HOW DOES RESEARCH-BASED TEACHING AND LEARNING BENEFITS STUDENTS

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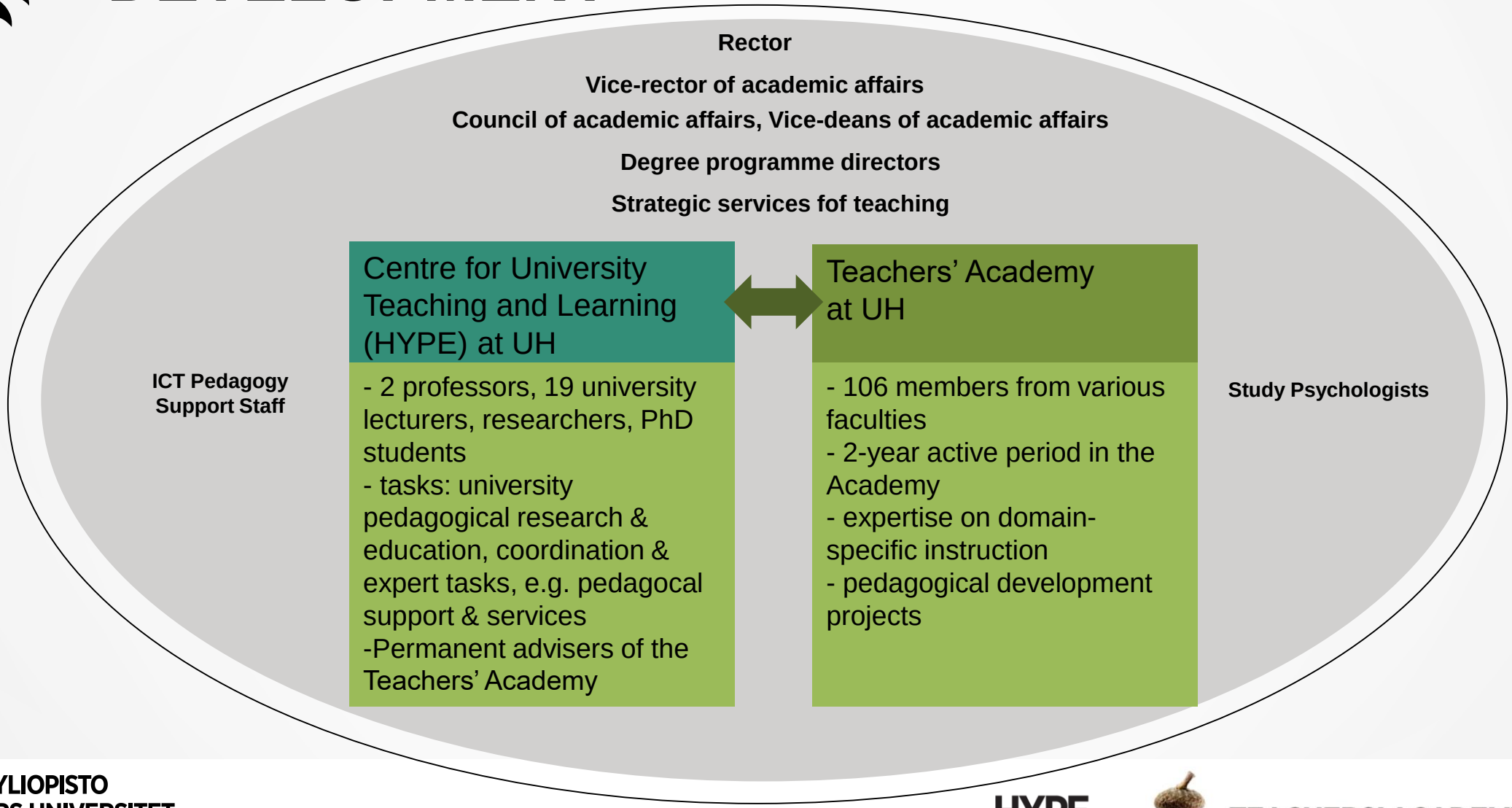
THE STUCTURE OF THIS PRESENTATION

1. About the evolution of long-term research and development of higher education at the University of Helsinki
2. Developing physical spaces, technologies, mobile and hybrid learning in line with educational psychology research
3. Examples of basic research in educational psychology: how research can inform practice and help students/society

The Evolution of University Pedagogy

- The first jump start at the University level and at the Department of Psychology – new teaching and learning methods and developing entrance exams 1986-1995
- The research unit for Development and Research, Faculty of Medicine, UH 1996-2001 – the network across faculties started to evolve
- Centre for University Teaching and Learning (HYPE) at UH that serves the whole university was founded in by professor Sari Lindblom (new professors Auli Toom and Kirsi Pyhältö)
- The network of pedagogical university lecturers started to expand in the late 1990s and the Study psychologists started in 1999
- Teachers' Academy, the network for the best teachers of UH in 2013
- Sari Lindblom as the Vice Rector, responsible for matters of teaching and learning

GROUND OF THE PEDAGOGICAL DEVELOPMENT



TEACHER'S ACADEMY

- Teachers' Academy was established in 2012.
- 106 members selected in 10 years.
- Each member has received a grant of 50,000€ to develop teaching.
- The 10th anniversary of the University of Helsinki Teachers' Academy will be celebrated on April 18, 2023. Join the celebrations at the *Decennial Anniversary Seminar of the University of Helsinki Teachers' Academy*.
- By founding the Teachers' Academy, the leaders of the University wished to convey that teaching is a valuable core element of academic work, and that similarly to scholarship in research, teaching can also be learned, developed purposefully and disseminated in a collegial manner.

