Diverse Perspectives into Workplace Learning

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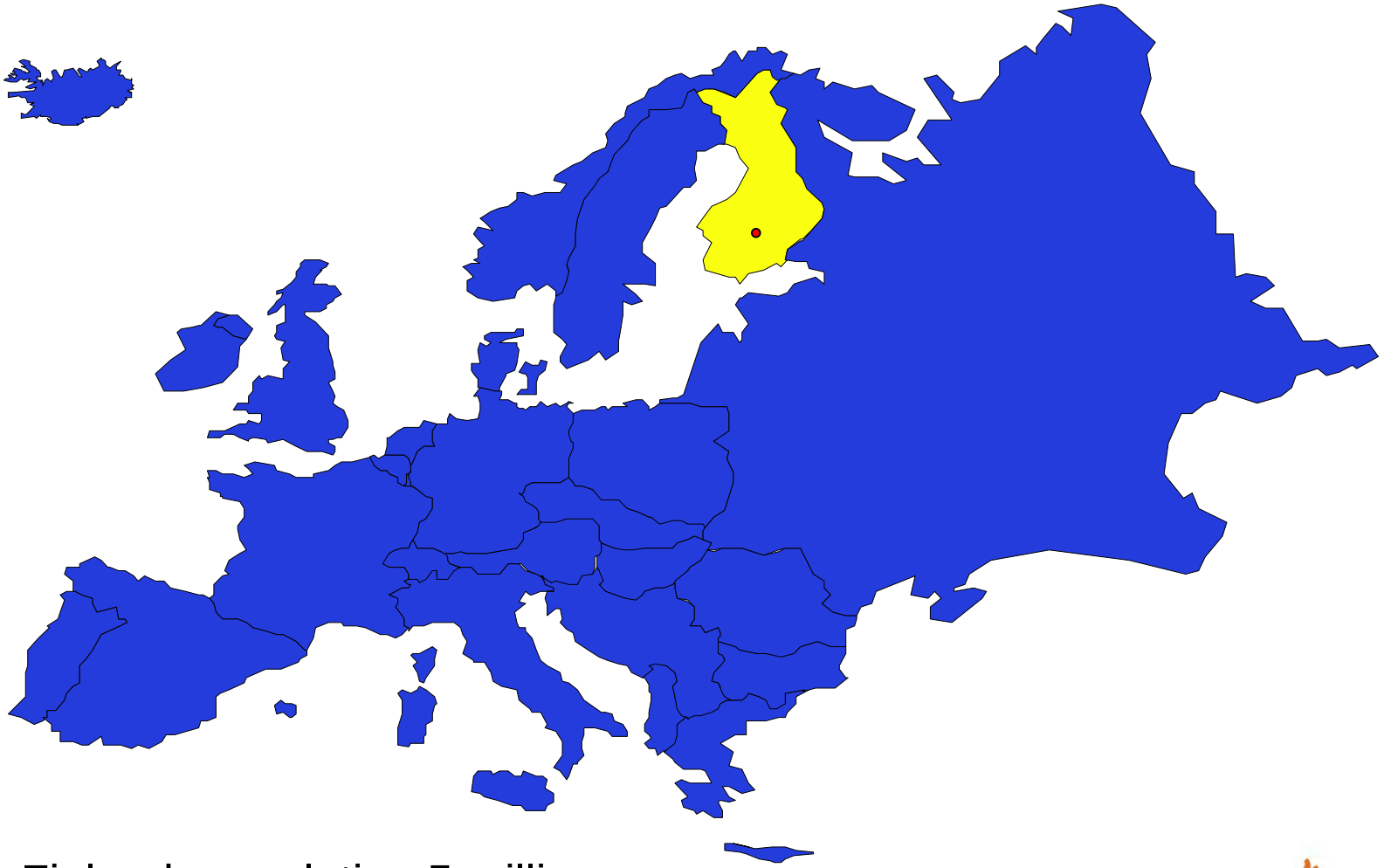
Contents:

1) Introduction of myself
2) Brief review on research on workplace learning
3) Examples of studies on workplace learning at the University of Jyväskylä, Finland
4) (Other studies of our group)



Finland: population 5 million
Jyväskylä: population 130.000; University: 15.000 students

THE FINNISH INSTITUTE FOR EDUCATIONAL RESEARCH

Areas of strength:

- Human-Centered ICT in Learning and Working Environments
- Education and Social Change
- Processes of Learning, Teaching and Guidance
- Comparative Assessment of Educational Outcomes, Cultures and Systems

Processes of learning, teaching and guidance

- Teaching and Learning in Transformation (Prof. Päivi Tynjälä)
- Learning, Education and Working Life (Prof. Marja-Leena Stenström)

http://ktl.jyu.fi/ktl/english

Learning and Teaching in Transformation

-Main focus in research on learning, teaching and guidance in higher education, including in-service training, lifelong continuing education and workplace learning

Specific themes of interest:

- changing learning environments (e.g. work-related learning, social media)
- students' learning and development processes
- teachers' professional development
- guidance and mentoring
- multiculturalism from the pedagogical perspective

http://www.neptuneassociation.com/about/projectbasedlearning1.jpg

2) Review on research on workplace learning

Why has learning at the workplace become so important?

Networking

Innovations

Globalisation

Climate change

Urbanization

Boundaryless work

Increasing amount of information

Fast development

Continuing change

Digitalization

Techonological development

Complicated structures

Situated nature of learning

http://herbu1.files.wordpress.com/2009/06/future-thinking.jpg

The gap between traditional school learning and skills needed at work

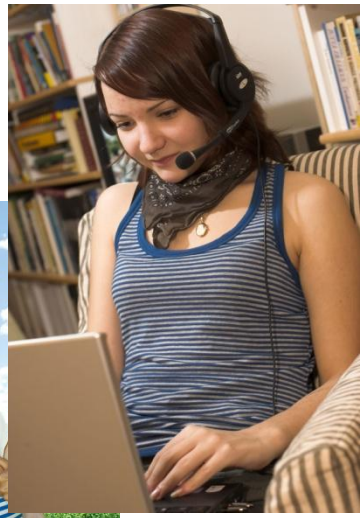
Expanding contexts for learning

School - workplace – lifeplace (Harris & Chisholm)

