - Relevant new summative and formative assessment methods

b) Links between individual and organisational learning

- Embedding learning experiences in organisational processes and practices
- Solutions which cover talent, knowledge, workflow, collaborative innovation and competence management
- Effectiveness of learning content
- New forms of collective intelligence
- Deepened understanding of the role of ICT for creativity, informal learning and collaboration

c) Adaptive and Intuitive Systems for Learning

- New forms of assessing learning outcomes
- Feedback and guidance mechanisms (innovative diagnostic techniques)
- Advances in the combination of simulation, story telling and collaborative learning
- May relate to serious games and immersive environments

d) Revolutionary Learning Appliances, incl. toys

- Promote specific cognitive processes or abilities
- Address specific social and learning problems
- In the field of science, technology and mathematics
- Or specific tasks that impose high cognitive demands

e) Interdisciplinary Networks

- On specific emerging trends (e.g. serious games, mobility and learning, sense making)
- Linking established excellences and learning labs
- Using appropriate mechanisms for cross-fertilisation between disciplines
- Should leverage national research activities
- Achieve demonstrable visibility at international level

f) Awareness building and knowledge management

- On results of EU RTD projects in the field
- Exploratory and road-mapping activities for fundamentally new forms of learning
- Identification of Grand Challenges
- Socio-economic evaluations
- Establishment of a pan-European network of living schools for validations, demonstrations and showcases

Contacts and further information

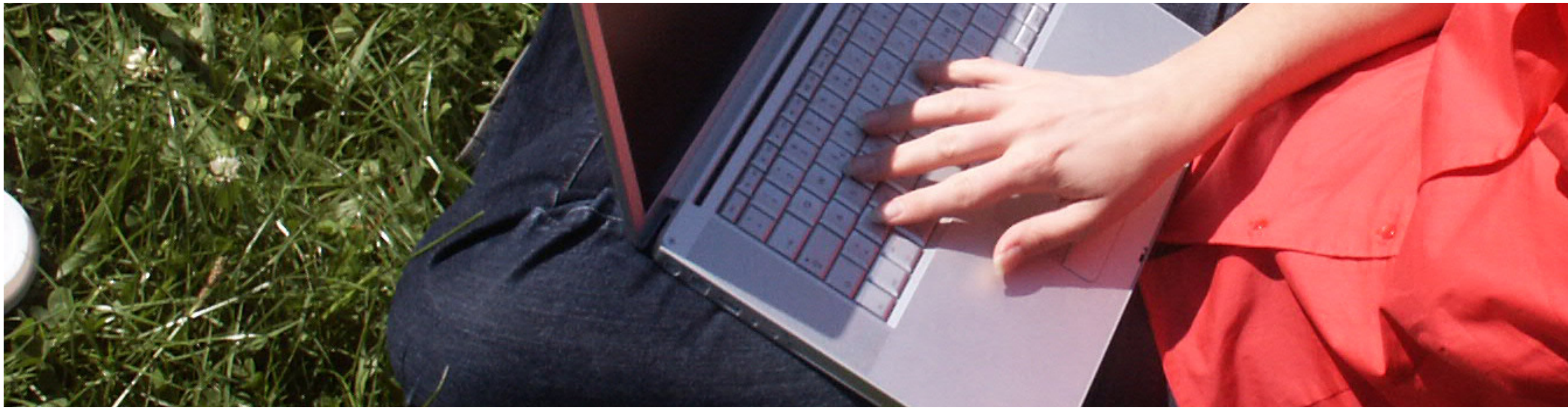
DG INFSO Unit E3

Cultural Heritage and Technology Enhanced Learning

FP7: http://cordis.europa.eu/fp7/ict/telearn-digicult/

Technology-enhanced learning

infso-telearn@ec.europa.eu



E-LEARNING SUPPORT STRUCTURES IN TRADITIONAL UNIVERSITIES

Prof. Dr. Nicolas Apostolopoulos
Freie Universität Berlin
Center for Digital Systems

Freie Universität Berlin

The Freie Universität Berlin (FU)

FU facts and figures*

- 34,000 students, 60% women, 16% international
- 400 professors
- 1,700 academic staff, 40% research funded
- 2,200 additional staff
- 12 departments, including the Charité
- State budget: 290 million euros p.a.
- Third-party funding: 60 million euros p.a.
- Excellence Initiative: 150 M€ (for five years)

* Figures exclude human medicine (Charité)

What is TEL?

A phone?

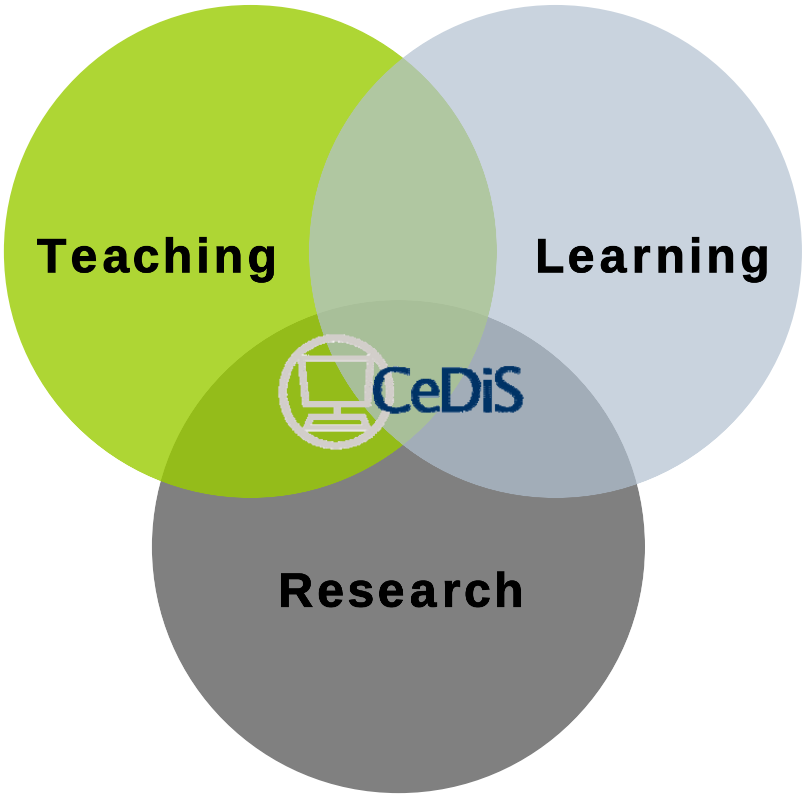
What is **TEL**?

A Telecom Company?

What is **TEL**?

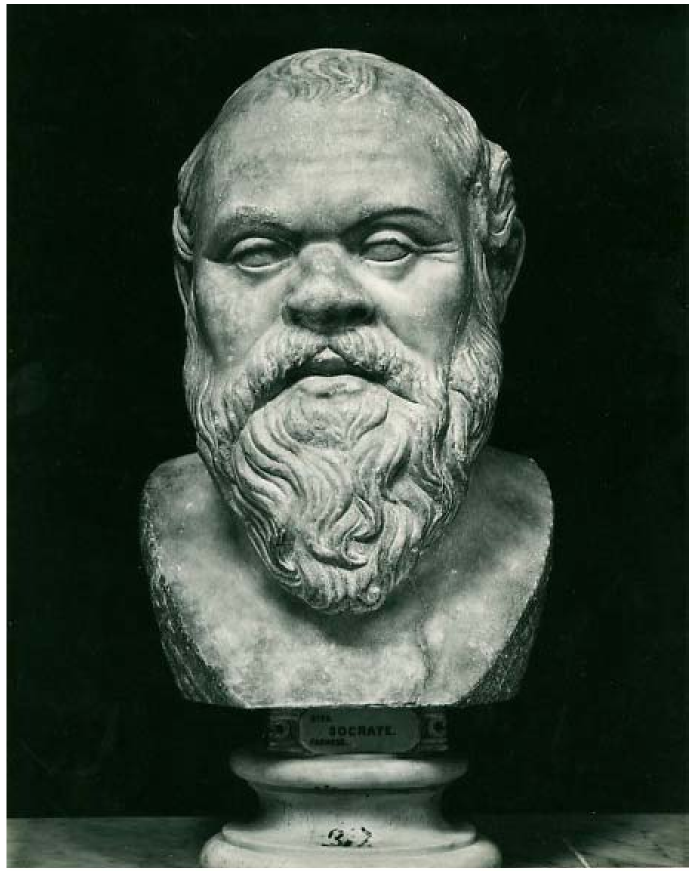
An acronym for „Technology Enhanced Learning“?

Excellence at Universities



Gerhard Casper, former President Stanford University

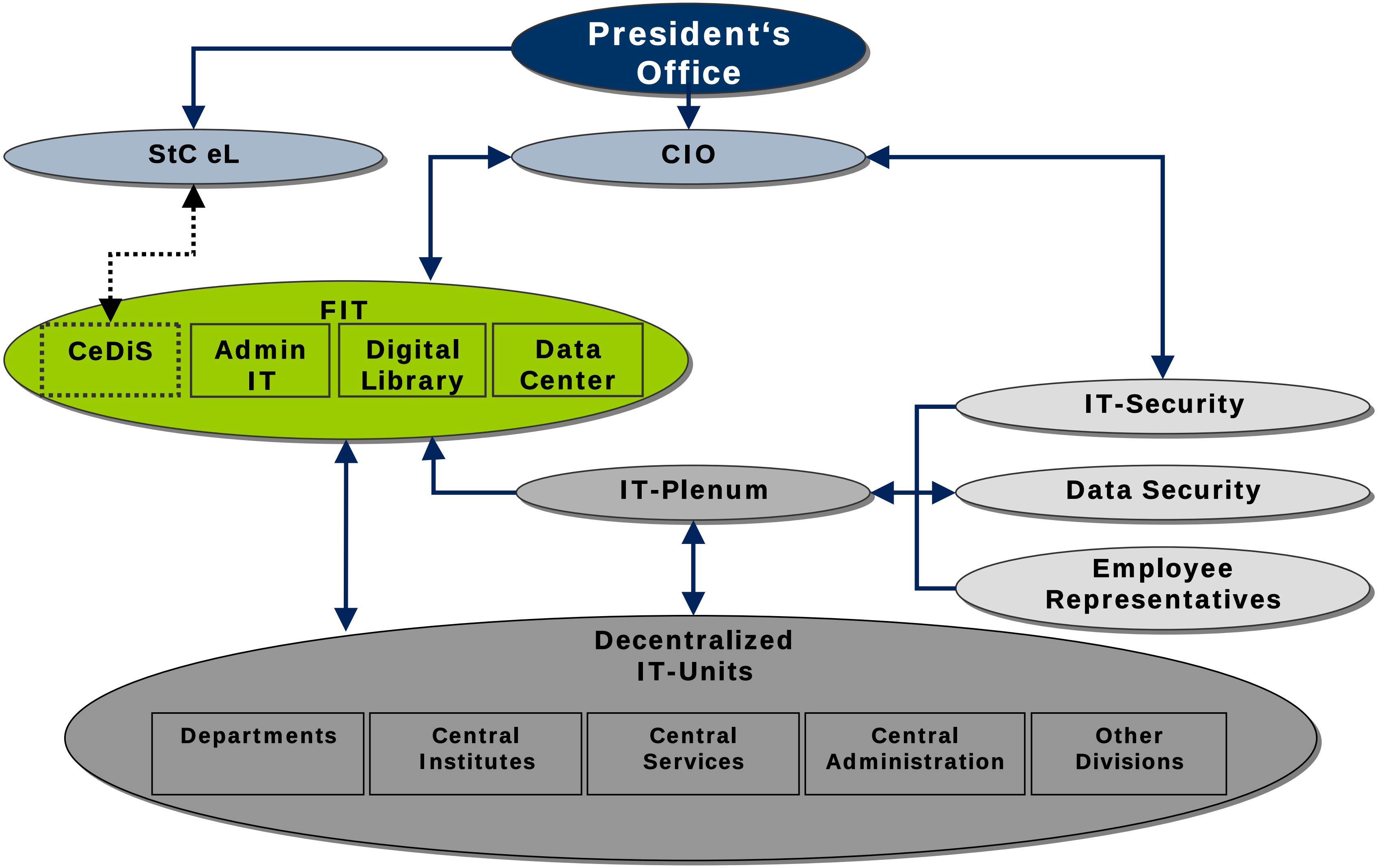
About lifelong learning ...



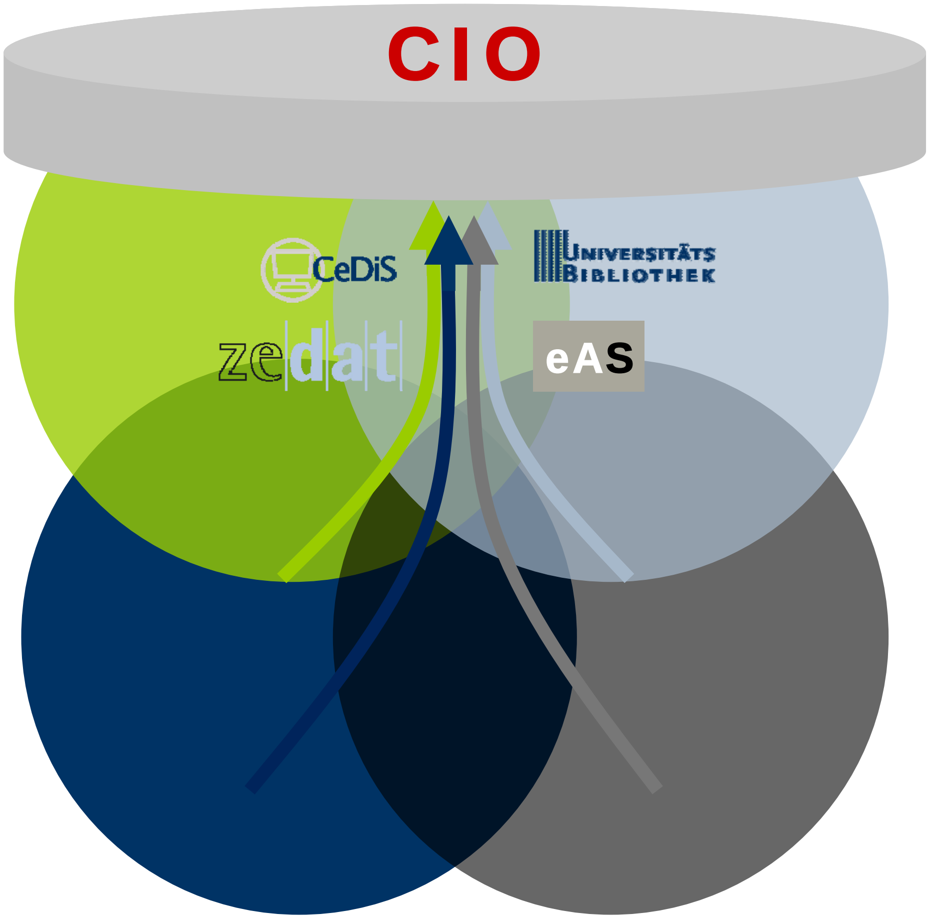
ΓΗΡΑΣΚΩ ΑΕΙ ΔΙΔΑΣΚΟΜΕΝΟΣ

ΣΩΚΡΑΤΗΣ
470-399 π.Χ.

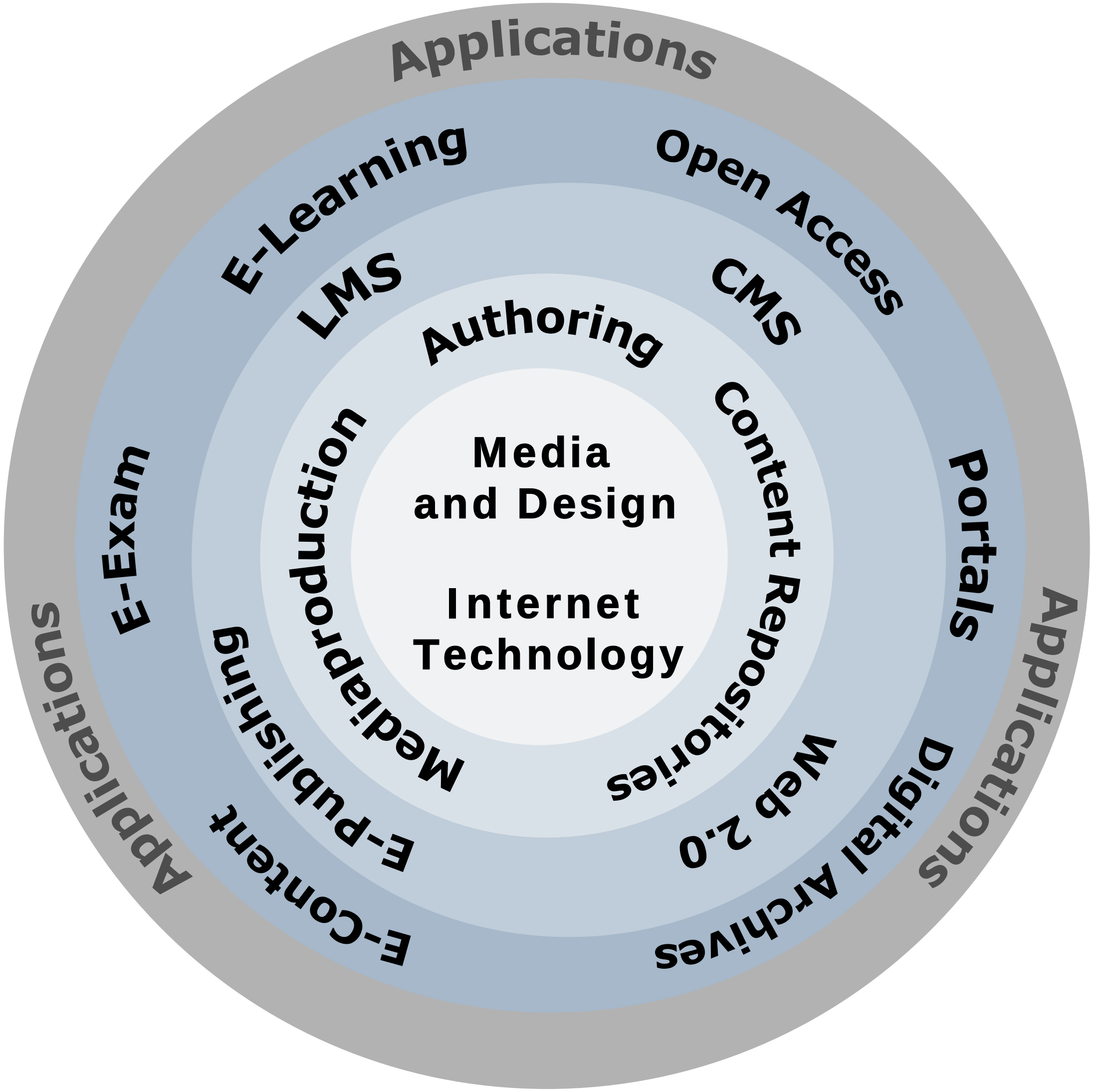
FIT: IT at the Freie Universität



FIT Strategic Alliance



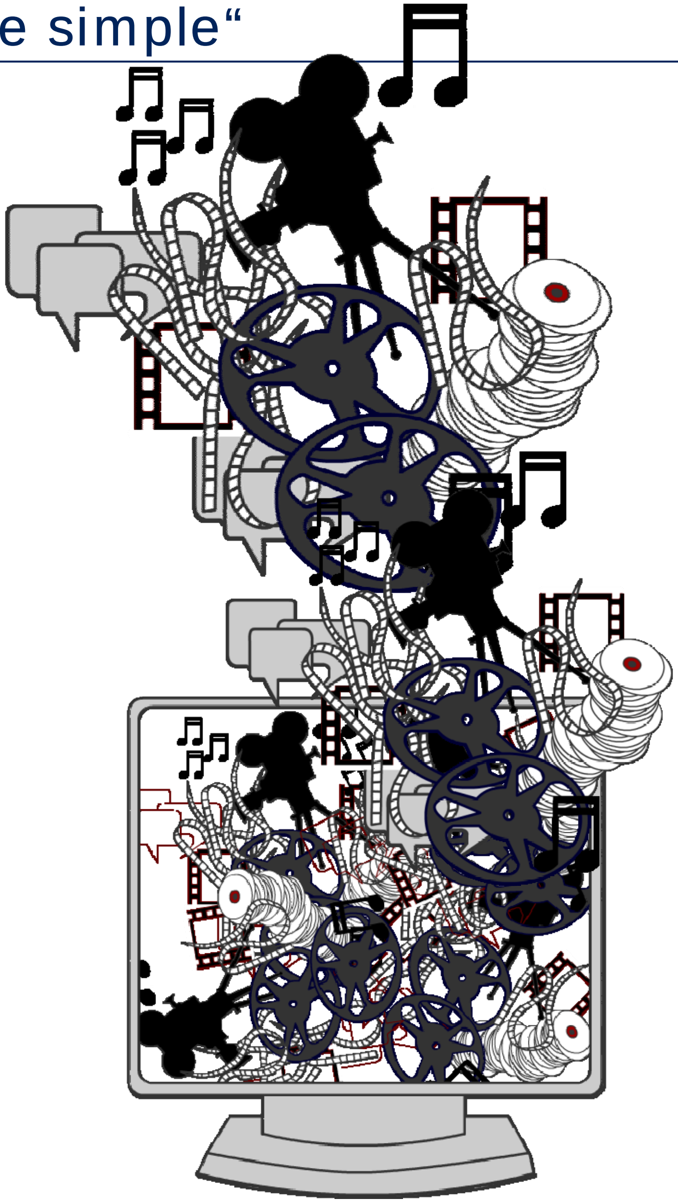
CeDiS – Structure



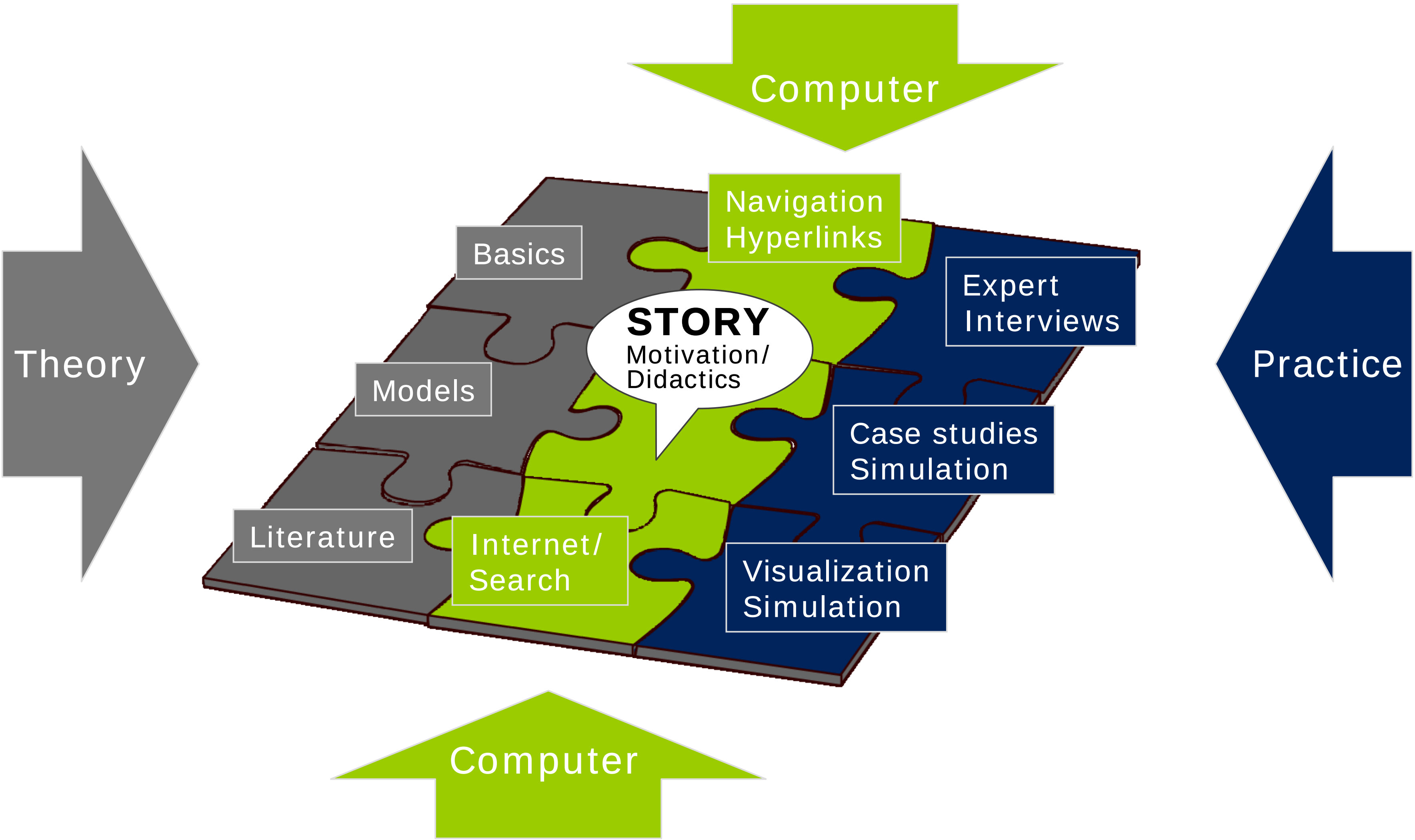
Outline I

1. **First steps in e-Learning**
2. e-Learning Engineering
3. e-Learning at a traditional University
4. Coordinated action plan
5. The Web 2.0 Initiative
6. Lessons learned
7. Open issues

Multimedia “made simple“



The DIALECT Model

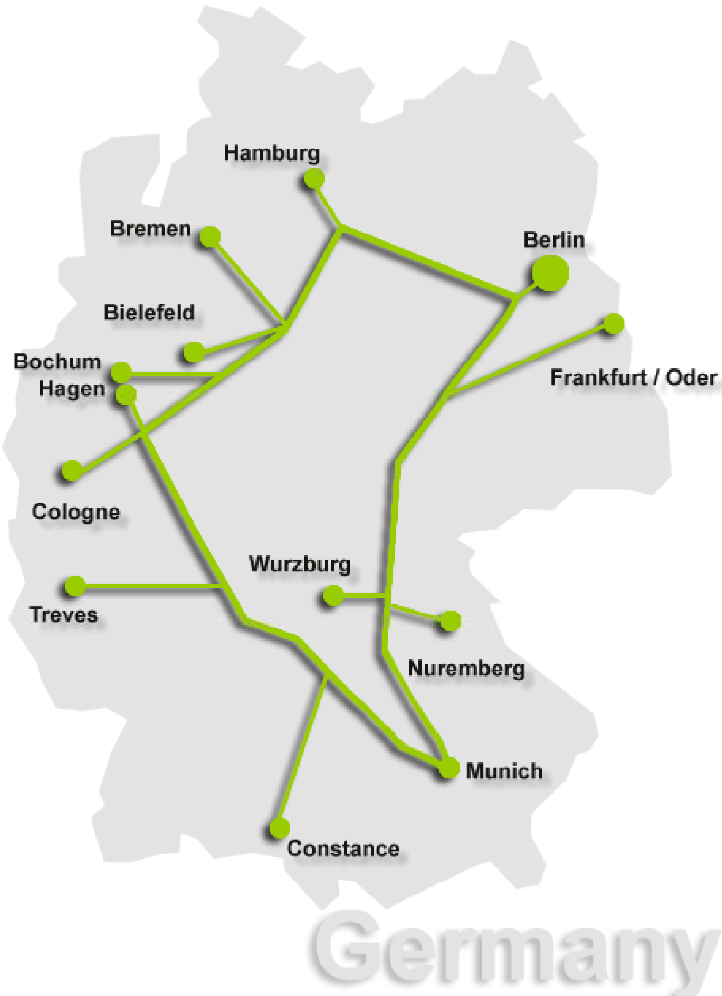


Outline II

I. e-Learning as an experiment
II. e-Learning Engineering
III. e-Learning at a traditional University
IV. Coordinated action plan
V. The Web 2.0 Initiative
VI. Lessons learned
VII. Open issues

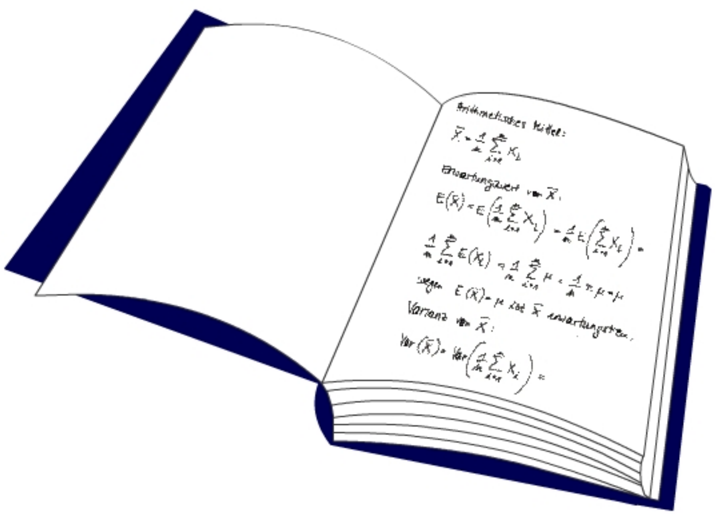
BMBF Project New Statistics

13 Departments at 10 German Universities

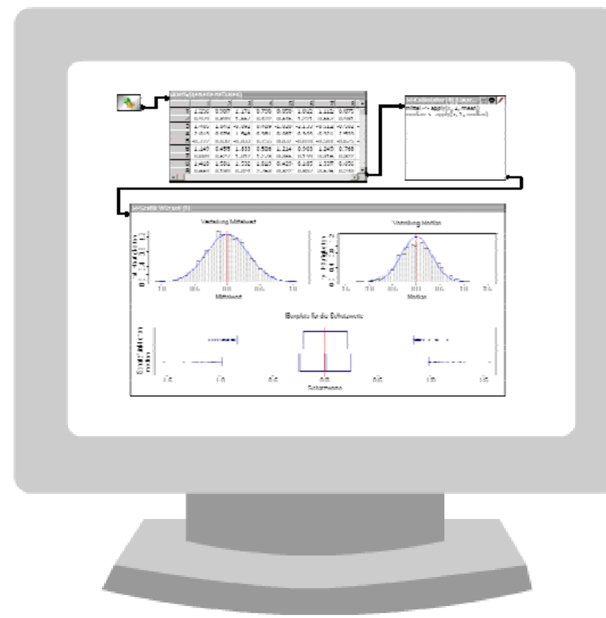


- European-University Viadrina Frankfurt/Oder
- University of Applied Sciences Cologne
- University Hagen
- Free University Berlin
- Friedrich-Alexander University Erlangen-Nuremberg
- Humboldt University Berlin
- University of Bielefeld
- University of Bremen
- University of Hamburg
- University of Konstanz
- Virtual University of Applied Sciences

„Traditional“ versus „New Statistics“

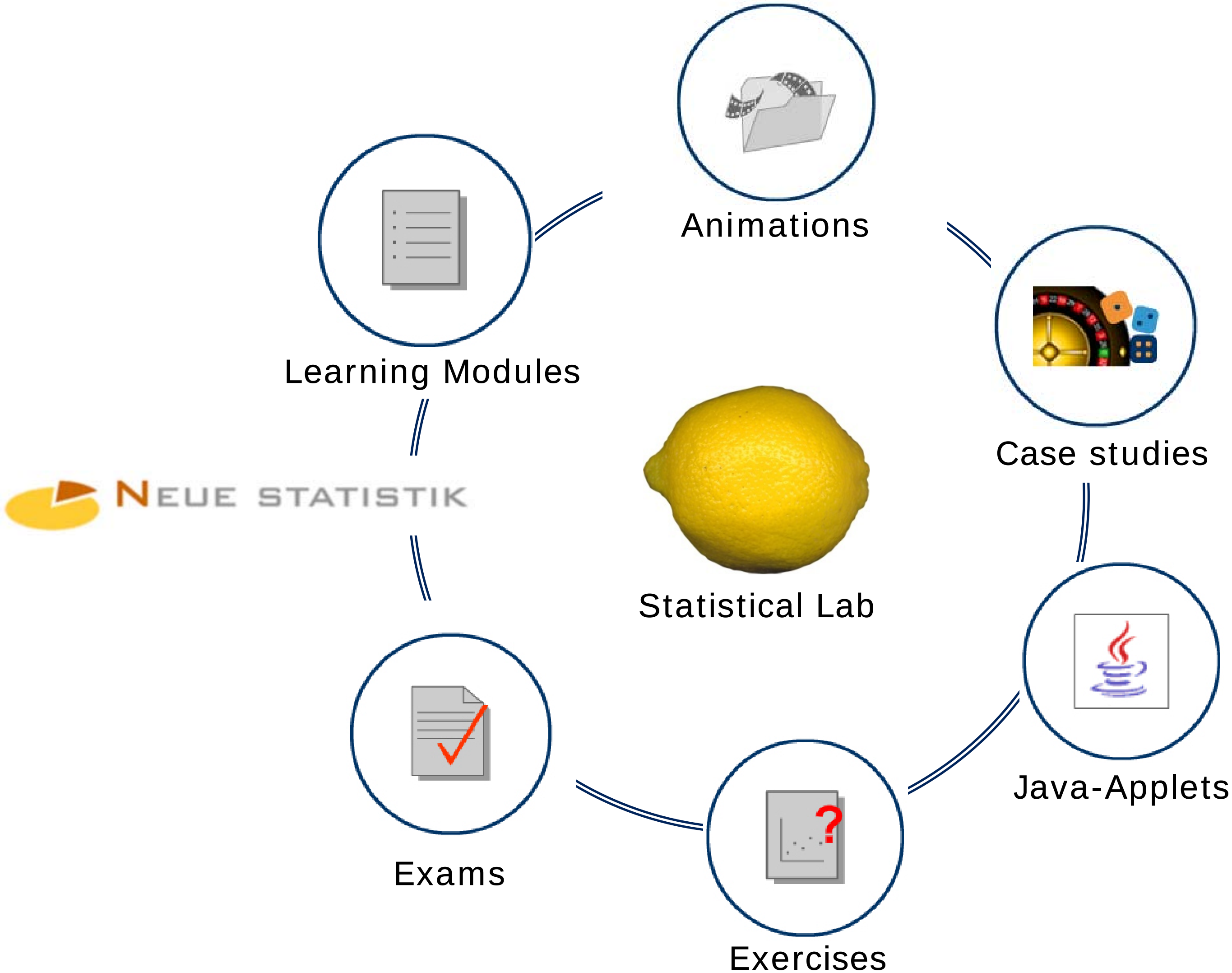


Statistics: yesterday and today

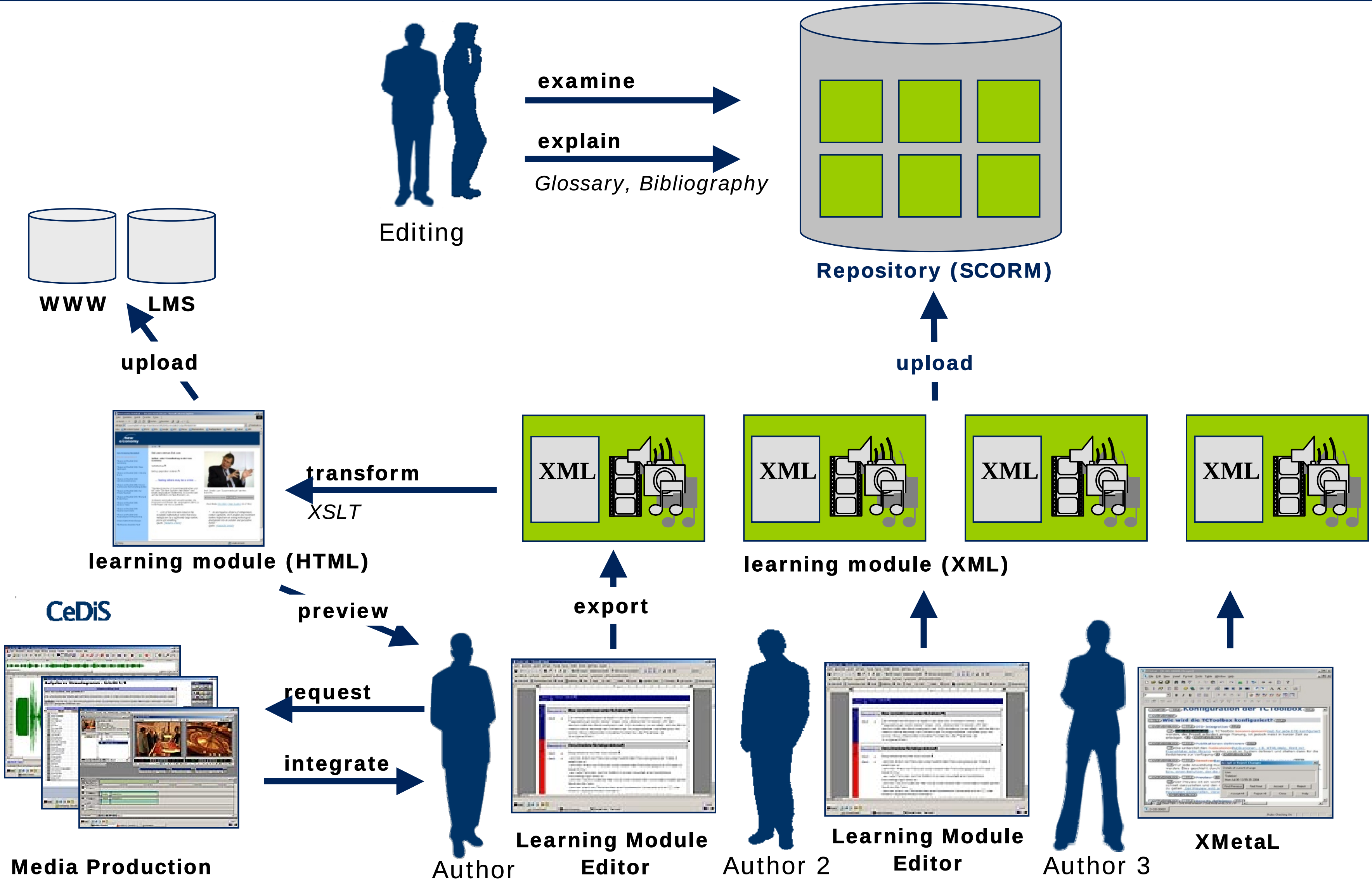


Statistics: today and tomorrow

New Statistics: Multimedia Learning Environment



Manufacturing Learning Modules

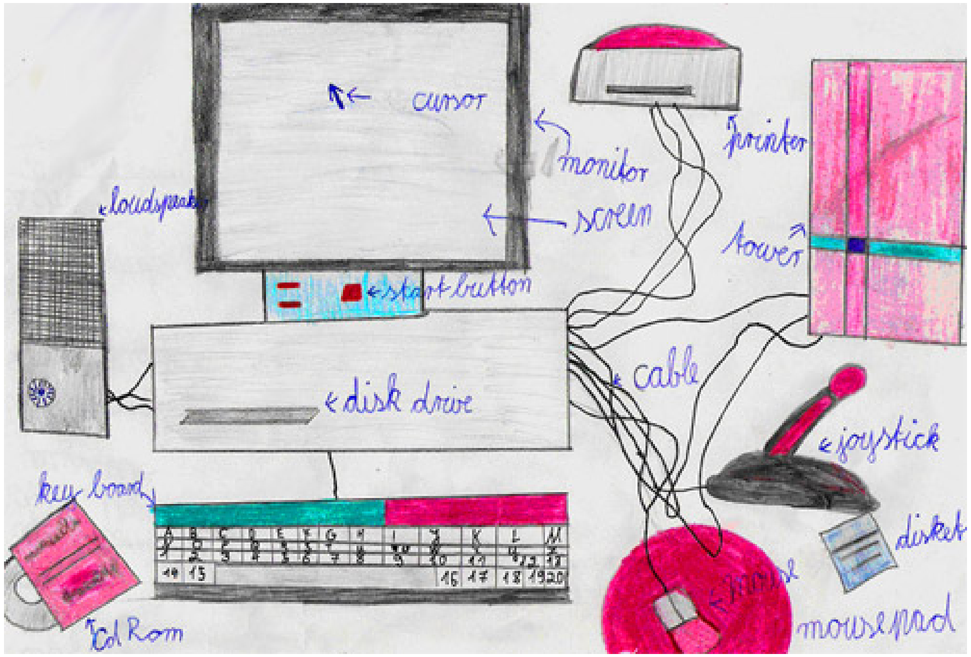


Economics of E-Learning

It‘s the Economy, Stupid …

Outline III

Vision: Is e-Learning easy to do!?



Source: www.uni-potsdam.de/agelearning/

e-Learning Environments

A significant advantage of e-Learning is the creation of individualized learning environments.....

Source: www.open-academy.com/de/elearning/lernende_/index.html

e-Learning everywhere?

Digital Technology in Education: Future Vision...

Digital Technology and the Reality

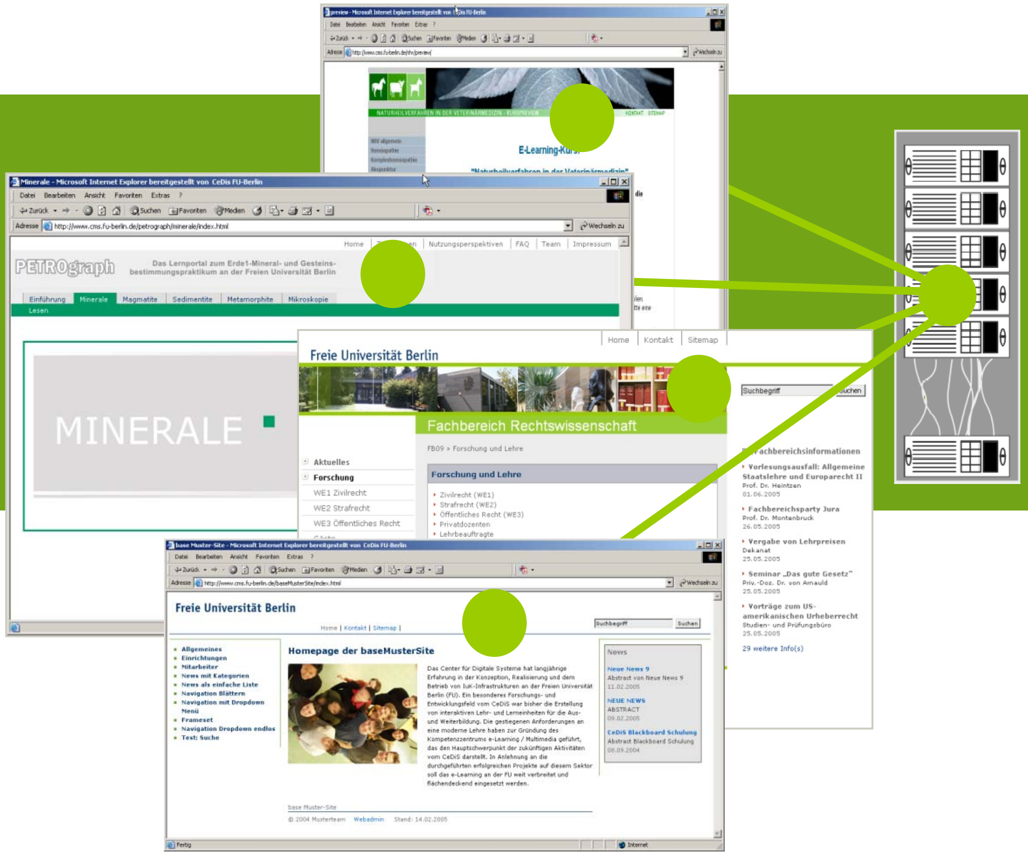
Outline IV

Freie Universität Berlin

Media and Design

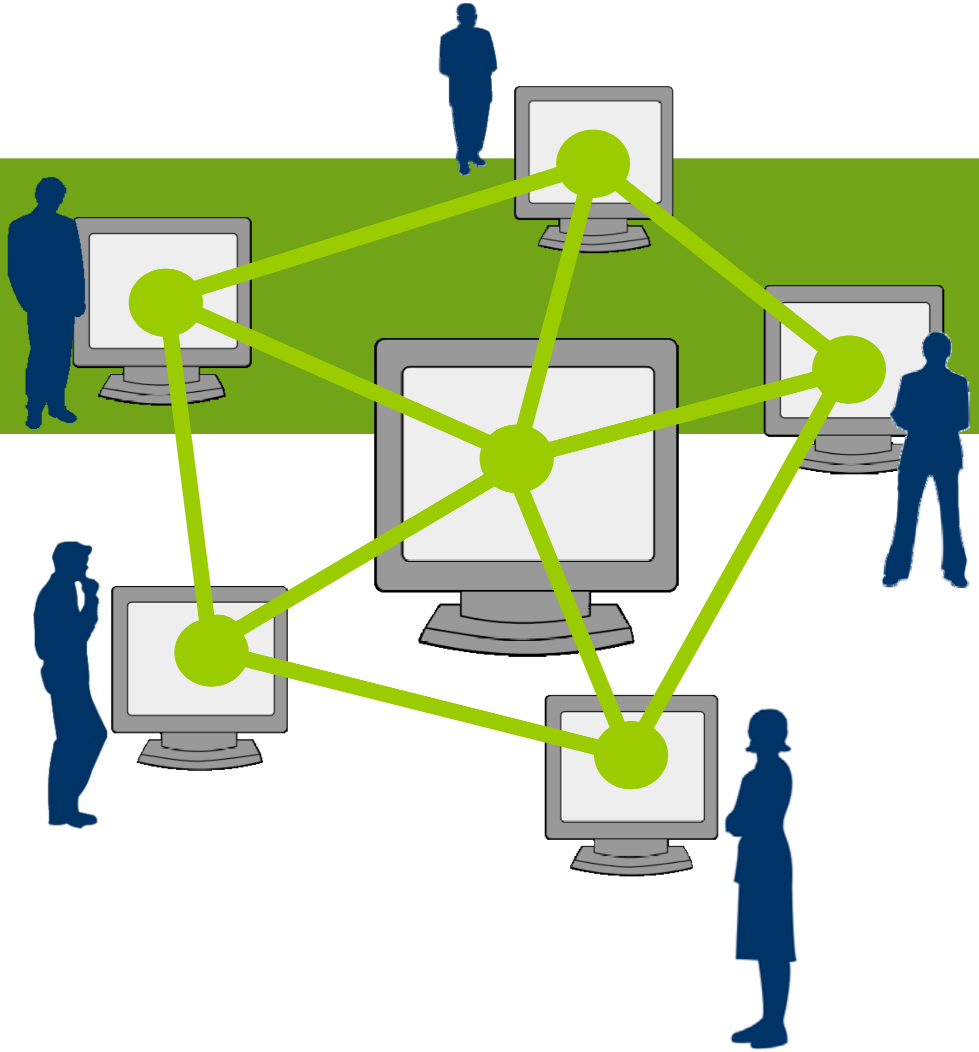
Media & Design

CeDiS – CMS



Content
Management
System
CMS

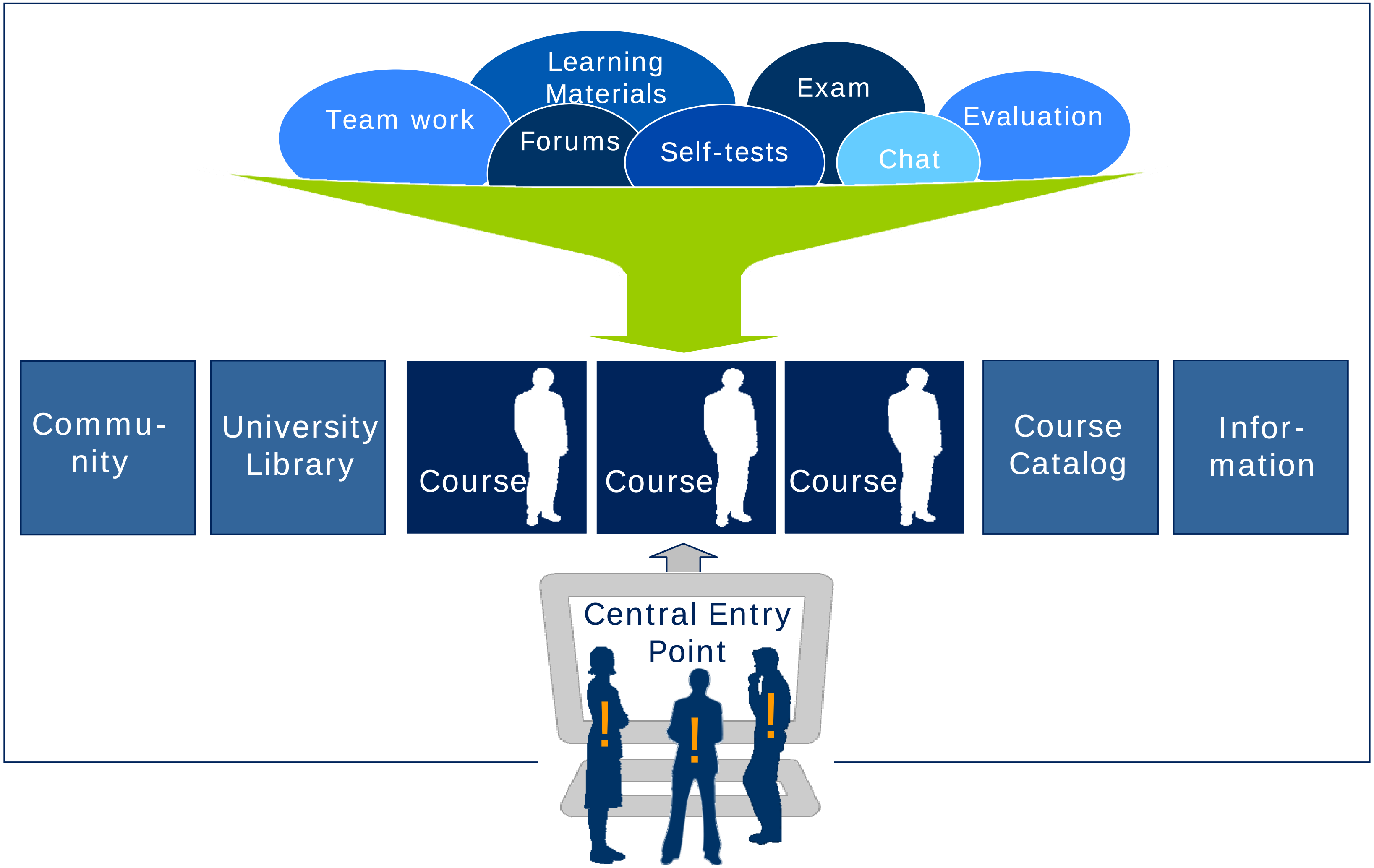
CeDiS - LMS



Learning
Management
System
LMS

LMS – a Central Learning Platform for Teaching

Student Access to the Central LMS

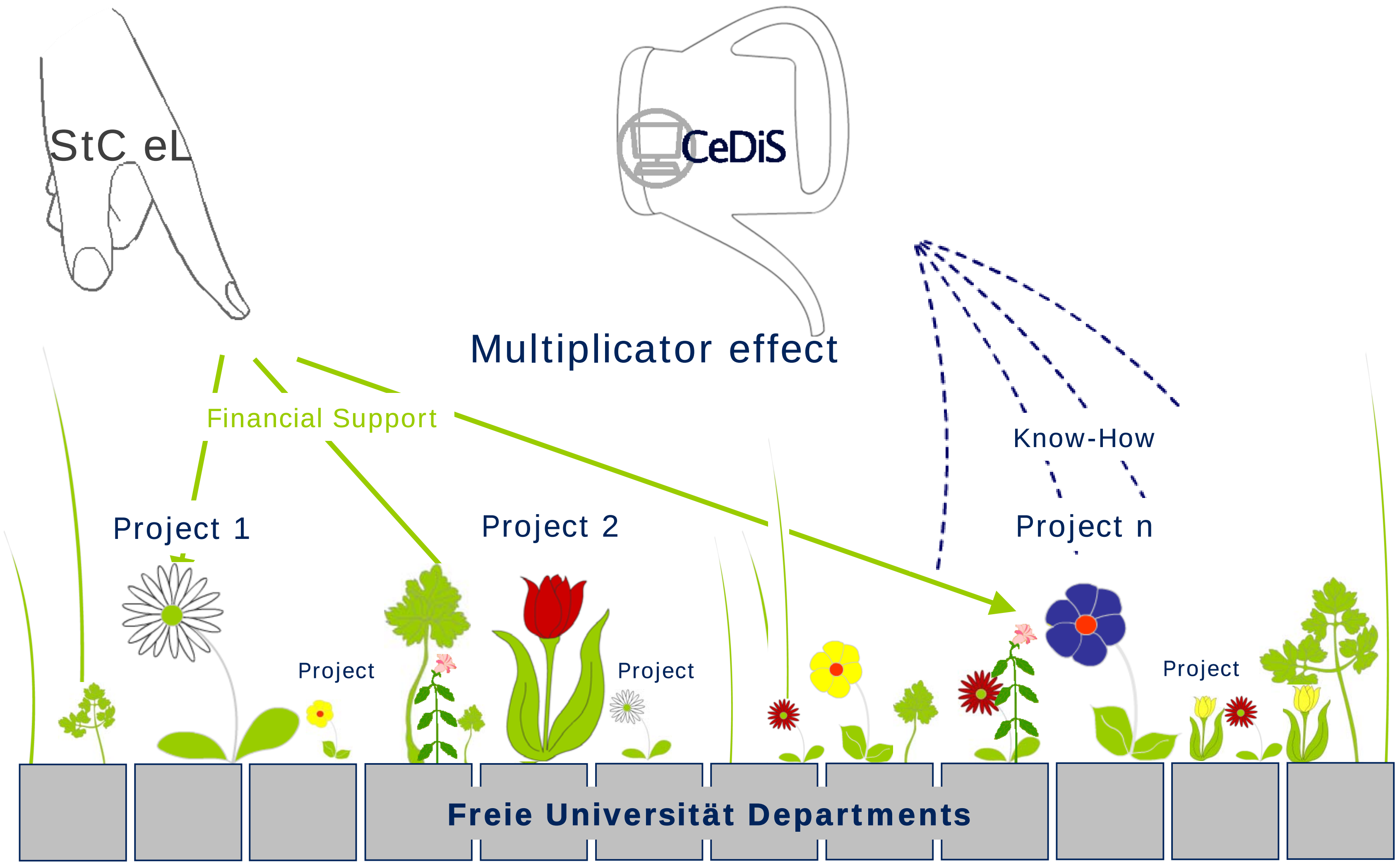


FU e-Learning Grants

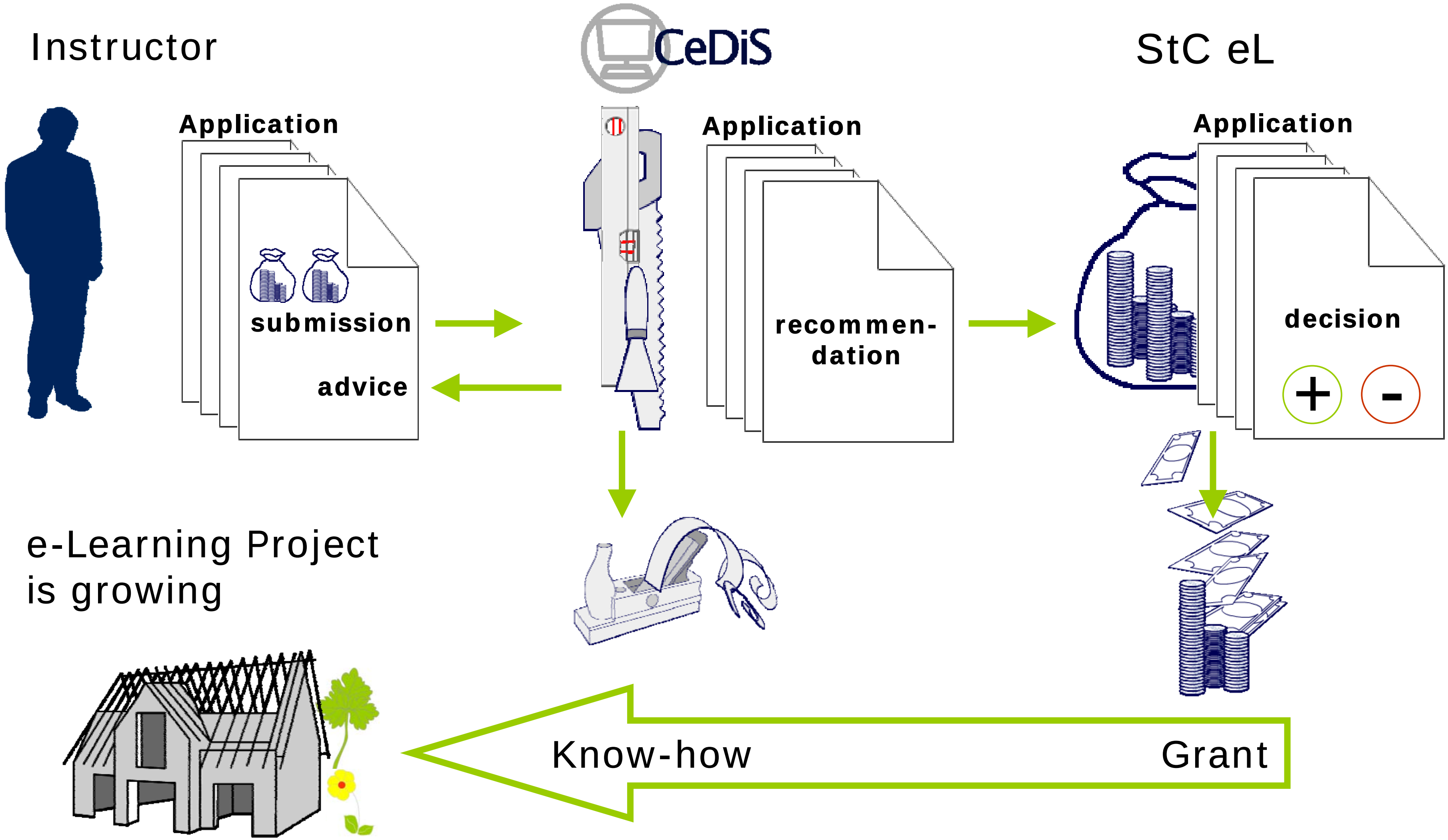
FU e-Learning Grants

powered by FUe-Learning

FU e-Learning Grants - Growth

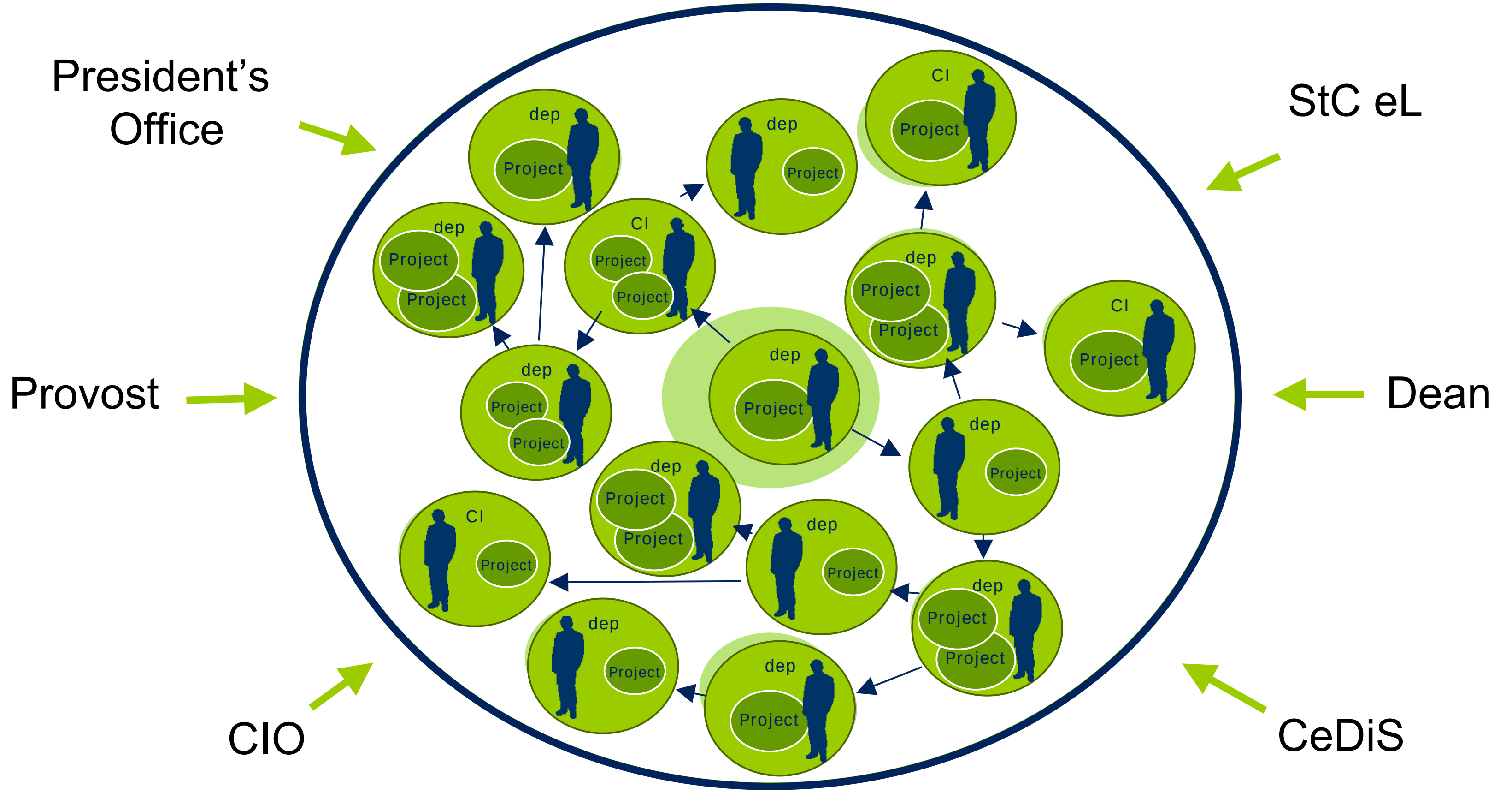


FU e-Learning Grant Program – Workflow



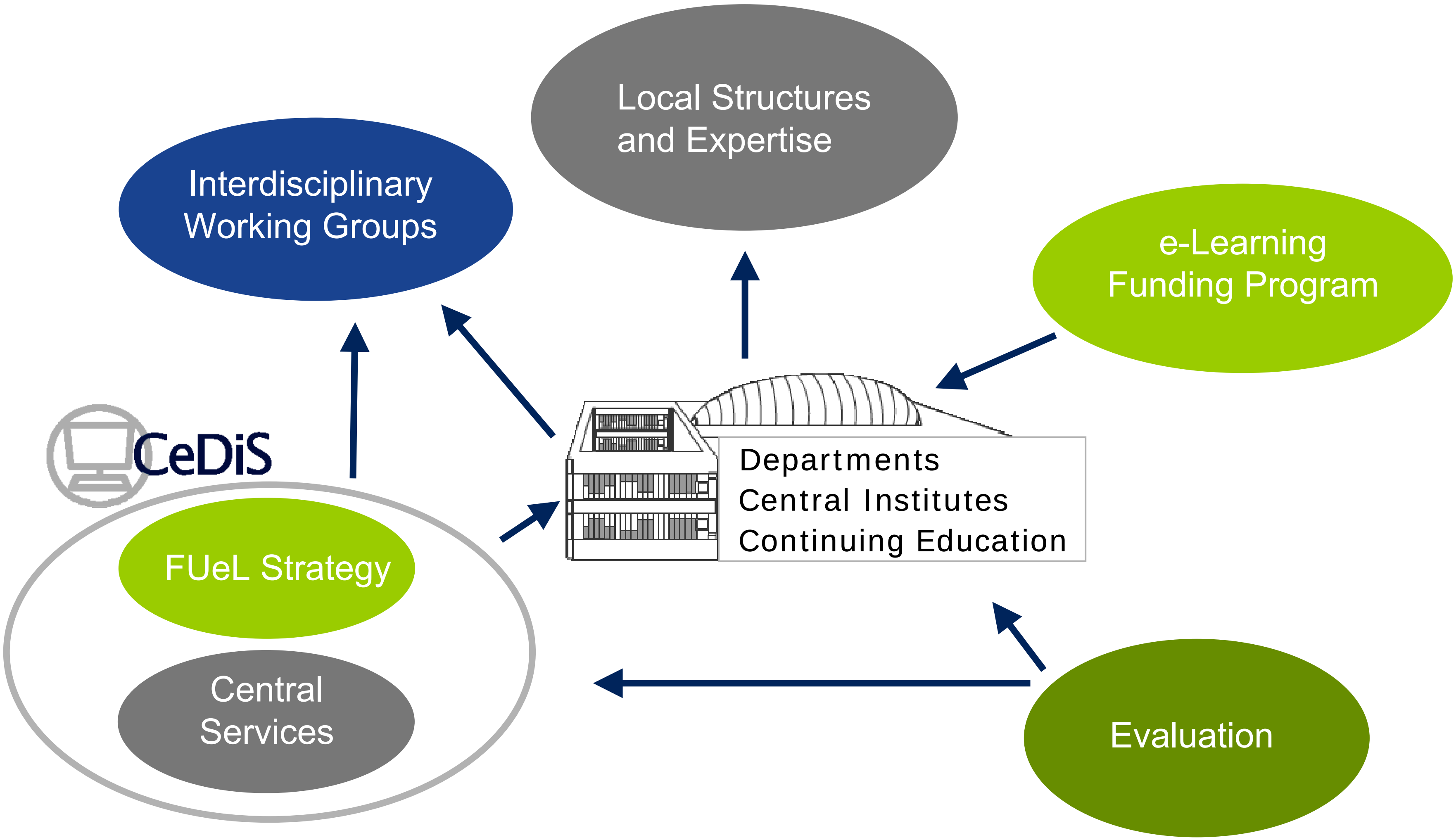
FU-wide e-Learning Dissemination

FU Berlin

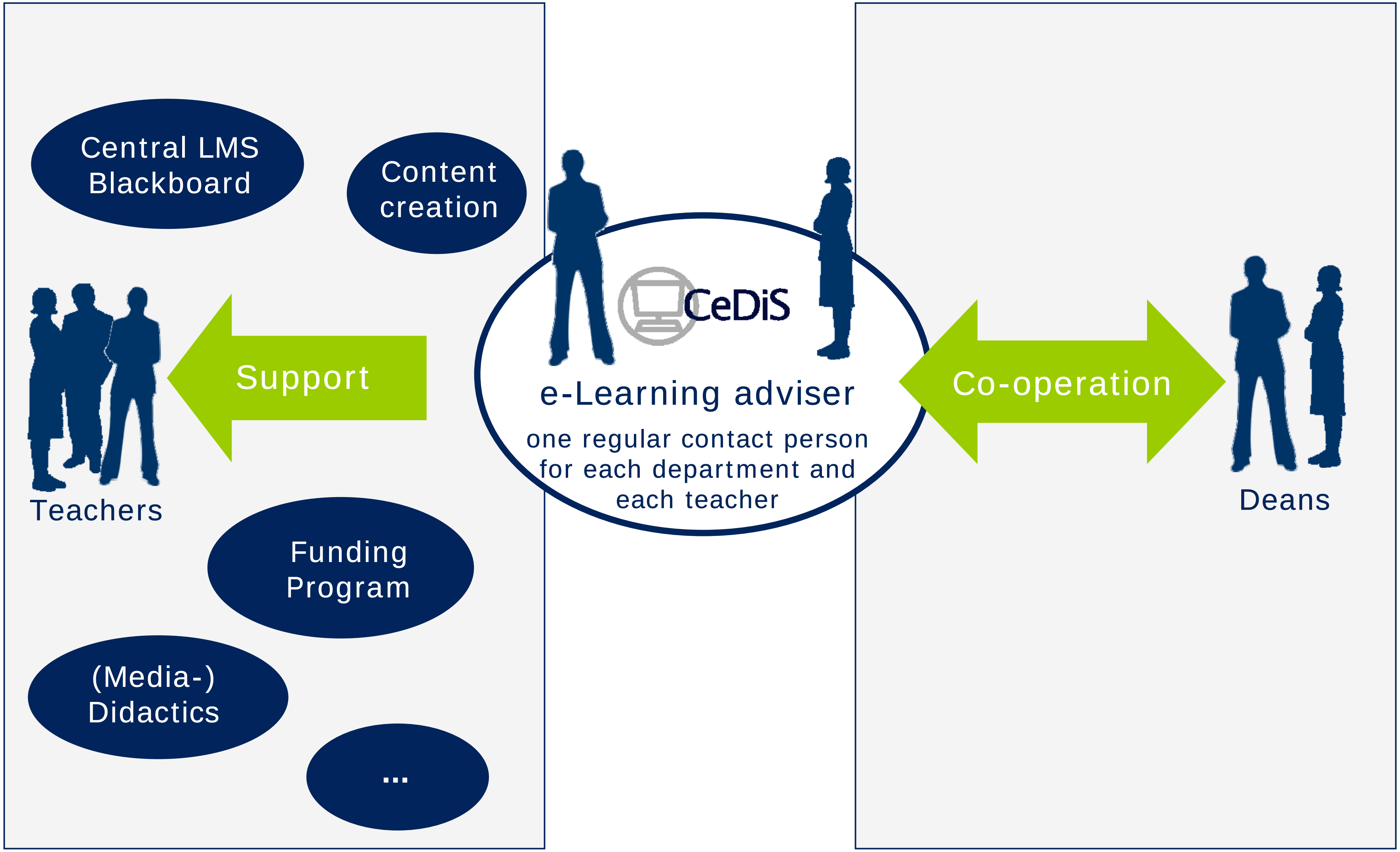


The project FUeL
(FU e-Learning)

Establishing Blended Learning



e-Learning Consulting



From the Traditional Classroom to Blended Learning

Classroom

Lectures · Courses · Literature · Exercises · Tutorium · Internship

Online

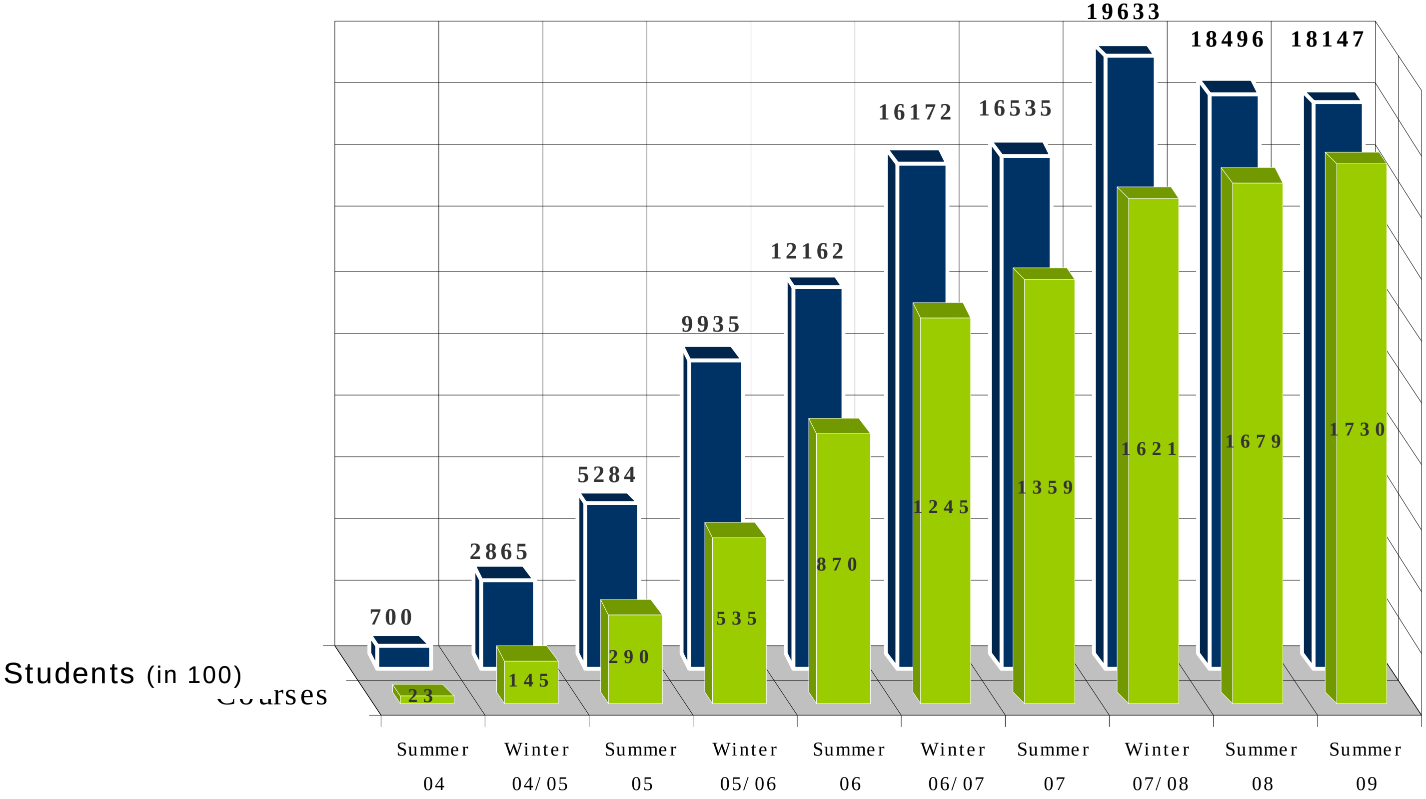
Online Surveys · E-Mail · Chat · Forums · Multimedia · Digital Materials · Self-tests

Blended Learning

Without LMS	Blended Learning I »Introduction«	Blended Learning II »Extended«	Blended Learning III »Maximum«	Online-Courses
Lectures	Lectures	Lectures	Lectures	Lectures
Tutorials	Tutorials	Tutorials	Multimedia-material	Multimedia-material
Library	Library	e-Tutor	Exam preparation	Exam preparation
e-Mail	Informations	Library	Tutorials	Tutorials
	Material-collection	Informations	e-Tutor	e-Tutor
		Material-collection	Library	Library
			Informations	Informations
			Material-collection	Material-collection

Freie Universität Berlin

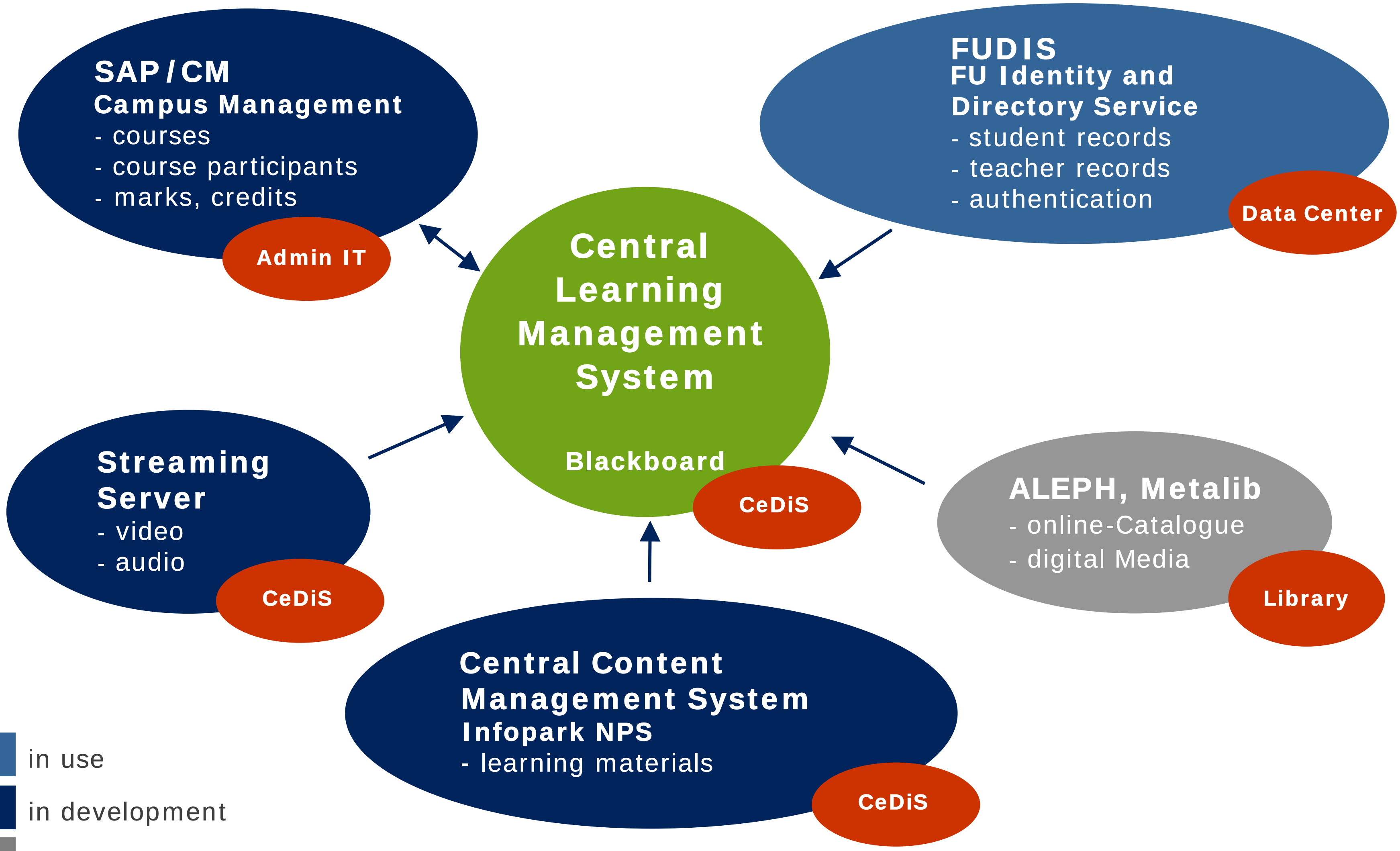
Degree of Utilization



IT-Integration

Integrating the Central LMS with the IT-Infrastructure of the FU Berlin

IT-Integration



in use

in development

planning stage

Outline V

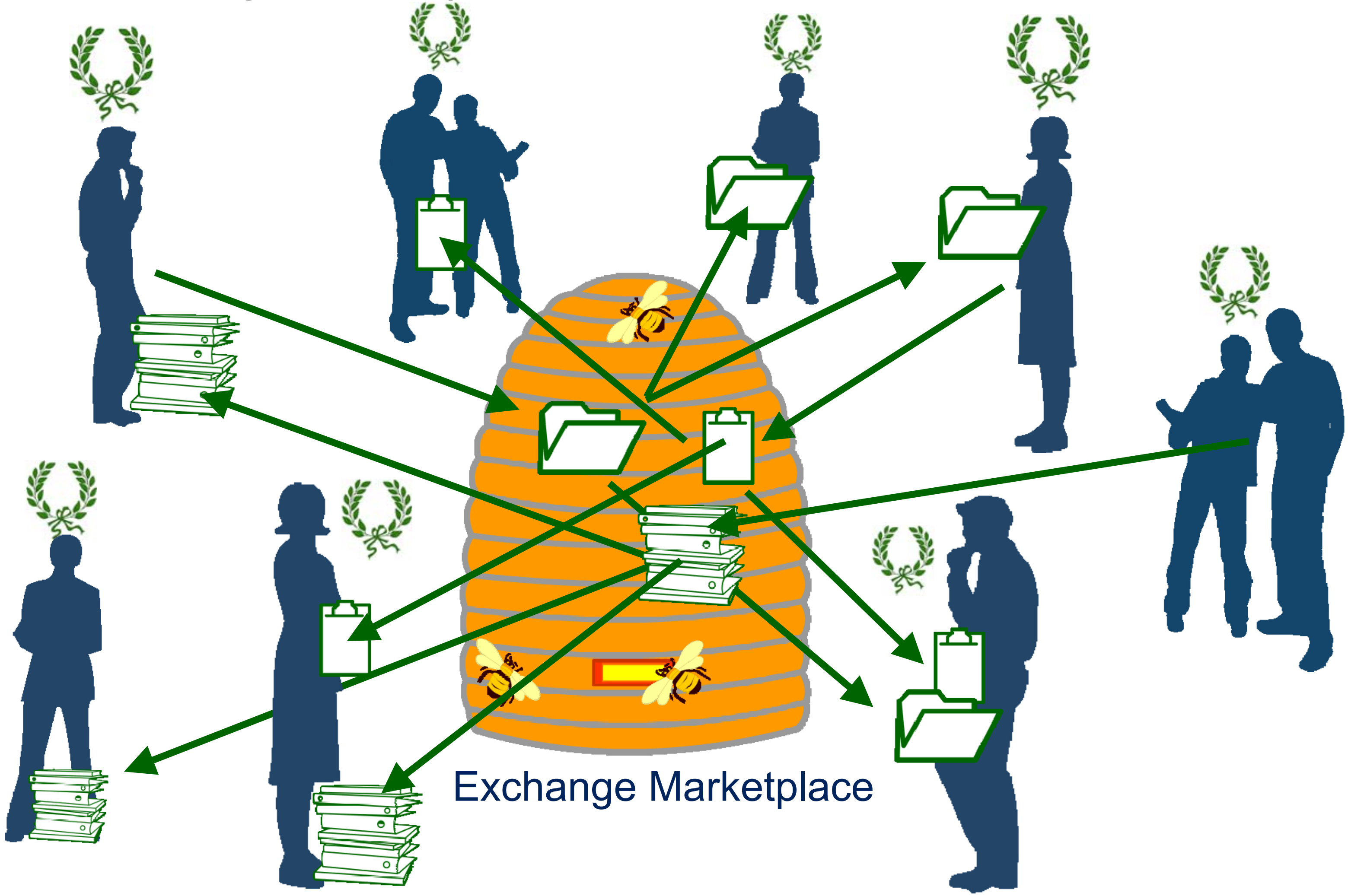
I. e-Learning as an experiment
II. e-Learning Engineering
III. e-Learning at a traditional University
IV. Coordinated action plan
V. The Web 2.0 Initiative
VI. Lessons learned
VII. Unresolved issues

Student Portal

Personalized Information
and Services for Students

For Students...

Material Exchange Marketplace



“Web 2.0” / Social Software

CeDiS Blog Services

Blog availability

- personal blog for all FU members
- (multi-user) blog for Blackboard courses
- Selected System: WordPress

CeDiS Wiki, RSS Services

Wiki availability

- Wikis for all FU members
- Wikis for Blackboard courses
- Selected System: Confluence

RSS feeds

- Announcements from Blackboard courses

(Podcasts, Social Bookmarking, ...)

Outline VI

I. e-Learning as an experiment
II. e-Learning Engineering
III. e-Learning at a traditional University
IV. Coordinated action plan
V. The Web 2.0 Initiative
VI. Lessons learned
VII. Open issues

Digital Technology in Education: Involve...

... »computer specific« features (storing, searching, calculating)

... visualization techniques

... media enriched contents

... extensive use of tutorials & help functions

... multiple navigation and tracking

... instructor’s »presence«

... problem based approach

... »real« AND virtual (i.e. hybrid) reality

... extensive personalization

... common sense intelligence (things that teach)?

... user controlled privacy and security!

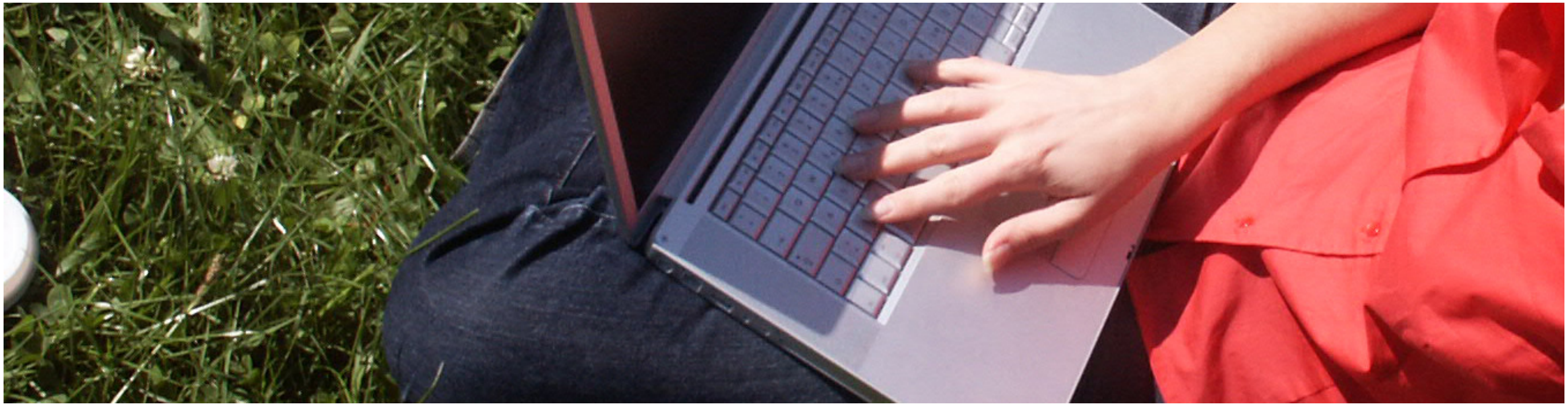
... »Create humane applications«

Digital Technology in Education: Avoid ...

- ... new incomplete systems
- ... additional complexity
- ... incompatible environments
- ... slow responding applications
- ... poor design
- ... poor interaction
- ... »surprising« features
- ... »faked« security
- ... poor personalization

e-Learning lessons – Summary

- e-Learning is a long-term project
- Executive support is necessary
- Competence Center
- Close cooperation with the departments
- Decentralize know how
- Stepwise Migration
- Offer grants and incentives
- Central LMS leads to high synergy effects
- Open content <u>and</u> commercial content helps saving costs
- Multimedia authoring is challenging
- Reuse of learning modules is ...
- Reduce technical complexity (KIS)



Nicolas Apostolopoulos
napo@cedis.fu-berlin.de

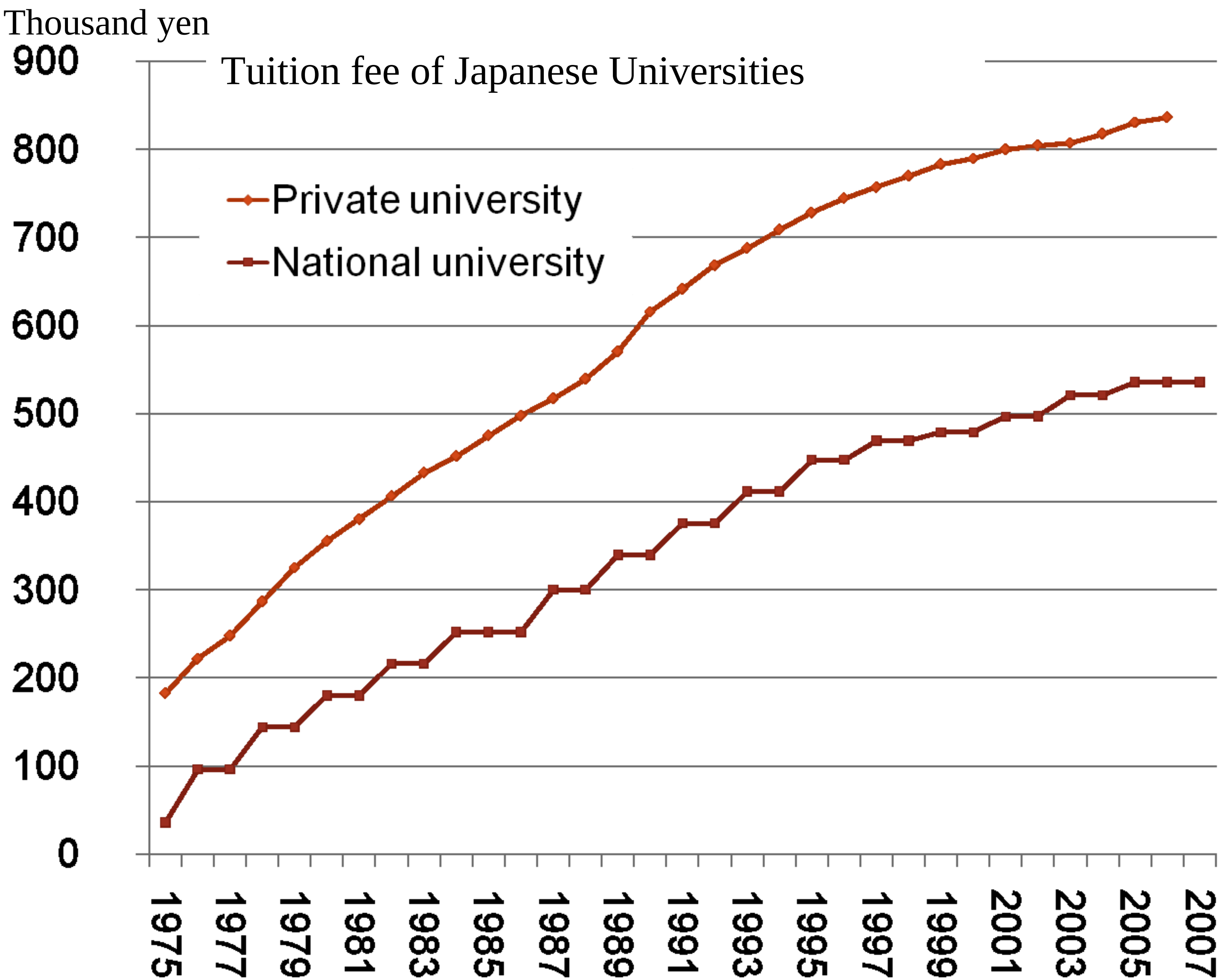
www.cedis.fu-berlin.de
www.e-learning.fu-berlin.de

Nachhaltiges Lebenslanges Lernen an der Kyoto School of Professional Learning における持続可能な生涯教育

Pro. em. Haruo NISHINOSONO
Kyoto University of Education
Institute of Learning Development

The present policy of higher education in Japan

- The International Covenant on Economic, Social and Cultural Rights, which was approved and signed by the Japanese Government in 1979,
- It recognises the right of everyone to an education, and calls for the provision of free, universal education, including equal access to higher education.
- The Japanese government has reserved the right to defer implementation of article 13 2(c) supporting free higher education due to the importance of the numerous private universities nationwide.
- Tuition fees have skyrocketed since the 1970s and we have been unable to stop their rise or to develop an appropriate higher education system that will foster sustainable life-long learning.