The Teachers' Academy aims to

- promote the quality of teaching and improve its status in the academic community
- improve the quality of learning and learning results among students
- be an important step in an excellent teacher's career
- improve the status of teaching qualifications and create more comparable documentation
- provide a multidisciplinary community for teachers, that provides collegial support in the development of teaching and learning and promotes good practices at the University

https://www.helsinki.fi/en/admissions-and-education/education/teachers-academy

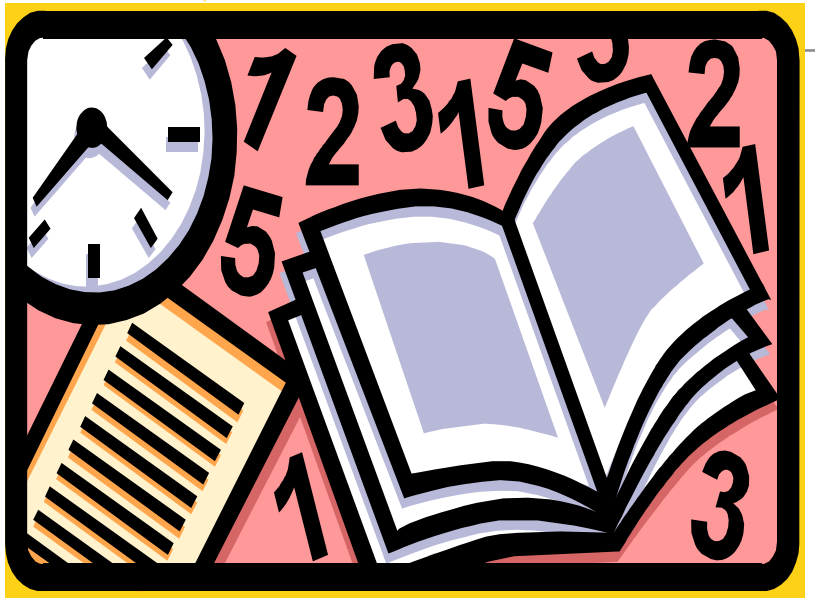
THE BASIC IDEA OF THE TEACHERS' ACADEMY AT UH

- The Teachers' Academy is a network of teachers who have invested their time in the development of teaching, teaching skills and students' learning processes.
- The Teachers' Academy will provide opportunities to earn merit and reward members of the academic community for their teaching qualifications and expertise. Both communities and individuals are encouraged to develop the quality of teaching in a goal-oriented manner.
- The establishment of the Academy is an indication of the value the university community places on the quality of teaching.
- By founding the Teachers' Academy, the University wishes to convey that teaching is a valuable core element of academic work, and that similarly to scholarship in research, teaching can also be learned, developed purposefully and disseminated in a collegial manner.

THE FOUNDING MEMBERS OF TEACHERS' ACADEMY IN 2013

- Teachers' Academy is a network of the most devoted teachers of University of Helsinki from all 12 Faculties
- In 2022, already about 100 members
- An important platform for peer learning and collaboration
- There is plenty of research at the UH on student learning and Faculty Development – I shall present some results of our own as examples

Inspiration from the early work of European research on learning and instruction



Marton ja Säljö (1976) took memory research out from the laboratory – they gave students lengthy texts and investigated their strategies and outcomes

Surface processing/approach

Strategies for memorizing lead to forgetting

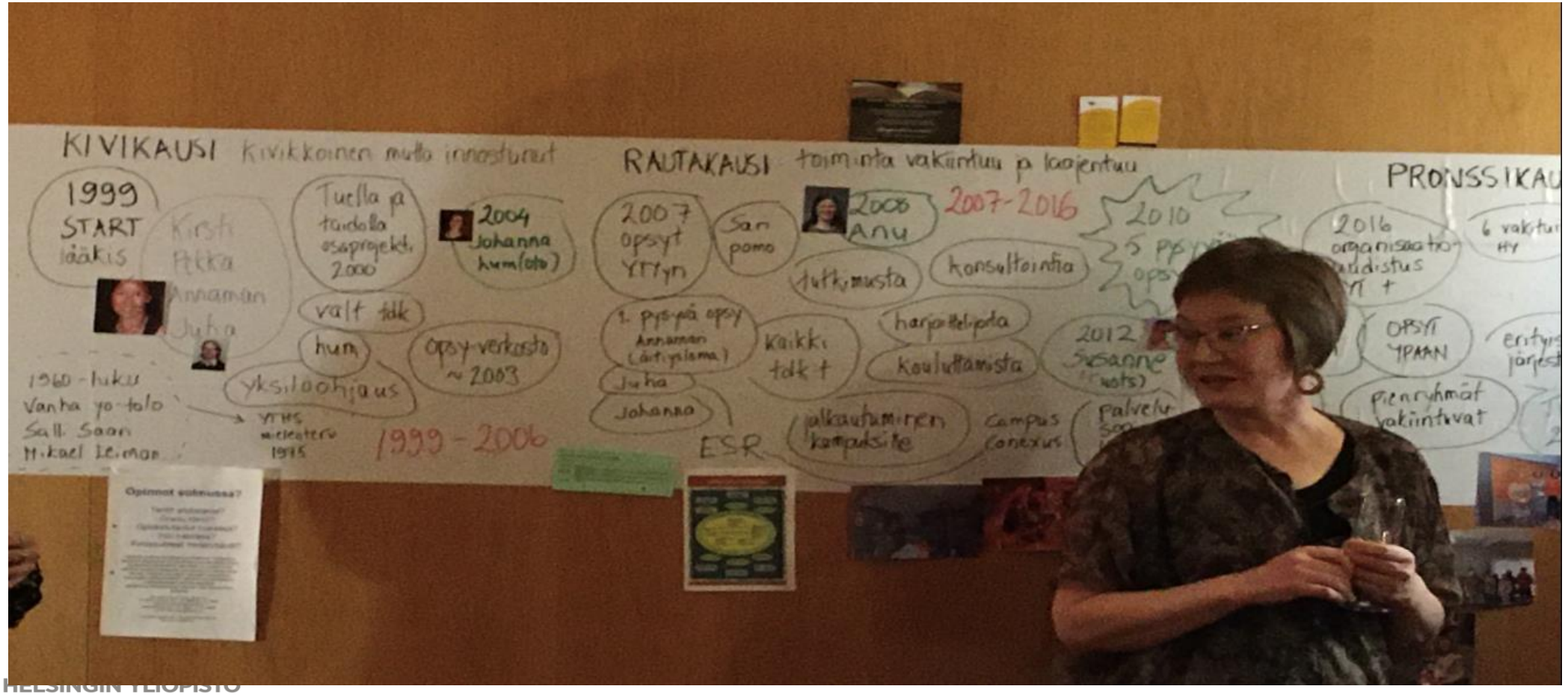
Deep processing changing the mental models

Strategies for elaboration and understanding lead to better remembering – also for the details

Systematic research on study strategies and student learning 1988-2001 – we aimed at top level journals from the very beginning!