http://www.heinola.fi/FIN/Palvelut/Koulutus/koulutus.htm

World Skills 2005

http://users.utu.fi/mpsain/Japanin%20kuvat/studying.gif

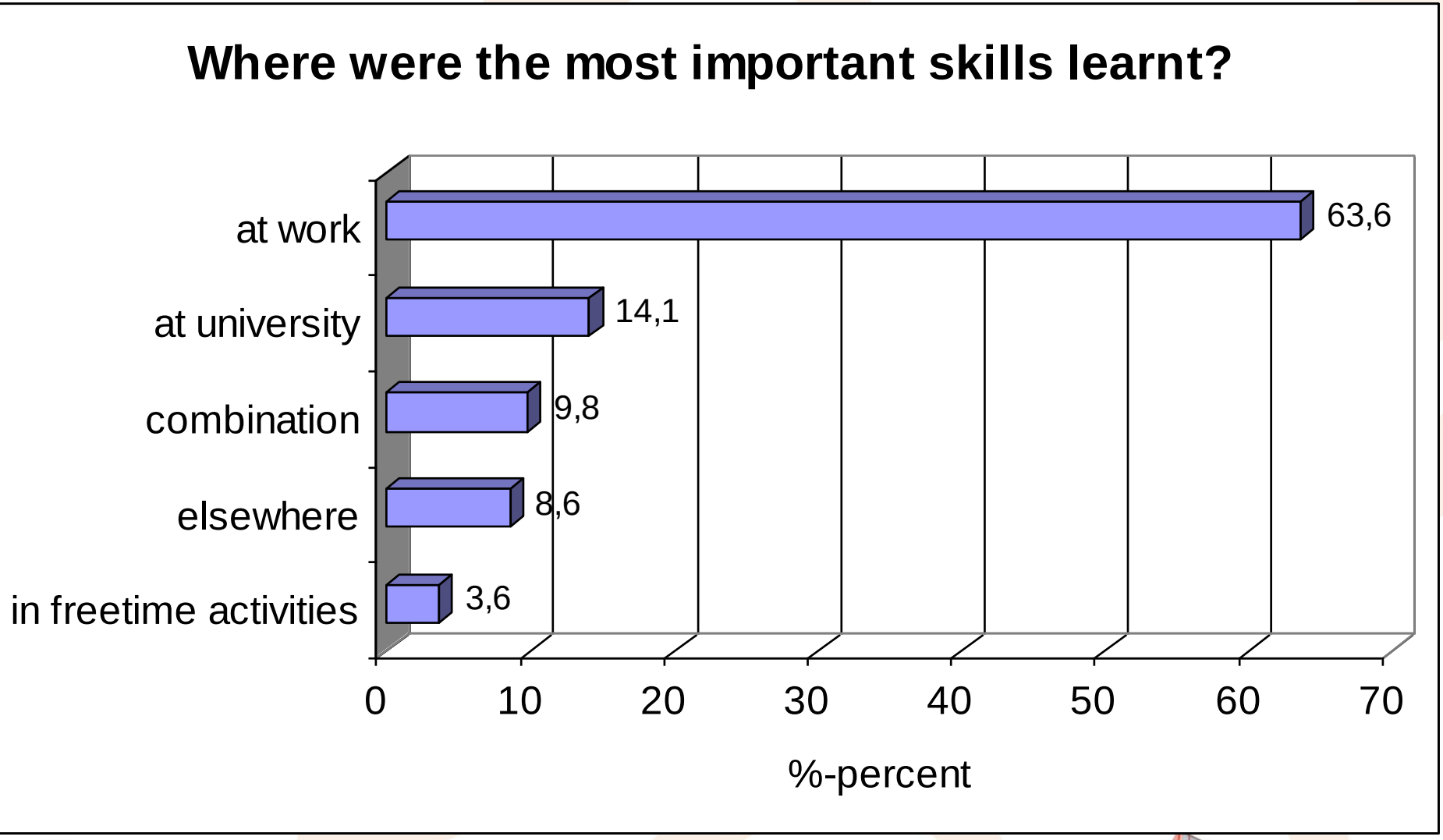


Photos Martti Minkkinen

Karrasch et al.Lukion psykologia 4, p. 141

→Need of new kind of pedagogy

University graduates after 2-10 years work experience (Tynjälä et al. 2006):



Research Lines (A draft)