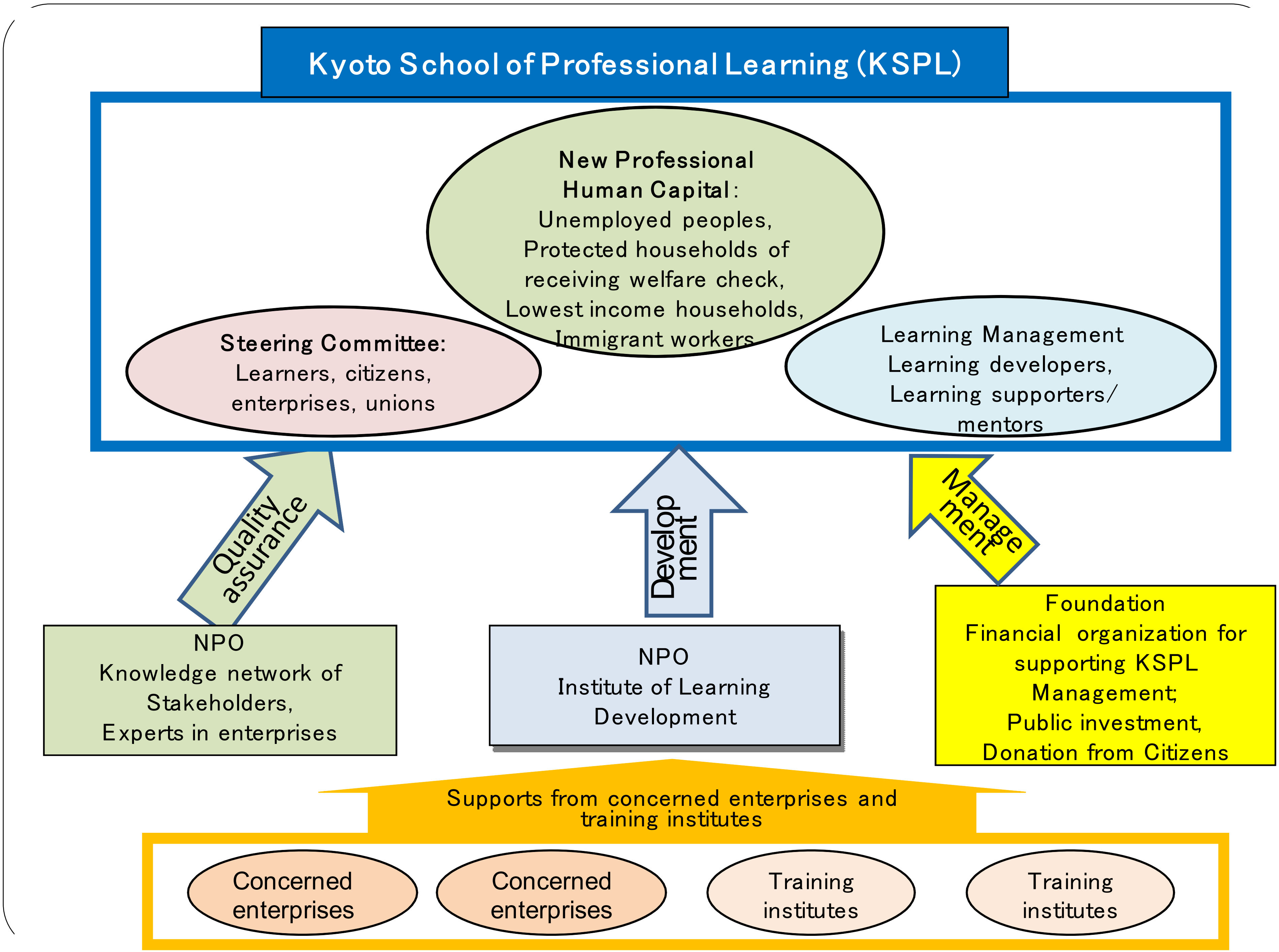
Thousand yen
Tuition fee of Japanese Universities
Private university
National university
900
800
700
600
500
400
300
200
100
0
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007

Investment to “New Professional Human Capital”

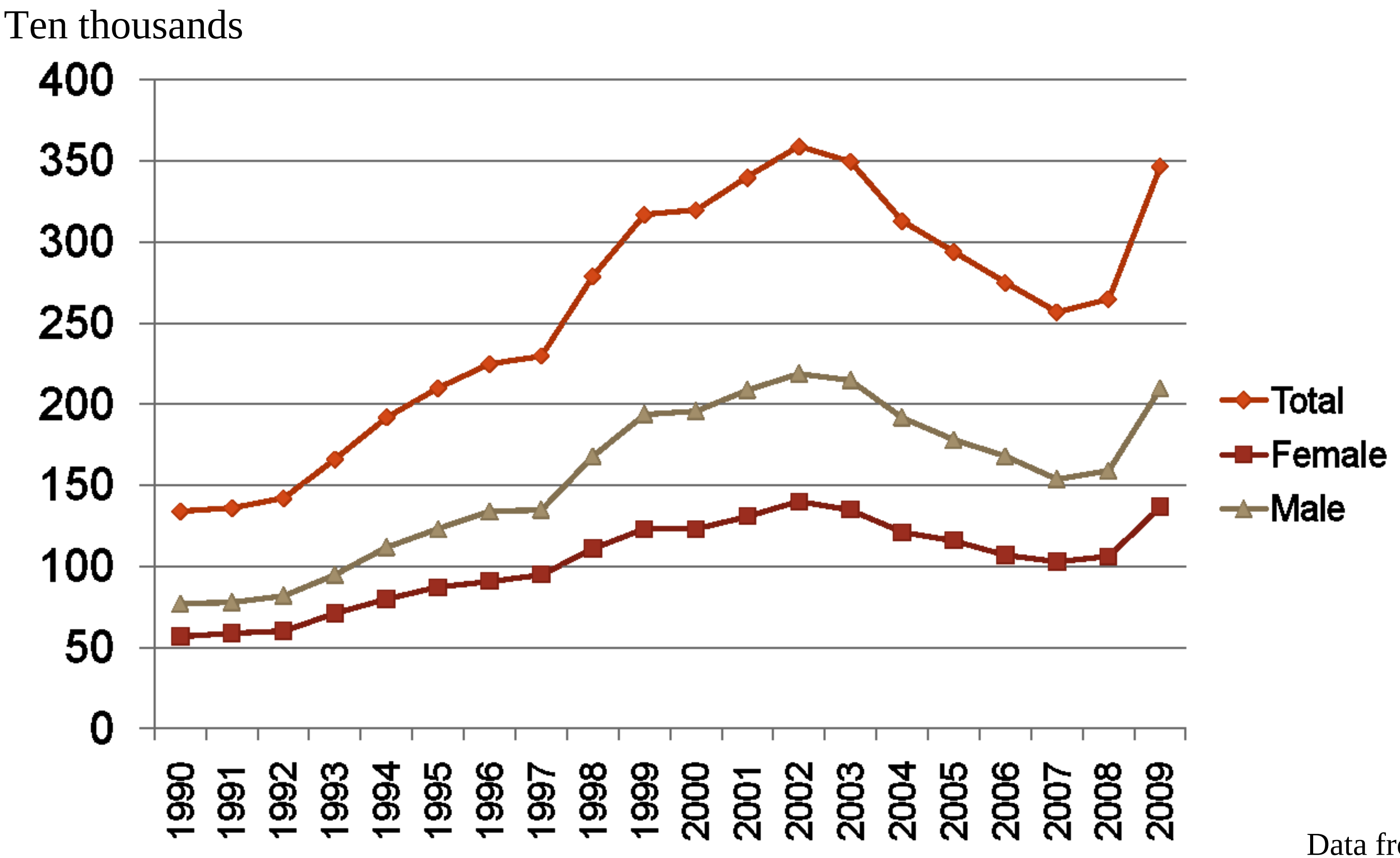
The third component is defined as consisting of the following groups of people:

- Unemployed and their families
- Households receiving welfare benefits
- Lowest-income households
- Immigrant workers and their families

Three components of KSPL

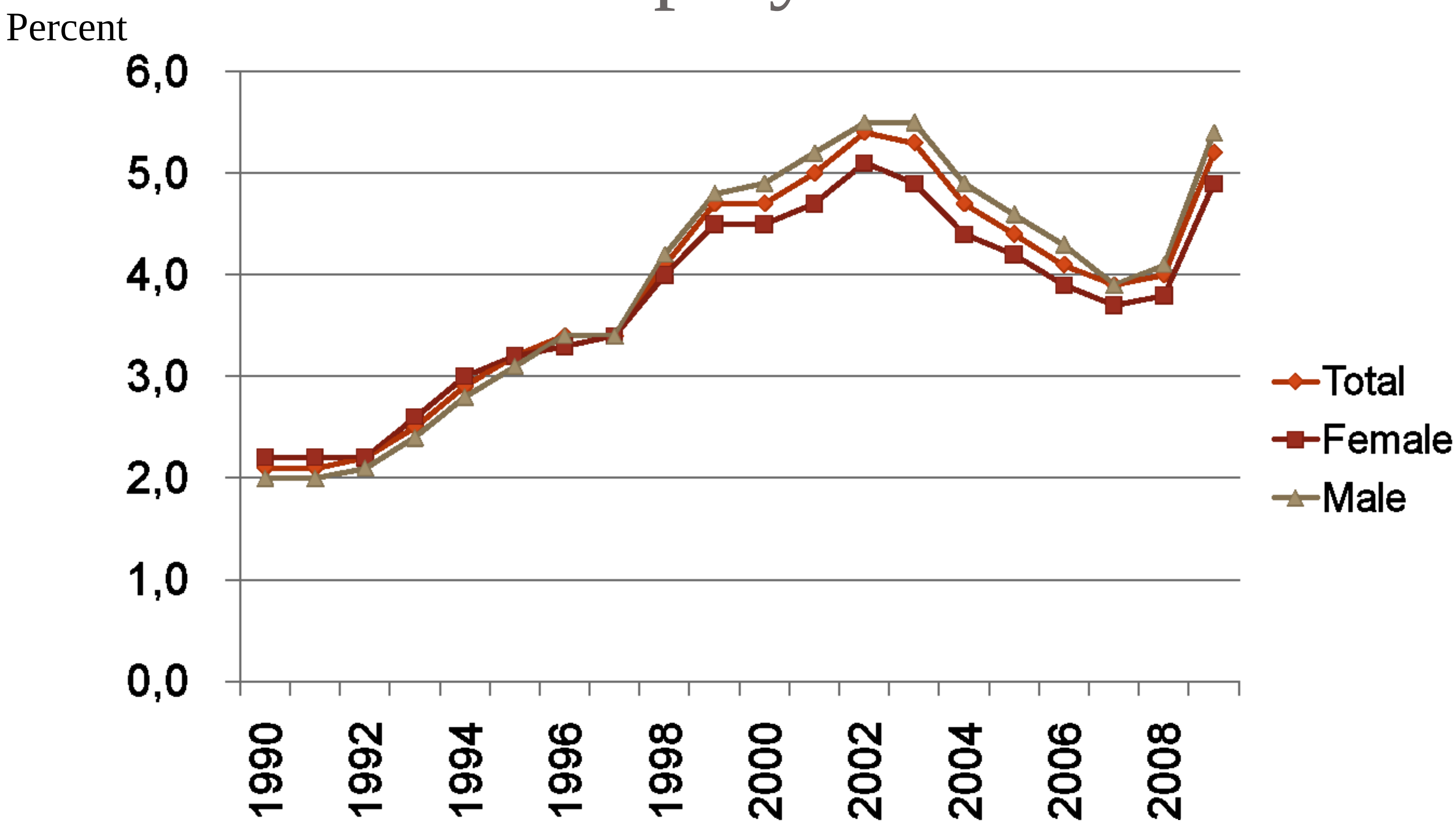

Kyoto School of Professional Learning (KSPL)
New Professional Human Capital: Unemployed peoples, Protected households of receiving welfare check, Lowest income households, Immigrant workers
Steering Committee: Learners, citizens, enterprises, unions
Learning Management Learning developers, Learning supporters/ mentors
Quality assurance
Develop ment
Manage ment
NPO Knowledge network of Stakeholders, Experts in enterprises
NPO Institute of Learning Development
Foundation Financial organization for supporting KSPL Management; Public investment, Donation from Citizens
Supports from concerned enterprises and training institutes
Concerned enterprises
Concerned enterprises
Training institutes
Training institutes

Number of the unemployed



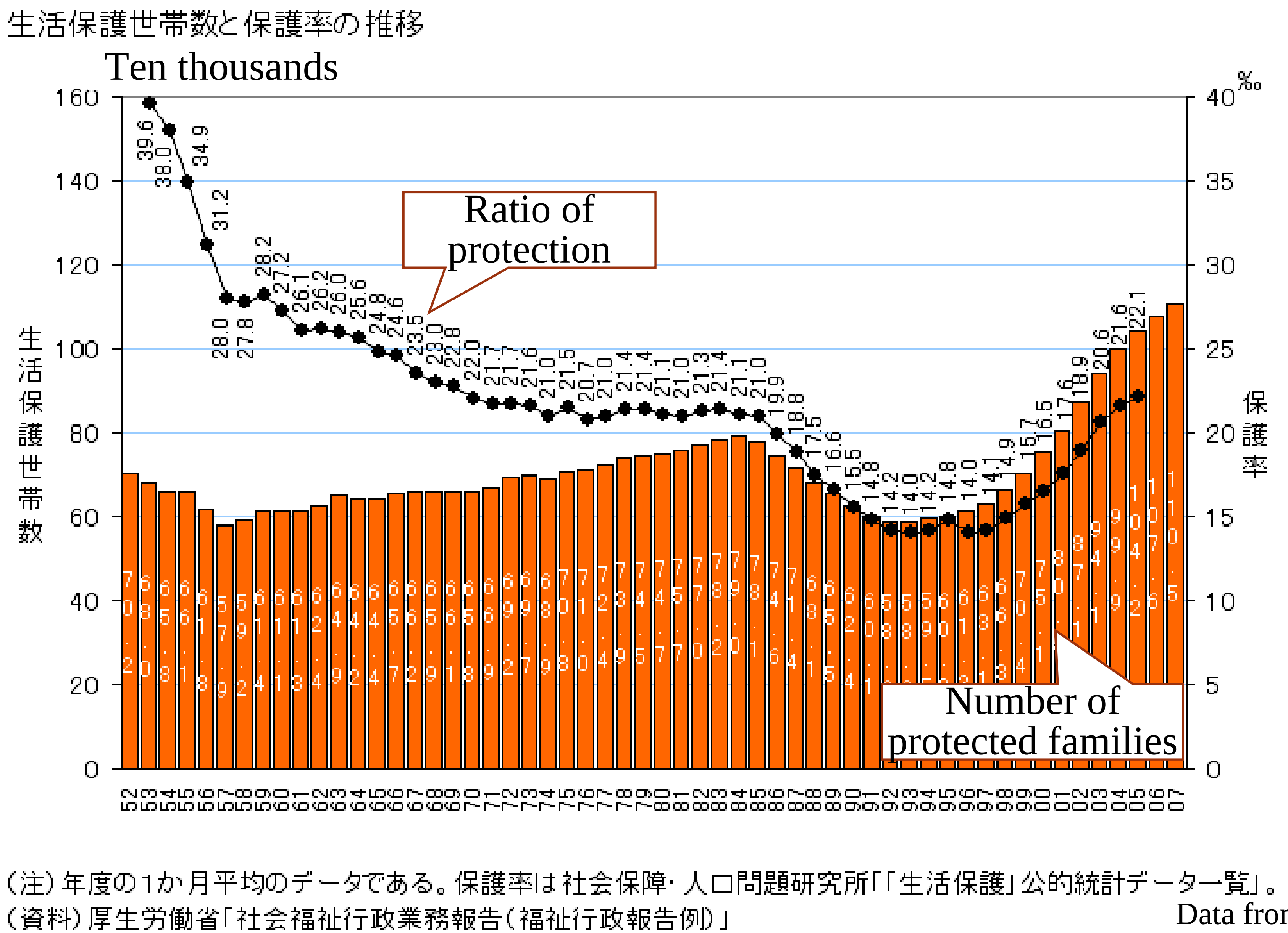
Data from Ministry of Health, Labor and Welfare

Ratio of Unemployment

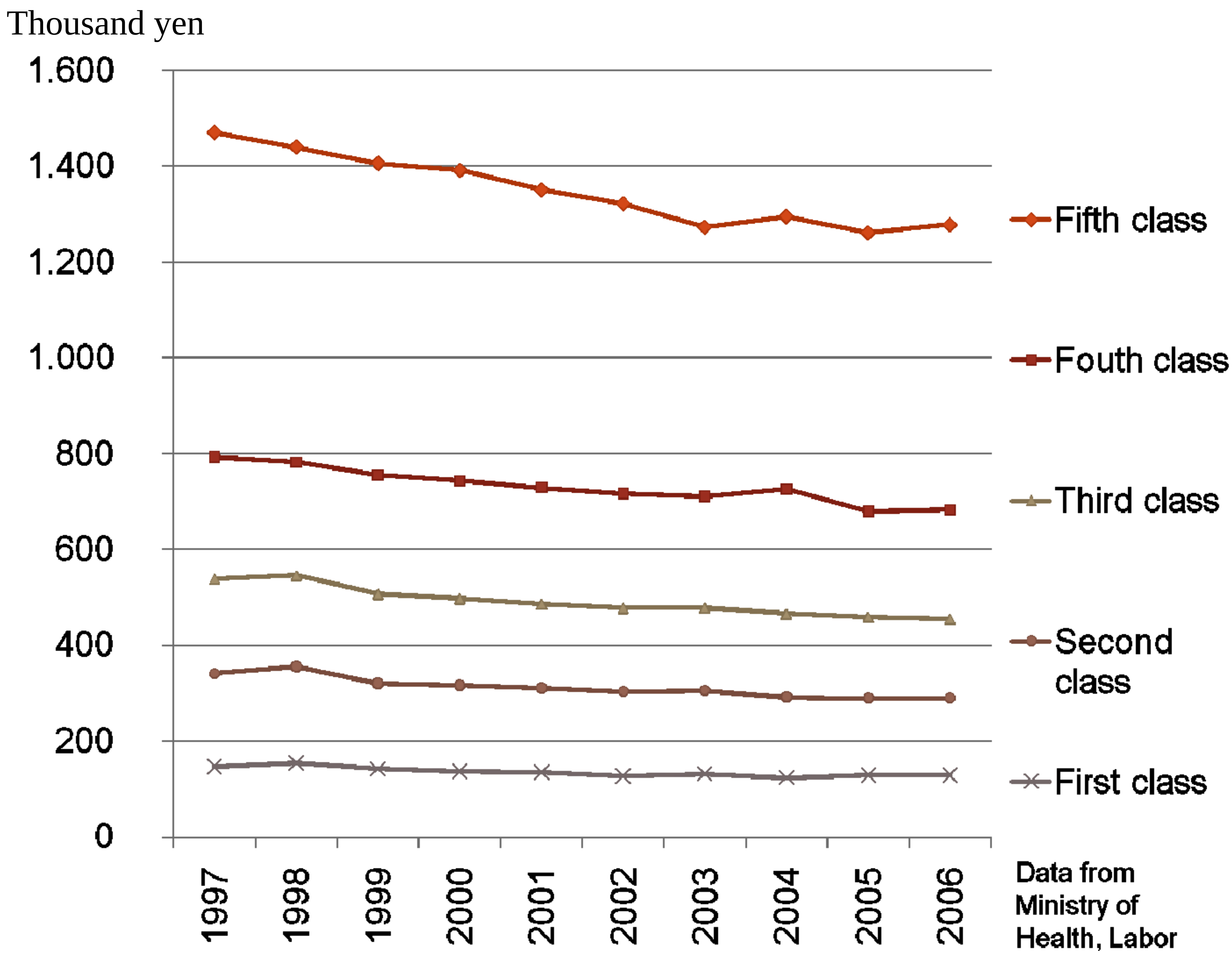


Data from Ministry of Health, Labor and Welfare

Number of protected families



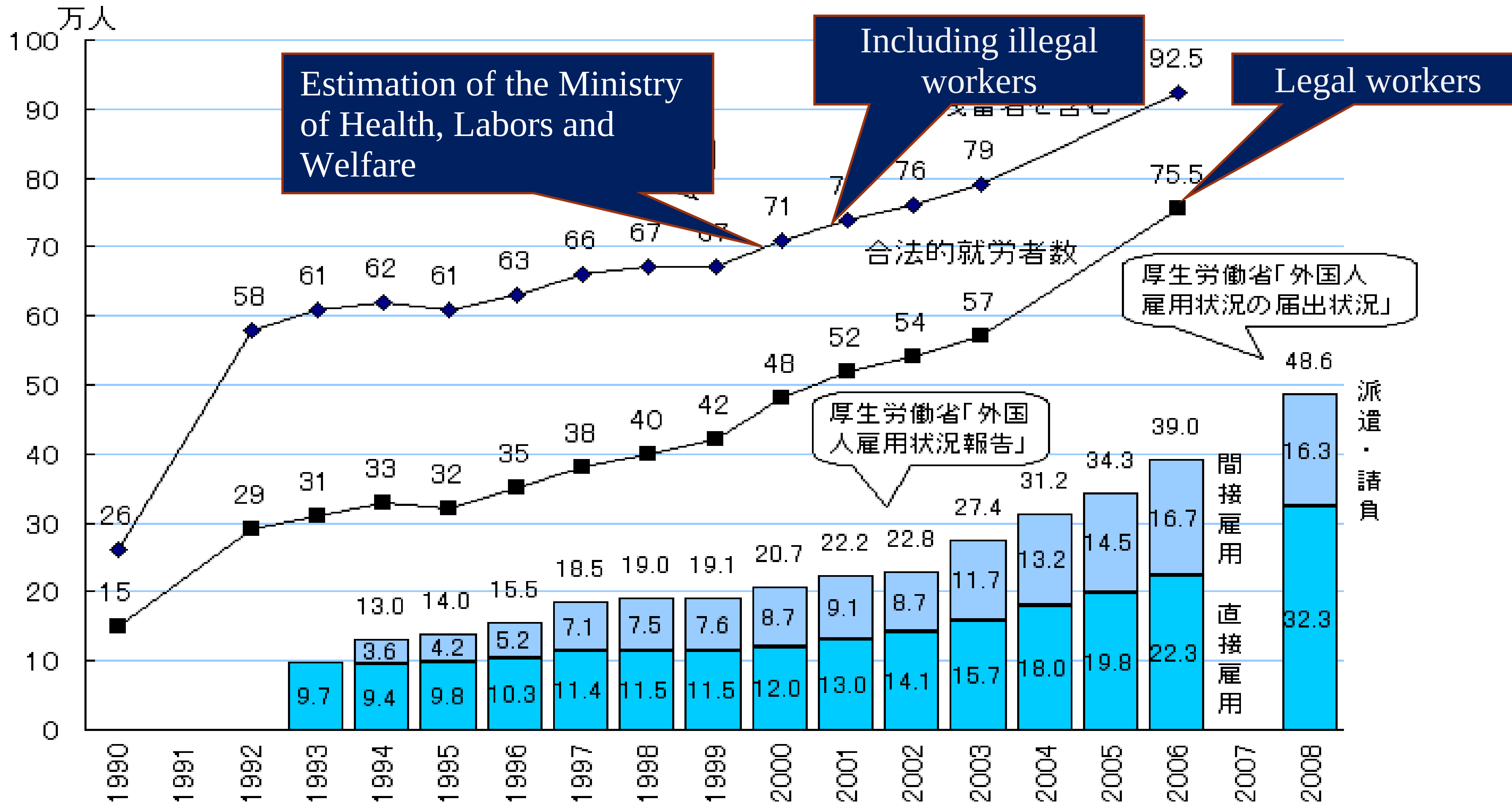
Data from Honkawa Data Tribune



Thousand yen
1.600
1.400
1.200
1.000
800
600
400
200
0
Fifth class
Fouth class
Third class
Second class
First class
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Data from Ministry of Health, Labor

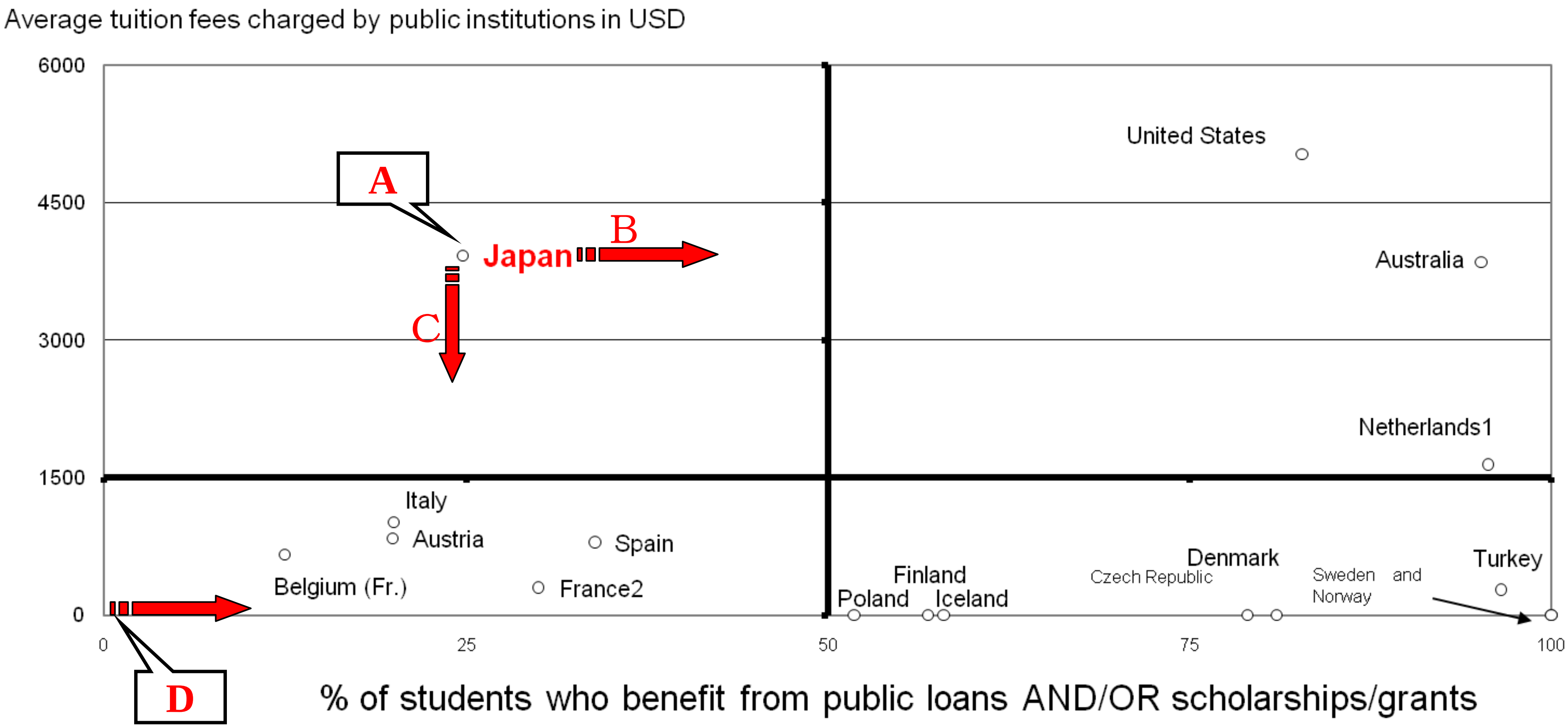
Immigrant workers

Ten thousands



Data from Honkawa Data Tribune

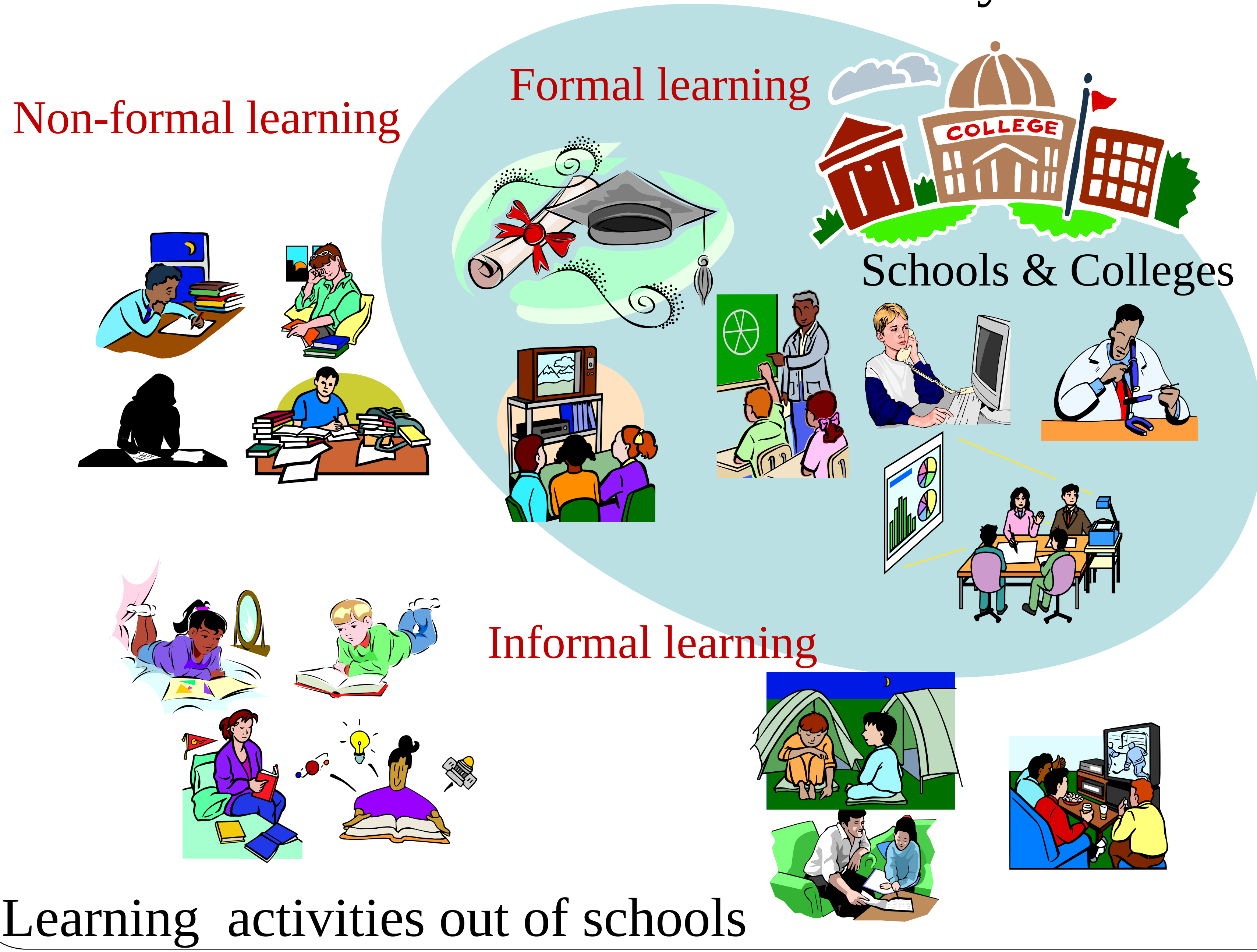
Chart B5.3. **Relationships between average tuition fees charged by public institutions and proportion of students who benefit from public loans AND/OR scholarships/grants in tertiary-type A education (academic year 2004/05)**
For full-time national students, in USD converted using PPPs



A ： To maintain the present policy
B ： To maintain the present fee and enhance scholarship programs
C ： To maintain the present scholarship programs, but decrease the tuition fee
D ： To start zero and plan a new higher education system based on non-formal learning for professional development
E ： Another plan

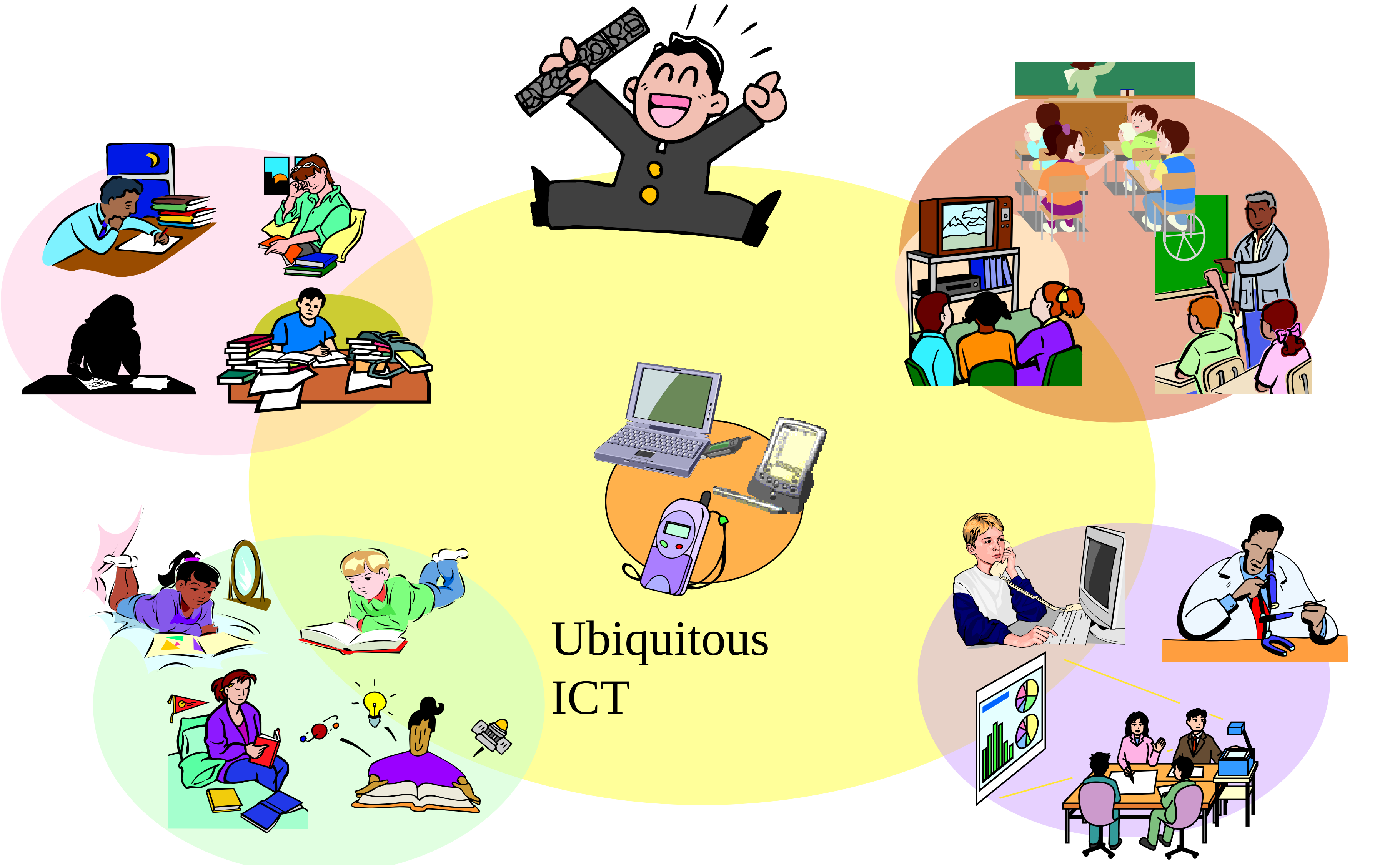
Education At a Glance

Conventional Educational System

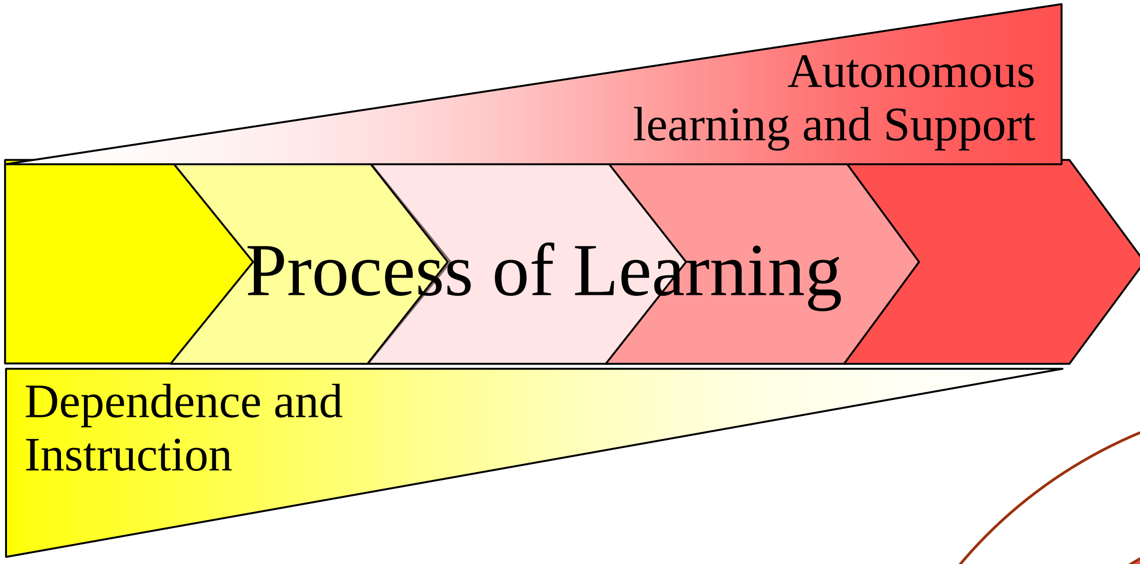


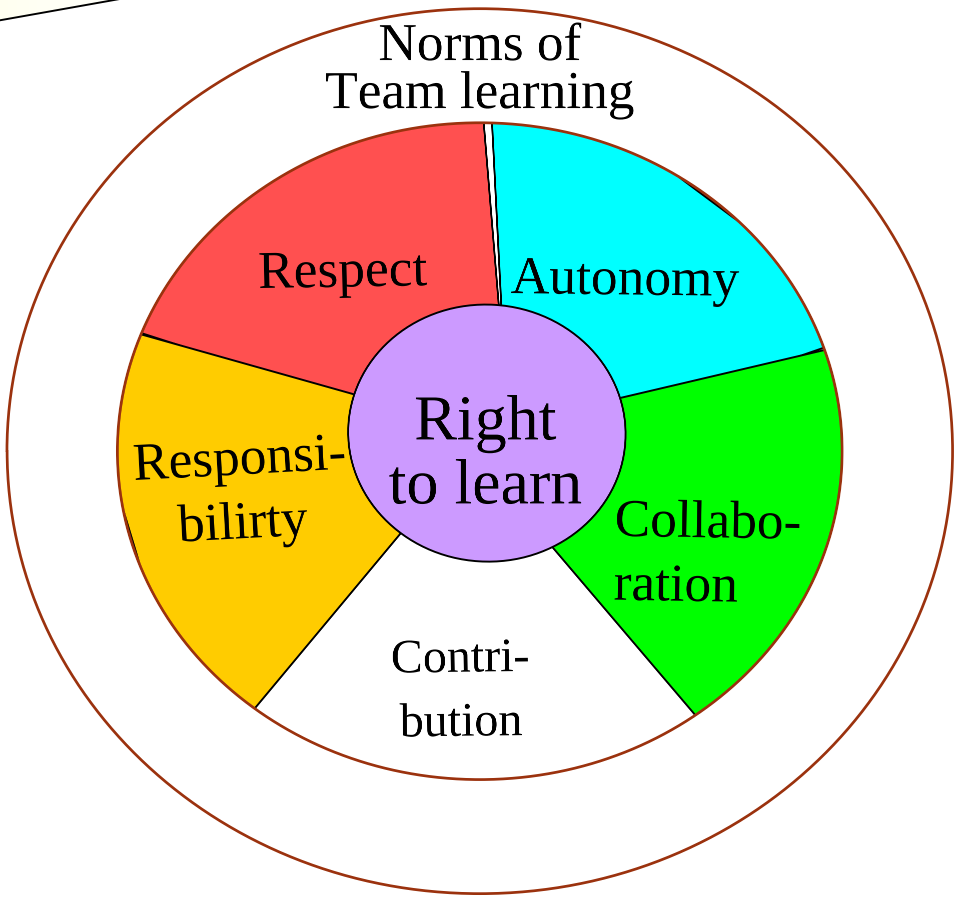
Ubiquitous learning in daily life

How can we design, evaluate and manage ubiquitous learning?



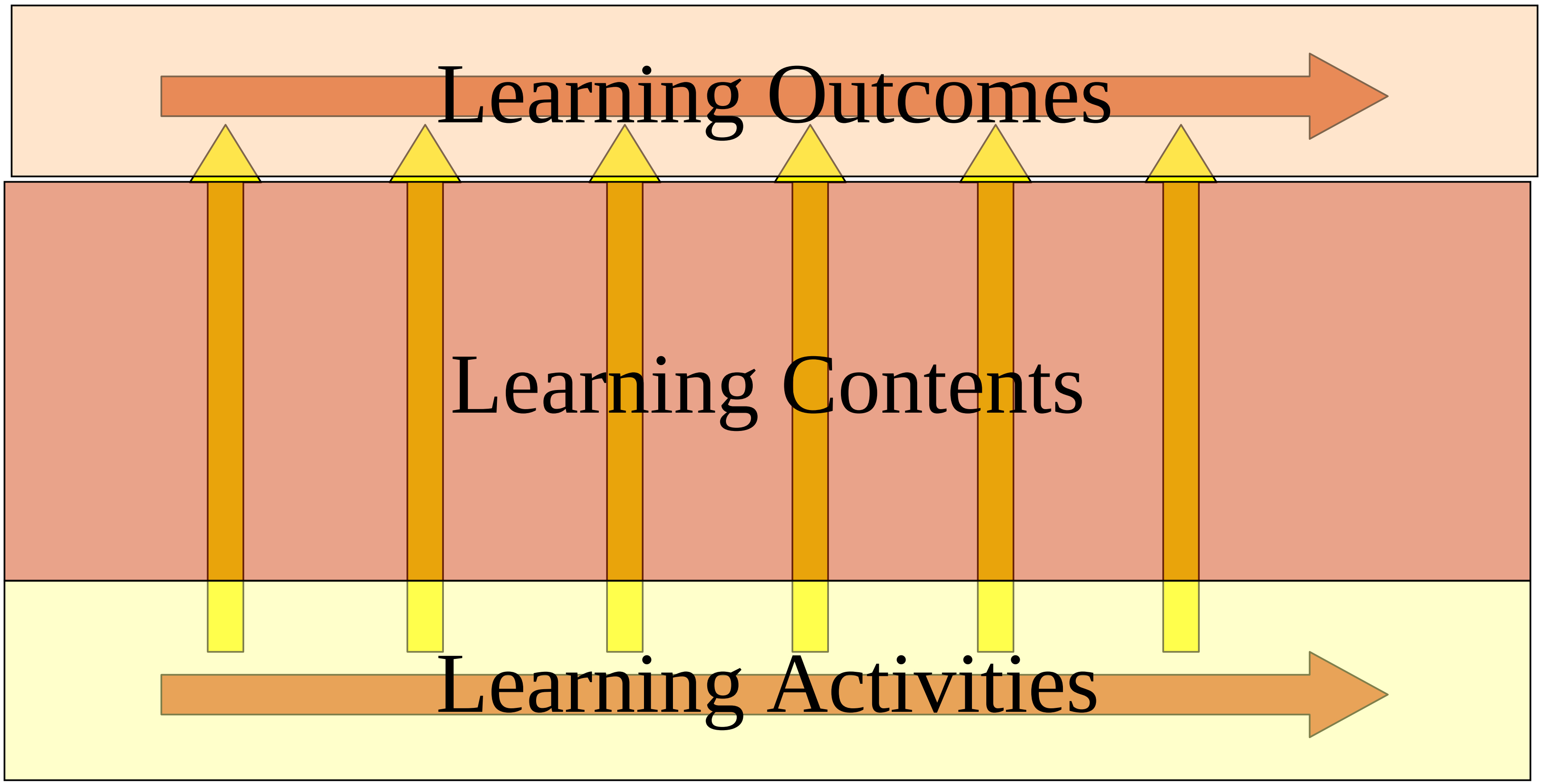
First phase

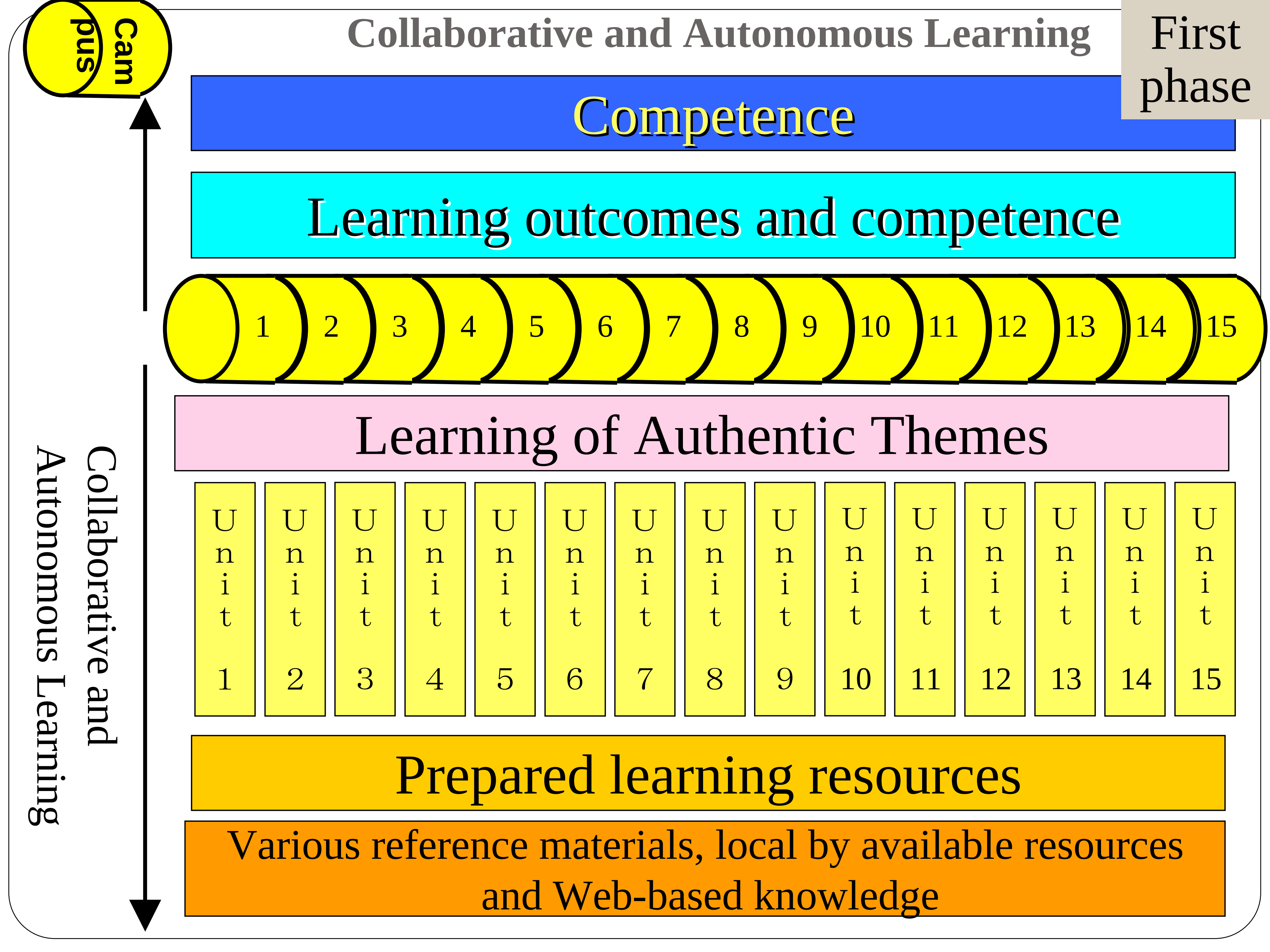

Autonomous
learning and Support
Process of Learning
Dependence and
Instruction

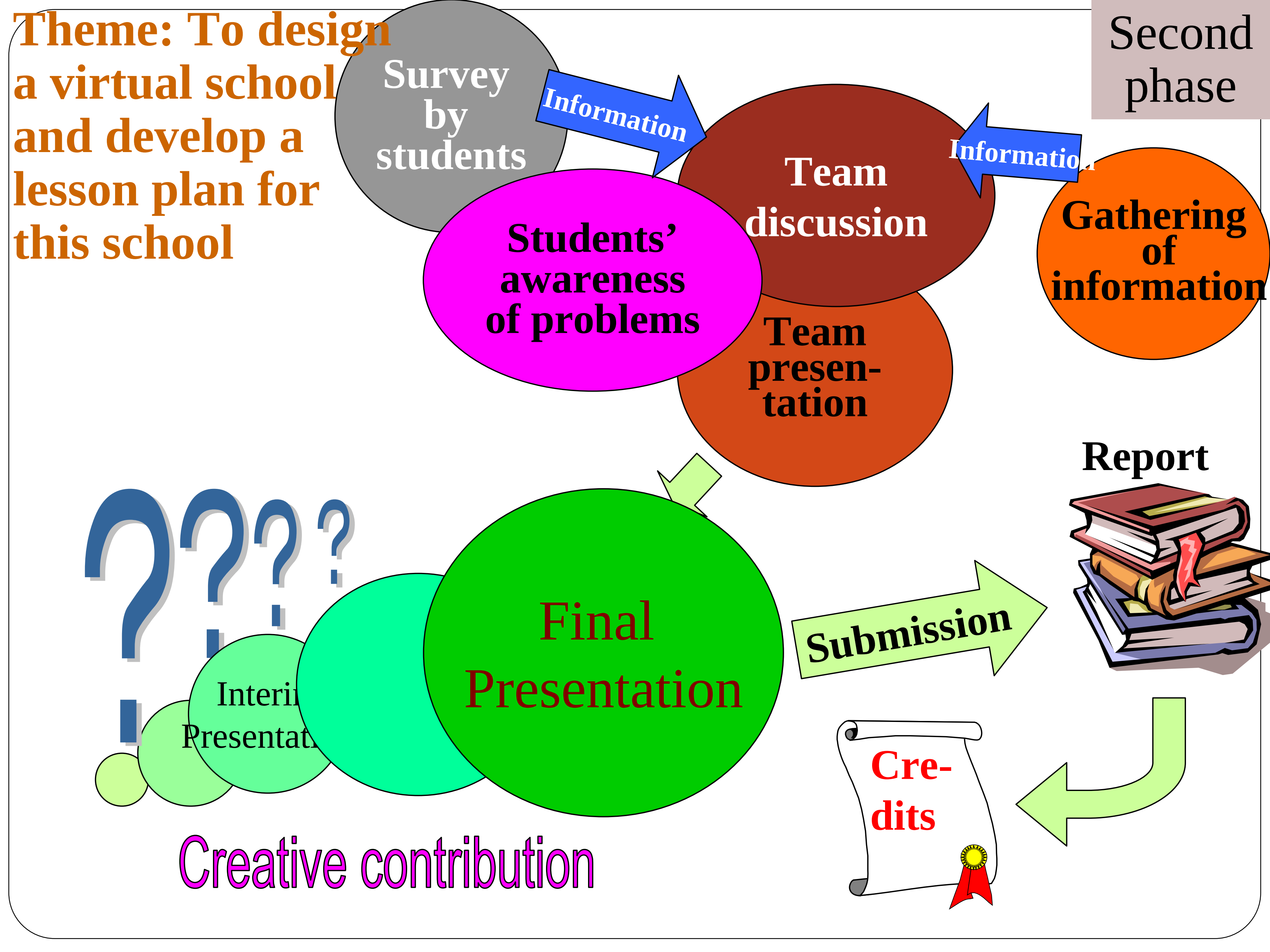

Norms of
Team learning
Respect
Autonomy
Right
to learn
Responsi-
bilirty
Collabo-
ration
Contri-
bution

First phase

Leaning Activities, Contents and Outcomes




Collaborative and Autonomous Learning
First phase
Campus
Competence
Learning outcomes and competence
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Learning of Authentic Themes
Unit 1
Unit 2
Unit 3
Unit 4
Unit 5
Unit 6
Unit 7
Unit 8
Unit 9
Unit 10
Unit 11
Unit 12
Unit 13
Unit 14
Unit 15
Prepared learning resources
Various reference materials, local by available resources and Web-based knowledge
Collaborative and Autonomous Learning


Theme: To design a virtual school and develop a lesson plan for this school
Second phase
Survey by students
Information
Team discussion
Information
Gathering of information
Students' awareness of problems
Team presen-tation
Report
Final Presentation
Submission
Interim Presentati
Cre-dits
Creative contribution

Second phase

Theme: To design a virtual school and develop a lesson plan for this school

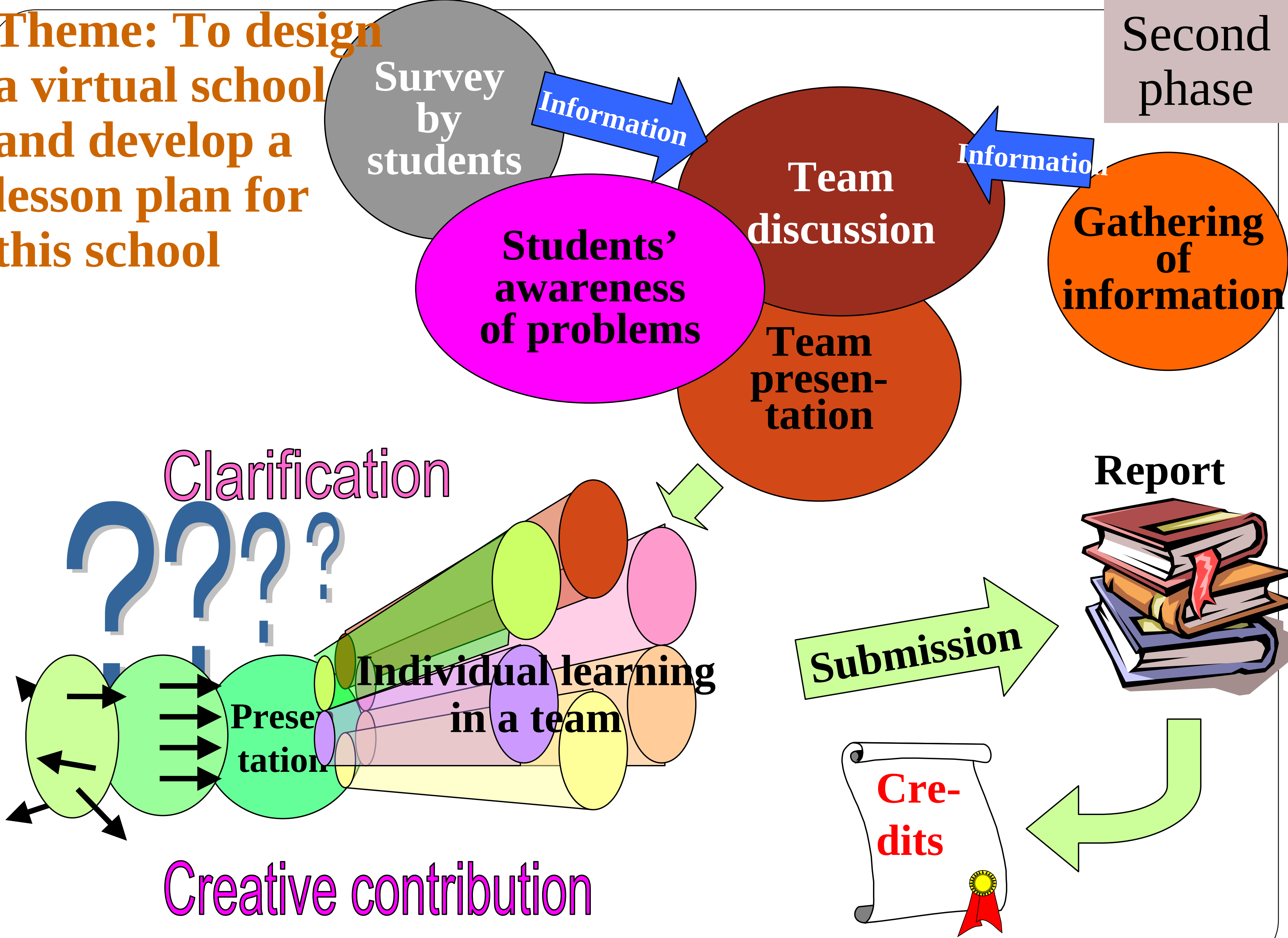
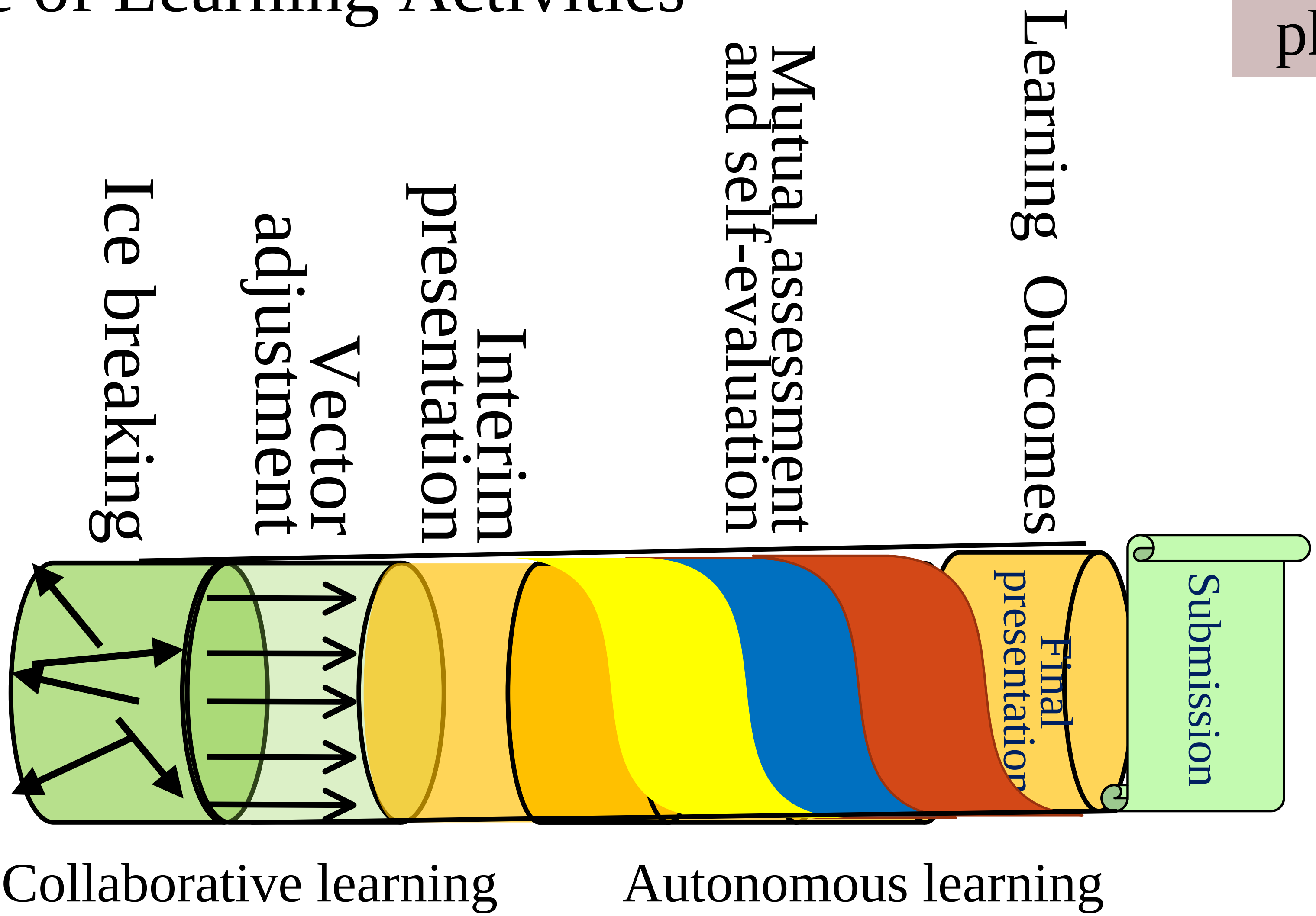


Image of Learning Activities

Second phase

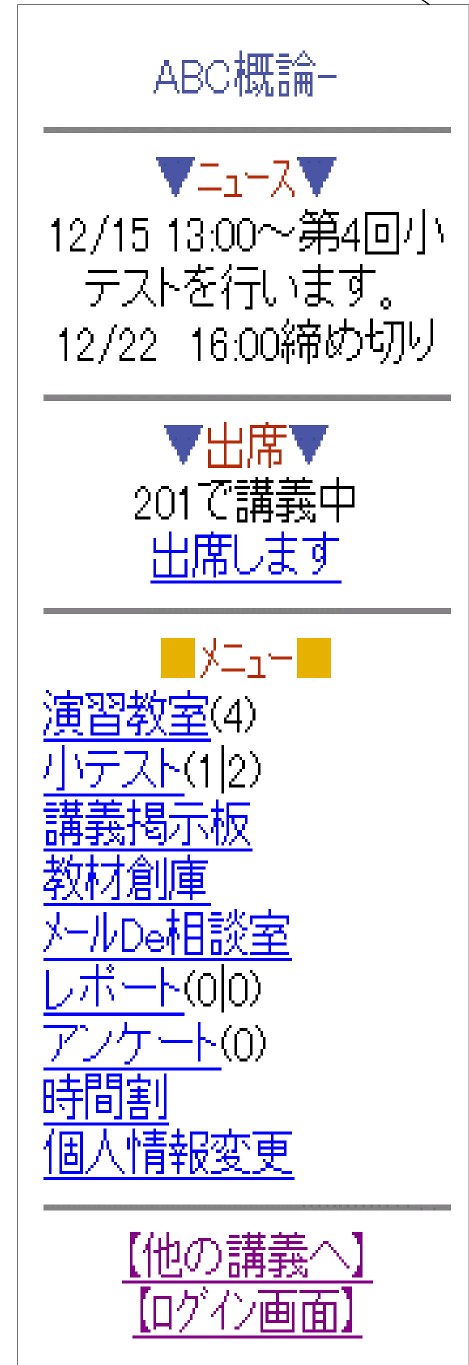


Introductory course of Instructional Method

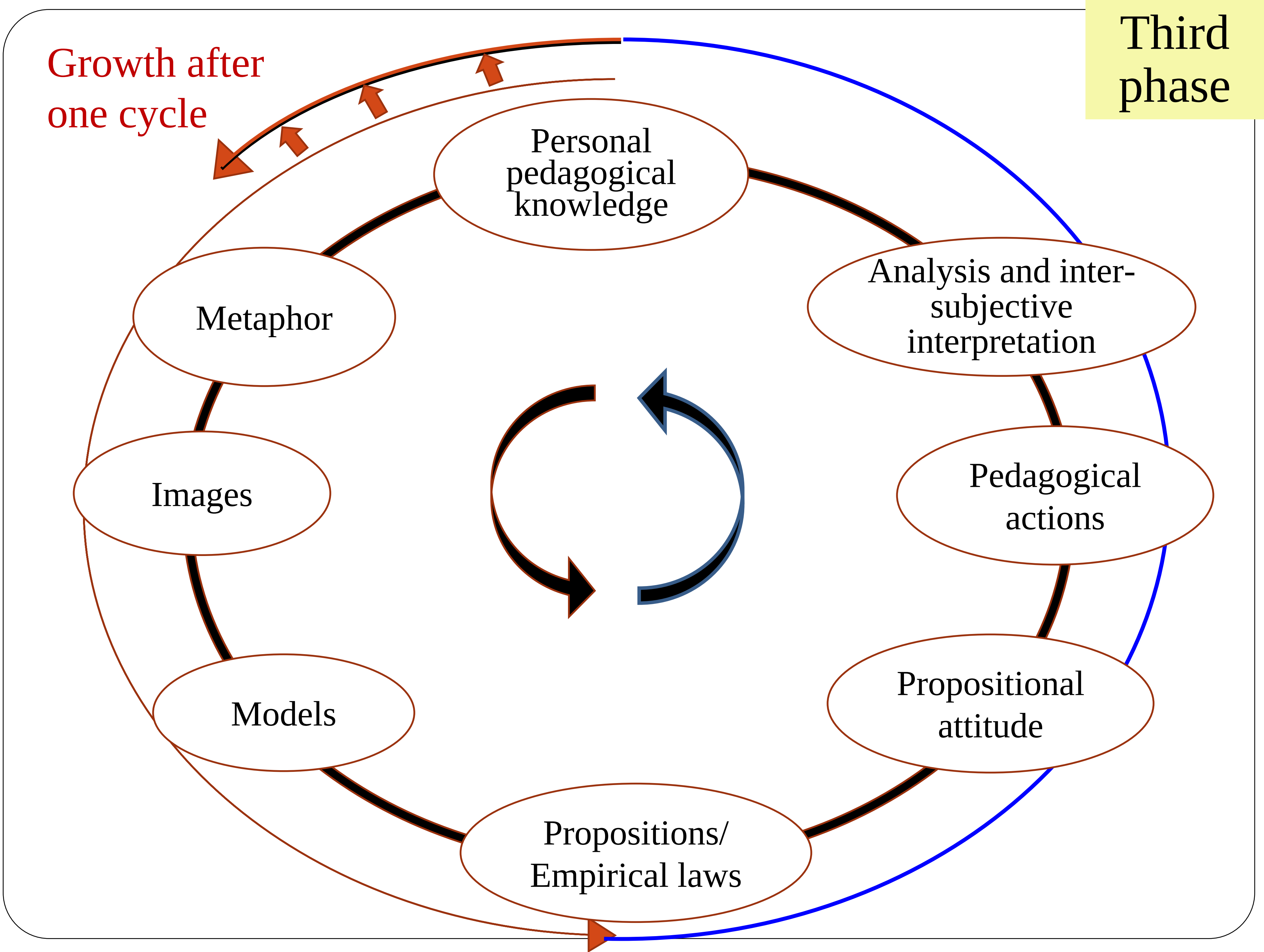
	Number of students
Spring semester in 2004	228
Spring semester in 2005	276
Autumn semester in 2005	181

- Instructor: Haruo NISHINOSONO
- Bukkyo University
- Teaching assistant: Shiho Mochizuki

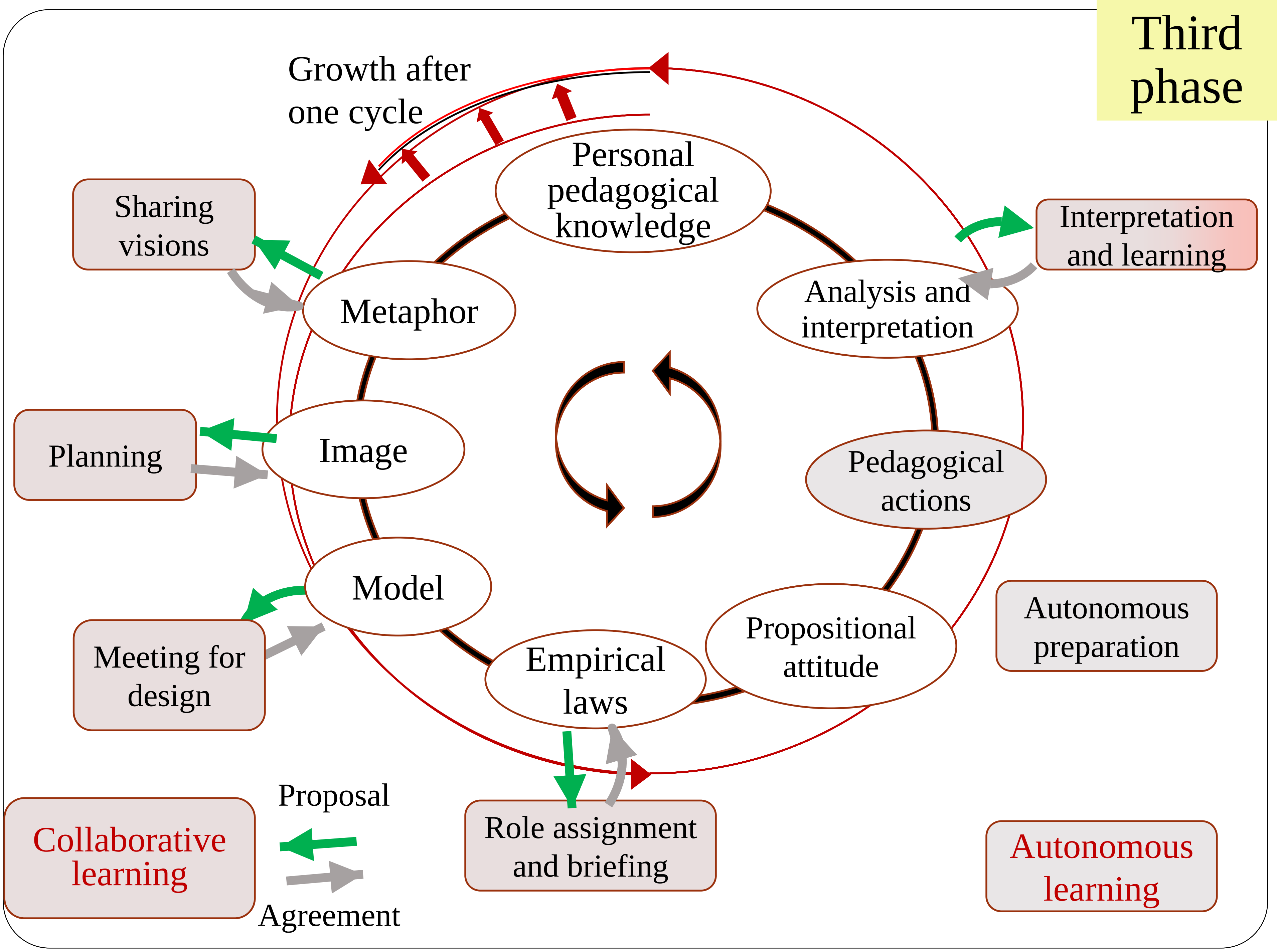
他の学生は図書館や学習室で作業


ABC概論-
▼ニュース▼
12/15 13:00～第4回小テストを行います。
12/22　16:00締め切り
▼出席▼
201で講義中
出席します
■メニュー■
演習教室(4)
小テスト(1|2)
講義掲示板
教材創庫
メールDe相談室
レポート(0|0)
アンケート(0)
時間割
個人情報変更
【他の講義へ】
【ログイン画面】

きらきら小学校



Third phase
Growth after one cycle
Personal pedagogical knowledge
Analysis and inter-subjective interpretation
Pedagogical actions
Propositional attitude
Propositions/ Empirical laws
Models
Images
Metaphor



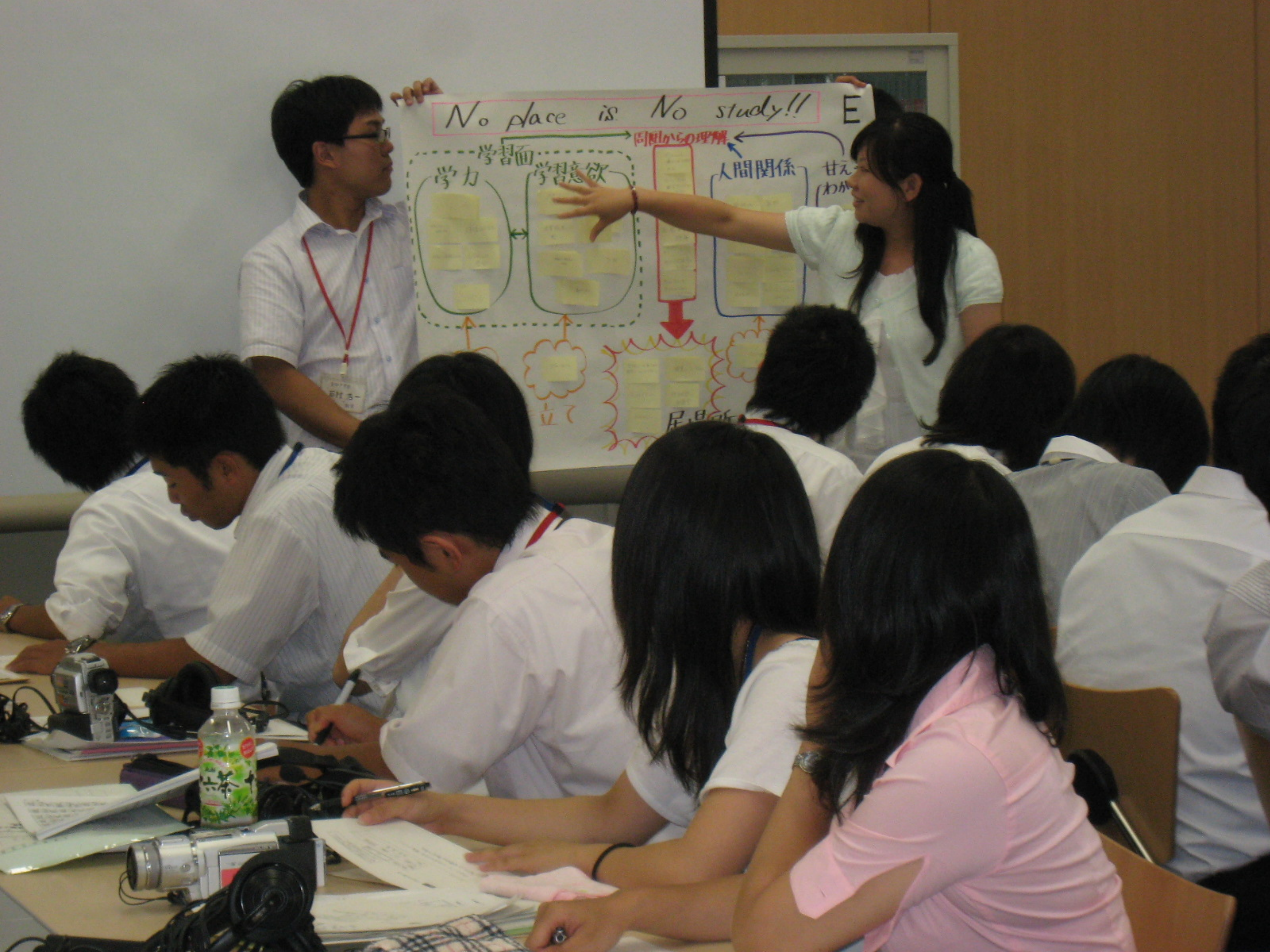
Third phase
Growth after one cycle
Personal pedagogical knowledge
Sharing visions
Metaphor
Analysis and interpretation
Interpretation and learning
Planning
Image
Pedagogical actions
Model
Meeting for design
Propositional attitude
Autonomous preparation
Empirical laws
Proposal
Agreement
Collaborative learning
Role assignment and briefing
Autonomous learning


に学習に
り組もう！


D

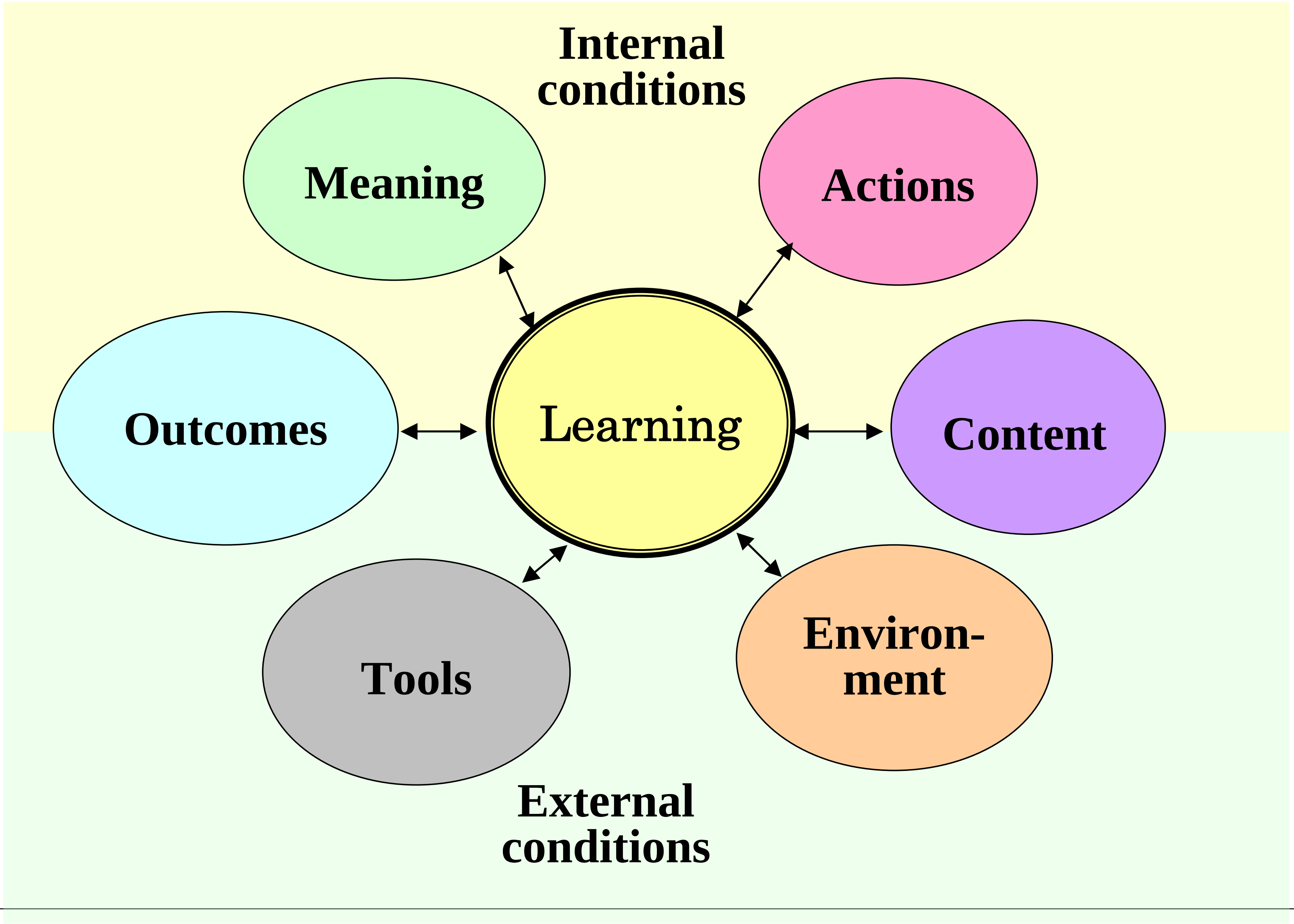

SG048
NEC
代表的なカードを選びましょう。
30

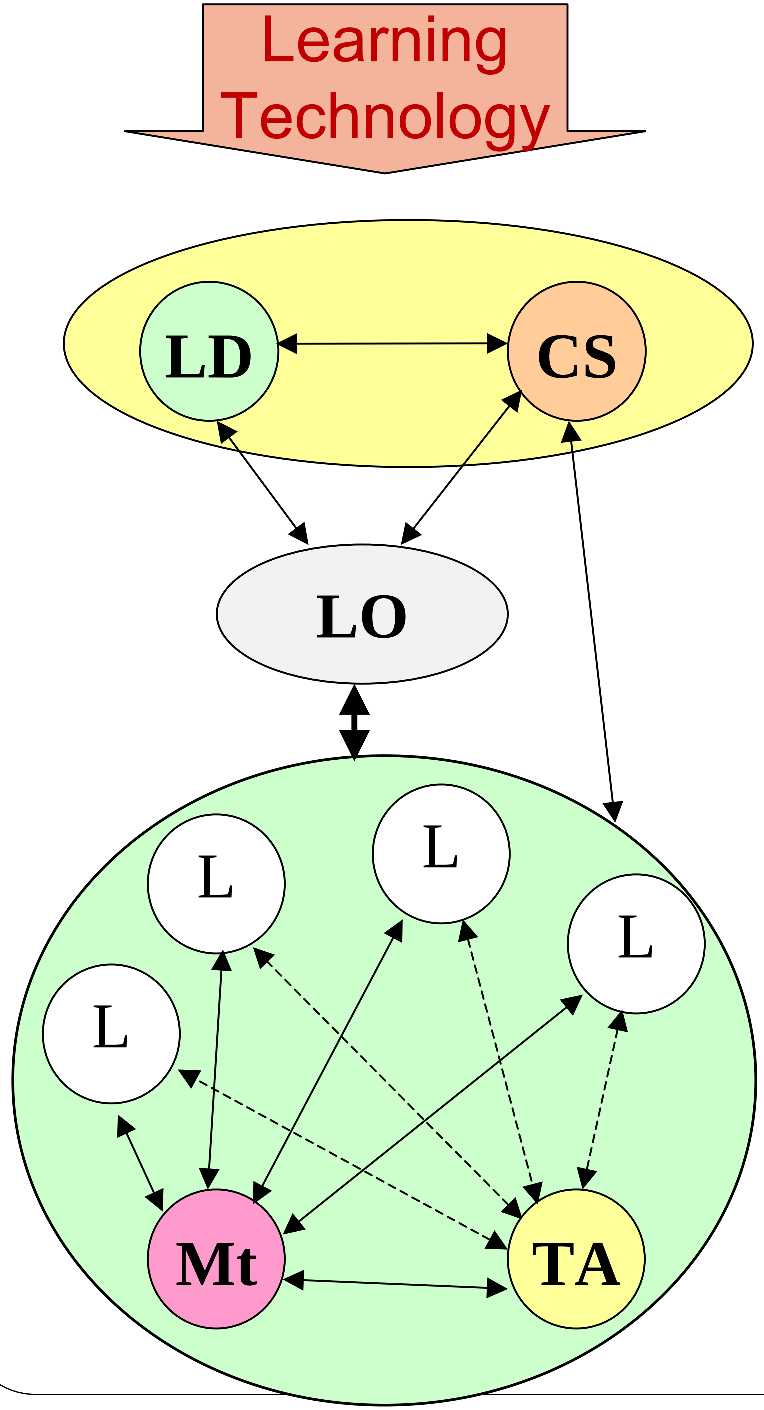

《計算用紙》
理科
Victor
Victor


No place is No study!!
E
学習面
学力
学習意欲
人間関係


支援
F
No place is No study!!
E
D

MACETO Model for Learning Design





Metaphor: Medical Treatment and Pharmacy

CS Subject Matter Specialist

LD Learning Developer

LO Learning Objects

Mt Mentor, Learning Guide

TA Technical Assistant

L Learner

Instruction

Management of Collaborative and Autonomous Learning

Two types of higher education

KSPL
Metaphor: Cafeteria
Institutions for ubiquitous learning

National Universities/
famous Private Universities
Metaphor: Luxurious restaurant
Institutions for affordable people

The Organizational Knowledge Circulated Management System on e-Learning Practices & Human Development

Toshio Okamoto, PhD Professor
University of Electro-Communications, Tokyo-Japan

President: Japanese Society of Information System on Education

Knowledge Society and Next Society

- By network technology, we need the total management system for knowledge producers, providers and consumers
- From structured knowledge to ill-structured knowledge
- Methodology change ... classroom lecturing to modern apprenticeship
- Change of employment systems

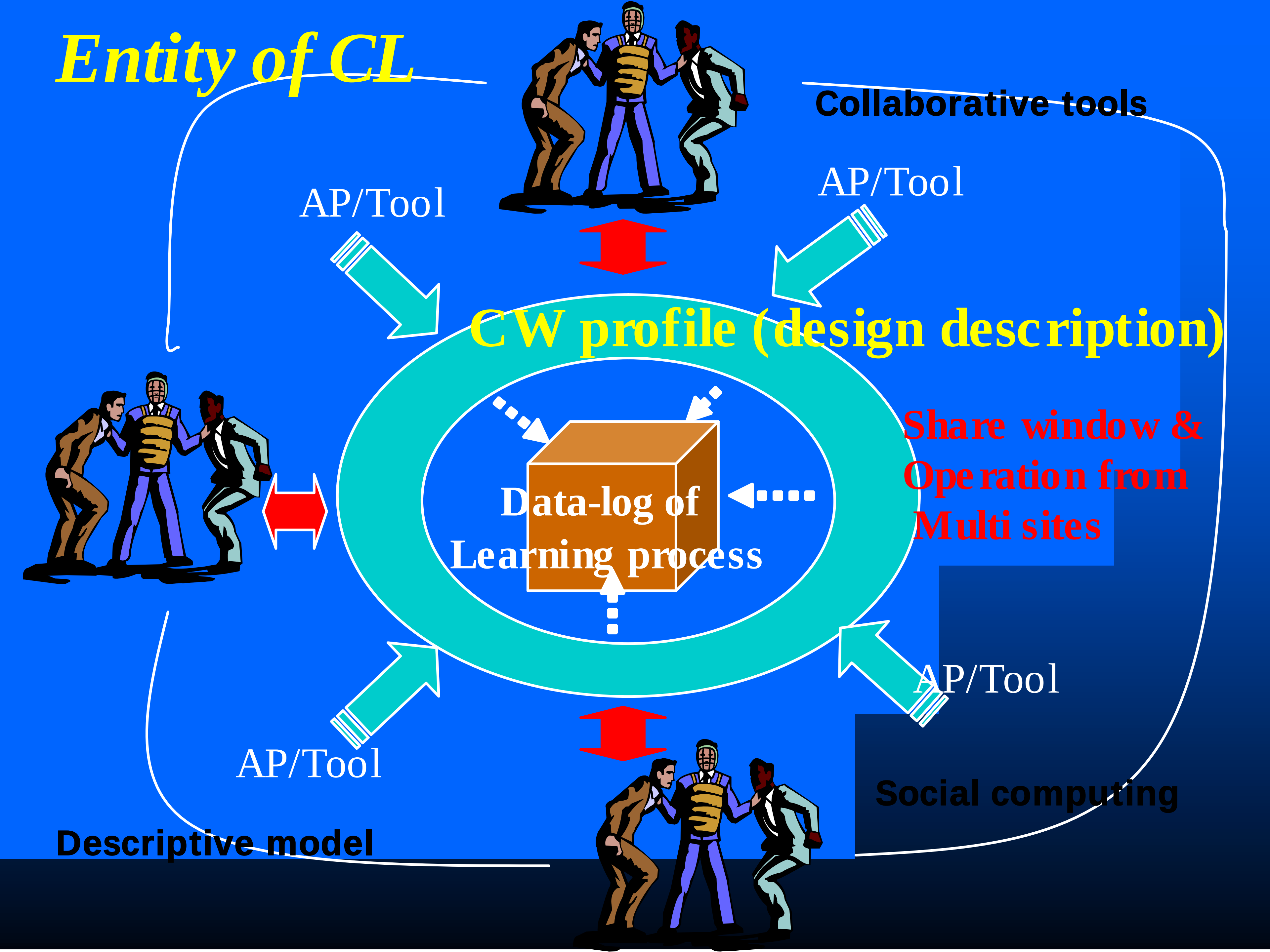
Technological Issues

haring/Re-using the distributed learning resources

istributing computational load

eamless access

tock of learning experiences


Entity of CL
Collaborative tools
AP/Tool
AP/Tool
CW profile (design description)
Share window &
Operation from
Multi sites
Data-log of
Learning process
AP/Tool
AP/Tool
Social computing
Descriptive model

Why we need e-pedagogy?

- Changing teachers/instructors' roles?
- Changing teaching/learning styles?
- Changing teaching/learning resources?
- Changing methodologies of teaching/learning?
- Changing peoples' thinking ways, mentality?
- Changing social/industry/business infrastructure?

What is e-Pedagogy for Knowledge Building ?

