
# HOW CAN WE ENHANCE THE GENERIC SKILLS OF UNDERGRADUATE STUDENTS?

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# INTRODUCTION

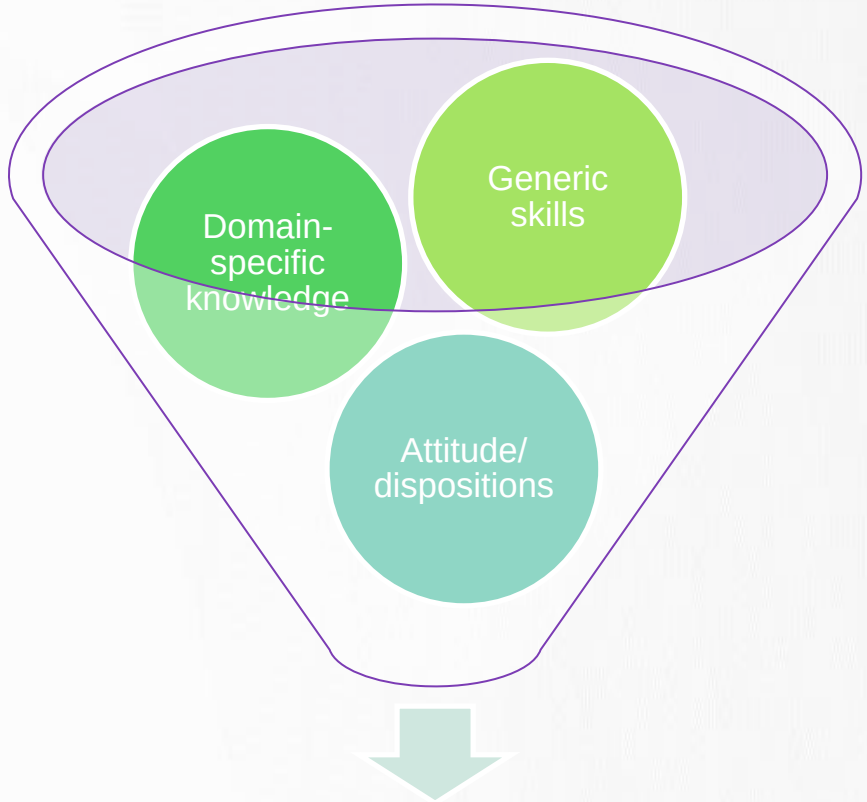
The capabilities produced by higher education have been discussed actively over the last few decades. It has been highlighted that domain-specific knowledge and professional skills are not alone sufficient to tackle with the changes in the working life. This also requires acquisition of generic skills (Barrie, 2006; Hyytinen et al., 2019; Shavelson, 2010; Ursin et al., 2021).

Previous studies have indicated that generic skills have impact on students' learning, study success and retention in higher education (Badcock et al., 2010; Arum & Roksa, 2011; Tuononen et al., 2020; Tuononen & Parpala, 2021).

Nonetheless, undergraduate students have challenges, for instance, in critical thinking, argumentation and drawing conclusions (Badcock et al., 2010; Arum & Roksa 2011; Hyytinen et al., 2015).

# THE CONCEPT OF GENERIC SKILLS

- Generic skills, such as critical thinking, collaboration, argumentation, communication, leadership and problem-solving, are needed both inside and beyond university context
  - Important ***learning outcomes*** of higher education
  - Generic skills ***enable students to draw on their domain-specific knowledge***: students who master generic skills can apply their domain-specific knowledge to a variety of situations and these students also succeed better in their studies (Hyytinen et al., 2019, 2021; Tuononen & Parpala, 2021).