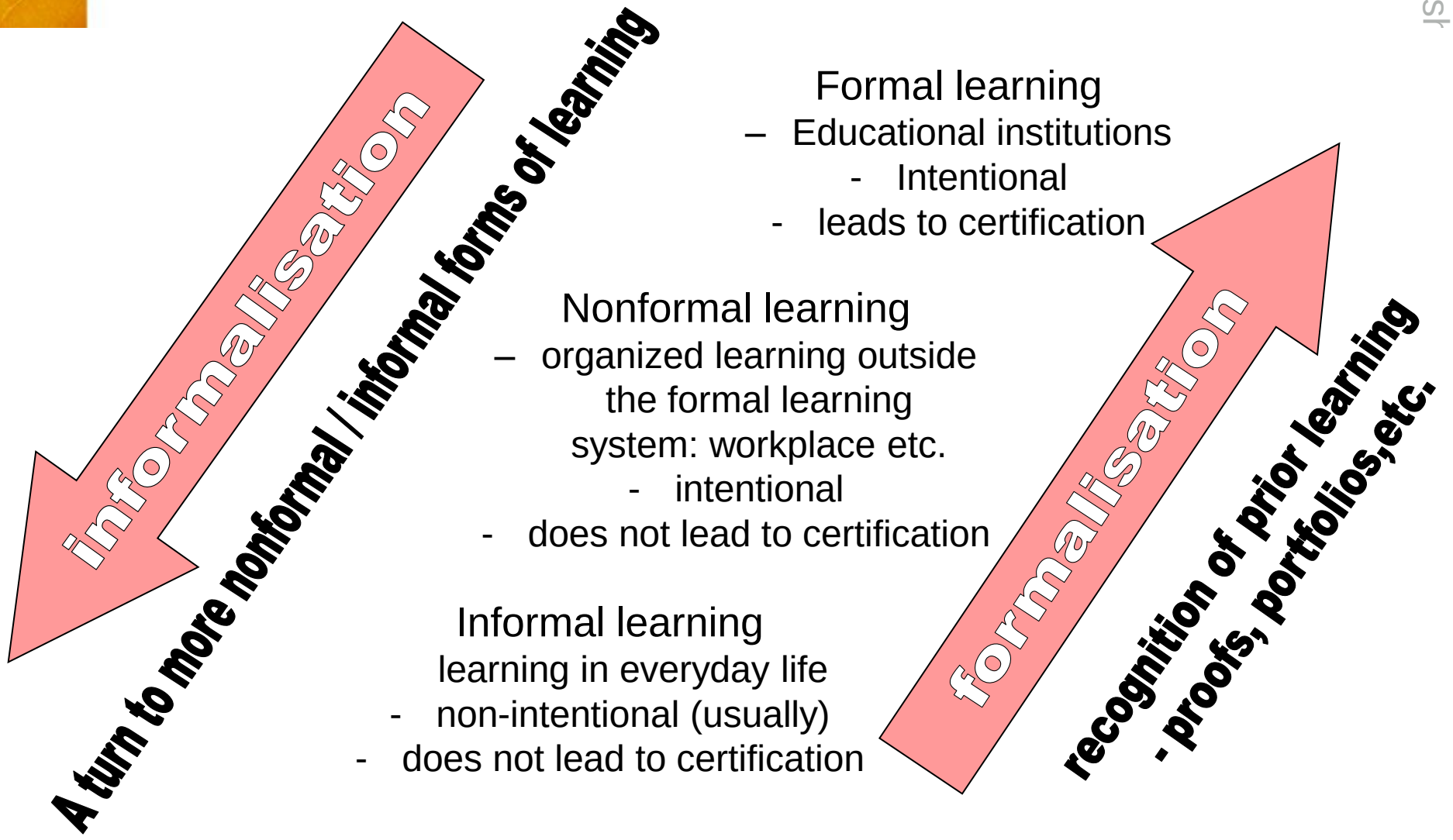
INDIVIDUAL → → ORGANIZATIONAL

Informal learning at work → formalization, workplace pedagogy	**Identity and agency**	**Professional expertise**	**Competence development in VET / Learning in Higher Education**	**Communities of practice**	**Organizational learning**
Marsick & Watkins 1990 Billett, Eraut, Evans, Fenwick, Fuller & Unwin E-learning at work, CSCL	Brown, Kirpal & Rauner 2007 Billett, Collin, Eteläpelto, Paloniemi	Dreyfus & Dreyfus 1986 Ericson et al Bereiter & Scardamalia *Progressive problem solving* Bozhuizen, Gruber, Harteis	Achtenhagen & Weber Guile & Griffiths 2001 *models of work experience* Tynjälä & al 2006, 2008, 2009, 2010 *Integrative pedagogy* Filliettaz: *discourse analysis*	Lave & Wenger 1991, *Legitimate peripheral participation,* Wenger 1998 *Communities of practice*	Engeström, *Expansive learning* 1988; *Developmental Work Research* Argyris & Schön 1997 Senge 1995 *Learning organization* Nonaka & Konno1995 *Knowledge creation* Hakkarainen et al 2004 *Networked expertise*

Differences of formal learning and informal workplace learning (adapted from Resnick, 1987; Hager, 1998)

Learning in formal education	Learning at the workplace
Mainly intentional	Mainly unintentional
Prescribed by formal curriculum, competency standards, etc.	Usually no formal curriculum or prescribed outcomes
Produces explicit knowledge and generalized skills	Produces implicit and tacit knowledge and situation specific competences
Learning outcomes predictable	Learning outcomes less predictable
Uncontextualised – Characterized by symbol manipulation	Contextual – characterized by contextual reasoning
Focussed on mental activities	Focussed on tool use + mental activities
Individual	Collaborative
Theory and practice traditionally separated	Seamless know-how, practical wisdom
Separation between knowledge and skills	Competences treated holistically, no distinction between knowledge and skills

Relationship between formal and informal learning



Formal learning
– Educational institutions
- Intentional
- leads to certification

Nonformal learning
– organized learning outside the formal learning system: workplace etc.
- intentional
- does not lead to certification

Informal learning
learning in everyday life
- non-intentional (usually)
- does not lead to certification

(EC Communication on Lifelong Learning 2001, 32-33;
Tuschling & Engermann 2006; Heikkinen, Tynjälä & Jokinen, 2010)

How do people learn at work? (1/2)

1) by doing the job itself
2) through co-operating and interacting with colleagues
3) through working with clients
4) by tackling challenging and new tasks
5) by reflecting and evaluating one's work experiences
6) by organizing learning projects
7) by participating in learning networks
8) through formal education
9) through extra-work contexts

(e.g. Billett et al, 2005; Collin, 2002; Collin & Valleala 2004; Eraut, 2004; Heikkilä 2006; Hytönen & Tynjälä 2005; Poell 1998, 2006; Tikkamäki, 2006)

How do people learn at work? (2/2)

→**by participating in the communities of practice**

(Lave & Wenger, 1991; Wenger, 1998, Billett 2004)

- **Legitimate peripheral participation as a way from novice to expert (Lave & Wenger, 1991)**
- **Newcomers may teach old-timers as well**

(Fuller & Unwin, 2002)

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What do people learn at work? (1/2)

1) Task performance (e.g. fluency, skills, collaboration)
2) Awareness and understanding (e.g. colleagues, contexts)
3) Personal development (e.g. self evaluation)
4) Teamwork (e.g. joint planning and problem solving)
5) Role performance (e.g. supervisory role, delegation)
6) Academic knowledge and skills (e.g. using knowledge resources; theoretical thinking)
7) Decision making and problem solving (e.g. in pressured conditions)
8) Judgement (involving e.g. quality of performance, output, and outcomes)

(Eraut, 2004)

What do people learn at work? (2/2)

9) bad work practices
10) disadvantages of the field
11) shirking the duties, gossiping etc

(Tynjälä & Virtanen, 2005)

Approaches to workforce development (Fuller & Unwin, 2004)

Expansive	Restrictive
Participation in multiple communities of practice	Restricted participation
Planned time off-the-job including for knowledge-based courses and for reflection	Virtually all-on-job: limited opportunities for reflection
Vision of workplace learning: progression for career	Vision of workplace learning: static for job
Organizational recognition of, and support for employees as learners	Lack of organisational recognition of, and support for employees as learners
Opportunities to boundary crossing	Little boundary crossing
Knowledge and skills of whole workforce developed and valued	Knowledge and skills of key workers/groups developed and valued
Team work valued	Rigid specialist roles
Managers as facilitators of workforce and individual development	Managers as controllers of workforce and individual development
Chances to learn new skills/jobs	Barriers of learning new skills/jobs
Innovation important	Innovation not important

Factors influencing work-related learning

(Ashton, 2004; Billett, 2004; Heikkilä, 2006; Illeris et al, 2004; Sambrook, 2006; Sveiby & Simos, 2002; Tikkamäki, 2006)

Organisational factors

-organisational structure
-organisation of work
-senior manager support

Functional factors

-role of HRD
-expertise of staff
-collaborative climate
-orientation towards learning and innovation

Individual factors

-individuals' agency and commitment, motivation, self-confidence, life-situations

Stephen Billett (2001):

The way workplaces afford opportunities for learning and how individuals elect to engage in activities and with the support and guidance provided by the workplace, is central to understanding workplaces as learning environments. These dual bases for participation at work --- co-participation --- and the relations between them, are held to be central to understanding the kinds of learning that workplaces provide.