- Independent
- Self-development
- Collaboration/Align
- Self-responsibility
- Learner centric
- Evaluation (digital portfolio & e-Carte)
- Practices based on situated context in real world

The principles of e-Pedagogy from Social computing

emand Driven

elf-Identity through social activity

ne Top Access to Real World and Data

onstructional Conjunction for Semantics and Concept by Interactive activity

Dimensions(parameters) of Learning Design

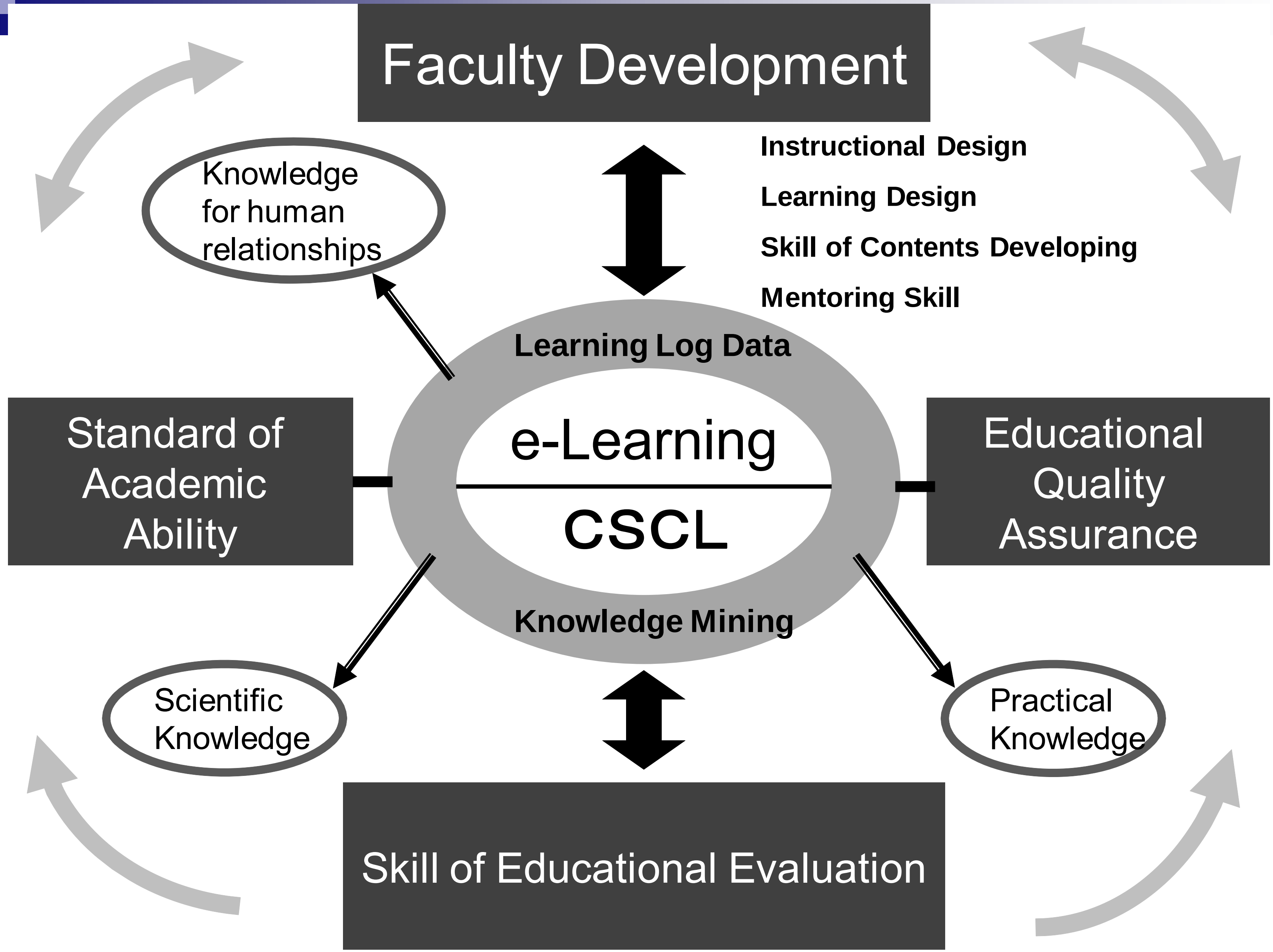
Highly structured	**Structure**	No structure
high	**Teacher control**	low
external	**Moderation of learning**	internal
external	**Learner motivation**	internal
Curriculum based	**Learning content**	Learner based
Unilateral by teacher	**Assessment**	Unilateral by learner

As design & operational factors

Changing Pedagogics

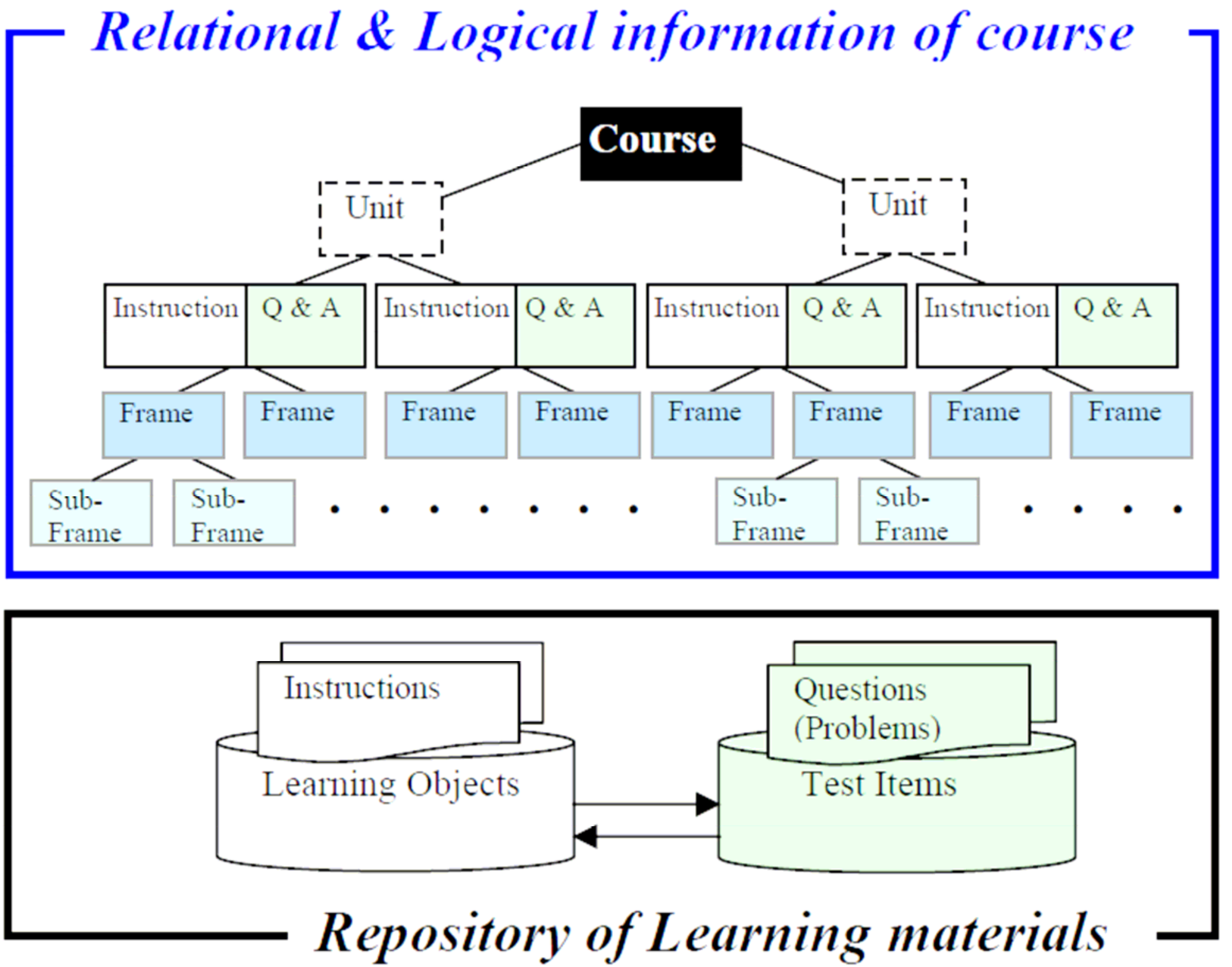
Learning Organization & Knowledge Management

- Instructional / Learning design
- Monitoring / Mentoring / Coaching
- Evaluating / Revising
- Collaborative environment
- Knowledge sharing, reusing and delivering
- Seamless linkage among faculties, administrative offices and computer center

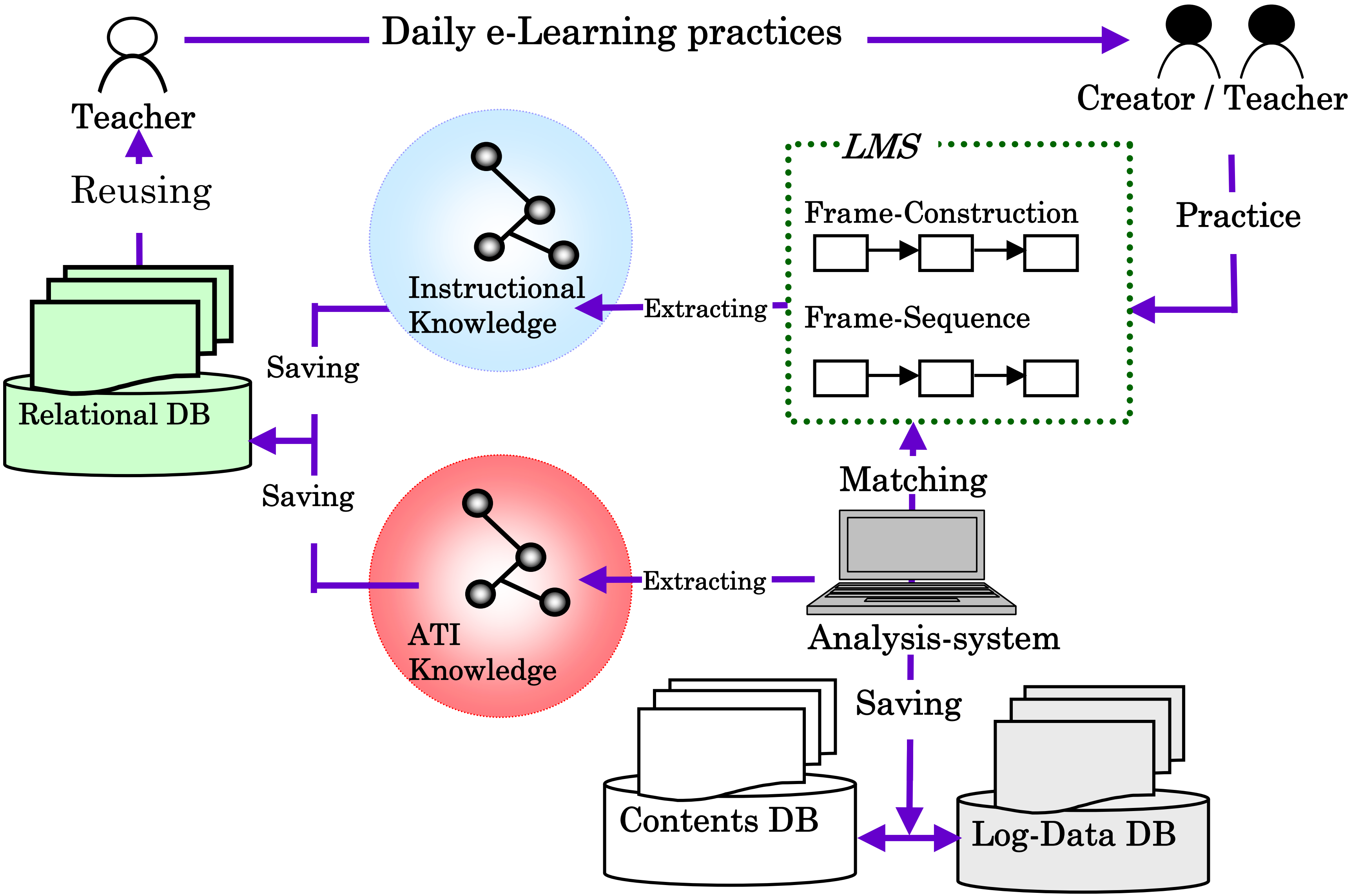


Mission of CDEL

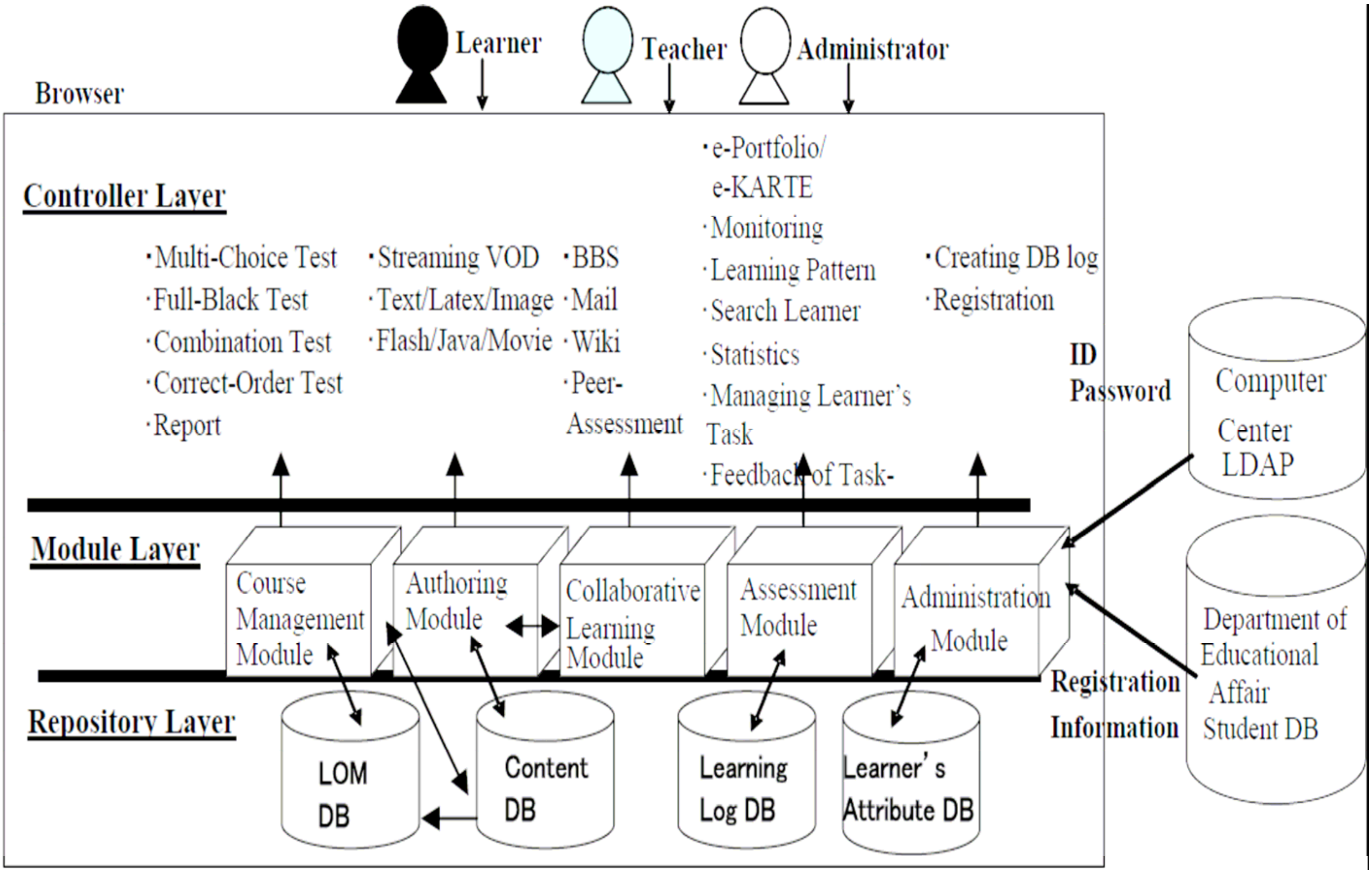
The Structured Database of Learning Resources in Webclass-RAPSODY



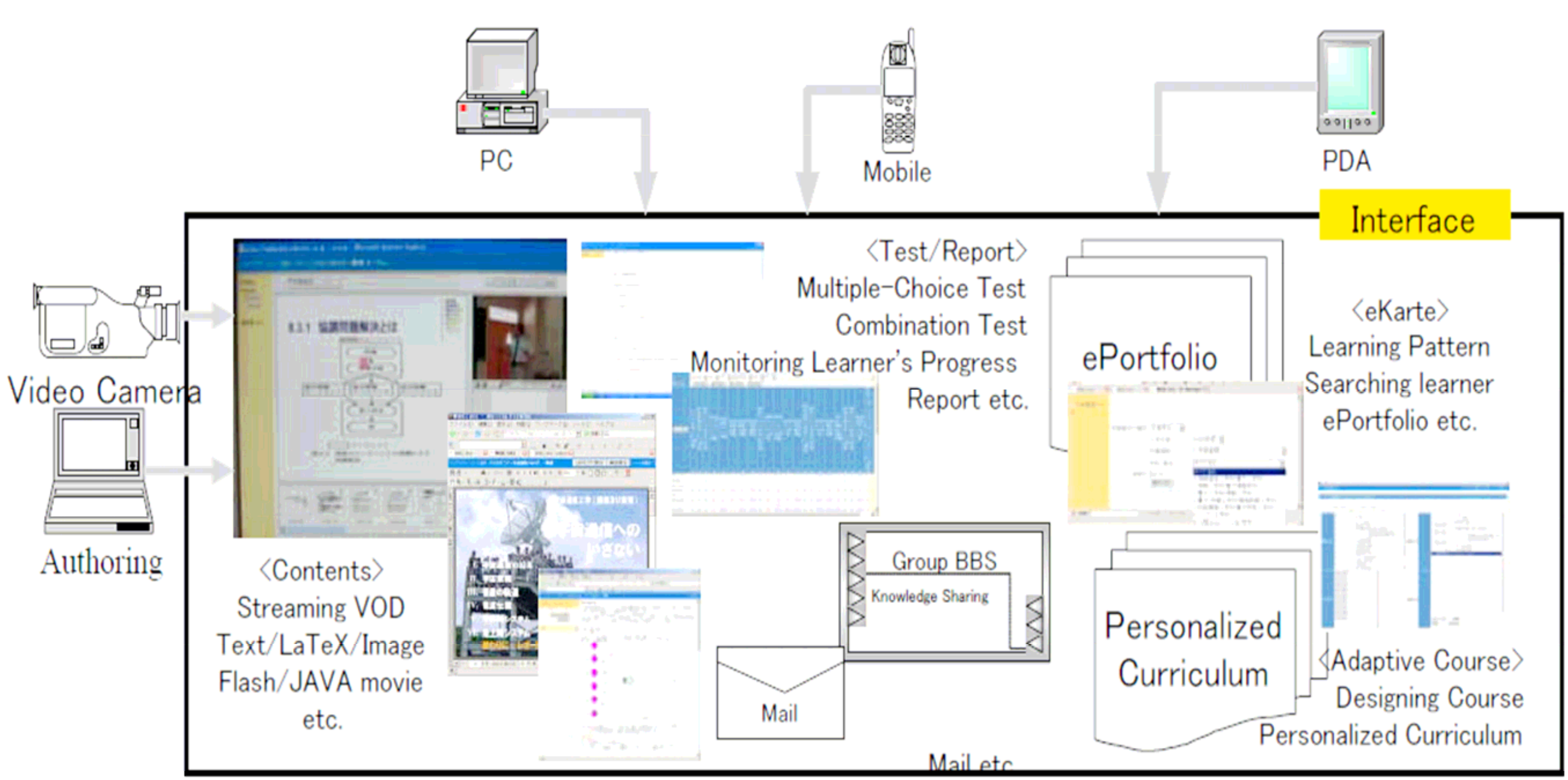
Organizational Knowledge Circulating Management System



WebClass-RAPSODY

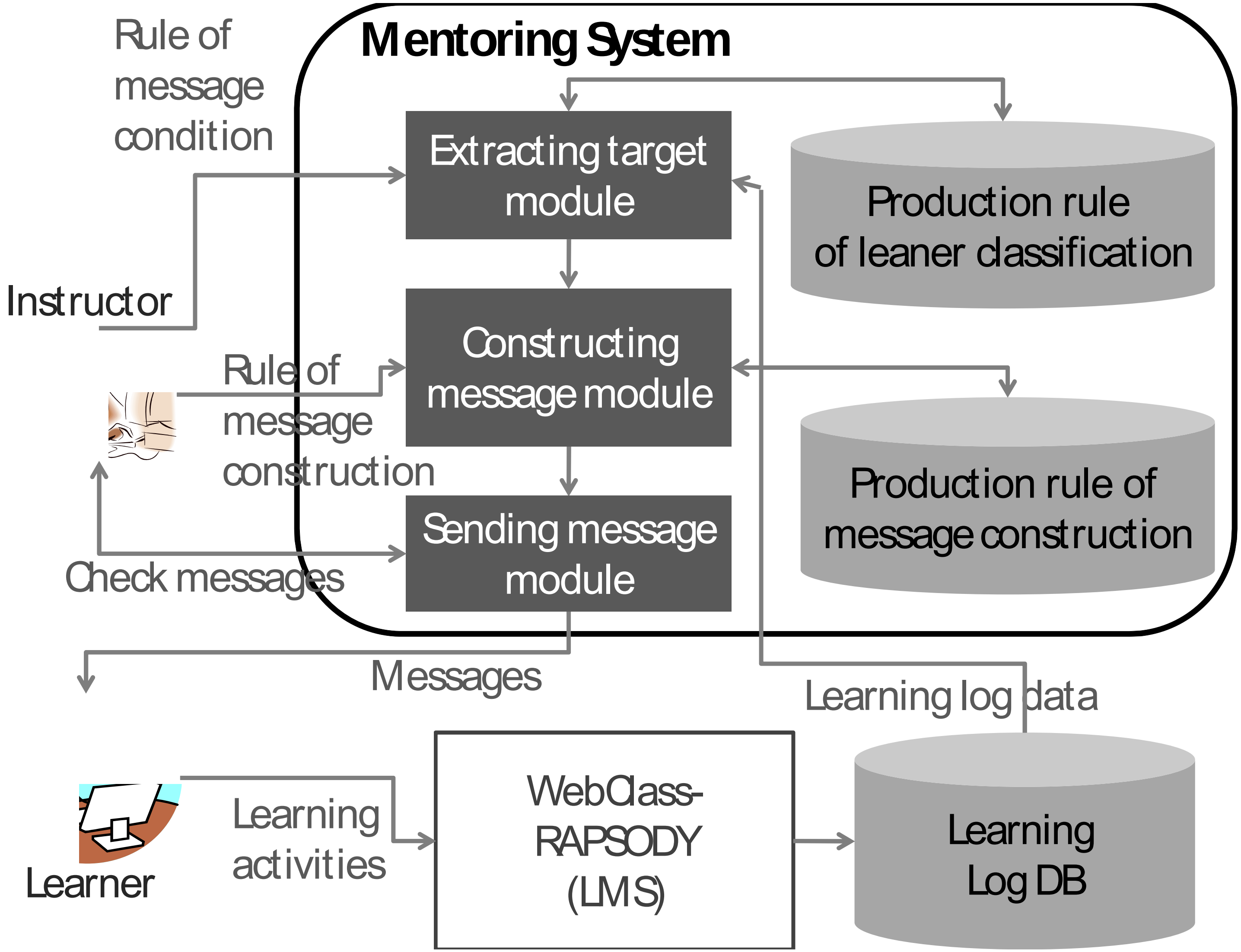


The Specified System Configuration for Authoring and Learning Supports

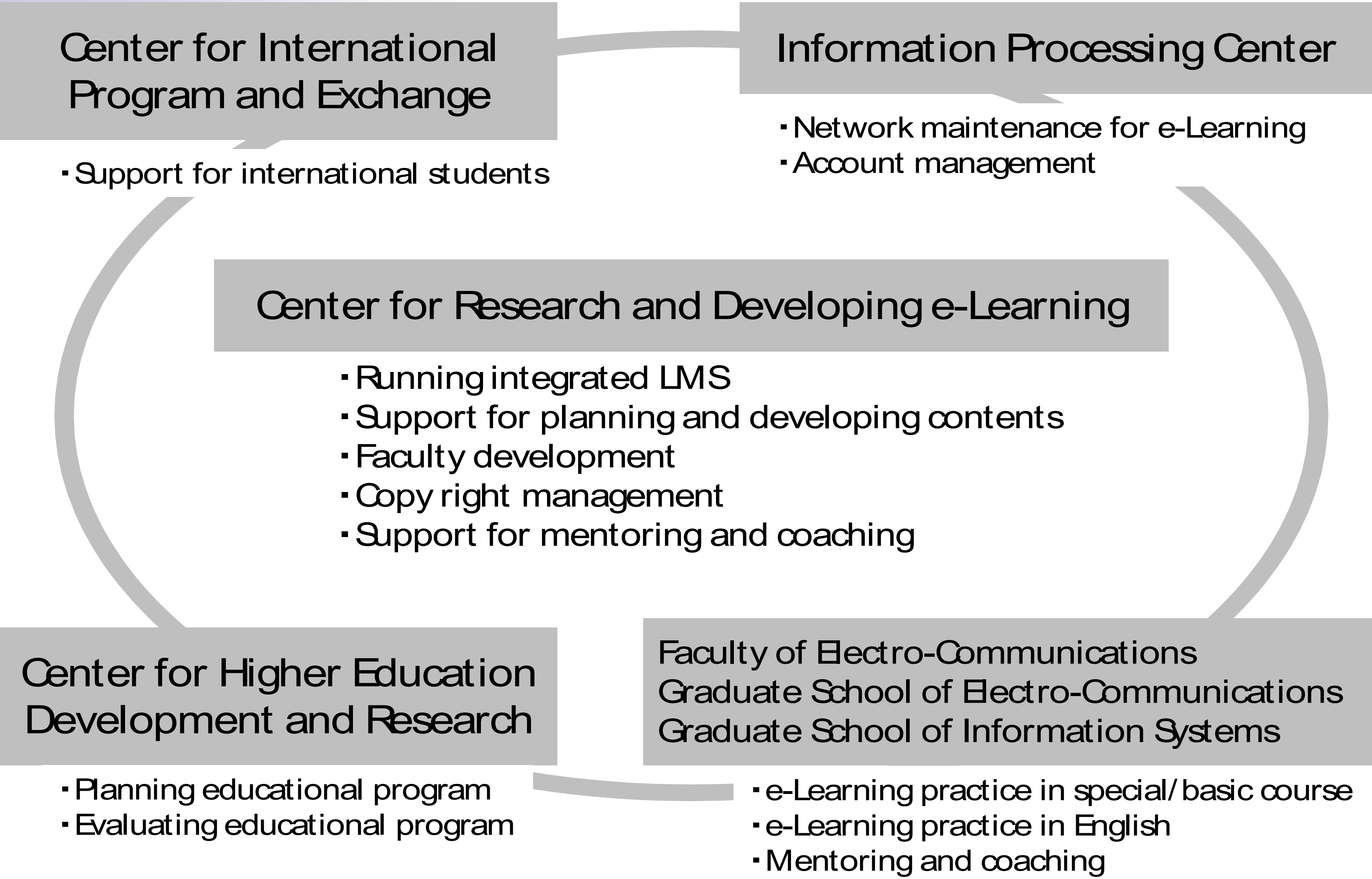


E-Karte

- Immediate feedback for learning progress
- Mentoring & monitoring
- Revise e-contents
- Management improvement

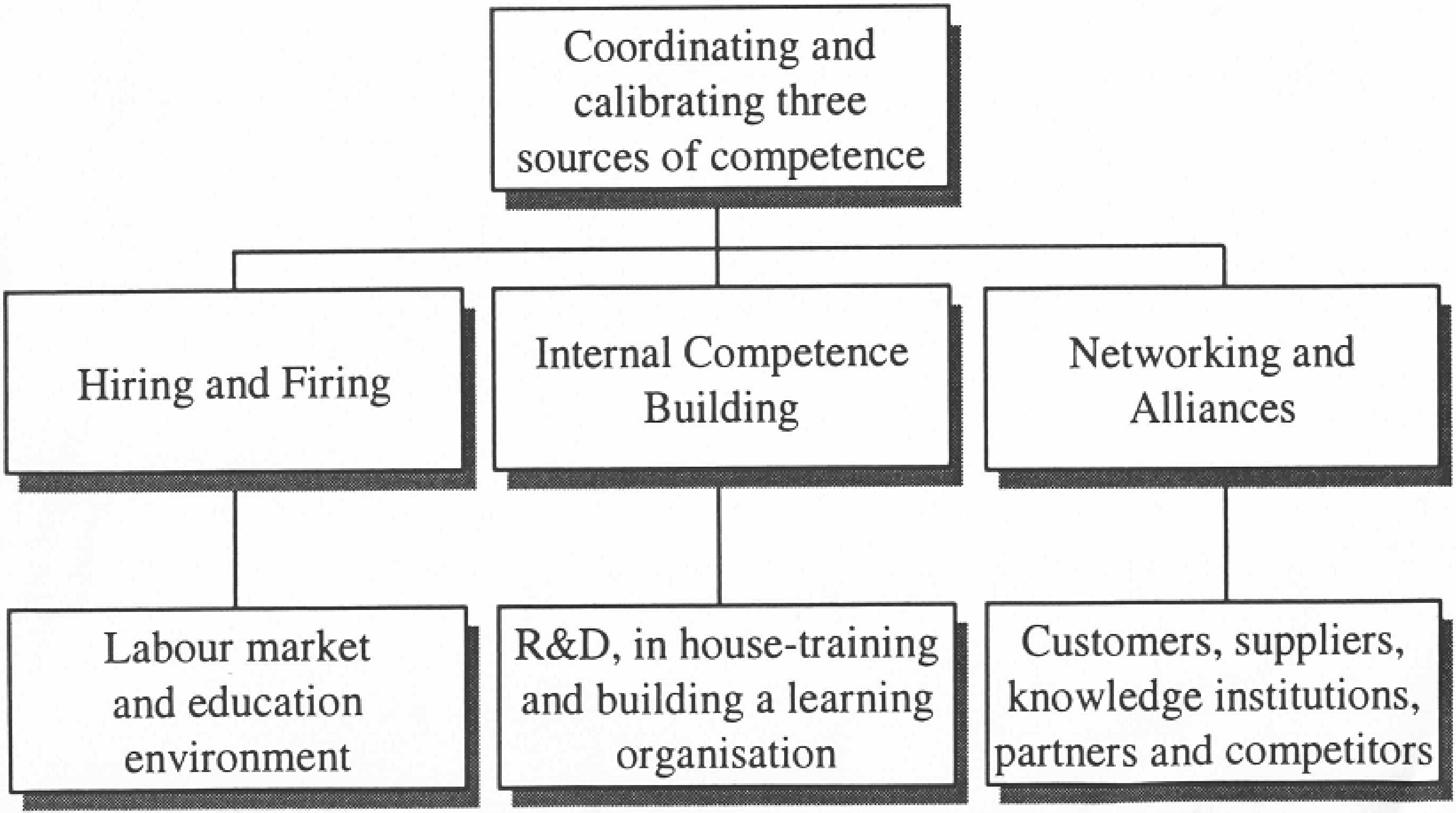


Architecture of mentoring system



Organizational collaboration in UEC

Knowledge Management in the Learning Organisation



Open Learning Environment and Executing Strategies for Human Development

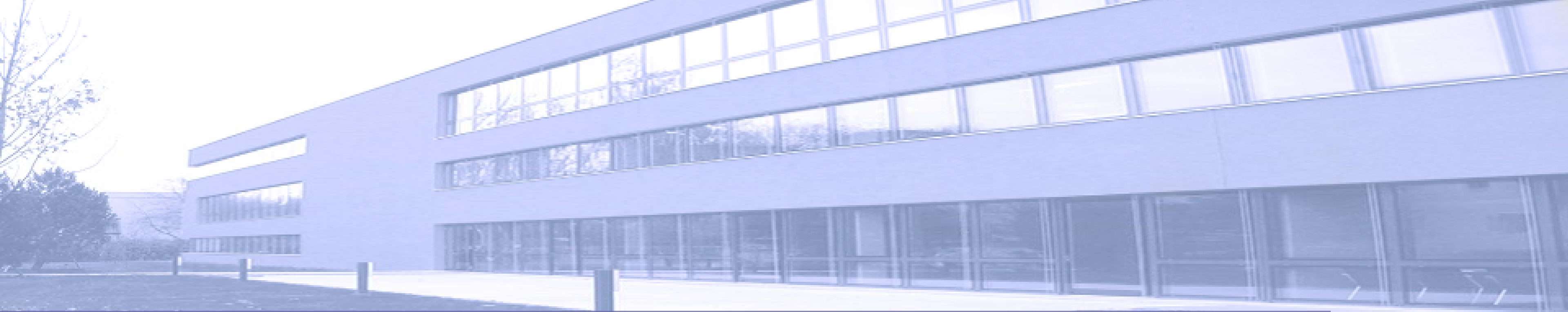
- **Curriculum and subjects(basic/up-to-date)**
- **Quality of courses**
- **Competency assurance -> national certification and qualification-> authorization**
- **Cost burden**
- **Sustainable supports (pedagogical and physical)**
- **Linkage with real workshops**

A Psychological View on Cognition from Human Development

mode	**remembering & forgetting**	**knowledge acquisition**	**skill acquisition**
side effect of	perceiving	understanding	(repetitive) performing
store/memory	episodic	semantic	associative
information type	events & situations	concept(ual structure)s	associative patterns
acquisition mode	recording & fading	constructing & accumulating	relative strengthening of associations

Conclusions

- ***Sustainable organizational managing scheme for human development***
- ***Sustainable growing services for people***
- ***Technological & pedagogical environments for collaboration and autonomous individual learning***
- ***Commitments, contributions and self-responsibility including money bearing***



The Role of Knowledge Transfer in the Future Internet

Klaus Tochtermann

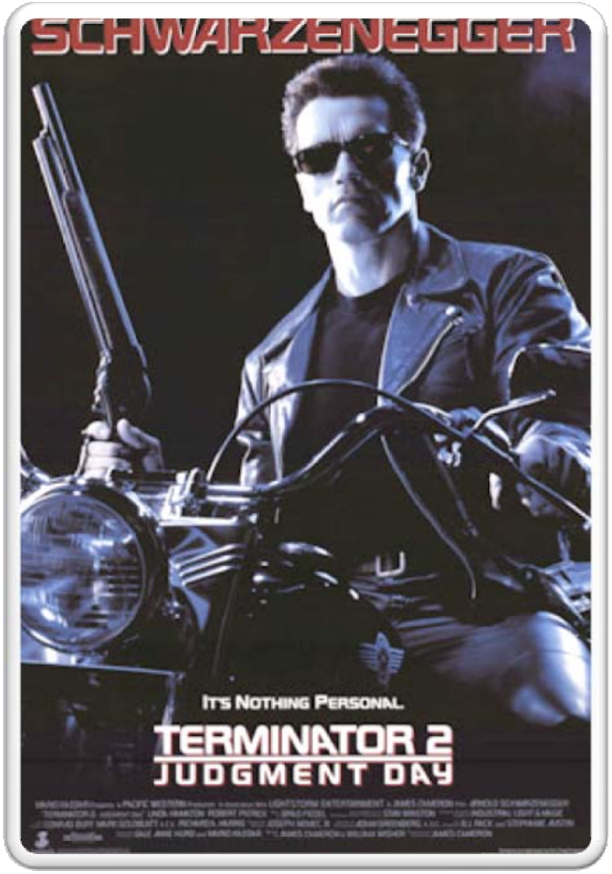
http://www.know-center.at

Where am I from?

- Austria is not Australia

http://www.**know-center**.at

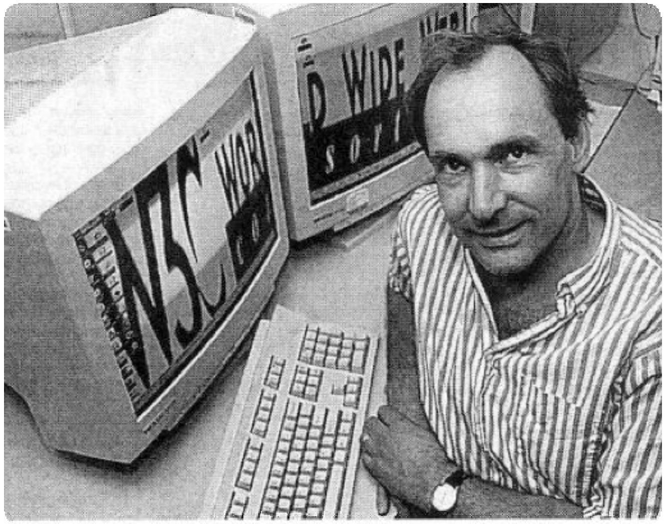
Graz is...


SCHWARZENEGGER
IT'S NOTHING PERSONAL
TERMINATOR 2
JUDGMENT DAY

Austria

46% of Austria is covered by forest

High-Tech Truck in the Forest and the Internet



Future Internet Initiatives

2007 U.S. **Japan**

2008 Europe

National Initiatives:
France, Germany, Sweden, Austria, UK,...

FP7:
90 Projects, €600 Mio

FP8: still open

People…

comScore

2008 → 1 Billion Internet User

200 Millionen users
Doubling within 8 months

More and More Content & Knowledge

[Future Internet Ongoing Activities; Presentation byP. Fatelnig EC]

flickr

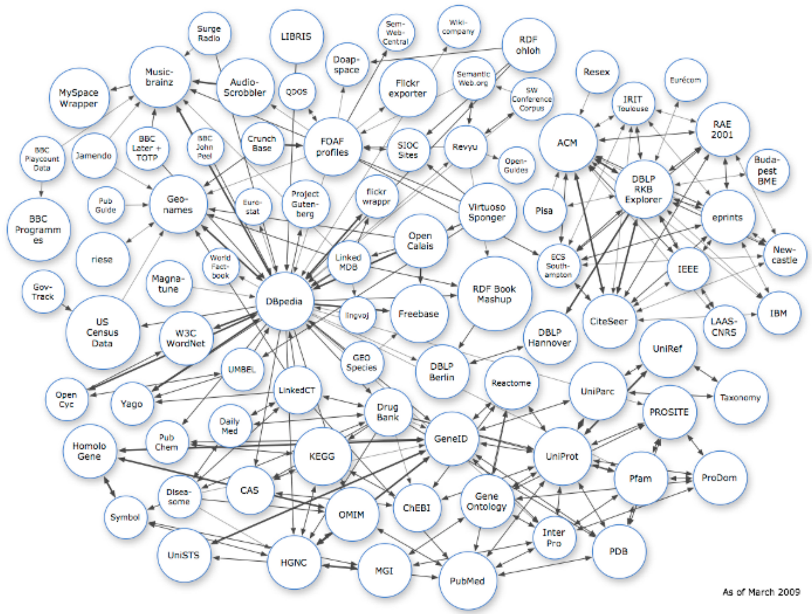
2002 - 2007 – 2 Billions new photos

2007 - 2008 – 1 Billion new photos

Google

1998 – 26 * 10^6 indexed webpages

2008 – 10^{18} indexed webpages



Future Internet

Internet by and for people

Internet of content
& knowledge

Learning at the Professional Workplace

- **Only 30%** of what was learned in a formal learning courses is applied at the workplace

  [Robinson, 2003]

- **But 80 – 90%** of the workplace knowledge is acquired through informal learning

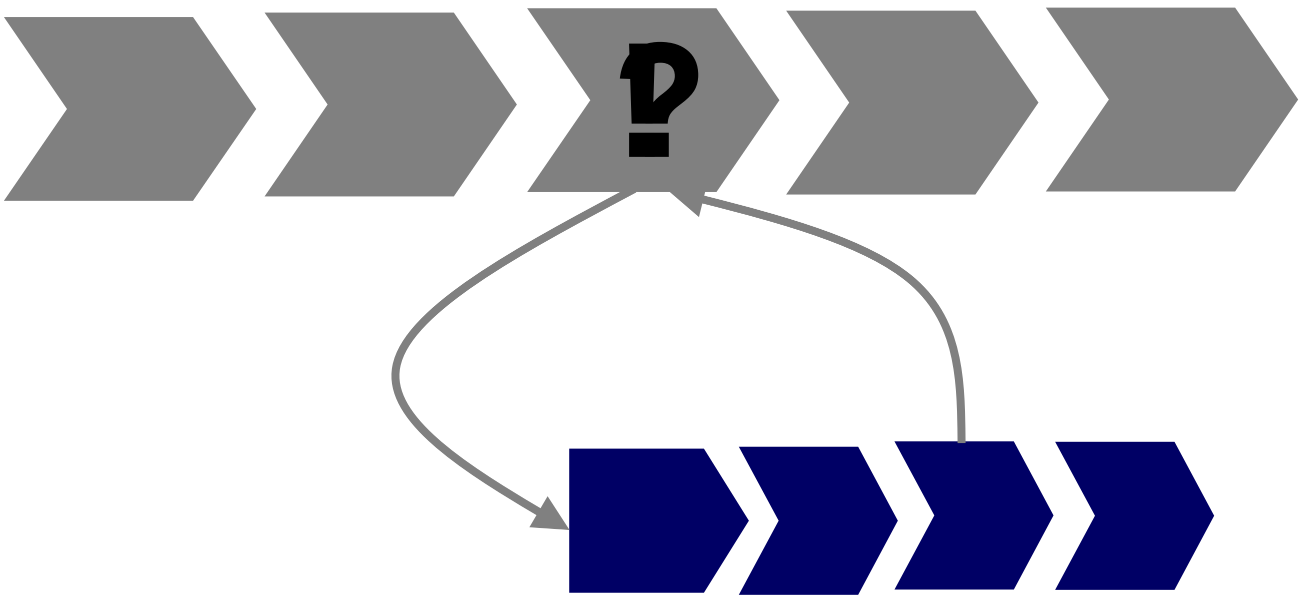
  [Raybould, 2000]

Bring the learning material to the knowledge worker

and not the knowledge worker to the learning material

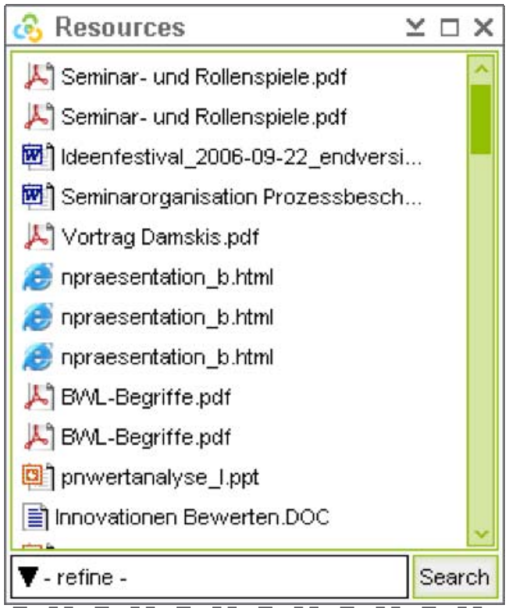
Workplace Learning…

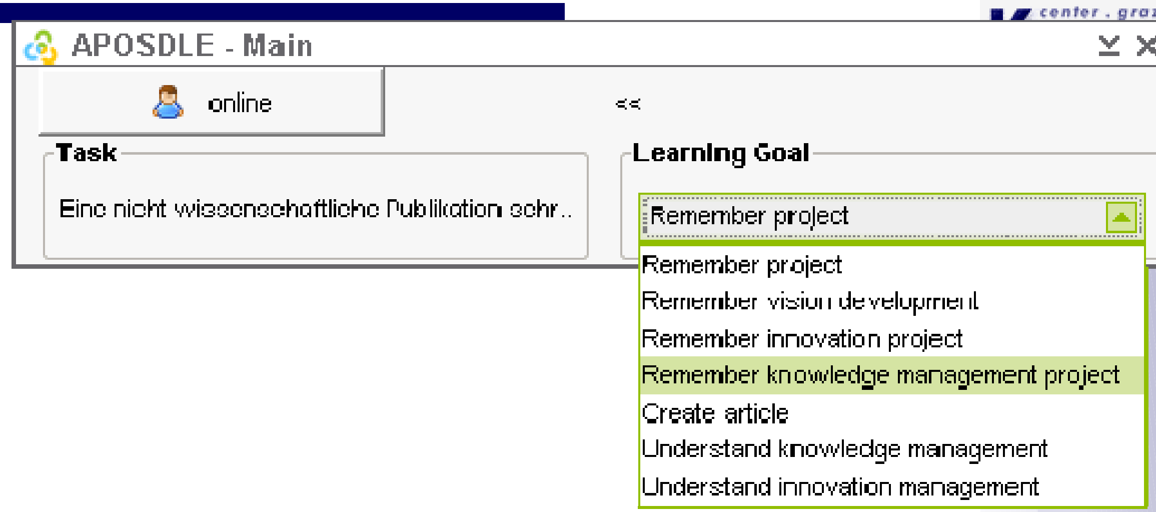
Work Tasks



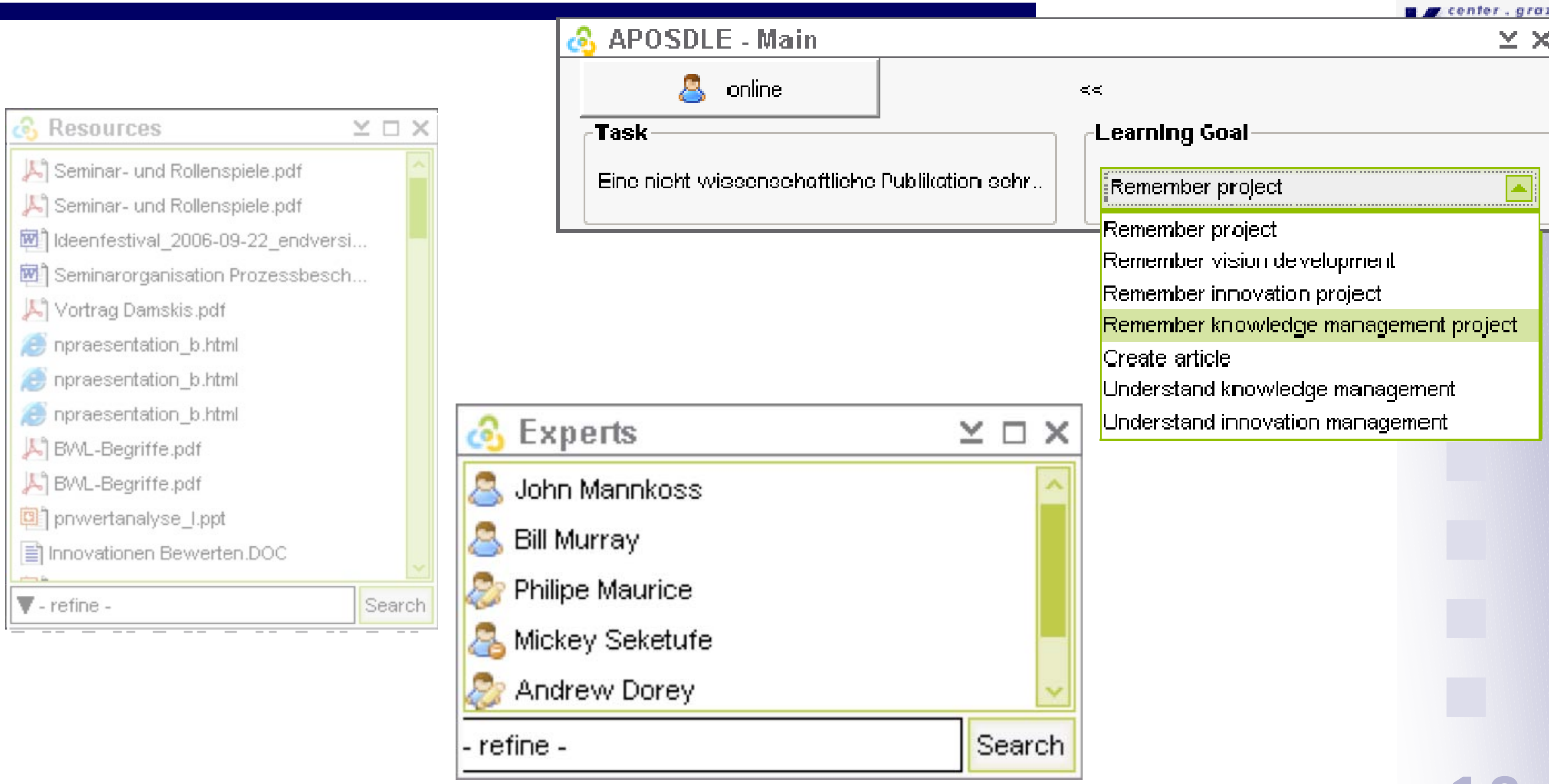
(Collaborative) Learning Steps

Knowledge Transfer Based on Content …





… and People



APOSDLE - Main
online
<<
Task
Eine nicht wissenschaftliche Publikation schr...
Learning Goal
Remember project
Remember project
Remember vision development
Remember innovation project
Remember knowledge management project
Create article
Understand knowledge management
Understand innovation management
Resources
Seminar- und Rollenspiele.pdf
Seminar- und Rollenspiele.pdf
Ideenfestival_2006-09-22_endversi...
Seminarorganisation Prozessbesch...
Vortrag Damskis.pdf
npraesentation_b.html
npraesentation_b.html
npraesentation_b.html
BWL-Begriffe.pdf
BWL-Begriffe.pdf
pnwertanalyse_l.ppt
Innovationen Bewerten.DOC
- refine -
Search
Experts
John Mannkoss
Bill Murray
Philipe Maurice
Mickey Seketufe
Andrew Dorey
- refine -
Search

How Many Trees in Austria?

3.475.000.000

4.294.967.296

Adressability…

IPv4: 10^{32} IP-Addresses (4.294.967.296)

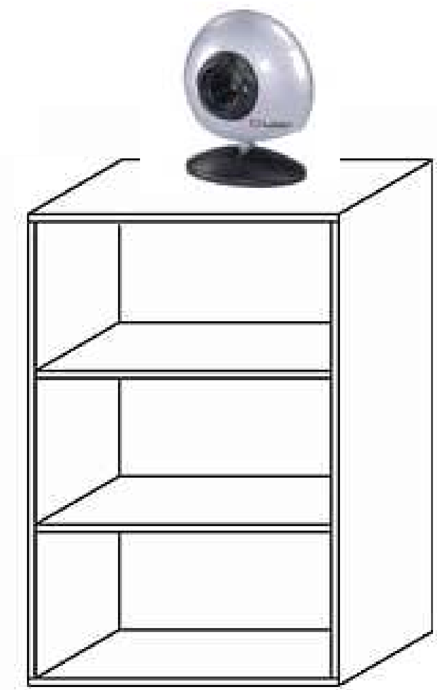
IPv6: 10^{128} IP-Addresses

40.282.366.920.938.463.463.374.607.431.768.211.456

„Things“ Online

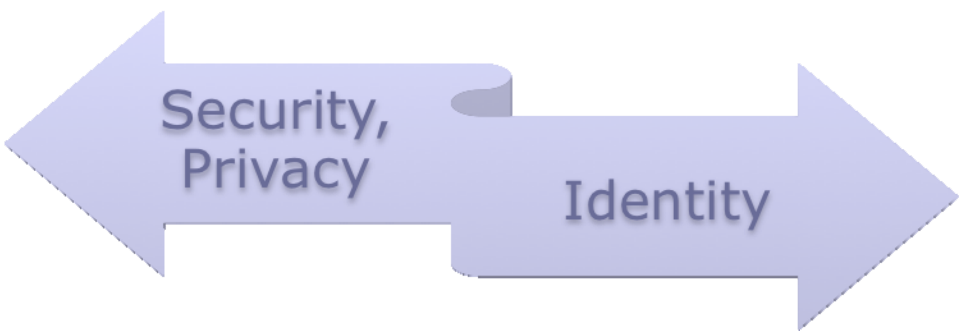
I have arrived ...

Internet of Things
Misuse of Knowledge Transfer



Challenges ...

- Regulation evolves at much slower rate than technology

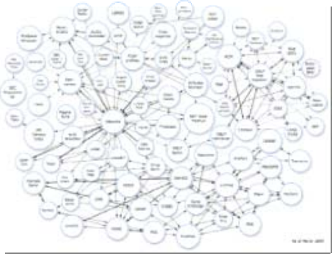


- Who is the owner of the data in networked systems

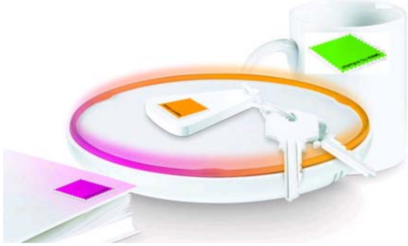
Future Internet

Internet by and for people

Internet of content & knowledge



Internet of things

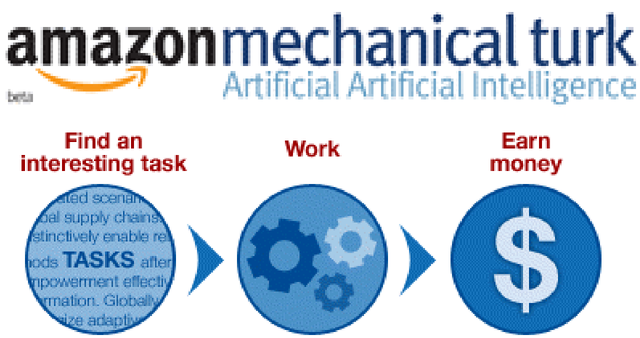


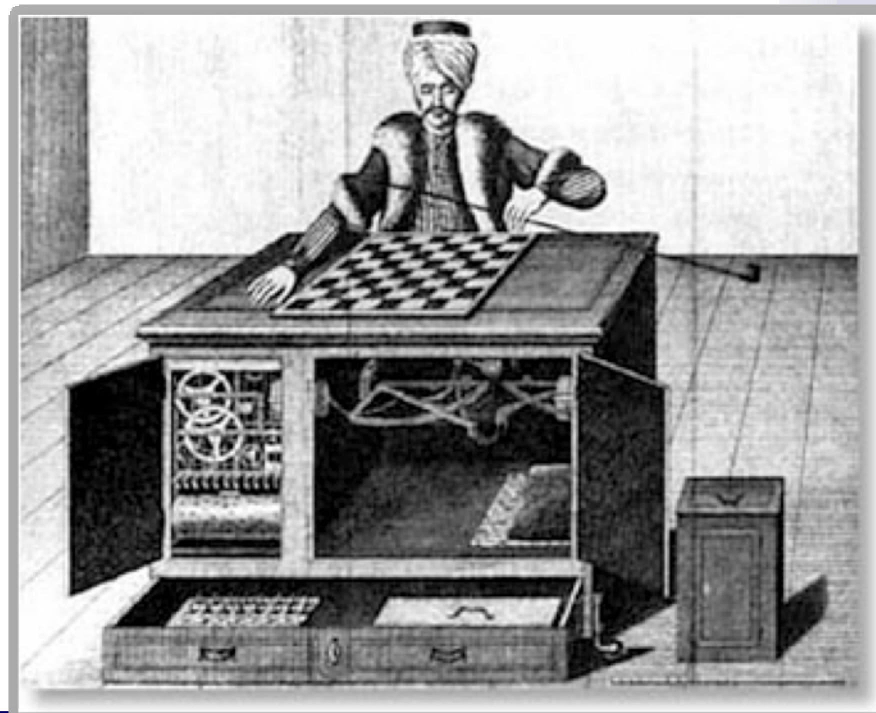
Future Internet

(FI movie – not included in slides)

(FI movie – not included in slides)

Knowledge Transfer Based on Services

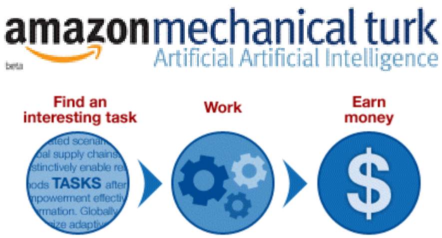




Austrian-Hungarian
Wolfgang von Kempelen
1734–1804

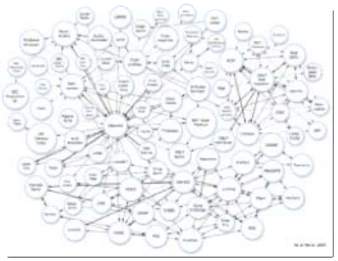
Future Internet

Internet of services

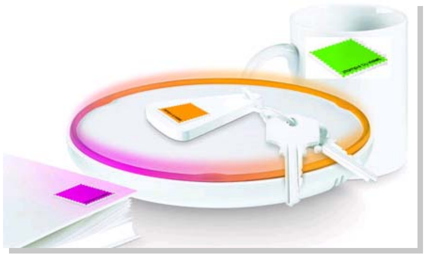


Internet by and for people

Internet of content & knowledge



Internet of things



Conclusion

Austria

250 Mio litres wine/year

Future Internet

Knowledge transfer will become more informal, self-directed, self-organised and democratic

Thank You!

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http://www.**know-center**.at

Introductory Speeches on 11 Sept 2009

Comprehensive Learning Interactive and Group Activities as New Ways of Learning

Toshio Okamoto
Graduate School of Information Systems
UEC
&
Japanese Society of Information and Systems in Education

Responsible Assignment Study as Group Project for Learning

- Finding and setting a problem
- Awareness, consciousness and meanings
- Contrive appropriate strategies/tactics to solve the problem
- Formalization
- Corresponding the problem with an actual event
- Processing and handling
- Analysis, testing and verification
- Judgment
- Summarizing and report/presentation

Core-Competency

- **The skill to analyze the problem and build any artifact to achieve the goal**
- **The skill to build/implement any artifact appropriate to a given specification**
- **The skill and attitude to evaluate one's own artifact or others' objectively**
- **The skill to describe what should be reported with correctness**
- **The attitude to probe the problem and to manage to solve it**

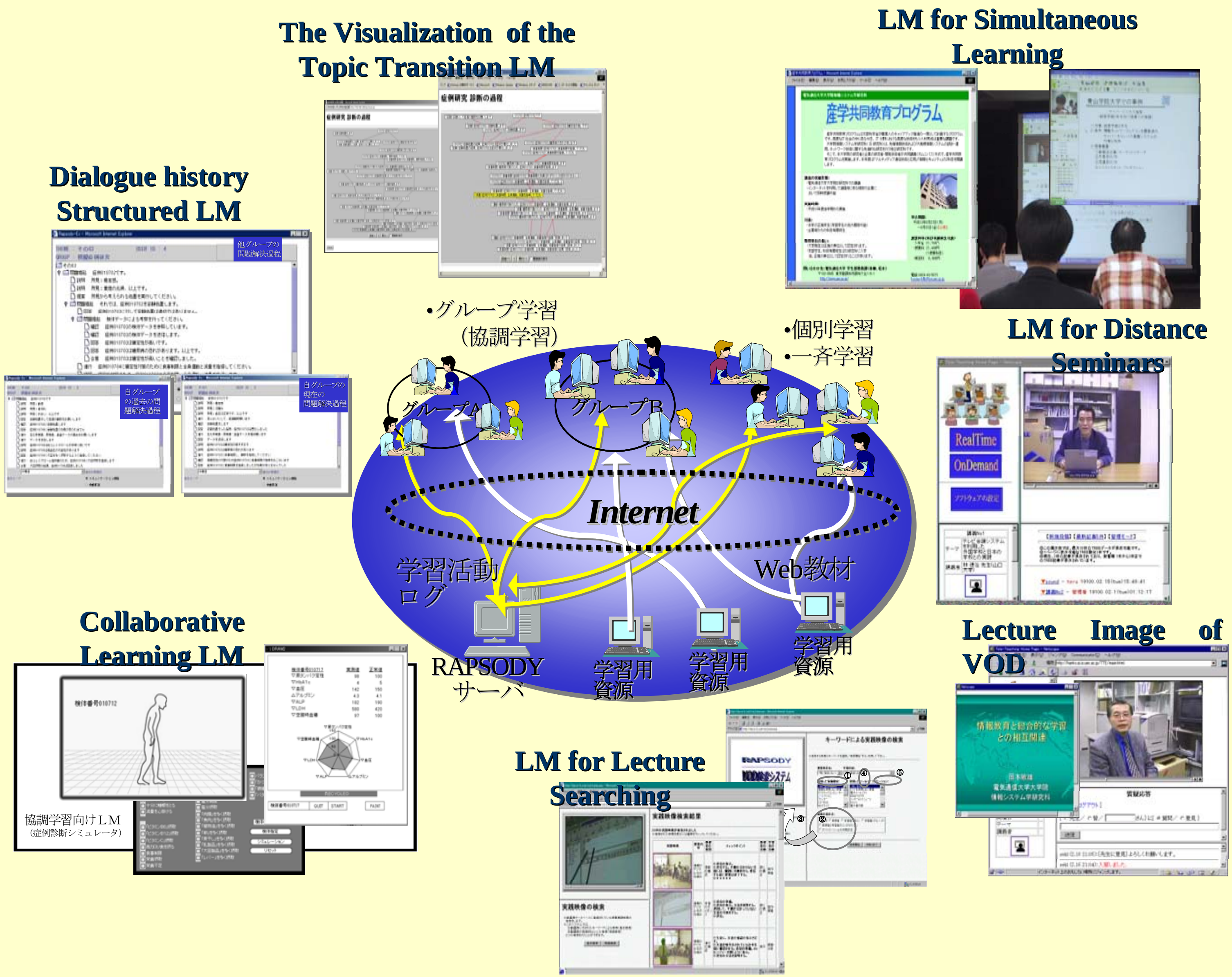
Social Constructivism Approach

- Group modeling and collaborative role-activities based on situated context
- Exploration-minded experimental learning
- Learning by asking, explaining, teaching and building to acquire a new insight-wisdom
- Interactive diagnosis and open learning model

Comprehensive Approach

- Topic oriented structure
- Scenario oriented structure
- Minimum essentials
- Integration by synthesis

The Practice of E-Learning Based on ROPSODY



Model of the Thinking Logic

Type of dmn. Style of Thinking	Well-structured	Ill-tructured	
	Inside a textbook	No assumption	Changing assumption
1. Rational (Conservative)	Traditional competency for legacy	New competecy + to think out scientific ways + to explore the unknown + to do nonmonotonous one	
2. Pragmatic			
3. Critical			
4. Radical			

Web Based Learning Ecology (WBLE): Suggestion to e-Pedagogy

Toshiaki Honda
College of Education, Ibaraki University
2-1-1 Bunkyo, Mito, Ibaraki 310-8512 JAPAN

Abstract

- Background
  Difference between *Apollo No.13* and *Space Shuttle Columbia*
  People's wisdom (folksonomy) and adaptability

- What is Learning Ecology?
  "A metaphor to describe an environment for learning."

- Why Learning Ecology Now?
  Learning about environment to support learner's decision for target achievement
  Collaborative learning and folksonomy
  Ubiquitous net society, "anytime and anywhere"
  To consider other's existence according to learner's situation

- Concept of Learning Ecology
  Learner customizes the tools individually and freely

- Web Based Learning Ecology (WBLE)
  "Learning ecology focuses on factors and conditions facilitating the process of learning and searches for ways to increase its efficiency, in the sense of opening new possibilities for realization of the self-organizing impetus of the living entities, at any level of the web interactions."

- Our Project Based on WBLE
  Uniting of *iGoogle* and *Mozilla Firefox*

- Summary
  LESEL (Learning Ecology Supported E-Learning)

Web Based Learning Ecology (WBLE): Suggestion to e-Pedagogy

Toshiaki Honda

Ibaraki University

honda@mx.ibaraki.ac.jp

Outline

- Background
- What is Learning Ecology?
- Why Learning Ecology now?
- Concept of Learning Ecology
- Web Based Learning Ecology (WBLE)
- Our Project Based on WBLE
- Summary

Background (1)

- Difference between *Apollo No.13* and *Space Shuttle Columbia*

  - People's wisdom (folksonomy) and adaptability

Space Shuttle Columbia

- "Doing nothing is just not an option if they had known the extent of the damage,"

(Tyrone Woodyard, spokesman for the *Columbia* Accident Investigation Board)

Background (2)

∗From A to B → B in(to) A

∗under A, using B, consequent C

↓

under A, purpose C, using B

(Reigeluth,1998)

What is Learning Ecology?

- "a metaphor to describe an environment for learning"

John Seely Brown (2000): *Growing Up Digital: How the Web Changes Work, Education, and the Ways People Learn.*

Why Do We Need a New Concept of Learning Environment?

- Difference between old concept of “Learning Environment” and “Learning Ecology”
  - Sustainability
  - Development
  - Informality
  - Community
  - Harmony
  - Creativity
  - Globals

Why Learning Ecology Now? (1)

- Learning environment to support learner’s decision for target achievement
- Collaborative learning and folksonomy
- Ubiquitous net society, “anytime and anywhere”
- To consider other’s existence according to learner’s situation

Why Learning Ecology Now? (2)

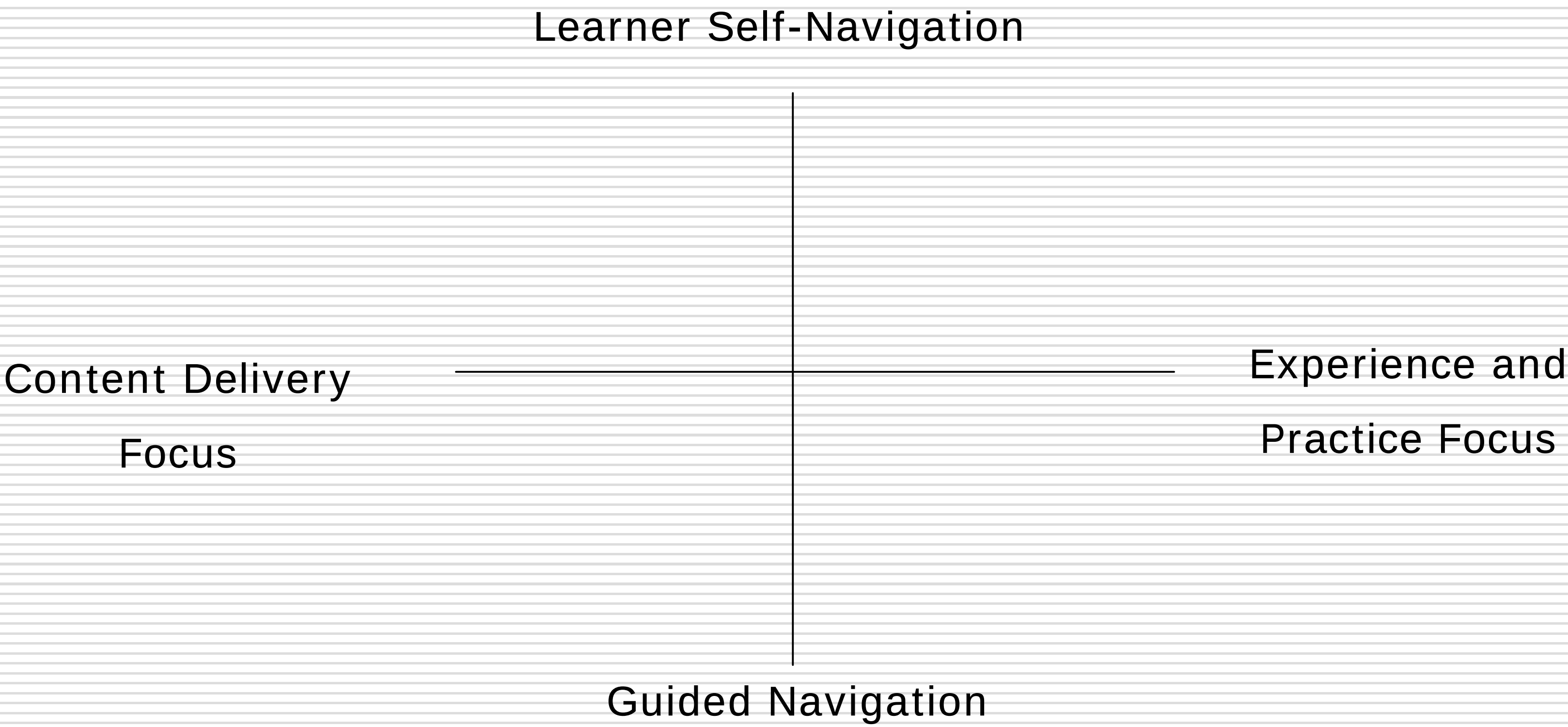
- Knowledge sharing according to a daily situation
- Each learner’s synchronized and asynchronized conversation
- Support of formation and maintenance of study community

Why Learning Ecology Now? (3)

From	To
Learning separated from community Teacher is a communicator of the first information (knowledge) Learning isolated from community	Cooperative learning Existence of Abundant knowledge information Occurrence of learning community on the world scale

Concept of Learning Ecology（1）

*Richardson, A. *(2002): An Ecology of Learning and The Role of eLearning in The Learning Environment.*



Concept of Learning Ecology(2)

*Richardson, A. (2002): *An Ecology of Learning and The Role of eLearning in The Learning Environment.*

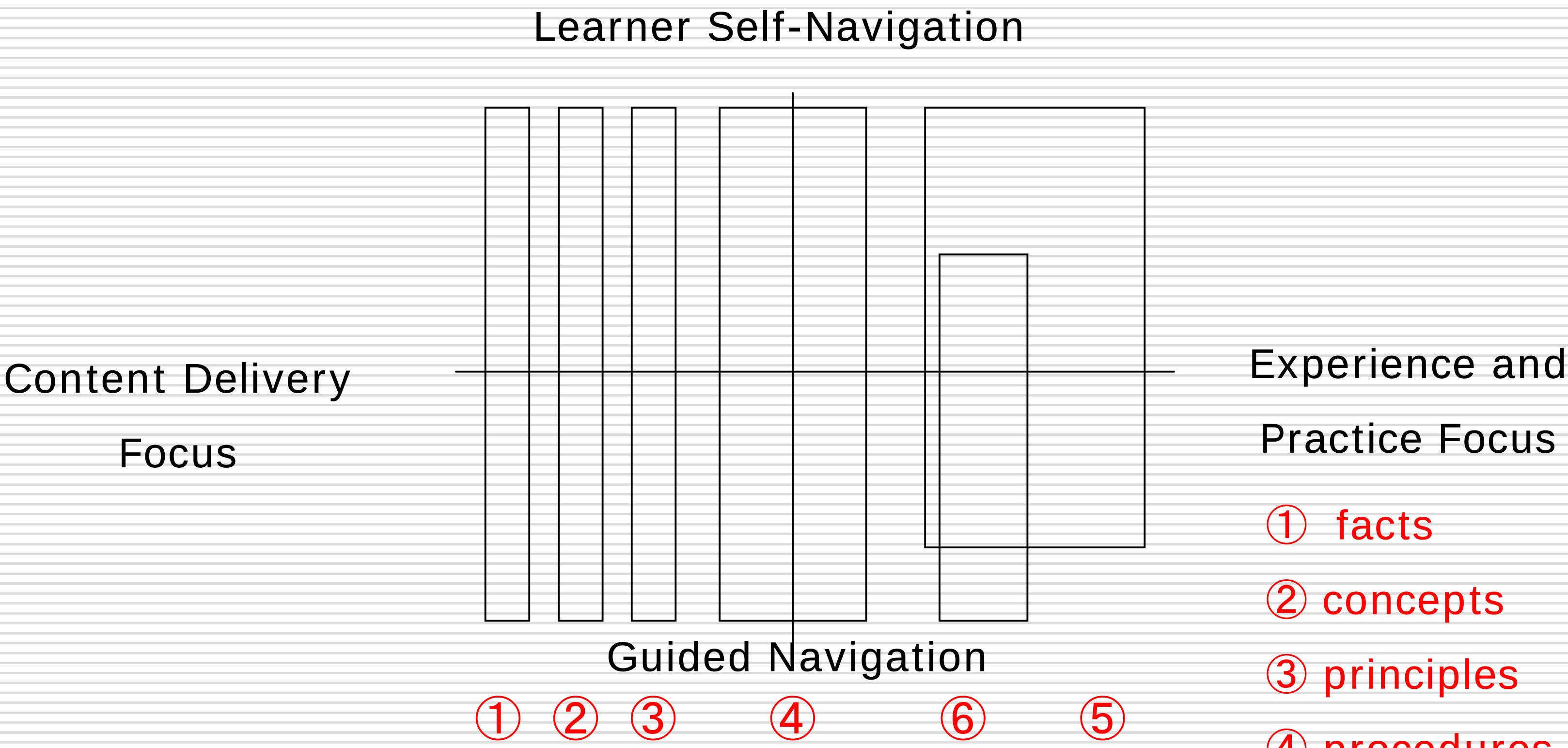
Learner Self-Navigation

Content Delivery Focus	*Studying*	*Projects*	Experience and Practice Focus
	Teaching	*Exercises*	

Guided Navigation

Concept of Learning Ecology（3）

*Richardson, A.(2002): *An Ecology of Learning and The Role of eLearning in The Learning Environment.*



① facts

② concepts

③ principles

④ procedures

⑤ problem solving

⑥ motor skills

Gagne : "Taxonomy of intellectual skills"

Concept of Learning Ecology（4）

*Jay Cross (2007): *Designing a Web-Based Learning Ecology.*

- Learner customizes the tools individually and freely
  - Information
    - Amazon, blog etc.
  - Collaboration
    - Skype, chat etc.
  - “Unworkshop” resources
    - “Informal Learning Research Center” etc.

Web Based Learning Ecology (WBLE)(1)

- “Cloud computing” as the following paradigm shift
  - IBM: Hardware (~80’)
  - MS: Software (90’)
  - Google: Web Sharing (00’~*present*)
  - Amazon: Cloud Computing (*near future*)

Web Based Learning Ecology (WBLE)(2)

*Dimitrov, V.(2000): *Learning Ecology for Human and Machine Intelligence.*

- “Learning ecology focuses on factors and conditions facilitating the process of learning and searchers for ways to increase its efficiency, in the sense of opening new possibilities for realization of the self-organizing impetus of the living entities, at any level of the web interactions.”

Web Based Learning Ecology (WBLE)(3)

- Web Based Learning Ecology (WBLE)
  - Portability, connectivity, feasibility, adaptability etc.
  - Learning with blogs, Wikis, and Web 2.0
- Cost performance vs. Learning Outcome

Web Based Learning Ecology (WBLE)(4)

- Cost problem of using portable terminal PDA or game machine in elementary and junior high school ("Nintendo DS" costs $170 in Japan)
- It is possible to use web on PC in elementary and junior high school
  - There are "computer rooms" in almost all public schools in Japan.

Our Project Based on WBLE (1)

- Our project (practice in elementary and junior high schools)
  - Uniting of *iGoogle* and *Mozilla Firefox*
    - *Firefox* as platform for learner
    - *iGoogle* as search engine that can be customized as learner like

Our Project Based on WBLE (2)

- Plan
  - Subject: Social studies
  - Unit: virtual “Stocks buying and selling”
    - Suitable to 2nd or 3rd grade junior high school student

Our Project Based on WBLE (3)

- Method
  - Install *Mobile Firefox* to mobile USB memory stick (about 10 Euro? by 1GB), and it makes *iGoogle* to customize top page.
  - It leaves no personal information behind on the machine learner runs it on, so learner can take learner’s favorite bookmarks and extensions wherever learner goes.
  - Advantage at the computer classroom in common school.

Our Project Based on WBLE (4)

- Following tools can be used by learner free while studying
  - Google Web retrieval
  - Dictionary
  - Search YouTube
  - The world clock
  - Wikipedia
  - Book retrieval
  - News retrieval
  - Translation
  - Chat
  - Bulletin board
  - Blog etc.

Our Project Based on WBLE (5)

- Expecting learner's activity
  - Tokyo Stock Exchange … various information …
  - Economy and social environment have been checked as an information source
  - Sources like newspaper, the quarterly report, and the magazine, etc.

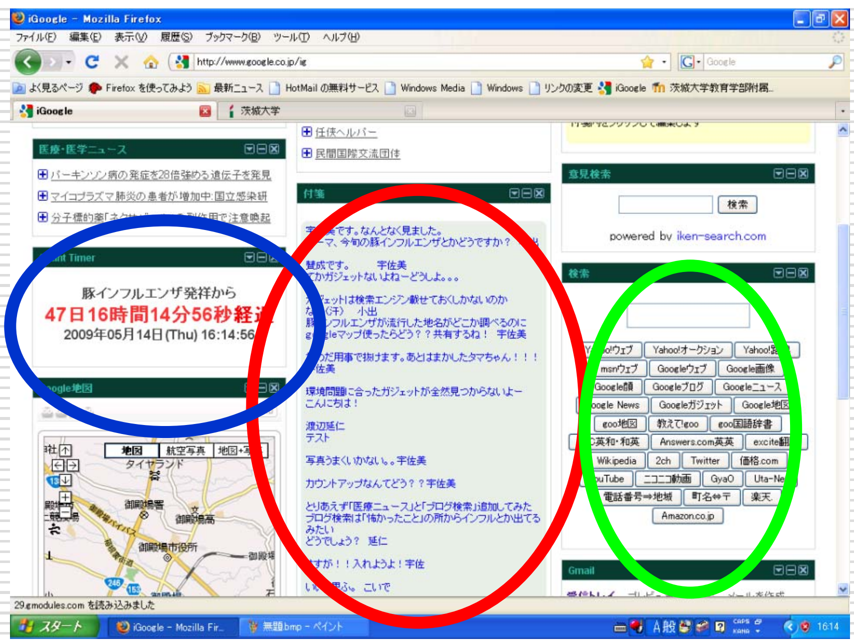
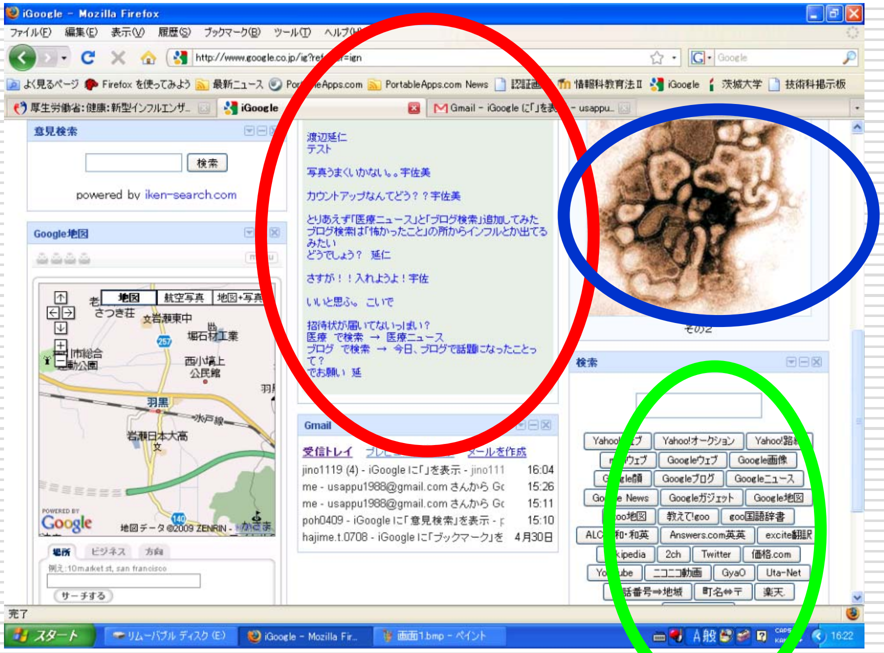
Our Project Based on WBLE (6)

- Solution of the problem can be attempted by using already mentioned *iGoogle* and *Mozilla Firefox.*
- Learner freely creates the learning environment for the accomplishment to goal of study.

Lesson based on WBLE (1)

Type of “Project”

Developed by Under Graduate Student (about Swine Flue）

The gadget is shared in the group, and each one's idea is reflected. (common gadget and individual gadget)

Lesson based on WBLE (2)

Type of “Study”

Means teacher gives student necessary material

Is eco-backing necessary?

Agreement opinion

Dissenting opinion

Lesson based on WBLE (3)

Use of Wiki （Based on FFP and iGoogle）

もんまっこ＠ウィキ

ここでは，わたしたち住んでいる茨城県のことについて調べます。自分で調べたことと，友だちの調べたことを比べながら，お互いに協力してまとめていきましょう。

Link from iGoogle to Wiki

Lesson based on WBLE (4)

Use of Wiki （Based on FFP and iGoogle）

Individual summary page

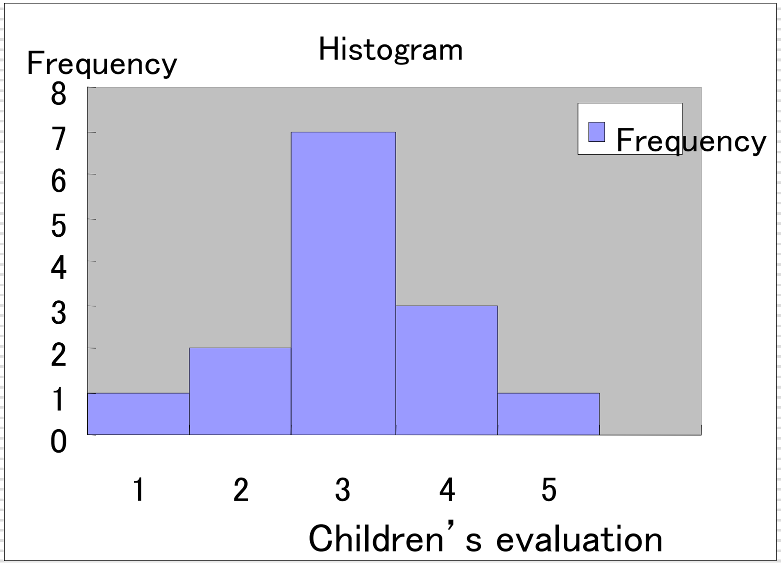
Link to group in class page

Lesson based on WBLE (5)

Effect of Learning (1)

Verification of 14 pupils in public elementary school in social studies "Our Ibaraki Prefecture"

	comparison	Webでの調べ安さ	Effectiveness of co-operative study	Effectiveness of asynchronization
Average	4.3	4.6	4.3	4.5
Decentralization	.68	.24	.68	.43



evaluation by teacher

Degree of interest of children by questionnaire survey

Lesson based on WBLE (6)

Effect of Learning (2)

Correlation in use of children's evaluation and exchange gadget and use of Wiki

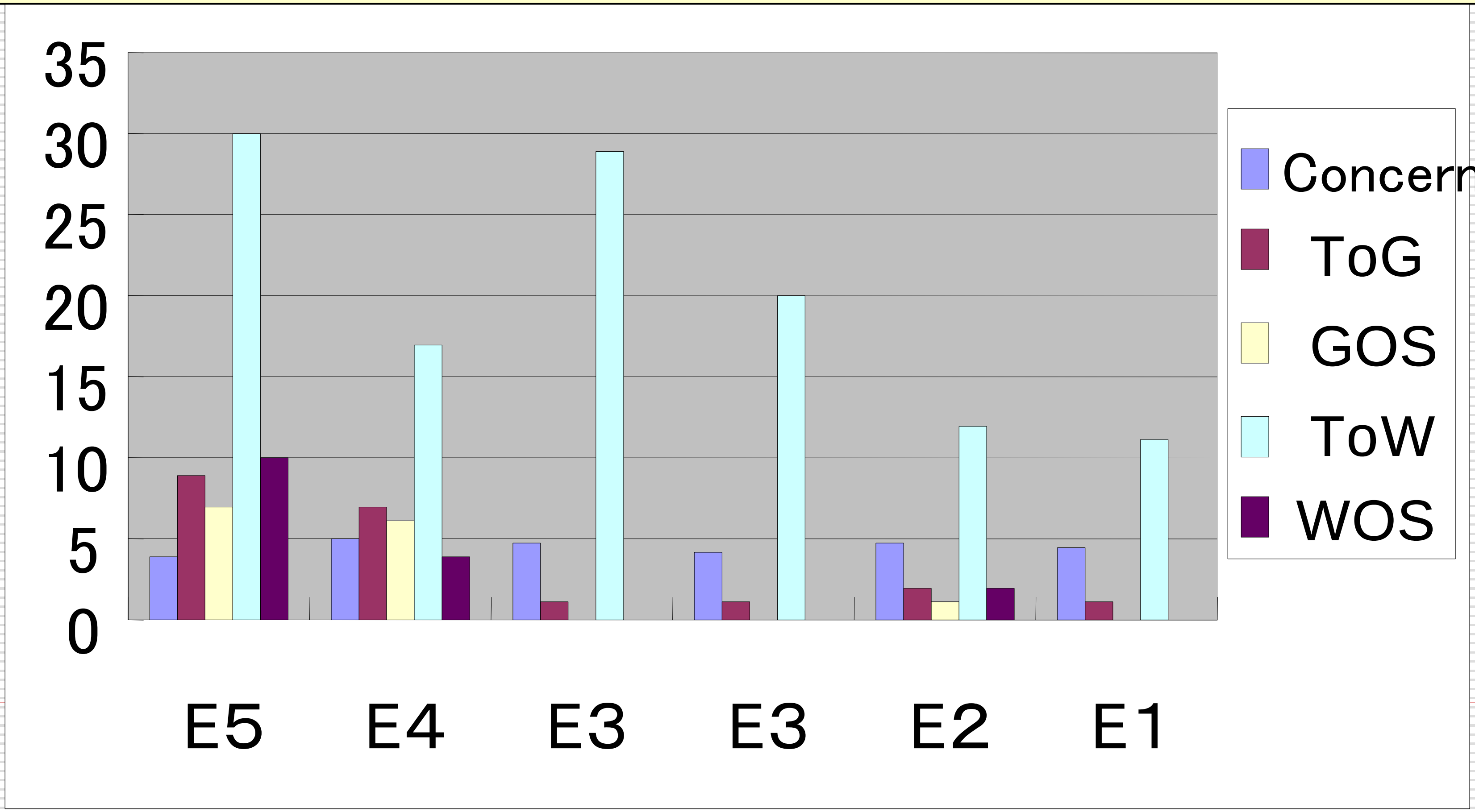
	C's E	ToG	GOS	ToW	WOS
C's E	1				
ToG	.61	1			
GOS	.54	.98	1		
ToW	.40	.40	.37	1	
WOS	.55	.91	.85	.45	1

C's E･･･ children's evaluation
ToG ･･･ Writing total of gadget
GOS･･･ Number of writing of gadgets from outside the school
ToW ･･･ Writing total of Wiki
WOS･･･ Number of writing of Wiki from outside the school

Lesson based on WBLE (7)

Effect of Learning (3)

Relations between children's evaluation and number of writing



Summary

- Harmony with age (zeitgemäß)
- Harmony with culture (kulturgemäß) (by Diesterweg)

- Social Constructivism

  ↓

  From 3R's（reading, writing, arithmetic）

  to 4R's (+information)

Why don’t you join us?

- LESEL
  - Learning Ecology Supported E-Learning
  - Ibaraki University Web Based Learning Ecology System

Thank you!

Contact:

Toshiaki Honda

(honda@mx.ibaraki.ac.jp)

This work is supported in part by the JSPS

Adopting Web 2.0 Technology in Online Learning: Challenges and Experiences

Univ.-Doz. Dr. Denis Helic
Graz University of Technology
Knowledge Management Institute

Abstract

The emergence of Web 2.0 technology changed the ways in how technology-supported learning is carried out in organizations. The online learning systems ceased to be tools where learning content is organized, structured, and delivered to the learners. Rather, these systems became the tools where learning content is on one hand created in collaboration and on-the-fly, and on the other hand integrated from disparate and heterogeneous online data sources.

Moreover, the online learning processes in organizations changed for all people involved. Educators began to use tools like wikis, blogs, or RSS feeds for content integration. Learners instead of consuming the content, or discussing a number of pre-assigned topics, started to produce highly interlinked content and to actively participate in designing the steps of the learning process itself. System developers realized that monolithic systems strictly following a closed set of e-learning standards cannot support the new learning processes and adopted service-oriented architectures based on open standards.

However, such ground-breaking changes do not always run smoothly and without obstacles. They require openness, flexibility, willingness to learn, adopt, and to explore new grounds not only from educators and students, but also from system developers. Also, they require a new set of tools that make use of the underlying technology transparent for educators and learners, but are still technologically flexible enough to capture modern online learning processes.

In this talk, the experience of educators, learners, system developers, and administrative service staff in adopting Web 2.0 technology for online education at Graz University of Technology will be presented. Additionally, a short presentation of similar experience from a foreign language learning project funded by EU will be given.

Freeform eLearning
- Approach and Building Blocks

Workshop: ePedagogy and Digital Media

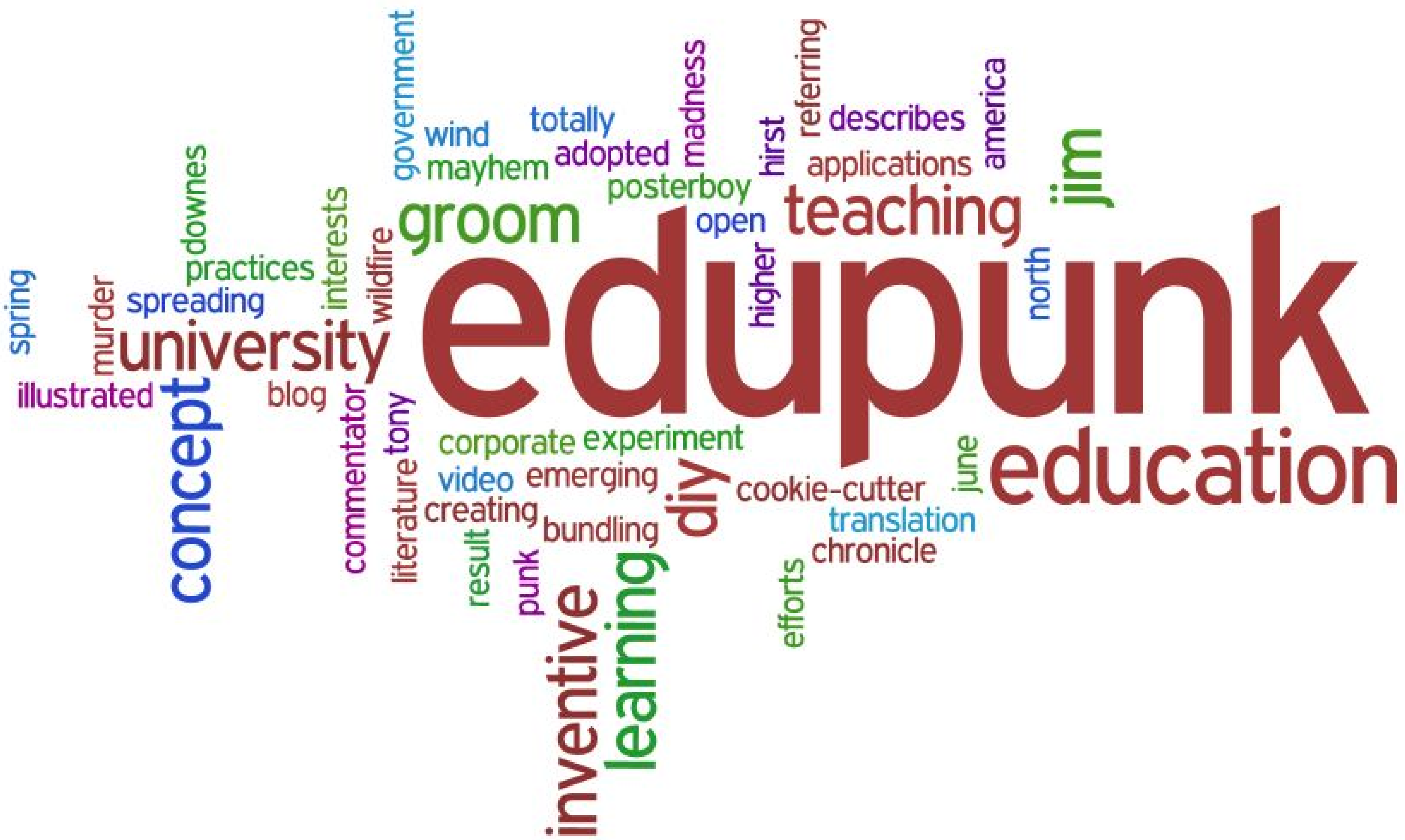
Berlin, September 11, 2009

Joachim Niemeier

Freeform eLearning

- A view to the unconference learning scene
- New tools for new times
- Potential uses of social software for learning
- Beyond the hype: challenges of integrating

http://www.flickr.com/photos/stephendann/3390437001


edupunk
education
teaching
groom
university
concept
inventive
learning
jim
government
wind
mayhem
totally
adopted
madness
posterboy
hirst
referring
describes
applications
america
open
higher
north
downes
practices
interests
wildfire
spring
murder
spreading
illustrated
blog
commentator
tony
literature
corporate
experiment
video
emerging
creating
bundling
diy
cookie-cutter
june
translation
chronicle
result
punk
efforts

Edupunk

From Wikipedia, the free encyclopedia

This article **is an orphan, as few or no other articles link to it**. Please introduce links to this page from other articles related to it. *(February 2009)*

Edupunk is an approach to teaching and learning practices that result from a do it yourself (DIY) attitude.[1][2] The *New York Times* defines it as "an approach to teaching that avoids mainstream tools like Powerpoint and Blackboard, and instead aims to bring the rebellious attitude and D.I.Y. ethos of '70s bands like the Clash to the classroom."[3] Many instructional applications can be described as DIY education or *Edupunk*.

The term was first used on May 25, 2008 by Jim Groom in his blog,[4] and covered less than a week later in the Chronicle of Higher Education.[1] Stephen Downes, an online education theorist and an editor for the International Journal of Instructional Technology and Distance Learning, noted that "the concept of Edupunk has totally caught wind, spreading through the blogosphere like wildfire".[5]

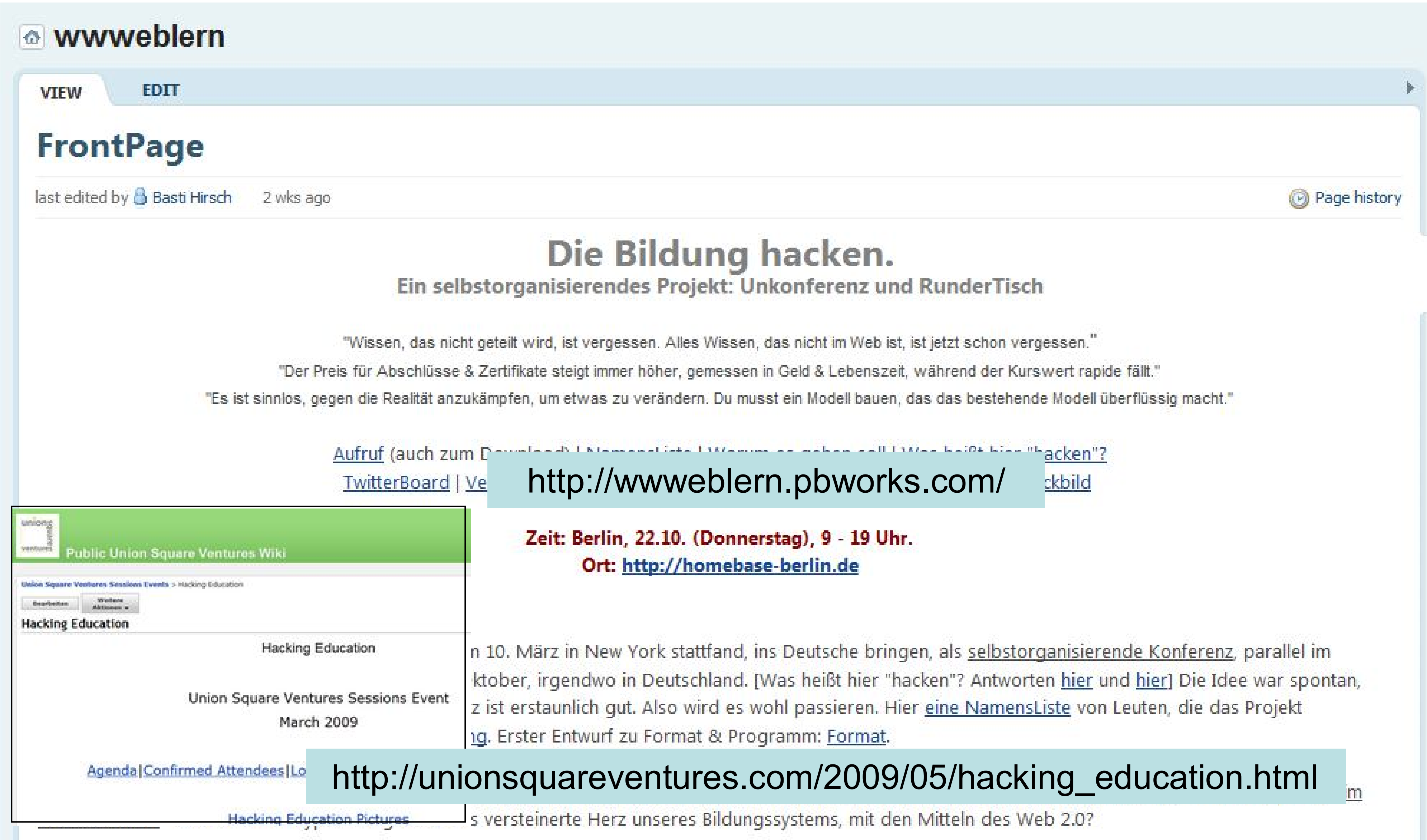
Jim Groom as "poster boy" for edupunk

Contents [hide]

Aspects of edupunk [edit]

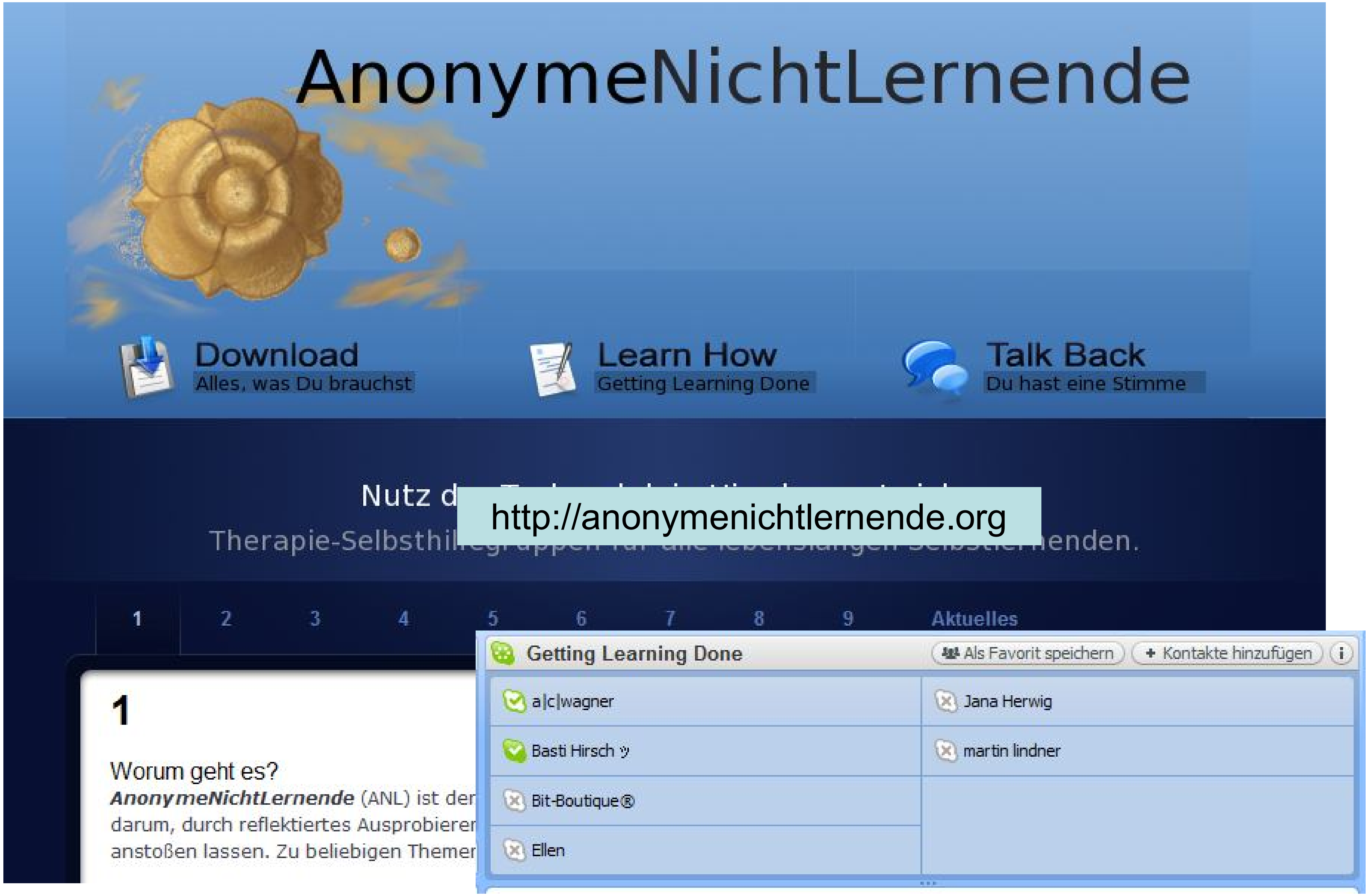
Edupunk has risen from an objection to the efforts of government and corporate interests in reframing and bundling emerging technologies into *cookie-cutter* products with pre-defined application -- somewhat similar to traditional punk ideologies.[6]

The reaction to corporate influence on education is only one part of edupunk, though. Stephen Downes has identified three aspects to this approach:



http://wwweblern.pbworks.com/

http://unionsquareventures.com/2009/05/hacking_education.html


AnonymeNichtLernende
Download
Alles, was Du brauchst
Learn How
Getting Learning Done
Talk Back
Du hast eine Stimme
http://anonymenichtlernende.org
1 2 3 4 5 6 7 8 9 Aktuelles
Getting Learning Done
Als Favorit speichern
Kontakte hinzufügen
a|c|wagner
Jana Herwig
Basti Hirsch
martin lindner
Bit-Boutique®
Ellen
1
Worum geht es?
AnonymeNichtLernende (ANL) ist der
darum, durch reflektiertes Ausprobieren
anstoßen lassen. Zu beliebigen Themen

http://bildungsexpedition.de/

centrestage

New Tools for New Times

Social Networks

Communication

Videos

Web OS Programs

Photos

Life

Information

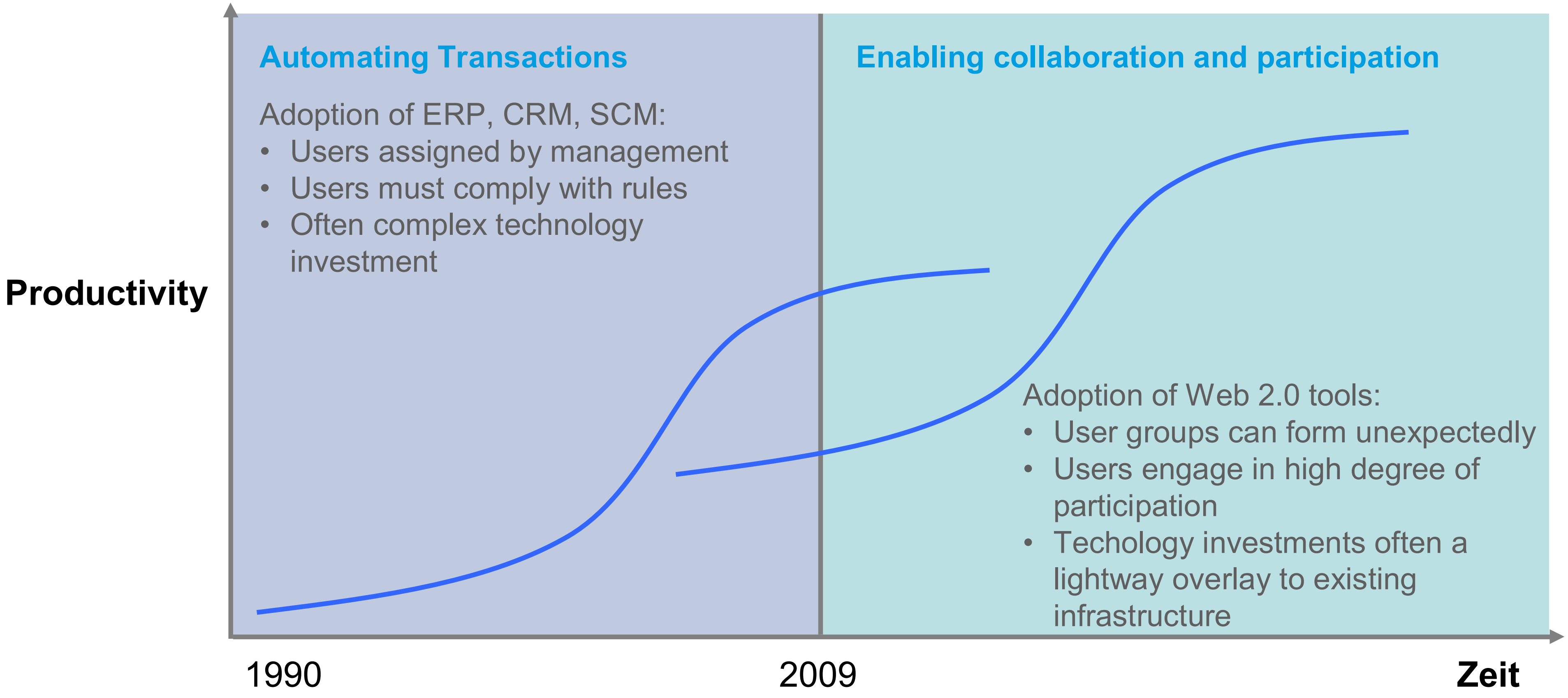
Shopping

Opportunities ans Risks

Will Enterprise 2.0 and Learning 2.0 Have a Future?