# RESEARCH PROJECTS FOCUSING ON GENERIC SKILLS

**KAPPAS!: Assessment of undergraduate students' generic skills in Finland project (2018-2021)**

- **Research team:**
  - Heidi Hyytinen (UH; co-leader), Katri Kleemola (UH), Auli Toom (UH),
  - Jani Ursin (JYU; leader), Kari Nissinen (JYU), Kaisa Silvennoinen (JYU)
- The aims of the project included
  - identify the level of Finnish undergraduate students' generic skills, and
  - study which factors are associated with the level of generic skills
- https://ktl.jyu.fi/fi/hankkeet/kappas/english

**WORKPEDA**: **The Work-integrated Pedagogy in Higher Education project (2018-2020)**

- Consortium partners from 16 Finnish higher education institutes
- **The UH research team**: Auli Toom (PI), Tarja Tuononen (co-PI), Heidi Hyytinen (co-PI), Telle Hailikari, Katri Kleemola, Iina Männikkö
- The aims were to
  - conduct research and promote relevant pedagogical practices in university education
  - create operational models and new knowledge for the development of students' generic skills, for curricular reforms, and for pedagogical training.
- https://www.tyopeda.fi/eng

# FINNISH UNDERGRADUATE STUDENTS' GENERIC SKILLS: EMPIRICAL EVIDENCE

# KAPPAS! PROJECT

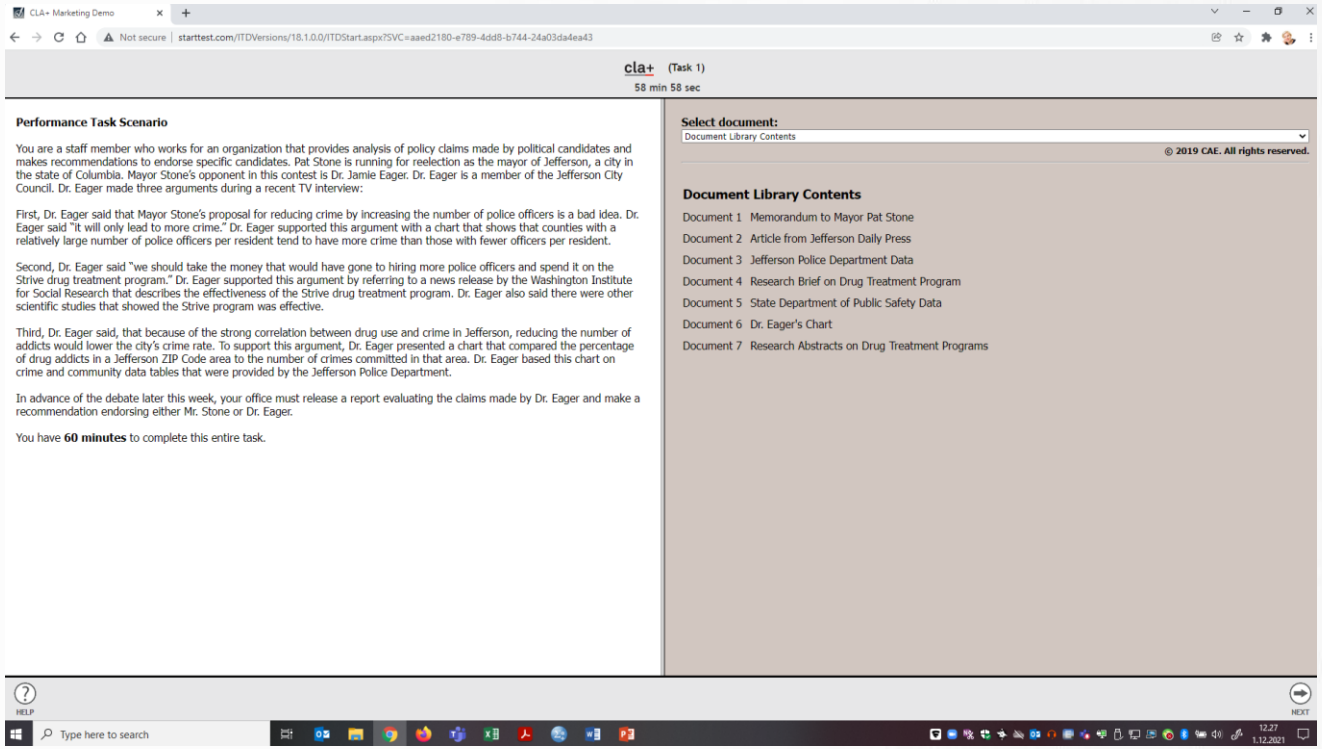
- The assessed generic skills included analytic reasoning and evaluation, problem solving, argumentation, and writing mechanics
- The participants (n = 2402) were students at initial and final stages of their Bachelor degree programmes from seven universities of applied sciences (UASs) and eleven universities.
- Collegiate Learning Assessment, CLA+ International test
  - developed by the Council for Aid to Education
  - The test has been used in the United States, Italy, United Kingdom, and Chile.
  - The CLA+ test consisted of three main sections: an essay-form performance task, selected-response questions, background questionnaire.