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3. Examples of Studies on Workplace Learning at the Finnish Institute for Educational Research, University of Jyväskylä

Examples of Workplace Learning Studies at the Finnish Institute for Educational Research

1) Peer-Group Mentoring for Teachers' Professional Development
2) Learning Networks
3) Workplace Learning in Finnish VET
4) Skilled Central Finland
5) Development of Generic Working Life Skills in Higher Education

(red= adult education / adult learning, blue = VET, green= Higher Education)

Peer group mentoring for teachers' professional development

(Heikkinen, Jokinen & Tynjälä, 2008, 2009, 2010, 2011)

Peer-Group Mentoring for Teachers Professional Development

Hannu Heikkinen, Hannu Jokinen, Ilona Haapasalo, Päivi Tynjälä

Action research project aiming at supporting and examining teachers' professional development

Funded by Finnish Work Environment Fund (2007-2010) and Finnish Ministry of Education and Culture (2010→)

Based on
- Constructivist view of learning
- Model of integrative pedagogy

Data collected from mentors and mentees with questionnaires

In the future: data on interaction processes

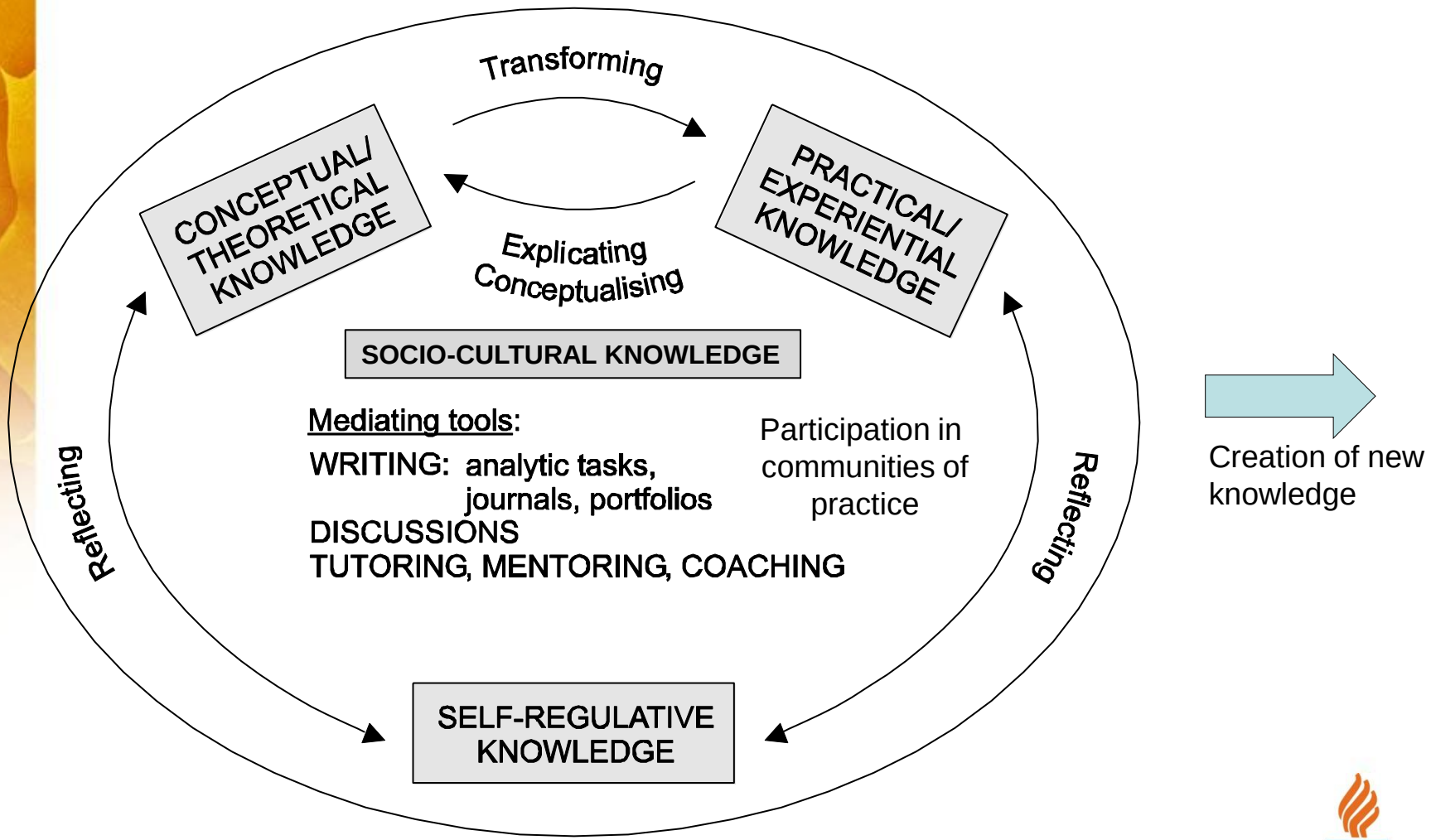
Book: Peer-Group Mentoring (Routledge)

International collaboration:

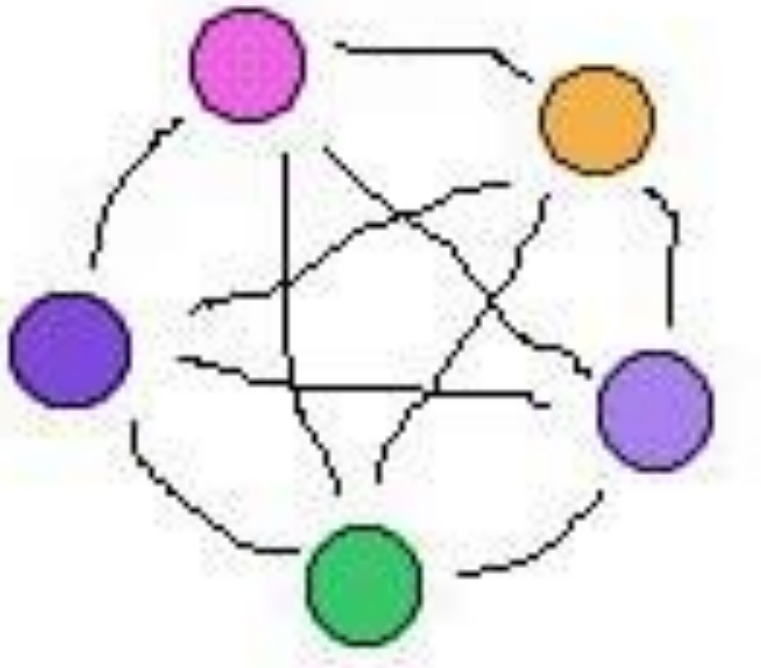
NQT-COME (Supporting Newly Qualified Teachers Through Collaborative Mentoring)

Model of Integrative Pedagogy

(Tynjälä et al 2006; Tynjälä 2008,2009; Tynjälä & Kallio 2009; Heikkinen, Tynjälä & Kiviniemi, 2011)