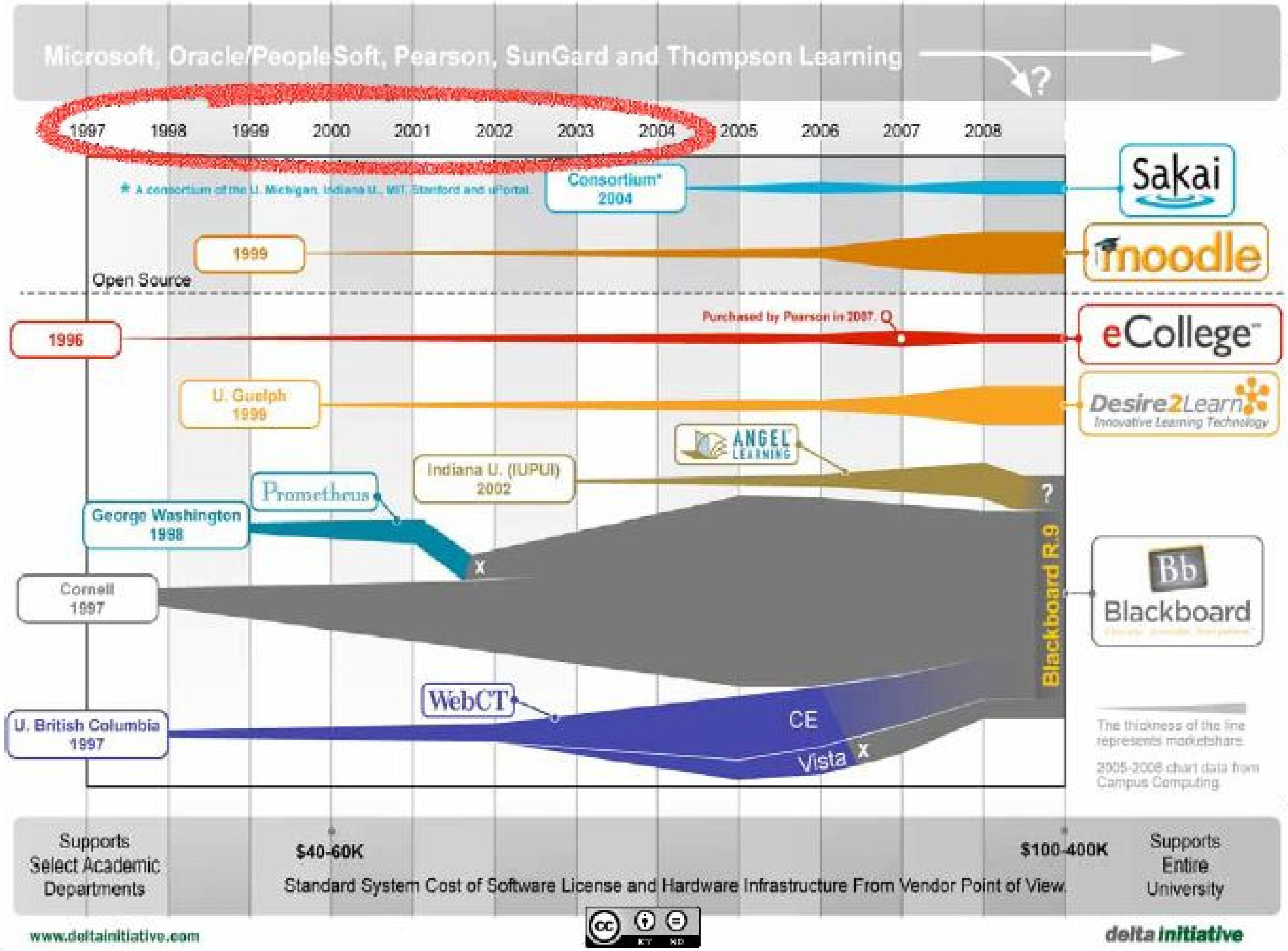
http://www.flickr.com/photos/jam343/1703693/

Adoption of Technologies



Source: Chui, M.; Miller, A.; Roberts P.P. (2009), Six Ways to Make Web 2.0 Work, in: The McKinsey Quarterly

LMS Market Update



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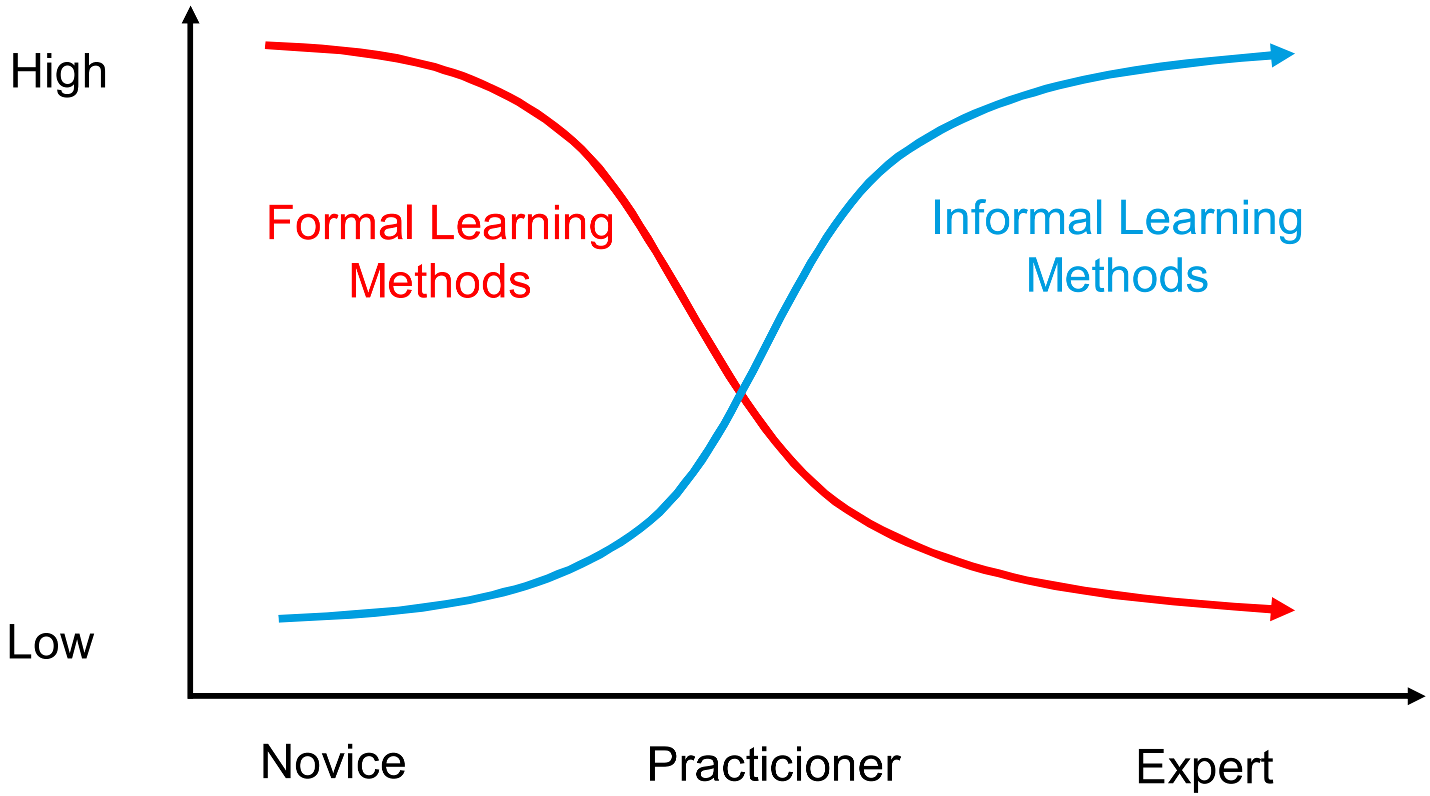
Expertise by Learning Mode



Source: Quinn, Clark (2009), Social Networking: Bridging Formal and Informal Learning,
In: Learning Solutions, February 23, 2009

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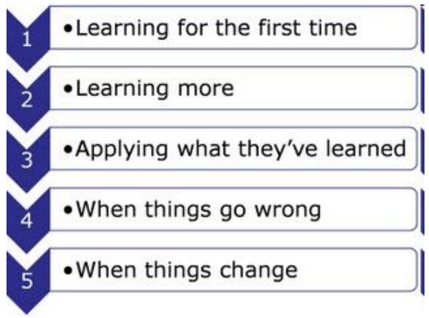
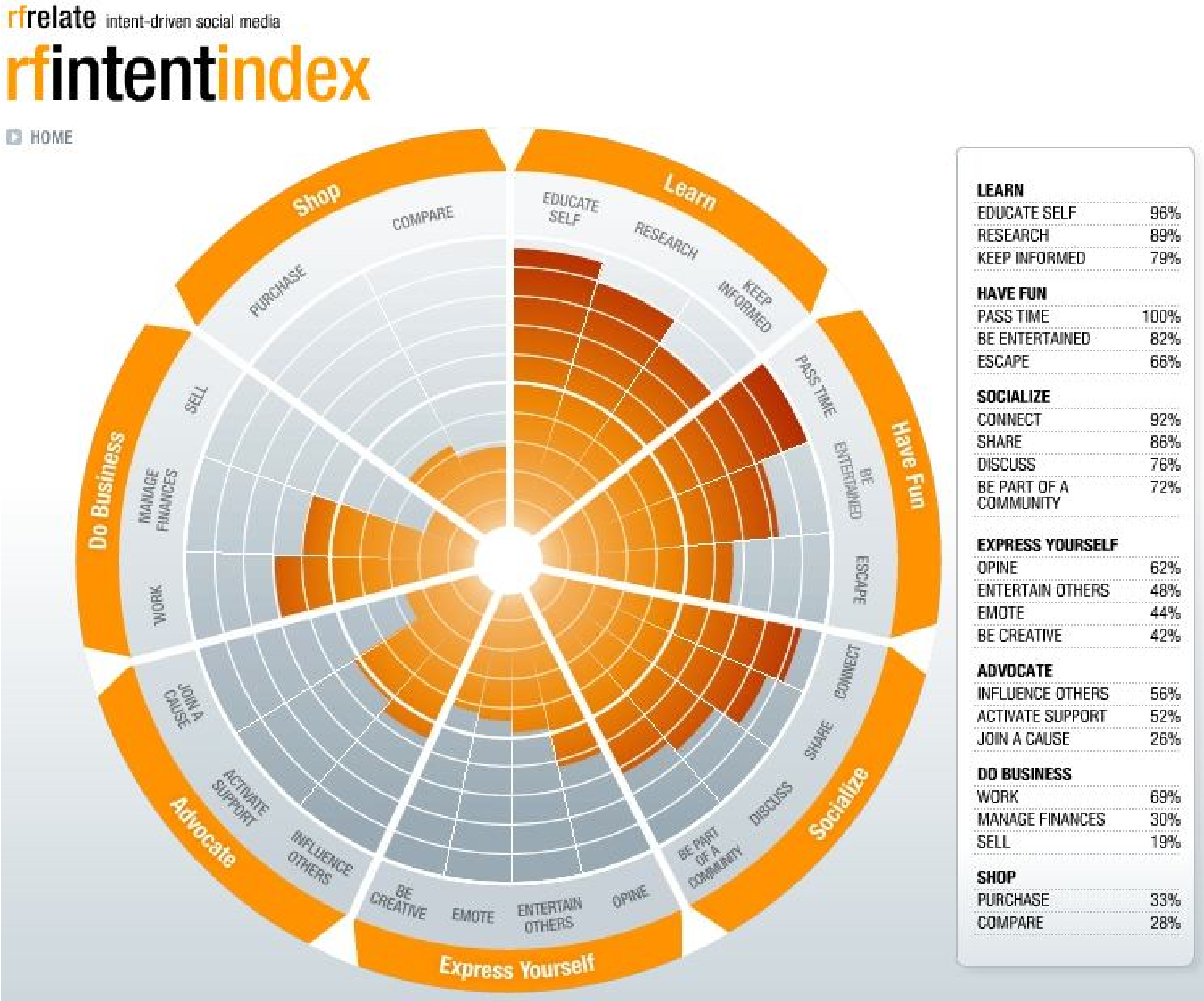
Five Moments of Learning Need

- Learning something new or for the first time
- Learning more of something
- Trying to remember something
- Adjusting performance/behavior because something has changed
- Figure out what to do when something goes wrong or fails



Source: Gottfredson, Conrad (2007), http://www.performancesupport.blogspot.com/2007/11/beginning-discussion.html

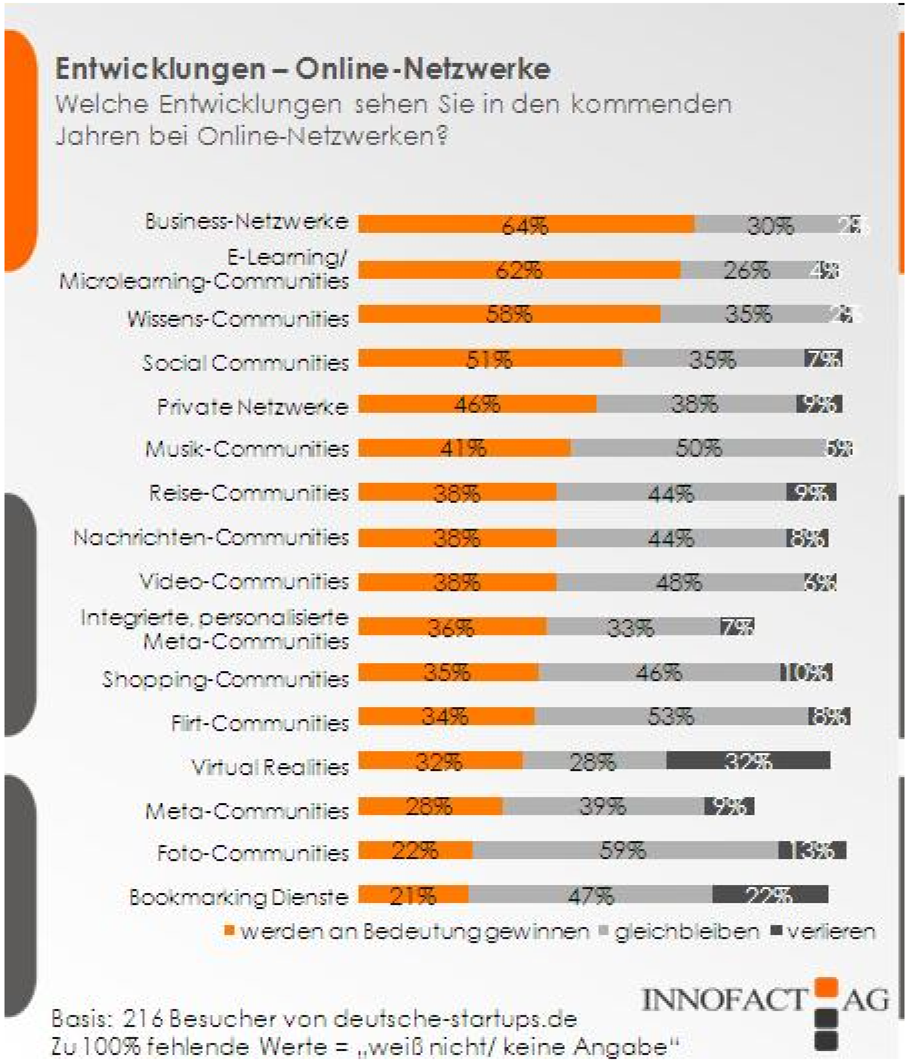

rfrelate intent-driven social media
rfintentindex
HOME
Shop
COMPARE
PURCHASE
Learn
EDUCATE SELF
RESEARCH
KEEP INFORMED
Have Fun
PASS TIME
BE ENTERTAINED
ESCAPE
Socialize
CONNECT
SHARE
DISCUSS
BE PART OF A COMMUNITY
Express Yourself
OPINE
ENTERTAIN OTHERS
EMOTE
BE CREATIVE
Advocate
INFLUENCE OTHERS
ACTIVATE SUPPORT
JOIN A CAUSE
Do Business
WORK
MANAGE FINANCES
SELL
LEARN
EDUCATE SELF 96%
RESEARCH 89%
KEEP INFORMED 79%
HAVE FUN
PASS TIME 100%
BE ENTERTAINED 82%
ESCAPE 66%
SOCIALIZE
CONNECT 92%
SHARE 86%
DISCUSS 76%
BE PART OF A COMMUNITY 72%
EXPRESS YOURSELF
OPINE 62%
ENTERTAIN OTHERS 48%
EMOTE 44%
BE CREATIVE 42%
ADVOCATE
INFLUENCE OTHERS 56%
ACTIVATE SUPPORT 52%
JOIN A CAUSE 26%
DO BUSINESS
WORK 69%
MANAGE FINANCES 30%
SELL 19%
SHOP
PURCHASE 33%
COMPARE 28%

Uses of Social Software for Learning

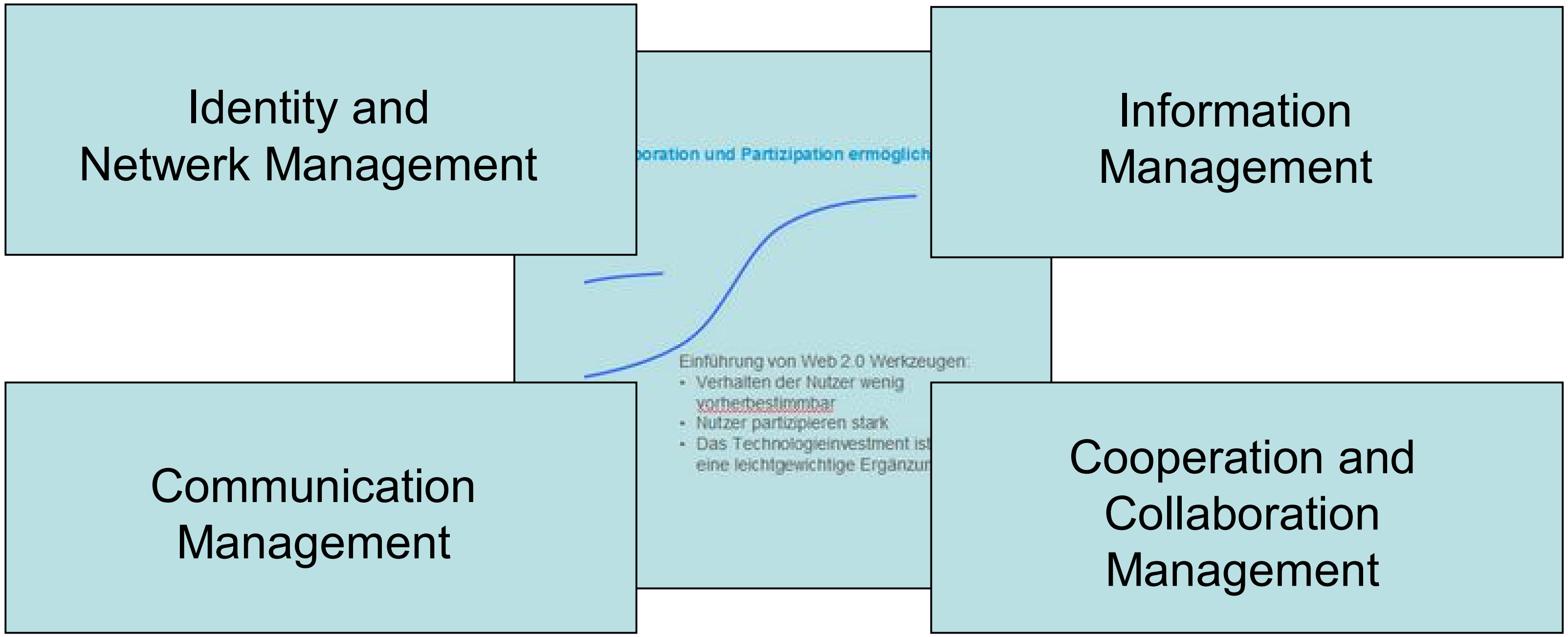
	Group	Network	Collectiv
Metaphor	„Virtual classroom“	„Virtual community of practice“	„Wisdom of crowds“
Relationship between learners	Strong	Weak	Potential
Goals	Accreditation, formal learning, task completion	Knowledge generation, expanding social capital	Knowledge extraction
Potential Web 2.0-Tools	Wiki, Google Docs	Blogs, feedreader, social networking software, Twitter	Blogosphere, tagging, collective filtering
Operational sizes	Can be effective at low number 3 - 5	Needs 30 - 50 members to sustain network operation	Only provides value when very large numbers of users participate
Typical value proposition	Productivity, ability to respond	Knowledge generation, bridge to other networks	Innovation, serendipity

Adapted from: Dron, J.; Anderson, T. (2009), How the Crowed Can Teach Quinn

Trends in Online Networks



Integration Web 2.0 into Learning



Getting Learning Done Phases

- Step 1: Initiation and start-up
- Step 2: Looking around and orientation
- Step 3: Sprint or project phase
- Step 4: Result and presentation phase

Getting Learning Done Phases

- Step 1: Initiation and start-up
  Help to find and connect people
- Step 2: Looking around and orientation
- Step 3: Sprint or project phase
- Step 4: Result and presentation phase

Social Software Quadrant

Identity and
Netwerk Management

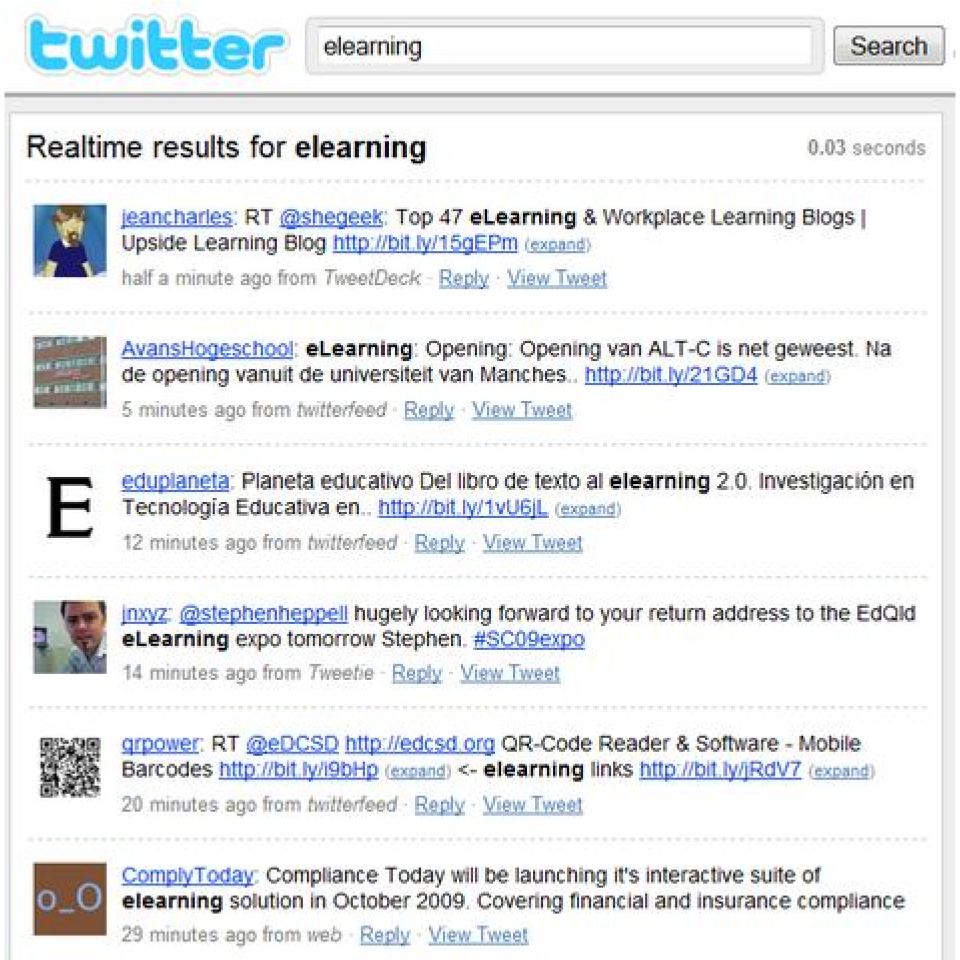
Information
Management

Communication
Management

Cooperation and
Collaboration
Management

Initation and start-up

Example: Twitter



- Following a subject matter expert
- Follow a subject
- Build a community
- Use it to send FAQs

centrestage

Initation and start-up
Help to find and connect people

- Follower principal
- Dynamic activities, lifestreams, activity streams
- Signals and structures
- Aggregated skill profiles
- Reputation and community value systems

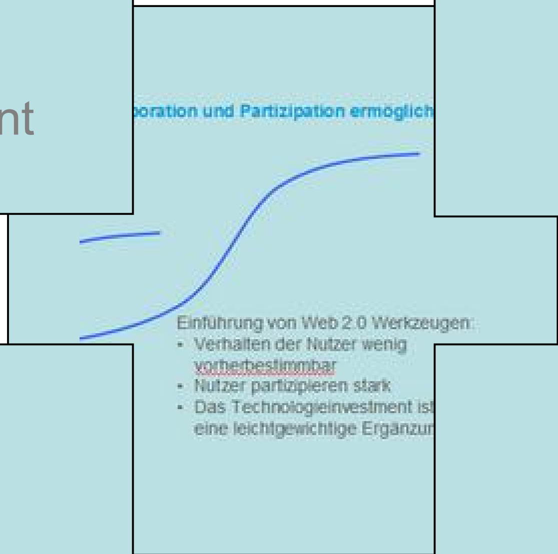
Getting Learning Done Phases

- Step 1: Initiation and start-up
- Step 2: Looking around and orientation
  Help to start a conversation and inform people
- Step 3: Sprint or project phase
- Step 4: Result and presentation phase

Social Software Quadrant

Identity and
Netwerk Management

Information
Management



Communication
Management

Cooperation and
Collaboration
Management

Looking around and orientation

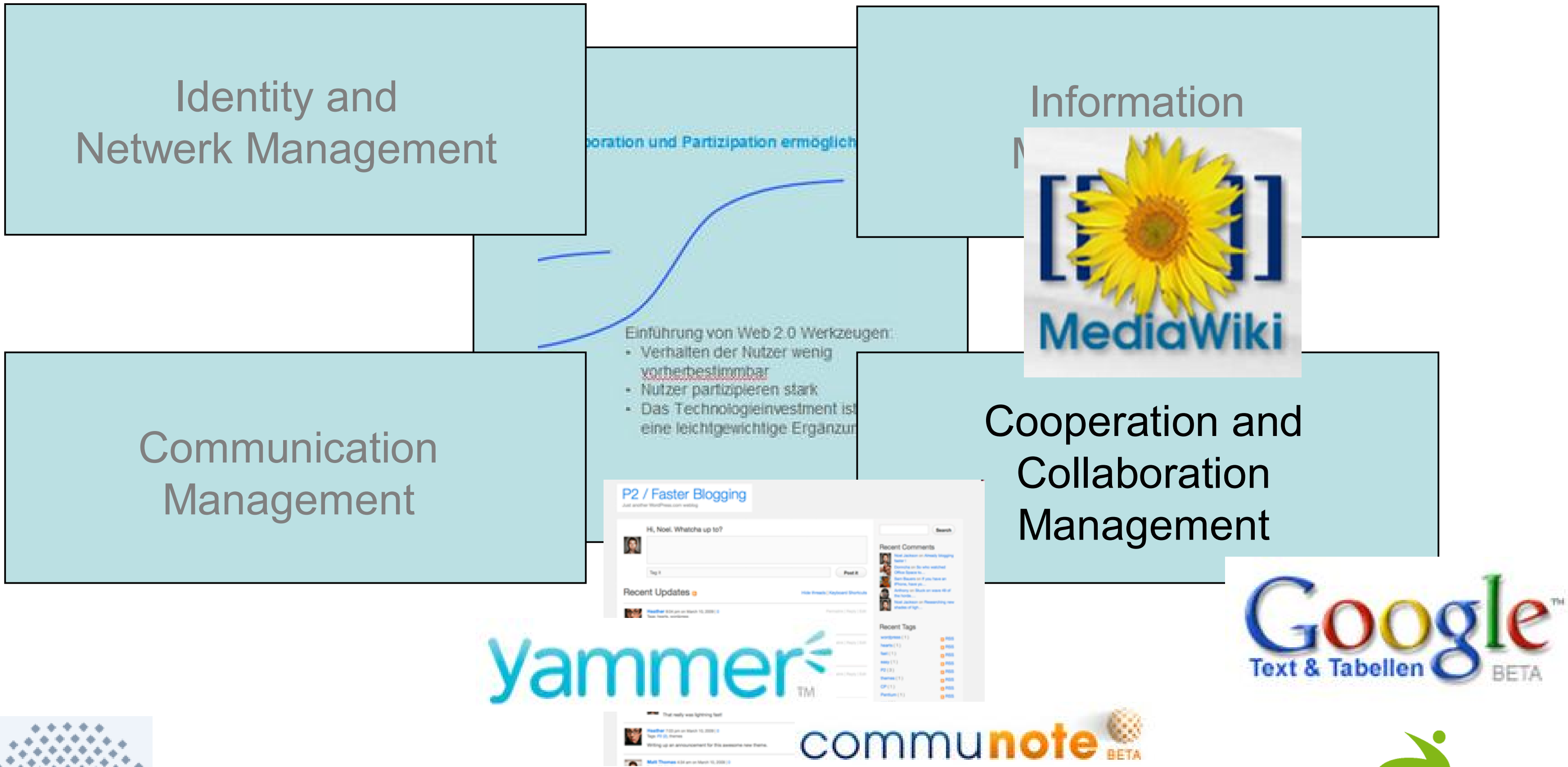
Help to start conversation and inform people

- Low entry barriers and low hurdles to capture and share short chunks of information
- More informal communication and easy to use collobaration tools
- When ideas evolve into something concrete then they usually require a different environment

Getting Learning Done Phases

- Step 1: Initiation and start-up
- Step 2: Looking around and orientation
- Step 3: Sprint or project phase
  Help to start collaboration and cooperation
- Step 4: Result and presentation phase

Social Software Quadrant



Even More Collaboration Tools

- Workgrouping
- Web Conferencing
- Project Management
- Collaborative Writing
- Collaborative Reviewing

For details see Robin Good's list under
http://www.mindmeister.com/de/maps/show_public/12213323

Sprint or project phase
Help to start collaboration and cooperation

- From chaos to coordinated activities
- From colloboration to cooperation
- Task and result oriented
- Knowledge creation

Getting Learning Done Phases

- Step 1: Initiation and start-up
- Step 2: Looking around and orientation
- Step 3: Sprint or project phase
- Step 4: Result and presentation phase
  Help to discuss and share results

Social Software Quadrant

Identity and
Netwerk Management

Information
Management

Communication
Management

Cooperation and
Collaboration
Management

Result and presentation phase

Help people to discuss and share the results

- Write what you learn and get feedback
- Quick publishing and sharing of content
- Publish in a format that explicitly allows copying and modifying of its information (open content)
- Usage in a more formal eLearning environment

Social Software Quadrant

Identity and
Netwerk Management

Information
Management

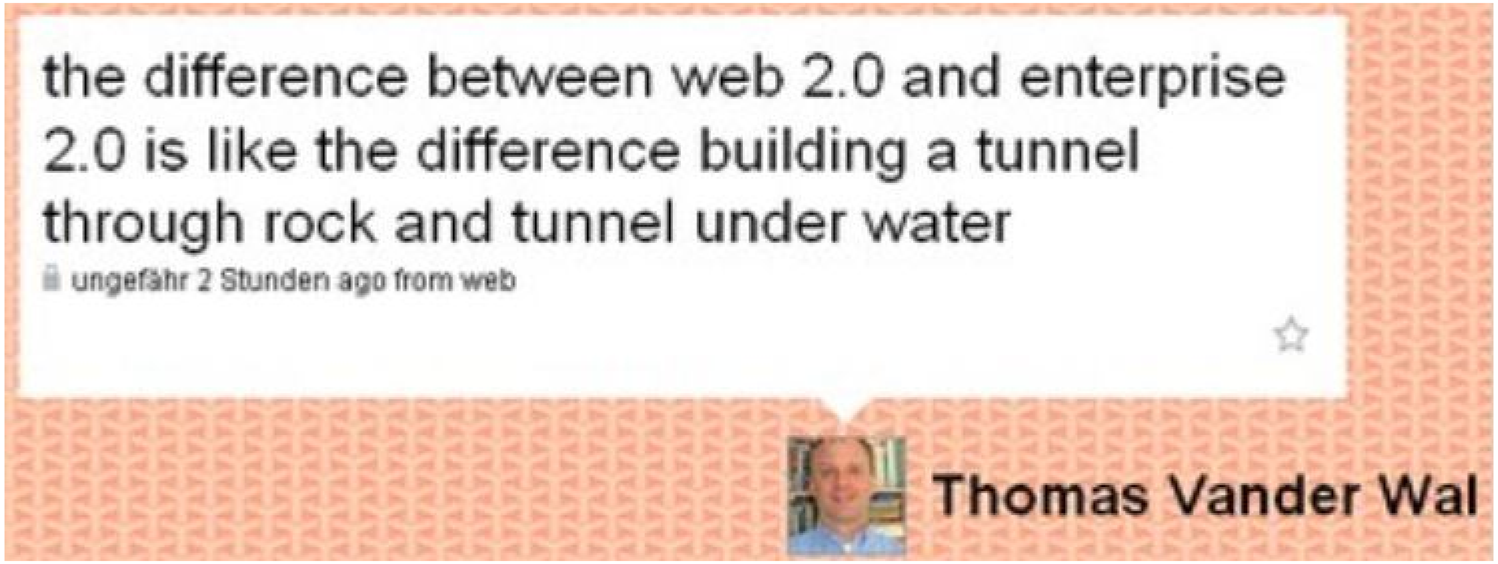
Communication
Management

Cooperation and
Collaboration
Management

Understanding the Importance and Power of Web 2.0 for Learning

- Emergence is the way complex systems and patterns arise out of a multiplicity of relatively simple interactions
- Emergent structures, rather than imposed ones
- Replacing central control with a more dynamic and flexible set of rules
- Making learning agile and flexible but without introducing chaos

Tale of the Two Tunnels



Social Software Fills the Gap Between the Formal and the Chaotic

	Engineered: Inflexible Structure	Freeform and Open: Adaptive Structure	Personal: Chaotic Structure
Participation and progress	• Mandantory participation • User tracking	• Open to participation • Visible learning in progress	• Invisible learning in progress • Invisible history
Adaptability	• Rigid schemas, workflows, access rights, templates	• Open to modification • Reuse in context • Incremental refinement	• Too much noise (duplication, version, changes)
Structuring and organization	• Rigid metadata • Isolated repositories • Often out of date	• Organization reflects current use and needs • Natural group formation based on activities and interests	• Each user reinvents their own structure • Large body of information not organized

Adapted from Gartner


The business case and the adoption process are still maturing
http://www.flickr.com/photos/jam343/1703693/


http://www.flickr.com/photos/mkuhn/2815676352/


http://www.flickr.com/photos/virgomerry/19751300/

The Quality Assurance Related to e-Learning Contents and Learning Design

Naomi Nagata

Abstract

e-Learning is a relative newcomer to the education area, yet it holds already a noticeable share of the learning market. In general, e-Learning contents are composed of some representative media such as sentences, figures and tables, video, sound-narrations, animations, and simulations. While any multimedia is being used, the instructor is doing various devices to improve sustainability.

The aim of this study is to develop a method of qualitative analysis for extracting features/characteristics from e-Learning contents, in consideration of the semantic relationship between figures and sentences. In order to extract the features/characteristics, we propose a method of contents analysis for "characteristics on frames" and "sequences of frames." On the basis of this analysis, we propose a method for contents construction. In comparison with previous research on the subject, our research is aimed to the synergy-effect in the meaningful relationship among figures, sentences and sound-narrations; we take a qualitative analysis approach from the point of view of cognitive and linguistic semantics. As a result, we extracted three patterns: "progressive-pattern," "regressive-pattern," and "spiral-pattern" from the characteristics on analyzed frames. Moreover, we try to test the "synergy-effect" for the compounded contents among figures, sentences, and sound-narrations. Also, we propose the concept of "rhythm of understanding" from the point of the semantic relationship among those media. For that we define "rhythm of understanding" is internal behavior to create harmony in brain for understanding a series of learning and instructional materials, accompanied with several represented media. We assume the degree of this harmony "synergy-effect."

Japanisch-Deutsches Zentrum Berlin

The Quality Assurance Related to e-Learning Contents and Learning Design

Naomi Nagata

Toshio Okamoto

The University of Electro-Communications

Tokyo JAPAN

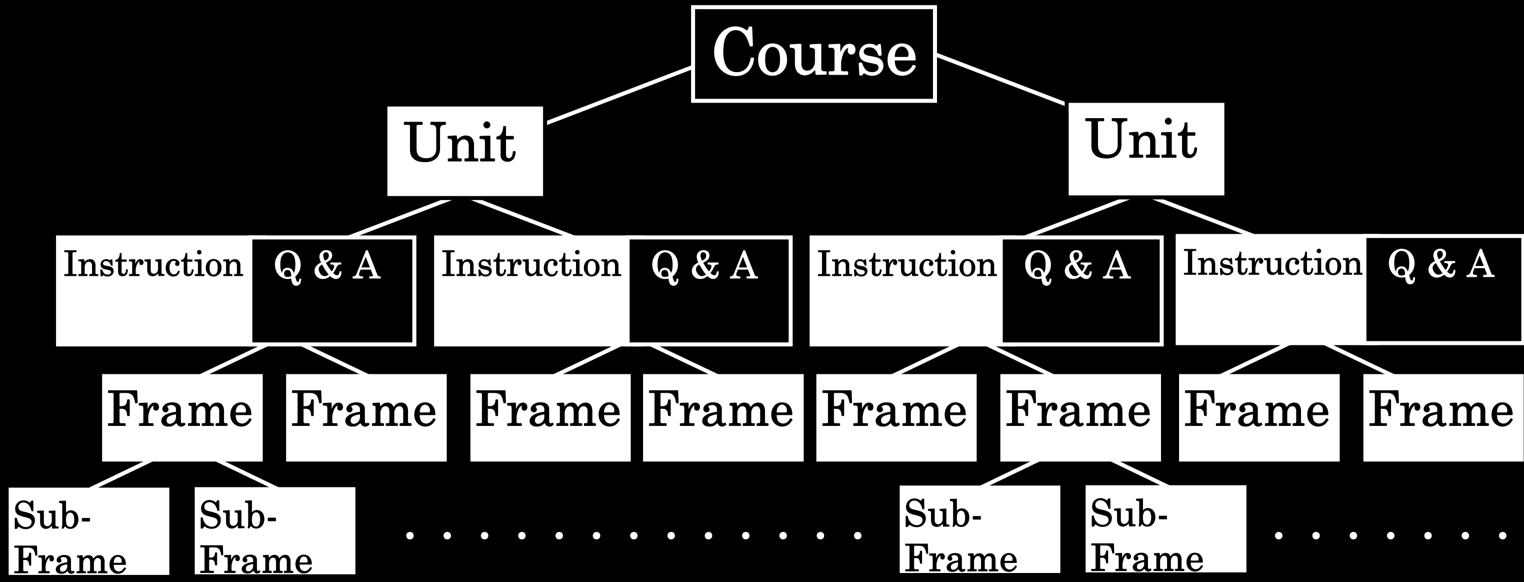
Research motivation

- Sentences
- Figures & tables
- Sound-narrations
- Video
- Animations
- Simulations

How is quality assurance related to
e-Learning Contents & Learning Design?

The framework of the course structure

Relational & logical information of course structure



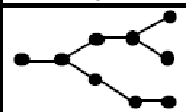
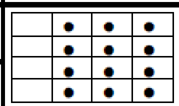
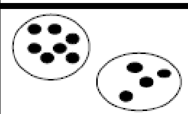
The qualitative-analysis for contents construction- method

Extraction of characteristics on contents

Extraction of characteristics on frames

Extraction of characteristics on contents

Figures (A table is regarded as a kind of figures)

Item	Relation	Example		Standard
Link	Procedure		Flow chart	Showing a relation connecting groups of components.
	Causal		System configuration	
Array	Compare		Correlation table	Showing a relation by arranging.
	Up-down		Matrix table	
Area	Inclusion		Venn diagram	Showing a relation by enclosing groups of component.
	Adjacent			
Coordinates	Positional		Bar graph	Showing by curtesian coordinate.
			Distribution map	

Semantic relationship between figures & sentences

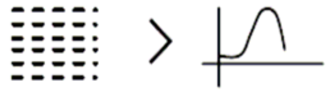
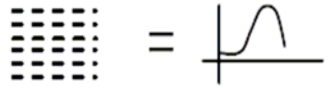
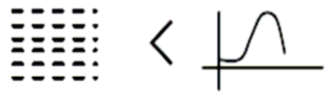
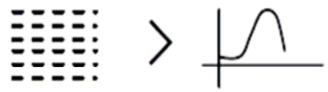
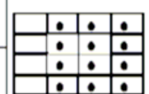
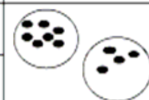
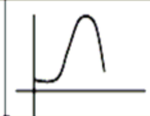
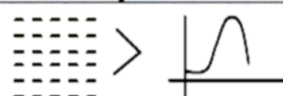
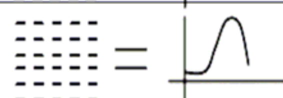
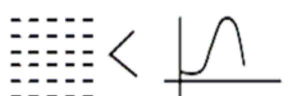
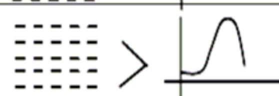
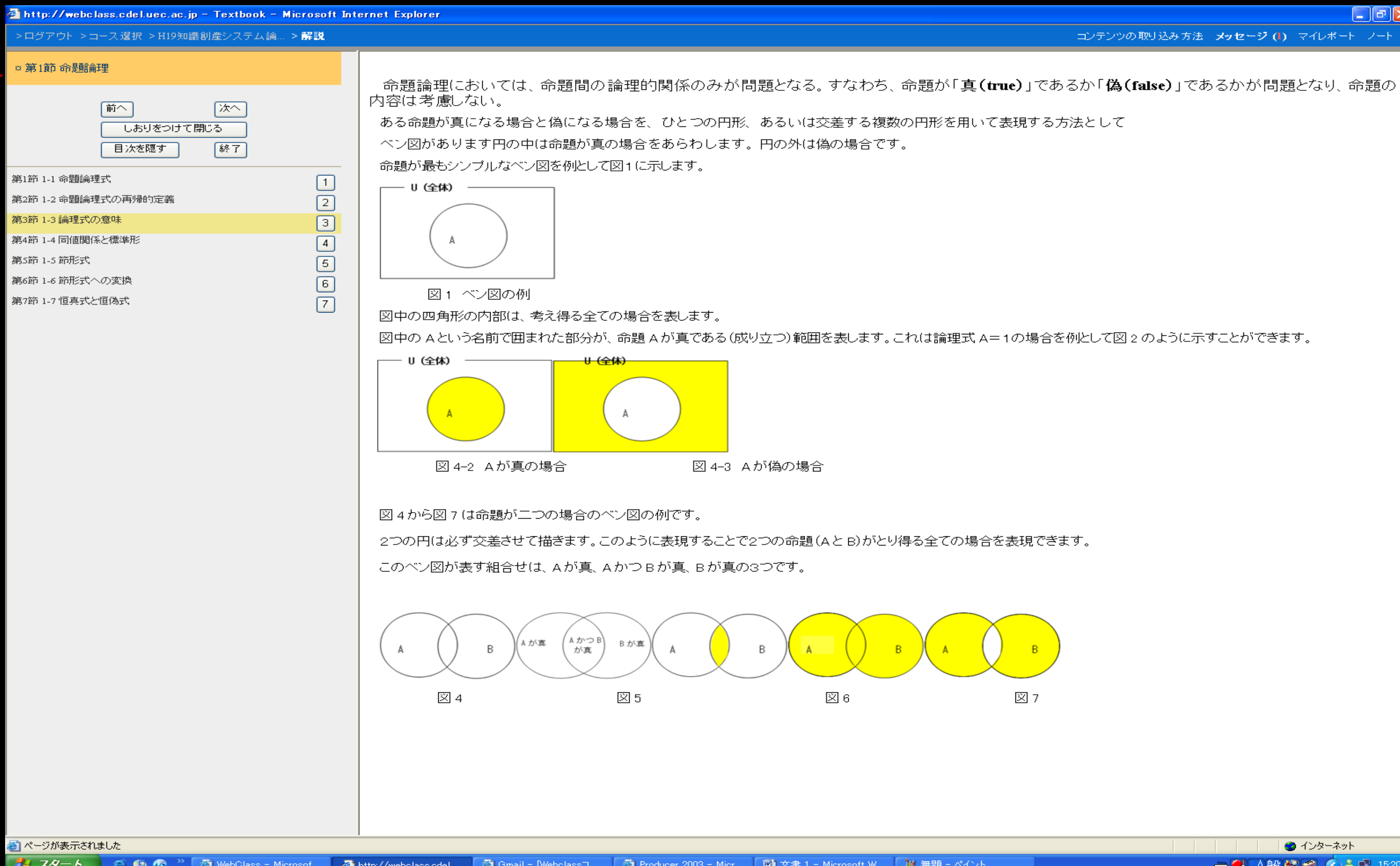
Item	Relation	Example	Standard
Exemplification	Exemplification		Expressing contents of sentences by examples.
Copy	Copy		Expressing contents of sentences by copy.
Supplement	Supplement		Expressing missing parts of sentences by replenishment.
Condensation	Condensation		Expressing concrete ideas by condensation.

Chart for contents-analysis

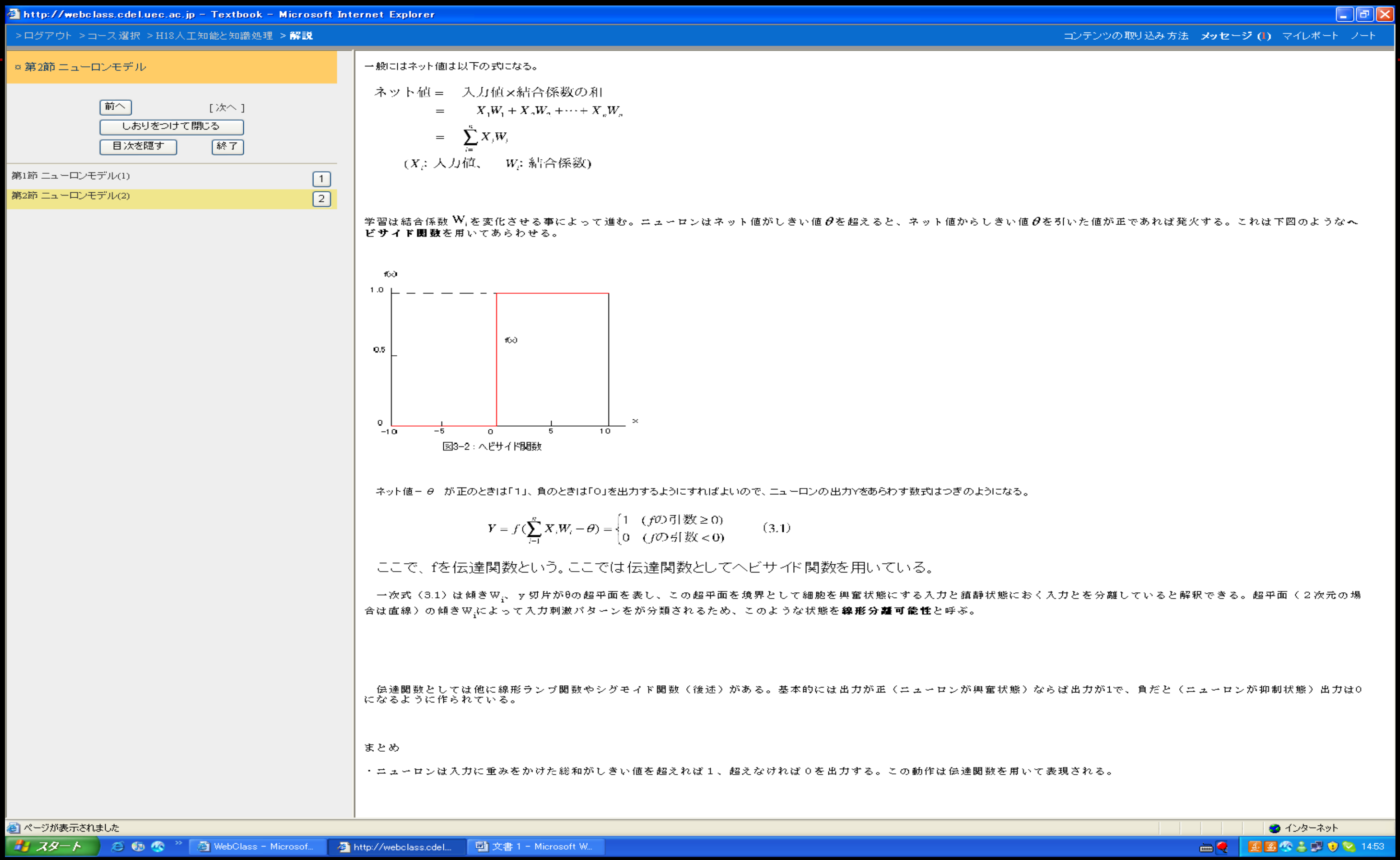
			Item	Relation	Example		Standard	F1	F2	F3	F4	F5	F6
Frames-characteristics	Characteristics of a figure	1	Link	Procedure Causal		Flow chart System onfiguration	Showing a relation connecting groups of components.		☑		☑	☑	☑
		2	Array	Compare Up-down		Correlation table Matrix table	Showing a relation by arranging.						
		3	Area	Inclusion Adjacent		Venn diagram	Showing a relation by enclosing groups of component.						
		4	Coordinates	Positional		Bar graph Distribution map	Showing by cartesian coordinate.						
	Semantic relationship between figures & sentences	1	Exemplification	Exemplification			Expressing contents of sentences by examples.				☑		
		2	Copy	Copy			Expressing contents of sentences by copy.		☑		☑		
		3	Supplement	Supplement			Expressing missing parts of sentences by replenishment.					☑	☑
		4	Condensation	Condensation			Expressing concrete ideas by condensation.						

* 1.“F” is short for “Frame”. * 2. Evaluator checks (☑) in this chart.

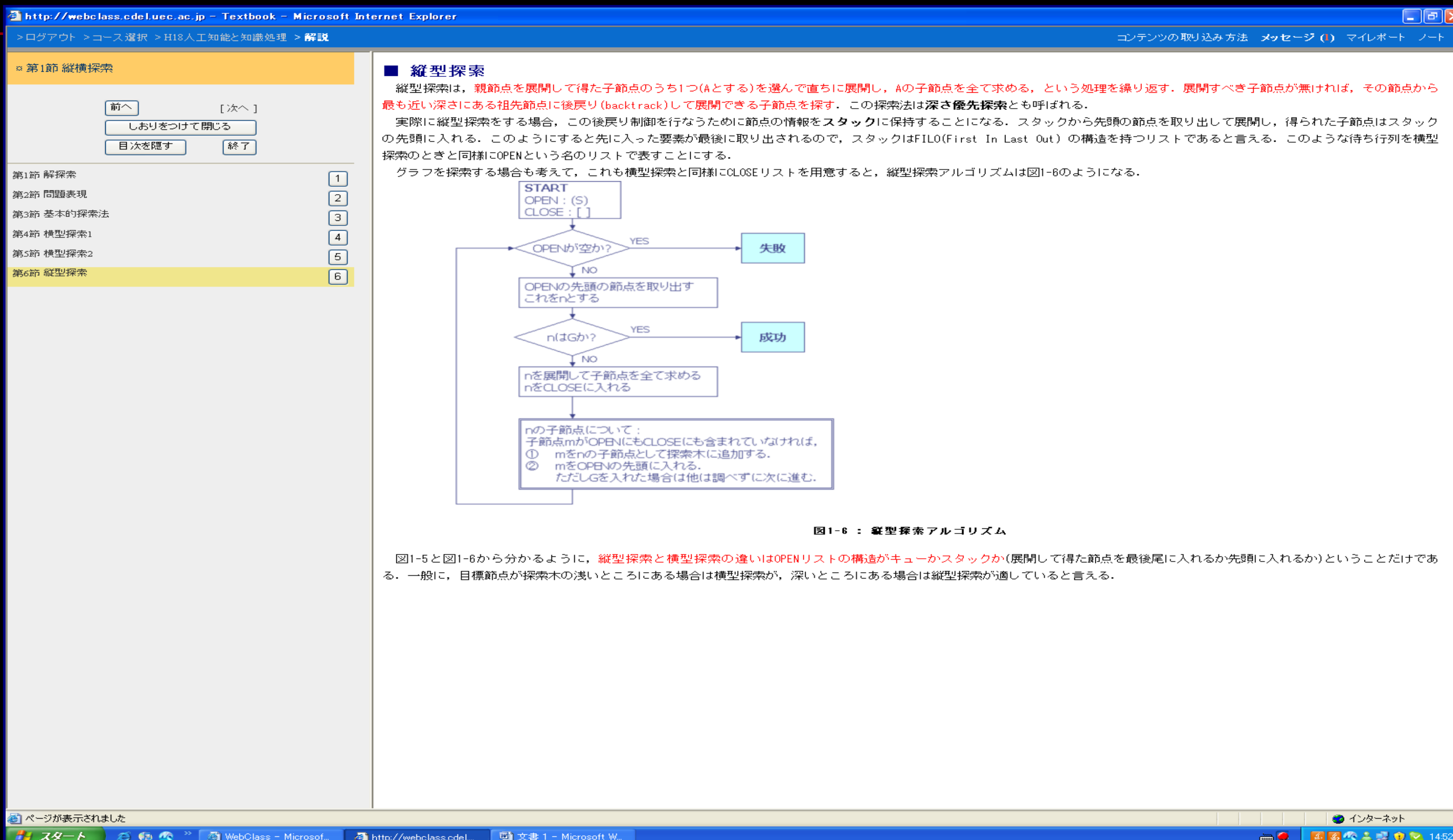
Area & exemplification



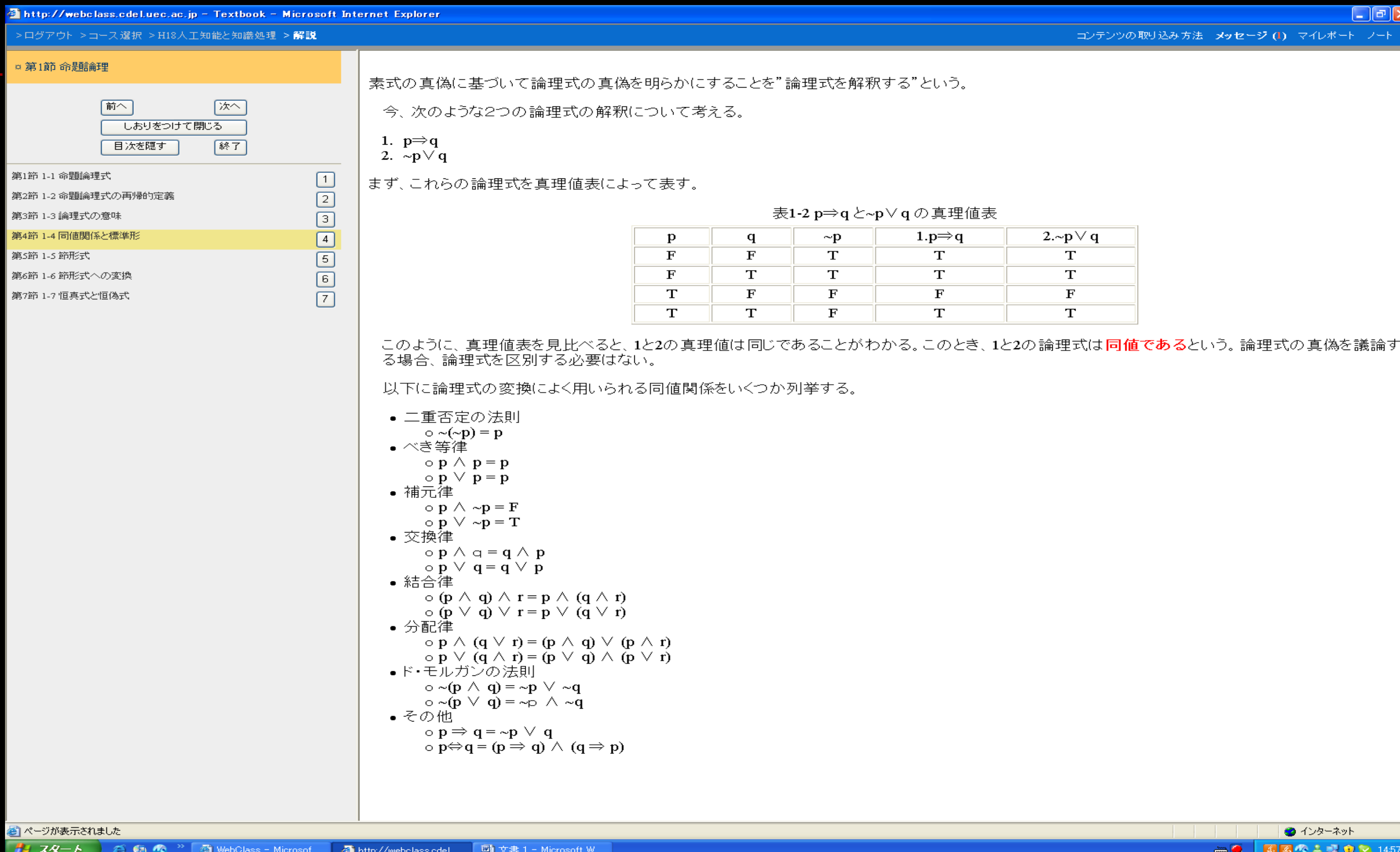
Coordinates & copy



Link & supplement



Array & condensation



http://webclass.cdel.uec.ac.jp - Textbook - Microsoft Internet Explorer

＞ログアウト ＞コース選択 ＞H18人工知能と知識処理 ＞**解説**

コンテンツの取り込み方法 **メッセージ (1)** マイレポート ノート

¤ 第1節 命題論理

前へ 次へ
しおりをつけて閉じる
目次を隠す 終了

素式の真偽に基づいて論理式の真偽を明らかにすることを”論理式を解釈する”という。

今、次のような2つの論理式の解釈について考える。

1. $p \Rightarrow q$
2. $\sim p \vee q$

まず、これらの論理式を真理値表によって表す。

表1-2 $p \Rightarrow q$ と $\sim p \vee q$ の真理値表

p	q	~p	1.p⇒q	2.~p∨q
F	F	T	T	T
F	T	T	T	T
T	F	F	F	F
T	T	F	T	T

このように、真理値表を見比べると、1と2の真理値は同じであることがわかる。このとき、1と2の論理式は同値であるという。論理式の真偽を議論する場合、論理式を区別する必要はない。

以下に論理式の変換によく用いられる同値関係をいくつか列挙する。

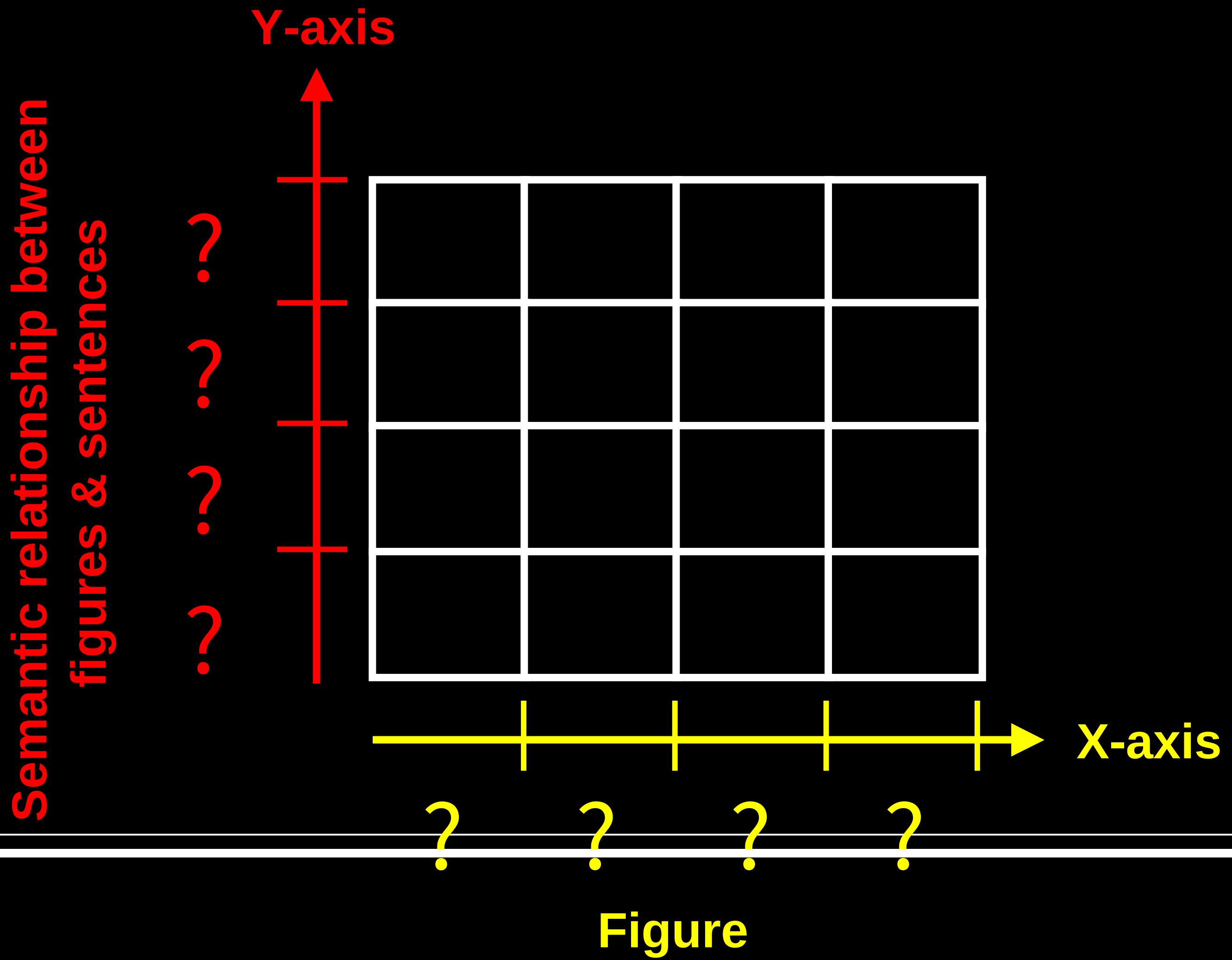
- 二重否定の法則
  - $\sim(\sim p) = p$
- べき等律
  - $p \wedge p = p$
  - $p \vee p = p$
- 補元律
  - $p \wedge \sim p = F$
  - $p \vee \sim p = T$
- 交換律
  - $p \wedge q = q \wedge p$
  - $p \vee q = q \vee p$
- 結合律
  - $(p \wedge q) \wedge r = p \wedge (q \wedge r)$
  - $(p \vee q) \vee r = p \vee (q \vee r)$
- 分配律
  - $p \wedge (q \vee r) = (p \wedge q) \vee (p \wedge r)$
  - $p \vee (q \wedge r) = (p \vee q) \wedge (p \vee r)$
- ド・モルガンの法則
  - $\sim(p \wedge q) = \sim p \vee \sim q$
  - $\sim(p \vee q) = \sim p \wedge \sim q$
- その他
  - $p \Rightarrow q = \sim p \vee q$
  - $p \Leftrightarrow q = (p \Rightarrow q) \wedge (q \Rightarrow p)$

ページが表示されました インターネット

スタート WebClass - Microsof... http://webclass.cdel... 文書 1 - Microsoft W... 14:57

Ordinability for intuitive-understanding

… without deep understanding



Ordinability for intuitive-understanding about figures & sentences

Table Question Items about characteristics of figures

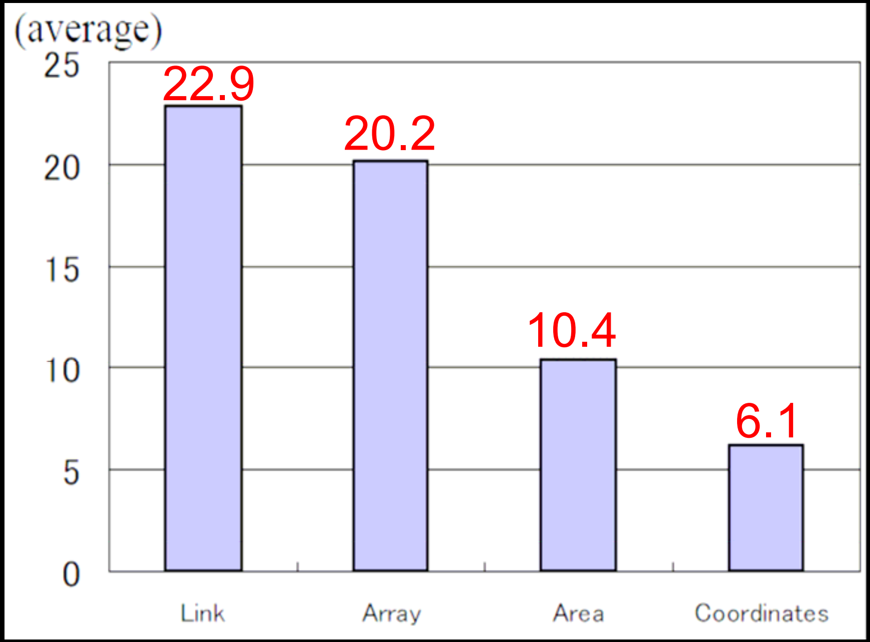
Question Items(The scale of 5-rating)
① Can you understand the content when you see only figures/tables?
② Do figures/tables express the contents of the sentences?
③ Do the sentences express the contents of the figures/tables?
④ Do the contents of sentences and figures/tables match together?
⑤ Can you understand the components of figures/tables?

Table Question Items about semantic relationship between figures & sentences

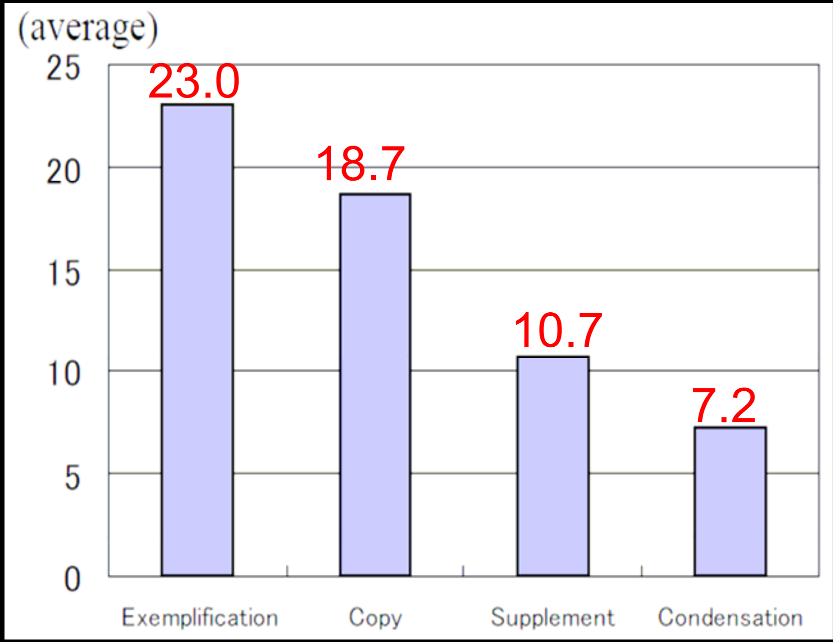
Question Items(The scale of 5-rating)
① Can you understand what do express figures/tables?
② Can you construct the semantic information for a figure/table from a sentence?
③ Can you understand the semantic relationship between figures/tables & sentences?
④ Can you understand the characteristics of figures/tables from sentences?
⑤ Can you understand concepts, relationships and principles of figures/tables?

Ordinability for "intuitive-understanding" about figures & sentences

1) Ordinability for figures:



2) Ordinability of the semantic relationship between figures & sentences:



Set up 2-dimentions

X-axis: Link

: Array

: Area

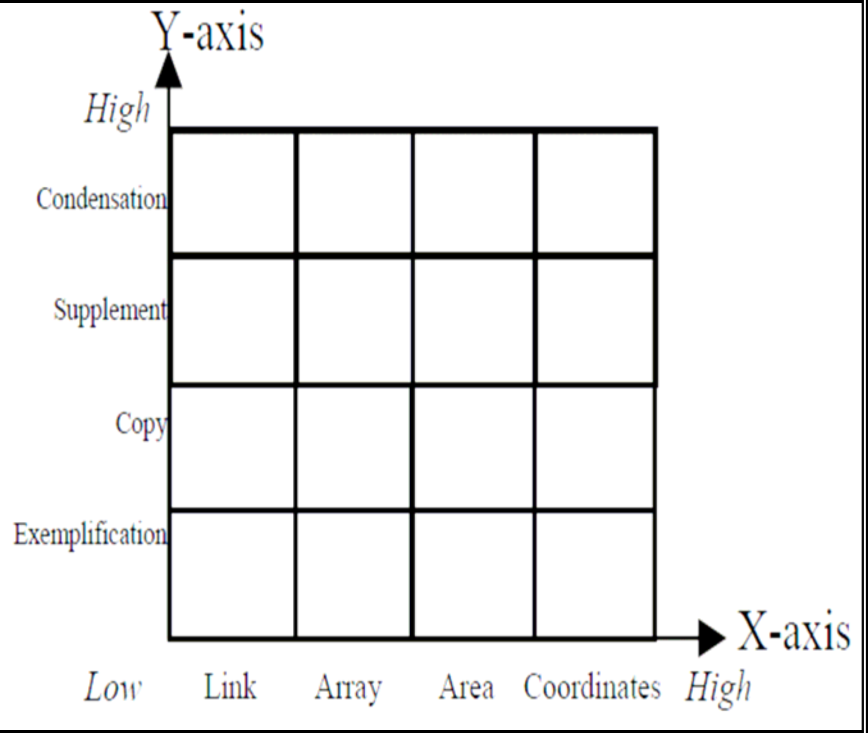
: Coordinates

Y-axis: Exemplification

: Copy

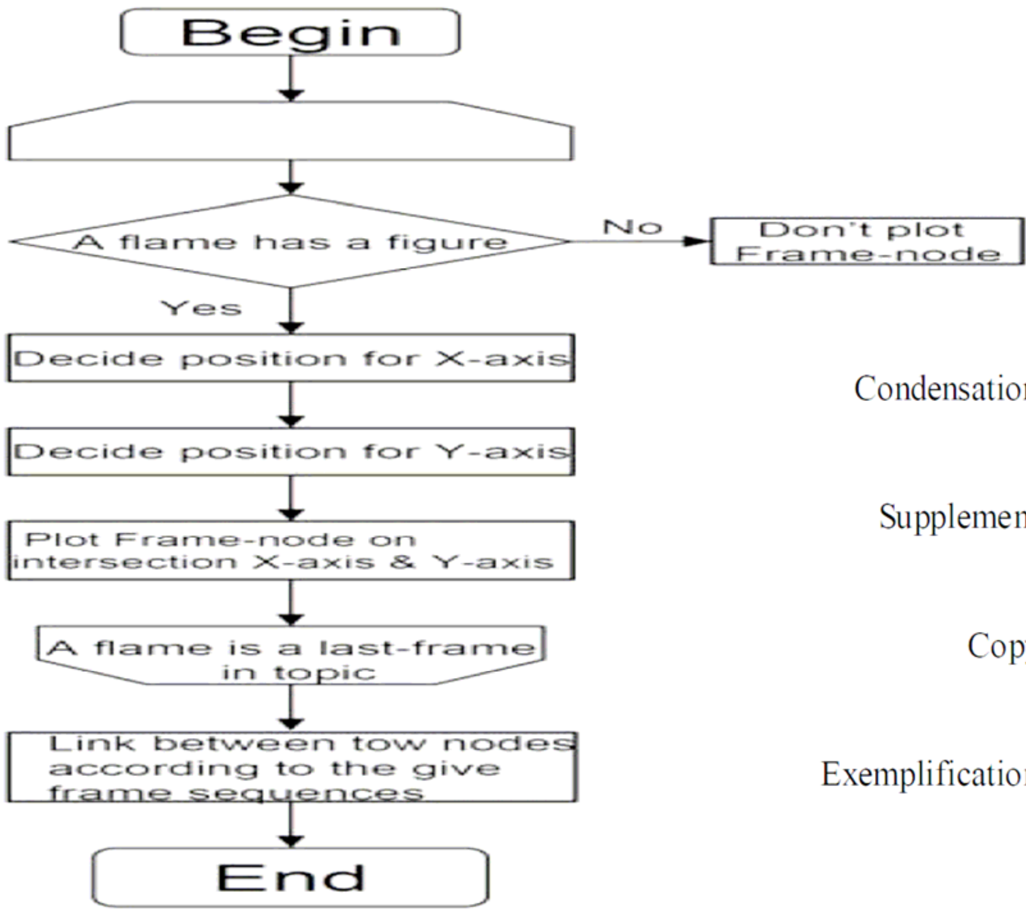
: Supplement

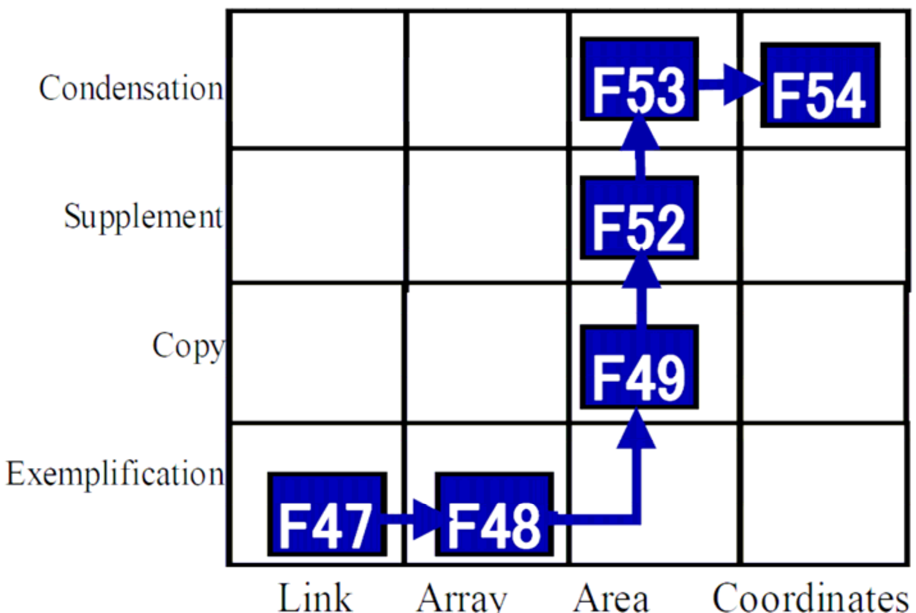
: Condensation



Extraction of characteristics on frames

The procedure for extracting frame-characteristics

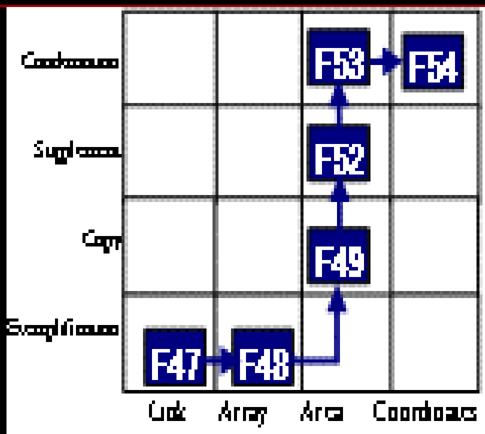


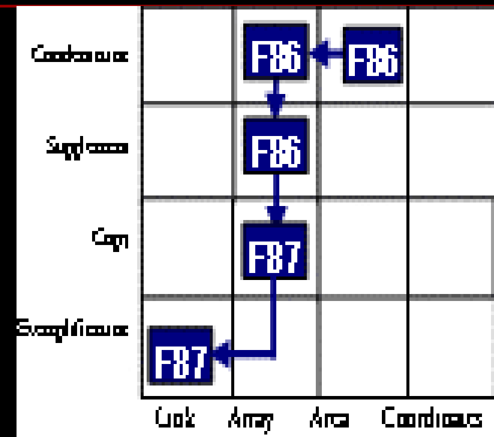


The analysis for frame-characteristics

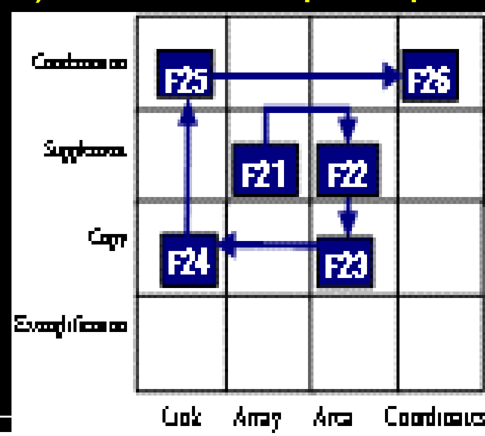
1) Pattern1: Progressive-pattern : 1 1

2) Pattern2: Regressive-pattern : 8





3) Pattern3: Spiral-pattern : 7



“Synergy-effect” by sound-narrations in frames

Experiment Ⅰ:

The effective description of explanatory sentences for understanding

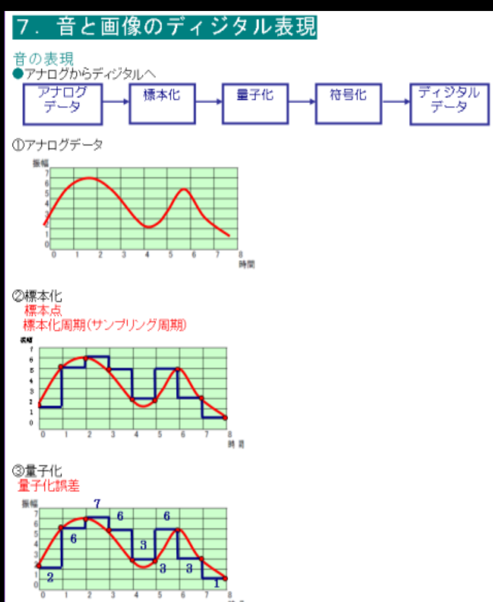
Experiment Ⅱ:

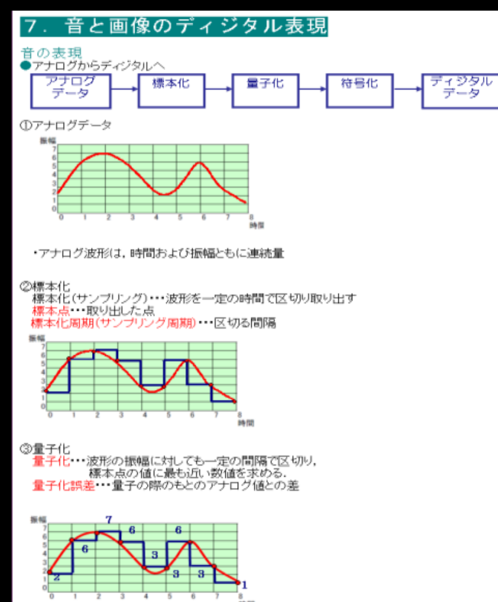
The more effective method of adding sound narrations

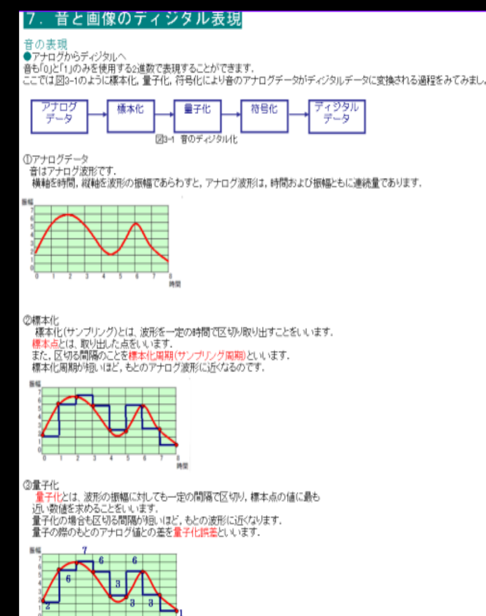
Experiment Ⅰ:
The effective description of explanatory sentences for understanding

Procedures

A) Key-sentences only B) Key-phrases only C) Explanation



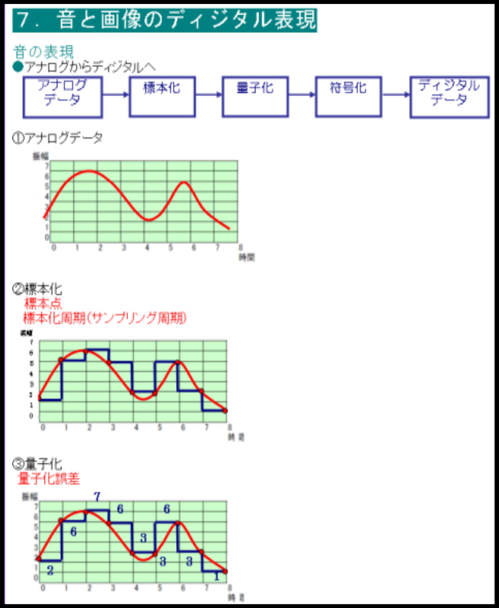


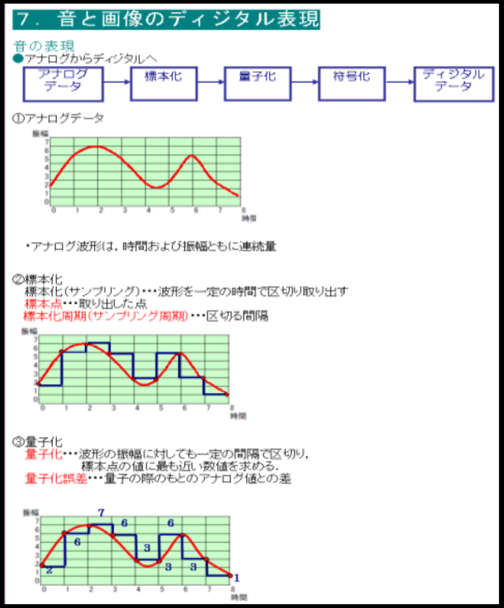


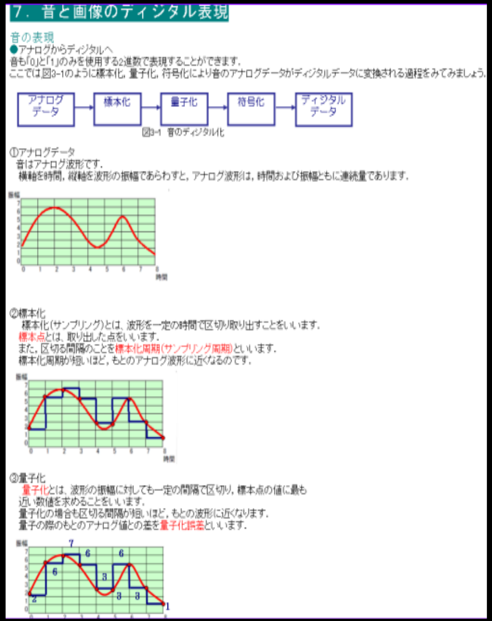
Experiment Ⅰ :
The effective description of explanatory sentences for understanding

Procedures

A) Key-sentences only B) Key-phrases only C) Explanation





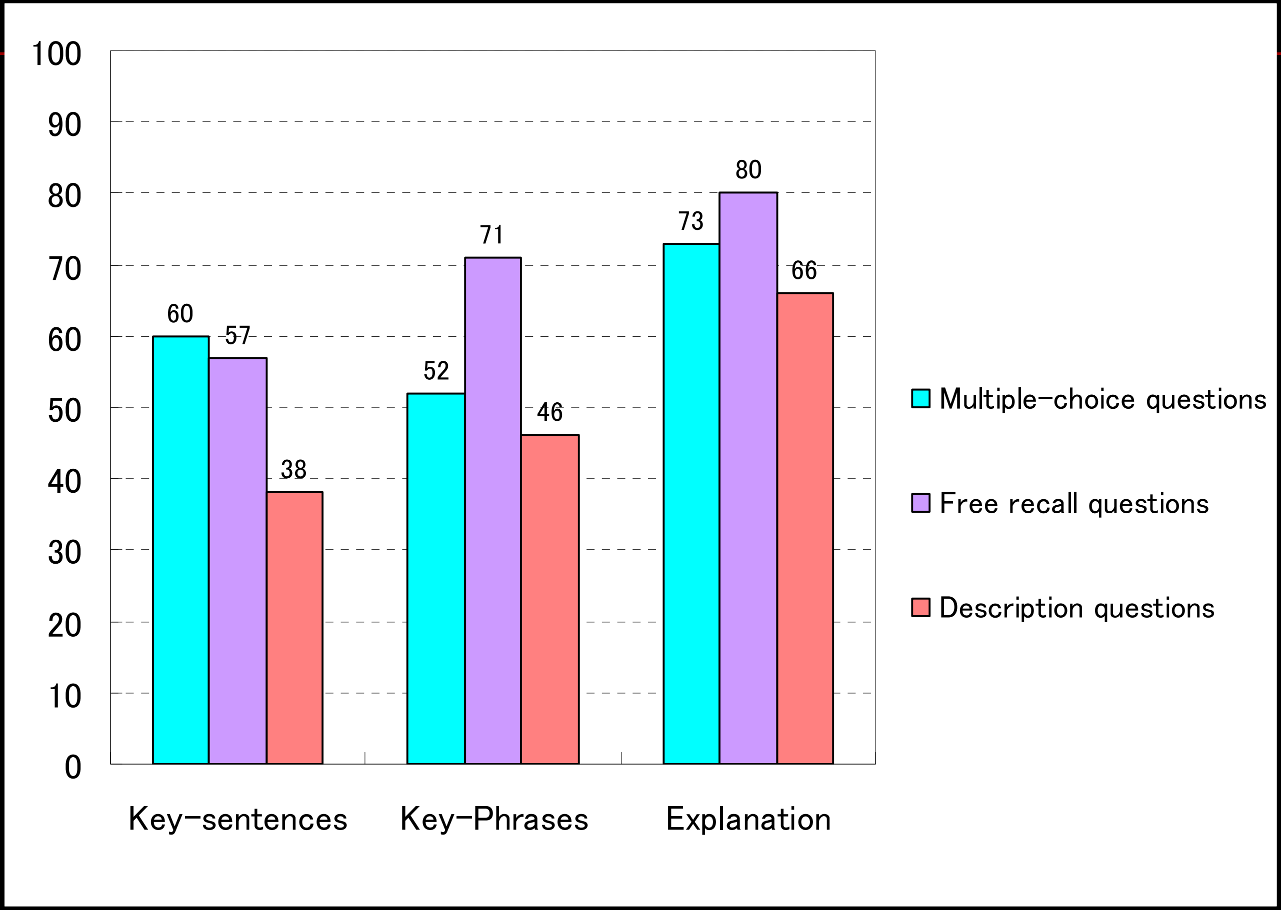


Repeating sound-narrations

Repeating sound-narrations

Repeating sound-narrations

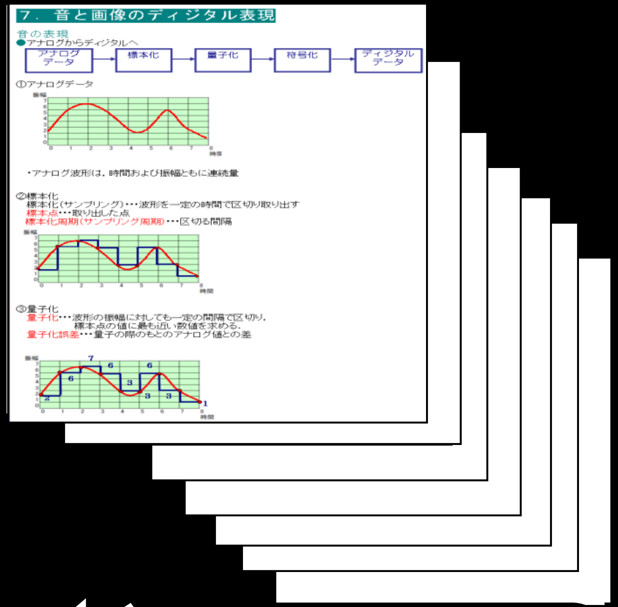
Test-results



Experiment Ⅱ:
The more effective method of adding sound narrations

Procedures

B) Key-phrases only



7．音と画像のディジタル表現

音の表現

●アナログからディジタルへ

アナログデータ → 標本化 → 量子化 → 符号化 → ディジタルデータ

①アナログデータ

・アナログ波形は，時間および振幅ともに連続量

②標本化

標本化(サンプリング)･･･波形を一定の時間で区切り取り出す

標本点･･･取り出した点

標本化周期(サンプリング周期)･･･区切る間隔

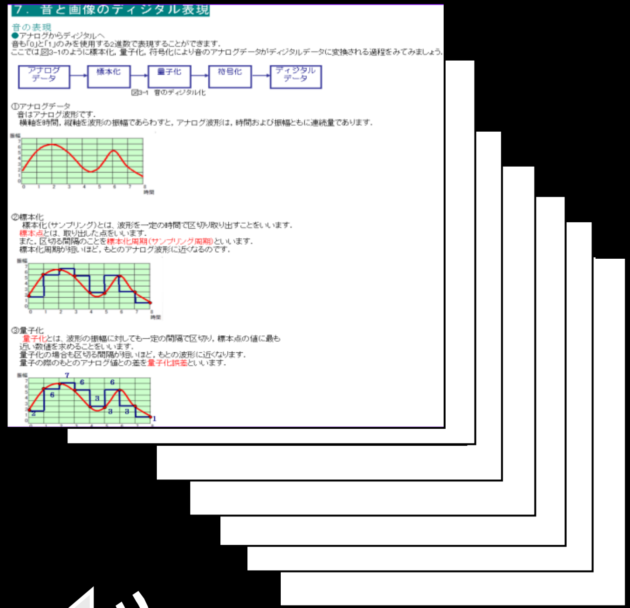
③量子化

量子化･･･波形の振幅に対しても一定の間隔で区切り，標本点の値に最も近い数値を求める．

量子化誤差･･･量子の際のもとのアナログ値との差

Repeating sound-narrations

C) Explanation



7．音と画像のディジタル表現

音の表現

●アナログからディジタルへ

音も「0」と「1」のみを使用する2進数で表現することができます．

ここでは図3-1のように標本化，量子化，符号化により音のアナログデータがディジタルデータに変換される過程をみてみましょう．

アナログデータ → 標本化 → 量子化 → 符号化 → ディジタルデータ

図3-1　音のディジタル化

①アナログデータ

音はアナログ波形です．

横軸を時間，縦軸を波形の振幅であらわすと，アナログ波形は，時間および振幅ともに連続量であります．

②標本化

標本化(サンプリング)とは、波形を一定の時間で区切り取り出すことをいいます．

標本点とは、取り出した点をいいます．

また，区切る間隔のことを標本化周期(サンプリング周期)といいます．

標本化周期が短いほど，もとのアナログ波形に近くなるのです．

③量子化

量子化とは、波形の振幅に対しても一定の間隔で区切り，標本点の値に最も近い数値を求めることをいいます．

量子化の場合も区切る間隔が短いほど，もとの波形に近くなります．

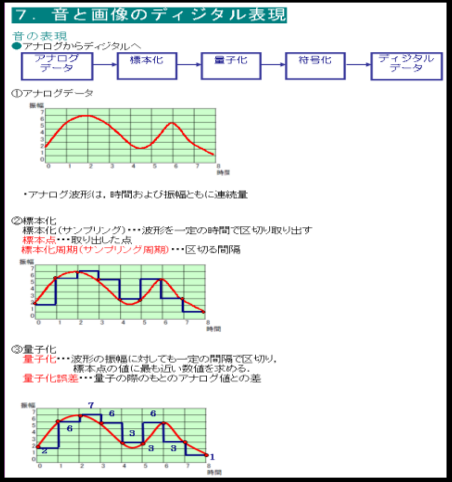
量子の際のもとのアナログ値との差を量子化誤差といいます．

Repeating sound-narrations

Experiment Ⅱ:
The more effective method of adding sound narrations

Procedures

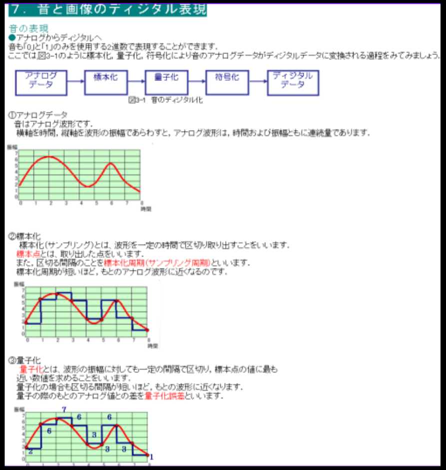
B) Key-phrases only



Repeating sound-narrations

Complementary sound-narrations

C) Explanation



Repeating sound-narrations

Complementary sound-narrations

Conclusions

From point of view ...

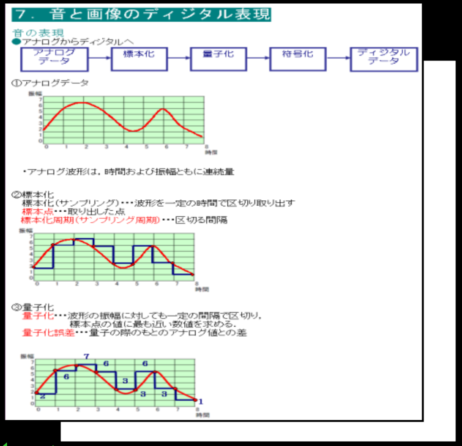
- Contents-analysis
- Synergy-effect

Contents-analysis

- Qualitative method for contents analysis
- Extracting three patterns
  - Progressive-pattern
  - Regressive-pattern
  - Spiral-pattern

Synergy-effect

Key-phrases sentences


7．音と画像のディジタル表現

音の表現

●アナログからディジタルへ

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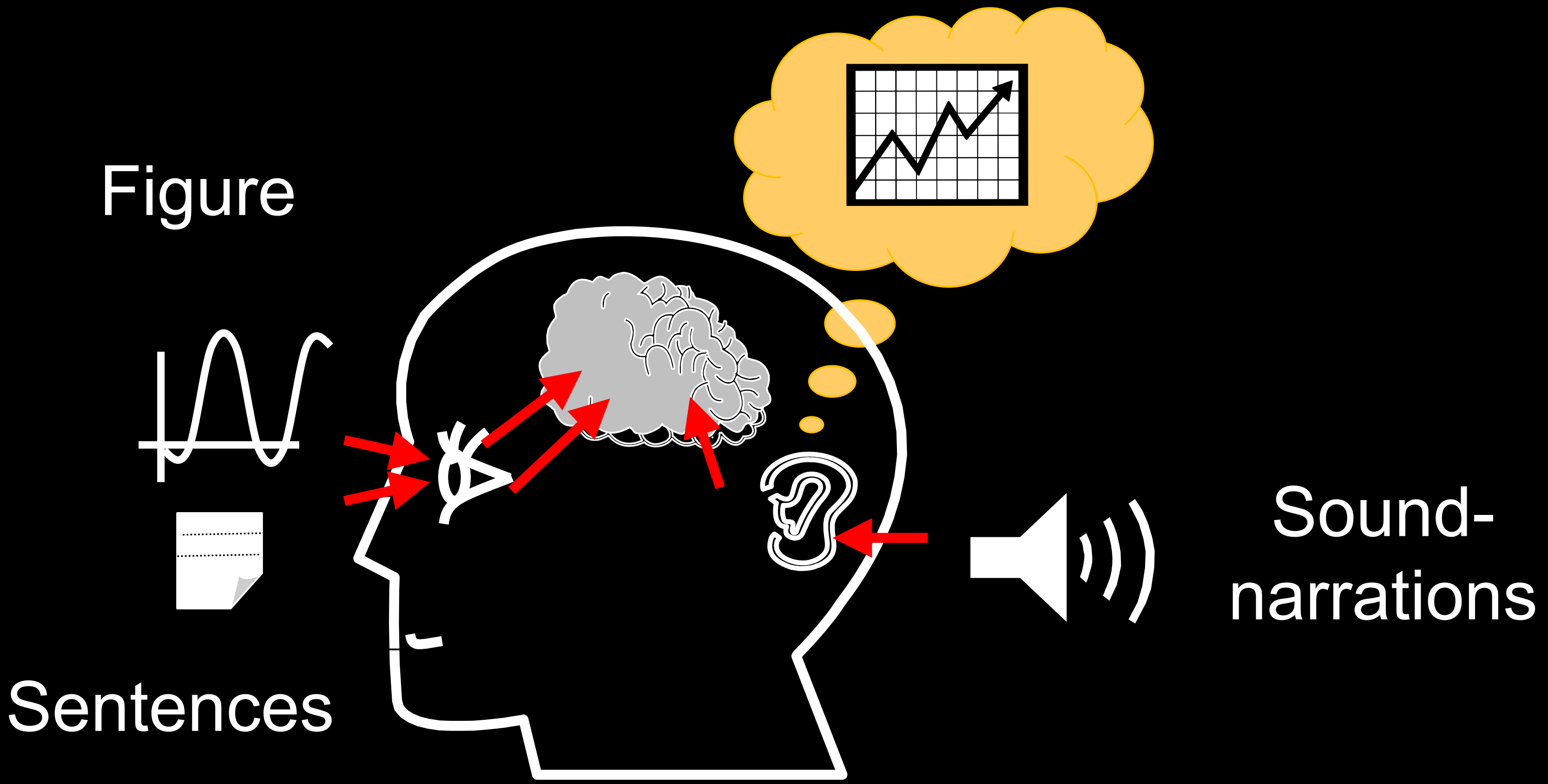
量子化･･･波形の振幅に対しても一定の間隔で区切り，標本点の値に最も近い数値を求める．

量子化誤差･･･量子の際のもとのアナログ値との差

Complementary sound-narrations

Rhythm of understanding



Thank you for your attention

Hyperblog for Sharing and Inheriting Knowledge from Research Activities

Akihiro KASHIHARA[1], Keisuke NAGATOME[1], and Shinobu HASEGAWA[2]

Abstract

Research activities in a laboratory include research meeting, survey of related work, system development, etc. These activities produce formal knowledge of research contents and informal knowledge tacitly obtained from them. The formal knowledge is represented as papers, program source codes, presentation documents, etc. The informal knowledge also includes slogan, heuristics, experiences, how-to knowledge, etc. It is quite important for the research members to share and inherit such knowledge to promote their research activities.

The main issue addressed in this paper is how to share and reuse knowledge from research activities within a laboratory and how to facilitate legitimate peripheral participation of newcomers to the laboratory. We particularly focus on sharing the informal knowledge. In general, it would be embedded in the research logs that research members keep in their daily work. Each member could reflect on and orient his/her own research activities with his/her research logs. Sharing the research logs kept by other members, he/she could also gain some awareness of knowledge, which could not be obtained from his/her logs, from their logs. In addition, he/she could be motivated to research. It is also important for the newcomers to inherit the informal knowledge. They would usually make a gradual transition from a guest to research member in the laboratory. In other words, they first play a peripheral role and gradually fill a central role in the research activities. Such transition could be promoted by learning research logs accumulated by other members to inherit the informal knowledge.

The key issue towards sharing and reusing the research logs to be obtained

from the members is how to accumulate the logs that are dispersed in each member. Our approach to this issue is to propose Hyperblog that enables each research member not only to submit and accumulate his/her research logs as blog entries, but also to share and reuse the logs gathered from other members. Hyperblog connects each blog generated by each member to organize and reorganize the blog entries with three types of metadata, *Research Activity*, *Tags*, and *Research Topic*. It also provides three functions that are blog entry submission, blog entry sharing, and knowledge inheritance.

This paper also demonstrates a Hyperblog system, which has a SNS-based architecture. It allows the research members to share and reuse blog entries accumulated by themselves and by others, and also to communicate with each other via the blog entries. In this paper, we also report the case study with the system. The results indicate the possibility that Hyperblog facilitates submitting, sharing and reusing the research logs in an effective way.