- Lahtinen, V., Lonka, K. & Lindblom-Ylänne, S. (1997) Spontaneous study strategies and the quality of knowledge construction. *British Journal of Educational Psychology, 67*, 13-24.
- Lindblom-Ylänne, S., & Lonka, K. (2001). Students' perceptions of assessment practices in a traditional medical curriculum. *Advances in Health Sciences Education, 6(2*), 121-140.
- Lindblom-Ylänne, S., Lonka, K. & Leskinen, E. (1996) Selecting students for medical school: What predicts success during basic science studies? A cognitive approach. *Higher Education, 31*, 507-527.
- Lindblom-Ylänne, S., & Lonka, K. (2000). Dissonant study orchestrations of high-achieving university students. *European Journal of Psychology of Education*, *15*(1), 19-32.
- Lindblom-Ylänne, S. & Lonka, K. (1999). Individual ways of interacting with the learning environment - are they related to study success? *Learning and Instruction, 9,* 1-18.
- Lindblom-Ylänne, S., Lonka, K. & Leskinen E. (1999). On the predictive value of entry-level skills for successful studying in medicine. *Higher Education, 37*, 239-258.
- Lonka, K., & Mikkonen, V. (1989). Why does the length of an essay-type answer contribute to examination marks?. British Journal of Educational Psychology, 59(2), 220-231.
- Lonka, K., & Lindblom-Ylänne, S. (1996). Epistemologies, conceptions of learning, and study practices in medicine and psychology. *Higher education, 31*(1), 5-24.
- Lonka, K., Lindblom-Ylänne, S. & Maury, S. (1994) The effect of study strategies on learning from text. *Learning and Instruction, 4*, 253-271.
- Slotte, Virpi, Kirsti Lonka, and Sari Lindblom-Ylänne (2001). "Study-strategy use in learning from text. Does gender make any difference?." *Instructional Science 29*, 255-272.

Long-term development in helping our students: Study Psychologists for 20 years (1999-2019)



Windows opened to the world very EARLI (1991)

European Association for Reserach on Learning and Instruction

The first international conference we organised was EARLI SIG meeting in June 1994 in Helsinki and Stockholm

A picture from the preconference in Jaala

Improvisation and ”talkoot”

LONG-TERM DEVELOPMENT OF SPACES AND PRACTICES OF LEARNING

HS 7.6.96

VIERASKYNÄ

Opiskelijoita käytetään kopiokoneina

■ On tuhlausta käyttää opiskelijoita kopiokoneina, kun he kykenisivät toimimaan yliopiston ideamyllyinä, kirjoittaa **Kirsti Lonka**.

Luento on alkamassa. Opettaja asettaa kalvon piirtoheittimeen. Opiskelijoiden silmät lasittuvat, he lakkaavat kuuntelemasta ja alkavat kopioida. Kalvoja lentää heittimeen kiihtyvällä tahdilla. Kun viimeinen kalvo on esitelty, rituaali päättyy. Opettaja on saanut tiedon jaetuksi, ja opiskelijat ovat kirjoittaneet sen muistiin. Mutta onko kukaan oppinut mitään?

Kuvattua luentoa voitaisiin nimittää vaikkapa "kalvosulkeisiksi". Se heijastaa yhteiskunnassamme vallitsevaa käsitystä oppimisesta tiedon kopiointina. Tämä käsitys juontaa jo ajoilta ennen kirjapainotaitoa: kun oli vain yksi kirja, esilukijan oli sitä luettava ja kuulijoiden painettava asiat mieleensä mahdollisimman sanatarkasti.

Yliopisto-opetuksella on nyt valtavia haasteita: tiedon määrä kasvaa jatkuvasti, samalla kun on koulutettava yhä suurempia määriä opiskelijoita. Ratkaisuna ei voi olla yhä laajemmat tutkintovaatimukset, vaan opiskelua pitää kehittää niin, että tietoa osataan tuottaa ja soveltaa entistä joustavammin. Esimerkiksi Helsingin yliopiston lääketieteellinen tiedekunta onkin vastannut haasteeseen ottamalla käyttöön ns. ongelmakeskeisen oppimisen, jossa opiskelijat alusta asti ratkaisevat lääketieteellisiä ongelmia.

Yliopisto-lehden (9/96) suuren opiskelijakyselyn perusteella vaikuttaa siltä, että "kalvosulkeiset" ovat vielä hyvin tyypillisiä yliopisto-opetuksessa. Opiskelijat olivat muutoin melko tyytyväisiä, mutta kritisoivat yksipuolisia opetusmenetelmiä ja opettajien pedagogisia taitoja sekä opiskelijoiden ja opettajien vuorovaikutuksen laatua.

Tiedon jakamiseen ja kopiointiin tähtäävät opetuskäytännöt eivät ole oppimisen kannalta tehokkaita. Viimeaikainen tutkimus oppimisen psykologiassa osoittaa, että valmiiksi jäsennelty tieto voi tosin parhaassa tapauksessa liittyä osaksi tietoperustaamme, mutta se ei yleensä sovellu ongelmanratkaisuun. Vaikka tiedämme jonkin asian, se ei merkitse meille mitään.

Sovelluskelpoinen tieto ei koostu yksittäisistä faktoista, vaan kokonaisuuksista, joita muodostamme mieleemme elämämme aikana. Ne syntyvät esimerkiksi kyselemällä, lukemalla, näkemällä asioissa ongelmia ja miettimällä asioiden välisiä yhteyksiä. Yleensä oppimisen edellytyksenä on aktiivinen prosessi, joka ei nykyisen ajattelun mukaan rajoitu yhden yksilön mieleen, vaan syntyy vuorovaikutuksessa muiden ihmisten kanssa.