Workplace Development Program 1999-2009: Learning Networks



http://kielikompassi.jyu.fi/puheviestinta/tietomajakka/kuvat/verkosto.jpg

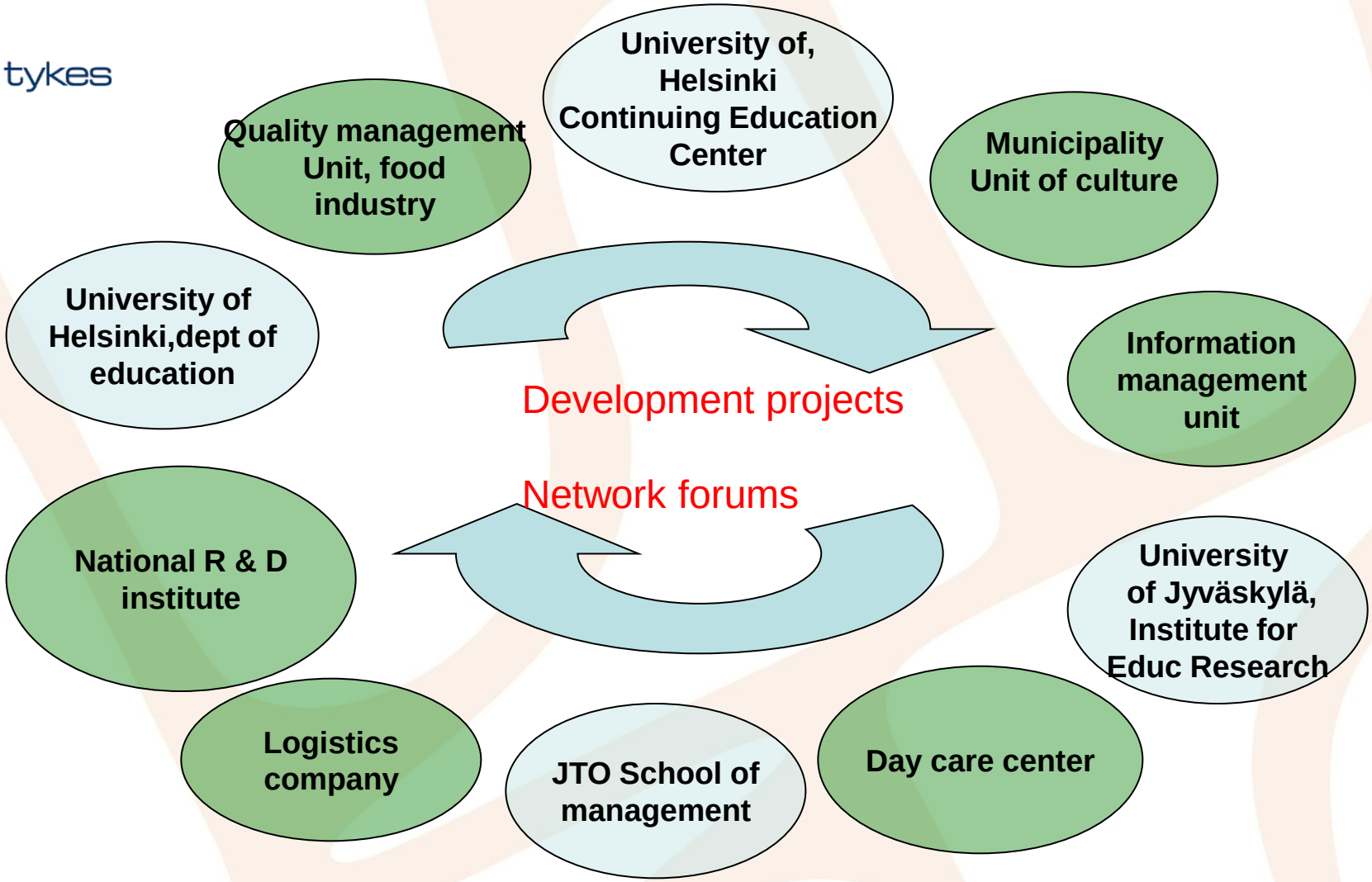
Aims of **the learning networks:**

-to experiment with new forms of cooperation between R & D institutes and workplaces

- to generate innovative solutions for workplace development

- to examine how learning networks can serve as a tool for workplace learning and development (Alasoini et al. 2005)

Learning Network of Knowledge Management



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A case study: The outcomes in two companies

(Salojärvi, Tynjälä, Ikonen-Varila, Myyry & Nikkanen, 2010)

	Company A: "Turbulent"	**Company B:"Goal oriented"**
Results on the individual level	New ideas, new perspectives from outsiders	New ideas Changes in conceptions of learning Self-confidence and empowerment
Results on the team level	No visible results	New working methods and tools
Results on the organizational level	Remained unclear Ideas for future development	The network of workplace trainers created (= Goals achieved) Ideas for future development
The experienced impact of the network forums	Very important	Quite important

Workplace learning in Finnish VET system

What factors promote student learning and vocational identity development at work? (Virtanen, Tynjälä & Eteläpelto 2011) (n=1603 final year VET students)

Student-related individual factors	Social, institutional and structural features of workplace	Educational practices
Students' motivational orientations - achievement orientation - learning orientation - invention orientation - initiative orientation - avoidance orientation **Students' prior work experiences** **Students' self-assessment of their own work**	**Students' experiences of work communities** - social and interactional support - availability of individual guidance - active membership **Discussions at work** - with the workplace trainer - with other employees **Content of guidance discussions** - guidance concerning work and work environment - guidance concerning student's own development and assessment **Size of the workplace**	**Integration of school learning and workplace learning** - integration between school learning and workplace learning - connection between school and work **Different forms of guidance** - discussion with teacher - discussion together with teacher and workplace trainer - assignments from school - learning journals **Length of workplace learning periods** **Setting the goals for workplace learning periods**

Predictors of skill learning and vocational identity development

Dependent variable: **Students' skill-related learning outcomes at work** ($R = .67$, $R^2 = .44$; $F = 150{,}123$, Sig. .000)				
Independent variables	**B**	**β**	**t**	**Sig**
Active membership	.246	.273	11.016	.000
Integration between school learning and workplace learning	.210	.184	7.505	.000
Invention orientation	.181	.182	7.440	.000
Learning orientation	.192	.167	7.148	.000
Guidance concerning student's own development and assessment	.147	.159	6.678	.000
Self-assessment of one's own work	.180	.148	6.063	.000

Dependent variable: **Students' vocational identity development at work** ($R = .60$, $R^2 = .36$; $F = 108{,}355$, Sig. .000)				
Independent variables	**B**	**β**	**t**	**Sig**
Integration between school learning and workplace learning	.200	.229	9.195	.000
Learning orientation	.165	.182	6.939	.000
Initiative orientation	.125	.162	6.223	.000
Active membership	.113	.162	5.879	.000
Availability of individual guidance	.118	.136	5.029	.000
Discussion with employees	.108	.132	5.259	.000

All three types of factors (student-related, workplace related, pedagogy-related) are important for student learning and vocational identity development at the workplace

Integration of school learning and workplace learning (=integrative pedagogy) seems to be the most important factor

→Negotiations of pedagogical aspects between the school, the workplace and the student are very important