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[2]Japan Advanced Institute for Science and Technology

Hyperblog for Sharing and Inheriting Knowledge from Research Activities

A. Kashihara[1], K. Nagatome[1], and S. Hasegawa[2]

[1]University of Electro-Communications
[2]Japan Advanced Institute for Scientific and Technology
Japan

Sharing and reuse of research log

among members in a research lab

With **Hyperblog**

Promoting research activities

to share and inherit knowledge obtained from research activities

Outline

- Knowledge sharing and inheritance in research activities
- Hyperblog
  - Framework
  - Blog entry submission, and sharing
  - Knowledge inheritance support
- Hyperblog system
- Case study and results
- Conclusion

Knowledge from Research Activities

- Formal knowledge of research contents
  - Papers, program source codes, presentation documents, etc.
- Informal knowledge of research activities/process
  - Slogan, heuristics, experiences, how-to memos, etc.

Knowledge Sharing/Reuse

- From research logs accumulated by oneself
  - Reflection on his/her research activities
  - Orientation in his/he research activities
- From research logs accumulated by other members
  - Awareness of knowledge not to be obtained by oneself
  - Motivation to research

Knowledge Inheritance

- From guests to members
  - Newcomers as guests in lab
  - Peripheral participation in research activities
  - Learning research logs to inherit knowledge
  - Central role in research activities

Problems

- How to share research logs that are dispersed in each member
- How to accumulate research logs in a research community

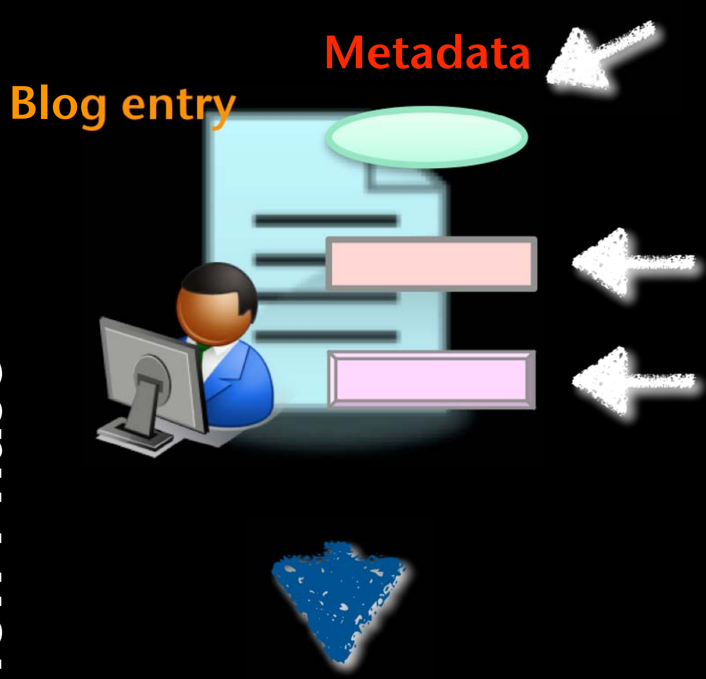
Approach

- **Hyperblog**
  - **Research logs as blog entries**
    - **Each member accumulates his/her research logs as blog entries.**
  - **Connection between blogs**
    - **Connecting each blog generated by each member**
    - **Sharing/reusing knowledge embedded in the blog entries**

Framework of Hyperblog

- Submission
  - Submitting and accumulating blog entries
  - Attaching meta-data as indexes to blog entries
- Sharing
  - Organizing/reorganizing blog entries for effective search
- Inheritance
  - Recommending newcomers instructive blog entries/ other members

Submission Phase



- **Key research activities (System-defined):**
  Research theme setting, idea refinement, meeting, survey of related work, system development, evaluation, and publishing
- **Tags (User-defined)**
- **Research topics (Community-defined):**
  Tags that have been used by more members

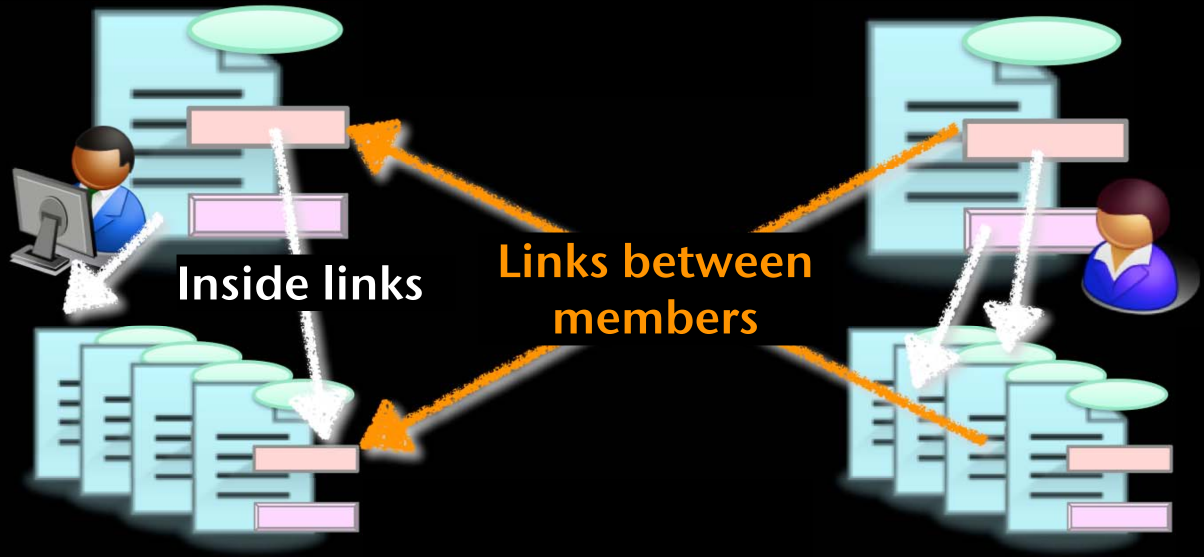
1. Research topic generation:

Automatically detecting research topics as meta-data that have been used by more members

2. Tag candidate presentation:

- Presenting tags as candidates for meta-data of submission entry, which are classified according to the key research activities, and
- Preventing the tags as meta-data from dispersing

Sharing Phase



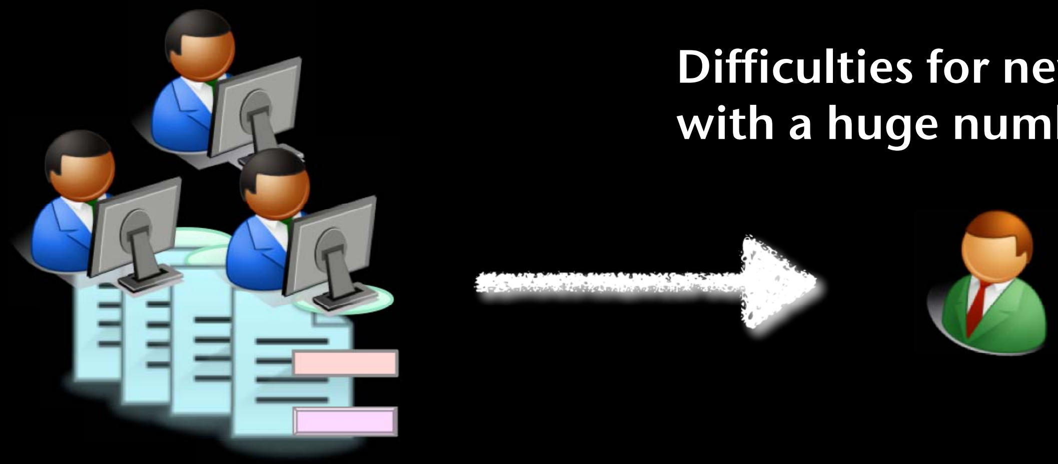
1. Blog entry search:

Using meta-data to search blog entries according to inside links and links between members

2. Tag identification:

- Automatically identifying tags that have the same meaning and different expressions to create well-organized structure of blog entries
- Identification mechanism:
  Calculating the degree of similarity between the vectors of keywords included in the blog entries
  If the similarity degree is high, the tags attached to them are identified.

Inheritance Phase



Difficulties for newcomers to learn with a huge number of blog entries

1. Recommendation:

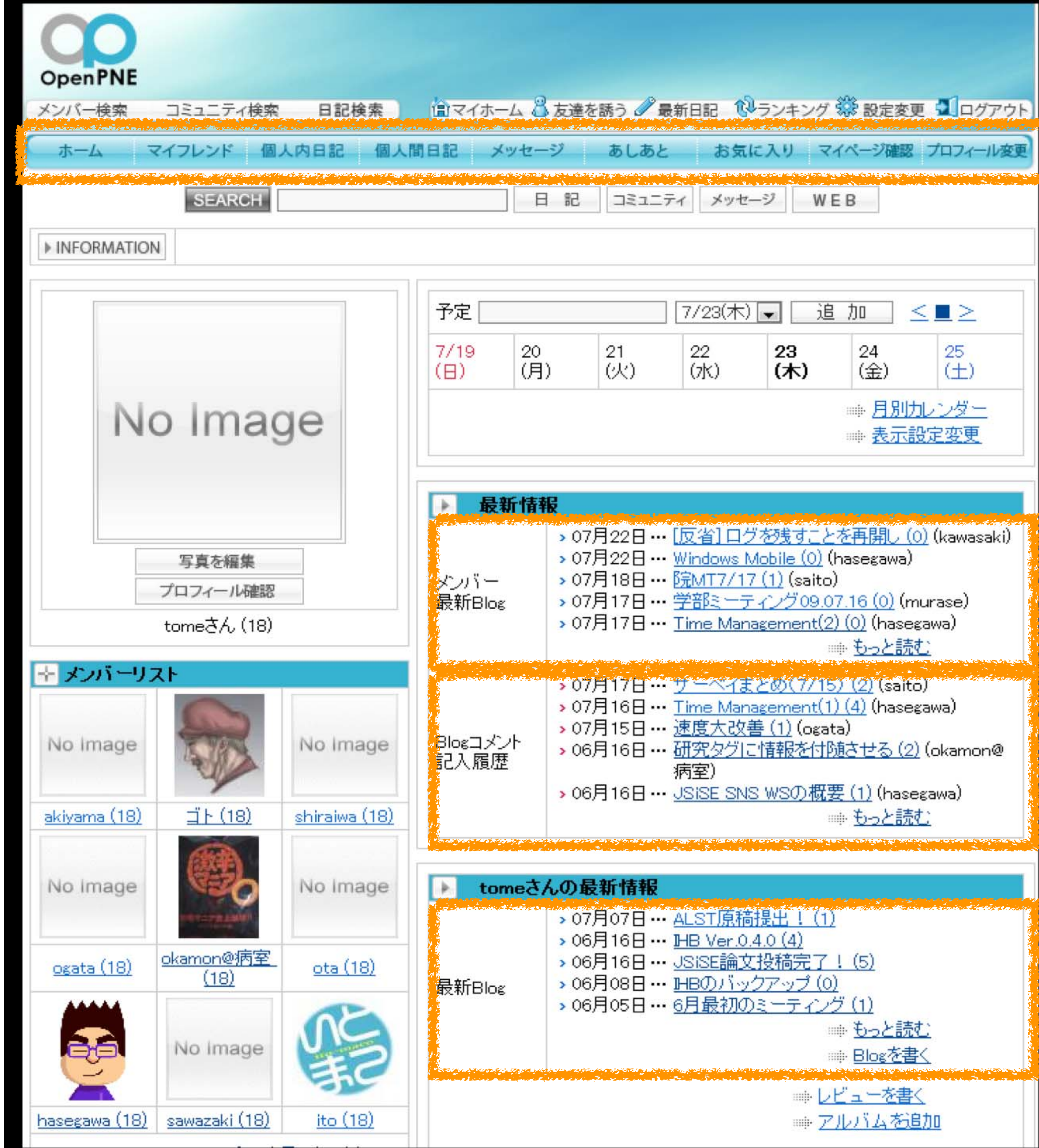
- Recommending them instructive blog entries to be filtered
- Recommending them other members who can guide them in research activities

Under construction...

Hyperblog System

- SNS-based system
  - Using OpenPNE
  - Organizing blog entries to share
  - Facilitating communication between members

User Interface of Hyperblog



Navigation bar

Newly-arrived blog entries from members

Newly-arrived comments from members

Recent blog entries submitted by the user

User Interface of Hyperblog

List of blog entries submitted by the user

List of key research activities as meta-data

List of research topics detected

List of tags attached

User Interface of Hyperblog

List of blog entries linked between members whose key research activity as meta-data is "Meeting"

Search results with "Meeting" as keyword

Case Study

- Purpose
  - Possibility of submitting/sharing/reusing blog entries
- Subjects
  - 9 graduate/undergraduate students
  - 2 associate professors
- Trial
  - Period: One month from 2008.12 to 2009.01
  - Access log analysis
  - Questionnaire

Results

- Access log analysis
  - Submission
    - Total number: 140 entries
    - 12.3 entries per member
    - Numbers of entries in each research activity:
      System development: 50, System evaluation: 25, Publishing: 23
      Idea refinement: 18, Survey: 13, Meeting: 10, Research theme: 1
    - Average number of tags attached: 5.0
    - Total number of research topics detected: 5
      Thesis writing (27), personal memo (24), Research progress (22)
      Idea (12), Thesis preparation (10)
  - Sharing
    - Average number of accessing entries submitted by oneself: 49.7
    - Average number of accessing entries submitted by others: 132.5

Results: Questionnaire

1 — 5

Strongly no — Strongly yes

Questions	Students (n=9)	Assoc. Profs (n=2)
(1) Do you think submitting research log is useful for your research activities?	4.3	3.5
(2) Do you think submitting comments to others' entries and browsing comments submitted by others are useful for your research activities?	3.3	4.5
(3) Do you think searching entries by means of keywords is useful?	2.4	4
(4) Do you think research activities, tags, and research topics as metadata of blog entries are suitable for searching entries?	4	4.5
(5) Could you often reflect on your research activities by submitting research log?	4.3	4
(6) Were you motivated to research by browsing entries obtained from others?	4.2	---
(7) Could you grasp the students' progress/endurance from their entries?	---	5

Conclusion

- Hyperblog
  - Accumulating and organizing research log in a research community
  - Sharing and inheriting informal knowledge from research
- SNS-based system
  - Using OpenPNE
  - Support for submission, sharing, and inheritance
  - Trial Use
- Future work
  - Large-scale and long-term evaluation
  - Support for sustainable blogging for sharing and inheriting research knowledge

http://wlgate.ice.uec.ac.jp

Social Situation and Demand for Further Education

Requirements for e-learning systems

… a remark on the title

- To make it quite clear
  - **Demand** is most probable the wrong term
- Much more precise would be
  - **Need**

On the scope of my contribution

- Working with e-learning professionals since quite a few years, I have felt a bias in the e-learning discussion:
- Most of my colleaques tend to cater for highly motivated, interested and socially mobile people.
- But we forget to look at the needs of those, who need education and training most:

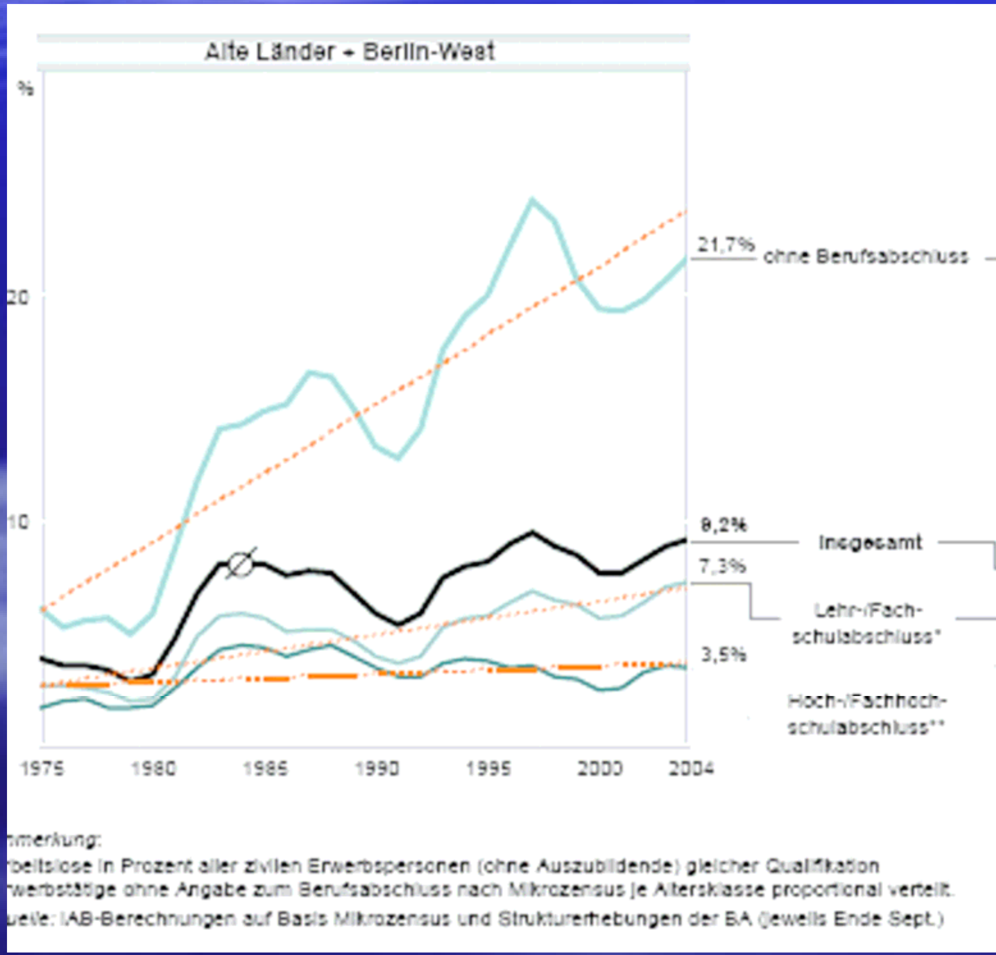
the under-privileged, younger people, lacking any professional education

Sources for my statements

- Advisory council for further education at the state government of Baden Württemberg
- Statistisches Landesamt Baden Württemberg
- Deutsche Bank Research
- Experience at a vocational training institute

The situation

- Education and unemployment



Situation

REGIONALE UNTERSCHIEDE

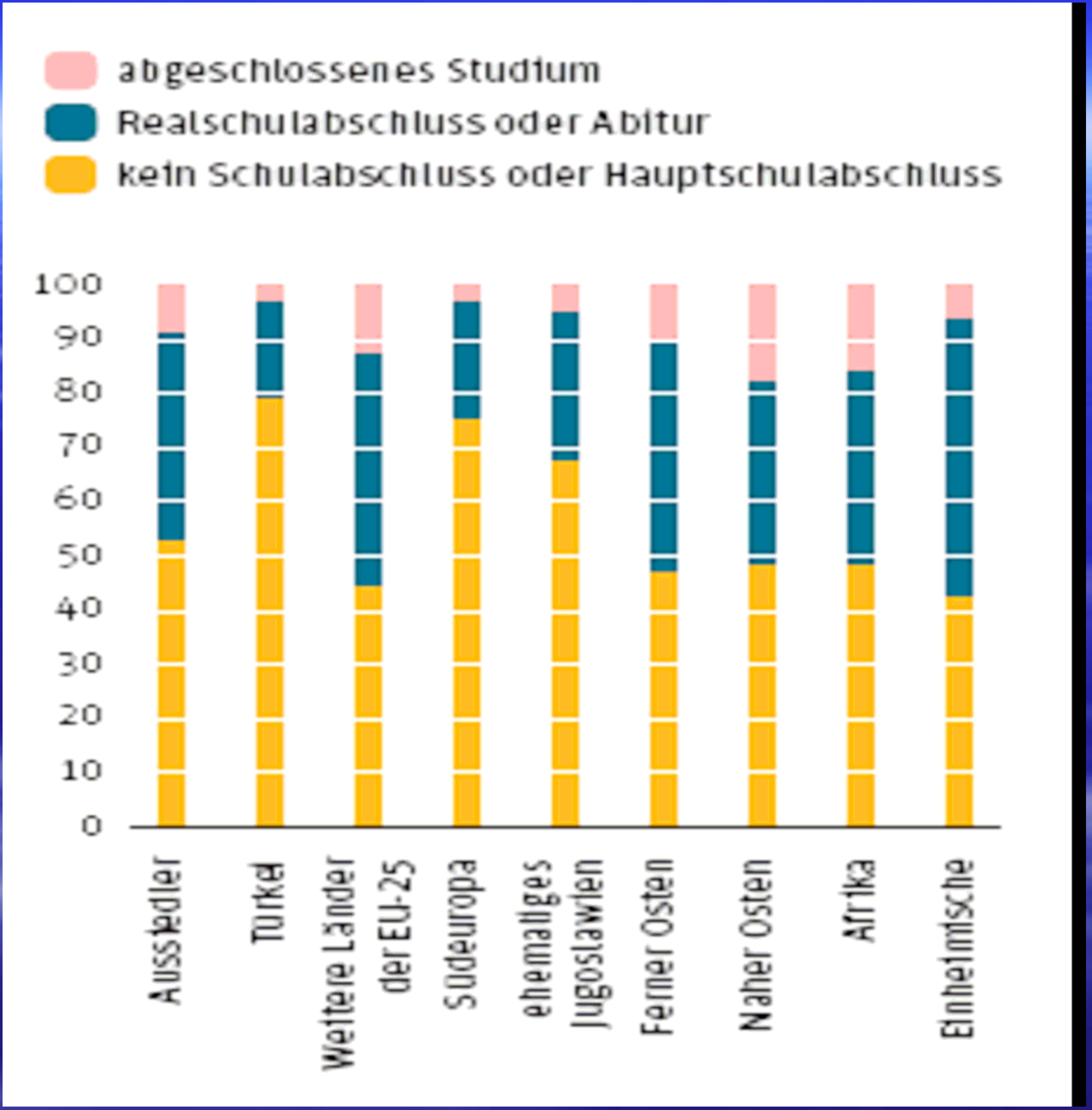
Spätaussiedler und Ausländer profitieren nicht von der besseren Arbeitmarktsituation in Westdeutschland

BUNDESLÄNDER	SPÄTAUSSIEDLER		AUSLÄNDER*		DEUTSCHE*
	Anteile in %	relativ zu den Deutschen	Anteile in %	relativ zu den Deutschen	Anteile in %
Schleswig-Holstein	35,7	3,4	24,6	2,4	10,4
Hamburg	34,3	3,6	20,6	2,2	9,6
Niedersachsen	30,0	3,1	24,8	2,6	9,6
Bremen	38,2	3,0	27,2	2,1	12,7
Nordrhein-Westfalen	36,0	3,7	23,1	2,4	9,7
Hessen	35,0	4,6	17,4	2,3	7,7
Rheinland-Pfalz	27,1	3,4	17,5	2,2	8,0
Baden-Württemberg	23,9	4,2	13,6	2,4	5,7
Bayern	28,6	4,3	14,9	2,2	6,6
Saarland	32,9	3,5	23,0	2,4	9,5
Berlin	52,8	2,8	38,2	2,0	18,9
Brandenburg	62,0	3,0	37,6	1,8	20,4
Mecklenburg-Vorpommern	57,3	2,6	35,8	1,6	21,9
Sachsen	60,7	3,1	39,1	2,0	19,5
Sachsen-Anhalt	64,2	2,9	40,8	1,9	22,0
Thüringen	52,9	2,9	36,8	2,0	18,0

Stand: 30. Juni 2004, Anteil an den abhängig zivilen Erwerbspersonen ohne Beamte

*ohne Spätaussiedler

Quelle: IAB



abgeschlossenes Studium
Realschulabschluss oder Abitur
kein Schulabschluss oder Hauptschulabschluss
100
90
80
70
60
50
40
30
20
10
0
Aussiedler
Türkei
Weitere Länder der EU-25
Südeuropa
ehemaliges Jugoslawien
Ferner Osten
Naher Osten
Afrika
Einheimische

Education and further education

Tabelle 6.3: Teilnahme an Weiterbildung nach Schulbildung 1979 - 2003 im Bundesgebiet

	Teilnahmequoten in %								
Schulbildung	1979	1982	1985	1988	1991	1994	1997	2000	2003
Weiterbildung insgesamt									
Niedrige Schulbildung	16	19	14	23	22	29	34	29	28
Mittlere Schulbildung	29	37	34	44	44	47	54	46	47
Abitur	43	48	44	53	57	60	65	59	59
Allgemeine Weiterbildung									
Niedrige Schulbildung	13	14	9	14	14	19	22	17	17
Mittlere Schulbildung	22	28	26	29	25	27	33	27	28
Abitur	31	39	36	35	35	40	44	40	37
Berufliche Weiterbildung									
Niedrige Schulbildung	7	8	7	12	12	14	19	18	16
Mittlere Schulbildung	12	16	17	22	26	30	37	33	32
Abitur	18	21	19	28	34	34	41	39	38

TNS Infratest Sozialforschung 2004

...even worse

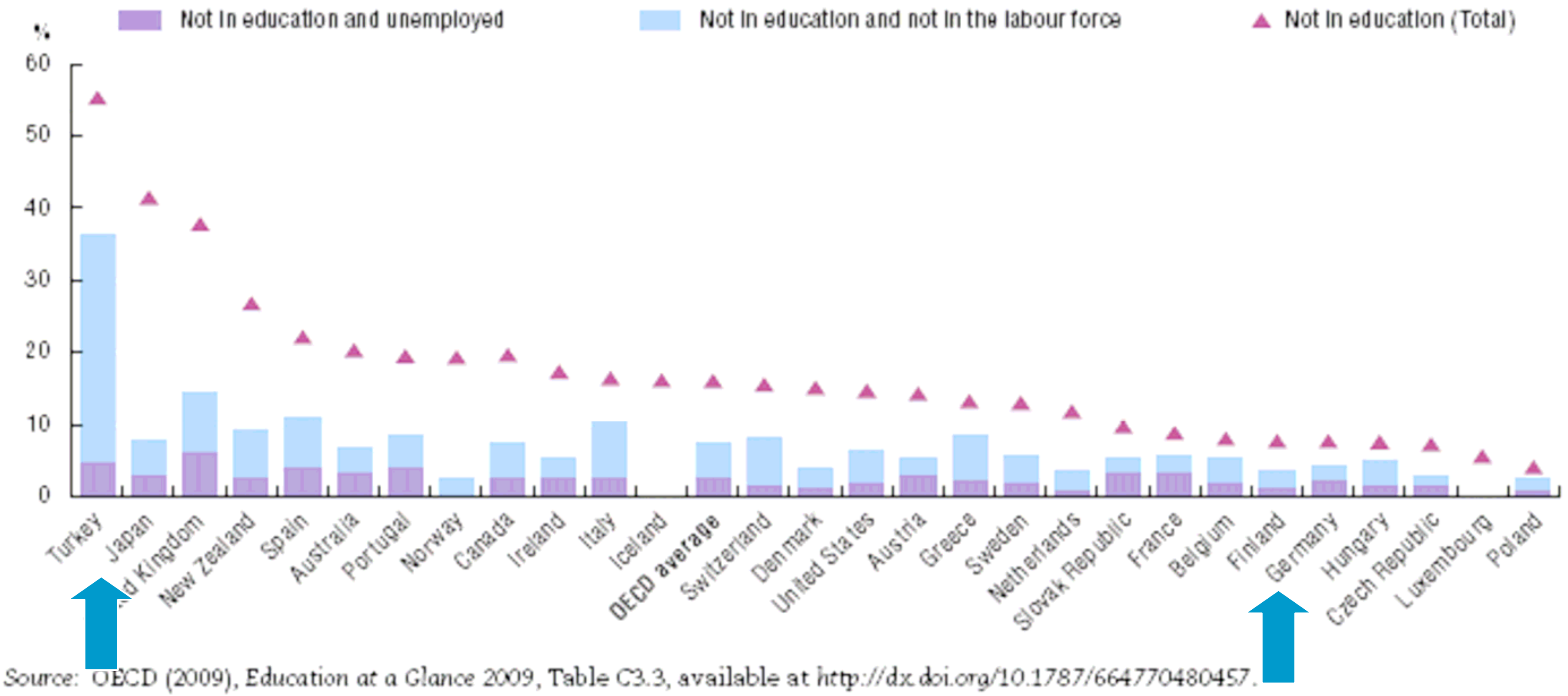
Berufliche Weiterbildung									
Keine Berufsausbildung	4	2	1	5	7	5	9	9	11
Lehre / Berufsfachschule	10	11	12	16	18	21	28	27	24
Meister-, andere Fachschule	20	19	24	32	34	36	42	42	38
Hochschulabschluss	24	36	27	34	39	43	48	43	44

TNS Infratest Sozialforschung 2004

Japan and Germany???

Figure 1.13. **Percentage of 15-19 year-olds who are not in the labour market or the education system, 2007**

This figure shows the percentage of 15-19 year-olds who are not in education, as well as the proportion who are not in education and not working and/or not seeking work.



Source: OECD (2009), Education at a Glance 2009, Table C3.3, available at http://dx.doi.org/10.1787/664770480457.

Some observations

- The group which needs training and education most, has the lowest participation rate
- Companies train well educated and trained employees 10 times more than untrained employees

So – as a result – the most affected group receives the smallest part in training

A first conclusion

- Society can not afford this any longer
  - Demographic development requires the activation of the full potential of the citizens

As

- the increasing international competition

and

- the increasing complexity of technologies

are doing

Requirements for e-learning systems 1

- An e-learning system includes
  - Continuing education (not course or examination based)
  - Service to provide competencies (not only knowledge!)
  - Service as consultants to individuals and companies
  - Provision of LLL
  - Using international standards and certificates

Requirements for e-learning systems 2

- We have to adress
  - People outside the educational mainstream
  - Provide adequate forms and methods
    - Edutrainment
    - Game based education
  - Cultural differences
  - Language diversity
  - Changed patterns of learning
    - Edupunk, educamp etc.

RESPONSIVE OPEN LEARNING ENVIRONEMENTS

ROLE

Virtual Campfire – Digital Media Discourses between Cultures, Continents and Generations

Japanisch-Deutsches Zentrum Berlin,

September 11, 2009

Ralf Klamma
Informatik 5
RWTH Aachen

SEVENTH FRAMEWORK PROGRAMME

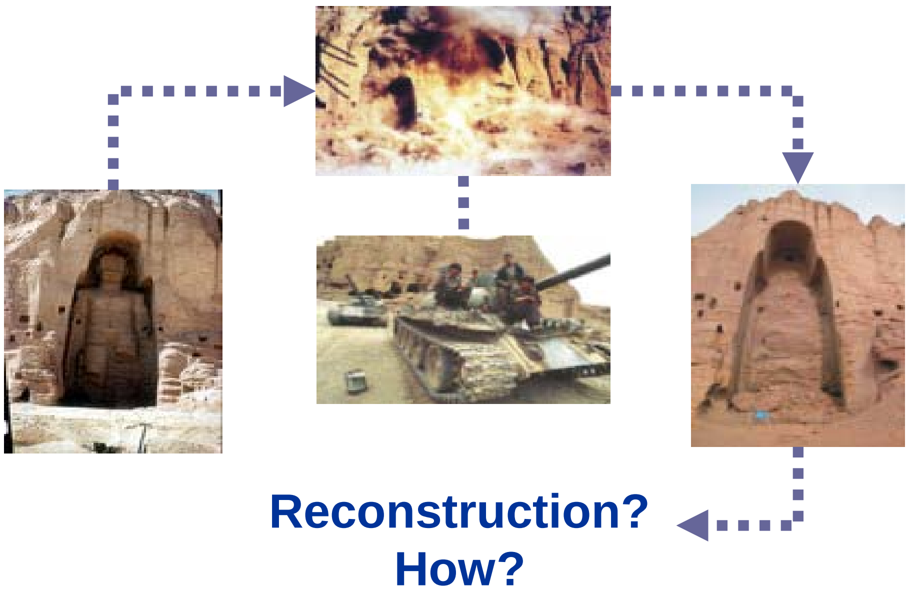
Agenda

- Media Discourses
- International Communities in Cultural Heritage Management
- Knowledge Management
- Non-linear storytelling
- Virtual Campfire
- Conclusions and Outlook

Virtual Campfire – A Teaser

Media Discourses – New Challenges

- Media is witness for cultural heritage preservation

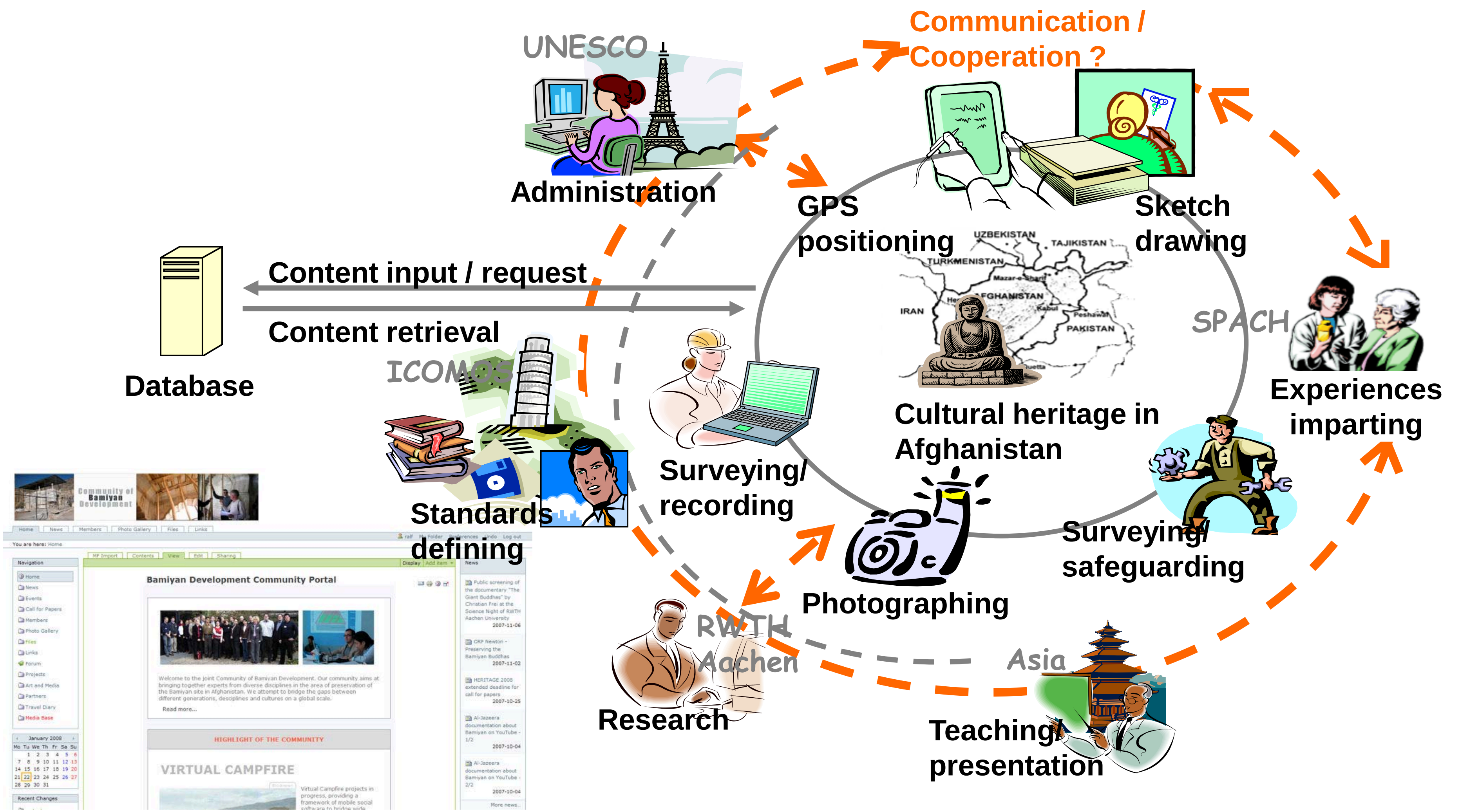


  - Heterogeneous communities
  - Media as research discourses and archive

- Knowledge may get lost, if no community/individual is telling stories any more

- How to preserve knowledge?
- How to bridge intergenerational, intercultural gaps?
- How to use information technologies to preserve knowledge?

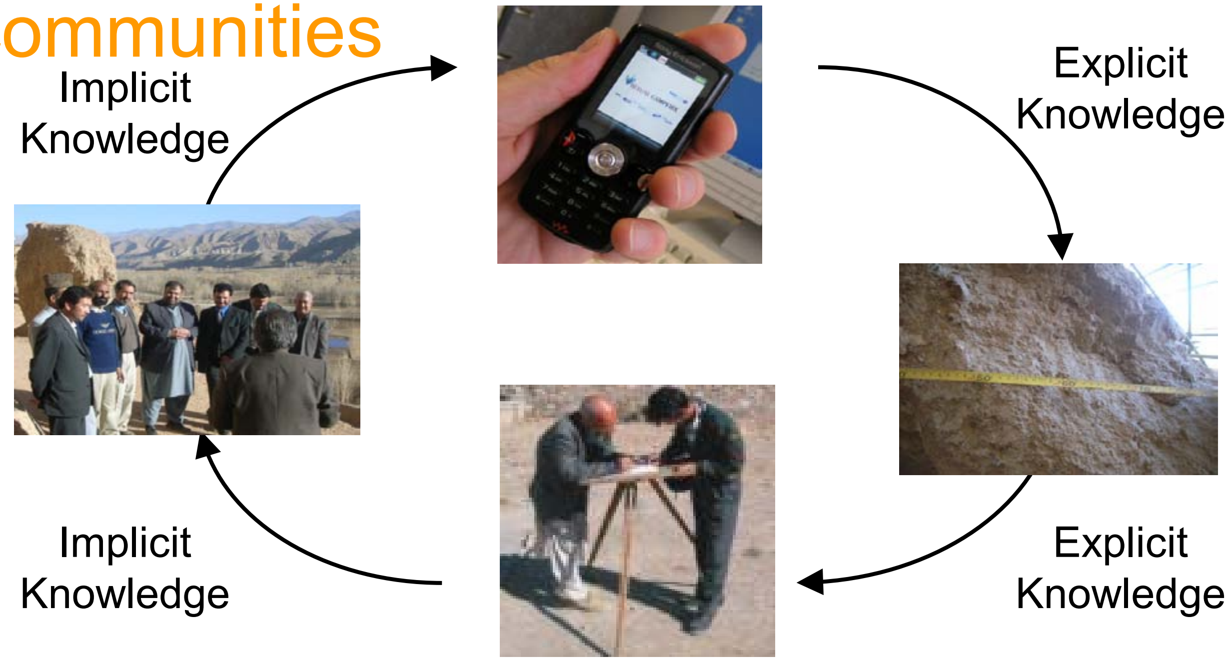
International Communities



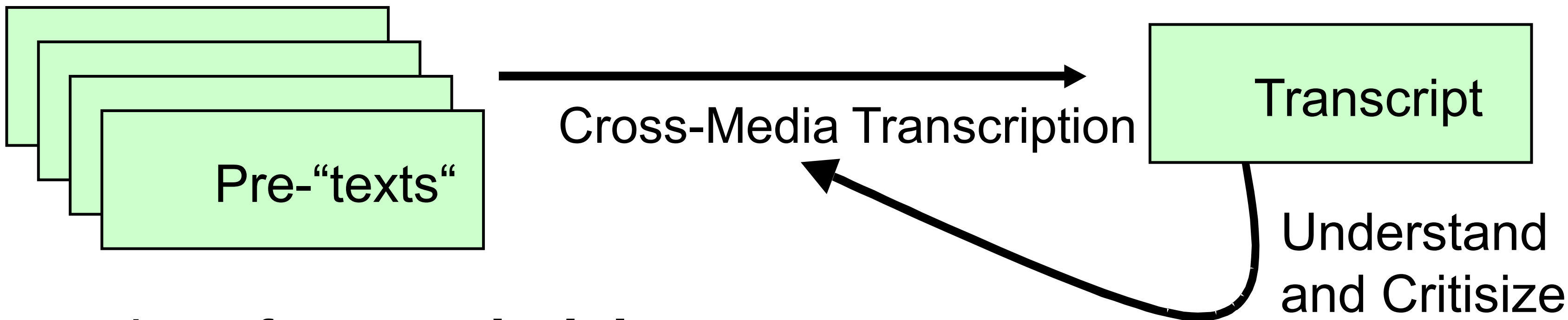
www.bamiyan-development.org

Knowledge Sharing

- The SECI Model (Nonaka and Takeuchi, 95)
- Interpretation with the Transcription-media Theory (Jäger, 02)
- Knowledge management for cultural heritage management communities



Cross-Media
Theory of Transcription



- Strategies of **transcriptivity**
  - Collection of learning materials are re-structured by new media
  - Design is specific for media and communities by default
- Strategies of **addressing**
  - Social Software promotes the globalization of address spaces
  - Personalization and adaptive strategies are mission critical for communities
- Strategies of **localisation**
  - Re-organization of local practices is stimulated by new media
  - Need to model practice explicitly

Jäger, Stanitzek: Transkribieren - Medien/Lektüre 2002

Learning & Knowledge Management
Individual / Community Perspective

Declarative Knowledge

Semantic Knowledge

semiotic concepts
documentation

Verbal

words
linguistic data

Non-verbal

image, icon, index
video blogs, diagrams,
images, photographies

Episodic Knowledge

memory of experiencing past episodes
web blogs, narratives

Procedural Knowledge

sensomotoric skills, procedural scripts
non-documented routines and operations

[Nonaka & Takeuchi, 1995]

[Ullman, 2004]

Non-linear multimedia story-telling

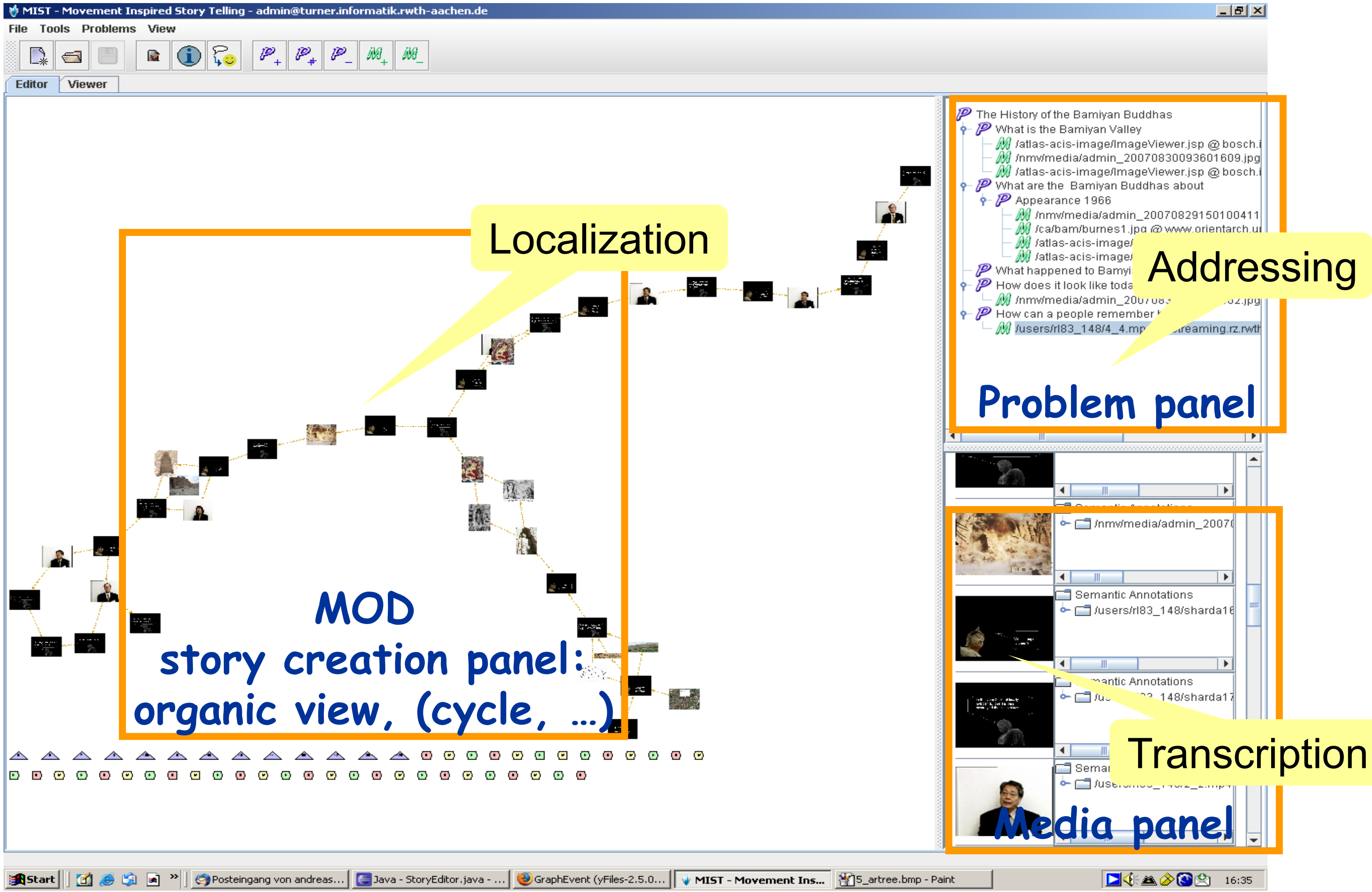
"**Digital Storytelling uses digital media to create media-rich stories to tell, share and to preserve**. Digital stories derive their power through weaving images, music, narrative and voice together, thereby giving deep dimension and vivid color to characters, situations, and insights."

Digital Storytelling Association
(http://dsaweb.org)

- Tell: Experiencing & Navigating MM stories
- Share: Web-based collaboration
- Preserve: DB driven storage of discourses

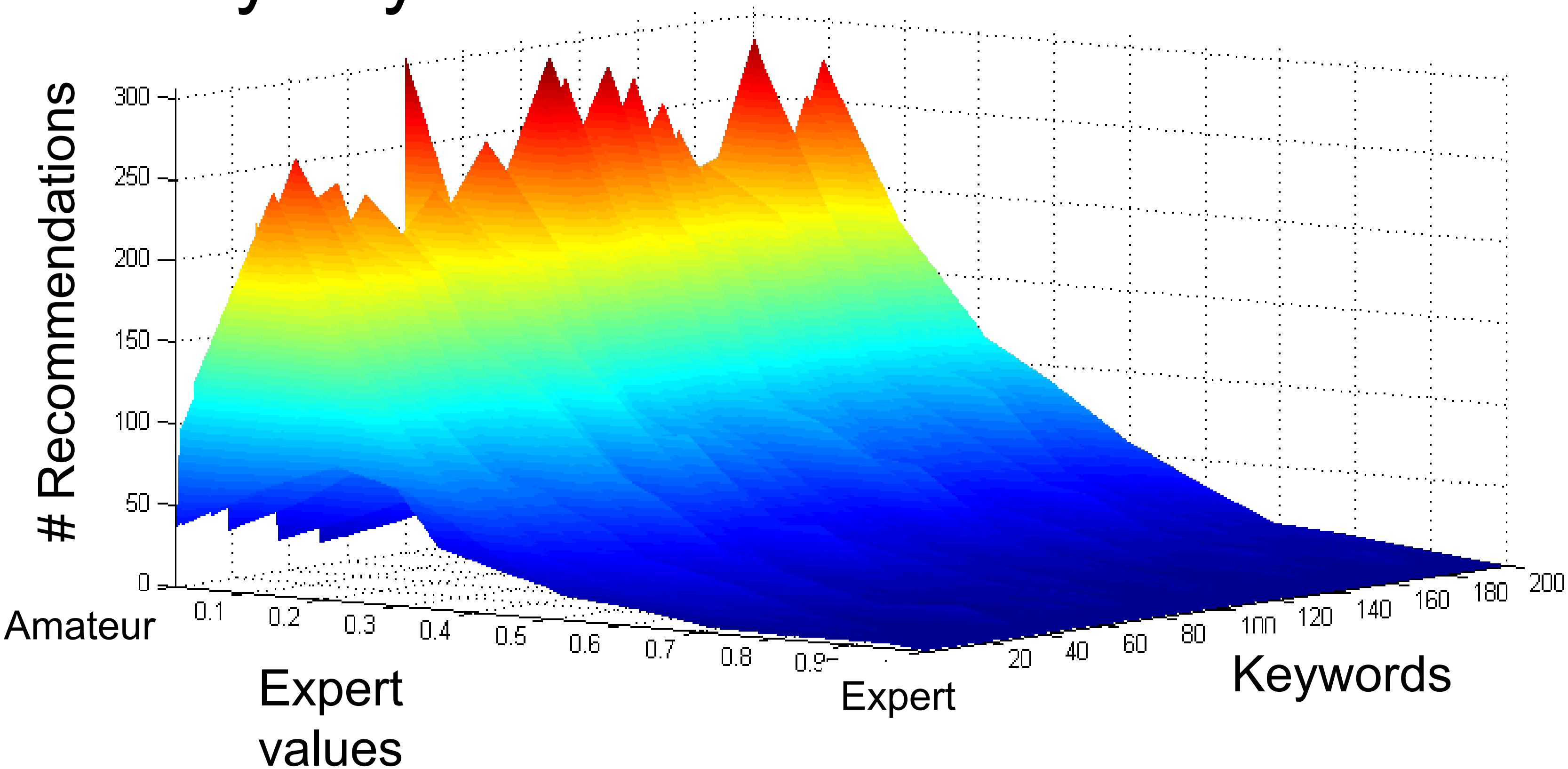
e-learning

Applications for Non-linear Multimedia Storytelling

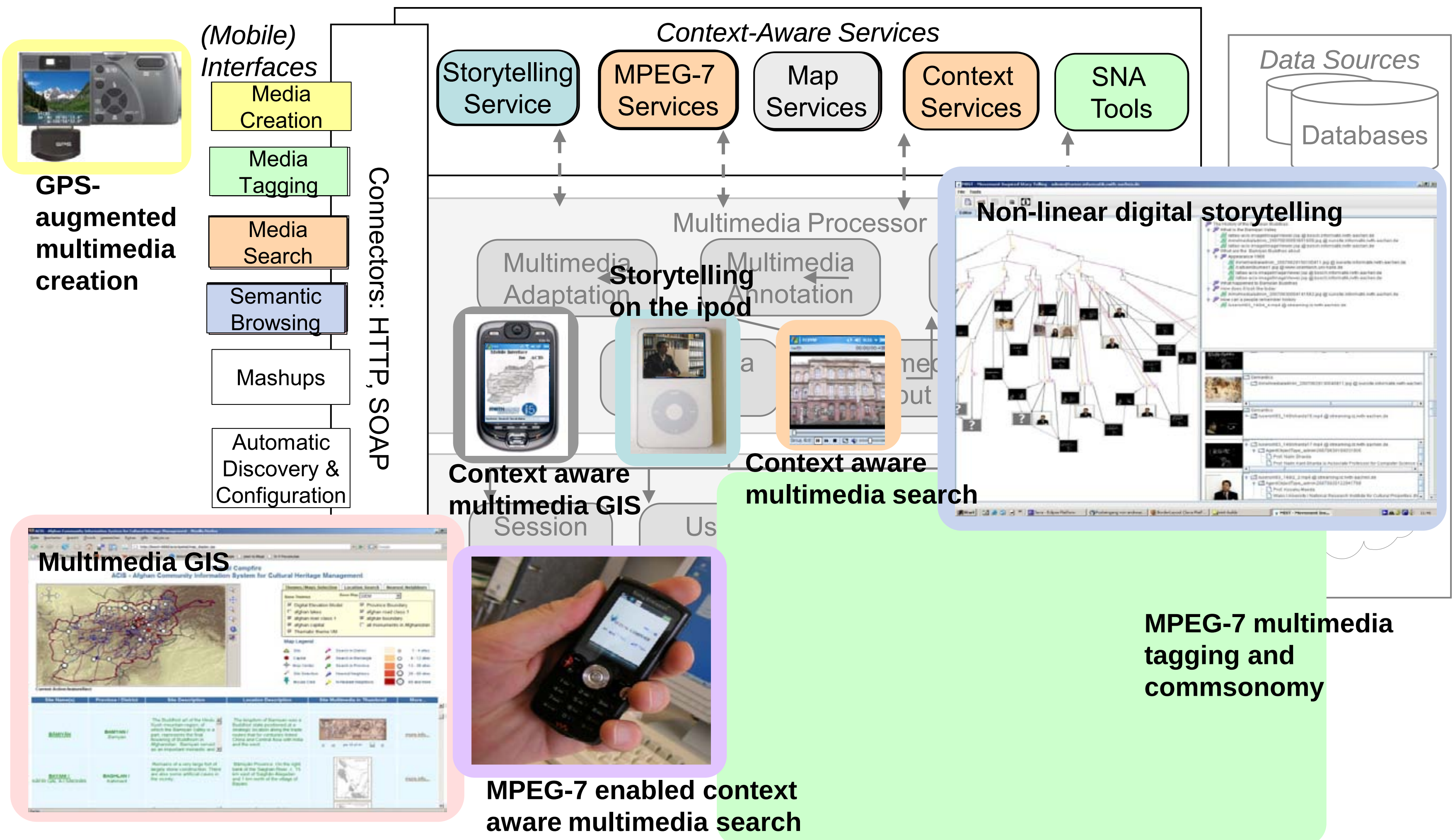


Story-tellling Expert Finding

- Knowledge value of community sorted by keywords



Virtual Campfire Applications



Conclusions & Outlook

Virtual Campfire

- Media discourses for large distributed professional communities
- Discourse support between generations, cultures, and contintents
- Cultural heritage preservation as an example
- Integrated story-telling and knowledge management approach
- Complete implementation as a community information system

Future Work

- Mobile Storytelling and new media (3D scans, realtime video)
- Integration of serious gaming
- Sustaining communities beyond funded projects

Language Learning and Digital Media

Ikumi WARAGAI (ikumi@sfc.keio.ac.jp)
Tatsuya OHTA (FZE00305@nifty.ne.jp)

Contents

1. Theoretical Background

Language learning and life-long learning/autonomous learning

Competence of foreign language
= communicative competence +
language awareness + learning awareness

- Role of digital media
- Construction of a rich language learning environment

2. Learning Tools

2.1. Project *Neue Medien und DaF*
New Media and German as a Foreign Language
(Keio University, Shonan-Fujisawa-Campus)
= Language learners develop digital learning environments for themselves and other learners

2.2. Learning Platform
Learning Material 1
Learning Material 2

Learning Material 3

2.3. Advantages of mobile media
- Accessible everywhere, at any time
- Effective use of spare time
- Integration of learning and leisure activities

2.4. Application of GPS-Function
- Identification of location and situation by GPS supported net book, iPhone, etc.
- Long term recording of learner behavior

3. Construction of a Database

- Database for/of learning after school
- Construction of a database of pre- and post-graduation language learning biographies

Issues

- A short term evaluation of education is not possible.

→ An output study from a long term perspective is needed.

- How can we evaluate an "outcome"?

→ the ability to use the skills in professional life? / in communicative situations?

4. Research perspective

- Analysis of data from the experiment with GPS-based language tools
- Experiment in campus network with GPS-based language tools
- Integration into the university's database

…

etc.

Interaction-Oriented CSCL Environment Based on Focusing Intentions of Learners

Yuki HAYASHI, Tomoko KOJIRI and Toyohide WATANABE
Graduate School of Information Science, Nagoya University

With the development of network technologies, learners can easily study with others through network independent of time and location. However, as the communication band of the network is restricted, learners cannot acquire much information about situations or behaviors of other learners in the virtual learning environment. In order to support successfully communication among learners, we construct the interaction-oriented behavior learning space, in which learners can be aware of the effective information according to their focusing intentions for other learners (focusing target) or utterance (focusing utterance). Focusing targets of learners are estimated by calculating focusing degrees for each learner based on the actions such as making utterances, observing the memo-sheet of other learners, so as to increase the degrees for their target learners. The learner's direction of view is changed according to the focusing target with the largest focusing degree, and also his area of view is turned by the degree of the learner's focusing target. In addition, utterance texts move from utterer to the utterance targets in the virtual learning environment so that the learner can grasp the conversation flow intuitively. The focusing utterances which are detected based on the target utterance, utterer and utterance target information, are represented in the learner view with different colors and display-time to distinguish it from other utterances. The experimental result shows that the display method of utterances makes it clear that participants grasped the flow of utterances intuitively by observing the moving utterance texts.

Interaction-Oriented CSCL Environment Based on Focusing Intentions of Learners

Yuki HAYASHI,
Tomoko KOJIRI,
Toyohide WATANABE

Graduate School of Information Science,
Nagoya University

Outline

1. **Research Background and Objective**
    - Target Learning Environment
2. **Approach**
    - Focusing Intention for Other Learners
    - Focusing Intention for Utterances
3. **System Operation**
4. **Experiment and Summary**

Background

◆**Development of computer technologies**

- Many people can easily study with others through network independent of time and location.

◆**Real-time communication tools commonly used in collaborative learning**

- Communication means are restricted.
- Display image of information are same for all cases.

→It is hard for learners to study with other learners smoothly and effectively.

Research Objective

To construct interface for collaborative learning where learners can feel interaction with others

◆Learners progress learning collaboratively by focusing on **particular learners/utterances**.

Focusing target

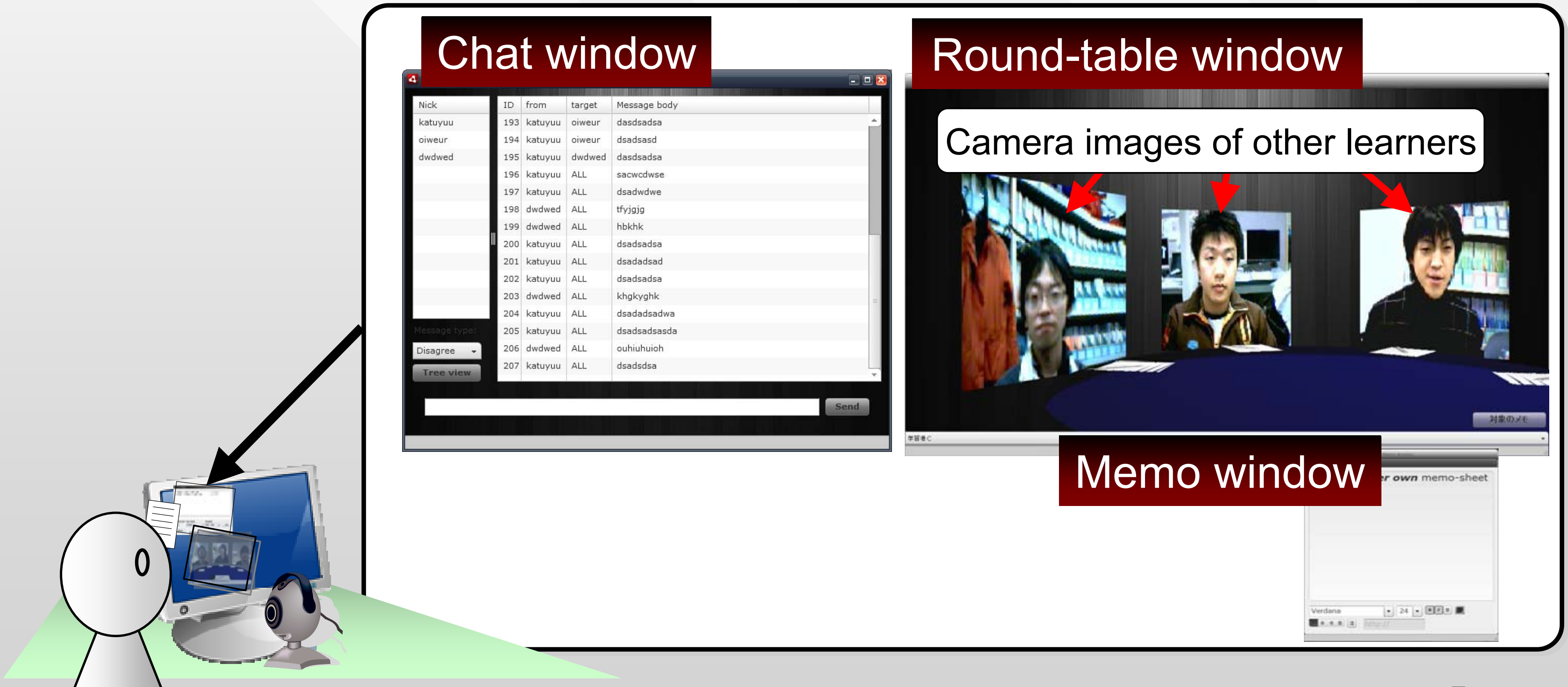
- Other learner whom learner is interested in

Focusing utterance

- Utterance which relates to learner himself/herself

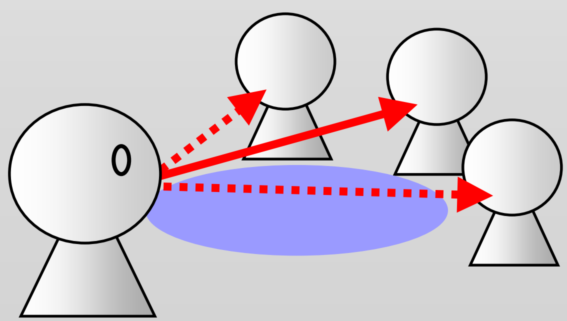
Target Learning Environment

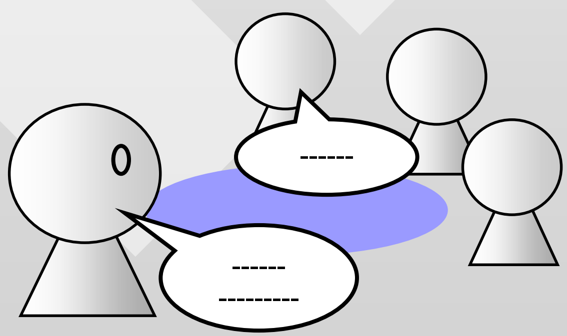
◆Using text-chat, other learners' camera images and learner's memo-sheet



Approach

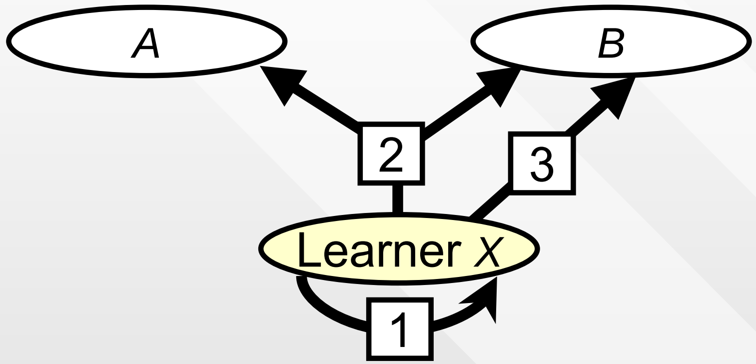
- ◆Focusing intentions for other learners
  1. Learner view is changed based on his/her focusing degrees to other learners.
- ◆Focusing intentions for utterances
  2. Utterances texts are moved in learner view to display flow of conversation.



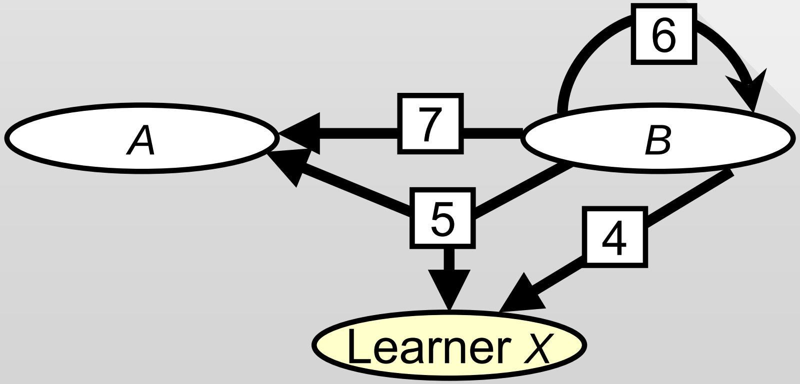


Detection of Focusing Target (1/2)

Actions from learner *X*



Actions from other learner



	Target learner based on action
1	Learner *X*
2	Undefined
3	Learner *B*
4	Learner *B*
5	Learner *B*
6	Learner *B*
7	Learner *A*

Detection of Focusing Target (2/2)

To calculate focusing degree of learners

Learner *n*'s focusing degree at time *t*

Constant number which represents change of focusing degree on certain action type *i*

$$F(n, t+1) = \begin{cases} \dfrac{F(n,t) + \alpha_i}{\sum_{\forall n' \in N} F(n',t) + \alpha_i} & \text{Target learner for action type } i \\ \dfrac{F(n,t)}{\sum_{\forall n' \in N} F(n',t) + \alpha_i} & \text{Otherwise} \end{cases}$$

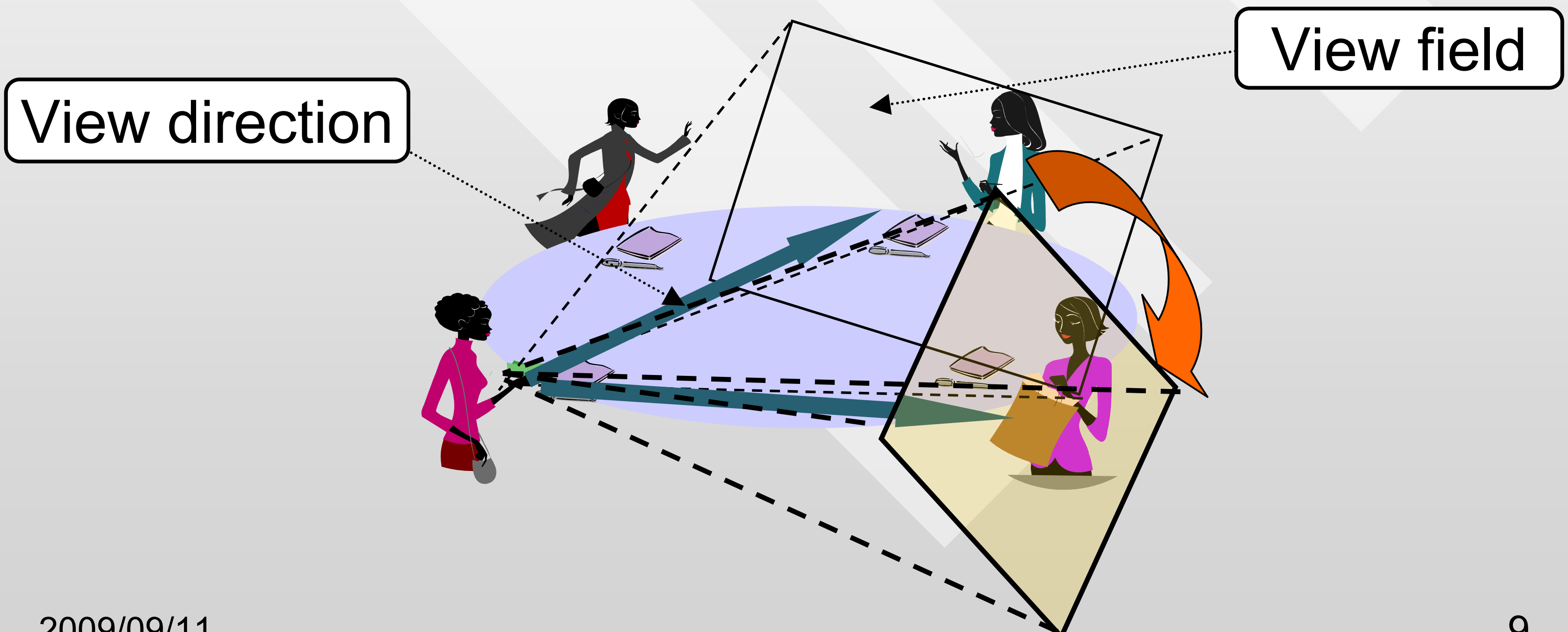
◆Focusing Target

- Learner who has the largest focusing degree

Learner View Change

◆**<u>Focusing target</u>**
- Direction of learner view

◆**<u>Focusing degree of focusing target</u>**
- Distance between learner and focusing target



Learner View Change

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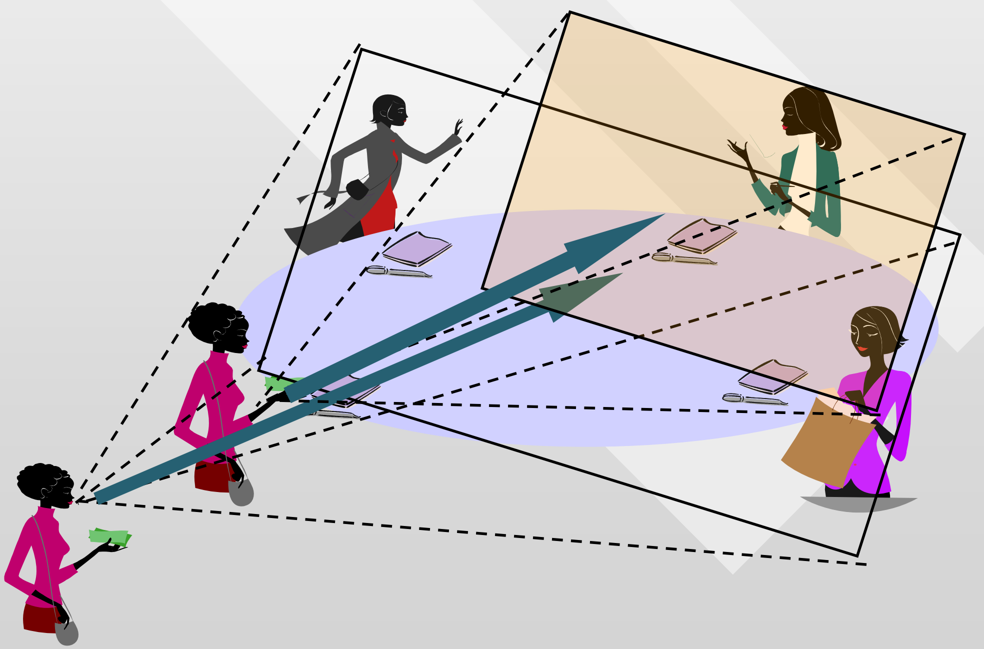

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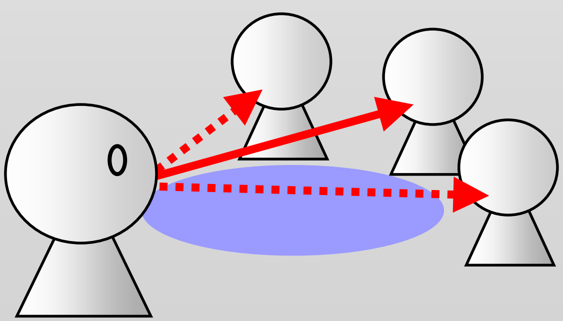
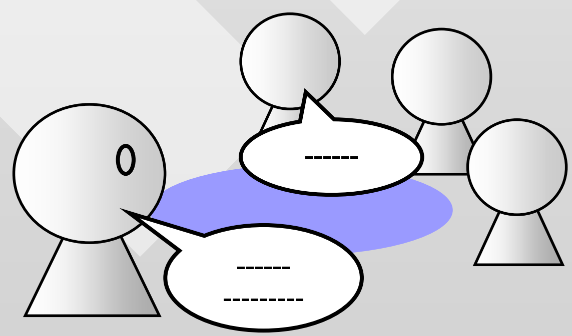
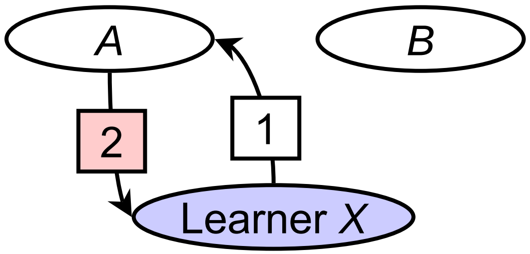


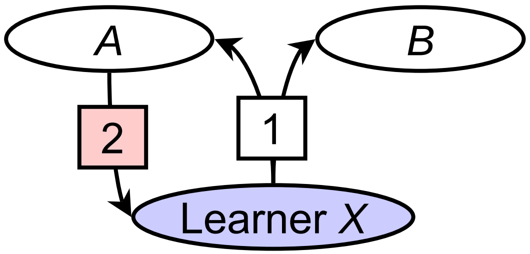


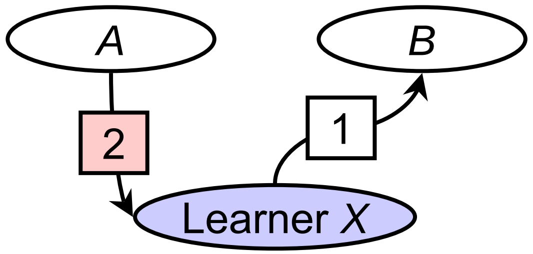
Focusing Utterance Patterns

◆ **Utterance whose target utterance is:**

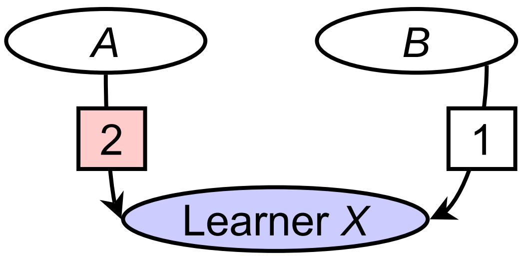
- ***X*'s utterance**

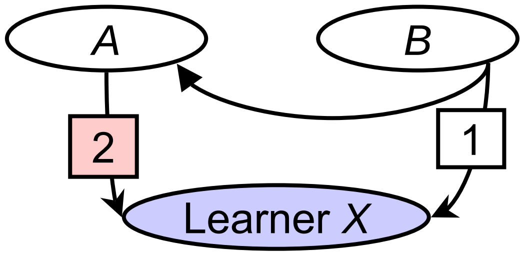






- **Other learner's utterance whose target is *X***



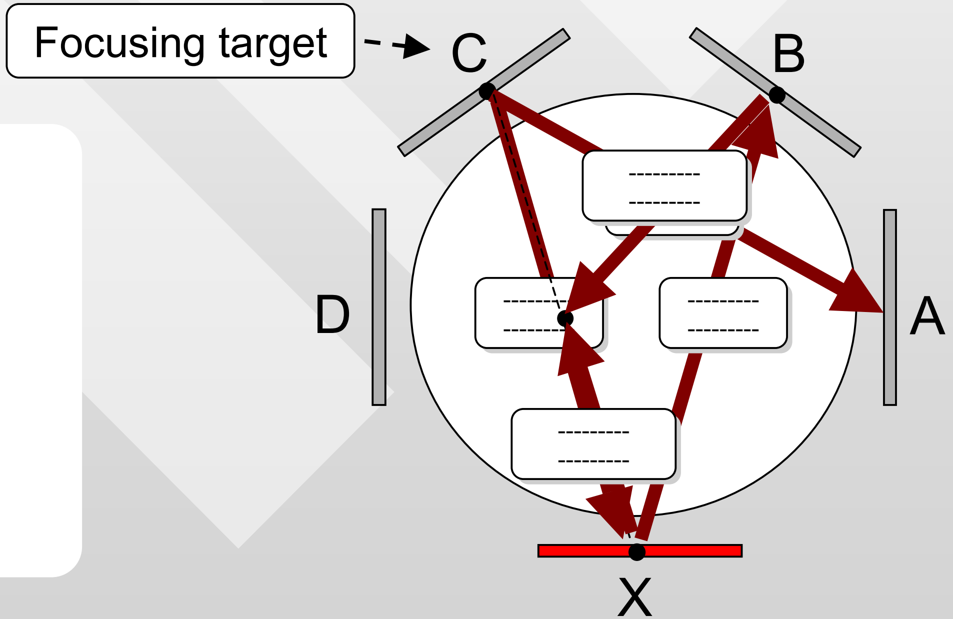


Moving Utterance in Learner View

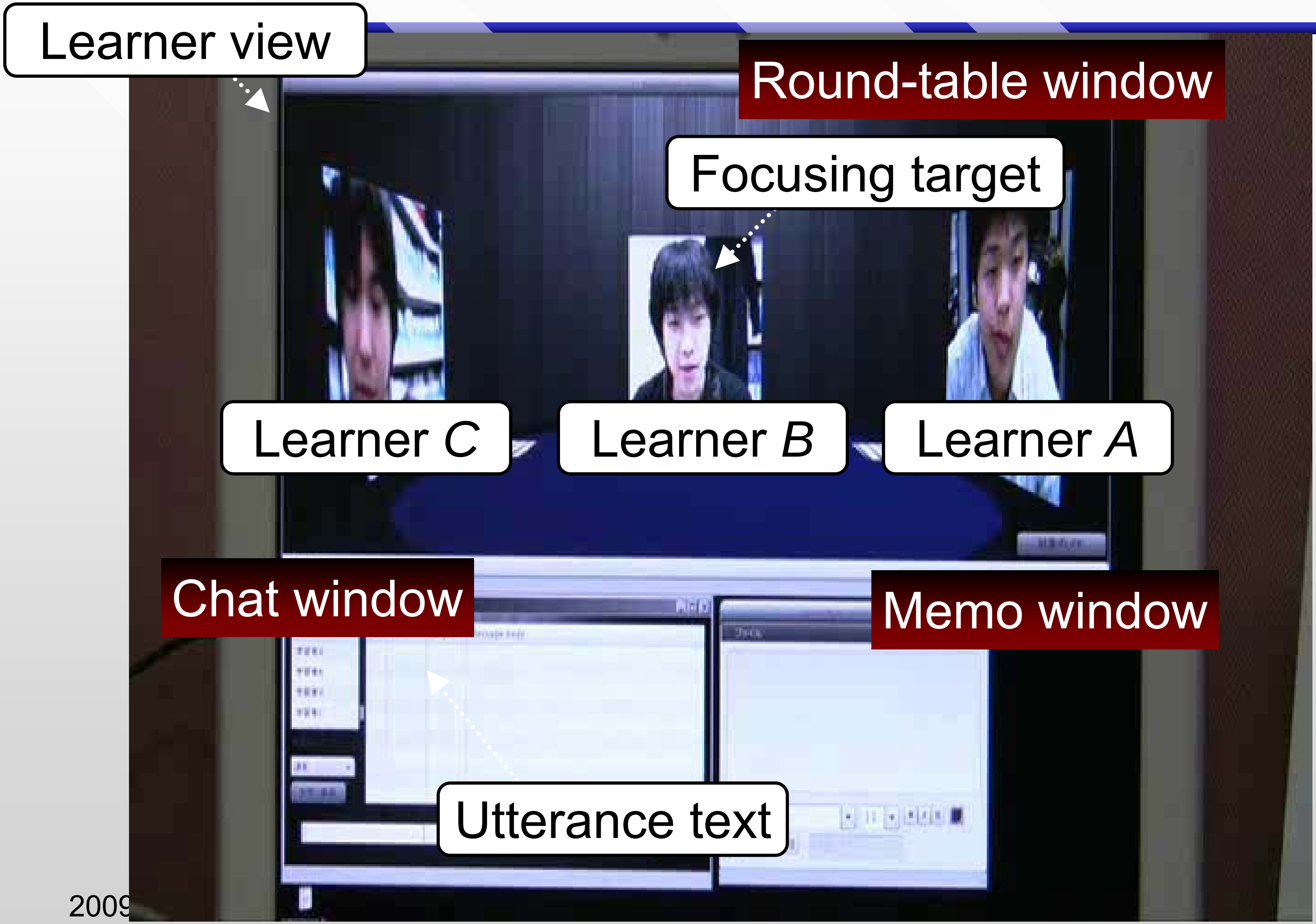
- ◆ **Utterance to particular learner**
  - Utterers → Utterance target
- ◆ **Utterance to all learners**
  - Utterers → Midpoint between *X* and *X*'s focusing target

Focusing utterance

- Text color: highlighted
- Font size: bigger
- Fade-out time: longer



Demonstration



Experimental Setting

To evaluate effectiveness of display method of utterances

◆ **Participants**

- 2 groups of 4 college students

◆ **Task**

- To discuss current topic of Japanese society

◆ **Evaluation method**

- To answer questionnaire about display method of utterances [1(worst) to 5(best)]

Experimental Result

◆**Average score of questions**

	Questions	Average
(a)	Could you recognize transitions of utterances?	**4.00**
(b)	Could you read utterance texts?	**3.63**
(c)	Did moving texts prevent smooth communication?	**4.75**
(d)	Could you grasp display differences of focusing utterances?	**3.25**

Experimental Result

◆Average score of questions

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(a)	Could you recognize transitions of utterances?	**4.00**
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(d)	Could you grasp display differences of focusing utterances?	**3.25**

Majority of participants could recognize utterers and utterance targets.

Experimental Result

◆ **Average score of questions**

	Questions	Average
(a)	Could you recognize transitions of utterances?	4.00
(b)	Could you read utterance texts?	3.63
(c)	Did moving texts prevent smooth communication?	4.75
(d)	Could you grasp display differences of focusing utterances?	3.25

Some participants could not read all utterance texts when they were long.

Participants could communicate with others naturally through round-table window.

Experimental Result

◆**Average score of questions**

	Questions	Average
(a)	Could you recognize transitions of utterances?	4.00
(b)	Could you read utterance texts?	3.63
(c)	Did moving texts prevent smooth communication?	4.75
(d)	Could you grasp display differences of focusing utterances?	**3.25**

Participants were able to grasp detected focusing utterances to some extent.

Summary

◆We construct intuitive collaborative learning interface based on focusing intentions of learners.

- Changing learner view according to focusing target
- Moving utterance by target information

◆**Future work**

- Modification of display method for utterance
  - To distinguish learner's own utterance from other learner
  - To divide utterance into several texts according to text length
- Introducing voice chat

From Learning in the Net to Learning Networks

Aljoscha BURCHARDT
Darmstadt University of Technology

Abstract

The increasing use of social software – often referred to under the heading "Web 2.0" – in combination with the rapid expansion of ubiquitous, embedded, and networked computing technology has already started to change the way people interact, socialize, and live. Our working environment as part of a globalized knowledge society is subject to change as well. These changes also affect the way people *learn,* i. e. the way they acquire, update, and propagate knowledge.

Technologies emerging from Ubiquitous Computing, Natural Language Processing, and the study of Social networks/Web 2.0 enable what we call *ambient learning* by connecting humans, devices/services, and content into *learning networks* (Downes 2007).

In the presentation, we will give an overview of research activities at TU Darmstadt related to e-learning and the topics mentioned above. This includes short introductions of the Telecooperation Group, the Ubiquitous Knowledge Procesing Lab, and the Center of Research Excellence "E-Learning 2.0."

From Learning in the Net to Learning Networks

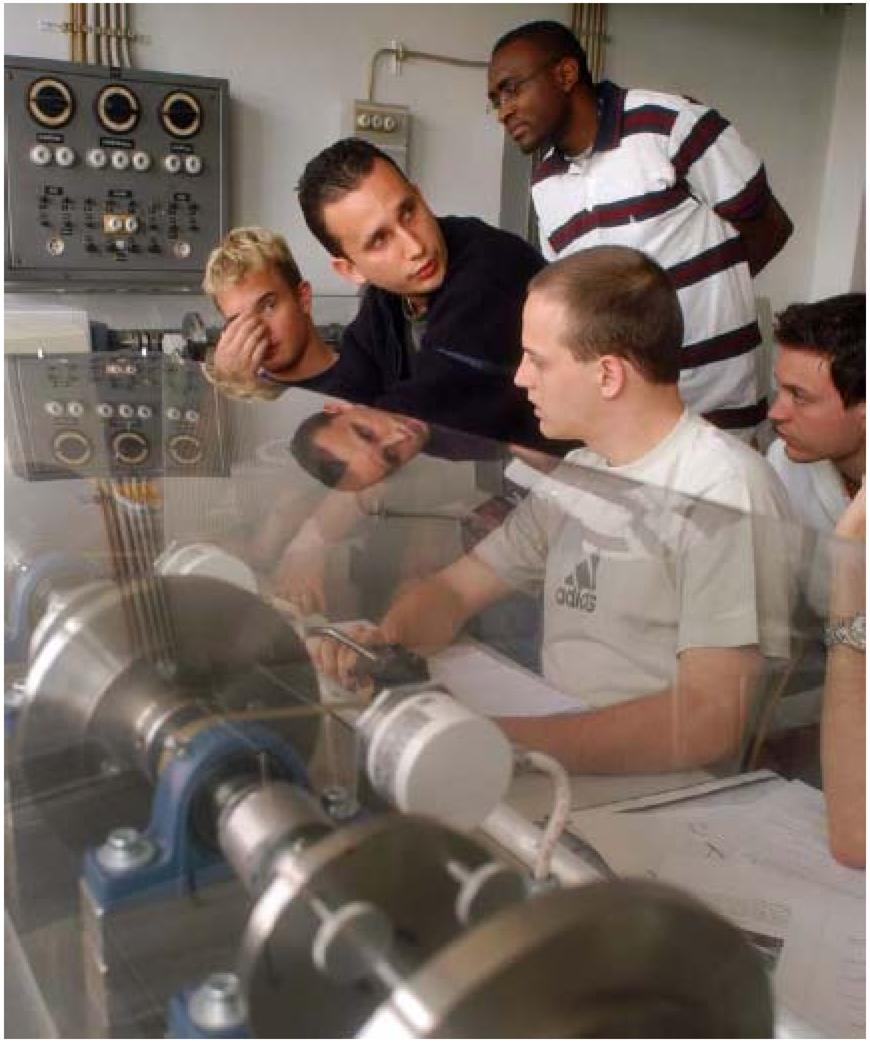
Dr. Aljoscha Burchardt
Center of Research Excellence „E-Learning 2.0“

Technische Universität Darmstadt

„In my opinion you must definitely go to Darmstadt.
They havea good Polytechnic School.“

Albert Einstein 1919

Some Facts about TU Darmstadt



- 16 Departments
- 13 Centers of Research Excellence
- 7 Graduate Colleges
- Focus on Technology
  - ICT/Computer Science
  - Engineering
  - Topics: Energy, Mobility, …
- Multidisciplinarity
  - eLearning
  - Urban Development
  - Adaptronics

The center of Research Excellence „eLearning 2.0“ – Structure & Funding

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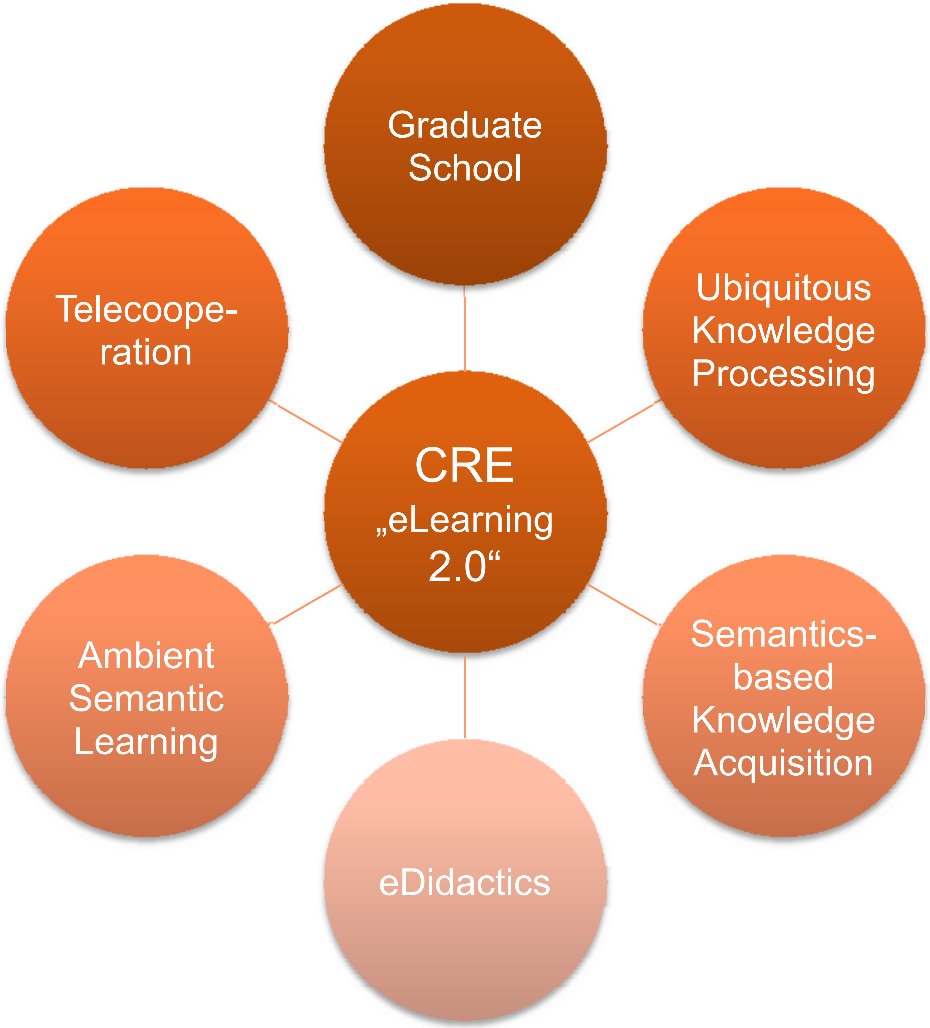


SAP

Bundesministerium für Bildung und Forschung

VolkswagenStiftung

KTS
Klaus Tschira Stiftung gemeinnützige GmbH

Deutsche Forschungsgemeinschaft DFG

Bundesministerium für Bildung und Forschung

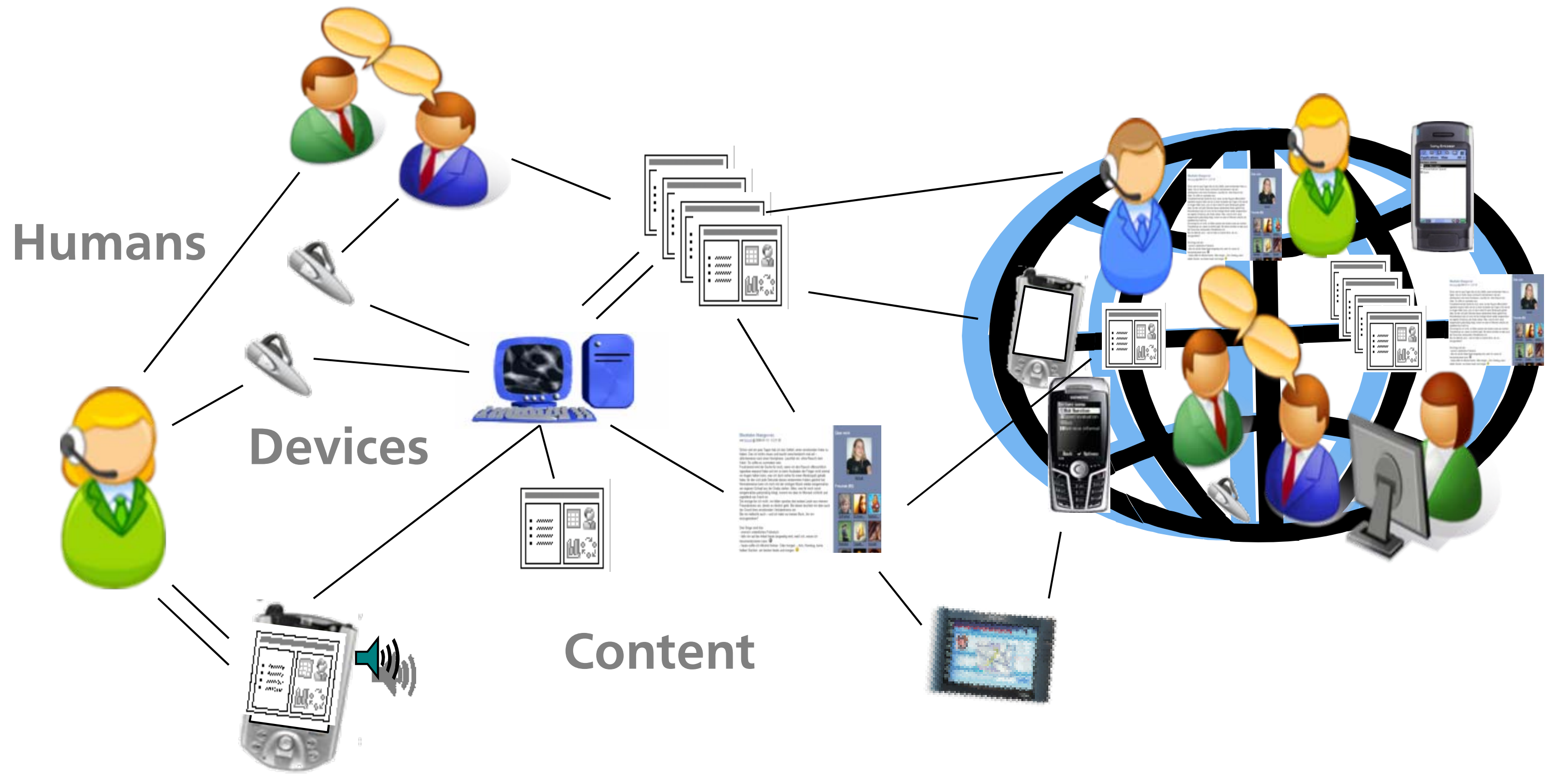
The center of Research Excellence „eLearning 2.0“- Management

- Prof Dr. Iryna Gurevych
  - Head of Ubiquitous Knowledge Processing Lab (UKP)
  - Semantic Natural Language Processing

- Prof Dr. Max Mühlhäuser
  - Head of Telecooperation Group (TK)
  - Head of Graduate School „eLearning“
  - Ubiquitous Computing (aka. Ambient Intelligence)

- Dr. Aljoscha Burchardt
  - Research Manager
  - Ambient Semantic Computing Project

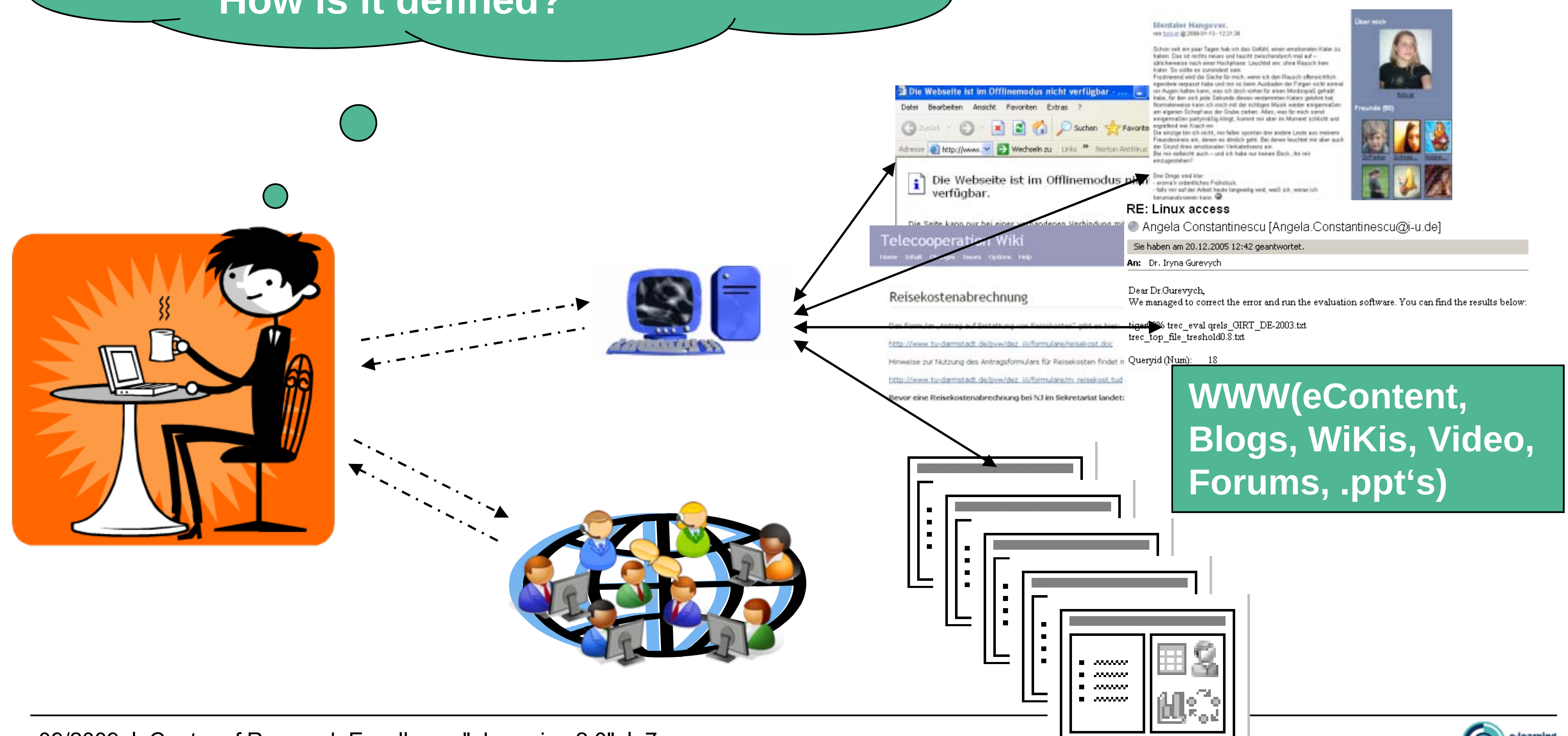
The Philosophy of Learning Networks
(inspired by Stephen Downes)



Vision 1: Learning in the Net
Example Scenario: Ambient Learning

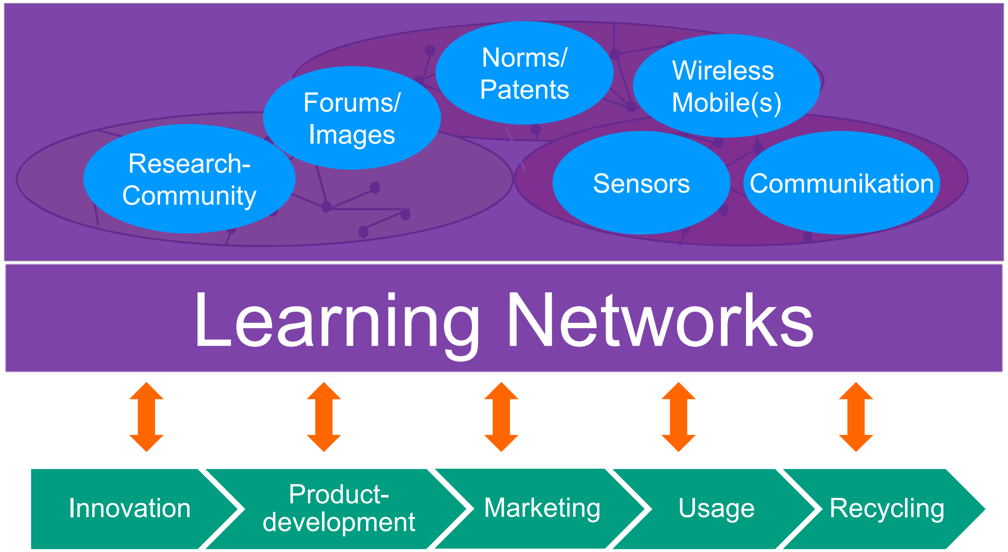
TECHNISCHE UNIVERSITÄT DARMSTADT

Which business model did we favor in the forum discussion? How is it defined?