Hyvät luennoitsijat ovat aina intuitiivisesti osanneet opettaa kiinnostavasti. He ovat pyrkineet esittämään synteesejä, uusia näkökulmia ja kannustaneet opiskelijoita omaan ajatteluun. Hyvä luento kehittää juuri näitä ajattelun taitoja.

Pienryhmäopetuksen lisääminen ei ratkaise mitään, jos opetus perustuu perinteiseen kopiomalliin ja kehnoon vuorovaikutukseen. Pienryhmässä pitäisi tapahtua laadullisesti jotain erilaista kuin massaopetuksessa. Parhaimmillaan ryhmä auttaa opiskelijaa muodostamaan itsestään käsityksen oppijana. Näin hän pystyy arvioimaan tietojaan ja taitojaan, asettamaan tavoitteensa realistisesti ja, mikä tärkeintä, kehittämään itseään koko elämänsä ajan.

Koska yliopistouralla edetään ensisijaisesti tutkimusmeriiteillä, ei ole ihme, jos opettajat pitävät itseään pikemminkin tutkijoina kuin opettajina. Heillä ei myöskään ole yleensä minkäänlaista pedagogista koulutusta. Opetuksen taso saattaakin vaihdella huomattavasti. On hyvä, että opetusansioihin pätevöitymisen perusteena on viime aikoina kiinnitetty yhä enemmän huomiota.

Jos vain tutkimusta pidetään luovana toimintana, opetus nähdään valmiiden tulosten siirtämisenä opiskelijoille. Mutta jos opiskelijatkin nähdään tiedon tuottajina, opettaminenkin on tällöin luovaa toimintaa, jossa kehitellään jatkuvasti parhaita mahdollisia pedagogisia ratkaisuja. Monet yliopiston opettajat ovatkin innostuneet tästä oivalluksesta ja pyrkivät aktiivisesti kehittämään opetustaitojaan.

Yliopisto-lehden opiskelijakyselyn perusteella asetettiin eri yliopistojen tiedekuntia "paremmuusjärjestykseen". Omien tutkimusteni mukaan eri laitoksilla vallitsevat erilaiset kulttuurit, jolloin samat väittämät merkitsevät eri aineiden opiskelijoille eri asioita. Lisäksi hyvin menestyvät opiskelijat esittävät eniten sekä positiivisia että negatiivisia arvioita laitoksensa opetuksesta. Tällöin parhaat laitokset saattavat saada negatiivisimmat arviot! Joissain oppiaineissa kriittisyys suorastaan kuuluu opiskelijan toimenkuvaan.

Opetuksen arviointi ei ole tietenkään turhaa. Kyselyiden tekeminen panee opiskelijat ja opettajat miettimään opetusta ja tehostamaan toimintaansa. Jokaisen yksikön pitäisi kehittää omaa laatujärjestelmäänsä ja miettiä, mitä heidän opiskelijoidensa pitäisi tietää ja osata valmistuttuaan. Näitä asioita voidaan sitten pyrkiä mittaamaan.

Huikeita näkymiä opiskelijoiden ajatteluun

Joskus juhlapuheet saattavat antaa kipinän uudistuksille. Helsingin yliopiston rehtori Risto Ihamuotila viittasi syksyllä 1994 yliopiston avajaispuheessaan uudentyyppisen opetuksen tarpeeseen. Vielä samana syksynä käynnistettiin Rohkene ajatella -projekti, jossa psykologian ja filosofian laitokset yhdessä suunnittelivat kaikille yliopiston opiskelijoille opintokokonaisuuden, jonka tavoitteena oli opettaa tiedon tuottamisen ja arvioimisen taitoja.

Dosentti Esa Saarisen kanssa kevätlukukaudella pitämämme Rohkene ajatella -kokonaisuuteen kuuluva luentokurssi Onnistumisen psykologia ja filosofia tähtäsi kokonaisvaltaiseen elämänhallintaan. Tarkoituksena oli valmentaa opiskelijoita omaan ajatteluun ja omien voimavarojen käyttöönottoon. Kurssista muodostui lähes 700 hengen jättiläisseminaari (osallistujista noin 400 oli kurssia suorittavia opiskelijoita).

Luennoilla sovellettiin aktivoivan opetuksen periaatteita ja pyrittiin vuorovaikutukseen koko ryhmän kanssa. Kun luennot pidettiin dialogina filosofin ja psykologin välillä, opettajat oppivat jatkuvasti uusia asioita paitsi oppilailtaan, myös toisiltaan. Näin kurssi toimi oppivan organisaation periaatteita mukaellen.