”Skilled Central Finland”

Aim:
To develop vocational education
and working life
→ Learning Region

Methods:
- Creating networks and innovative partnerships between VET institutes and workplaces
- Promoting regional (provincial) cooperation between education providers

Contents:
-Development of workplace learning and workplaces as learning environments

Means:
- Development projects (e.g. ESF)

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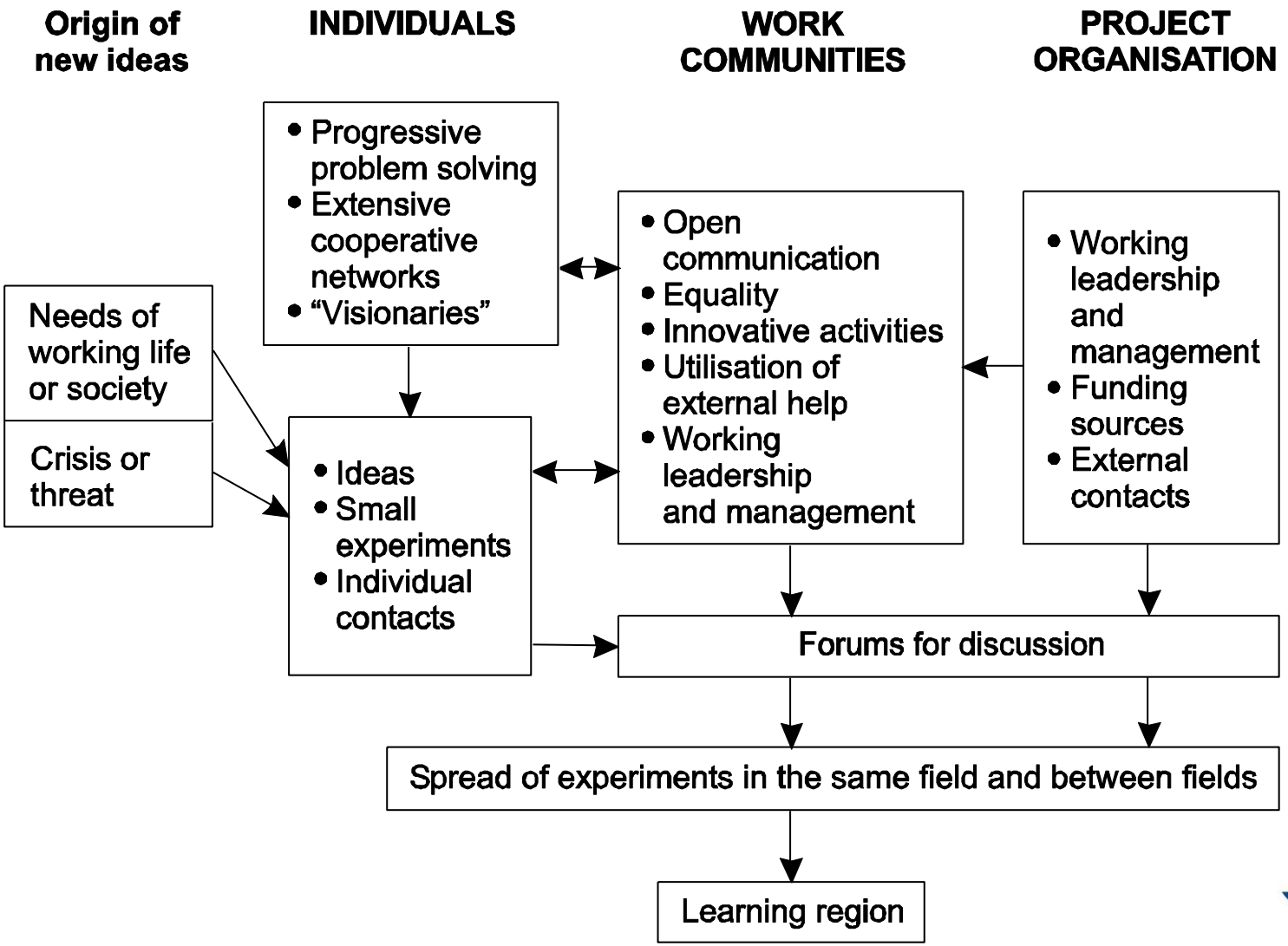
Findings: Model of innovative learning (Tynjälä & Nikkanen, 2009)



Development of Guidance and Generic Working Life Skills in Higher Education

- **ESF-project 2008-2011**
  - **Director: Prof Marjatta Lairio, Department of Teacher Education**
  - **11 partners**
- **The objective: to develop guidance and pedagogy for supporting study paths in higher education, particularly graduation and transition to working life**

- **At the FIER:**

  -Generic working life skills in HE: Hanna-Maija Liitos, Anne Virtanen, Seija Nykänen, Eeva Kallio, Päivi Tynjälä

  -Social media in guidance: Jaana Kettunen, Liisi Suurnäkki, Sakari Saukkonen

Generic Working Life Skills in Higher Education

Anne Virtanen, Seija Nykänen & Päivi Tynjälä
Hanna-Maija Liitos & Eeva Kallio

- Students' experiences of their studies as regards the development of generic skills (n=289)
- Exemplary courses conducive to the development of generic skills: observations, interviews, questionnaires
  → pedagogical features
- Staff interviews in 3 universities: Models for Developing Work Life Skills
- Development of scientific thinking: entrance examinations, essays, tests

- **Generic Skills in Academic Education – Learning Network**
  http://ktl.jyu.fi/ktl/tao

Characteristics of the courses successful in nurturing generic skills (Tynjälä, Nykänen & Virtanen, 2011)