# ESSAY-FORM PERFORMANCE TASK

- One open-ended question, 60 minutes
- Materials: a blog text, a transcribed podcast, a memorandum, a newspaper article, and infographics.
- Measures:

(1) Analysis and problem solving
(2) Written argumentation
(3) Writing mechanics

- Scoring of the responses (2 scorers per response)



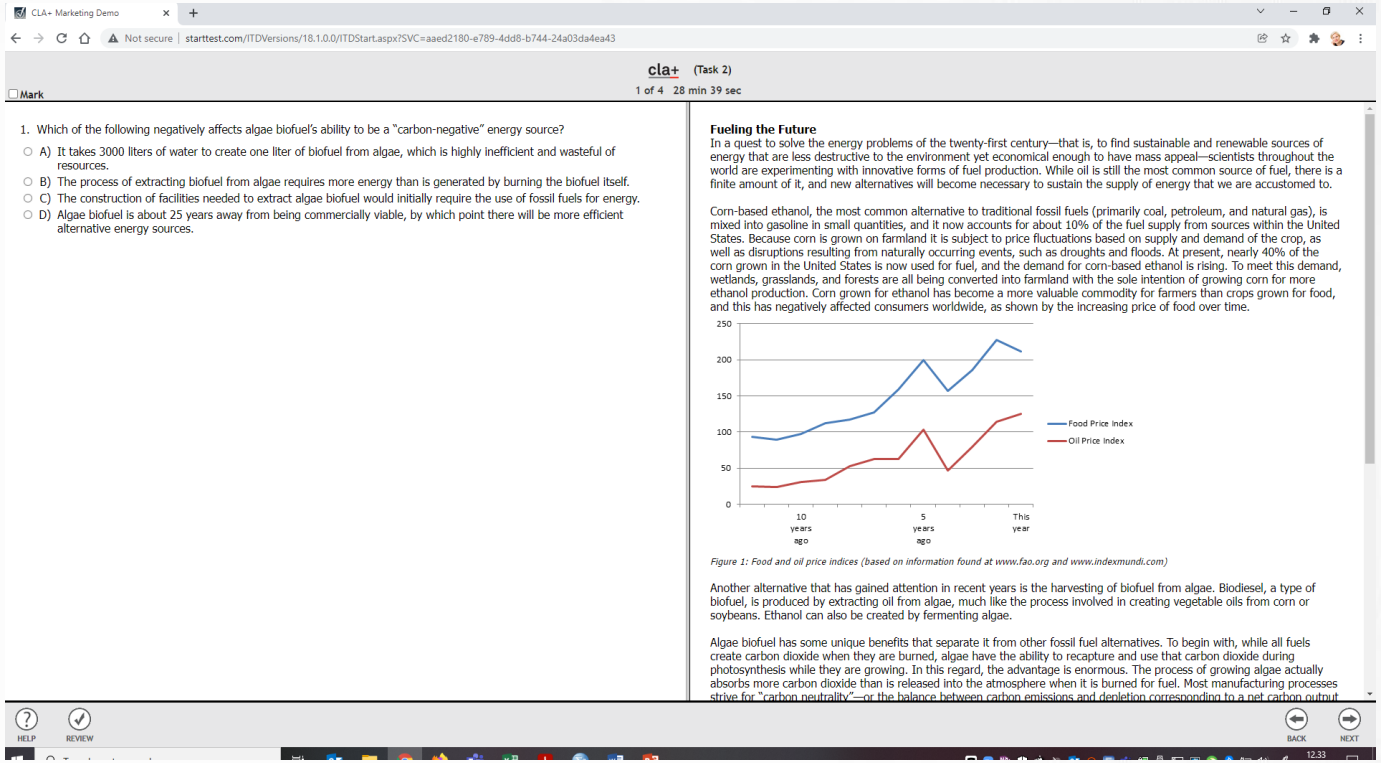
# SELECTED-RESPONSE QUESTIONS

- 25 questions, 30 minutes
- Measures:

(1) Scientific reasoning / data literacy (10 questions)

(2) Critical reading and evaluation (10 questions)

(3) Critique an argument (5 questions)



# FINAL REPORT

> Ursin, J., Hyytinen, H., & Silvennoinen, K. (eds.) (2021). Assessment of undergraduate students' generic skills in Finland: Findings of the Kappas! project; Nro 2021:31. Publications of the Ministry of Education and Culture. http://urn.fi/URN:ISBN:978-952-263-892-2

- 60 percent of the higher education students, the generic skills were on a basic or lower level while for the rest, about 40 percent, these were on a proficient or higher level.
- **University students scored significantly higher than UAS students did**.
- The differences in test scores between initial and final stage students were statistically significant: **Final-stage university students attained the highest scores.**
- The variation in students' generic skills was explained mainly by factors pertaining to student's educational and socioeconomic background. The most significant explanatory factors were:
  - the student's **native language grade** in the Matriculation Examination
  - the amount of **effort** the student had applied in the test
  - **the scholarly culture** of a student's childhood home