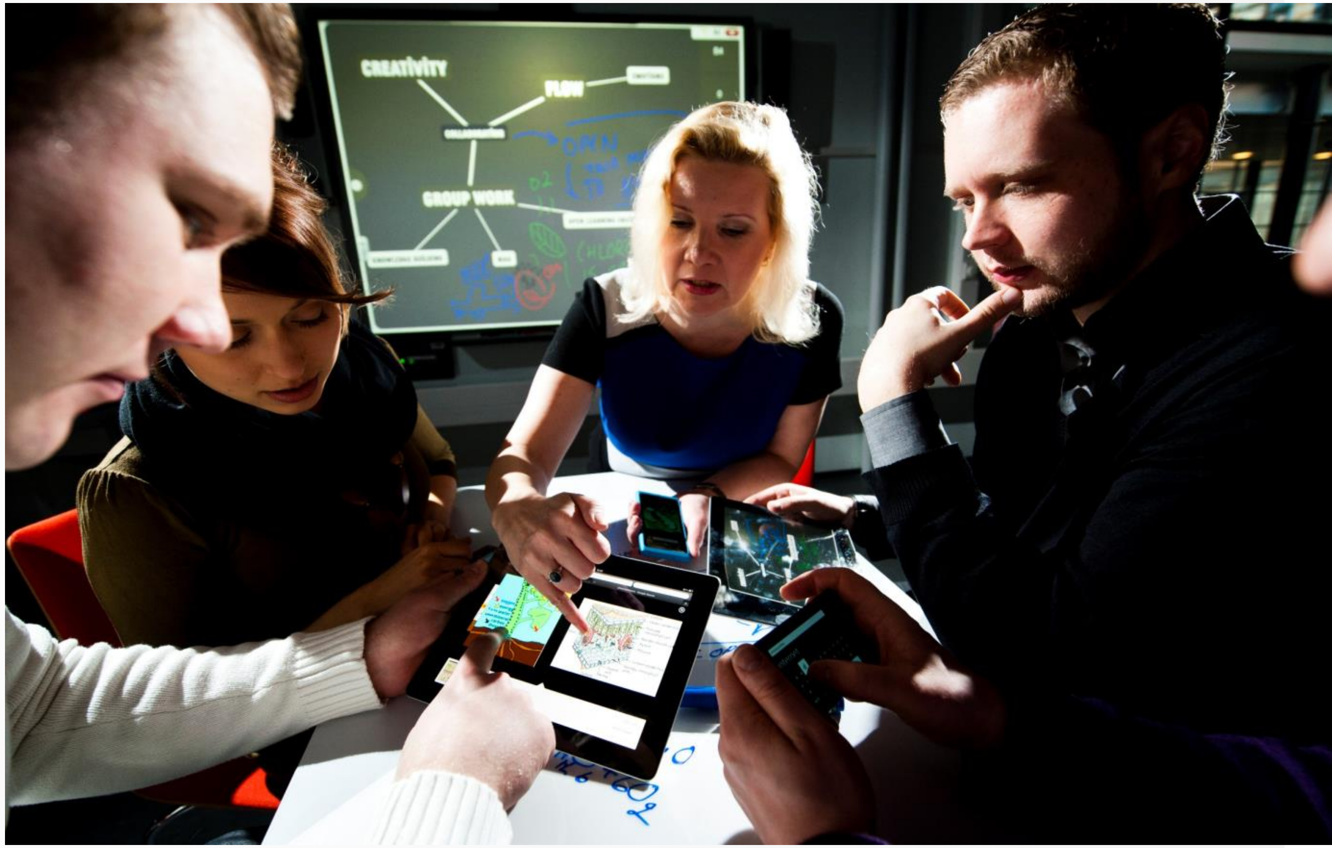
Kurssilla ei ollut perinteistä tenttiä, vaan osallistujat pitivät oppimispäiväkirjaa, josta esittivät parhaat näytteet tai yhteenvedot arvioitaviksi. Päiväkirjojen sivut avasivat meille huikeita näkymiä opiskelijoiden sellaiseen ajatteluun, joka pääsee harvoin esiin perinteisessä yliopisto-opetuksessa. Yliopisto on täynnä vielä kanavoimattomia kykyjä, joita ei missään nimessä saisi jättää kehittämättä huippuunsa.

Opiskelijat kaipasivat erityisesti eväitä kokonaisvaltaiselle kehitykselle, ajattelun taidoista arvomaailman pohtimiseen. Kapea ja kuivan älyllinen oppiminen ei olisi tyydyttänyt heidän tarpeitaan. He kokivat tarvitsevansa entistä parempaa valmennusta työelämää varten, vuorovaikutustaitoja, muiden ihmisten huomioimista ja yhteisöllisyyttä. Muun muassa rakentavan palautteen antaminen ja päämäärien asettaminen opiskelulle olivat monille aivan uusia taitoja.

Työelämässä tarvitaan entistä enemmän joustavuutta, ja opiskelijoita pitää innostaa elinikäiseen oppimiseen. Lama on opettanut heille, että yksinomaan materiaalisten arvojen varaan ei kannata tulevaisuutta rakentaa. On tuhlausta käyttää opiskelijoita kopiokoneina, kun he kykenisivät toimimaan yliopiston ideamyllyinä.

KIRSTI LONKA

■ *Kirjoittaja on psykologian lisensiaatti, joka viimeistelee yliopisto-oppimista käsittelevää artikkeliväitöskirjaansa Helsingin yliopiston*



PHYSICAL SPACES, TECHNOLOGIES AND KNOWLEDGE PRACTICES CHANGE INSIDE AND OUTSIDE SCHOOL

Our current students

were born with digital devices

and Internet

VS

ENGAGING LEARNING ENVIRONMENT 2012 FOR FUTURE TEACHERS - MINERVA PLAZA

Integrates physical, social, virtual, mobile, pedagogical, and mental spaces of learning (Lonka, 2012)

Video by mikko.I.Halonen http://vimeo.Com/60818003

Theory, technology and facilities are developed side by side

- ENGAGING LEARNING ENVIRONMENT FOR FUTURE TEACHERS

K. Lonka (2012)

Lonka, K. (2012). Engaging Learning Environments for the Future: The 2012 Elizabeth W. Stone Lecture. In Gwyer, R., Stubbings, R. & Walton , G. (Eds.), *The road to information literacy: Librarians as facilitators of learning: IFLA Publications Series 157* (pp. 15-30). Berlin/Munich: De Gruyter Saur.

http://vimeo.com/60818003

Video by Mikko.I.Halonen

Summary of 35 years research : How to engage your students?

(Lonka & Ahola, 1995; Lonka & Ketonen, 2012; Lonka, 1997; 2012; 2015; 2018)

We have put together research on interest and motivation with research on cognitive learning and various approaches to teaching and learning into a synthetic ”Engaging Learning Model”

1. **Activate previous knowledge and catch interest of your students.** This can be triggered by a case, a puzzle, a problem that can’t be solved without learning more about the topic. Use various student-activating tasks and discussions.
2. **Support the learning process with flipped learning, formative feed forward, self-test tasks to maintain interest.** Help the students to gain new knowledge by deepening inquiries, use the contact teaching/webinar time with elaboration of knowledge rather than delivery or transmission
3. **Assess the learning outcomes, deepen interest and motivate for future learning.** What did we learn? How was the learning process? What should we learn more? How can we apply this in a new context?