Vision 2: Learning Networks
Example Scenario: Product Development

- Teams of developers are globally distributed and networked
- Masses of data to be considered (usage data, scientic achievements)



- Central challenges
  - Modeling the semantics of the networks (Teams, Communities, Events)
  - Global (Team-)communication
  - Synchronization (workflows, online time, trend detection)

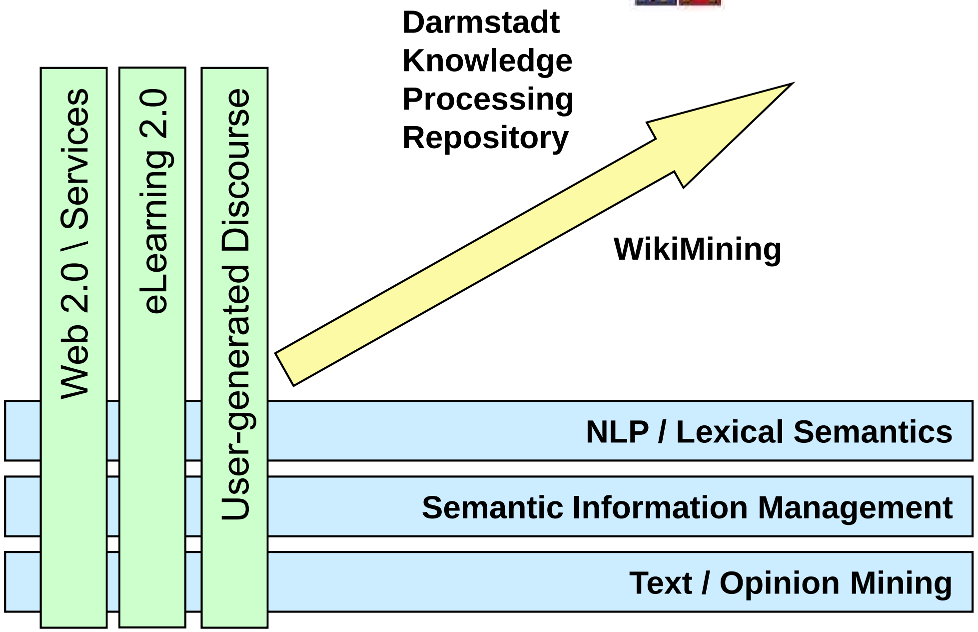
In the Remainder a Short Overview of…

- UKP Lab
- TK Group
- Graduate School / Ambient Semantic Computing project

Subject Areas of UKP Lab

1. Multilingual Semantic Information Management (SIM)
2. Educational Natural Language Processing (e-NLP)
3. Natural Language Processing and Wikis (NLP4Wikis)
4. Ambient Semantic Computing (ASC)

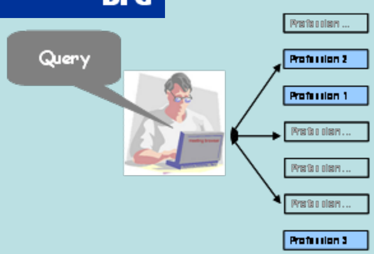
Prof. Dr. Iryna Gurevych



UKP Projects (Excerpt)

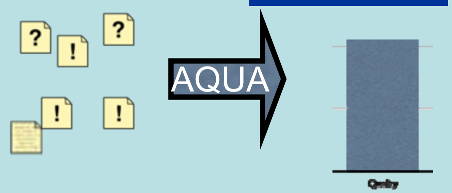
TECHNISCHE UNIVERSITÄT DARMSTADT

Deutsche Forschungsgemeinschaft DFG



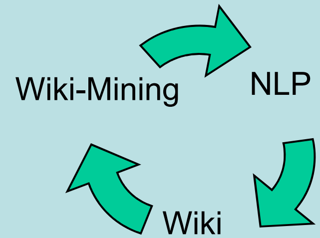
Semantic Information Retrieval (SIR), DFG

Deutsche Forschungsgemeinschaft DFG



Sentiment Analysis in User Generated Discourse (SentAL), DFG

Self-structuring Wikis



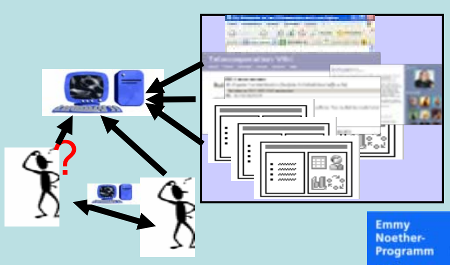
KTS Klaus Tschira Stiftung gemeinnützige GmbH

Bundesministerium für Wirtschaft und Technologie

Internet der Dienste (THESEUS), BMWI

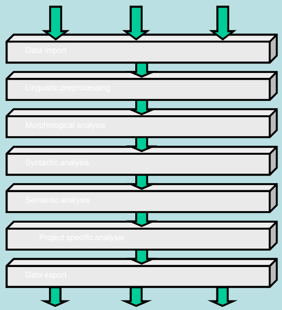
THESEUS Forschungsprogramm für eine neue Internetbasierte Wisseninfrastruktur

Semantic Question Answering for eLearning 2.0 (QA-EL)



Emmy Noether-Programm Deutsche Forschungsgemeinschaft DFG

Darmstadt Knowledge Processing Repository



UIMA

IBM

e-learning center of research excellence

What is this Text About?

CHICAGO, Oct 29 - Kraft Foods Inc and Kellogg Co posted better-than-expected third-quarter profits on Wednesday as price increases and new products helped lift sales in a weak economy. Kraft also stood by its forecasts for 2008 earnings before one-time items as well as for 2009 net income, while Kellogg said its profit this year should hit the high end of its previous targeted range. Both Kraft, the largest North American food maker, and Kellogg, the world's largest cereal company, have taken steps to cut costs and put more money into advertising. Both have also bolstered new product development to attract consumers even as rising commodity costs pushed them to raise prices. Commodities like wheat and energy have become less expensive in recent months, but food companies may not see a big benefit until next year, in part because they lock in their costs months ahead. Kraft, which makes Oreo cookies, Tang breakfast drink and Oscar Mayer hot dogs, reported a profit of 45 cents a share before one-time items, a penny above what analysts polled by Reuters Estimates had expected. The company hiked prices on products, leading to a 0.9 percent drop in volume. However, that key result was still better than the company had expected. Analysts are watching to see how much consumers cut back on buying branded products in the face of rising food prices and a slumping economy. Kraft sales rose 19.4 percent to $10.46 billion. Organic sales, which exclude the impact of currency, acquisitions and divestitures, rose 7.1 percent due to higher pricing. Over the past several years, Kraft has closed factories, cut jobs and divested brands to focus on areas like cookies and crackers, pizza and healthier foods. Shares of Kraft rose 1.8 percent to $29.39 in premarket trading from Tuesday's closing price of $28.88 on the New York Stock Exchange, while Kellogg stock was not active. Kellogg, the maker of Rice Krispies and Eggo waffles, said net income rose to 89 cents a share from 76 cents a year earlier. The results were far better than the 80 cents analysts had forecast.

For Example: Automatic Insertion of Key Phrases

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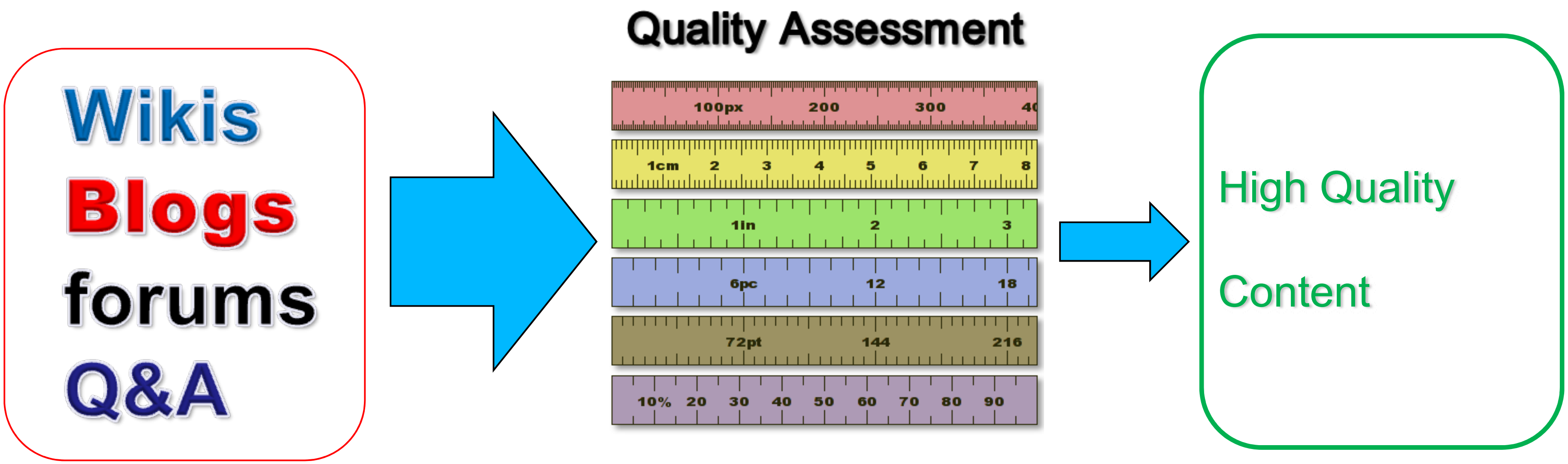
CHICAGO, Oct 29 - **Kraft Foods Inc** and **Kellogg Co** posted **better-than-expected third-quarter profits** on Wednesday as **price increases** and new products helped **lift sales** in a **weak economy**. **Kraft** also stood by its forecasts for 2008 earnings before one-time items as well as for 2009 net income, while **Kellogg** said its profit this year should hit the high end of its previous targeted range. Both **Kraft**, the **largest North American food maker**, and **Kellogg**, the **world's largest cereal company**, have taken steps to cut costs and put more money into advertising. Both have also bolstered new product development to attract consumers even as rising commodity costs pushed them to raise prices. Commodities like wheat and energy have become less expensive in recent months, but food companies may not see a big benefit until next year, in part because they lock in their costs months ahead. Kraft, which makes Oreo cookies, Tang breakfast drink and Oscar Mayer hot dogs, reported a profit of 45 cents a share before one-time items, a penny above what analysts polled by Reuters Estimates had expected. The company hiked prices on products, leading to a 0.9 percent drop in volume. However, that key result was still better than the company had expected. Analysts are watching to see how much consumers cut back on buying branded products in the face of rising food prices and a slumping economy. **Kraft sales** rose 19.4 percent to $10.46 billion. Organic sales, which exclude the impact of currency, acquisitions and divestitures, rose 7.1 percent due to higher pricing. Over the past several years, **Kraft** has closed factories, cut jobs and divested brands to focus on areas like cookies and crackers, pizza and healthier foods. Shares of **Kraft** rose 1.8 percent to $29.39 in premarket trading from Tuesday's closing price of $28.88 on the New York Stock Exchange, while **Kellogg** stock was not active. **Kellogg**, the maker of Rice Krispies and Eggo waffles, said net income rose to 89 cents a share from 76 cents a year earlier. The results were far better than the 80 cents analysts had forecast.

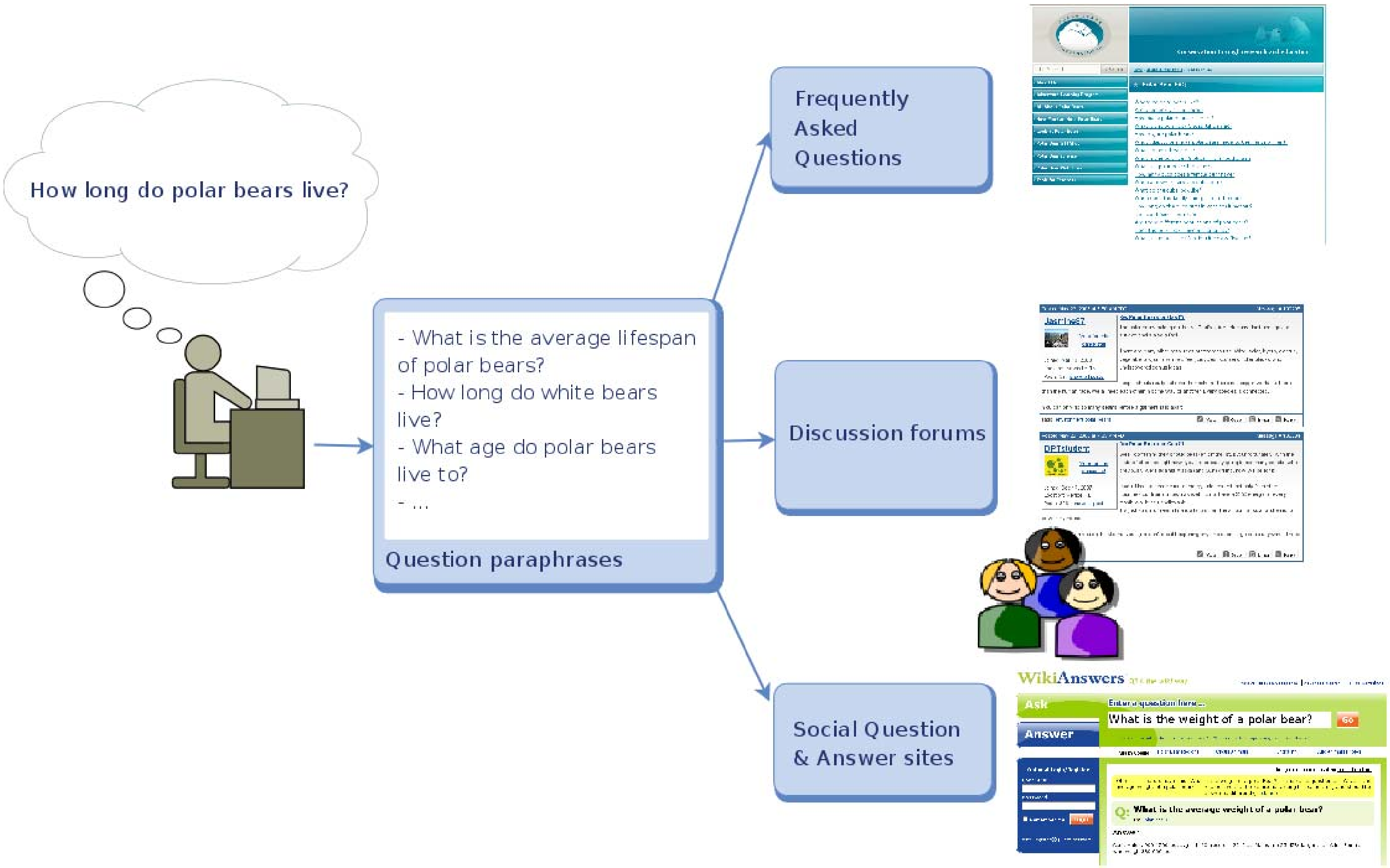
For Example: Assessing the Quality of User-generated Content



WikiAnswers

1st fastest growing domain of the top 1,500 in the U.S. in 2007 (comScore)

Questions?


How long do polar bears live?
- What is the average lifespan of polar bears?
- How long do white bears live?
- What age do polar bears live to?
- ...
Question paraphrases
Frequently Asked Questions
Discussion forums
Social Question & Answer sites
WikiAnswers
Ask
Answer
What is the weight of a polar bear?
What is the average weight of a polar bear?

For Example: Opinion Mining Can Improve the Learning Experience

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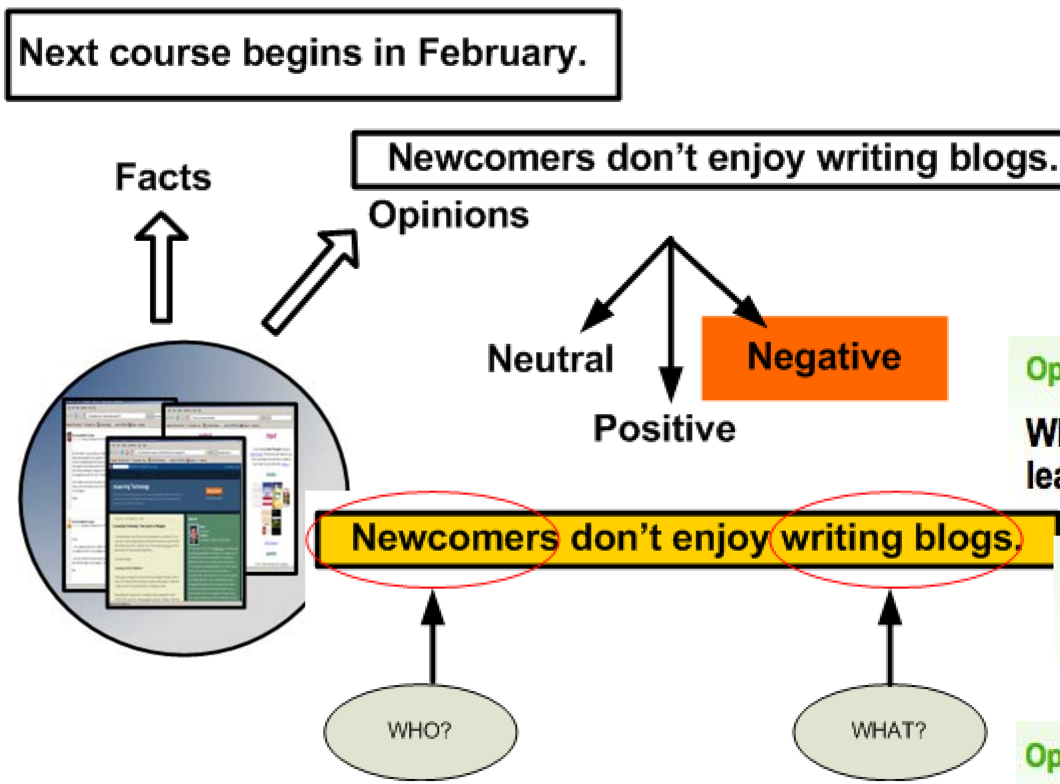
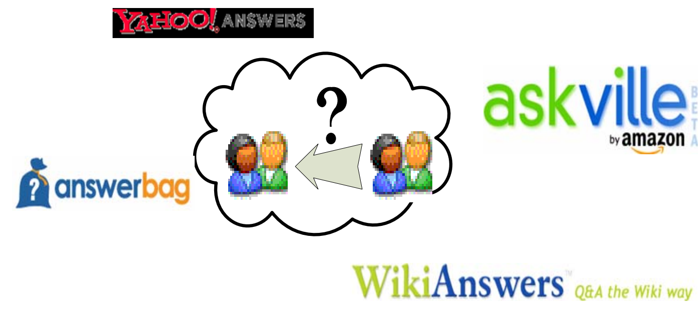




Open Question — Show me another

What are good classroom games for college students learning Spanish?

Resolved Question — Show r

What is your concept of an excellent teacher?

4 days ago

Open Question — Show me another ›

What are the pros and cons of the Cognitive Learning Theory?

Telecooperation @ 30,000 ft.

Telecooperation :==
targeted (= tele-) cooperation
between & among networked
people, computers & things

Prof. Dr. Max Mühlhäuser

Research Area: Ubiquitous Computing

Research Fields:

1. **Cooperation:**
   how to integrate (& provide synergy among) people, computers, things?
2. **Interaction:**
   how to provide ease-of-use (users not at desktop, can hardly use keyboards & mice)?
3. **Protection:**
   how to protect users despite UbiComp – how to protect them by means of UbiComp?

TK Projects (Excerpt)

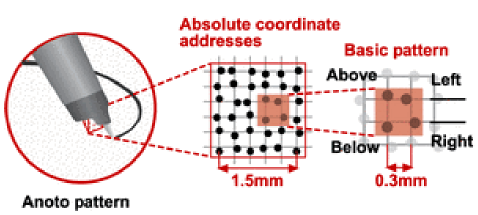
- Public Security: SoKNOS
  - German Ministry of Education and Research
- Knowl.Work/eLearning: GKel (TK: lead)
- & Peer2Peer Networks: Research Cluster
  - German Research Foundation
- Internet of Services: Theseus - Texo
  - German Ministry of Economics & Technology
- Ubiquitous Computing: Smart Products
  - TK: lead Sc. Coordinator; European Union FP7, IP
- IT Security: CASED (TK: lead area 3)
  - State of Hesse
- Public Security: ProTect (new; TK: lead)
  - Industry

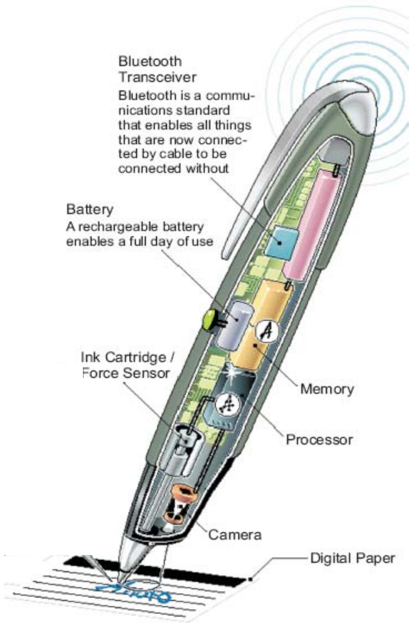
For Example: Paper-Centric Computing

- Paper remains central for knowledge work (Sellen/Harper 2003)
  - Reasons: haptics, mobility, efficiency, navigation, structuring/indexing

→ Goal: ‚best of both worlds'

- Here: Anoto Digital Pen & Paper: astounding resolution
  - So far at TK group:
    - collaborative annotation (Knowledge work)





Uniform Interaction

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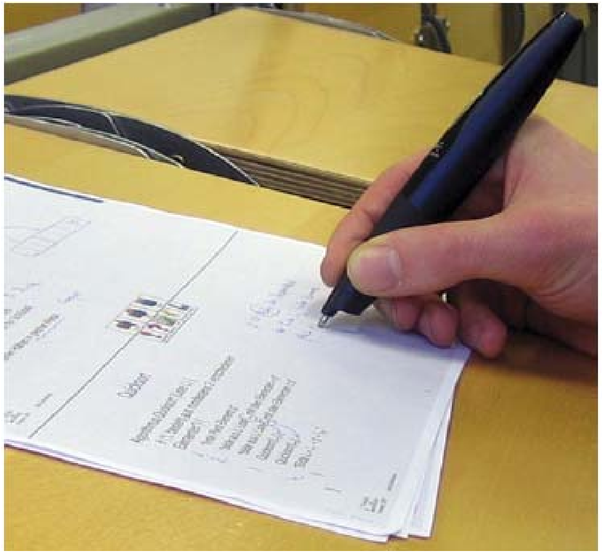
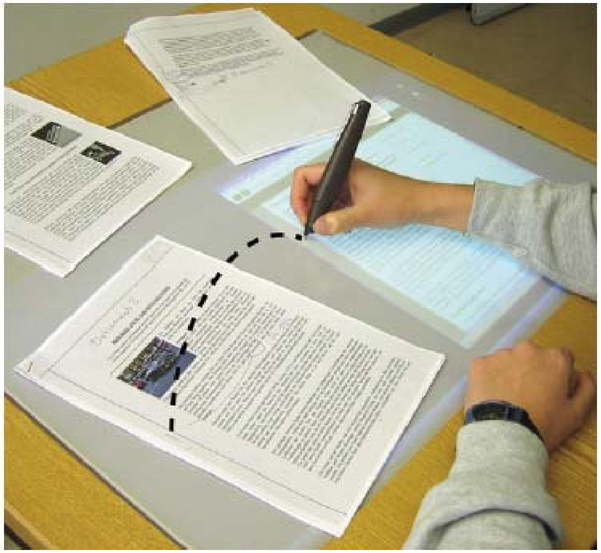
Papier

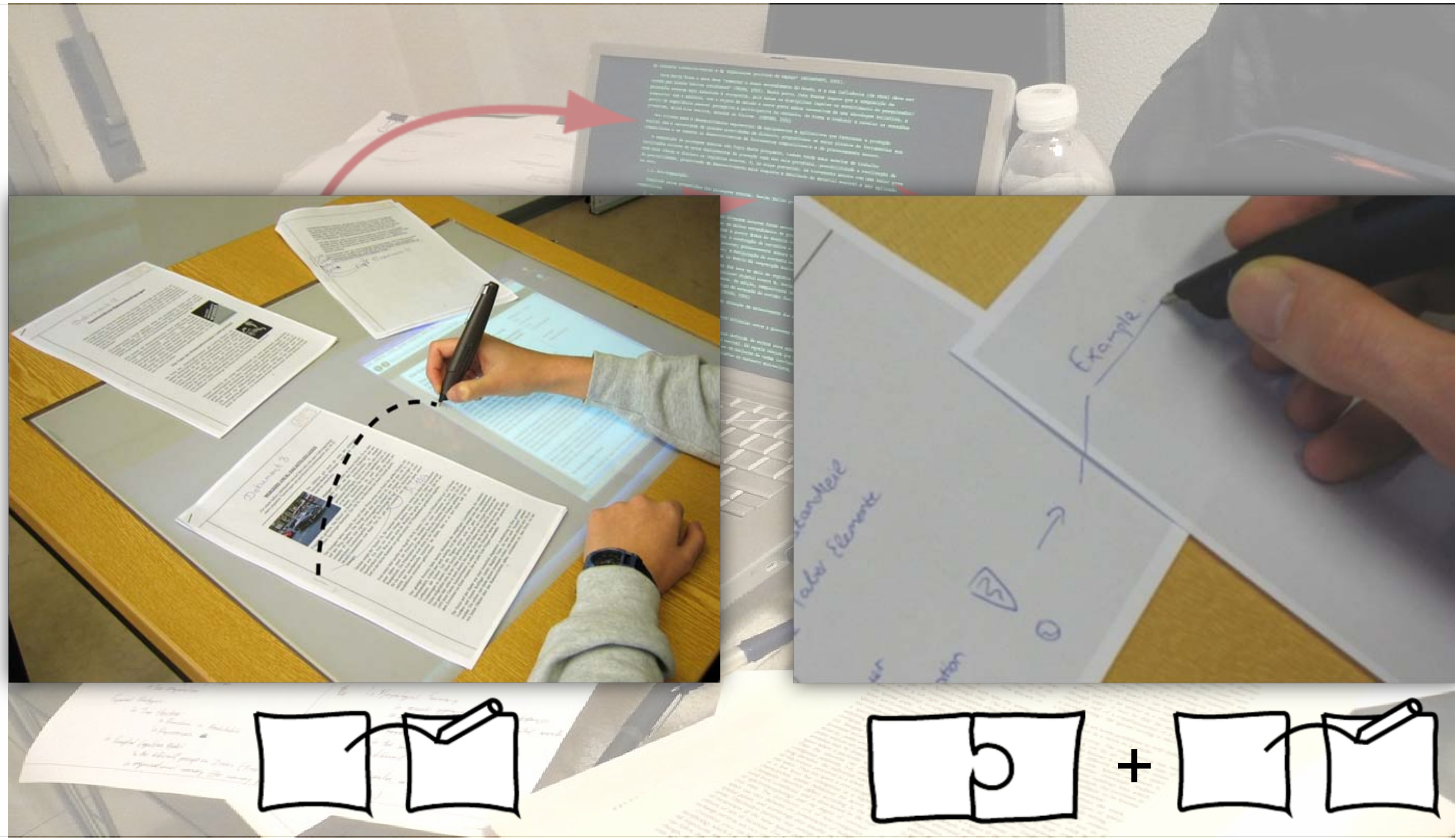


Tabletop-Display

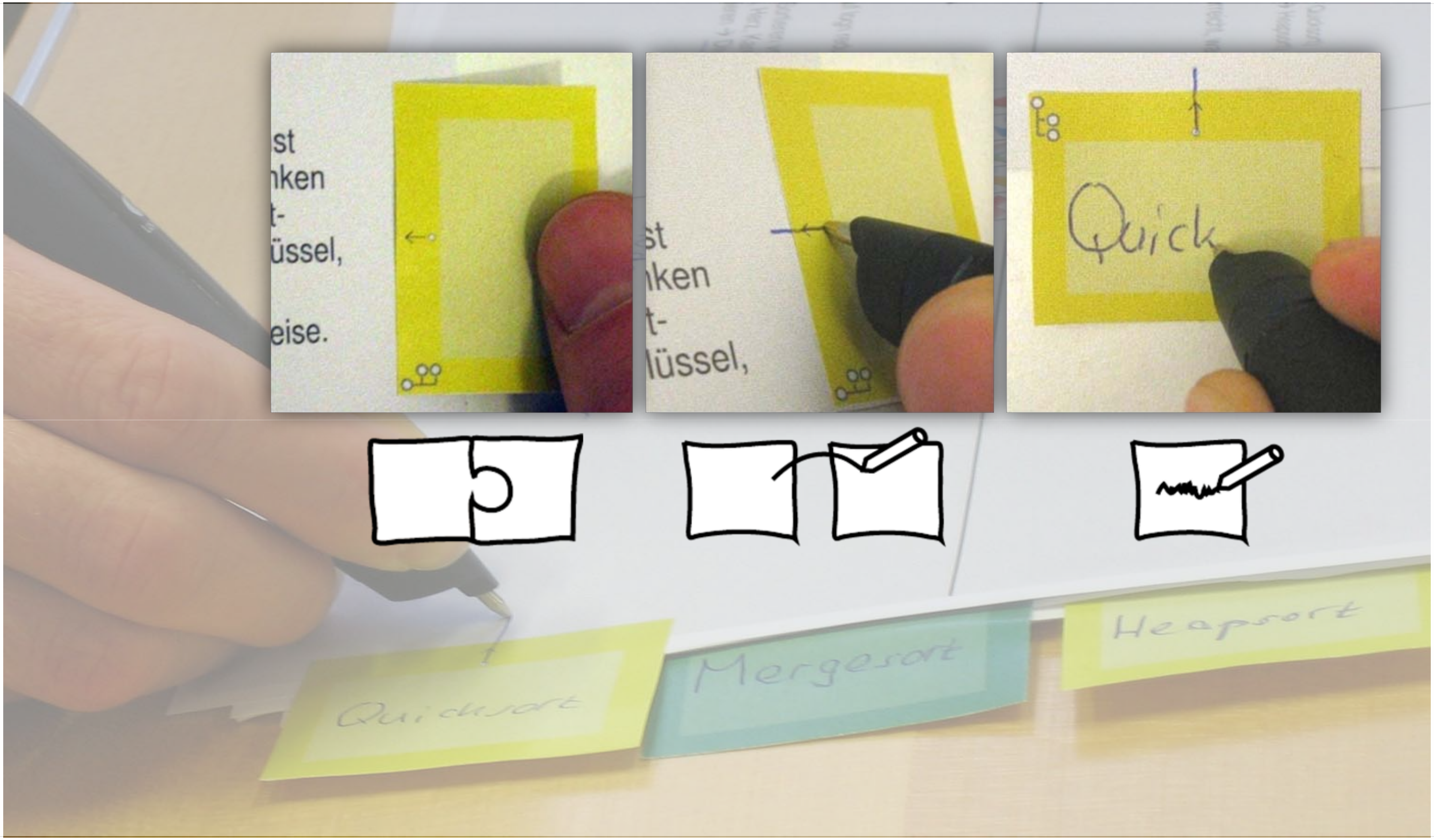
Papier + Display



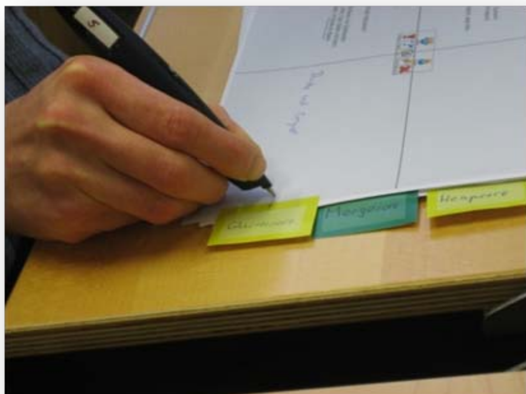
Cross-media Hyperlinks



Digital Paper Bookmarks

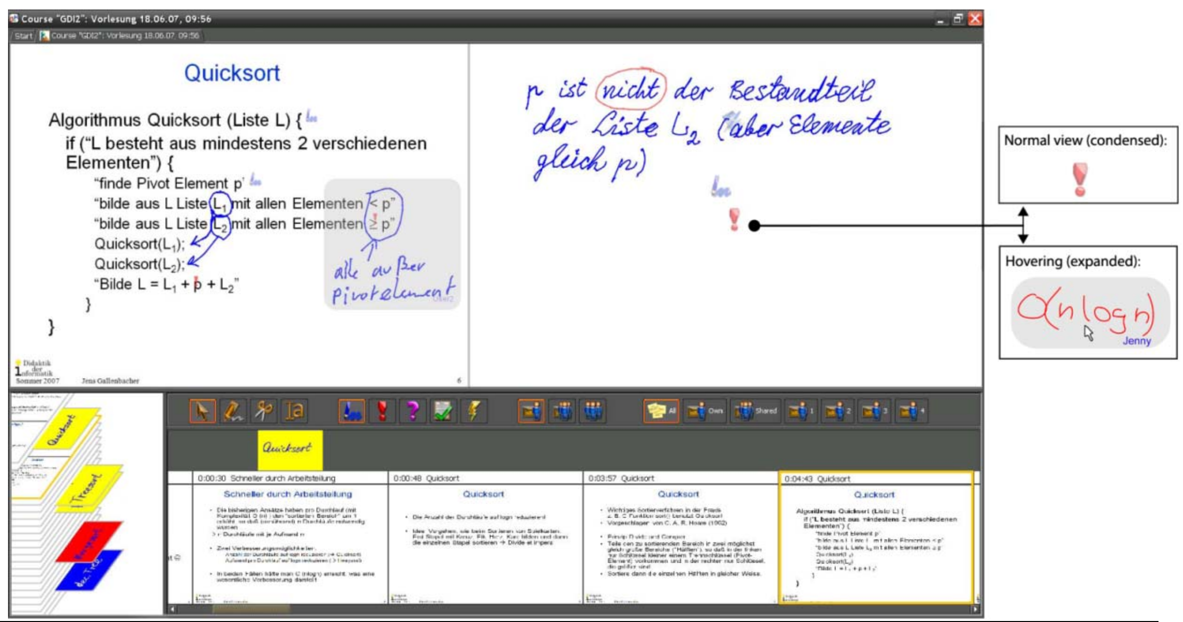


Paper Centric Computing: New Forms of Collaborative Annotation



(Steimle et al.: 2x best paper)

Computer GUI:



For example: Digital Lecture Hall (DLH)

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Virtual Blackboard

multiperspektiv-Video

Smartboard,
PlasmaBoard
…: "eBoard"

LCD-Tablet as
e-overhead-projector &
Control Unit

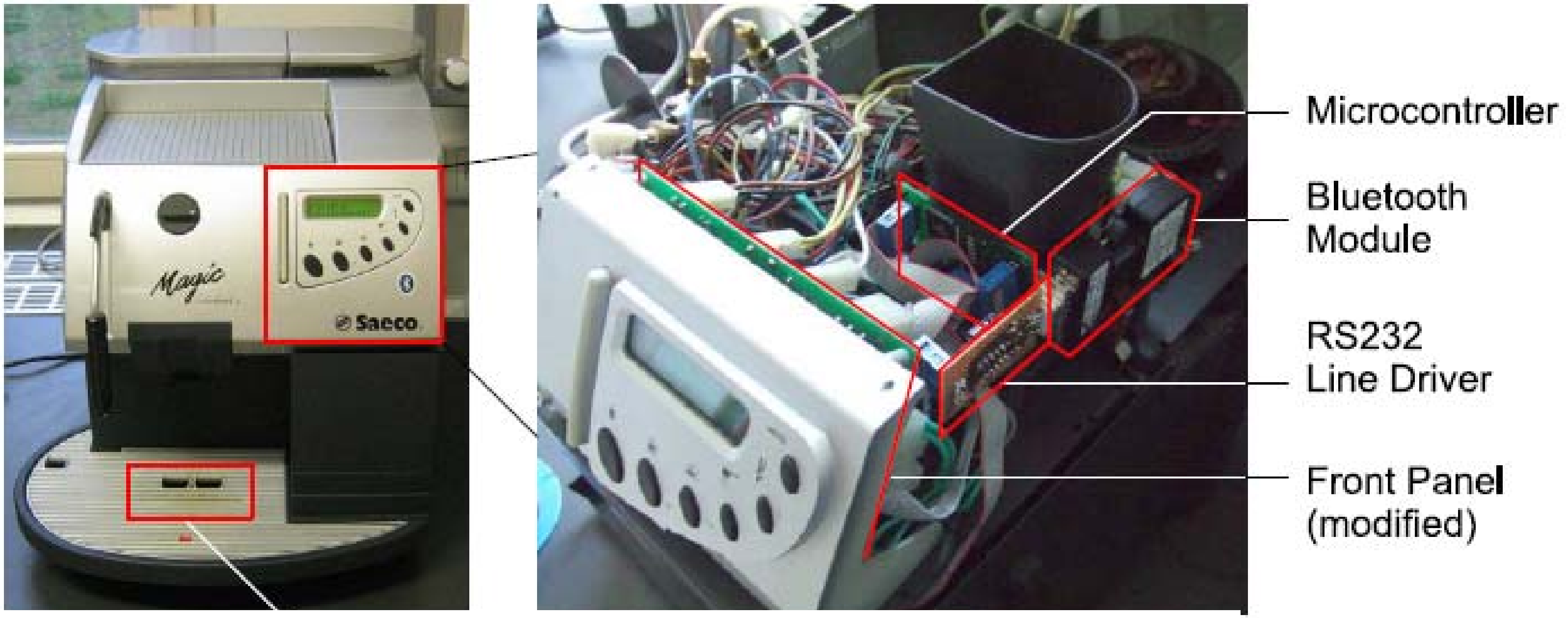
Learners-in-the-loop:
- 4 types of devices
- diverse interaction levels

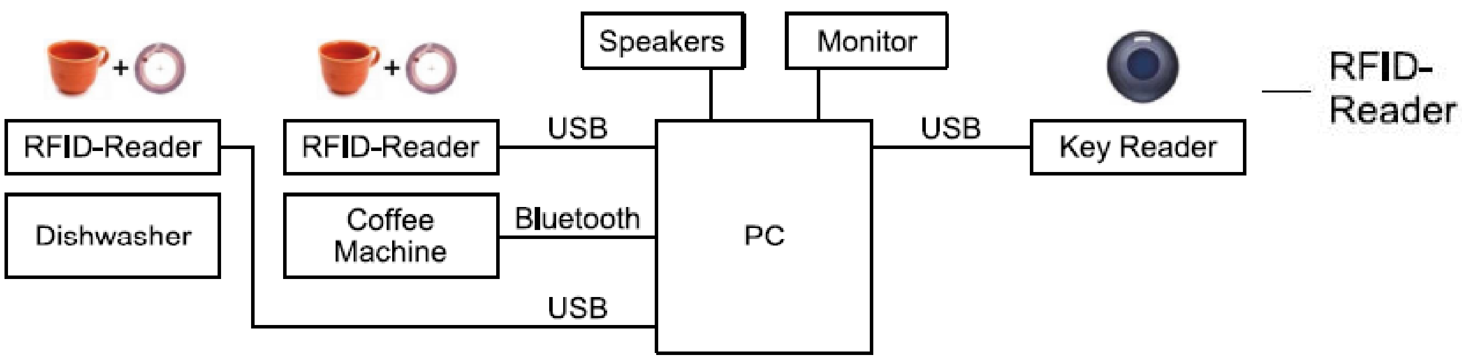
Internet

Recording:
Download /
Stream

-

For Example: Smart Products (Saeco)





Graduate School „Quality Improvement in eLearing via Feedback-based Processes“

TECHNISCHE UNIVERSITÄT DARMSTADT

- 16 scholarships by German Science Foundation (DFG)
- USP: Interdisciplinary „tandem-supervision“

Deutsche Forschungsgemeinschaft DFG

GRADUIERTENKOLLEG E-LEARNING

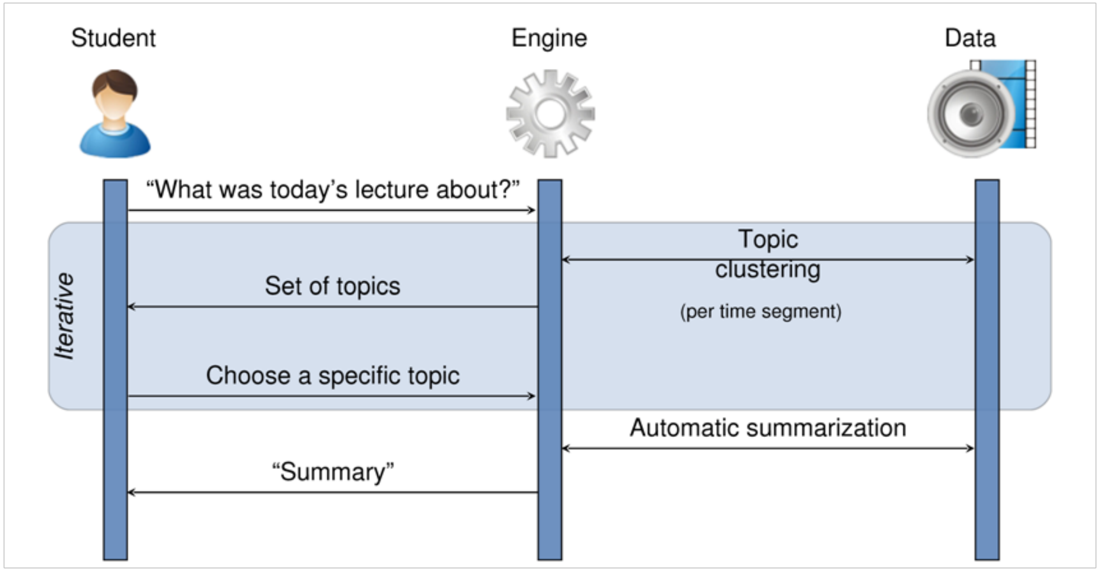
- Research focus for next phase: *ROD Lernsettings* (German acronym)
  - Feedback–loops on different granularity levels for quality management
  - Openness (group size, age, location, previous knowledge, …)
  - Dynamicity (learner‘s come and go, tools and technologies change, …)
  - Furthermore: learning at university, on the job, in spare time grow tighter together

e-learning center of research excellence

Most Recent ASC-Project on Ambient Learning

Multi-modal, multi-device access to lecture recordings

- Slides, audio & video stream
- E.g. time slider on handheld & ambient display
- Automatic topic identification and summarization



ASC-Project Detail: Navigation in Large Information Spaces („peephole metaphor“)

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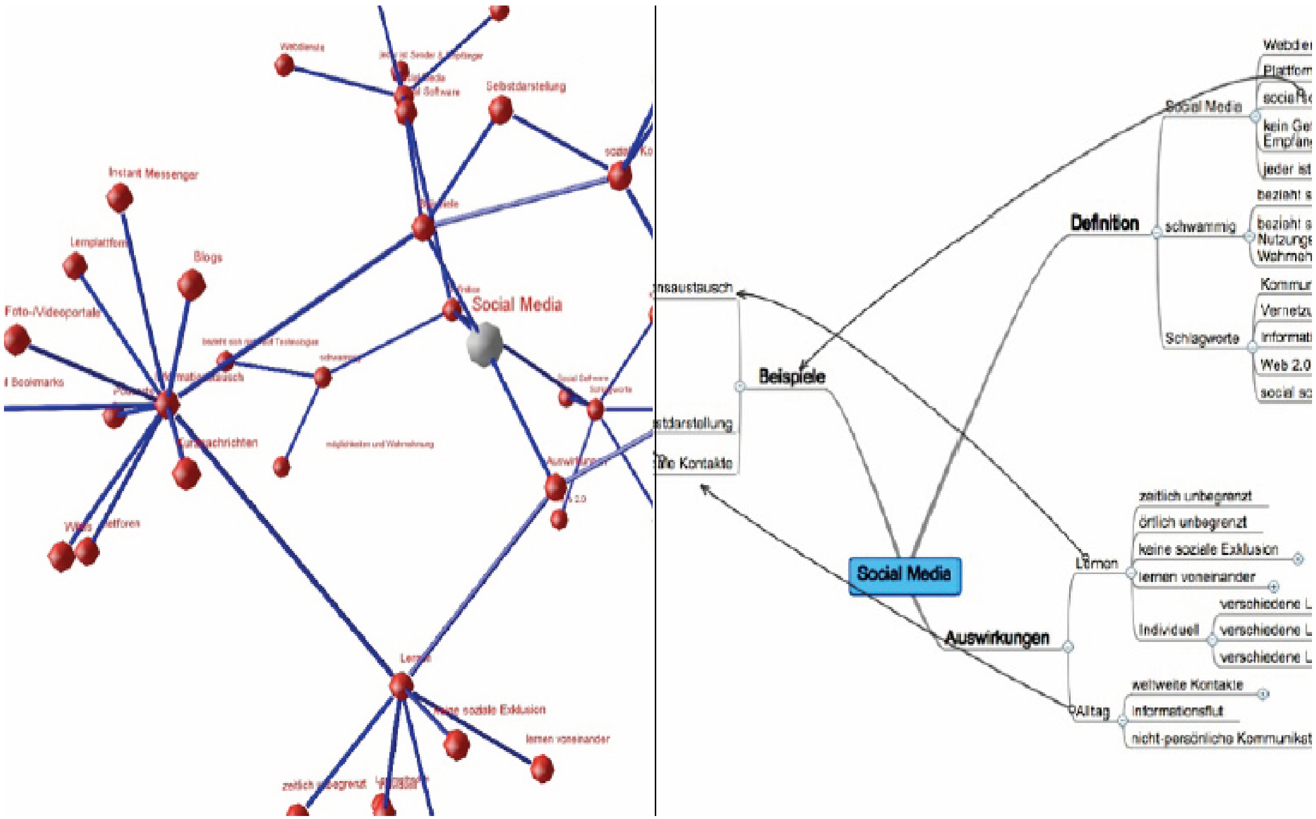


Interested? Want to know more?

Don‘t hesitate and contact me:

www.cre-elearning.tu-darmstadt.de/burchardt

What capabilities are emerging among the next generation?

Based on a comparative survey of Japan and South Korea

Keizo NAGAOKA
Waseda University

Abstract

The object of this study is to investigate new capabilities that are emerging among the younger generation. I report the results of a comparative survey conducted in Japan and South Korea. Although the two countries, on a global scale, are geographically and culturally close to one another, we found that there exist certain differences.

I would like to propose some capabilities; which will be emerging among the next generation, and discuss generally in the worldwide vision.

We prepared 71 questionnaire items for the participants from Japan and South Korea. Seventy items were related to "abilities that have recently increased among college students" and one question was "whether scholastic abilities have decreased." T-test and factor analysis were conducted on the results of all questionnaire items.

The result the of t-test indicates that the Japanese participants felt that scholastic abilities have declined compared to ten years ago. In contrast, the Korean students did not have this perception.

Analyzed were following factors:

For Japan: Factor 1: Self responsibility and social adaptability, Factor 2: Self interest, Factor 3: Efficiency in action, Factor 4: Communication skills.

For Korea: Factor 1: Self responsibility and social adaptability, Factor 2: Language and computer skills, Factor 3: Critical thinking, Factor 4: Self awareness of one's health and appearance.

Comparing the results of Japan and South Korea, we believe that it will be difficult to counter the decline in scholastic abilities by dealing only with the institutional issue of relaxed (*yutori*) education, and that measures are needed to address the broader socio-economic reality associated with Japan's lower birthrates. Furthermore, while the Internet is viewed in Japan as improperly utilized and thus associated with a negative image, this study suggests that the Internet can be perceived in a more positive light if properly utilized, as the case of South Korea shows.

What capabilities are emerging among the next generation?

- Based on a comparative survey of Japan and South Korea -

Keizo Nagaoka(Waseda University)

Context

1. **Introduction**
2. **Scholastic decline in Japan: Japan's relaxed (*yutori*) education**
3. **Questionnaire items for survey**
4. **Results (1) – factor analysis of 70 items**
5. **Results (2) – t-test of Item No. 71**
6. **Conclusions**

1. Introduction

The objective of this study is to investigate new capabilities that are emerging among the younger generation.

I report the results of a comparative survey conducted in Japan and South Korea.

How is the situation in other countries, especially in Germany?

Population

JAPAN	127,770,000 (127,780,000)	2008 (2007)
SOUTH KOREA	48,456,000	2007
DEUTSCHLAND	82,314,900	2006
USA	295,896,000	2005

Percentage of students going and existing Higher Education (2&4 years), *incl. parttimer

JAPAN	56.2	67.1	2008
SOUTH KOREA	101.6	*130.7	2007
DEUTSCHLAND	35.4	51.5	2006
USA	53.2	*90.5	2005

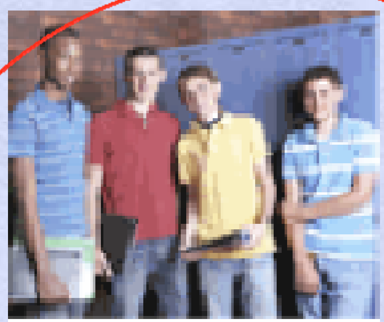
Percentage of Educational Expenses for GDP(Japanese Trillion Yen,2005)

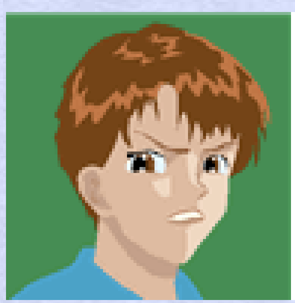
	GDP	All Schools	H.E.(=Public+Private)
JAPAN	4.99	4.9	1.4(=0.5+0.9)
SOUTH KOREA	1.33	7.2	2.4(=0.6+1.8)
DEUTSCHLAND	3.26	5.1	1.1(=0.9+0.2)
USA	15.79	7.1	2.9(=1.0+1.9)

Tuition for H.E. (Japanese Yen)

	Public	Private(Num.%)
JAPAN	535,800	1,033,200(74.6)
SOUTH KOREA	(max)827.600	(max)1,058,200(81.8)
DEUTSCHLAND	(BonnU.)106.400	/(3.1)
USA	689,000	2,904,000(25.5)

- Around the world and since ancient times the current generation of adults often is concerned about the declining abilities of the younger generati





poorer scholastic abilities!

I am Aristle

worse manners!

less creative

It may be true that certain abilities have indeed declined.

But, this must have been compensated for by the development of other capabilities.

Ability decline may be qualitative change to cope with changing times.

Human progress from ancient times until today cannot be explained otherwise.

It is more worthwhile to make efforts to develop capabilities that are suited to the coming age, not to criticize.

2. Scholastic decline in Japan: Japan's relaxed(yutori) education

In Japan, the decline of scholastic abilities among the younger generation has been a subject of debate for some years.

PISA has been conducted every three years since 2000 by OECD, and each time its results are announced.

They are received with great concern depending on whether one's country rose or fell in the international rankings.

Recently, when the international ranking of Japan fell, there arose the argument that Japan must revamp its educational system.

The fall in Japanese standing is often attributed to the adoption of the more relaxed (*yutori*) education policy.

Japan's relaxed("yutori") education policy

Yutori Education:

Education that aims at development of individual talent rather than learning by rote.

Compared to 1992, the class hours of junior high school were reduced from 3150 units to 2940 units in 2000. For the elementary school, from 5785 units to 5376 units. And so on.

To find out whether the “relaxed education policy” in Japan has actually contributed to the decline in scholastic ability, We asked for cooperation from South Korea (Republic of Korea).

South Korea is geographically close to Japan. In common, developed ICT, competitive school entrance examinations.

3. Questionnaire items for Survey

We prepared 71 questionnaire items for the participants of Japan and South Korea.

These consisted of 70 items that related to "abilities that have recently increased among college students"

and one question No.71 on

"whether scholastic abilities have fallen."

The questionnaire took the following format.

"Comparing yourself today and your image of college students ten years ago, read each of the following questions and indicate your answer by encircling one item (1-5)."

Items 1-70

	Compared to college students of ten years ago				
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
(1) I am more able to converse in a foreign language.	1	2	3	4	5
(6) The sphere of activities has expanded.	1	2	3	4	5
(53) I have a better sense of rhythm.	1	2	3	4	5

Fig. 1 Three sample items related to “abilities that have expanded among college students”

Item 71

	Compared to college students of ten years ago				
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
(71) Our generation's scholastic ability has declined.	1	2	3	4	5

Fig. 2 Questionnaire item on "whether scholastic ability has declined"

- In regard to the above question which asked “whether scholastic ability has declined,” please write down the reason for your answer, or otherwise comment as you feel fit (such as the circumstances under which you have felt that scholastic ability has declined (or not)).

Compared to college students of ten years ago

Fig. 3 Space for writing participant’s reasons for the decline in scholastic ability

The participants and their numbers are as follows:

- **Japan: Undergraduate students at Waseda University 123**

  female: 29, male: 88, unknown: 6

=====================================

- **South Korea: Undergraduate and graduate students 163**

  1. Ewha Womans University - female: 81

  2. Inha University - male: 51, female: 11

  3. Korea University - male: 0; female: 20

  male: 51, female: 112

4. Results (1) – factor analysis of 70 items

Factor extraction was done by the maximum-likelihood method, while computation was done by the principal factor method and varimax rotation to extract four factors.

<Results of Japan>
The eigenvalue was a cumulative 36.3 %.

Factor 1: Self responsibility and social adaptability

"item 64: I am more able to persevere and carry things through to the end (factor loading 0.781)"

"item 8: My sense of solidarity with friends/colleagues has strengthened (factor loading 0.690)."

Factor 2: Self interest

Factor 3: Efficiency in action

Factor 4: Communication skills

<Results of Korea>

The eigenvalue was a cumulative 32.0 %, very close to the value of Japan.

Factor 1: Self responsibility and social adaptability

Factor 2: Language and computer skills

Factor 3: Critical thinking

Factor 4: Self awareness of one's health and appearance

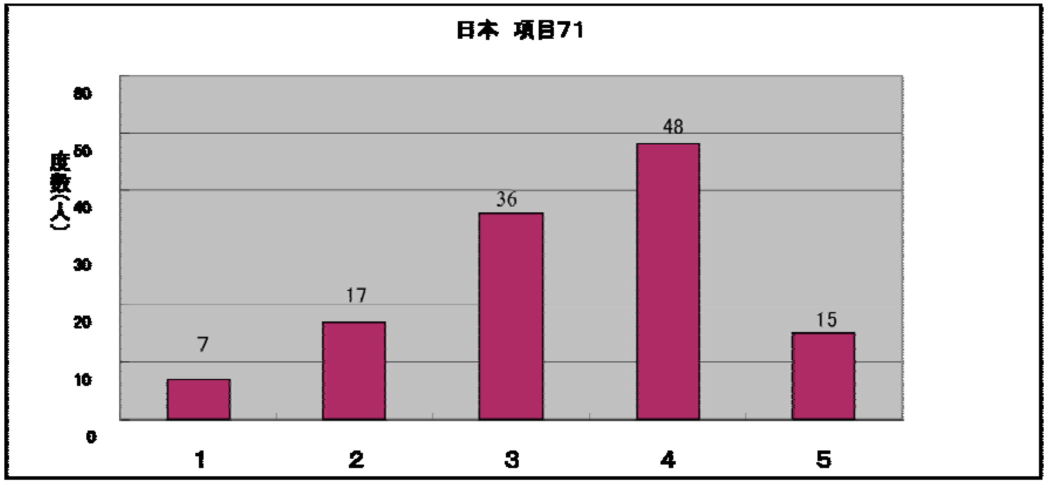
=========

Factor 1: "Self responsibility and social adaptability" was common to both Japan and South Korea.

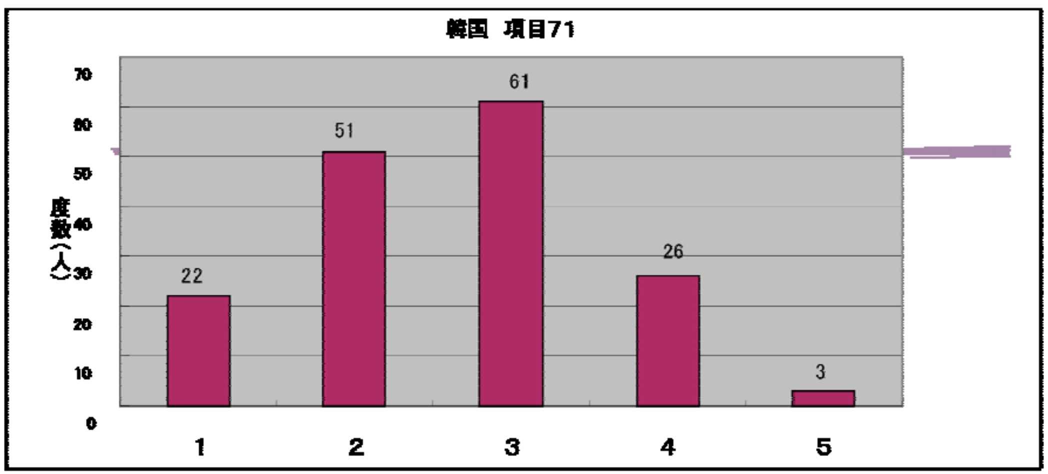
5. Results (2) – t-test of Item No.71.

T-test was conducted on the results of all questionnaire items 1-71. Here, we discuss the results of item No. 71 only.

Item No.71 “whether scholastic ability has declined?”



JAPAN



KOREA

1 Strongly Disagree, 3 Neither,
5 Strongly Agree

Japan and South Korea differed widely for item No.71.

Japan had a mean value of 3.38, while in Korea it was 2.61; the 0.76862 difference had a 5% significance level in t-test.

This indicates that *the Japanese participants felt that scholastic abilities have declined* compared to ten years ago.

In contrast, the *Korean students did not* have this perception.

Japanese students :

When we analyzed the written comments by those Japanese students who answered either "agree (4)" or "strongly agree (5)," we were able to classify them into three groups.

i) Effect of relaxed (*yutori*) education

ii) Effect of the Internet and other media

iii) Effect of lower birthrates (decrease in college-aged population) and consequent relaxation of entrance exam standards.

We now discuss the above three "causes" in the context of South Korea.

i) Effect of relaxed (*yutori*) education.

No such policy has ever been adopted in South Korea. This policy is a uniquely Japanese phenomenon.

ii) Effect of the Internet and other media.

While the Internet is perceived in Japan as contributing to the decline in scholastic abilities, the Korean students felt that their computer skills had expanded, as indicated by factor 2.

iii) Effect of lower birthrates.

In Japan, a widespread notion is that after entering college, there is no longer any need for serious studying. But in Korea maybe not.

6. Conclusions

In Japan, many of the participants felt that the decline in scholastic abilities was caused by:

- Introduction of the relaxed (*yutori*) education policy,
- Spread of the Internet and other media,
- The easy entrance exam caused by the lower birth rates.

Meanwhile, in Korea:

- Capabilities resulting from the shift to an information society led to better academic performance.

It will be difficult to counter the decline in scholastic abilities by dealing not only with the relaxed (“yutori”) education, but that measures are needed to address the broader socio-economic situation associated with Japan’s lower birthrates.

This study suggests that the Internet in Japan can be perceived in a more positive light if properly utilized, as the case of South Korea shows.

Danke vielmals fuer Ihre Kooperation!

Thank you for your kind coorations!

I thank Dr.Young Soo Kim (Ewha Womens University) for her cooperation, and also, Shoichi Sugiyama, student of Waseda university, In Woo Hwang, Sung He Choi, Young Hwa Kim, graduate students of Ewha Womens University.

Lifelong and Lifewide eLearning
Fire Fighters and Forest Rangers in Rhinland-Palatinate

Ingo DAHN

Abstract

Learning at the workplace presents particular challenges for elderly employees. Also lifewide learning, involving learning at spare time, is changing due to increased use of the potential of IT.

The presentation discusses ways how industry and public services can benefit from the e-learning competence of universities to develop livelong and lifewide e-learning. This is exemplified with experience from two projects in the land of Rhinland-Palatinate for the training of forest rangers and voluntary fire fighters.

Lifelong and Lifewide eLearning - Firefighters and Forest Rangers in Rhineland-Palatinate

Ingo Dahn
University Koblenz-Landau
Knowledge Media Institute Koblenz

Lifelong and Lifewide Learning

- Lifelong Learning – learning in all phases of life
  - Case: Forest rangers 50+
- Lifewide Learning – learning in parallel
  - Case: Voluntary firefighters

How can public services profit from eLearning competency of the public universities – and conversely?

University Context

- University Koblenz-Landau, Campus Koblenz
  - 6.500 students, mostly computer science and pedagogy
  - IWM Koblenz since 2001 – central eLearning institute
    - Research – Piloting – Support/Evaluation
    - Staff: 1.5/5.5/20/1 – pedagogs and computer scientists
    - Blackboard LMS, Online Assessements, Course records, Online Community, ePortfolios, Video use
    - Pedagogic support, technical support, software development,

Lifelong Learning – ZEBIT Context

- ZEBIT – Central IT management unit for wood and environment management in RLP
- Central IT infrastructure FORSTNET
- Regular training courses
- Trainer background: Forest and IT
- Learner background: Forest rangers (lower management), average age: 50

Landesforsten Rheinland-Pfalz

ZEBIT Objectives

- Introduce PCs in all forest offices
- With special software
- In parallel with ongoing changes in the work process
- Make sure software is efficiently used in daily work
- Design course in collaboration with IWM

The Project

- IWM: Summative evaluation of learner needs by structured interviews
  - Highly diverse attitudes and experiences
  - Desire to be involved in planning
- Recommendation: Personalize training
  - Joint PC setup with hidden test
  - Individual course plan, group work
- Advice during course design
- Evaluation in FFH Diploma thesis

Lifewide Learning – LFKS Context

- Training Group Leaders for voluntary firefighters
- 14 days on place out of job payed by local community
- Experienced trainers using Powerpoint, real devices - and Virtual Reality - „Generation Märklin“
- Trainer background: Professional firefighters
- Learner background: All professions

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Wir machen´s einfach.

Feuerwehr- und Katastrophenschutzschule

LFKS Objectives

- Reduce required presence at LFKS
  - Reduce resistance of employers to free their staff for firefighter qualification
  - Reduce costs for communities to pay wages during qualification
  - Simplify combination of learning with family and social life
- Attract younger and better qualified firefighters for qualification as group leader

The Project

- Didactic analysis of course, guided by IWM
- IWM sets up infrastructure for authoring and LMS
- Training the trainers: Use of media, online assessments, online communication
- Providing graphics and animations
- Providing pre-test
- Evaluation

Lessons Learned

- Key to Success: Synergy of pedagogic (and technical) competeny from university and partner
- Qualifying the trainers is essential
- IWM as Guide and Enabler, not as service provider
- Benefits for partners:
  - Pedagogic advice, technical support
  - Qualification of staff
- Benefits for University
  - New staff – new synergies
  - Realistic jobs for students

Lessons Learned

- eLearning has huge potential for personalized learning
  - more efficient for inhomogeneous groups of learners
  - Lifelong and lifewide learning happens mostly in inhomogeneous groups
- Elderly learners have more – and different! – knowledge which must be taken into account for ALL learning
- The assumption that eLearning is less appropriate for elderly is WRONG

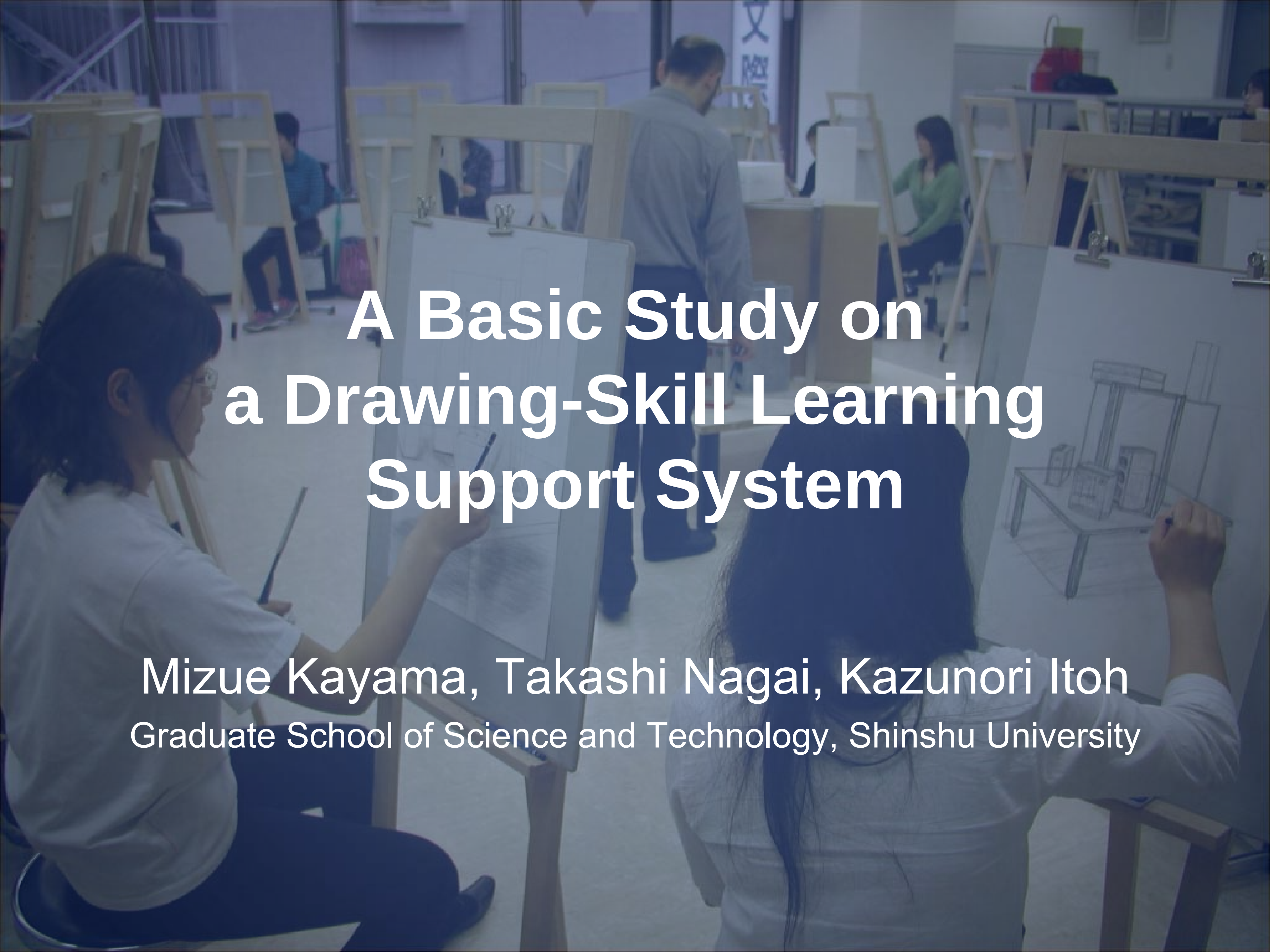
A Basic Study on a Drawing-Skill Learning Support System

Mizue KAYAMA

Abstract

The purpose of this study is to develop a support system in drawing-learning within a networked environment. In this paper, we describe the results of potential assessment for our system. Two assessment approaches are shown.

One is the possibility of a digital pen as a drawing-tool. The other approach is the effectiveness of the drawing-learning support in the networked environment, based on the reuse of the learner's and/or expert's drawing process. The drawing process model for supporting individual drawing-learning is also discussed.



A Basic Study on a Drawing-Skill Learning Support System

Mizue Kayama, Takashi Nagai, Kazunori Itoh
Graduate School of Science and Technology, Shinshu University

Types of Drawing Learning

Record

Replay

Refer

Off-line
(at classroom)

On-line
(at home)

Recording a Drawing-Process with the Digital Pen

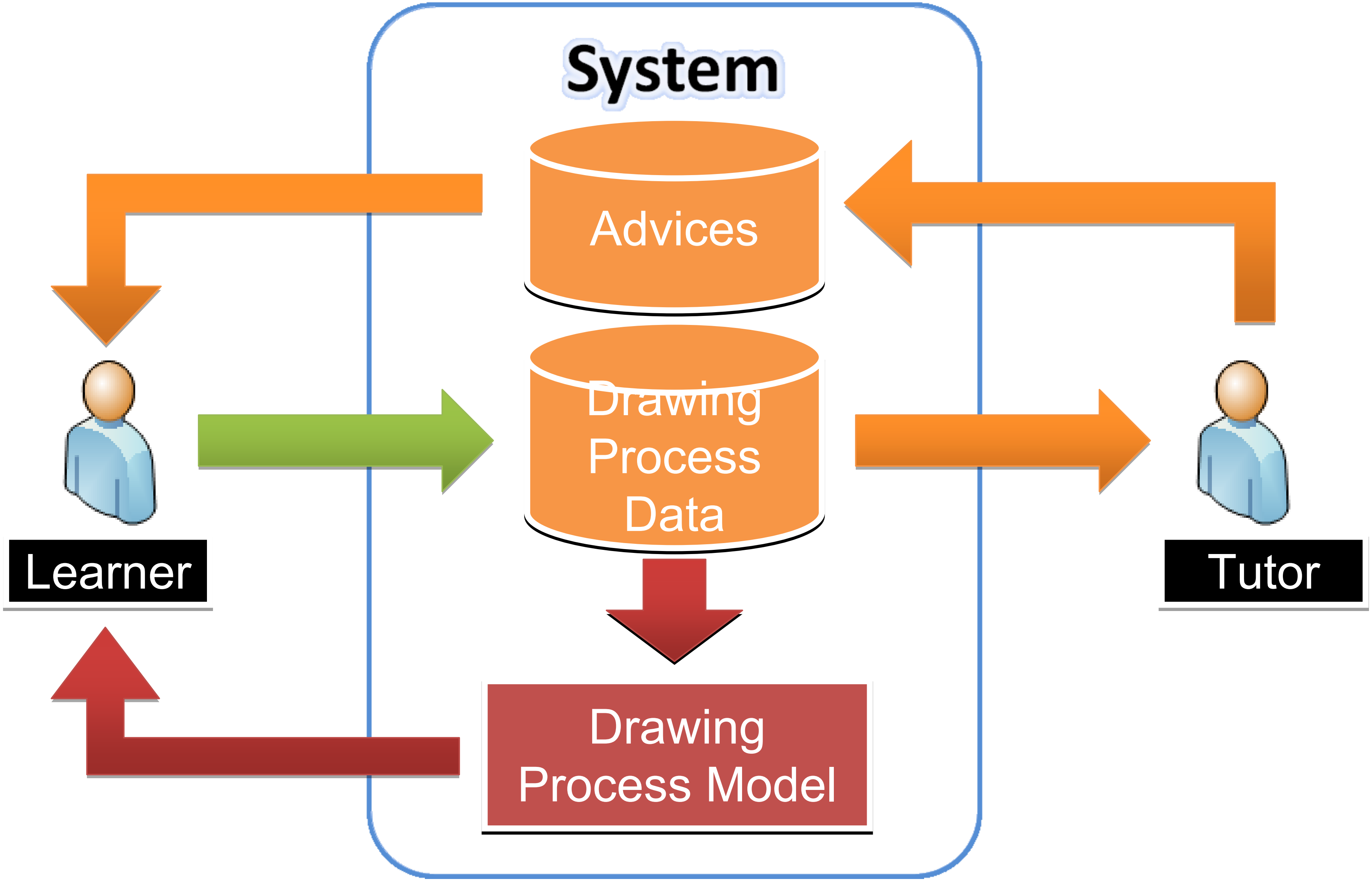
- Function
  - Automatically recording sets of time and pressure per stroke.

- Advantages
  - Concentrate in drawing
  - Direct relation with drawing process and drawing work
  - Mobility

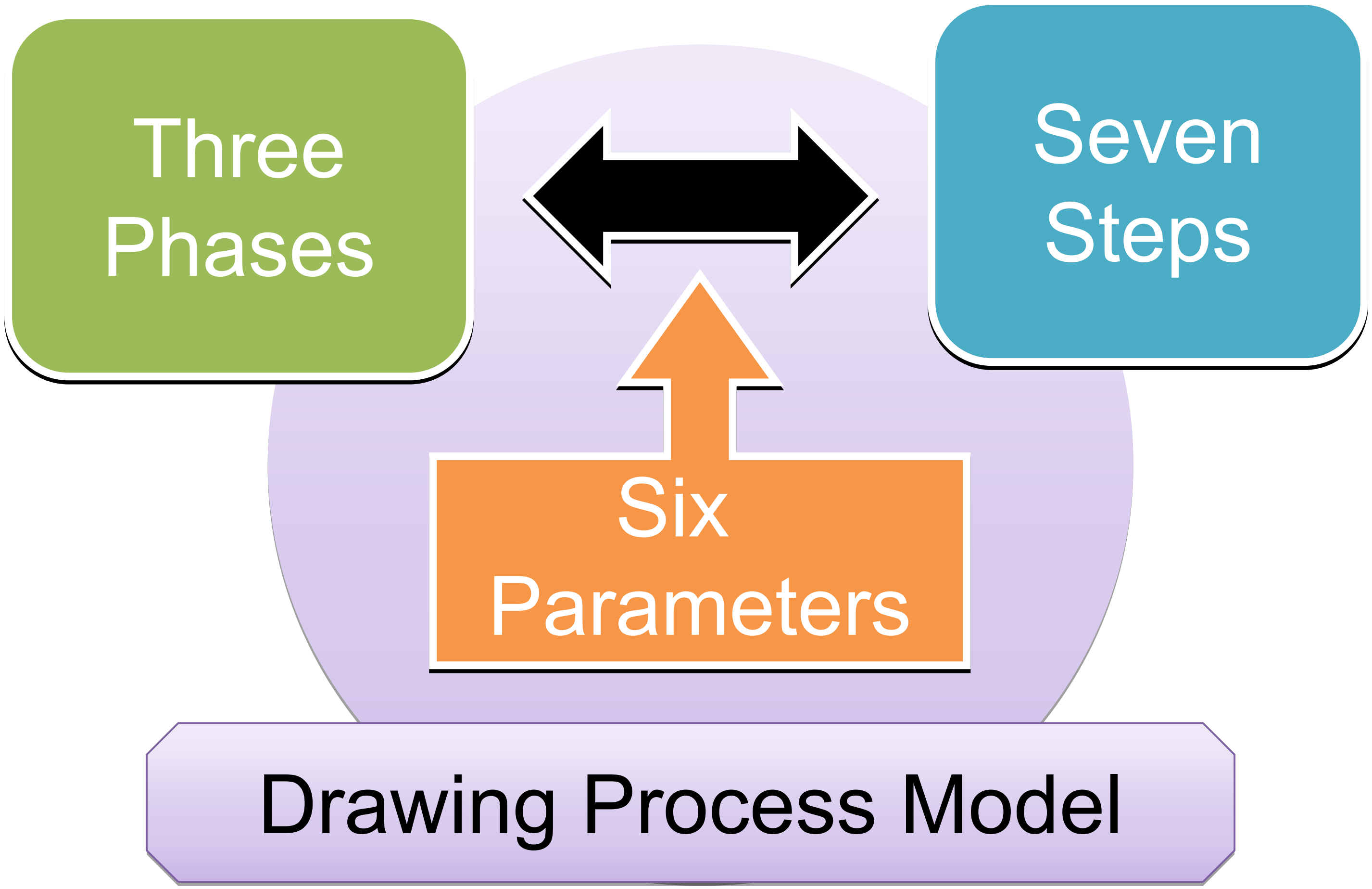
Some Specifications of the Digital Pen

Evaluated Item	Content	Result
The maximum operating time.	Continuable drawing time; how long a fully-charged battery takes to run out of power.	210 min. (Avg., 5 trials) Max 218 min., Min 199min.
The minimum writing pressure.	Gradually touch the pen tip to the paper; measure the alteration of pen pressure and the consistency of drawn lines on the paper.	The thin and weak line (but visible) is not able to record. Meanwhile, some lines, when pen pressure is zero, are possible to record.
The maximum drawing density.	To check the limit consistency, some lines are drawn to make a crosshatch in the specific field.	The digital pen can reach the upper limit of the density as a ballpoint pen.
The limit angle for the inclination.	Tilting the digital pen right and left, in a horizontal way.	Limit angle : $43° < \theta < 137°$

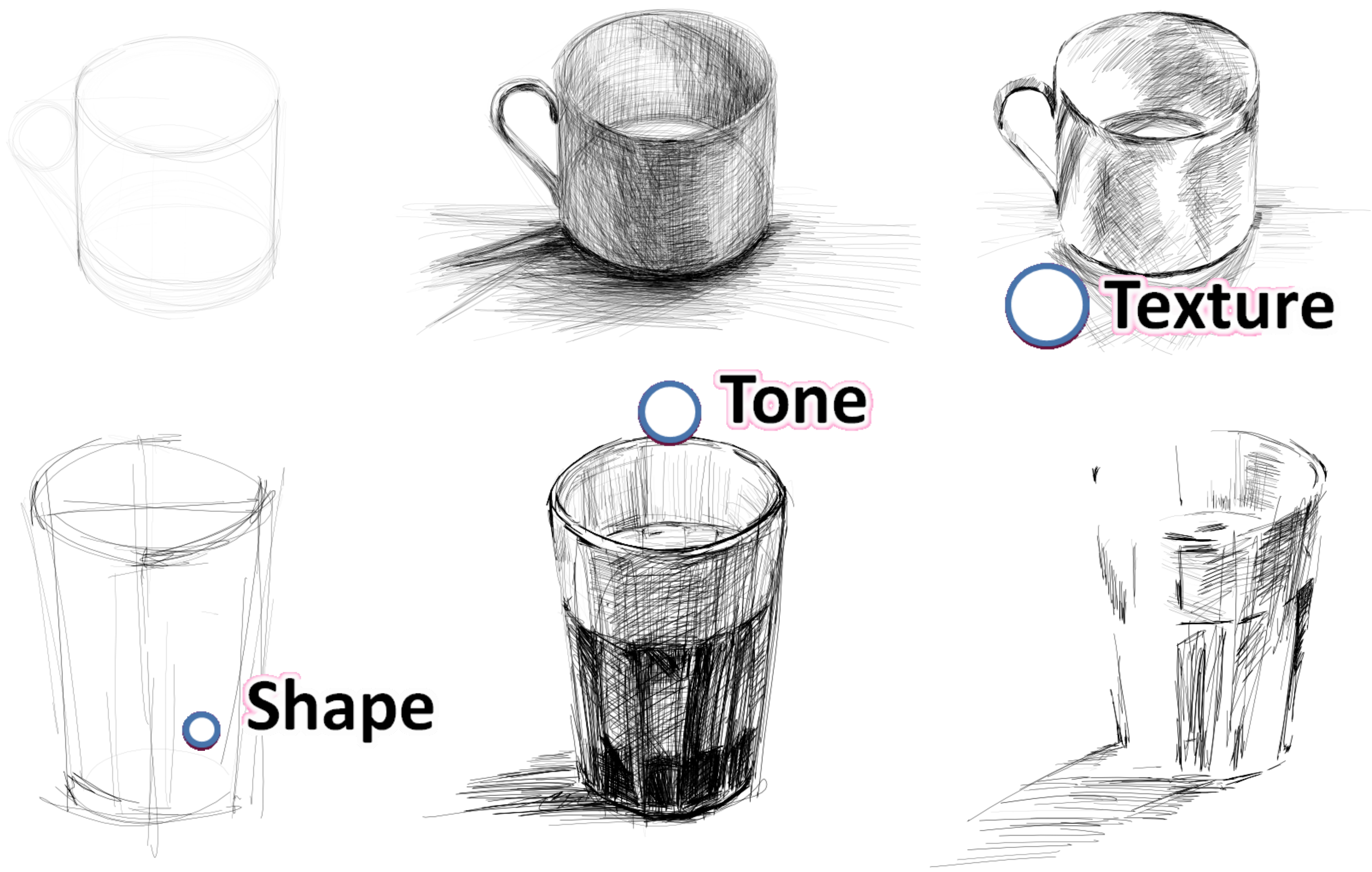
Proposed Learning Environment



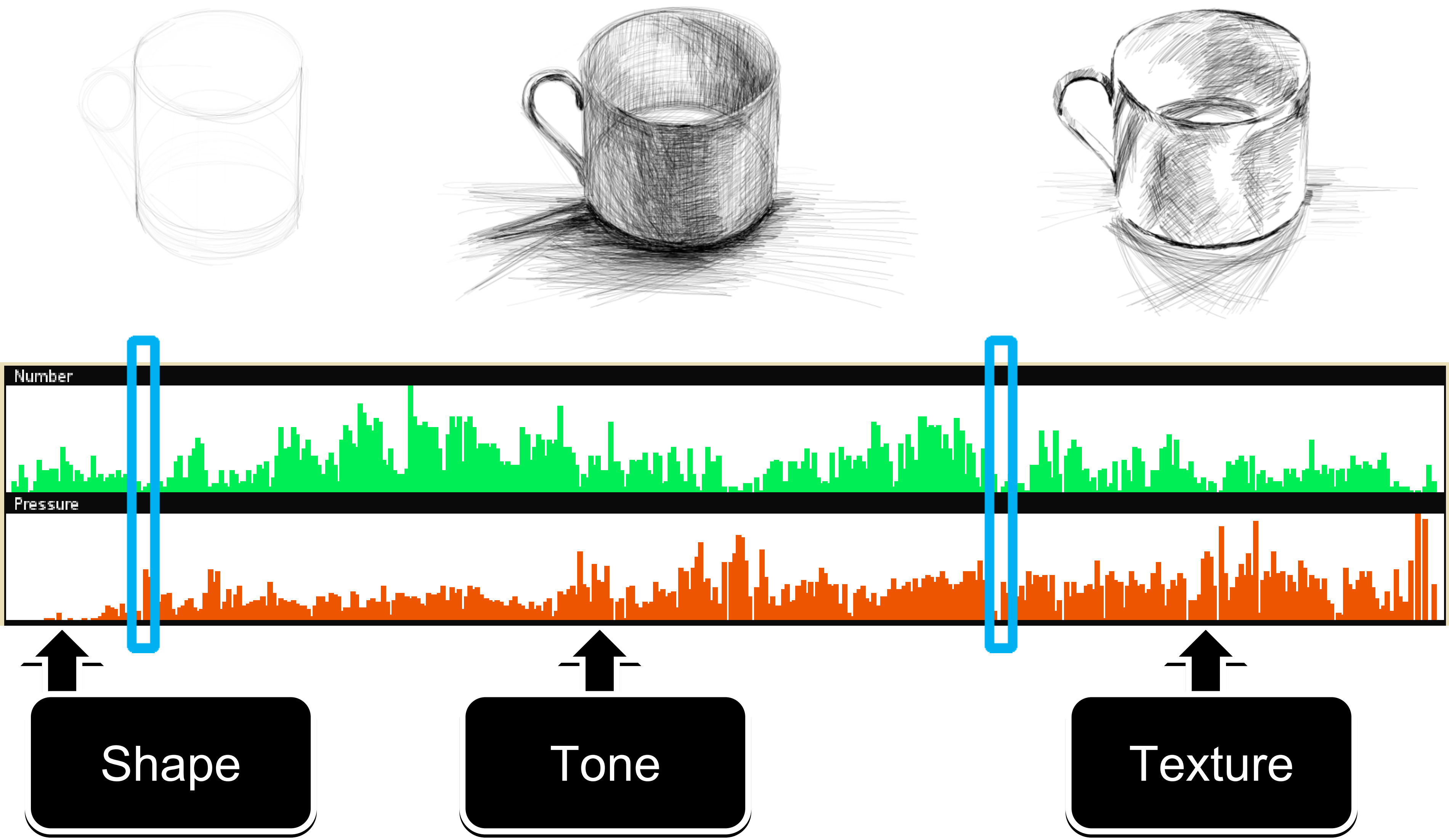
Drawing Process Model



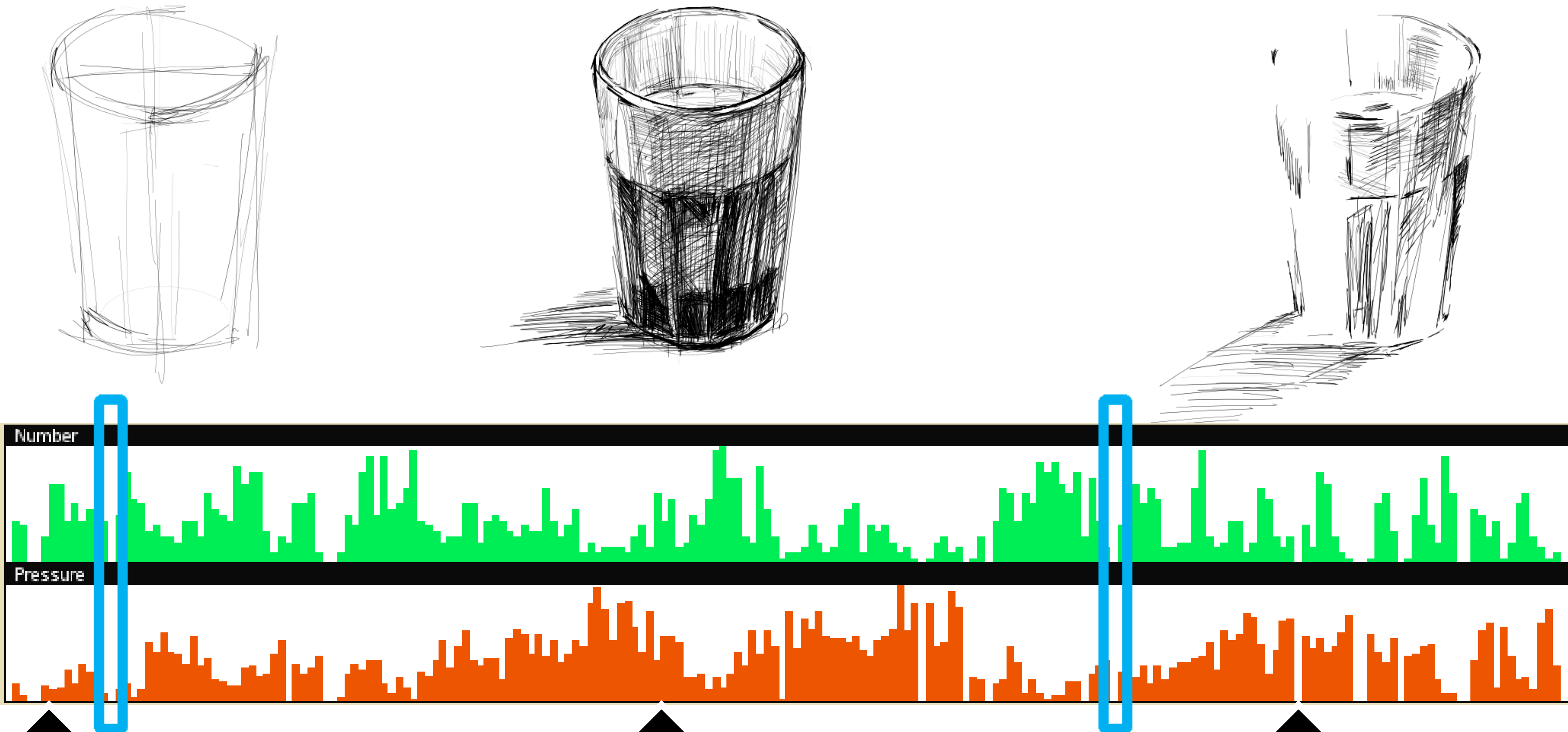
Key Points of Drawing Learning



Three Phases



Three Phases



Phase A
Shape

Phase B
Tone

Phase C
Texture

Seven Steps of Drawing Process

1. Looking carefully at the motif.
2. Interpreting where the motif is located.
3. Fixing the composition with regard to the balance of the motif and picture plane.
4. Capturing the motif as a composition of simple.
5. Analyzing the architecture of the motif and capturing the shape.
6. Adding the texture of the motif.
7. Giving final lines/curves in detail.