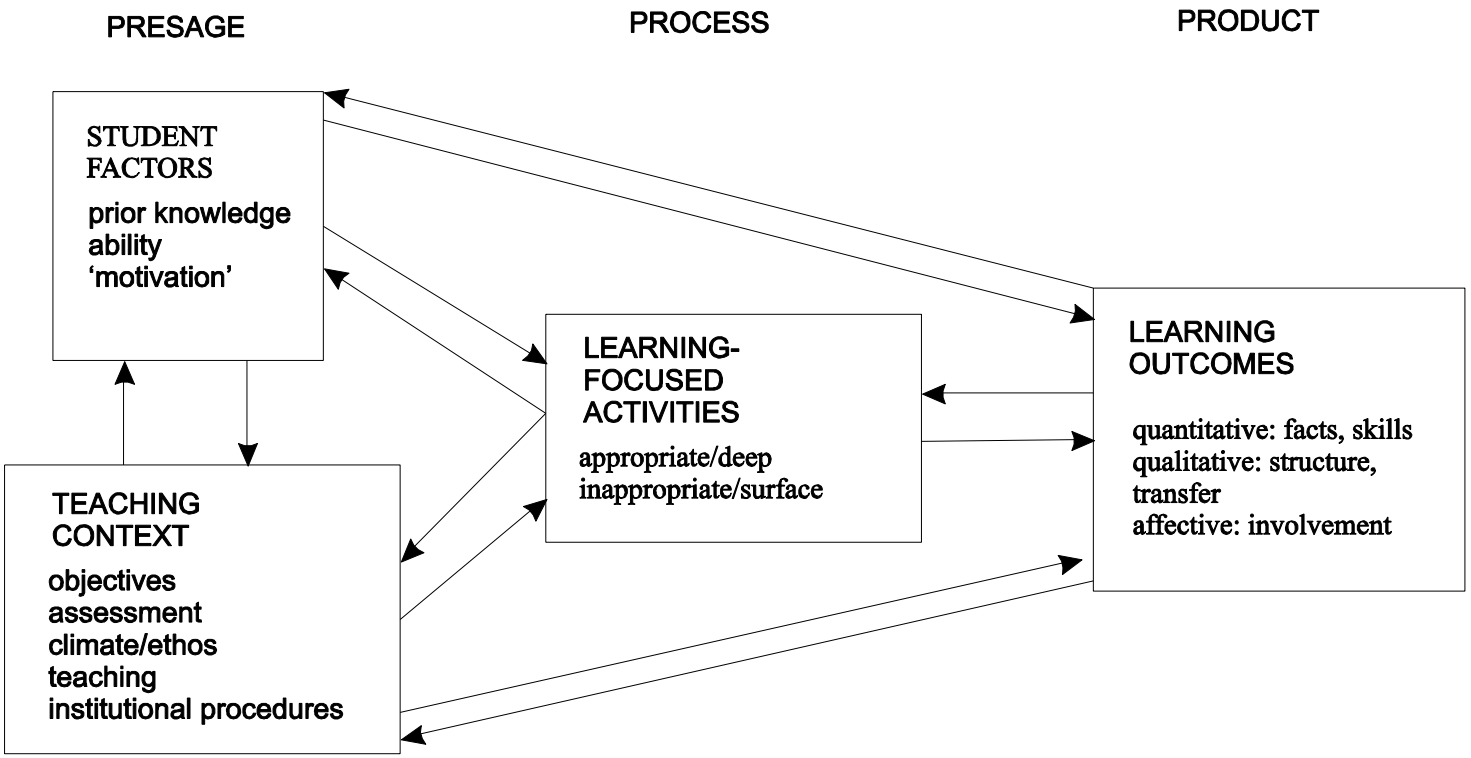
- Holistic planning and instructional design based on theory
- Integration of theoretical, practical, and self-regulative knowledge (= integrative pedagogy)
- Learning tasks involving active processing of knowledge and critical thinking
- Emphasis in collaboration and interaction rather than in individual work
- Open, positive athmosphere
- Collegial and collaborative working culture
- Long-term pedagocical development

Models for developing work life skills in higher education

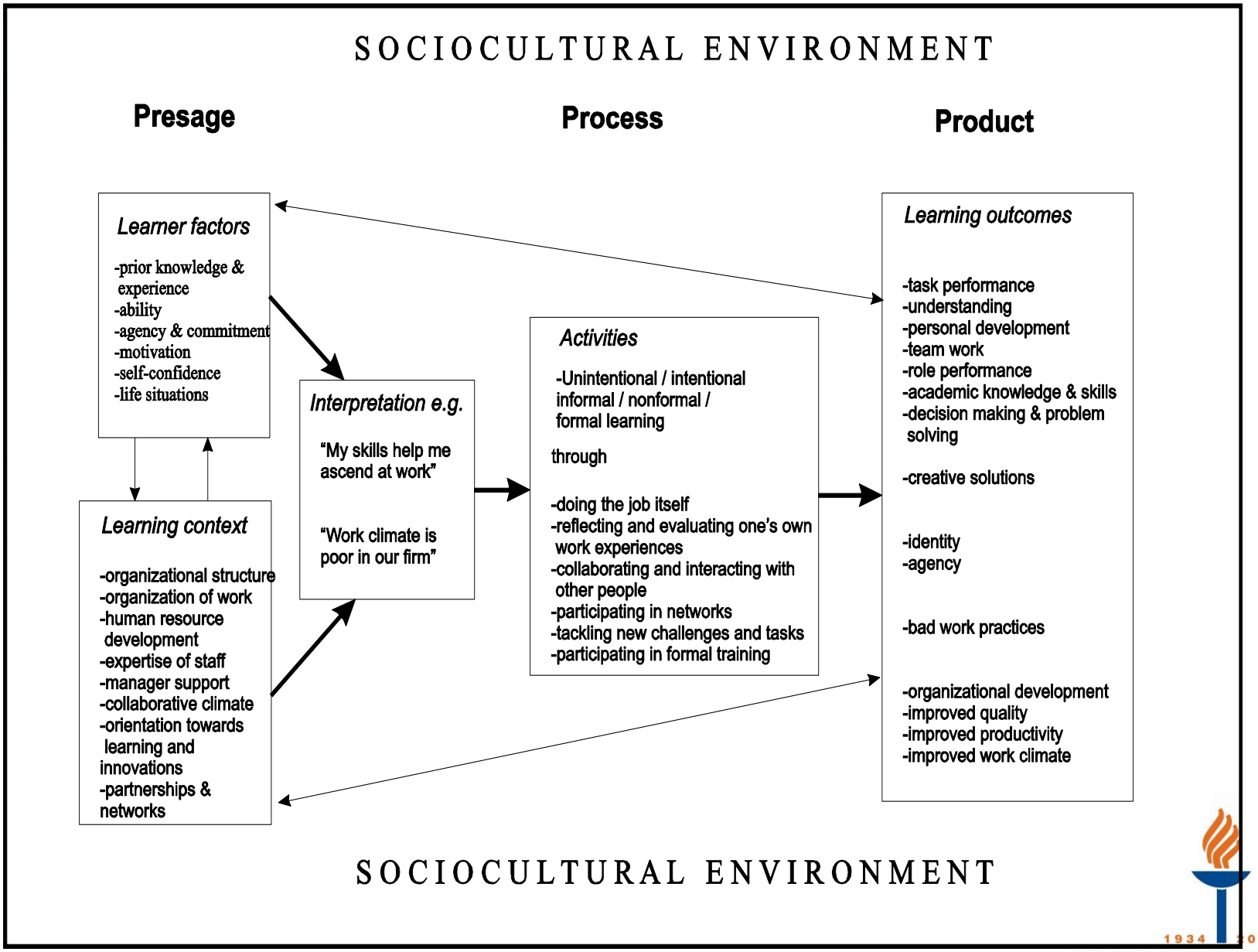
(Nykänen & Tynjälä, 2011)

	Specialist Model	Integrative Model	Model of Networked Culture
Structural factors	WP relations taken care of by specialists	Several teachers involved in workplace collaboration	WP collaboration embedded in structures and curriculum
Pedagogical factors	Theory and practice are separated	Theory and practice are integrated (to some extent)	Theory and practice are merged. All parties (including teachers & WPs learn)
Interrelationships between teaching, learning, guidance and student well-being	Separate roles of teacher, learner, and councelor	Teaching, learning and guidance become more integrated	Teaching, learning, guidance and taking care of students' wellbeing are merged

3 p model of learning (Biggs 1999)



3 P Model of Workplace Learning (Tynjälä 2010)



Thank you for your attention!