Phenomenon-based, interactive and playful learning in teacher education

Arts
Handicrafts (textile & technical)
Home economy
Sports & physical activity
Music
Robotics
Gamification
Animations
Playful learning
Latest technologies
AR/VR


Gamification of formative assessment
Digitalization supporting learning, where it is most useful
Flipped learning
Aligned with the e-books
Digitalizing Educational Psychology Mass courses in 2019
Engaging Learning Models
Collaborative co-construction
Genuine Deep-learning

HYBRID LEARNING
Combining social, digital, pedagogical, mobile, and virtual spaces simultaneously

Pictures:
Veikko
Somerpuro

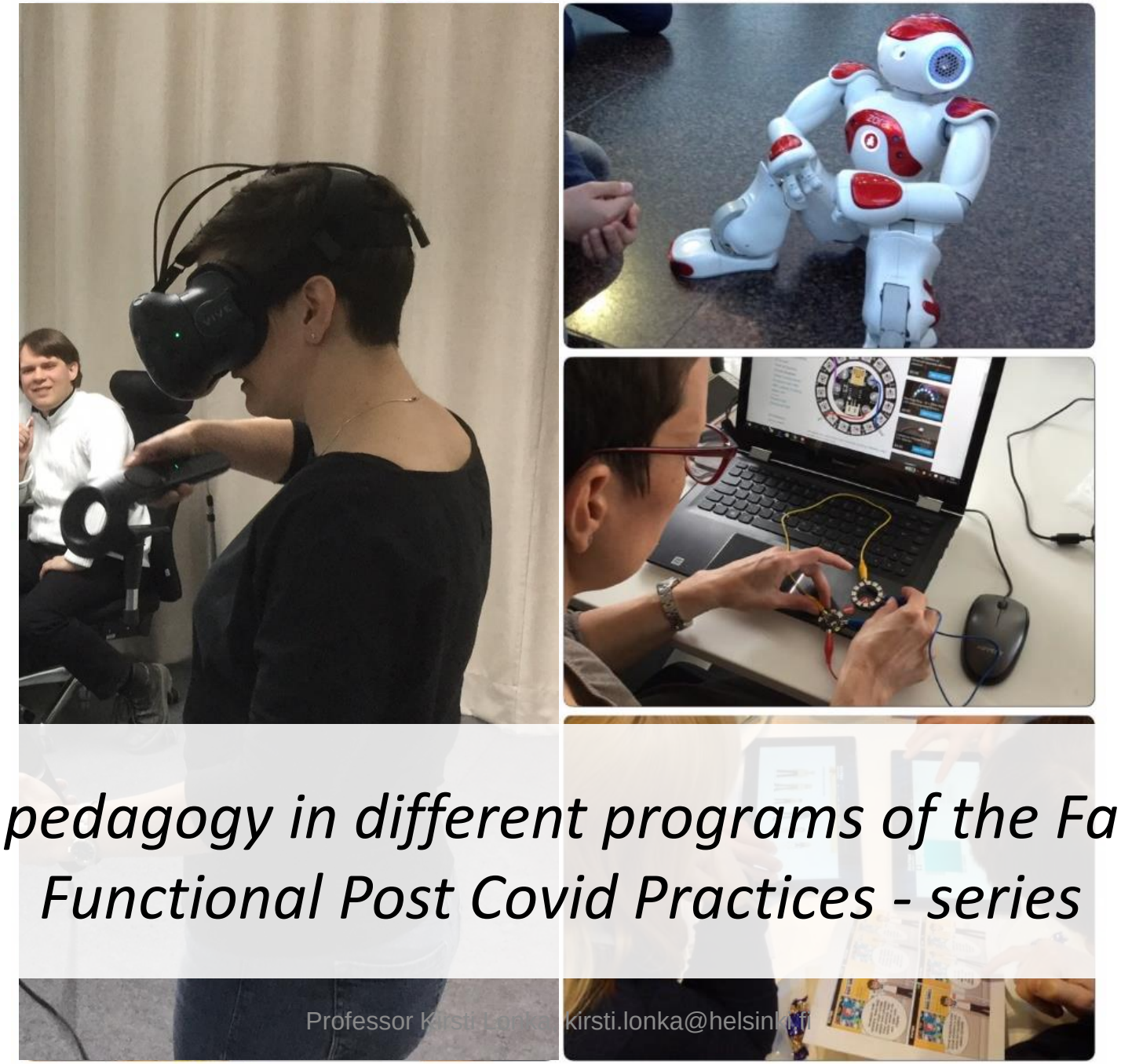
POST-COVID SITUATION
Streeming from Minerva Plaza shows human interaction and students can participate through Flinga from their homes

Faculty of Educational Sciences developing digitalisation

- Digi working groug /Digi visio group (prof. Kalle Juuti/ Dr. Tiina Korhonen)
- *DigiPedaTeam– A digital path for students and teachers*
- Funding by the Faculty
- Several development and research projects
- Active Networks
- DigiMarkets and DigiCafés
  - Collaborative co-creation, development and peer learning for the whole Faculty

HELSINGIN YLIOPISTO
KASVATUSTIETEELLINEN TIEDEKUNTA

@EduSciHelsinki
#digitori



Digital pedagogy in different programs of the Faculty & Functional Post Covid Practices - series

BASIC RESEARCH: EPISTEMIC COGNITION, ENGAGEMENT, AND STUDY PROBLEMS

Professor Kirsti Lonka
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HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

Faculty of educational sciences

STUDY ENGAGEMENT MATTERS

- Study engagement is defined as a positive, fulfilling, and work-related state of mind (Salmela-Aro, 2009)
- A persistent and pervasive affective-cognitive state (Scaufeli et al., 2002).
- Study engagement is related to both study success and satisfaction (Salmela-Aro, 2009, Schaufeli et al., 2002)
- Ketonen et al. (2017) showed that highly engaged students obtained the best academic achievement during their first years of studying: they were certain of their career choice
- We are constantly developing new ways of engaging our students

Doctoral dissertation by Elina Ketonen (2017)

- Students' academic engagement profiles and profile differences in long-term academic achievement
- Law, theology, science, electrical engineering and student teachers (N=668)
- Questionnaire, Person-oriented approach

Engaged students (69%)

Disengaged students (14%)

Undecided students (9%)

Alienated students (8%)

Illustrations designed by creativeart / Freepik

Ketonen, E., Haarala-Muhonen, A., Hirsto, L., Hänninen, J., Wähälä, K., & Lonka, K. (2016). Am I in the right place? Academic engagement and study success during the first years at university. *Learning and Individual Differences, 51,* 141–148.