Six Parameters of Drawing Phases

Phase	Stroke			Stroke sets		Ratio for canvas
	Number	Pressure	Line types	Size	Dispersion	
A	Light	Low	Straight line, Simple curve-line	Large	Unequal	Broad
B	Superior	Low, Middle, High	Multiply	Large	Even	Broad
C	Medium	Low, Middle, High	Multiply	Small	Unequal	Narrow

Individual Learning Support Functions

- Record/Replay/Refer drawing process
- Analyzing learner's drawing process
  - 6 parameters
- Showing examples of experts' and other students'
  - Drawing process
  - Final works
- Giving some advises about drawing techniques

Conclusions and Future Works

- Proposed a support system for beginners in drawing
  - Using digital pen
  - Recording and reusing drawing process
- Drawing process model
  - Three phases / Seven steps / Six parameters

- Collecting drawing data
  - Experts' / Beginners'
  - Various kind of motifs
- Refining the drawing process model

TECHNISCHE UNIVERSITÄT DRESDEN

Psychologie des Lehrens und Lernens

Supporting Self-Regulated Learning of Scientific Concepts through Interactive Learning Tasks – Product and Process Findings

Felix Kapp, Hermann Körndle, Susanne Narciss & Antje Proske
Psychology of Learning & Instruction, TU Dresden, Germany

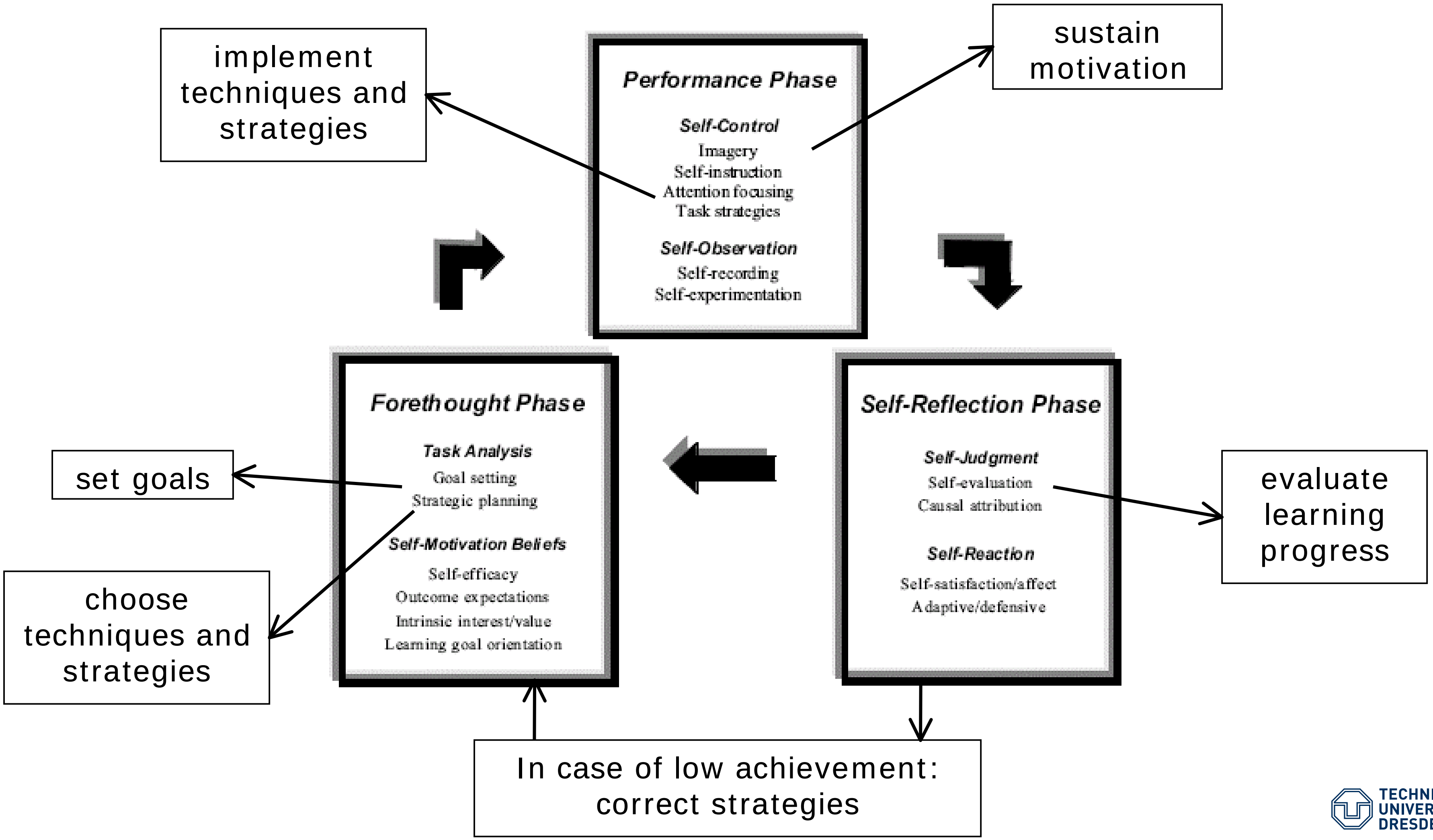
Berlin, 11.09.2009

Agenda

- Self-regulated learning
- Supporting SRL through interactive learning tasks
- Method
- Results
- Conclusion

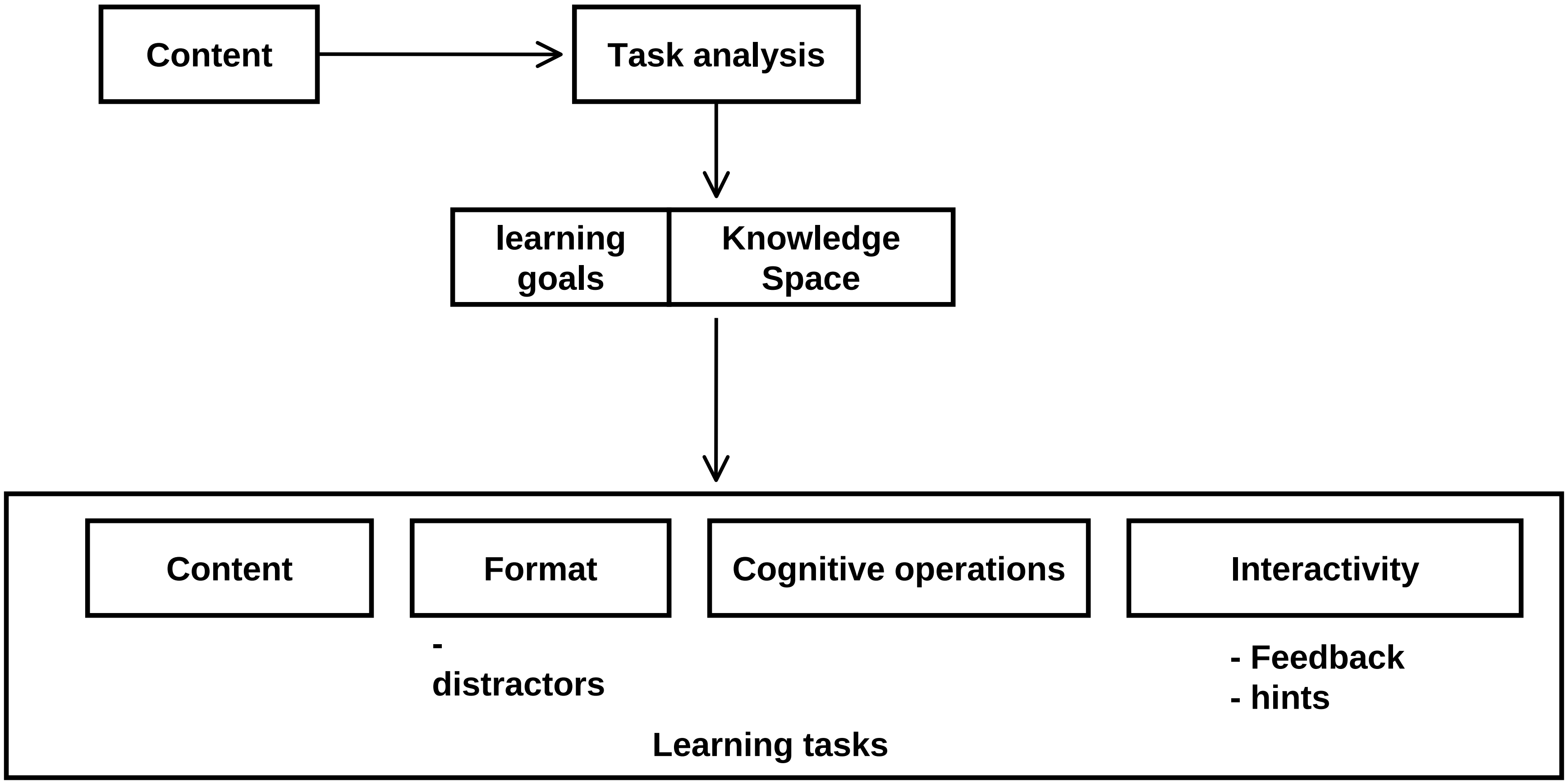
Self-Regulated Learning

Self-Regulated Learning (Zimmerman, 2000):



Interactive Learning Tasks

Components of interactive learning tasks (Körndle, Narciss & Proske, 2004):

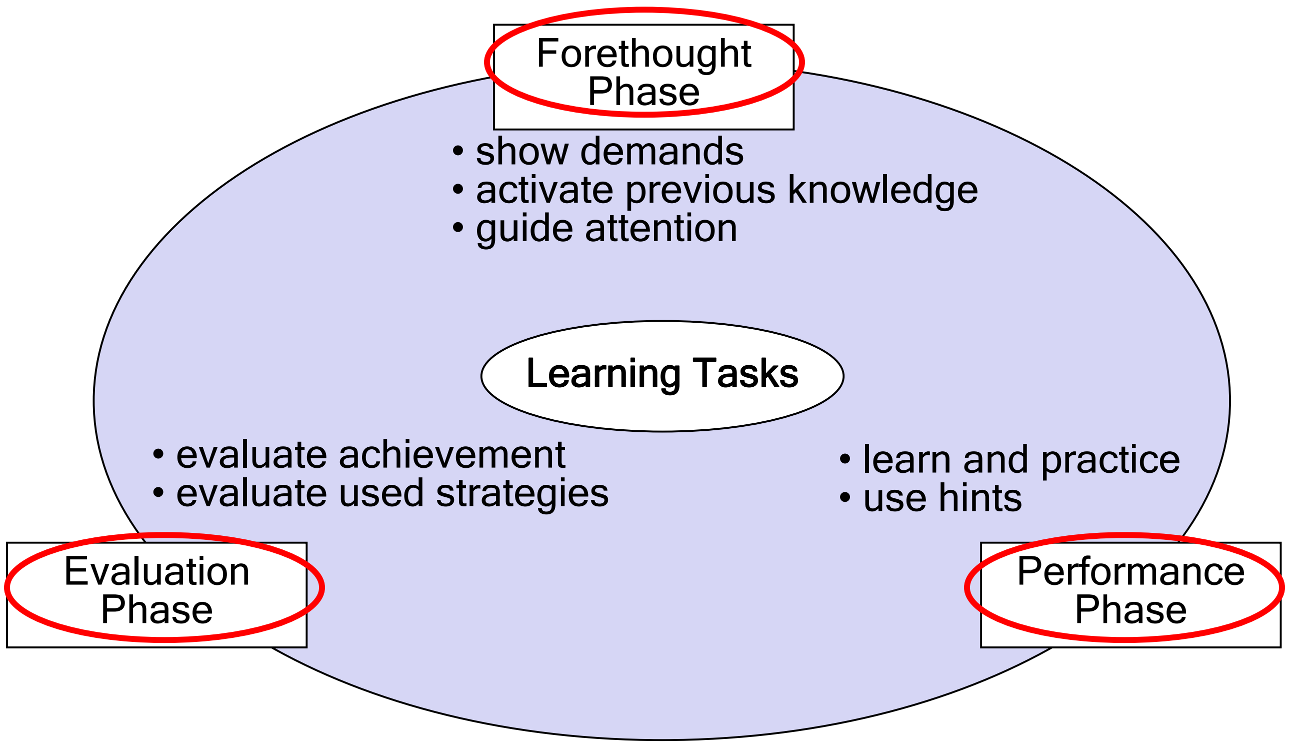


Interactive Learning Tasks and SRL

Interactive Learning tasks in CBLEs can facilitate :

- the learner‘s retention and understanding of learning material
- the learner‘s knowledge organization and application
- the learner‘s assessment of his progress of knowledge and skill acquisition

Interactive Learning tasks and SRL (Körndle, Narciss & Proske, 2004). :



Purpose of the Study

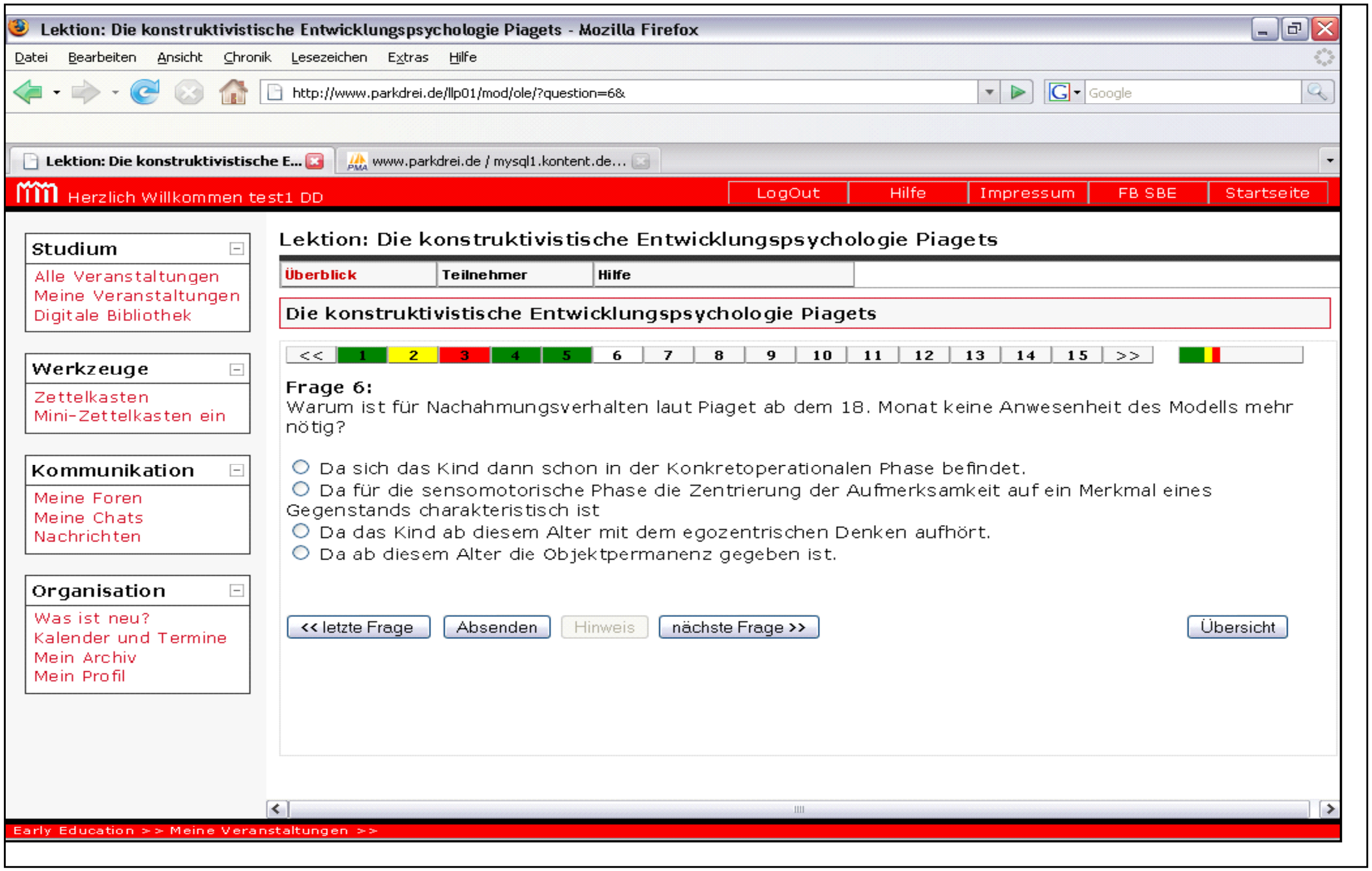
- Investigate the effects of interactive learning tasks on learners‘ achievement in acquiring scientific concepts
- Gain information about how interactive learning tasks support the process of self-regulated learning.

Method

- **Sample:** 20 university students (University of Applied Science Neubrandenburg, Germany)
- **Instructional context:** Early education, scientific concepts (e.g. Piaget‘s stages of cognitive development)
- **Instructional scenario:** Blended learning class, students were supposed to study relevant texts at home to prepare for the following presence class
- **Procedure:** 4 months, 6 presence classes and self-regulated learning phases

Material

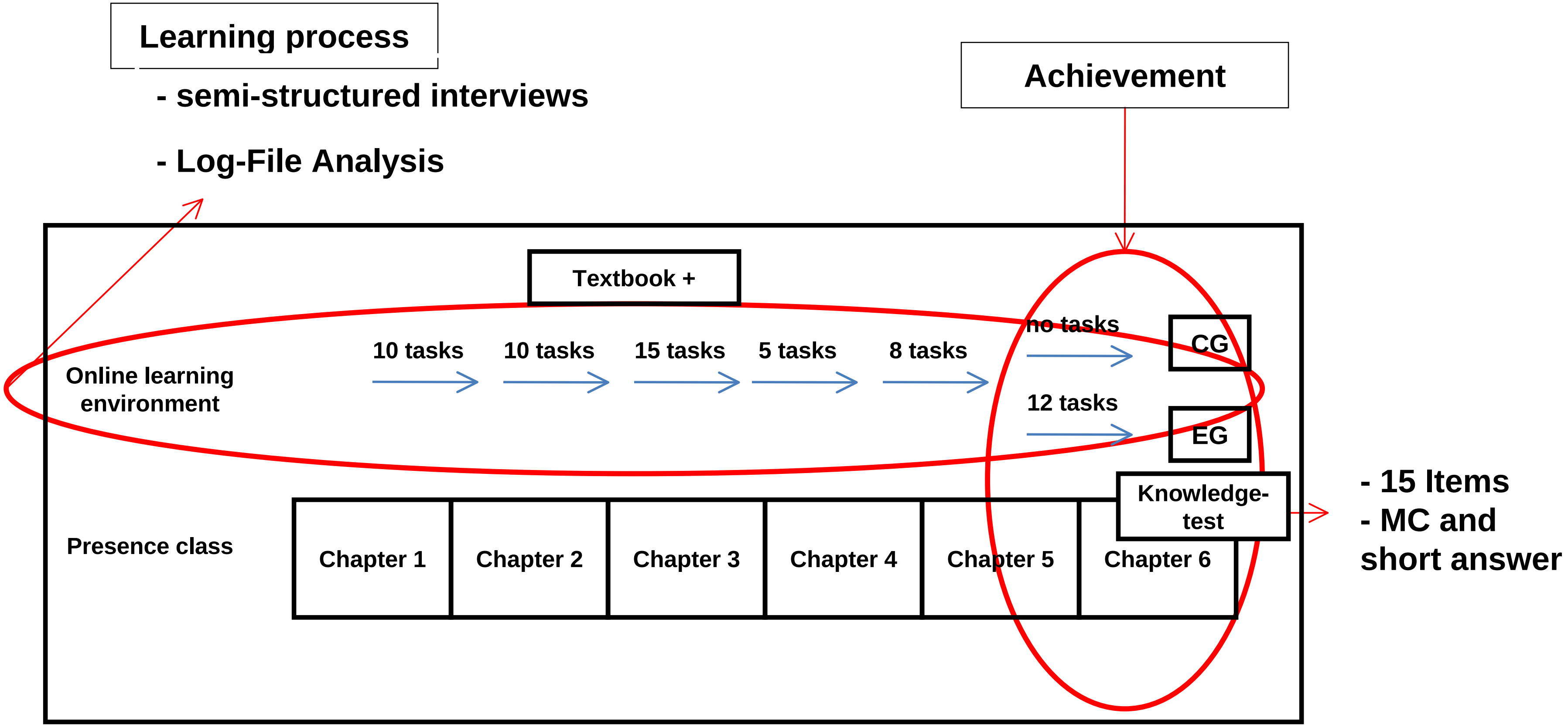
Learning Management System (University of Applied Science Neubrandenburg):



Material

Interactive Learning Tasks:

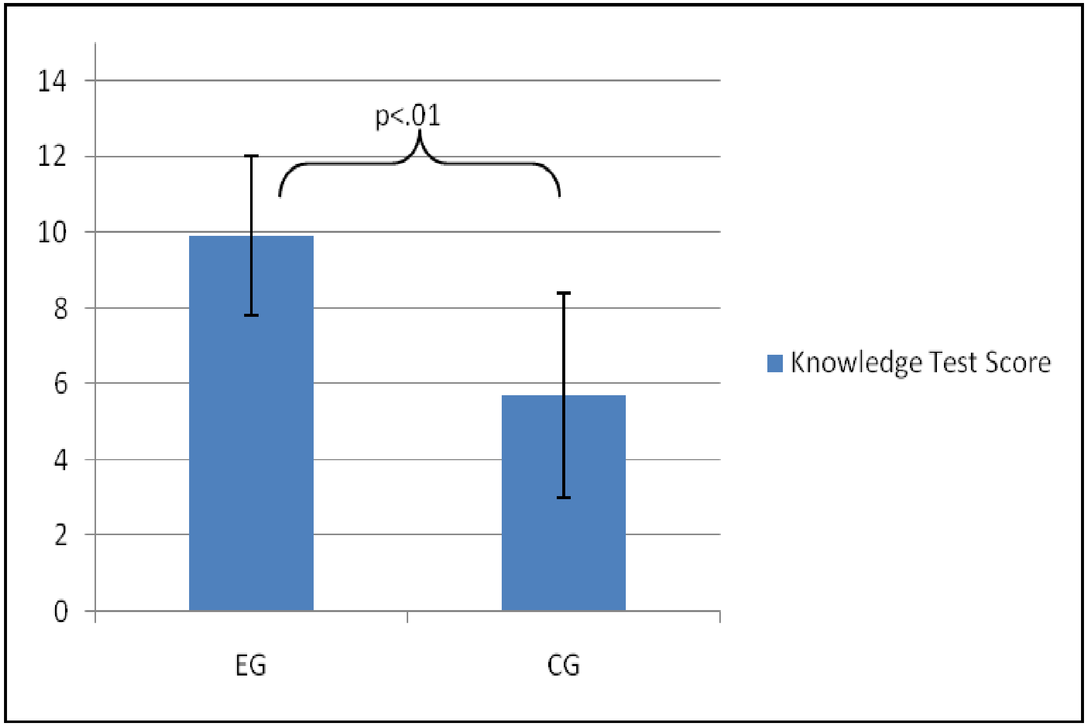
Procedure


Learning process
- semi-structured interviews
- Log-File Analysis
Achievement
Textbook +
Online learning environment
10 tasks
10 tasks
15 tasks
5 tasks
8 tasks
no tasks
CG
12 tasks
EG
Knowledge-test
Presence class
Chapter 1
Chapter 2
Chapter 3
Chapter 4
Chapter 5
Chapter 6
- 15 Items
- MC and short answer

Results

Learning achievement:

- 14 students worked on the knowledge test in the evaluation session



The experimental group (n = 8, *M* = 9.9, *SD* = 2.1) showed a significant higher achievement ($t(14) = -3.27$, $p<.01$, $d = 1.54$) than the control group (n = 6, *M* = 5.7, *SD* = 2.7).

Results

Learning process:

Log files:

Evaluation session:

- Mean working time for set of 12 tasks: 12.1 min
- Interactive learning tasks solved correctly: 6.7 out of 12

All sessions:

- Average working time on learning tasks: 53 minutes
- Three students did not use the learning tasks
- Several students worked twice on single sections
- Hints were hardly used (only 5%).

Results

Psychologie des Lehrens und Lernens

Learning process:

Interviews:

- Several students of the EG had read the text twice - once before working on the tasks and once after getting the feedback from the interactive learning tasks.
- Students stated that working on the 12 tasks was done in relative short time.
- Benefited from the offer
- Some students of the control group reported that they only glanced over the text.
- The teacher realized that students this semester were better prepared (concerning all six presence sessions).

Conclusion

- A higher achievement of students uses learning tasks while studying texts.
- Results suggest that achievements are based on feedback on the learning process provided by the learning tasks as well as active processing of the information while working on the tasks.
- Further research on interactive learning tasks should address in more detail the cognitive and motivational functions in self-regulated learning, which can be supported by providing such tasks.

Thank You for Your attention!

References

Artelt, C., Demmrich, A. & Baumert, J. (2001). Selbstreguliertes Lernen. In J. Baumert, E. Klieme, M. Neubrand, M. Prenzel, U. Schiefele, W. Schneider, P. Stanat, K.-J. Tillmann & M. Weiß (Hrsg.), *PISA 2000. Basiskompetenzen von Schülerinnen und Schülern im internationalen Vergleich* (S. 271-298). Opladen: Leske + Budrich.

Hamaker, C. (1986). The effects of adjunct questions on prose learning. *Review of Educational Research, 56,* 212-242.

Klauer, K. (1987). *Kriteriumsorientierte Tests.* Göttingen.: Hogrefe.

Körndle, H., Narciss, S. & Proske, A. (2004). Konstruktion interaktiver Lernaufgaben für die universitäre Lehre. In D. Carstensen & B. Barrios (Hrsg.), *Campus 2004. Kommen die digitalen Medien an den Hochschulen in die Jahre?* (S. 57-67). Münster: Waxmann.

Narciss, S. (2007). Feedback strategies for interactive learning tasks. In J.M. Spector, M.D. Merrill, J.J.G. van Merrienboer, & M.P. Driscoll (Eds.), *Handbook of Research on Educational Communications and Technology (3rd ed., pp. 125-144).* Mahaw, NJ: Lawrence Erlbaum Associates.

Narciss, S. (2006). *Informatives tutorielles Feedback. Entwicklungs- und Evaluationsprinzipien auf der Basis instruktionspsychologischer Erkenntnisse.* Reihe Pädagogische Psychologie und Entwicklungspsychologie (Band 56). Münster: Waxmann.

Narciss, S., Proske, A., & Körndle, H. (2007). Promoting self-regulated learning in web-based learning environments. *Computers in Human Behavior, 23*(3), 1126-1144.

Zimmerman, B.J.& Campillo, M. (2003): Motivating self-regulated problem solvers. In: Davidson, J.E.& Sternberg, R.J. (Eds.): *The nature of problem solving.* New York: Cambridge University Press

Promoting Self-Regulated eLearning through Prompts

Maria BANNERT
Chemnitz University of Technology
Educational Media (Germany)

Abstract

Research in the field of self-regulated learning reveals that many learners have difficulties in performing strategic and metacognitive activities, such as analyzing, planning, monitoring, and evaluating, in effect resulting in lower learning outcomes. Hence, the key purpose of this research is to find appropriate scaffolding for metacognitive reflection when learning with modern computer-based learning environments. It is assumed that prompting students for metacognitive reflection will affect the learning process by engaging students in more metacognitive behavior leading to better learning performance. Design and major results from three experiments where students of the experimental groups were supported by different metacognitive prompting measure are described. The results of learning processes and outcomes confirm the positive effects of all three support measures. However, their specific influence varies significantly in size. Implications for the design of metacognitive support to improve self-regulated e-learning are discussed.

PÄDAGOGIK elearning + neue medien

TECHNISCHE UNIVERSITÄT CHEMNITZ

Promoting Self-Regulated eLearning through Prompts

Maria Bannert

Educational Media
Chemnitz University of Technology, Germany

Overview

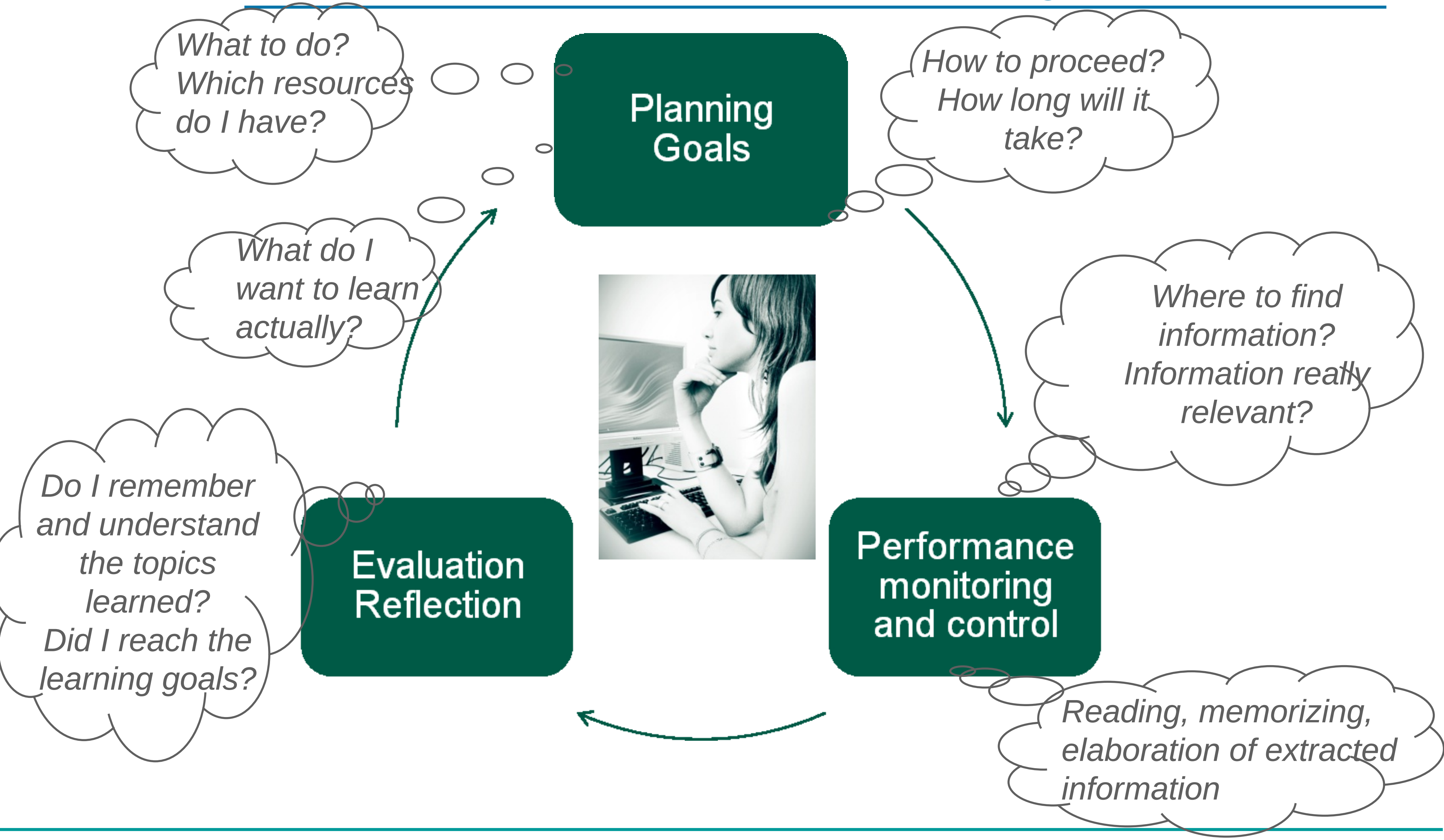
- Self-Regulated Learning
- Metacognitive Prompting
- Experiments: Procedure and Main Results
- Summary and Conclusions

Self-Regulated Learning

Planning Goals → **Performance monitoring and control** → **Evaluation Reflection** → **Planning Goals**

e.g. Albert et al. 2009,
Azevedo, 2009
Benz & Schmitz, 2008
Boekarts et al, 2000
Pintrich, 2000
Narciss & Körndle, 2007
Winne, 1996
Zimmerman, 2002

Metacognitive Activities



Metacognitive Prompting (Bannert, 2009)

- Prompts stimulate and support students' metacognitive reflection, e.g. by prompting students
  - to give reasons for their actions
    (e.g. Lin & Lehman, 1999; Bodvarsson, 2005)
  - to generate hypotheses
    (e.g. Veenman, 1993; Thillmann et al, in press)
  - to practise with certain learning questions / techniques
    (e.g. Ge et al, 2005; Kaufmann et al, 2008)

Experimental Studies

Exp. 1	EG = Reflection Prompts (n=24) CG = without (n=22)
Exp. 2	EG = Metacognitive Prompts (n=20) CG = without (n=20)
Exp. 3	EG = Training + Metacognitive Prompts (n=20) CG = without (n=20)

3.3.6.3 Verstärkungspläne: Intervall- und Quotenpläne

Verstärkung kann nach verschiedenen Plänen stattfinden. Man unterscheidet in Intervall- und Quotenpläne sowie in *kontinuierliche* und *intermittierende Verstärkung*. Das unten abgebildete Schema zeigt die sich daraus ergebenden vier Verstärkungspläne.

	Intervallplan	Quotenplan
kontinuierlich	fester Intervallplan	fester Quotenplan
intermittierend	variable Intervallplan	variabler Quotenplan

Beim *Intervallplan* erfolgt die Verstärkung *zeitbezogen*. Beim festen Intervallplan erfolgt die Verstärkung in festen Zeitabständen (Beispiel: Quartalszeugnisse in der Schule). Beim variablen Intervallplan erfolgt die Verstärkung in variablen Zeitabständen (Beispiel: Geschwindigkeitskontrollen der Polizei).

Beim *Quotenplan* erfolgt die Verstärkung *verhaltensbezogen*. Beim festen Quotenplan erfolgt die Verstärkung nach einer bestimmten Zahl von Reaktionen (Beispiel: "Wenn ihr 10 Aufgaben gelöst habt, dürft ihr 5 Minuten Pause machen."). Beim variablen Quotenplan erfolgt sie nach einer variablen Zahl von Reaktionen (Beispiel: Man wird nicht immer aufgerufen wenn man sich im Unterricht meldet, sondern ab und zu).

Aus den Überlegungen zu Intervall- und Quotenplänen ergeben sich einige praktische Konsequenzen zu der Häufigkeit der Verstärkung .

Reflection Prompts

In Experiment 1:

- Students (EG) were prompted
  at each navigation step in a hypermedia system
  to give reasons why they choose this specific node

- Why do you choose this node?
  Please say out loud all reasons for this node selection.

Reasons for Node Selection - Examples

adequate strategic reasons

"to get an overview"

"to get an example"

"to deepen my understanding"

"to repeat"

"to check my understanding"

„because I don't know where to go"

„I don't know"

„to go back"

inadequate strategic reasons

„because I am interested in this topic"

and other

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Datei Bearbeiten Ansicht Favoriten Extras ?

Zurück Suchen Favoriten Medien

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3.3.6.3 Verstärkungspläne: Intervall- und Quotenpläne

Verstärkung kann nach verschiedenen Plänen stattfinden. Man unterscheidet in Intervall- und Quotenpläne sowie in *kontinuierliche* und *intermittierende Verstärkung*. Das unten abgebildete Schema zeigt die sich daraus ergebenden vier Verstärkungspläne.

	Intervallplan	Quotenplan
kontinuierlich	fester Intervallplan	fester Quotenplan

Before you start the actual learning we will provide some learning aids, which you can use to help yourself prepare. Please flip the yellow sheet and follow the instructions before you start.

OK

… Verstärkung in festen … lgt die Verstärkung in

… t die Verstärkung nach einer … inuten Pause machen."). Beim variablen Quotenplan erfolgt sie nach einer variablen Zahl von Reaktionen (Beispiel: Man wird nicht immer aufgerufen wenn man sich im Unterricht meldet, sondern ab und zu).

Aus den Überlegungen zu Intervall- und Quotenplänen ergeben sich einige praktische Konsequenzen zu der Häufigkeit der Verstärkung .

Arbeitsplatz

Design of Metacognitive Prompts

❶ At the beginning of learning :

- Orientation
- Goal Specification
- Planning

For example
- glancing at task and material
- writing down sub-/goals
- planning ongoing procedure (time and sequence)

❷ During learning :

- Search and Judgement of Information
- Elaboration
- Monitoring/Regulation

For example
- use menu and index
- judge relevance
- test comprehension
- check plan

❸ At the end of learning :

- Evaluation

For example
- make a summary
- check learning goals

Research Questions

Does metacognitive prompting

- … influence the **learning process** ?
  (by engaging students in more metacognitive behaviour?)
- … increase **learning performance** ?
- Are there **individual differences** ?
  (prior knowledge, cognitive ability, metacognition, motivation, self efficacy)

Design and Procedure

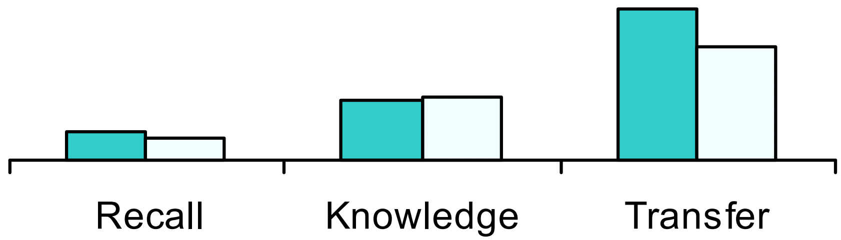
Lerner's Prerequisites				
Prior Knowledge Verbal Intelligence Metacognition Motivation Self Efficacy	**EG:**	**Introduction** Hypermedia + Metacognitive Prompts	**Learning with Metacognitive Prompts** Videotaped	**Learning Outcome** Recall Knowledge Transfer
	CG:	**Introduction** Hypermedia	**Learning without Metacognitive Prompts** Videotaped	**Learning Outcome** Recall Knowledge Transfer
1 week before		Individual sessions lasting 1.5 – 2 hours		

Exp. 1 = 46 University students (Psychology, Education); age = 24.3 (5.2); female = 84.8 %
Exp. 2 = 40 age = 22.1 (3.3); female = 67.5 %
Exp. 3 = 40 age = 23.0 (3.6); female = 72.5 %

Learning Performance

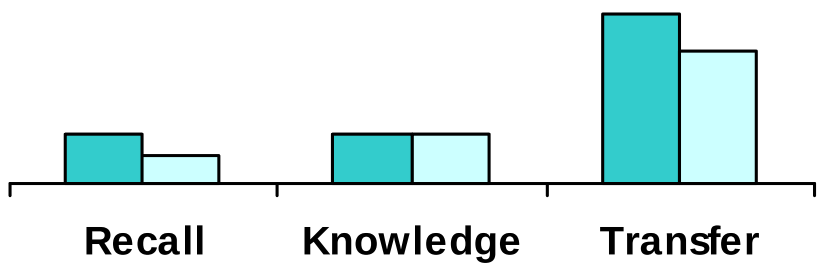
EG = with prompts
CG = without

Exp 1:
reflection prompts



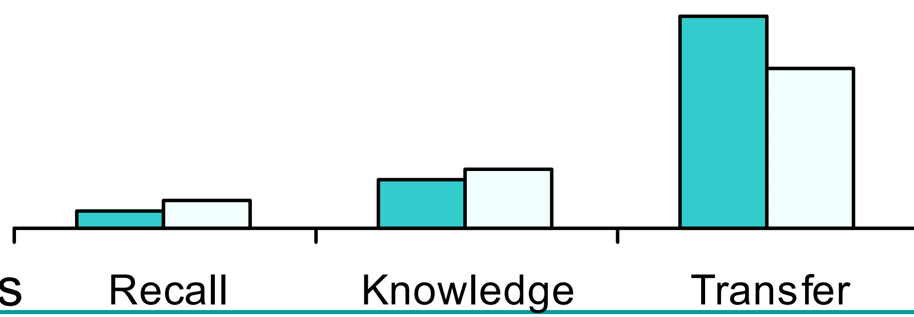
p=.03, d=.54

Exp 2:
metacognitive prompts



p=.07, d=.43

Exp 3:
training +
metacognitive prompts



p=.03, d=.58

Summary

- **Learning Process**: more metacognitive activities

- **Learning Performance**:
  - Significant effect on transfer performance
    - Exp.1: reflection prompts, $d = 0.54$
    - Exp.2: metacognitive prompts, $d = 0.43$
    - Exp.3: training + metacognitive prompts, $d = 0.58$

- **Compliance with Support**:
  even greater effects: $1.09 < d < 1.93$!

Conclusions

- Greater effect sizes
  - **more complex** learning environment
  - **long-term** interventions / follow up
  - **adaptive prompts**, e.g. metacognitive avatars

- Need for **scaffolding** student's **metacognitive activities** and **self-regulated elearning**

Thank you for your Attention

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A Study for Exploration of Relationships between Behaviors and Mental States of Learners For an Automatic Estimation System

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Abstract: It is an important task to implement an e-learning system that can automatically detect changes of learners' mental states by observing their behaviors in learning activities. In this study, we conducted an experiment to explore relationships between mental states and behaviors of a learner on our experimental tools designed along with an assumption of a learning environment with an e-learning system. We focused on mouse and face movement as the behaviors. The results of the experiment revealed some features about the behaviors and the mental states.

Keywords: e-leaning system, automatic estimation, mental states, mouse tracking, face movements

Introduction

Current e-learning systems are classified into two types: synchronous and asynchronous systems. In the former systems, learners can learn anytime and anywhere without being under any time and spatial constraints. However, teachers cannot observe the learners' behaviors on the system to estimate their understanding. The latter systems allow teachers to observe learners, but such systems impose time constraint on the teachers and learners because they have to work simultaneously. Therefore, it is an important task to implement an asynchronous system that can automatically detect changes of the learners' mental states by observing their behaviors. Here, we call such a system an estimation system.

Several studies have addressed the implementation of an asynchronous e-learning system that estimates the learners' mental states, such as reaching an impasse in problem solving or impressions of problem difficulties perceived by learners. Ueno's estimation system has succeeded in detecting unusual states of learners by measuring response time required to solve each problem (Ueno, 2007). However, it cannot specify sources that cause unusual responses in problem solving processes because it is based on response time. An estimation system by Nakamura and his colleagues can detect sources of unusual behaviors based on learners' responses (Nakamura, Akamatsu, Kuwabara, & Tamaki, 2002). To detect the sources, it needs learning contents that embed particular materials, such as buttons to present hints. A system by Nakamura, Kakusyo and Mino (2007) judges whether or not learners find problems difficult based on behavioral data: eye and face movements acquired through a stereo-camera, and interval time among input operations on the system. Because the specific device stereo-camera is required, it may be difficult to actually adapt the system to practical e-learning environments.

In order to adapt an estimation system into ordinary e-learning environments, it should require no specific devices. In our previous study (Horiguchi, Kojima, & Matsui, 2008), we have proposed an estimation system that detects unusual behaviors during problem solving based on velocity of mouse movements. Although the system can specify sources of unusual behaviors in problems to some extent, we consider it needs further study to refine its model of the behavioral detection. According to the concept "no specific devices" described above, we conducted an experiment that examined relationships between behaviors and mental states of a learner in order to expand the detection model for implementation of a system that possesses a more accurate estimation.

A Study for Exploration of Relationships between Behaviors and Mental States of Learners for an Automatic Estimation System

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Waseda University, Japan

早稲田大学 人間科学研究科
Graduate School of Human Sciences, Waseda University

Agenda

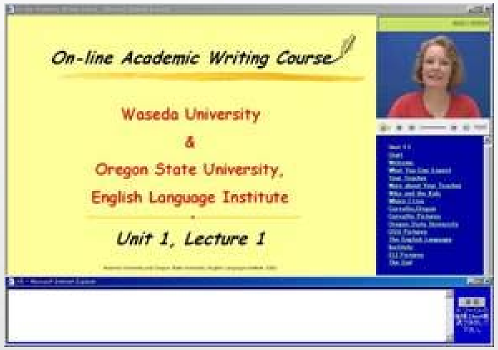
- 1. Introduction
- 2. Experiment 1
- 3. Experiment 1
    - Results & Discussions
- 4. Experiment 2
- 5. Experiment 2
    - Results & Discussions
- 6. Conclusions

1. Introduction

Current e-learning systems

Synchronous

Asynchronous



Current e-learning systems

Synchronous

Asynchronous

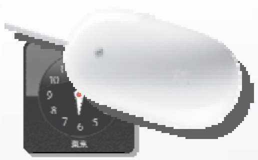
Estimation System

Automatically detects changes of learners' mental states by observing their behaviors.

Estimation systems to detect unusual behaviors

Using response time

Cannot specify sources that cause unusual responses
in problem solving processes

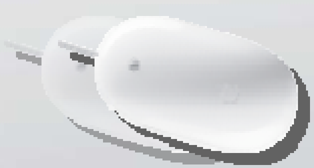


Based on a interval time between operations

Needs learning contents that embed particular materials,
such as buttons to present hints

Based on behavioral data and interval time among input operations

Needs a specific device



Based on velocities of mouse movements

Needs models for behavioral detection

Concept

- Real Time Estimation
- No Specific Operations
- No Specific Devices

Purpose of the current study

Examine relationships between behaviors
and mental states
of a learner in order to expand the
detection model.

2. Experiment 1

Purpose

To examine relationships between behaviors and mental states of a learner

Collected with experimental tools

Obtained from the learner's protocol data

Learning Contents

Answering a question with multiple choices

Mouse pointers tracks depend on representation of learning contents, such as textual sentences or figures [Horiguchi et al. 2008]

- Reading English sentences (only textual sentences)
- No scroll operation
- No keybord operation
- Only mouse operation

Behavioral Data of Learner

Estimation of learners' impressions of problem difficulties based on terminal features and facial features
[Nakamura et al. 2007]

Mouse Data

Face Data

Laptop computer with a embedded
web camera

Behavioral Data of Learner

Mouse Data

- Positions {x, y}
- States of a mouse button (on, off)

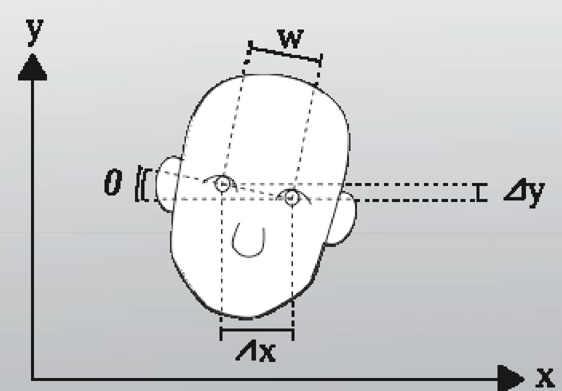
Sampling-rate：60Hz

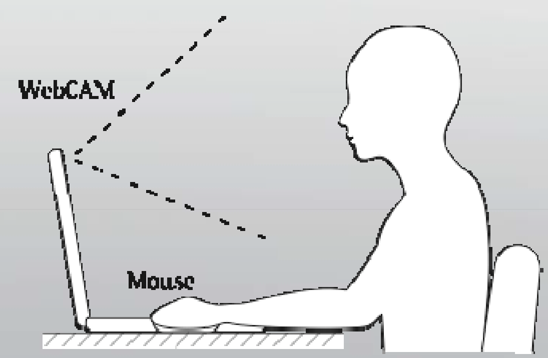
Face Data

- Positions {x, y}
- Inclination of face within {θ}
- Distance between face and monitor {w}

Sampling-rate：5〜7Hz

~~Used~~ OpenCV
for the web camera image analysis





Mental State Data of Learner

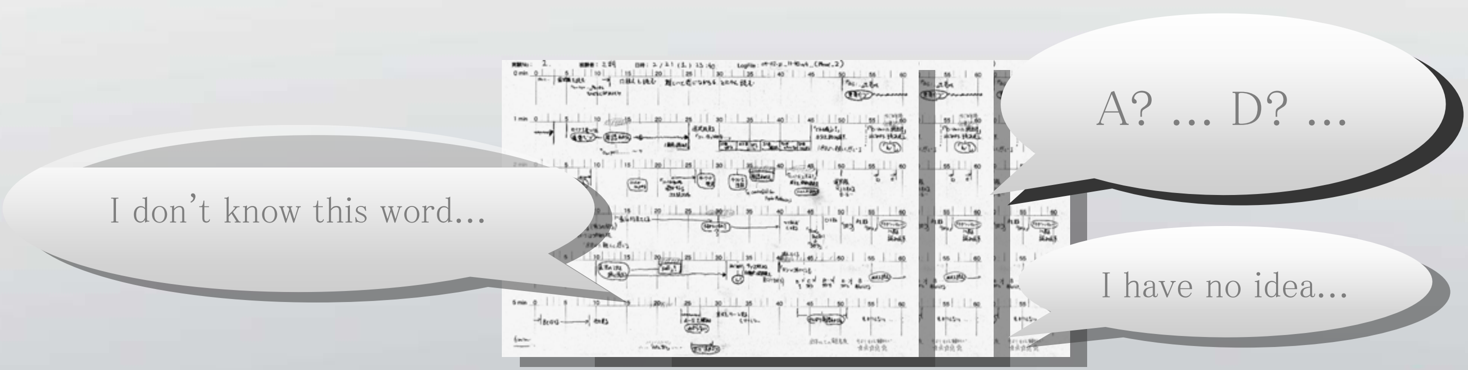
Step. 1 Problem solving with learning interface

Think aloud

Step. 2 Answering interview

Retrospective report

Step. 3 Making a sheet of mental change



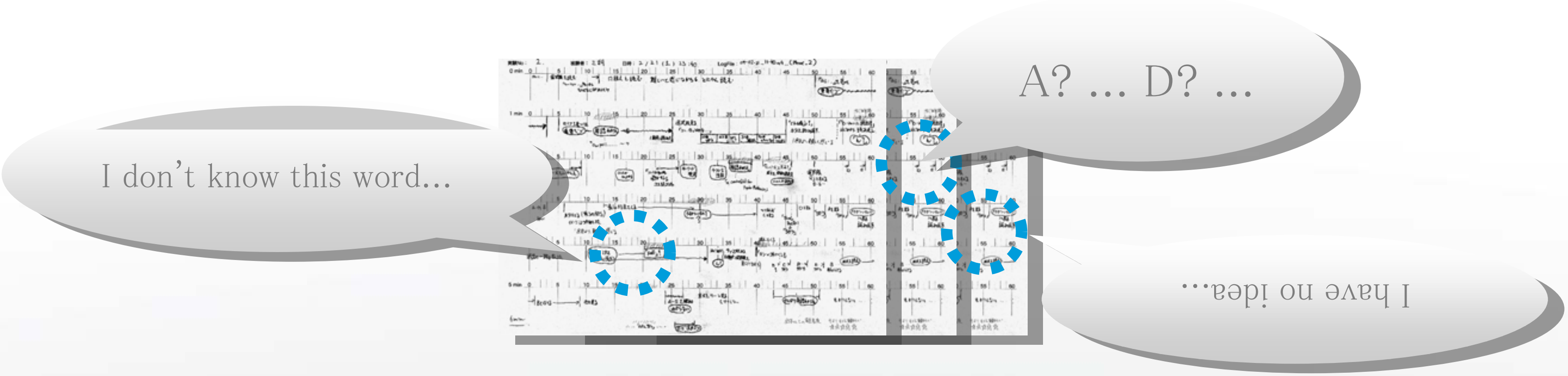
3. Experiment 1 Results & Discussions

Experiment Information

1 Lerner 4 Trials*
(4 training trials)

* 1 of 4 was abandoned because the learner was exhausted

Classifications of the Mental States

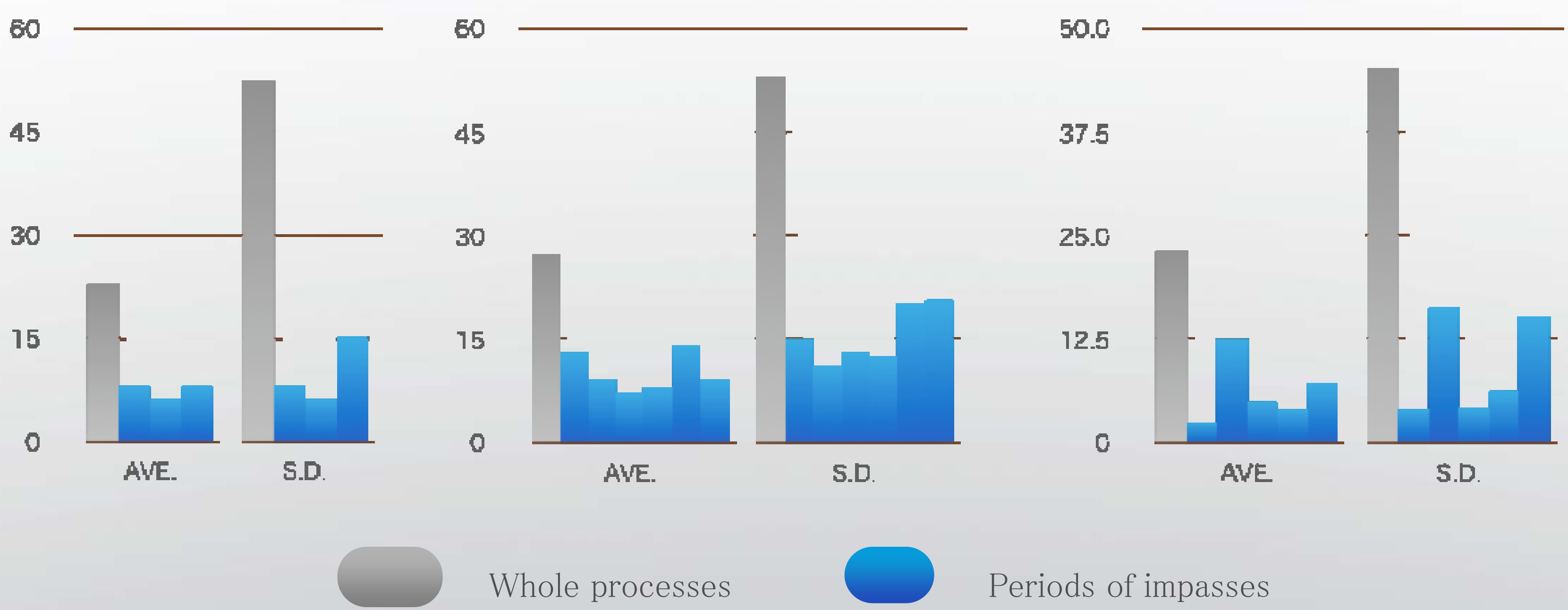


...14 periods in 3 trials

Periods of impasses (get stacked)

A Relationship between Speeds of Mouse Movements and Impasses

1. Speeds of mouse movements were slower in periods of impasses.



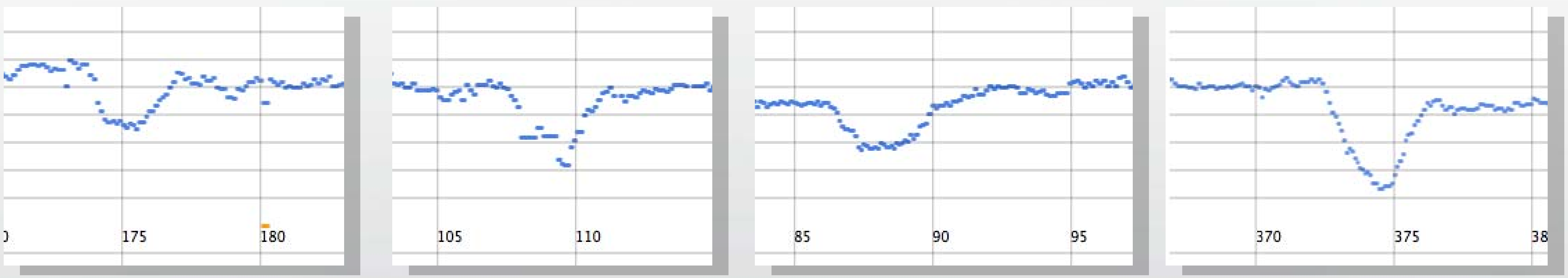
Features of Mouse Tracking

2. Words or sentences the mouse pointed consistent with those the learner reported as sources of the impasses

In all 14 periods of impasses

A Relationship between Hesitations and Face Movements

3. The learner's face kept away from the monitor in periods of impasses

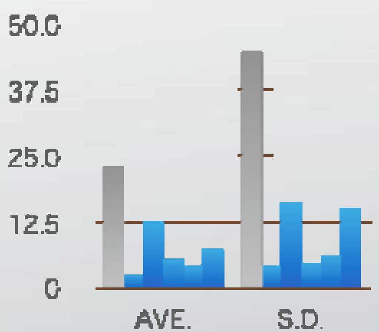


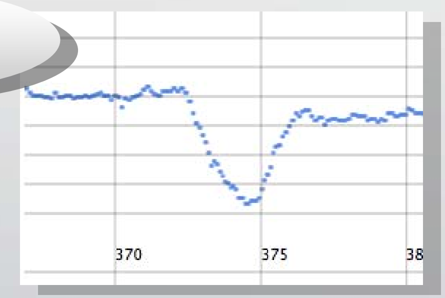
Conclusions

1. Speeds of mouse movements were slow in periods of impasses.

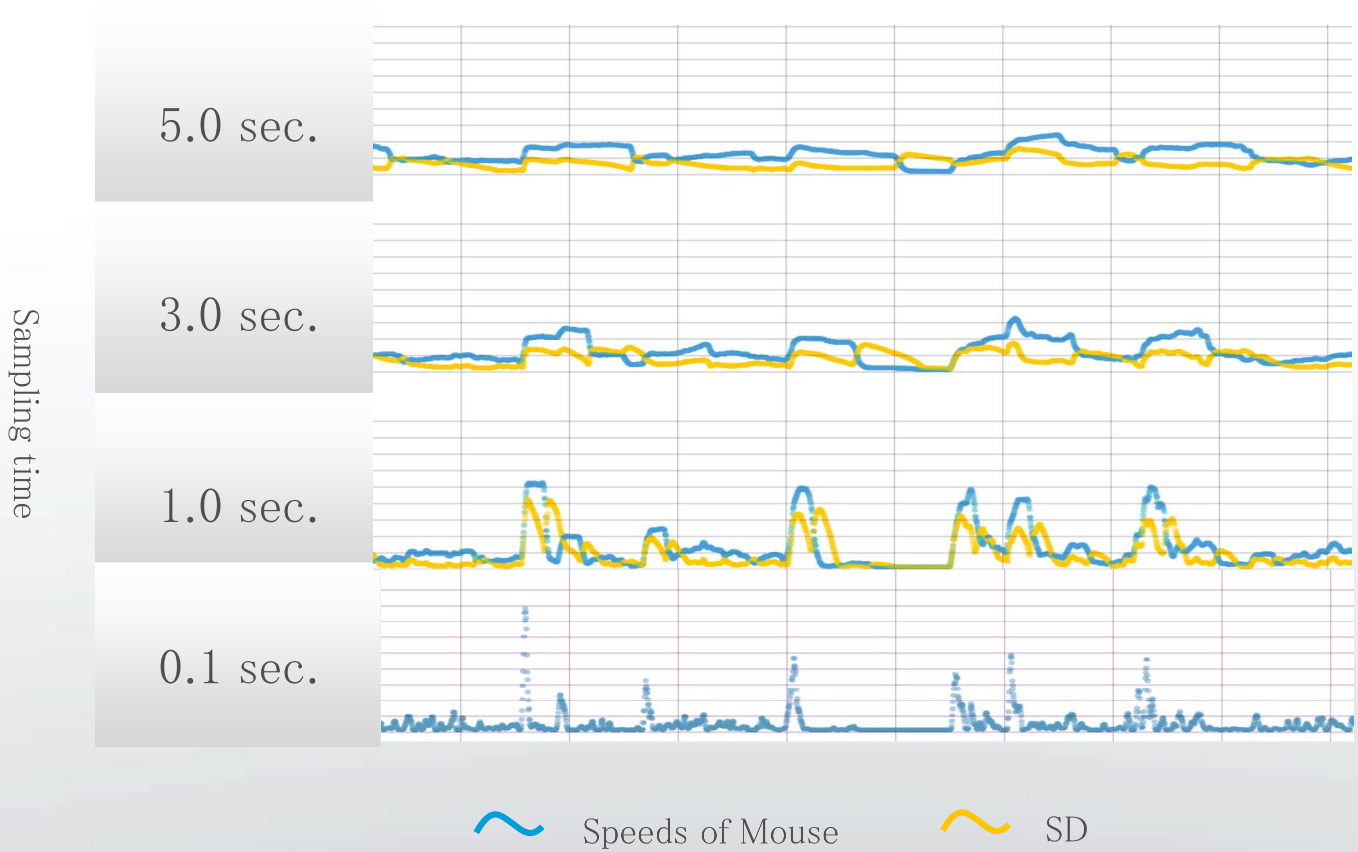
2. Words or sentences the mouse pointed consistent with those the learner reported as sources of the impasses

3. The learner's face kept away from the monitor in the periods of impasses





Sampling Time for Computing Mouse Speeds



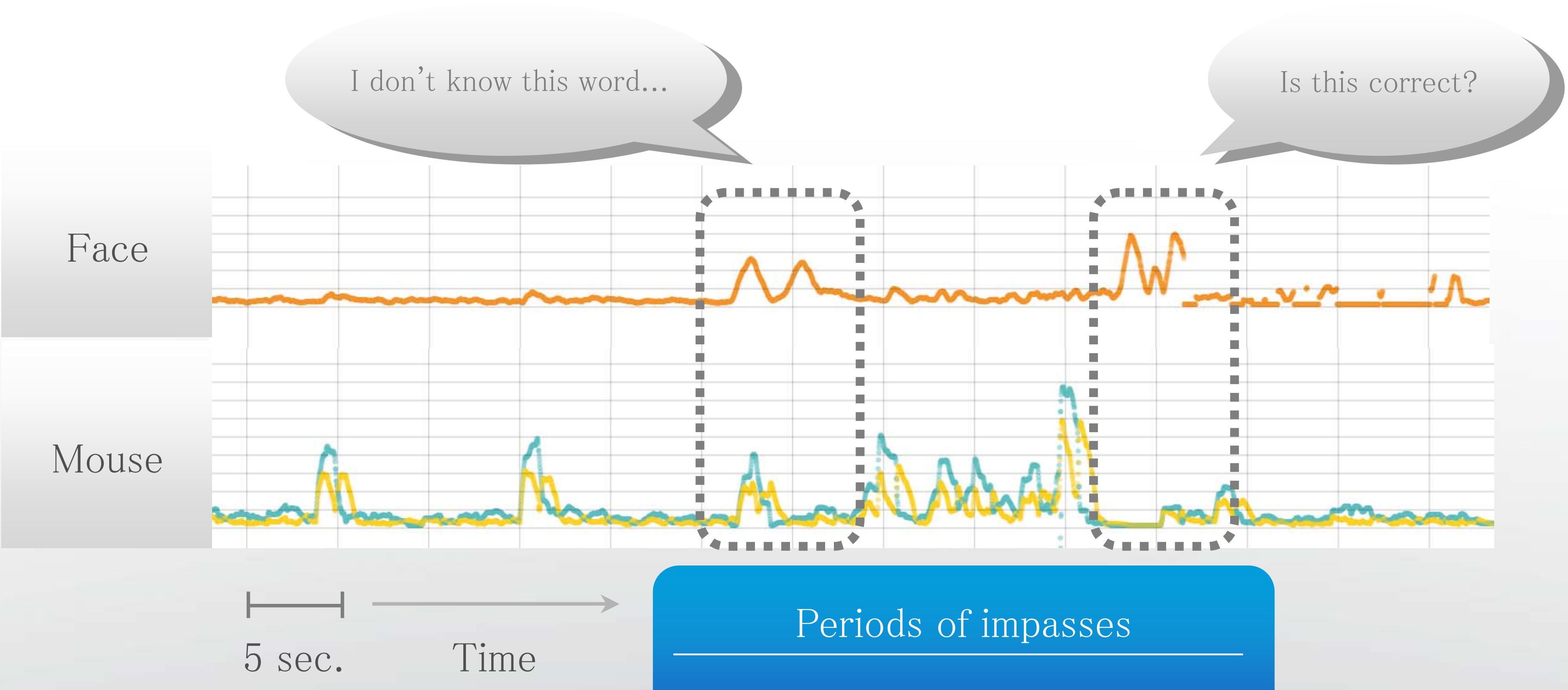
Most appropriate: 1.0 sec.

3. Experiment 1 Results & Discussions

Sampling Time for Computing of Speeds of Face Movements (away from the monitor)

Most appropriate: 0.5〜1.0 sec.

Features of Mouse Tracking & Face Movements



Periods of impasses

about 5〜10 sec.

Automatic Estimation Model

Detecting Changes of Speeds of Mouse Movements

⇒When the speeds are kept less than a threshold
over five consecutive seconds

&

Detecting Changes of Speeds of Face Movements

⇒When the speed is less than a threshold

Succeeded in detecting Periods of Impasses: 62%(9/14)

4. Experiment 2

Difference Between Experiment 1 and 2

Experiment 1

Learner was asked : **All mental states**

Simplified

Experiment 2

Learner was asked : **When finding impasse (Level of an impasse)**

Definition of Level of an Impasse

Level of an Impasse

Positive behaviors – In problem solving –	Negative behaviors – Not in problem solving –
Usualness ↓ Think ↓ Impasse (Stall)	Omission Tiredness Lapse in concentration Break etc…

5. Experiment 2 Results & Discussions

Experiment Information

1 Learner* 3 Trials
(2 Practices)

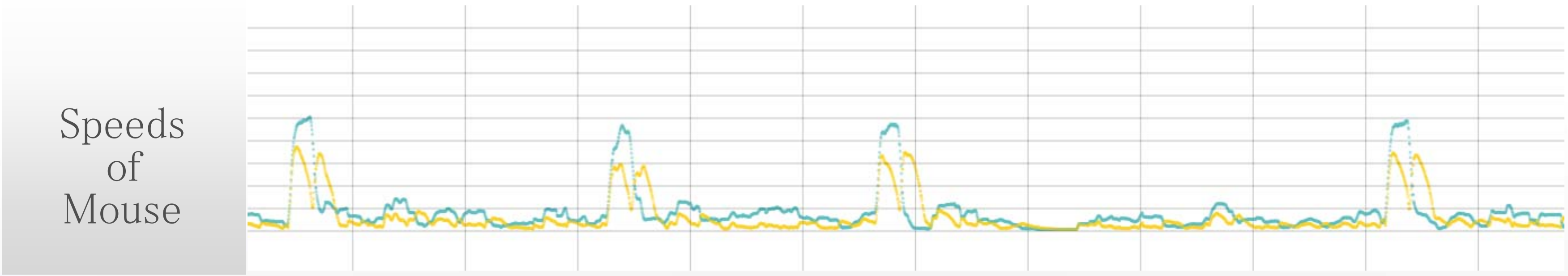
*Another learner

Levels of an Impasse Distribution

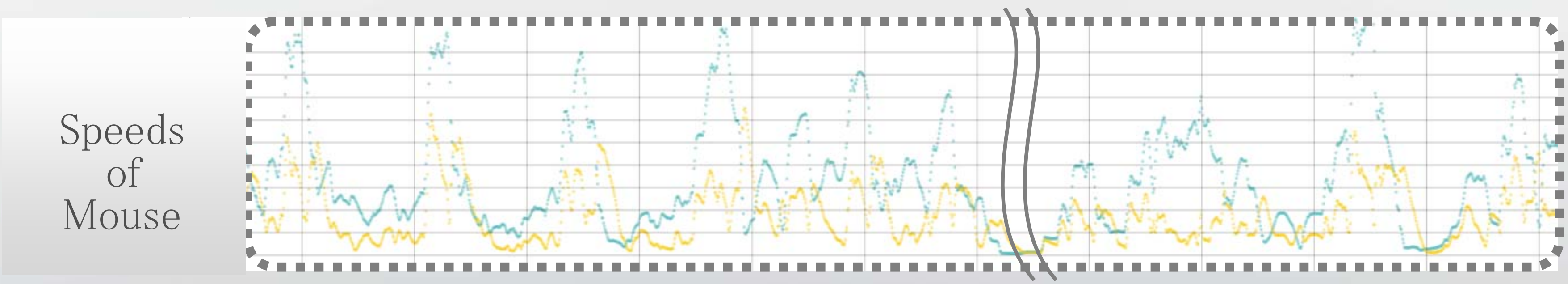
Usualness	
Think	5 periods in 3 trials (Ave. 25 sec.)
Impasse (Stall)	3 periods in 2 trials (Ave. 93 sec.)

Features of Speeds of Mouse Movements

Usualness



Impasse (Stall)

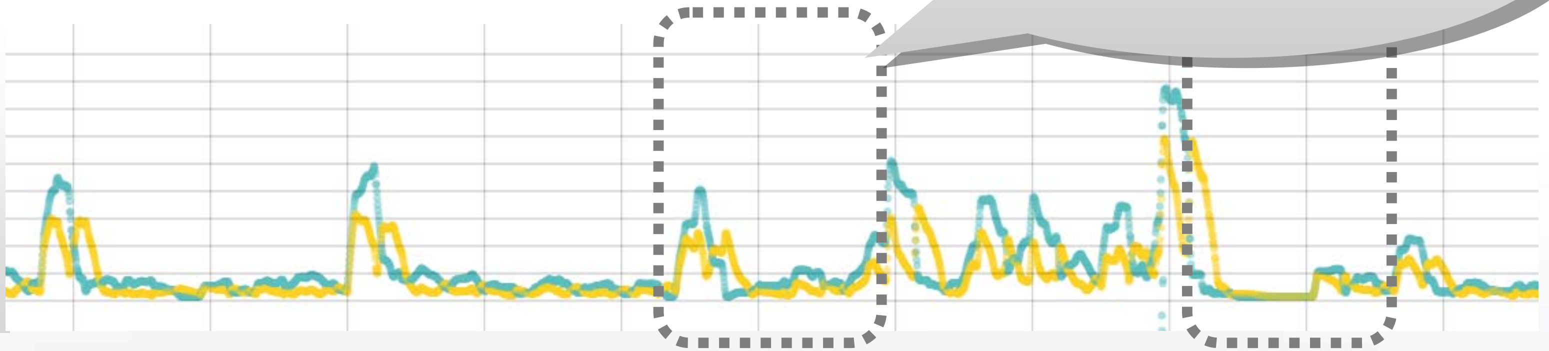


Period of impasse :145 sec.

Compare Experiment 1 with 2

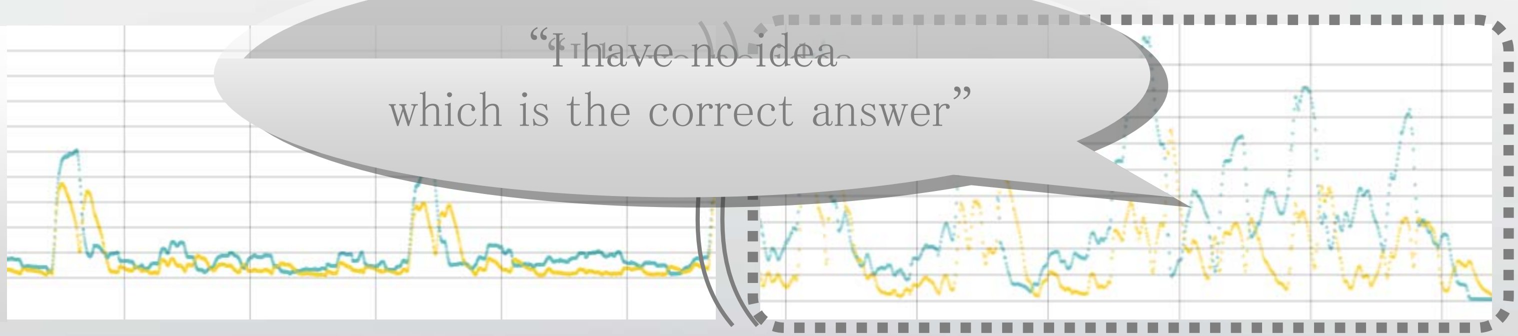
Experiment 1

Speeds of Mouse



Experiment 2

Speeds of Mouse

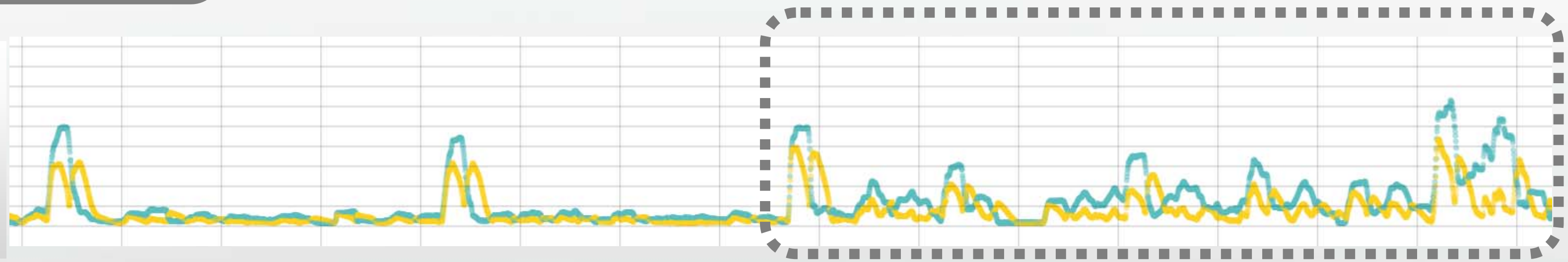


Compare Experiment 1 with 2

Behavior of comparison among choices
“A?…B?…..C?…”

Experiment 1

Speeds of Mouse

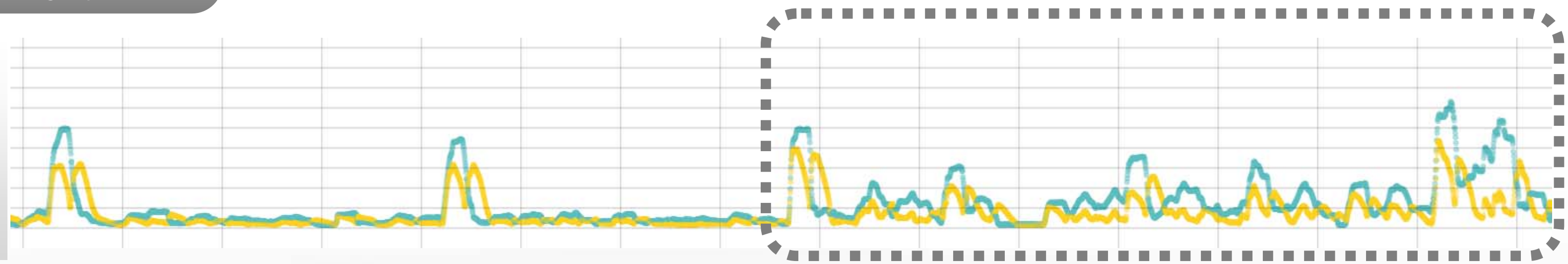


5. Experiment 2 Results & Discussions

Features of Speeds of Mouse Movements

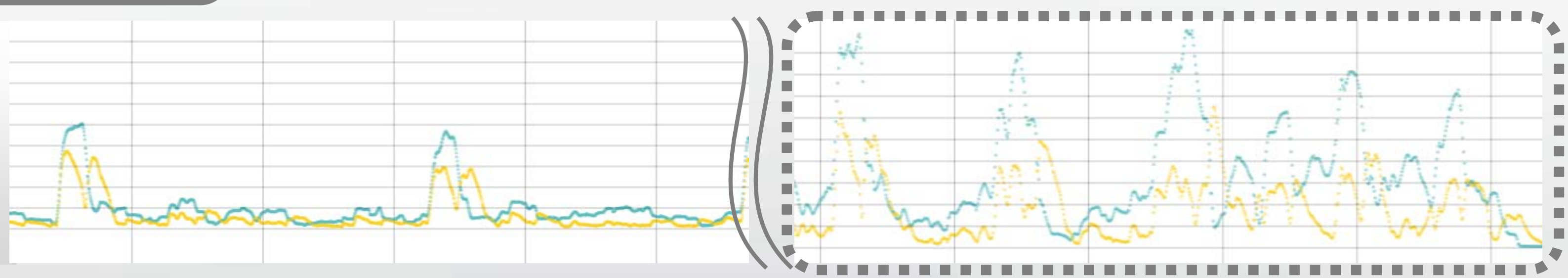
Experiment 1

Speeds of Mouse



Experiment 2

Speeds of Mouse

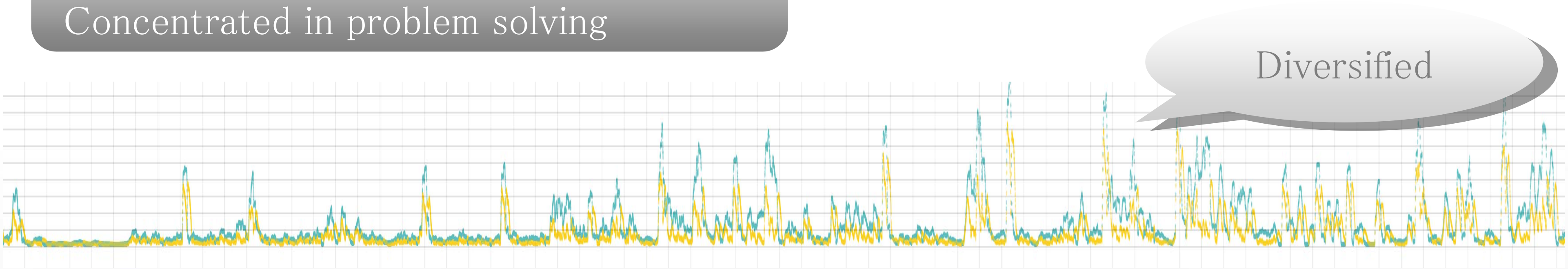


Behavior characteristic of comparison among choices

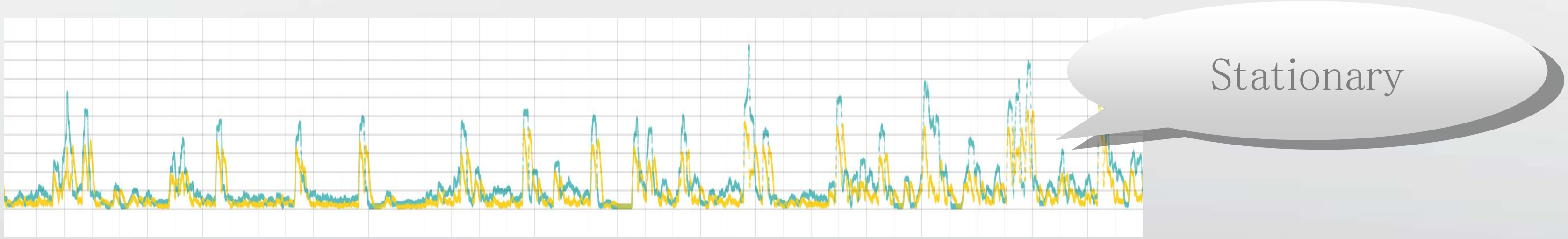
Can we find out periods of impasses from these patterns?

Supplementation (Pattern of Negative action)

Concentrated in problem solving



Lapse in concentration



6. Conclusions

Conclusions

Purpose

Examined relationships between behaviors and mental states of a learner in order to expand the detection model.

Results

➡Change speeds of mouse and face movements
Detect Periods of Impasses: 62%
➡Behavior characteristic of comparison among choices

Future

➡Can we estimate period of impasse with these patterns?

Future Work

Further experiments
with a number of learners

Establish estimation models

Method of detect behavior characteristic
⇒Using Bayes prediction

Implement Build an Estimation System

Immediately gives learners feedback
during problem solving

The Concepts of Competences and Self-Regulation in Teacher Training and Life Long Learning

Dietrich ALBERT
University of Graz & Graz University of Technology

For teaching as well as for (life long) learning the concept of competences is of inherent importance. (Action-)competences are the basis for adaptive, flexible, and situation-related behavior and problem solving, and they are necessary for handling unknown, new situations. Competences are not directly observable entities, which can be assessed by observing behavior and evaluating performance. A framework for modelling both competences and performances is the Competence-based Knowledge Space Theory (CbKST). A special type of competences and skills is required in self-regulated (life long) learning, which gives control of the individual learning process to the learner him- or herself. Self-regulated learning processes can be supported by appropriate software tools, which have been developed on the basis of CbKST within the iClass-project (EU-FP6-IP) by the Cognitive Science Section of the University of Graz.

Scaffolding Self-Regulated Learning on the World Wide Web

Bastian F. BENZ
Educational Psychology
University of Technology Darmstadt

Even though nowadays the World Wide Web is used for learning, originally it has not been created for this purpose. Hence, users are confronted with a very high degree of freedom when learning on the www. In order to foster the quality of the learning process, as well as the learning outcome, we created an extension of the Firefox web browser. Based on current models of self-regulated learning, eight processes, which have been defined as being crucial for learning on the www are supported in an indirect or direct way. The evaluation of the extension showed that fostering those eight crucial processes enhanced learners' involvement in goal setting activities and the definition of relevant learning goals before actually starting the search. Towards the end of the search reflection processes were enhanced. A positive effect on performance could be found for the easy questions of an achievement test. Direct support, which provides higher levels of support, was superior to indirect support. The next step of our research will be to optimize the support, which is provided during the action of searching in order to help learners to pursue previously set goals and thereby to reach higher gains in achievement measures.

Scaffolding Self-Regulated Learning on the World Wide Web

TECHNISCHE UNIVERSITÄT DARMSTADT

GRADUIERTENKOLLEG E-LEARNING

Dipl.-Psych. Bastian F. Benz
Prof. Dr. Bernhard Schmitz

Educational Psychology
University of Technology Darmstadt

M. Sc. Doreen Mann
Dipl.-Inf. Philipp Scholl
Dr. Christoph Rensing
Prof. Dr. Ralf Steinmetz

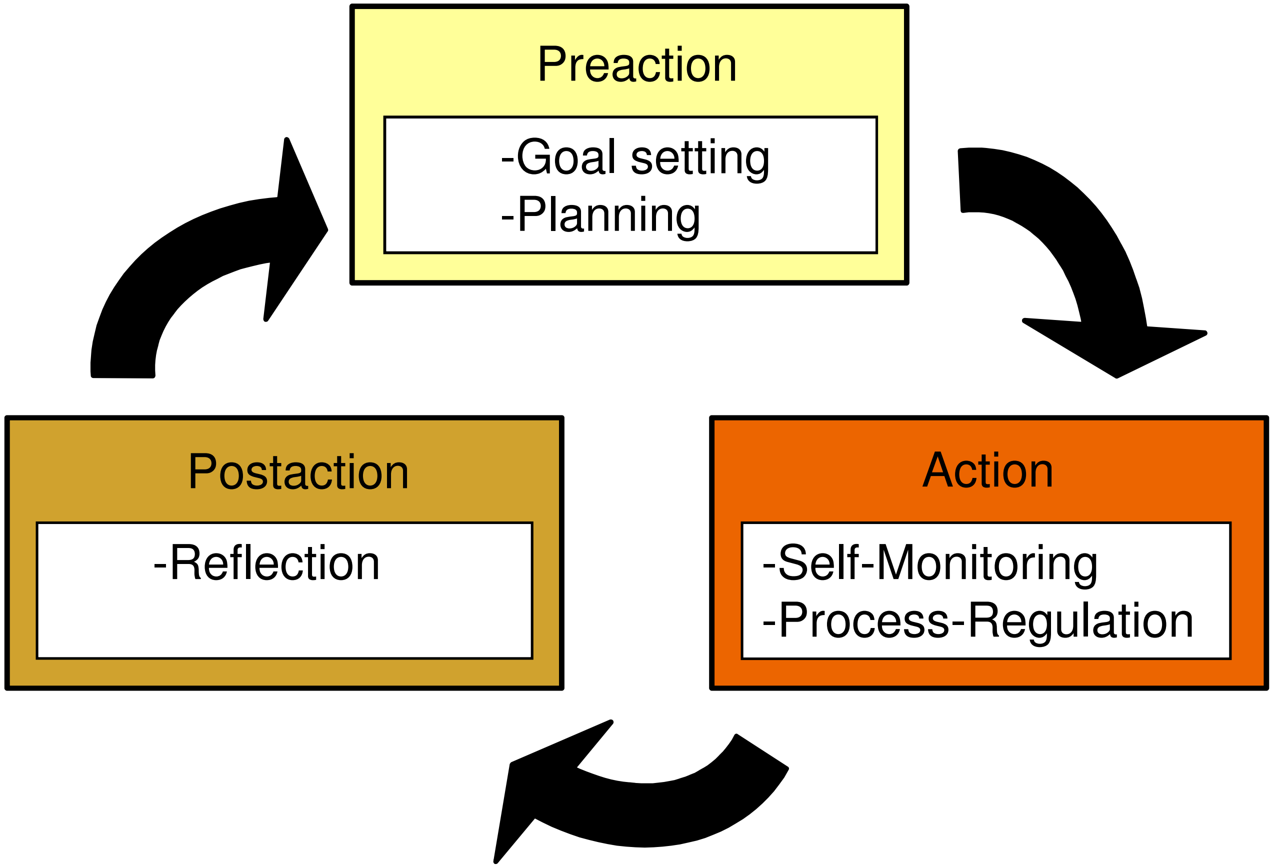
Multimedia Communications Lab
University of Technology Darmstadt

Learning on the World Wide Web

- The World Wide Web
  - Nonlinear & unstructured environment
  - Not designed for learning
- Learning on the World Wide Web
  - Learners are confronted with high degrees of freedom, e.g.
    - Navigate in the environment
    - Judge the trustworthiness of sources (epistemology)
    - Decide when to stop searching
    - Organize and learn findings

- Related research: Fostering learning within hypermedia environments
  - Azevedo and colleagues
    - Adaptive human scaffolding
  - Bannert and colleagues
    - Metacognitive prompts
  - Winne and colleagues
    - gStudy software

Which processes should be fostered?
Self-Regulated Learning – Metacognitive Processes



(Boekaerts, 1999; Pintrich, 2000; Schmitz & Wiese, 2006; Winne & Hadwin, 2008; Zimmerman, 2000)

Which processes should be fostered? Specifying crucial processes for the www!

Preaction -Goal setting -Planning	1. Identification of knowledge gaps 2. Goal oriented approach 3. Definition of relevant goals
Action -Self-Monitoring -Process-Regulation	4. Goal orientation during action 5. Finding relevant pages 6. Importing relevant information 7. Assigning relevant information to relevant goal
Postaction -Reflection	8. Learning relevant information

(9. Recall of relevant information)

How to foster processes?
Direct vs. Indirect Support

- Direct support
  - Instructing
  - Prompting

  → Low degree of freedom

- Indirect Support
  - Design of the learning environment
  - Providing functions

  → High degree of freedom

(Friedrich & Mandl, 1992)

Three Versions of ELWMS III

Supported processes	CG	EG1 - Indirect	EG2 - Direct
Identification of knowledge gaps	***Feedback on pretest***		
Goal oriented approach	Folder - Function		
Definition of relevant goals	-		
Goal orientation during action	-		
Finding relevant pages	-		
Importing relevant information	-		
Assigning relevant information to relevant goal	-		
Learning relevant information	***5 minute warning*** *Overview, knowledge net*		

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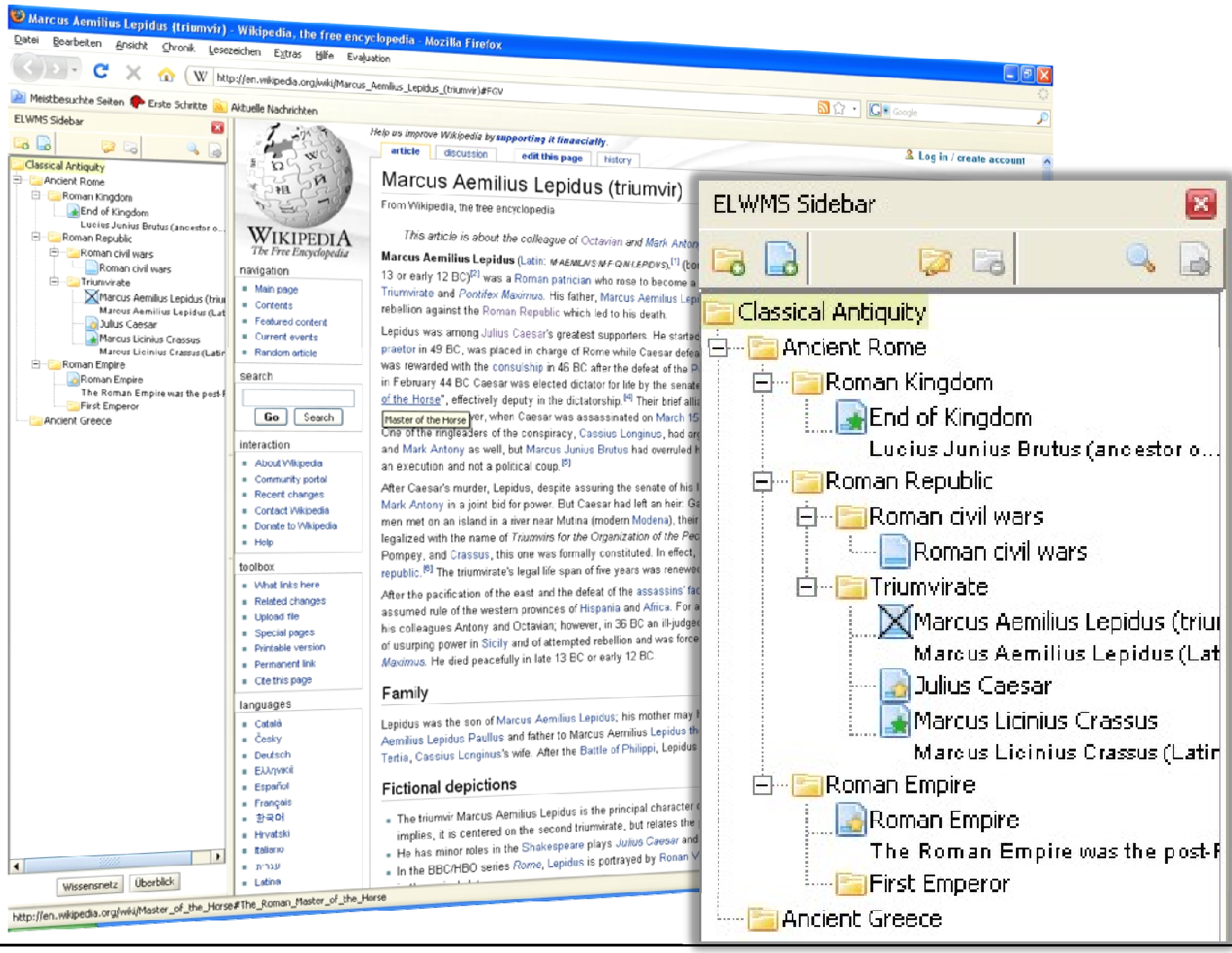
GRADUIERTENKOLLEG E-LEARNING

ELWMS-Sidebar – Version CG



Three Versions of ELWMS II

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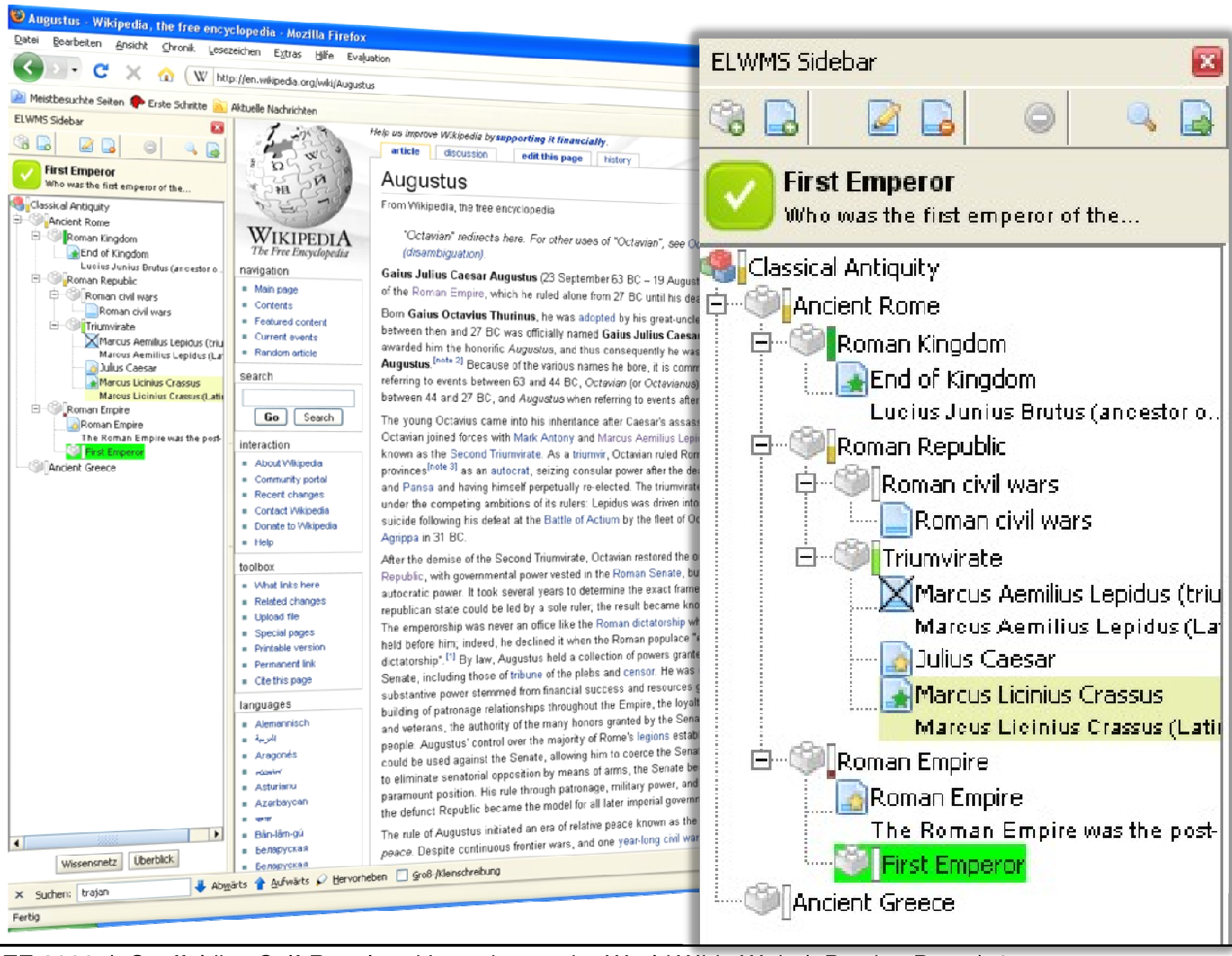
GRADUIERTENKOLLEG E-LEARNING

Supported processes	CG	EG1 - Indirect	EG2 - Direct
Identification of knowledge gaps	***Feedback on pretest***		
Goal oriented approach	Folder - Function	Goal-Function	
Definition of relevant goals	-	-	
Goal orientation during action	-	Goal-Activation - Function	
Finding relevant pages	-	-	
Importing relevant information	-	-	
Assigning relevant information to relevant goal	-	-	
Learning relevant information	***5 minute warning*** *Overview, knowledge net*	*Overview, knowledge net*	

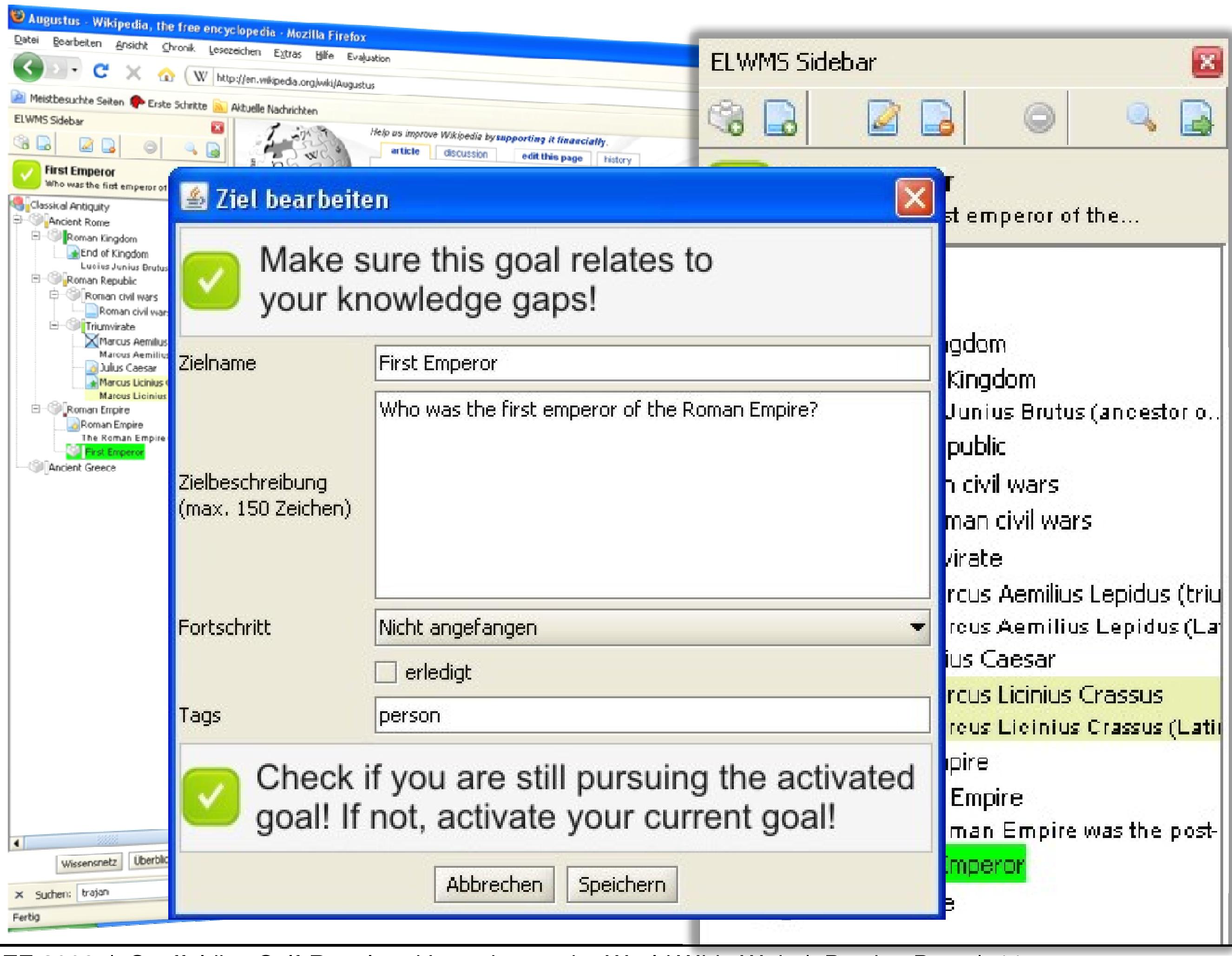
ELWMS-Sidebar – Version EG1



Three Versions of ELWMS III

Supported processes	CG	EG1 - Indirect	EG2 - Direct
Identification of knowledge gaps	*Feedback on pretest*		
Goal oriented approach	Folder - Function	Goal-Function	Prompt to set goals
Definition of relevant goals	-	-	Prompt to set relevant goals
Goal orientation during action	-	Goal-Activation - Function	Prompt to activate goal
Finding relevant pages	-	-	-
Importing relevant information	-	-	Prompt to check relevance of information
Assigning relevant information to relevant goal	-	-	Prompt to check fit
Learning relevant information	*5 minute warning* *Overview, knowledge net*	*Overview, knowledge net*	Prompt to prepare for posttest, overview, knowlege net

ELWMS-Sidebar – Version EG2



Model of Adaptive Learner Support for the Enhancement of Learning Quality

TECHNISCHE UNIVERSITÄT DARMSTADT

GRADUIERTENKOLLEG E-LEARNING

Precondition
- Learner characteristics
  - Traits
  - States
- Situation

→

Scaffold
- Crucial processes
- Indirect vs. Direct

→

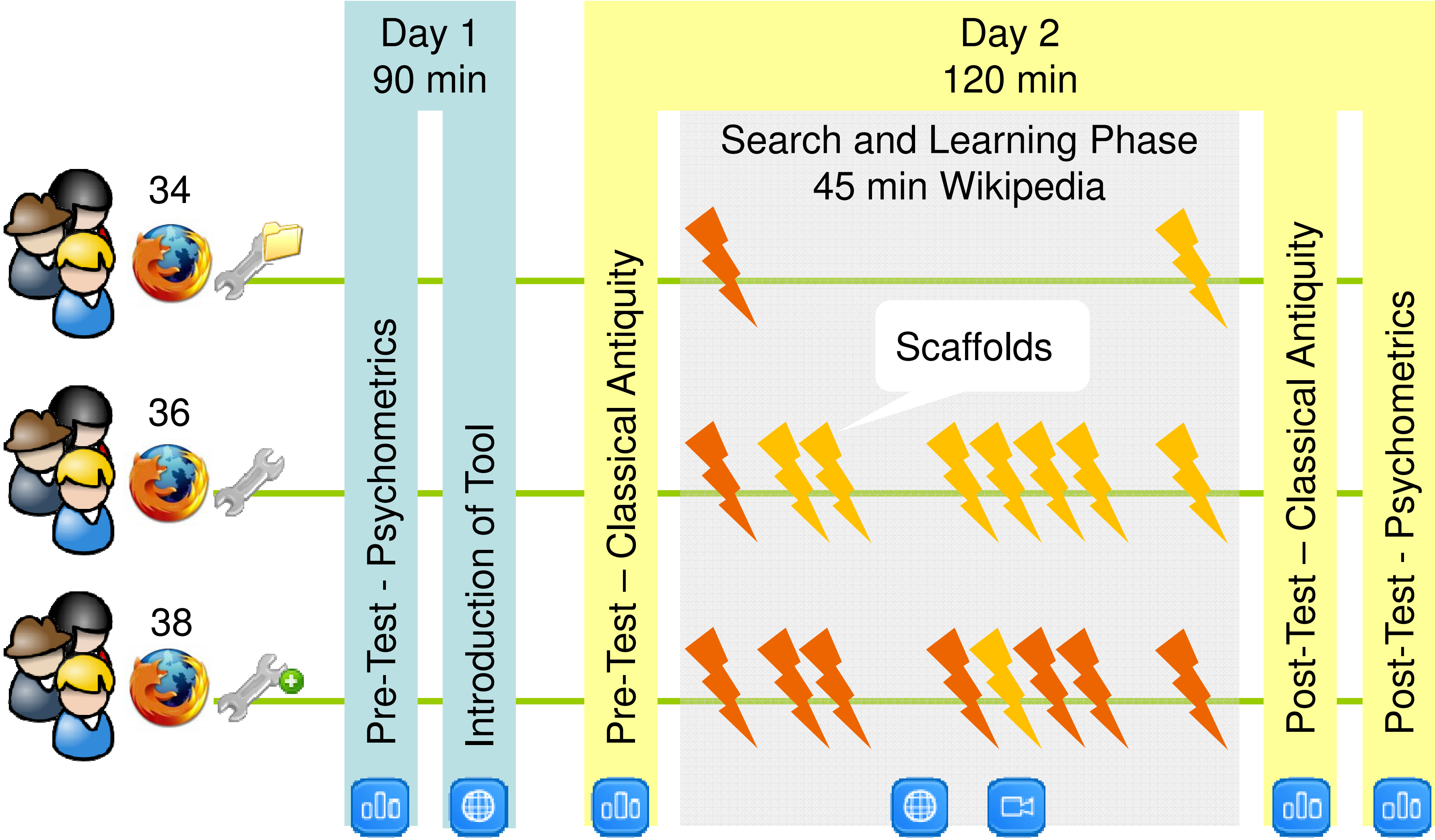
Learning process
- SRL/Metacognition
- States

→

Performance
- Knowledge Gain
- Structure

- Research Questions
  1. Does the scaffolding of our eight crucial processes enhance the quality of the learning process?
     a) Direct vs. Indirect support
  2. Does the scaffolding of our eight crucial processes enhance the quality of the learning outcome?
     a) Direct vs. Indirect support

Design of the Study



Results Based on Log Files – Crucial Processes

Preaction

-Goal setting ✓
-Planning ✓

Action

-Self-Monitoring
-Process-Regulation

Postaction

-Reflection ✓

2. Goal oriented app
   - No scaffolding
   - Indirect vs. direct s
3. Definition of relevant goal
   - No scaffolding vs. s
   - Indirect vs. dire
4. Goal orientation du
   5. Finding relevan
   6. Importing relev
   7. Assigning rele
   $p < .05$, η=.24 ✓
   - Indirect vs. dire
8. Learning relevant informa) = 1.092, $p > .05$, η = .14
   - Reflection: F(2, 1(
   - No scaffolding
   - Indirect vs. dire

•Viewing goals/folders
•Viewing overview/knowledge net

→ During minute 5-40

•Re/entering **relevant** web pages

→ During minute 5-40

•Viewing **relevant** goals/folders
•Viewing **relevant** ressources
•Opening **relevant** ressources

•Importing **relevant** ressources

→ During minute 5-40

•Restructuring ressources
•Goal/folder – ressource fit

→ During minute 5-40

Performance: Analysis of Goal/Folder – Ressource Structures

- Calculating a value for the quality of the created goal/folder – ressource structure

- No significant group differences
  - $F(2, 102) = 1{,}344$, $p > .05$, $\eta = .16$
- Distinguishing between easy and difficult questions
  - No significant group differences for difficult questions
    - $F(2, 102) = .163$, $p > .05$, $\eta = .06$
  - Significant group differences for easy questions
    - $F(2, 102) = 3.83$, $p < .05$, $\eta = .26$
      - No scaffolding vs. scaffolding: $t(102)=-1.907$, $p < .05$ (1-tailed), $r = .19$
      - Indirect vs. direct support: $t(102)=-1.990$, $p < .05$ (1-tailed), $r = .19$

Summary

•Extension to the Firefox that enhances the quality of searching and learning on the www
•Log files to evaluate the employment of SRL processes (objective)
•Results:

	Support of 8 crucial processes	Indirect vs. direct support
Preaction	•Goal oriented approach •Definition of relevant goals	•Goal oriented approach •Definition of relevant goals
Action		•Assigning relevant information to relevant goal
Postaction	•Reflection	•Reflection
Performance	•Created structure for easy questions	•Created structure for easy questions

Future Perspectives

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GRADUIERTENKOLLEG E-LEARNING

- Support during the action of searching and learning has to be optimized
→ Performance!