Merci beaucoup!

4. Examples of other studies

at the Finnish Institute for Educational Research, University of Jyväskylä, Finland

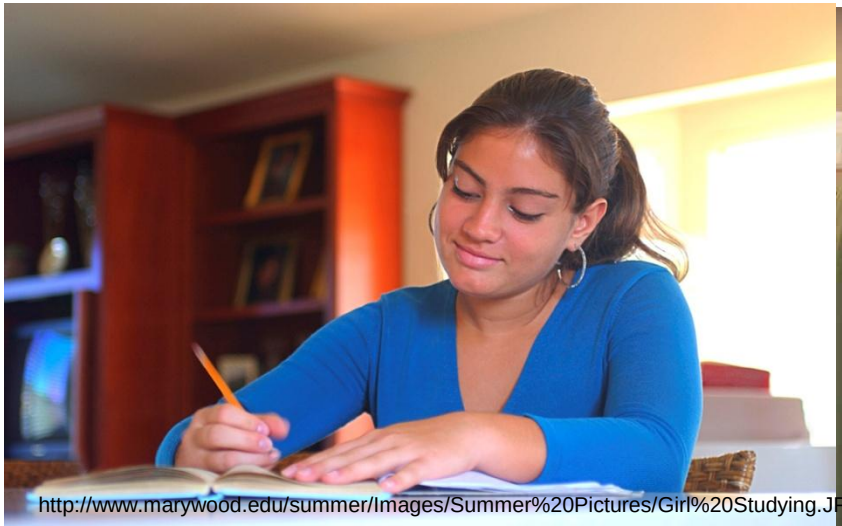
Student Selection and Study Processes In University

Jukka Utriainen, Hanna-Maija Liitos, Terhi Skaniakos, Eeva Kallio, Päivi Tynjälä

Students' study selection and their development during the studies *(2006→)*
- Data: admission test materials, essays, questionnaires, interviews, master's thesis
- Focus: development of thinking

Student selection pilot study 2011-2012
- Faculty of Education
- Faculty of Information Technology

Teaching and learning at the university
-Questionnaire addressing study processes and learning outcomes of the 1st, 3rd and 5th year students
-Questionnaire for the teaching staff



http://www.marywood.edu/summer/Images/Summer%20Pictures/Girl%20Studying.JPG

http://www.tkukoulu.fi/~kastul/noiro/f2.jpg

SUPPORT FOR UNIVERSITY STUDENTS DURING THEIR FIRST STUDY YEARS

Sanna Honkimäki, Päivi Tynjälä

- Aim: to examine staff tutoring and other forms of support for first year students

- Methods: student surveys and interviews, teacher interviews

- Honkimäki, S. & Tynjälä, P. (2007) ***Study orientations in different tutoring environments: university language students' first two years***. *Mentoring & Tutoring*, 15 (2), 183–199.
- Honkimäki, S. ***Experiences of guidance during university language students' first two years*** (manuscript)
- Honkimäki, S. & Tynjälä, P. ***Prerequisities of successful group mentoring of first-year university students*** (manuscript)
- Honkimäki, S. & Kálmán, O. ***Approaches to Transition Support for First Year University Students in Higher Education*** (manuscript)

Social Media in HE Guidance – Guidance in Social Media

Jaana Kettunen, Liisi Suurnäkki

- Aim is to identify how HE career guidance make use of the new possibilities of web 2.0 and social media
- Findings so far:
  - the use of social media in *career*-related activities has increased dramatically
  - practitioners recognize the potential of social media but are short of practices
  - need for the develoment of a whole new level of skills (in written expression + tool use)

Collaborative learning in education and practice

Anneli Sarja

A comparative study of Japanese and Finnish pre-service and in-service teacher education to improve the expertise of primary school teachers

2011-2013: interviews, observations

Design principles and guidelines for pedagogical design of e-learning environments (Tynjälä & Häkkinen, 2005)

- support of both individual reflection and collaborative knowledge building
- integration of theoretical knowledge with participants' practical experience
- learning tasks that lead learners to examine their work in the light of the conceptual tools provided
- learning tasks that help learners to conceptualise their practical experiences
- support for the invention and use of boundary objects
- support for the explication of implicit knowledge
- encouragement of collaboration and knowledge exchange between different groups of people
- real dialogue
- a progressive problem solving orientation
- integration of different forms of representation and different forms of learning activities (reading, writing, discussing, using metaphors, audio, visual etc)
- structured support and guidance for learning in all phases of the learning process
- integration of e-learning with face-to-face learning situations whenever possible

Research group: Learning, Education and Working Life

Different Educational Careers (drop outs, prolonged and successful educational careers) in VET and Higher Education (Maarit Virolainen, Päivi Vuorinen & Marja-Leena Stenström)

Higher Education Graduates in Labour Markets (Päivi Vuorinen)

ENTREE - Collaborative Enhancement of Transitions in Lifespan Learning Pathways by means of Distributed Pedagogical Leadership (Aini-Kristiina Jäppinen, Kaisa Kiuttu)

Multi-professional Cooperation to Support the Integration of Immigrants into Working Life (Matti Taajamo)

Cooperation Between Polytechnics and Working Life (Maarit Virolainen)

Recognition and Validation of Competences (Marja-Leena Stenström)

Transfer of Good Practices of Practice-Oriented Assessment in VET to the Italian Context (Marja-Leena Stenström)

Self-Assessment and Effectiveness of Competence Development in SMEs (small and medium sized enterprises) (Kari Itkonen, Pentti Nikkanen & Marja-Leena Stenström)

Development of Entrepreneurial Competencies and Enterprises (Kati Laine)

European Lifelong Guidance Policy Network, ELGPN (Raimo Vuorinen)
National Centre for Lifelong Guidance Expertise (Minna Koivunen, Sakari Saukkonen, and Raimo Vuorinen)
Guidance Services in Higher Education (Sakari Saukkonen)
Lifelong Guidance Practice and Policy Development (Seija Nykänen, Sakari Saukkonen & Raimo Vuorinen)

Funding application for 2012-2016:

Generic Skills in Higher Education

The aim:

- to examine generic skills from methodological and pedagogical points of view

Materials:

- Finnish AHELO data (n=2500)
- Selected courses for observation (n=24)
- Student surveys (n=6000)
- Teacher surveys (n=600)