ASPECTS OF PROBLEMATIC LEARNING

- In the present study, we used those motivational and regulatory variables that appeared to be most decisive in previous research regarding academic success (Ketonen et al., 2016) – they have to do with relevance of studying
- **Lack of interest** indicates that the students do not find personal meaning or interest for their studies and the contents do not motivate them - this variable predicted problems during the study path (Mäkinen, Olkinuora & Lonka, 2004)
- **Lack of regulation** indicates problems in self-regulated learning and difficulties in handling large amounts of information (Vermunt, 1998; Zimmerman, 2002) – very harmful for students´progress (Lonka & Lindblom-Ylänne, 1996; Lonka et al., 2008)
- **Certainty of career choice** is related to engagement, because students need to feel certain that they are in the right place in order to find studying relevant (Hirsto, 2012; Ketonen et al., 2016)


SCIENCE DENIAL IS A GLOBAL TREND. IT IS ALREADY THREATNING OUR FUTURE
SINATRA, G. M., & HOFER, B. K. (2021).
SCIENCE DENIAL: WHY IT HAPPENS AND WHAT TO DO ABOUT IT.
OXFORD UNIVERSITY PRESS.

EPISTEMIC DEVELOPMENT OVER THE UNDER-GRADUATE YEARS (LONKA, 1997; LONKA & LINDBLOM-YLÄNNE, 1996)

- **Classic studies look at how students' ideas of knowledge, knowing and learning develop during studying (starting from Perry, 1970)**
- **First-year students are likely to see knowledge as something *certain, absolute and simple*, where the right answers are given from the teachers; theory and practice are seen as contradictory**
- **During studying, students first may develop *relativist ideas*, when they need to give up their black-and-white world view – "all opinions are equally good"**
- **Gradually, during university studies the epistemic thinking becomes increasingly *integrated and evaluative*; the same facts may be seen from different angles**
- **Developing scientific thinking is usually a long process.**

EPISTEMIC BELIEFS CONSITUTE THEORIES THAT MANIFEST THEMSELVES AS PROFILES

- Students' beliefs about knowledge and knowing (epistemic beliefs) may manifest themselves as dispositions that color the way in which they approach various learning tasks, monitor their knowledge, seek information and evaluate its relevance (Lonka & Lindblom-Ylänne, 1996; Schommer 1990; 1993; Vermunt, 1998), previously referred to as (personal) epistemologies (Hofer & Pintrich, 1997)
- Currently, such beliefs are labelled under the general umbrella term *epistemic cognition* that is about not only beliefs or theories, but also about how knowledge is defined, justified, acquired and used (Greene, Sandoval & Bråten, 2016; Hofer, 2016)
- More or less coherent combinations of such epistemic beliefs constitute epistemic theories (Hofer, 2004c; 2016), empirically manifested as *epistemic profiles (*Muis, Trevors, & Chevrier, 2016), especially when person-oriented methodology is applied
- We applied a person-oriented approach and **confirmed three epistemic profiles** among Finnish university students from five faculties (chemistry, teacher education, theology, law and engineering) from two universities (Lonka, Ketonen & Vermunt, 2021)

OUR TEAM WORKING ON THE EPISTEMIC PROFILES WOLFSON COLLEGE, CAMBRIDGE IN 2018

LONKA, KETONEN & VERMUNT (2021)

Some students wanted to reflect on their own thinking and study materials or create knowledge collaboratively, while others prefered receiving directly applicable, certain and simple knowledge from their teacher (Lonka, et al., 2008).

We looked at the epistemic beliefs that constitute the epistemic profiles (theories) of university students)n = 1515) in five faculties (law, theology, teacher education, engineering, science).

By using Latent Profile Analysis, we found three epistemic profiles:

1) *Pragmatic* (49%), who preferred certain and directly applicable knowledge, but were also somewhat collaborative and reflective

2) *Reflective-collaborative* (26%) were the least interested in certain and practical knowledge, but most interested in collaborative knowledge building and wanted to reflect on their own thinking and learning

3) *Fact-oriented* (25%) were the least interesting to develop their thinking. They were not interested in practical knowledge either, but preferred to learn certain facts, mainly to pass exams

Lonka, K., Ketonen, E., & Vermunt, J. D. (2021). University students' epistemic profiles, conceptions of learning, and academic performance. *Higher Education*, *81*(4), 775-793.

EPISTEMIC PROFILES: Mean differences between grouping variables of epistemic profiles (Lonka, Ketonen & Vermunt, 2021)

Variable	Pragmatic	Reflective- Collaborative	Fact-oriented
	N = 746	N = 392	N = 377
	M	M	M
Collaborative knowledge building	4.84	**5.21**	4.20
Reflection	4.44	**4.82**	3.96
Metacognition	5.03	**5.35**	4.16
Certain Knowledge	**4.04**	2.50	**3.83**
Practical Value	**4.23**	3.62	3.75

Mean differences between academic achievement variables of epistemic profiles (Lonka, Ketonen & Vermunt, 2021)

Variable	Pragmatic	Reflective	Fact-oriented
	N = 334	N = 200	N = 175
	M	M	M
GPA 1st year	3.29_{a}	**3.72**	3.43_{a}
GPA 2nd year	**3.51** $_{ab}$	**3.59** $_{a}$	3.32_{b}
ECTS 1st year	52.6_{a}	**62.4**	50.0_{a}
ECTS 2nd year	**57.0** $_{a}$	**57.8** $_{a}$	48.5

Note. Means within a row sharing the same subscripts are not significantly different at the $p < 0.05$ level. 1st year refers to the year the questionnaire data were gathered in, and 2nd year to the following academic year. GPA ranges from 1-5, with one indicating an adequate grade and five indicating excellent performance.