- How can we improve indirect support? Relevance for praxis!
  - Adaptivity: When direct, when indirect support?

Thank You Very Much!

Questions?

Dipl.-Psych. Bastian F. Benz
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Multi-Modal Competence Assessment Based on Users' Performance on Complex Tasks

Cord HOCKEMEYER
University of Graz & Graz University of Technology, Austria

Knowledge Space Theory (KST) and its competence-based extension (CbKST) are well-established frameworks for the adaptive teaching and testing of knowledge and competences. Recent technological developments allow an increasing use of simulations, virtual realities, etc. for technology enhanced learning. These learning technologies require adequate instruments for assessing the learners' individual learning progress.

Multi-modal assessment gaining information from different types of sources can be realized with CbKST, thus covering the various sides of current computer-based learning.

Multi-Modal Competence Assessment Based on Users' Performance on Complex Tasks

Cord Hockemeyer

Cognitive Science Section
Department of Psychology, University of Graz
Knowledge Management Institute, Graz University of Technology

TU Graz

Acknowledgements

This presentation reports results from several projects funded by the European Commission

Overview

- Adaptive competence assessment in CbKST
- Microadaptivity and non-invasive assessment
- Multi-modal assessment

Adaptive Competence Assessment in CbKST

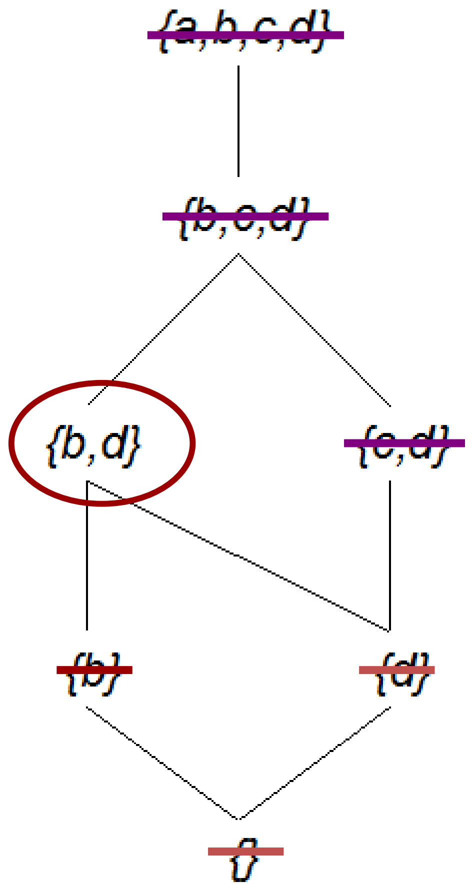
- Knowledge Space Theory (KST) structures items of knowledge by prerequisite relations
- Competence based KST clearly distinguishes between abstract competences and concrete objects (test problems, lessons, …)
- Prerequisite structures serve as a basis for adaptivity

Adaptive Competence Assessment in CbKST

- Mimicking a private teacher:
  - Starting with a question of medium difficulty
  - Subsequent questions are more or less difficult, depending on the previous answers
- Non-numerical testing, i.e. testing what a person knows (vs. how much)
- A learner's *competence state* is given by the subset of competences s/he masters. The set of all possible states is called *competence space*.

Competence Assessment in CbKST

1. False *c*
2. Corr. *b*
3. Corr. *d*



Adaptive Competence Assessment in CbKST

- Lerners' responses do not always perfectly reflect their competence state
- Therefore, probabilistic assessment is applied
- Three main components:
  1. Question rule
  2. Update rule
  3. Stopping criterion

Microadaptivity and Non-Invasive Assessment

- Originating from game-based learning
- Distinguishing two types of adaptivity
  - Macro level: adapting by selecting learning objects
  - Micro level: adapting by changing a learning object during its consumption
- Non-invasive assessment in order to not disturb the flow of the game

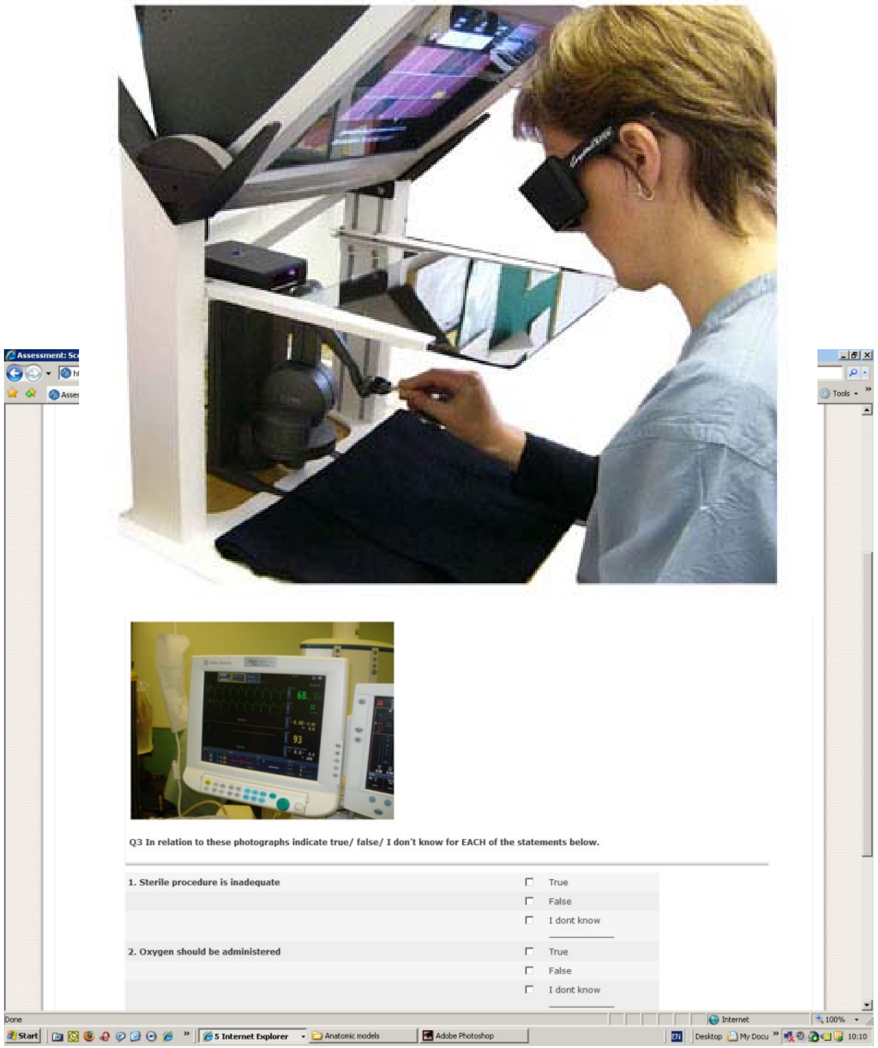
Microadaptivity and Non-Invasive Assessment

- Connecting CbKST and problem spaces
- Interpreting users' actions by underlying (required or missing) competences
- Updating probabilities according to such evidences
- Non-invasive assessment means also no optimal selection of questions
- Immediate related feedback

Multi-Modal Assessment

- Not everything can be tested by questions and test problems
- Assessment information should be gathered from different types of sources
- Need arose in medical competence assessment based on simulations and on work with patients

Multi-Modal Assessment



Multi-Modal Assessment

Numerous possible types of sources:

- Questions and test problems
- Simulators, virtual reality, game situation
- Self, peer, and expert assessment
- Analysis of tasks and results in daily work

Not all sources are suited for all contexts.

Multi-Modal Assessment

- Adaptivity on a macro level, e.g.,
  - Which case scenario is used in a simulation
  - When to ask a user for a self assessment
- Adaptivity on a micro level, e.g.,
  - Introduce a difficulty in a simulation if a testee seems secure
  - Dynamic questionnaires for self/peer/expert assessment

Multi-Modal Assessment

Components of assessment procedure

- Update: Real-time requirement
- Questioning: Decreased importance, redundant assessment information occur
- Stopping criterion: Only needed in training context

Conclusions

- (Cb)KST was developed for the adaptive assessment of knowledge and competences
- The original aim was to uncover a testee's competence state asking a minimal number of questions
- Multi-modal assessment allows transfer of non-numerical testing to much broader applications

Thank You for Your Attention!

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Practices of Technology Supported Learning in Japanese Industry

— From the Activities of e-Learning Consortium Japan —

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e-Learning Consortium Japan

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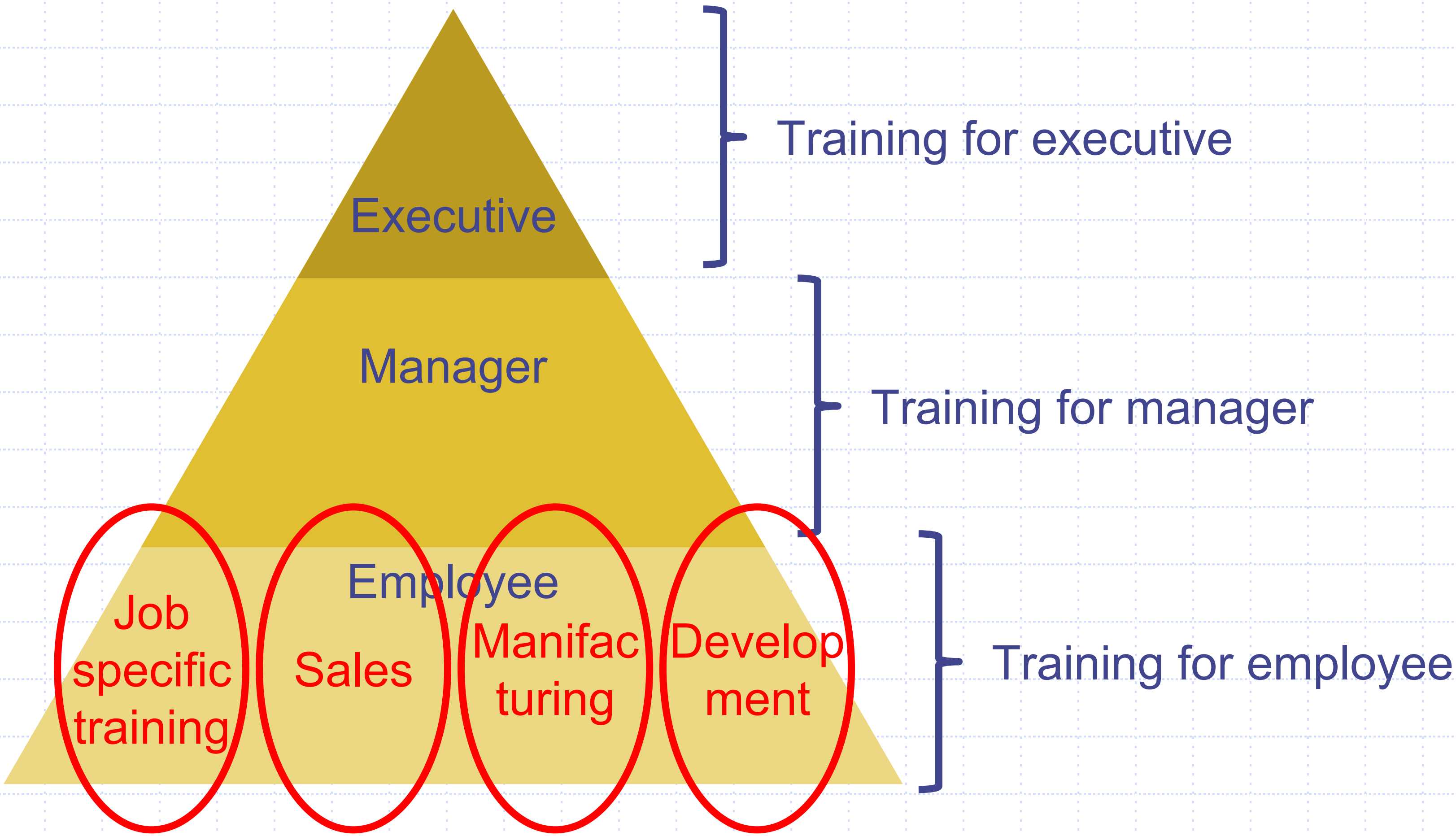
Outline

- e-Learning in Japanese industry
- Activities of e-Learning Consortium Japan
  - Organizations
  - Promotion of technology standards
  - e-Learning professional program
- Conclusion

HRD System in Japanese Industry



HRD System in Japanese Industry

- Established in 1960~70's
- Training specific to job category
  - Sales, manufacturing, development, …
- Training corresponding to the position in the organization hierarchy
  - Executive, middle management, employee
- OffJT and OJT
  - Off the Job Training: Traditional formal training
  - On the Job Training: Informal training in the daily job

Introduction of e-Learning in Japanese Industry

- Major targets
  - Replacement/complement of OffJT
    - Time/Cost efficiency
    - Enhance course variation
    - Quick training course without leaving workplace
    - Increase training opportunity

- Major issues
  - Content delivery
  - Content/Training design

Activities of e-Learning Consortium Japan (eLC)

- Organization
- Promotion of technology standards
- e-Learning professional program

Organization of eLC

- Launched as Technology-based Training (TBT) Consortium in 1996
- Changed name to e-Learning Consortium Japan and authorized as nonprofit organization in 2001
- About 60 member organizations from industry and scademia

- Investigation and research in e-learning and related fields
- Development and practice of learning program about e-Learning for e-learning users and providers
- Promotion of technology standards on e-learning system and content

Organization of eLC

- Plenary meeting
- Board of directors
- Executive committee
  - 6 Standing committees
    - e-Learning Professional, Technology Standards, New Technology, Publicity, etc.
  - 6 Ad hoc groups
    - Open Technology, Human Performance, Knowledge Management, Content Authoring, etc.

- Events
  - Monthly members meeting
  - e-Learning conference in summer and winter
    - Two to three days seminar

e-Learning Conference

Promotion of Technology Standards

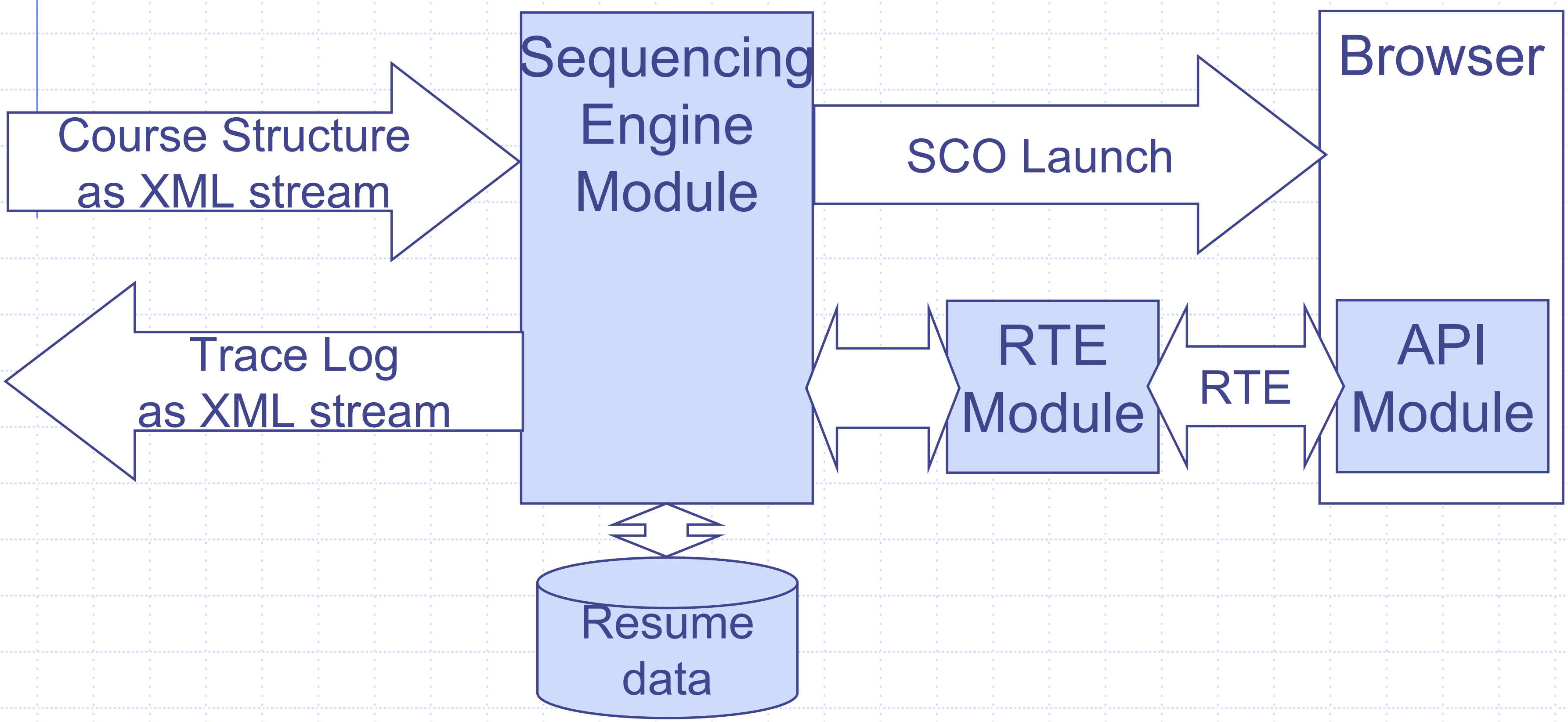
- Since year 2000
  - Supported by government
- Emphasis on SCORM
  - LMS/Content interoperability was the first priority at that time
  - System module development
  - Seminars & publications
  - Conformance programs

System Module Developments

- To minimize interoperability trouble and implementation barrier
- Supported by the government
- Distributed as open source

- SCORM 1.2 module in 2001
- SCRORM 2004 engine since 2002
- Mobile extension since 2005

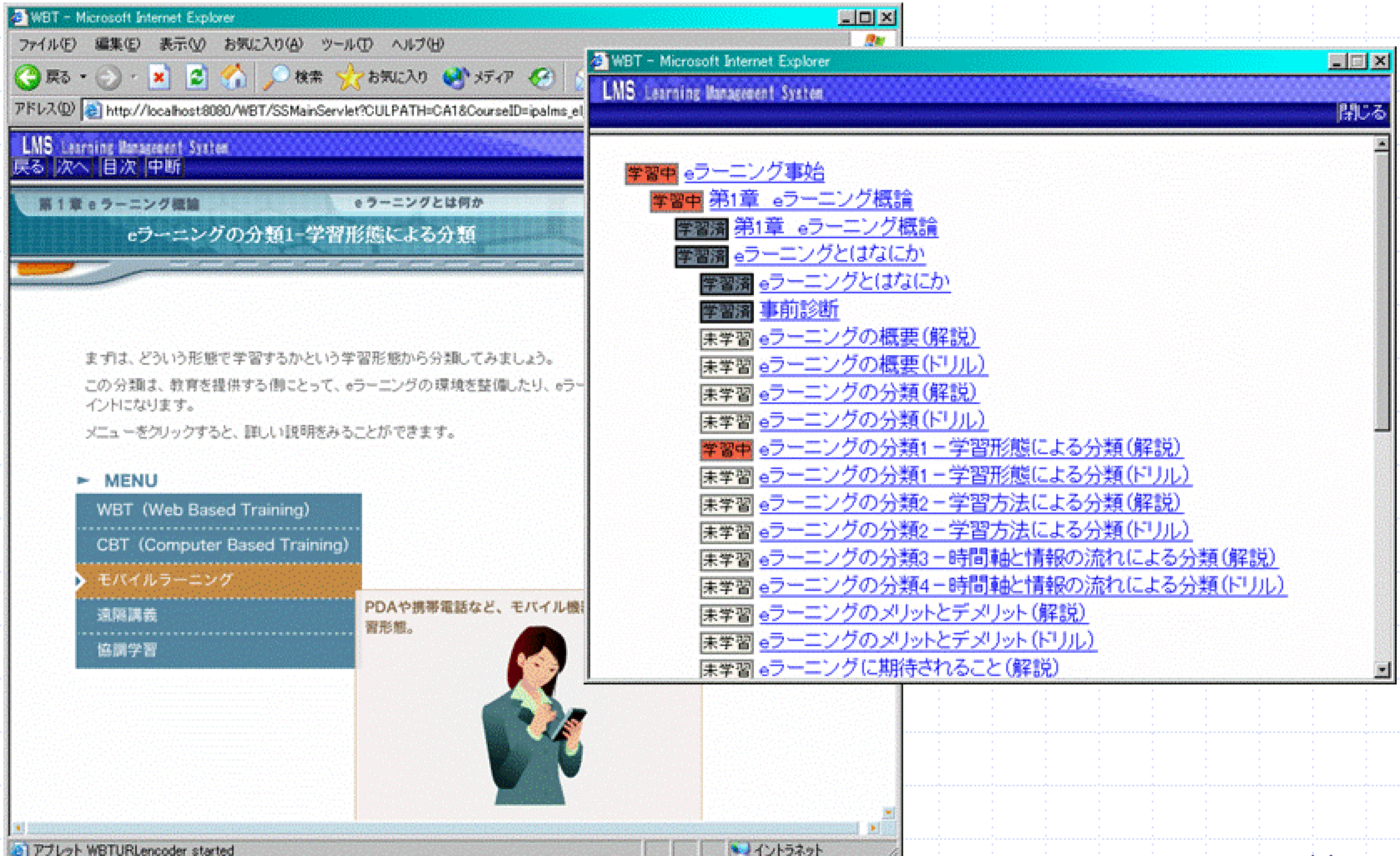
SCORM 2004 Engine



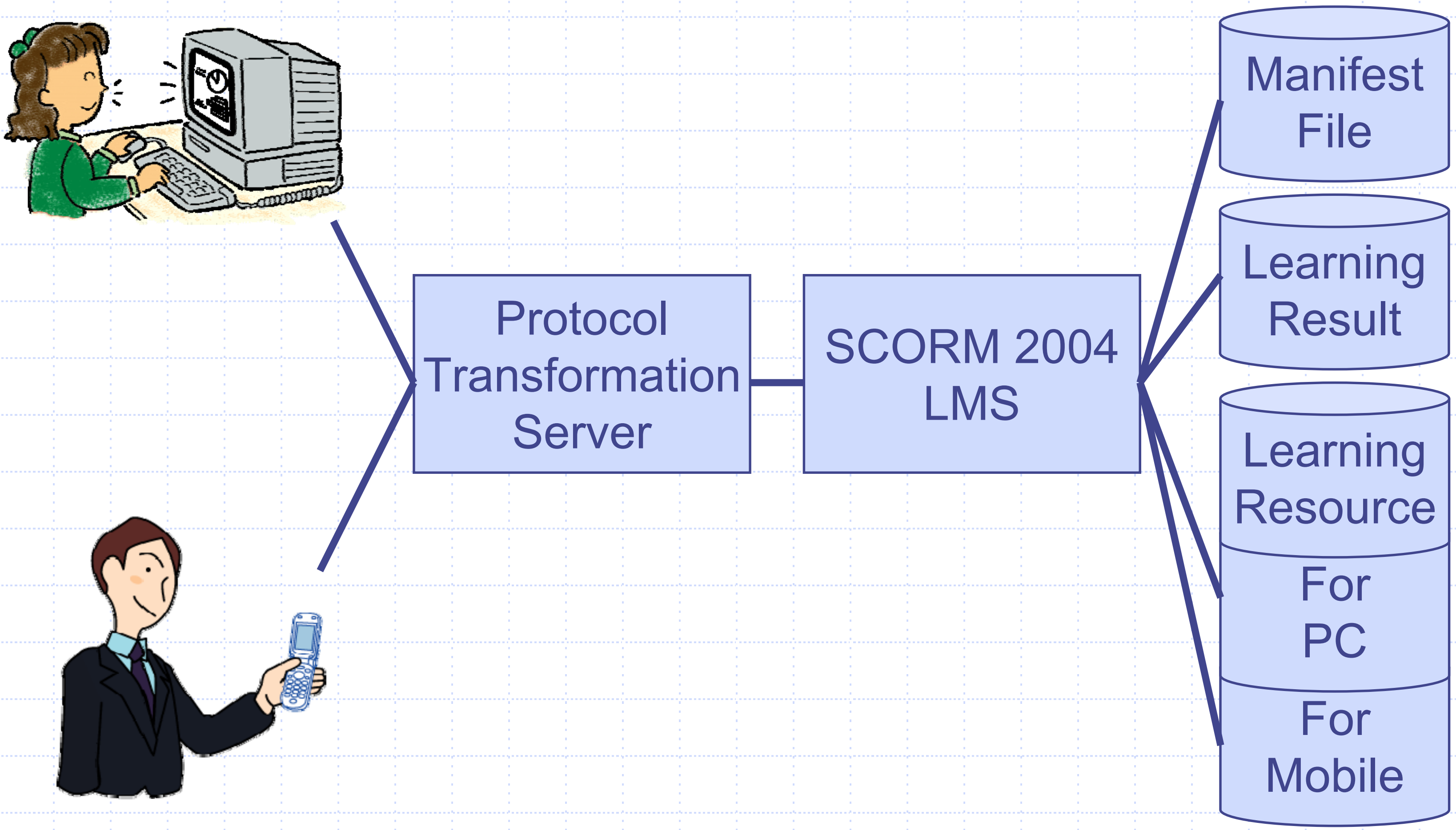
SCORM 2004 Engine

- Implemented as Java classes
- Distributed as an open source
  - http://www.elc.or.jp/cgi-bin/scorm_engin/lms/index-scorm.html
  - http://www.oss.ecl.ntt.co.jp/lms/
- More than 1500 downloads since 2004
- Used in several commercial LMS

Sample Screen



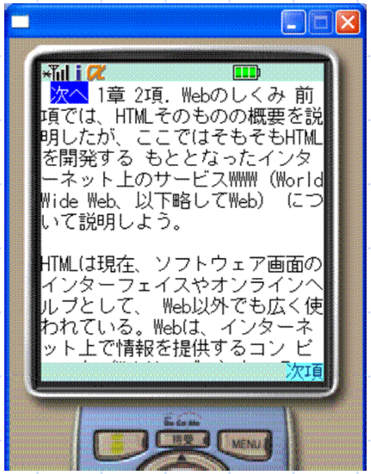
Mobile Extension



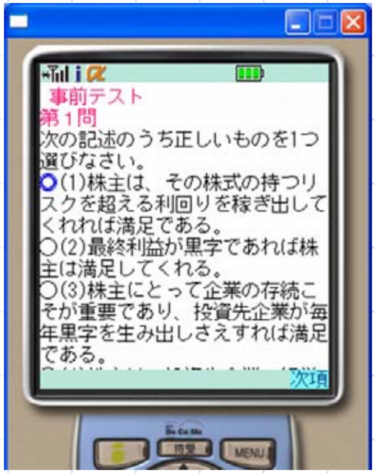
Mobile Extension

- Based on SCORM 2004
- Content and learning result shared by PC-based and mobile-phone-based learning
- Offline learning with mobile phone

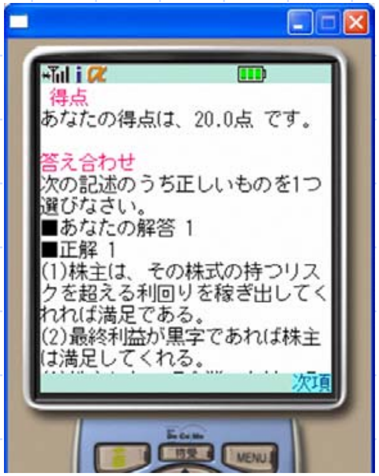
Sample Screen



a) Lecture pages



b) Test page



c) Feedback page

Seminars and Publications

- Seminars in e-Learning conference
- Translations and tutorial documents
  - SCORM 1.2 and 2004
  - SCORM assessor program texts
    - Includes a document about interoperability troubles and solutions encountered in actual implementation practices
  - SCORM 2004 tutorial
    - For system developers and content developers
    - Document with sample content

Conformance Programs

- To share experience and knowledge about interoperability issues in the community
- For LMS and content
  - Periodical events to check if they work with each other
- SCORM assessor
  - Certify skilled SCORM content engineer

LMS Conformance

- 20 LMSs as of March 2007
- Several LMSs developed BEFORE SCORM with proprietary specification has been modified to conform SCORM


e Learning Consortium

SCORM プロダクト認証書

認証番号 No. P03-0014

プロダクト名 IBM Lotus Learning Management System(1.0)

プロダクト種別 プラットフォーム

登録社名 日本アイ・ビー・エム株式会社

SCORM認証試験実施の結果、上記プロダクトはSCORM規格に適合していることを認めます。

認証日 平成15年3月25日

特定非営利活動法人
日本イーラーニングコンソシアム

会長 小松 秀圀

SCORM Assessor

- Background
  - Third party content conformance test is expensive
  - Content vendors needs engineers with skills about interoperability issues

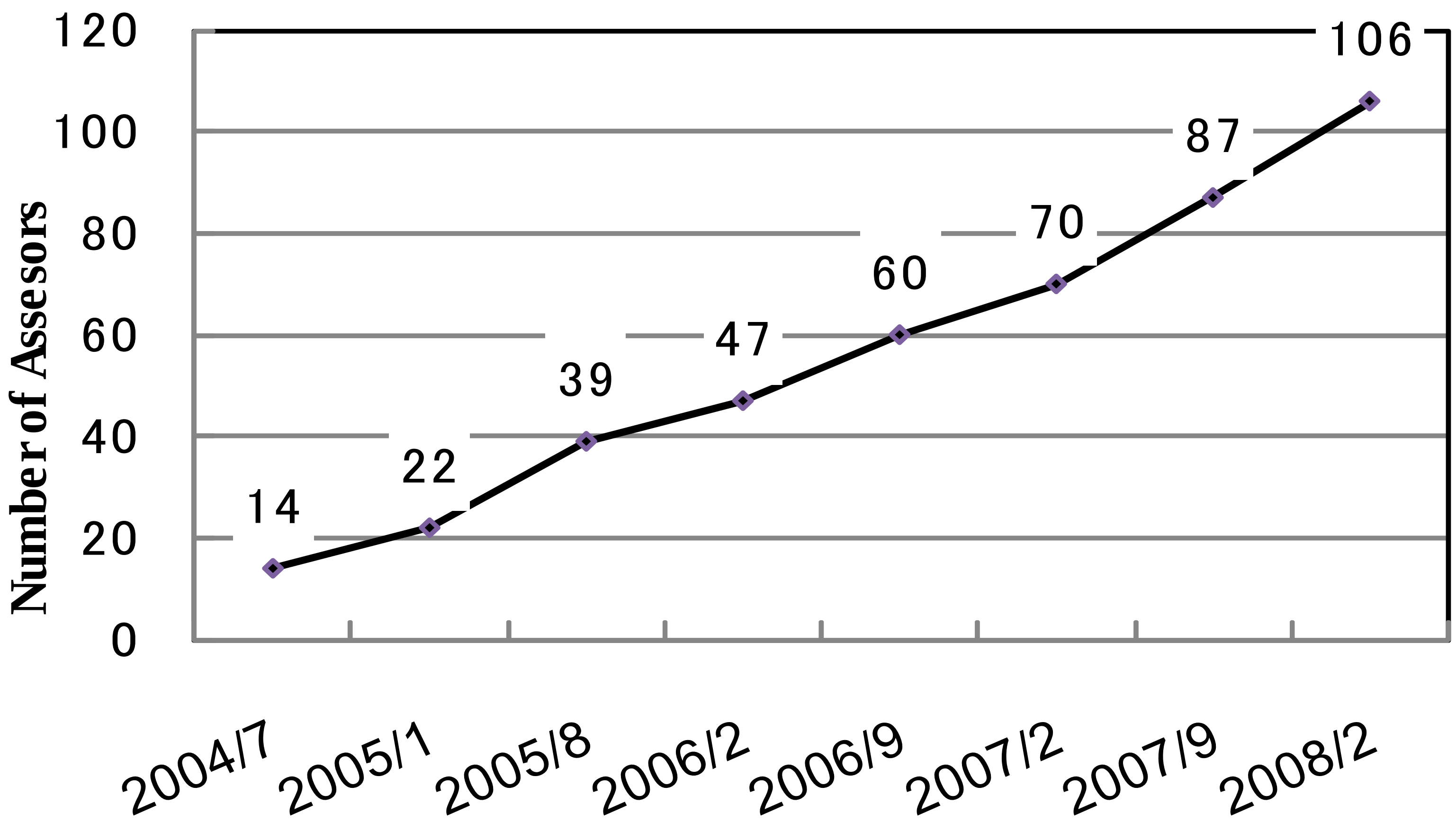
⇓

- Authorized assessor in each content vendor
  - Assessor training course
  - Content self test and report
  - Assessor community for information sharing

SCORM Assessor Skill Set

- Knowledge about the assessor program
  - Purpose of the program
  - Responsibility and authority of assessor
  - Content conformance procedure
  - Content registration procedure
  - Interoperability trouble management
  - Purpose of assessor community
- Knowledge about SCORM specifications
  - General
  - Content aggregation
  - Run-time environment
  - Conformance requirement
- Knowledge about SCORM application
  - Content development
  - Content test
  - Typical interoperability issues and solution
- Knowledge about related fields
  - Standardization of industrial product
  - Standardization of e-learning product
  - Communication protocol
  - Client side programming
  - Server side programming
  - Basic knowledge of computers

Increase of SCORM Assessor

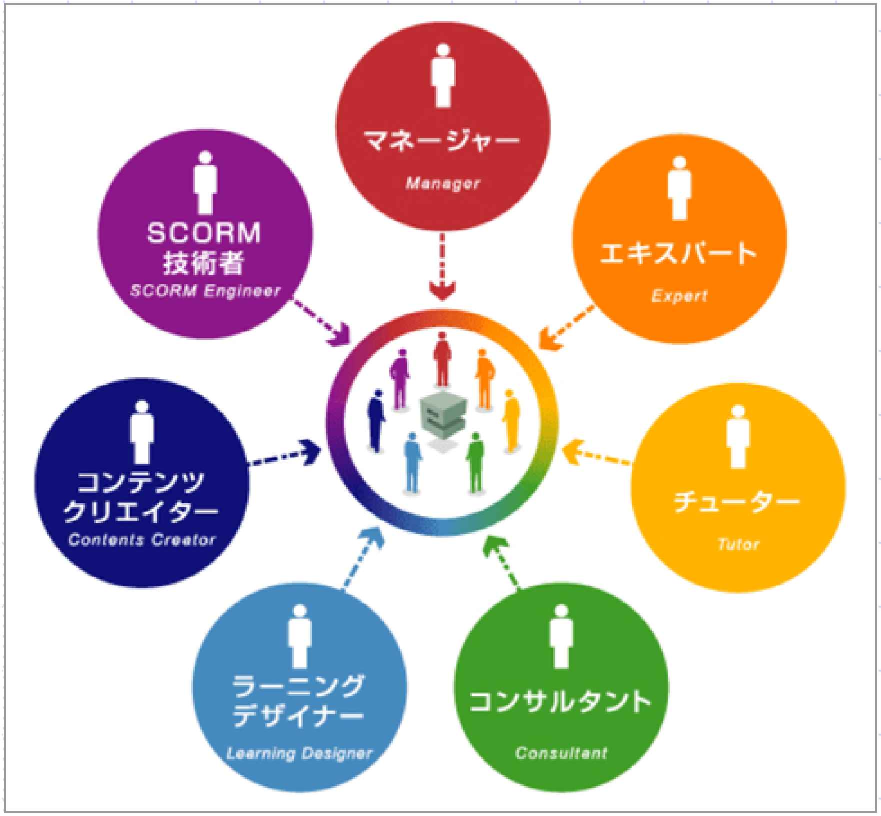


Survey for SCORM Assessors

- Findings
  - SCORM specification was intended to promote ready-made content dissemination, but SCORM assessors are involved in custom content creation rather than ready-made content creation
  - SCORM is utilized as a non-proprietary content technology independent from each LMS
  - Customers recognize that SCORM assessor certification is as an evidence of excellent content vendor

e-Learning Professional Program

- Defines seven job skills related to e-learning
  - User-side
    - Manager
    - Expert
    - Tutor
  - Vendor-side
    - Consultant
    - Learning designer
    - Content creator
    - SCORM engineer



Job Coverage of e-Learning Professional

		Strategy	Planning	System Design	Content Creation	Learning	Evalua-tion
User side	Manager	→					→
	Expert	→	→	→	→	→	→
	Tutor					→	
Vendor side	Consultant	→					
	Learning Designer		→	→	→	→	→
	Content Creator				→		
	SCORM Engineer				→		

e-Learning Professional Curriculum

分類	研修コース	実施日／実施予定日	コース番号	学習時間	マネージャー	エキスパート(スペシャリスト)	チューター	コンサルタント	ラーニングデザイナー	コンテンツクリエイター	SCORM技術者
共通	企業内教育とeラーニングの基本		01	6.5	◎	◎	◎	◎	◎		
共通	学習心理学入門	2006/3/10	03	6	○	○	◎	○	◎		
共通	ID概論	2005/10/27	04	6	◎		◎	◎			
共通	SCORM概論		05	2		◎	○	◎	◎	○	◎
共通	eラーニングの導入と手順		02	6	◎	◎	○	◎	○		◎
共通	個人情報保護		31	3	◎	◎	◎		◎		
分析と目標設定	コンサルタントスキル	2006/2/16、17	06	6				◎			
分析と目標設定	eラーニング戦略立案技法	2005/11/15	07	6	◎	○		◎			
分析と目標設定	eラーニングROI分析		08	6	○	◎		◎			
分析と目標設定	カスタマーニーズ把握		09	6	○	◎		○	◎		
分析と目標設定	eラーニングの有効性検討→「eラーニングの課題と将来像」	e-Learning Conference 2006 Summer予定	10	4	○	◎		◎	◎		
分析と目標設定	SCORMアセッサ講習		11	8						○	◎
研修企画	詳説ID		12	12		◎			◎		
研修企画	プロジェクトマネジメント概論	2006/6予定	13	2	○				○		
研修企画	eラーニング活用技術→「eラーニ	2006/6予定	14	4		◎		○	◎		
研修企画	eラーニング調達技術		15	4	○	◎		◎	○		
研修企画	教授法設計	2006/08予定	16	4		○		○	◎	○	
研修企画	ケーススタディー		17	6				○			
eラーニングシステム構築	LMS概論		18	3					○	○	
eラーニングシステム構築	LMS活用技法	2006/08予定	19	2		◎	○	○	○	○	
導入プロジェクト遂行	eラーニング導入プロジェクト管理		20	6		◎			○		
コンテンツ制作	Webユーザビリティ概論		21	3					○	○	
コンテンツ制作	Webサイト構築技法		23	6					○	◎	
コンテンツ制作	コンテンツ開発技法→「コンテンツ設計技法」	e-Learning Conference 2005Winterでダイジェスト実施、2006/05実施予定	25	13.5					○	◎	
コンテンツ制作	マルチメディア制作技法		27	3					○	◎	
コンテンツ制作	オーサリングツール活用技法		28	3						◎	
コンテンツ制作	著作権・知的財産権	2006/1/20実施、「eラーニングビジネスにおける著作権」として2006年5月予定	29	3		○			○	◎	
コンテンツ制作	テクニカルライティング3級(TC協		41								
学習	コミュニケーション技法		32	9			◎				
学習	メンタリング技法	2006/2/20	33	30			○				
学習	オンラインファシリテーション技法	2006/09予定	34	3			○				
学習	オンライン倫理(ネチケット)		35	3			○				
学習	学習指導論		36	3			◎				
評価	コースアセスメント技法	2006/09予定	37	3		○	○		◎		
評価	学習者評価論		38	3			○		○		
評価	eラーニングシステムの評価		40	6				○			
	◎				5	12	6	9	10	5	3
	○				6	5	8	7	12	6	0
	計				11	17	14	16	22	11	3
	◎				27.5	61.5	33.5	46.5	50.5	28.5	16
	○				28	22	52	34	54.5	22	0
	計				55.5	83.5	85.5	80.5	105	50.5	16

必修
選択必修
スキル所有を前提、履修不要
スキル・履修とも不要

e-Learning Professional Program

- Collaboration with universities
  - Graduate school of instructional systems, Kumamoto University
  - Research Center for e-Learning Professional Competency, Aoyama University
- "e-Learning Basic" course launched in 2008
  - Prerequisite course for seven certifications
- e-Learning consultant launches in 2009
- SCORM assessor will be merged to SCORM engineer

Future Issues

- Early introduction stage to popularization stage
- Strategic approach to exploit e-learning is needed
  - From formal to informal
  - From content to context
  - Migration of daily job and learning activities
  - Learner-centric and community-based

Nissan way by Carlos Ghosn

- "The power comes from inside"

  学習者は内に能力を持つ

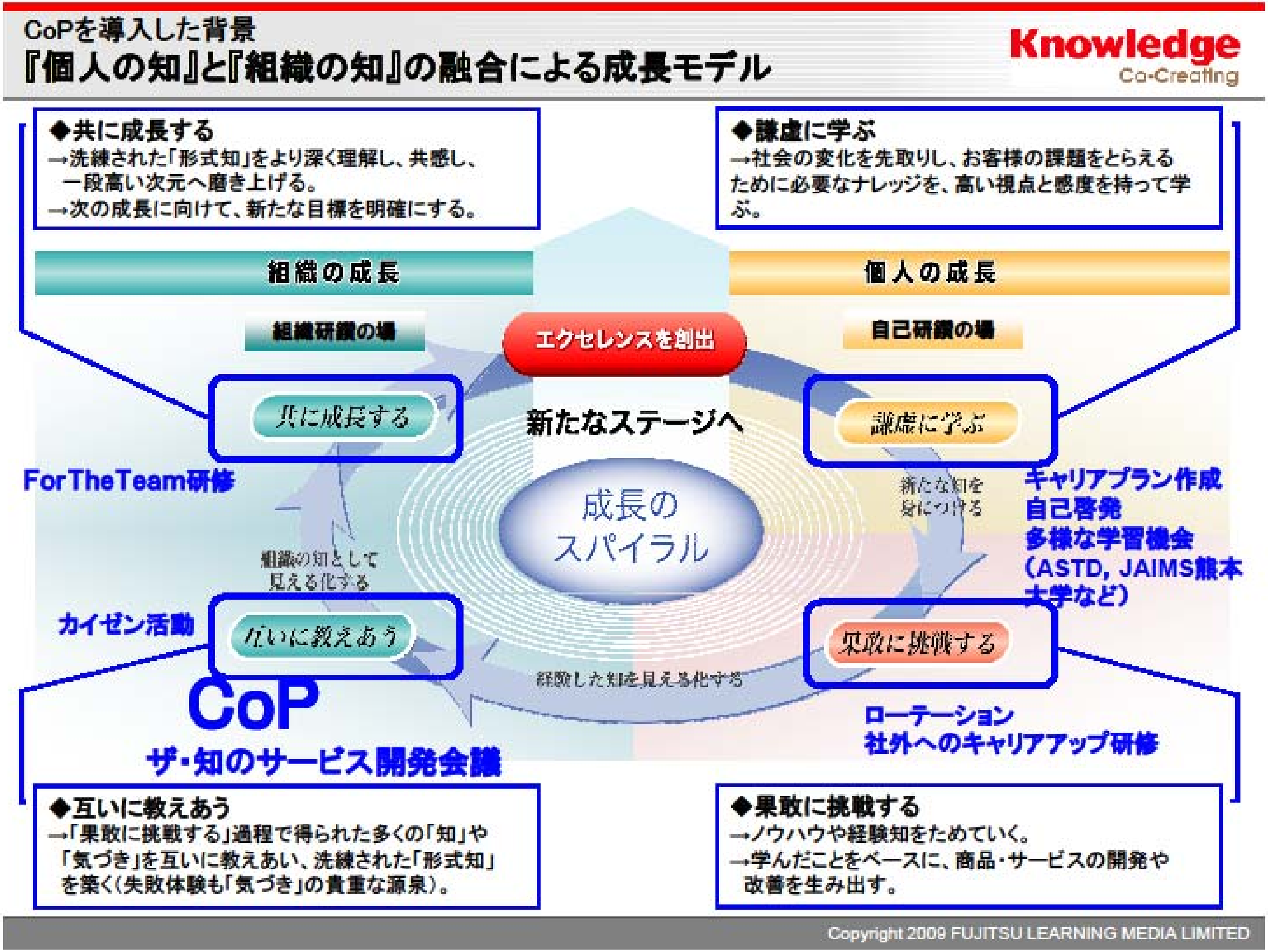
- 心構え（mindset）
  - Cross-functional / Cross-cultural

    多様性が価値を生む
  - Transparent　共有・協調
  - Learner　学び続ける
  - Frugal　成果の最大化
  - Competitive　自己満足しない

Nissan Way

- 行動（actions）
  - Motivate　自他の動機付け
  - Commit & Target　自ら目標設定
  - Perform　結果に向かって
  - Measure　成果の測定
  - Challenge　変化への挑戦

Fujitsu Learning Media



Conclusion

- e-Learning in Japanese Industry
- Activities of e-Learning Consortium Japan
  - Organizations
  - Promotion of technology standards
  - e-learning professional program
- Mutual benefits are essential for sustainable activities
  - Customers/companies/individuals
- Future issues

Personalized Learning Environments – Today and in the Future
(Responsive Personalized Learning Environments)

Martin WOLPERS
Fraunhofer Institute FIT

Support for the learning process is constantly maturing. Specifically in the area of technology enhanced learning (TEL), software emerges that supports the learning activity on a much more individual level than before. Still, today's TEL systems do not offer an individual learning experience for each learner. Instead of addressing individual needs, mass-customization is used, forcing learners into stereotypes. Consequently, learners lacking their own learning environment need to invest significant energy to handle existing learning systems.

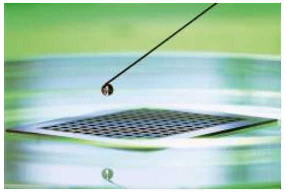
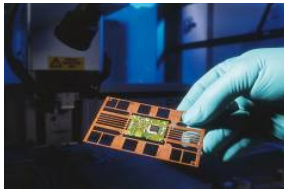
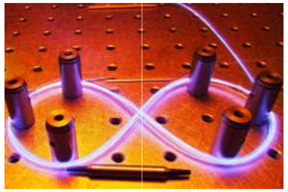
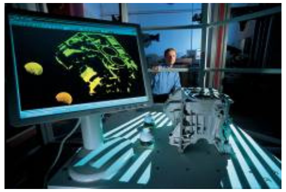
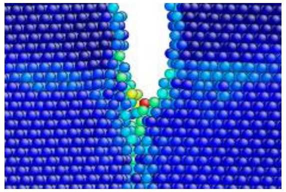
In this context, I will talk about the next step in personalized learning environments. We develop new responsive open learning environments, in which learning services are suggested/recommended that suite the learners preferences, knowledge, competencies, etc. but also his organizational needs. Our approach permits individualization of the components, tools, and functionalities of a learning environment, and their adjustment or replacement by existing web-based software tools. Learning environment elements can be combined to generate (to mashup) new components and functionalities, which can be adapted by lone learners or collaborating learners to meet their own needs and to enhance the effectiveness of their learning. This empowers each user to generate new tools and functions according to their needs, and can help them to establish a livelier and personally more meaningful learning context and learning experience.

Personalized Learning Environments
– Today and in the Future –
(Responsive Personalized Learning Environments)

Fraunhofer
FIT

Dr. Martin Wolpers
FIT.ICON

Fraunhofer-Gesellschaft

- 57 Institutes

- 15 000 employees
- Non-profit organization for applied research
- 57 research institutes
- 15.000 employees
- Annual budget ca. 1,400 Mio. €

7 Groups:

- Information and Communication Technology
- Life Sciences
- Microelectronics
- Light & Surfaces
- Production
- Materials and Components - MATERIALS
- Defense and Security

Fraunhofer Institute FIT
Applied Information Technology

Prof. Dr. Matthias Jarke

- User-centered information and cooperation systems
- Goal: Optimizing usability and usefulness of IT in the Interplay with organizational work practice, structures, and processes.

Business Areas:

- Cooperation systems / collaborative computing
- Mobile knowledge
- User-centered software engineering
- Decision and process support
- Life science informatics
- Collaborative virtual and augmented reality

ca. 115 scientists: computer science, social science, busine and economics, psychologists engineers

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CAPLE

Context and Attention in Personalized Learning Environments

Research Areas:

Information and knowledge processing
- Knowledge inference, knowledge management, Knowledge Representation
- Semantic knowledge and information modeling
- Information and Metadata

Personalization and adaptation
- Attention metadata
- User profiling
- Information retrieval
- Recommender Systems

Technology enhanced learning

Communication Analysis

Artificial intelligence and Machine Learning

Social Network Analysis

Software engineering

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Technology Enhanced Learning

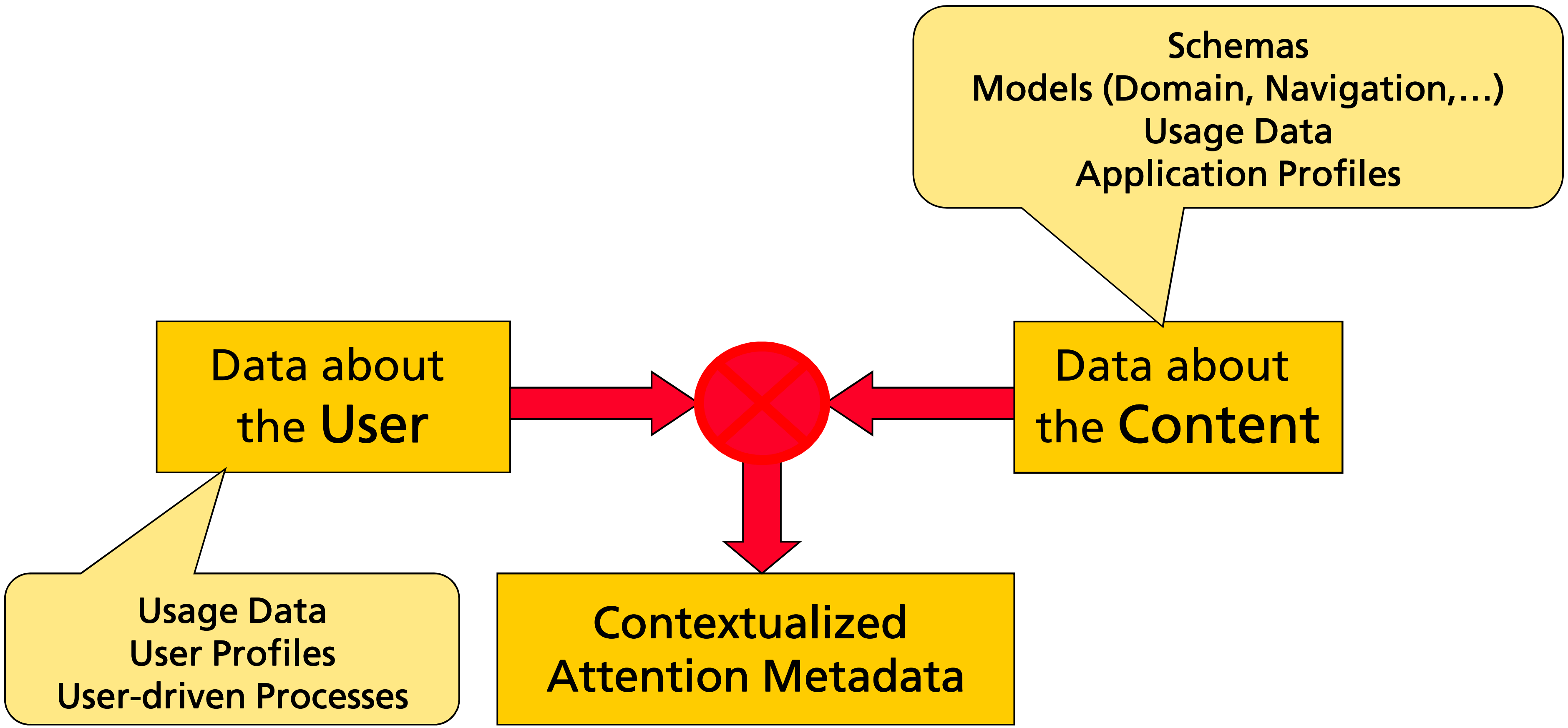
“Technology enhanced learning (TEL) has the goal to provide socio-technical innovations (also improving efficiency and cost effectiveness) for learning practices, regarding individuals and organizations, independent of time, place and pace. The field of TEL therefore describes the support of any learning activity through technology.”

TEL in Wikipedia

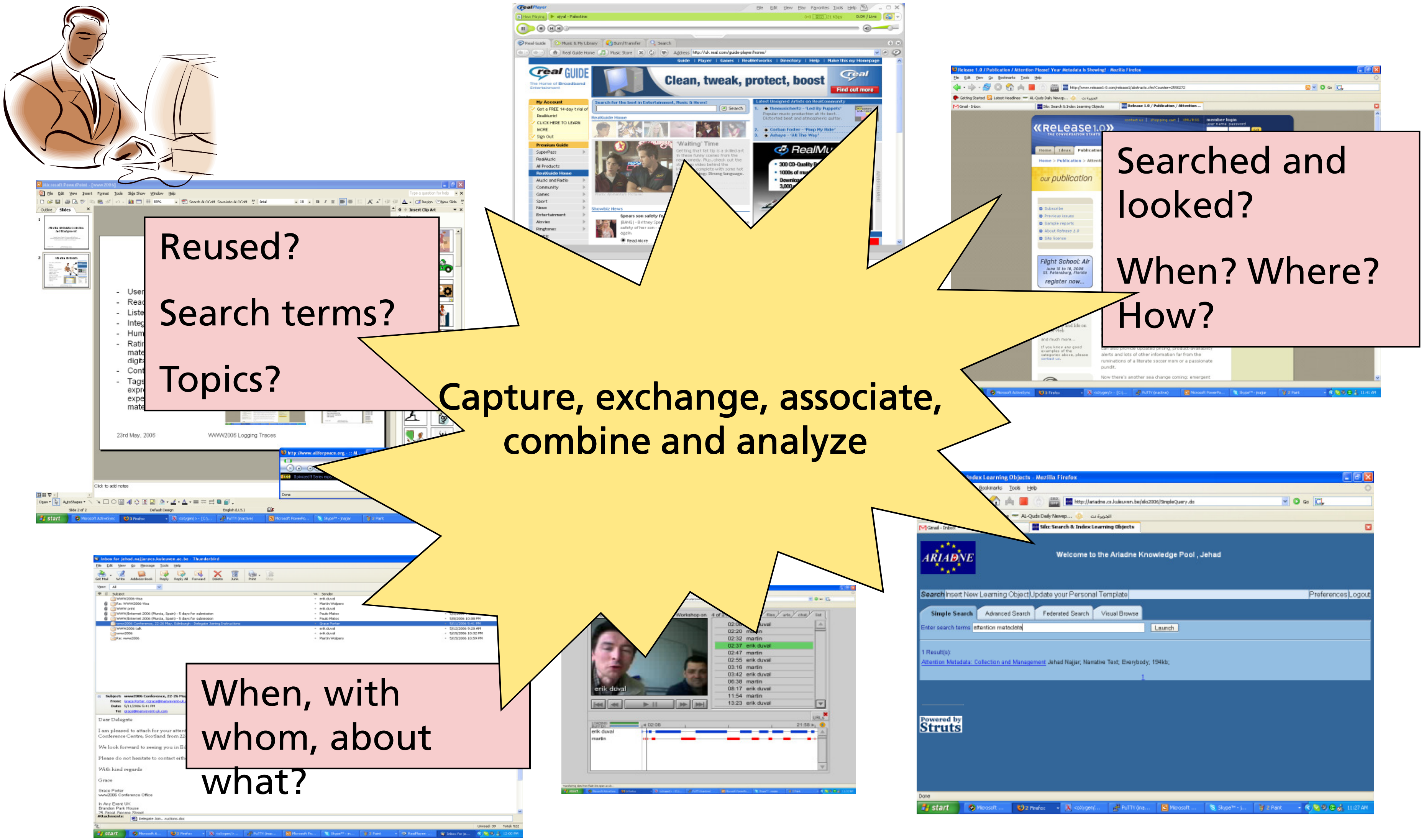
- Personalized Learning Environments
- Responsive Learning Environments
- Open Learning Environments

- Self-Regulated Learning
- Life-Long Learning
- Constructivist Learning

Monitoring Usage and Attention: CAM



Sources of Contextualized Attention Metadata (CAM)



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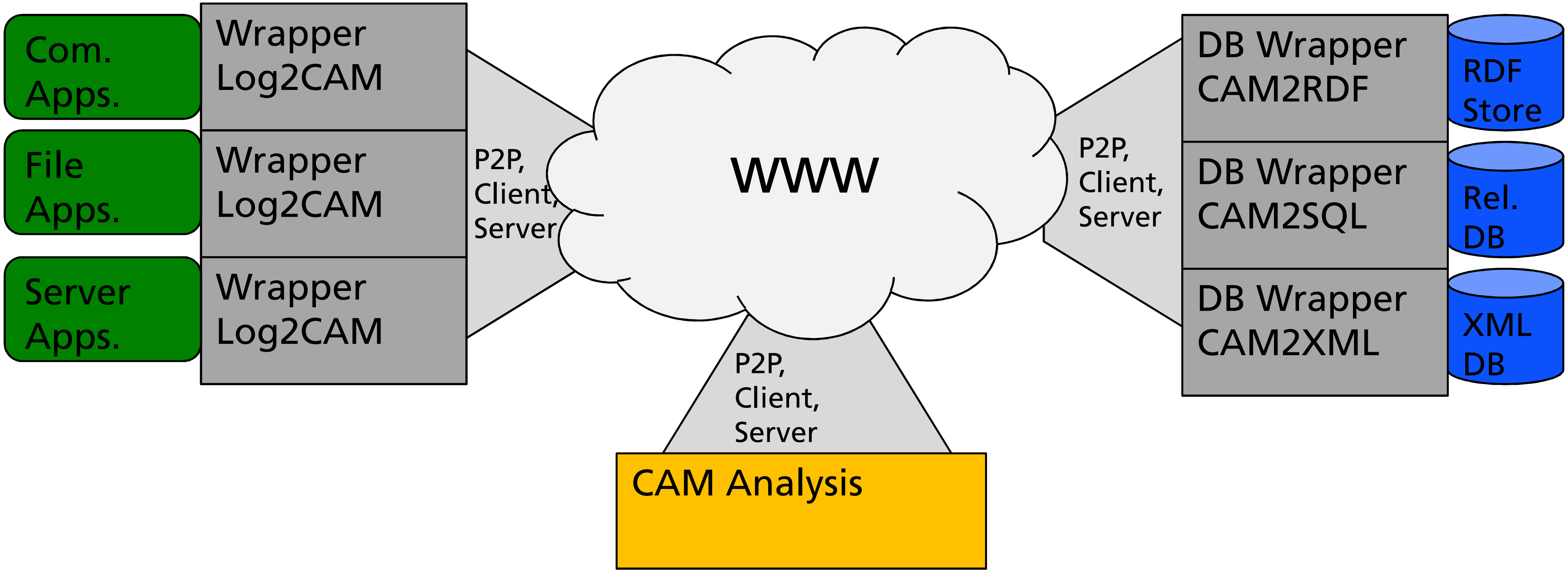
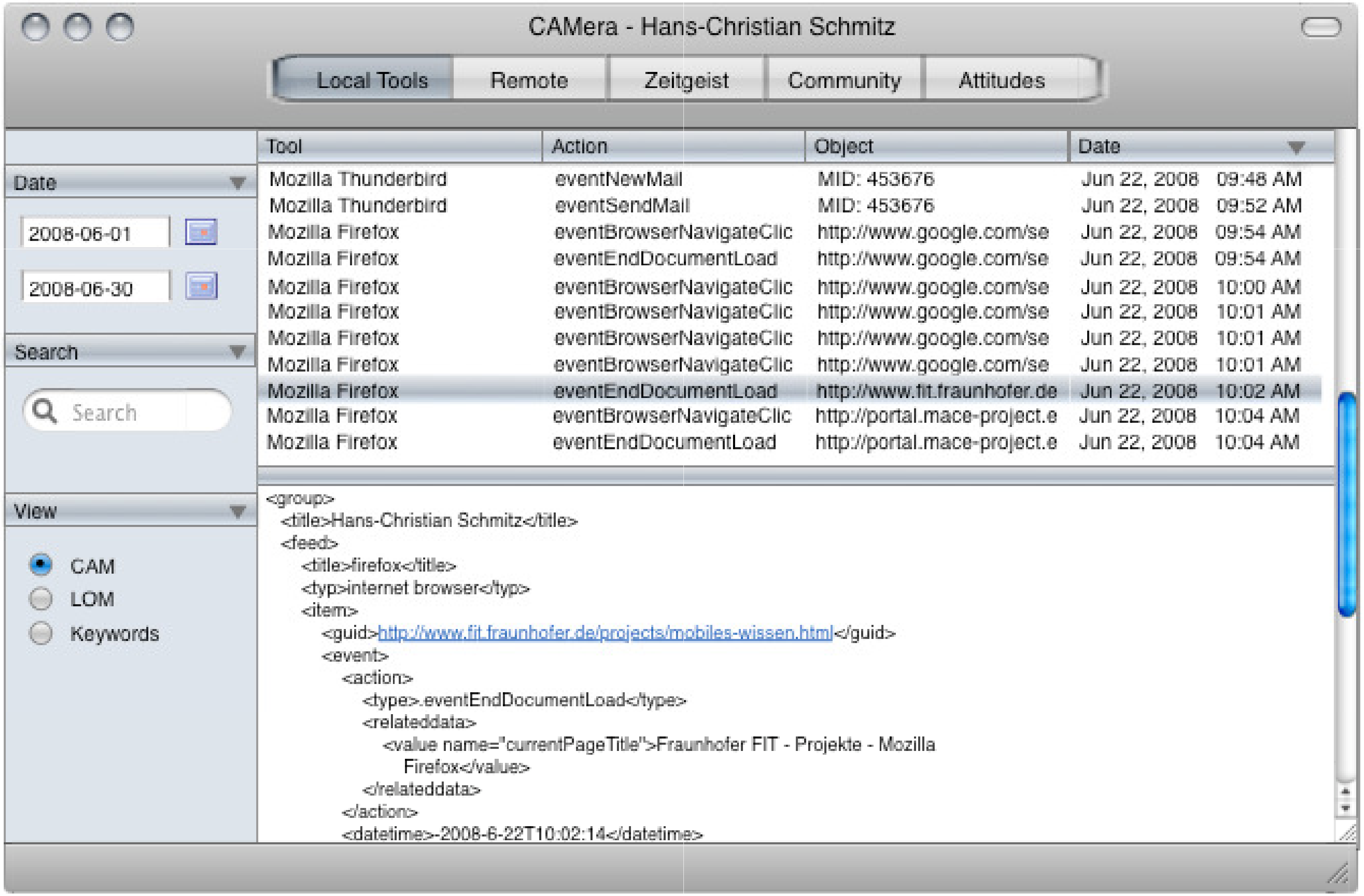
CAM Infrastructure



CAMera: Reporting on Computer Usage

CAMera



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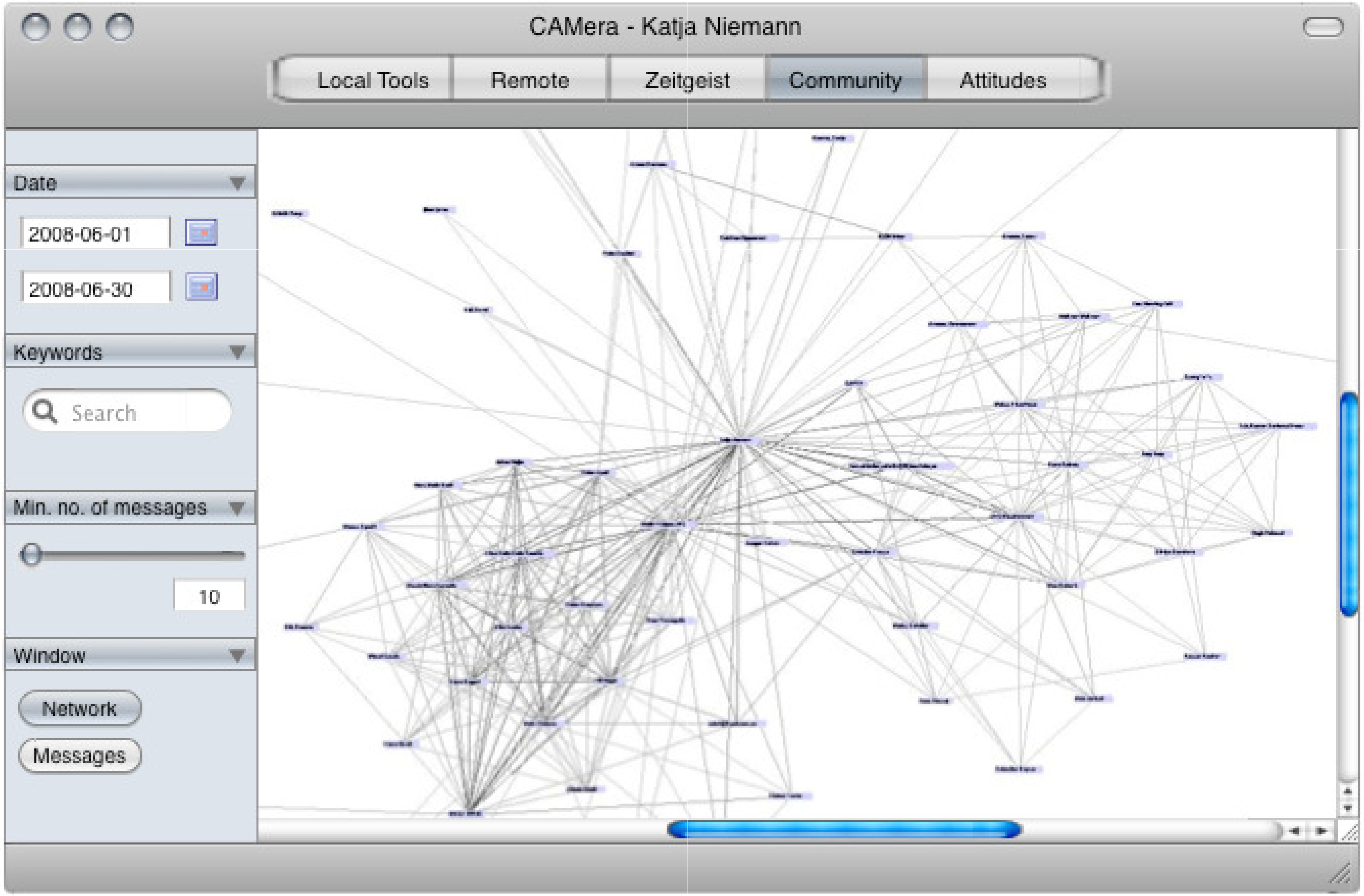
Communication Analysis: Social Networks



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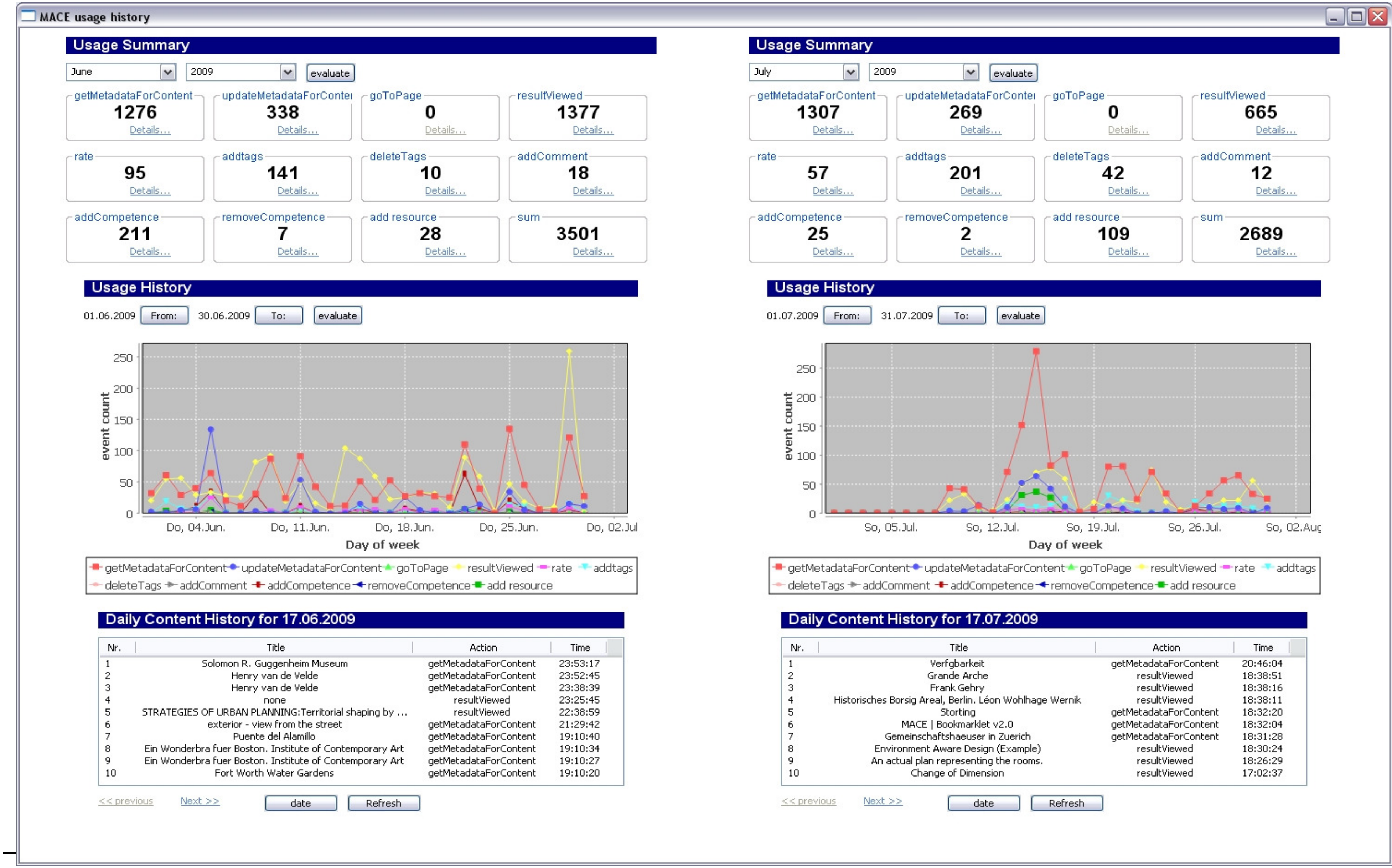
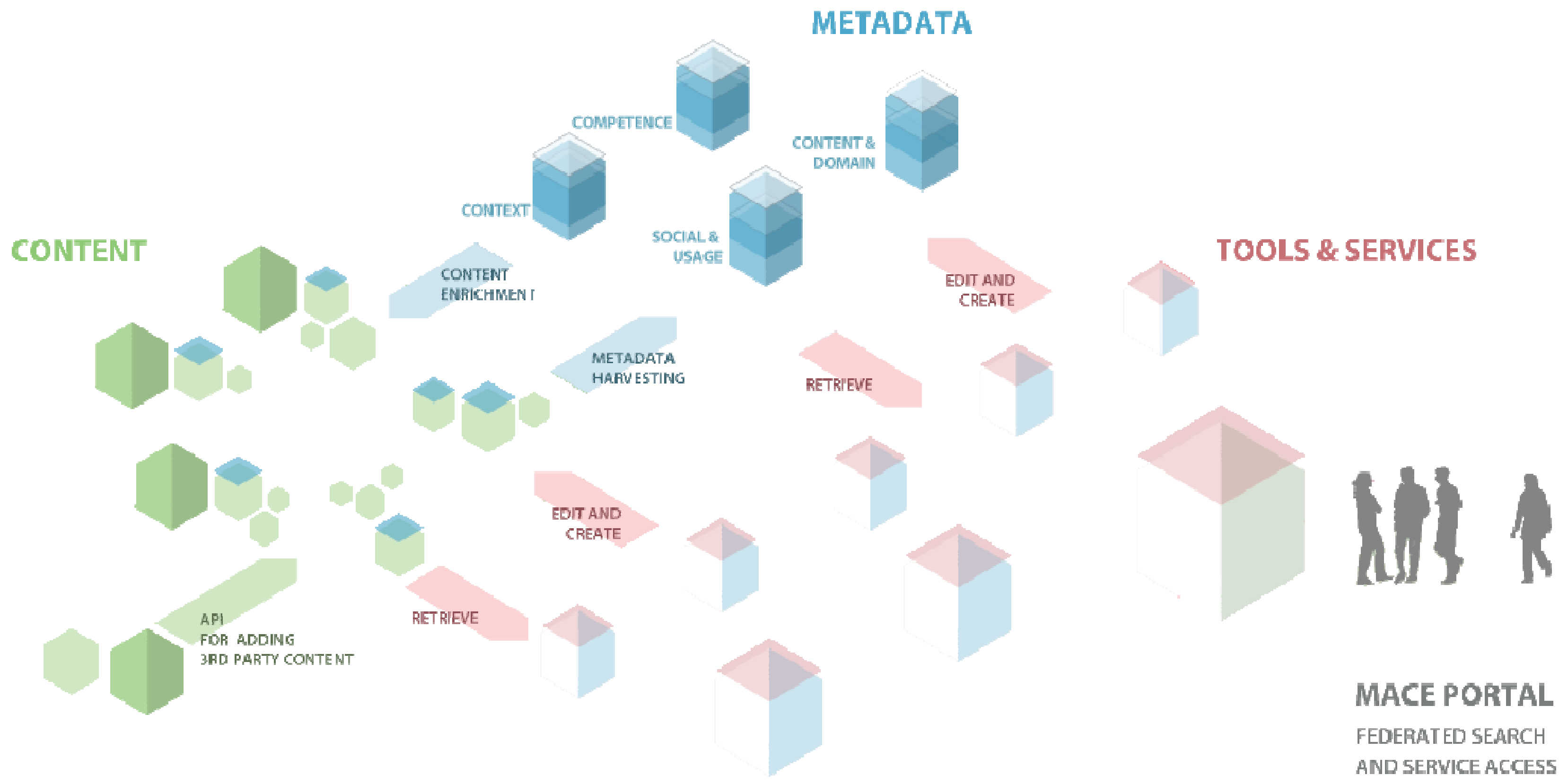
CAMera/ MACE: Remote Services, Zeitgeist



MACE (http://www.mace-project.eu)

Metadata for Architectural Contents in Europe

Making architectural learning contents available to learners using new access methods and bridging repositories



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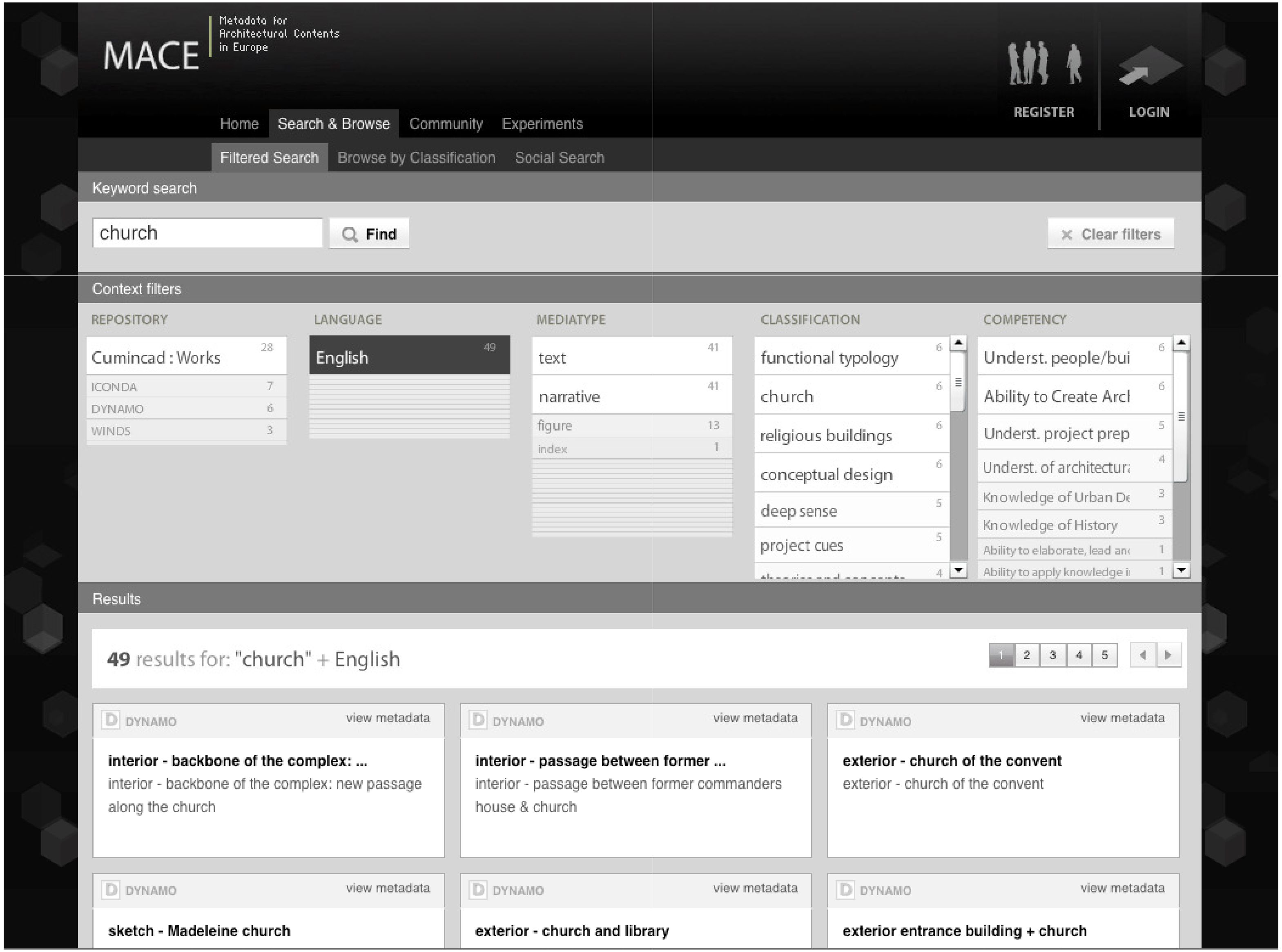
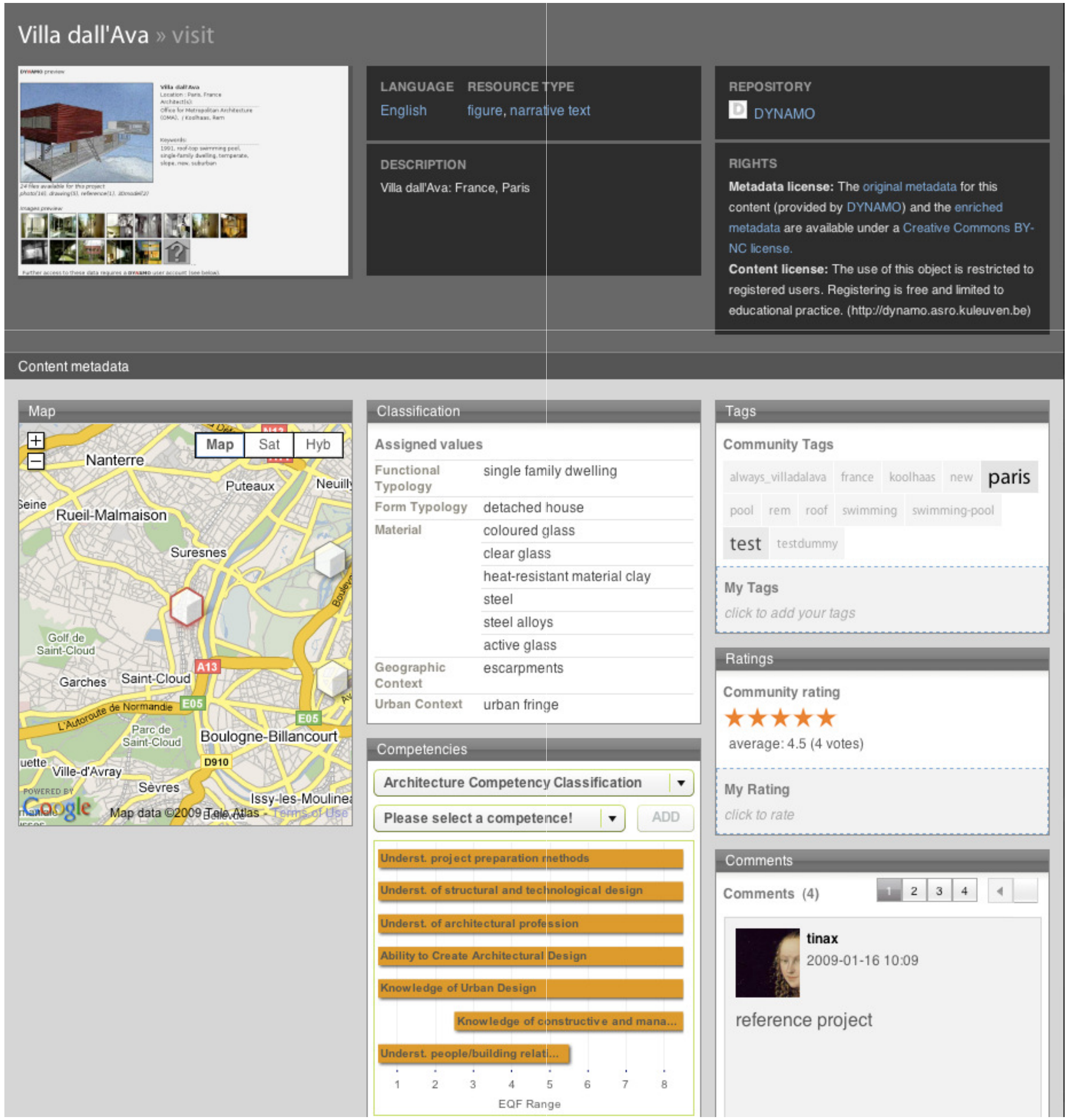
MACE: Faceted Search



MACE: Search Results



MACE: Mobile Services, Augmented Reality

Responsive Open Learning Environments

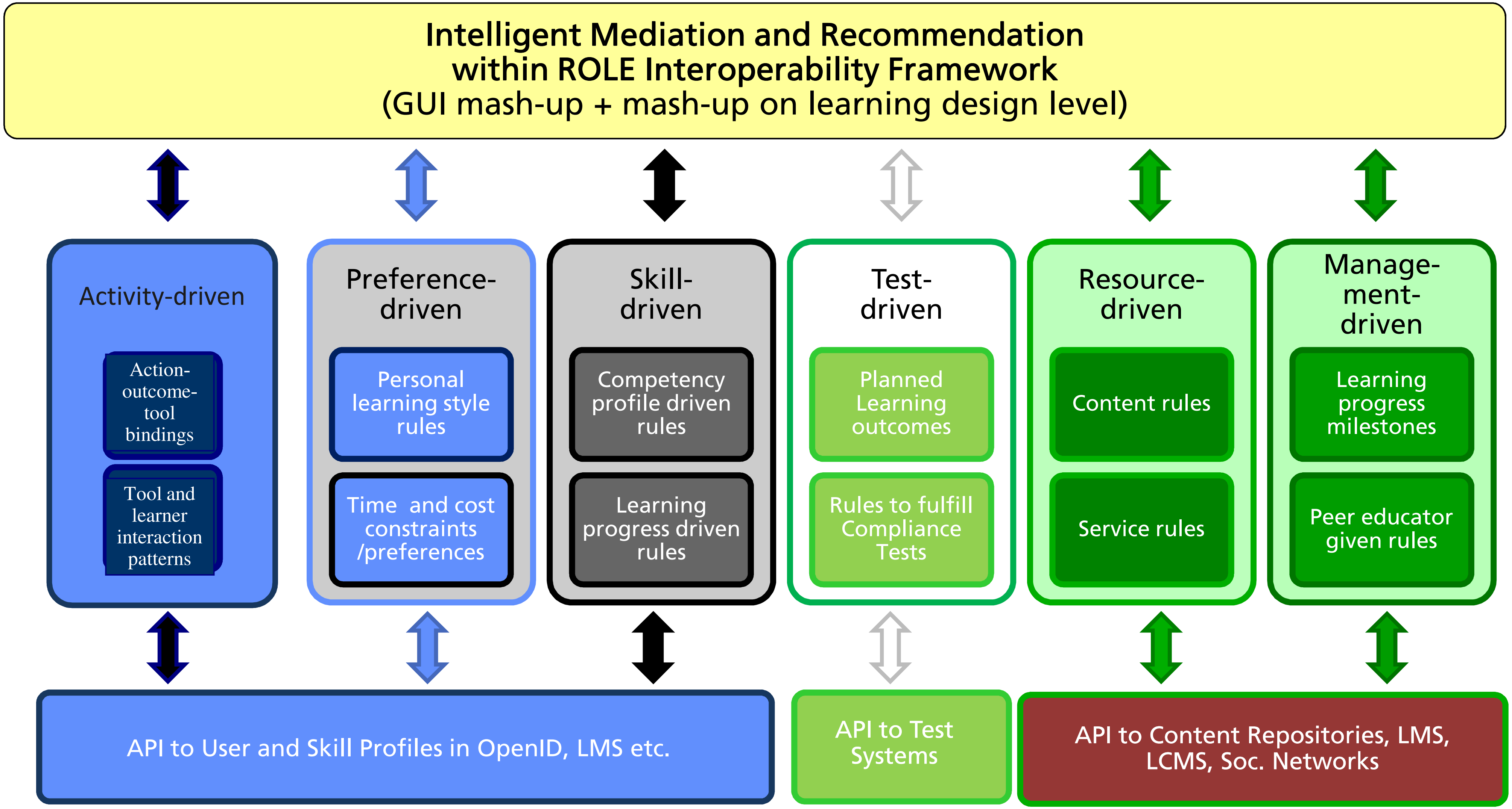
ROLE Vision
- Empower the learner to build their own responsive learning environment

Responsiveness
- Awareness and reflection of own learning process

User-Centered
- Individually adapted composition of personal learning environment

http://www.role-project.eu

ROLE: Mash-up services, rules and principles



LogiAssist

Mobile training for truck drivers

- ❖ Learning in breaks, at stops, during driving.
- ❖ Using mobile low-profile technology
- ❖ Distributed learner communities

- Motivation for self-regulated learning
- Context-sensitive adaption of learning contents and presentation modes
- Security aspects

Fraunhofer
FIT

Ziel2.NRW
Regionale Wettbewerbsfähigkeit und Beschäftigung

Thank you.

Dr. Martin Wolpers

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+49 2241 14 -2128

http://www.fit.fraunhofer.de/services/mobile/caple_en.html

JAPANESE-GERMAN CENTER BERLIN [JDZB]

in cooperation with

JAPAN SOCIETY FOR INFORMATION AND SYSTEMS IN EDUCATION [JSISE]
THE UNIVERSITY OF ELECTRO-COMMUNICATION, TOKYO
GRAZ UNIVERSITY

Tentative Program

For the symposium and workshop on

The Challenge of Demographic Change – Sustainable Life-Long Learning and Digital Media

September 10 and 11, 2009
at the JDZB, Saargemuender Str. 2, 14195 Berlin

Wednesday, September 9

19.30 h	Get-together for speakers and organizers, Hotel Savoy

Thursday, September 10, public symposium

	Languages: Japanese/German, simultaneous interpretation
09.30 h	**Welcome Remarks** Dr. Friederike BOSSE (JDZB)
09.40 h	**Introduction** Prof. Dr. OKAMOTO Toshio (Japan Society for Information and Systems in Education [JSISE]; The University of Electro-communication, Tokyo) Prof. Dr. Dietrich ALBERT (Graz University, Austria)
Session 1	**Policy Perspective** Chair: Prof. Dr. Dietrich ALBERT (Graz University, Austria)
10.00 h	SAITO Haruka (Director, Educational Media and Information Policy Bureau, Life-long Learning Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology, MEXT)
10.20 h	**Investitionen in Bildung und Forschung - Der Schlüssel für Innovations- und Wettbewerbsfähigkeit vor dem Hintergrund der demographischen Entwicklung** Dr. Stefan LUTHER (German Federal Ministry for Education and Research, Deputy Director General, Life-long Learning)
10.40 h	Q&A
11.00 h	*Coffee break*
11.30 h	**Technology-enhanced learning - changing the research perspective in Europe** Christian WILK (European Commission, DG Information Society and Media)
11.50 h	Q&A
12.15 h	*Lunch*

Session 2	**The Use of Digital Media at Universities and Perspectives for Life-long Learning** Chair: Prof. Dr. OKAMOTO Toshio (Japan Society for Information and Systems in Education [JSISE]; The University of Electro-communication, Tokyo)
13.30 h	Prof. Dr. Nicolas APOSTOLOPOULOS (Director, Center for Digital Systems, Freie Universitaet Berlin)
14.00 h	**Kyoto School of Professional Learning aiming at sustainable life-long learning** Prof. Em. NISHINOSONO Haruo (Institute of Learning Technology)
14.30 h	Q&A

Session 3	**Knowledge Transfer, especially between Old and New Workforce, and Digital Media** Chair: NN
15.00 h	**The Organizational Knowlegde Circulated e-Learning Management System and Human Development** Prof. Dr. OKAMOTO Toshio (The University of Electro-communication, Tokyo JSISE)
15.30 h	**On the Role of Knowledge Transfer in the Future Internet** Prof. Dr. Klaus TOCHTERMANN (Know-Center / Graz University of Technology)
16.00 h	Q&A
16.30 h	*Coffee break*

Session 4	**Panel Discussion: Technology Supported Learning in a Changing Working Environment** Chair: Nikola WOHLLAIB (Berlin) *tbc*
17.00 h	**Introductory Remark** NN (Stifterverband für die deutsche Wissenschaft), *asked*
	Participants: Dr. Lutz P. MICHEL (D-ELAN) Prof. NAKABAYASHI Kiyoshi (National Institute of Multimedia Education) Prof. Dr. Christoph MEINEL (Director, Hasso Plattner Institute at the University of Potsdam) Jan KUPER (DIHK) Dr. Winfried HEIDEMANN (Hans Böckler Stiftung)
18.30 h	End of symposium
	Dinner

Friday, September 11, workshop

	Language: English only
09.30 h	**Introductory speeches**
	Prof. Dr. OKAMOTO Toshio (JSISE) Prof. Dr. Dietrich ALBERT (University of Graz, Austria)
10.00 h	**3 Parallel Sessions (A-C)**
	A) Digital media in international academic learning and research B) Knowledge transfer to the next generation C) Social network services

12.00 h	*Lunch*
13.30 h	**3 Parallel Sessions (A-C) continued**
15.30 h	*Coffee break*
16.00 h	**3 Parallel Sessions (D-F)**
	D) Life-work balance and digital media E) ePedagogy F) Learning Grid
18.00 h	*Dinner*

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