EPISTEMIC BELIEFS AND SUCCESSFUL STUDYING

We also looked at how epistemic beliefs were related to academic progress, study engagement and problems in studying

Epistemic profiles were related to

1) Study progress: Reflective-Collaborative students performed best during the first year, but Pragmatic students started to catch up during the second year

2) Study engagement: Reflective-Collaborative students scored the highest

3) Problems in studying: Fact-oriented students were the least interested, and together with Pragmatic, had similar problems in self-regulation and were also uncertain about their career choice

Lonka, K., Ketonen, E., & Vermunt, J. D. (2021, August) University students' epistemic profiles, study engagement, self-regulation and interest A paper presented at EARLI2021 Online Biennale, August 2021.

Our ongoing studies look more closely at epistemic development of these students

RESULTS

Means of study engagement, lack of interest, lack of regulation and uncertainty of career choice between epistemic profiles.

Variable	Pragmatic	Reflective	Fact-oriented
	N = 746	N = 392	N = 377
	M	M	M
Study engagement (α = .90; 9 items)	3.98	4.38	3.57
Lack of interest (α = .74; 2 items)	2.21	1.68	2.45
Lack of regulation (α = .67; 3 items)	2.84_a	2.39	2.94_a
Uncertainty of career choice* (α = .90; 3 items)	2.41_a	1.71	2.38_a

Note. Means within a row sharing the same subscripts are not significantly different at the $p < 0.05$ level. ** Only from 1st and 2nd year students (n = 790).*

DISCUSSION

- In sum, epistemic profiles were related not only to academic achievement, but also to university students' study engagement and their experienced challenges in studying.
- The epistemic stance may colour the way students perceive their learning environment. Those who saw knowledge as something collaboratively created and who valued metacognition, also reported highest study engagement and the least motivational or regulative problems.
- It appeared that the fact-oriented epistemic profile was not optimal in terms of successful studying. It is possible that trying to only acquire certain facts and not being willing to see the complexity and relativity of academic issues, may make university studies laborious and meaningless. Problems in regulation and lack of interest or meaning may be related to this.
- Lonka, Ketonen & Vermunt (2021) showed that mature and female students were the most likely to belong in the reflective-collaborative group.

EDUCATIONAL IMPLICATIONS?

- These very brief instruments may be useful in terms of reflecting on your students' epistemic beliefs and the typical study problems
- Those who valued directly applicable (pragmatic) and certain knowledge (factual) had most difficulties in their studies
- It is important to search for meaning in studying – there are concrete consequences for students' ideas of knowledge and learning
- Observe: it is still important to learn the facts and knowledge should be both meaningful and based on best evidence
- Unlike in 1990's, it is important to see learning as a collaborative activity
- To maintain interest and be succesful in studying, it is not a good idea to focus only on
- fact-oriented and directly applicable "cook-book" knowledge!
- We need to foster both intellectual (epistemic) and socio-emotional development (engagement)

- **We have used this research knowledge in, for example, redesigning and digitalising our introductory courses.**

OUR ONGOING FOLLOW-UP (LONKA & KETONEN, 2023, IN PROGRESS)

- Our preliminary analyses indicate that in general, reflective and practical beliefs increase, and absolutist believes decrease over the three undergraduate years.
- Male students appear less likely to give up absolutist beliefs.
- Teacher students' beliefs were the most integrative to start with
- Science students demonstrated highest level of epistemic change
- Law students became increasingly pragmatic during studying

- WE SHALL PRESENT THE FULL RESULTS IN EARLI2023, THESSALONIKI, AUGUST 2023

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WELCOME! ENJOY THESE REFRESHING DAYS!

ADDITIONAL INFORMATION

WP2 The factors affecting young people's digital and financial skills inside and outside school
PI Professor Kirsti Lonka, UH

WP2 focuses on the pedagogical, digital and psychological aspects of the lives of teachers and students, who are navigating in the digitalised consumer society. We are looking at the implementation of Finnish national curriculum that emphasizes the needed 21st Century Skills.

- ***Youth financial capability and financial well-being*** are specifically looked at by post doc Mette Ranta
- ***Digital literacy*** involves both technical aspects of operating with digital technologies and ***conceptual capacities*** (epistemic cognition) by both youth and their teachers. Further, regulation of the use of mobile devices is in the focus.
- ***Well-being, intercultural issues and socio-emotional aspects*** of being succesful in the digital society
- **In collaboration with Growing Mind**, we develop new measures for looking at these matters byt using ESM, longitudinal data physiological measures as well as neuroscience methods in order to look at the complexity of these issues.
- **Digiconsumers.fi**

Professor Kirsti Lonka
Working globally for better education

- Kirsti Lonka is Professor of Educational Psychology at University of Helsinki, Finland, since 2005. She is Director of Research Group of Educational Psychology , a professional teacher trainer and a psychologist
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- Professional teacher trainer and a PhD in psychology. Founding member of Teachers' Academy (UH)
- Member of Board of Trustees, Sharjah Education Academy, UAE since 2021
- Extraordinary Professor, Optentia Research Unit, North-West University, Vaal Triangle Campus, South Africa (2016-2025)
- Advisory Board Member of Graduate Institute of Digital Learning and Education, NTUST, Taipei (2015-)
- Current strategic projects: digiconsumers.fi and growingmind.fi
- A popular keynote speaker around the world
- Author of *Phenomenal Learning from Finland* (Edita Publishing 2018), translated in Croatian, Korean, Thai, Spanish, Russian, Chinese, Hindi
- Previously a Professor of Medical Education in Karolinska Institutet, Sweden and Honorary J.H. Bijtel professor of University Medical Centre Groningen, The Netherlands
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EPISTEMIC PROFILES: Mean differences between grouping variables of epistemic profiles (Lonka, Ketonen & Vermunt, 2020)

Variable	Pragmatic	Reflective- Collaborative	Fact-oriented
	N = 746	N = 392	N = 377
	M	M	M
Collaborative knowledge building	4.84	**5.21**	4.20
Reflection	4.44	**4.82**	3.96
Metacognition	5.03	**5.35**	4.16
Certain Knowledge	**4.04**	2.50	**3.83**
Practical Value	**4.23**	3.62	3.75