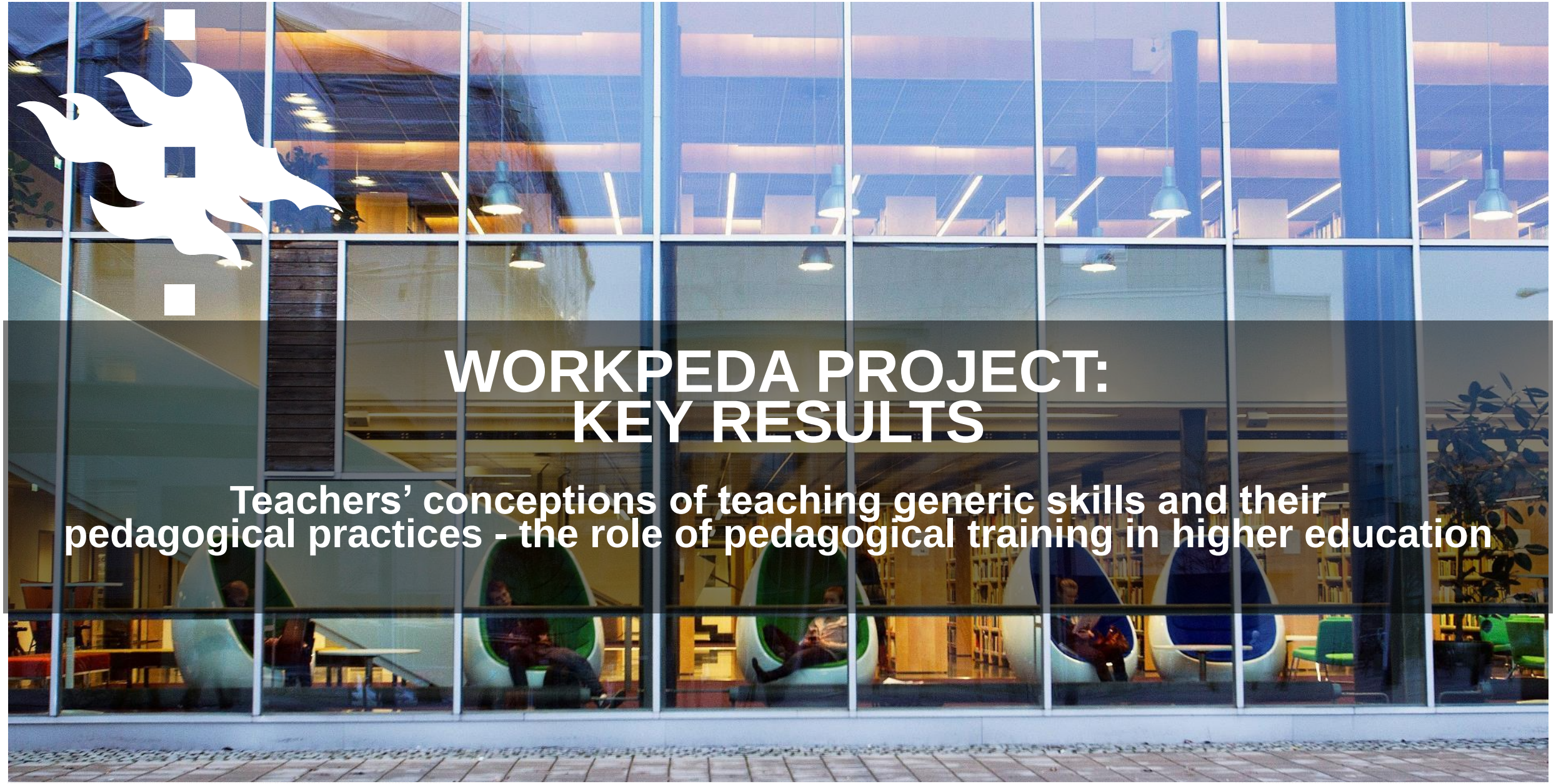
# PUBLISHED SCIENTIFIC ARTICLES

> Kleemola, K., Hyytinen, H., & Toom, A. (2021). Exploring internal structure of a performance-based critical thinking assessment for new students in higher education. Assessment & Evaluation in Higher Education. https://doi.org/10.1080/02602938.2021.1946482

> Hyytinen, H., Ursin, J., Silvennoinen, K., Kleemola, K., & Toom, A. (2021). The Dynamic Relationship between Response Processes and Self-Regulation in Critical Thinking Assessments. *Studies in Educational Evaluation*. https://doi.org/10.1016/j.stueduc.2021.101090

- The performance task requires holistic use of different skills whereas the selected-response questions measure one skill at a time (cf. Hyytinen et al., 2015)
- Students' performance is different in the performance task and the selected-response questions due to different response and thinking processes they trigger

→ Special attention needs to be paid to the characteristics of tasks



# WORKPEDA PROJECT: KEY RESULTS

## Teachers' conceptions of teaching generic skills and their pedagogical practices - the role of pedagogical training in higher education

# TEACHERS' (N= 286) CONCEPTIONS OF TEACHING GENERIC SKILLS

**Unintegrative conception** refers to the view that teaching domain-specific knowledge is more important than teaching generic skills and that these skills need be learned in separate courses.

**Integrative conception** refers to the conception that generic skills need to integrated to the curriculum and teaching, and generic skills need to be taught together with domain-specific knowledge and skills.

In **participatory conception**, generic skills are seen to be best learned by participating in authentic multidisciplinary projects and collaboration with researchers and practitioners.

# KEY RESULTS: PEDAGOGICAL TRAINING WAS RELATED TO CONCEPTIONS OF TEACHING GENERIC SKILLS AND PEDAGOGICAL PRACTIES

- **Teachers' conceptions of teaching generic skills**
  - Teachers' who had completed 25 or more credits of pedagogical training had significantly higher scores on the conceptions that generic skills need to be integrated to the courses and enhanced by participating projects
  - Teachers with no pedagogical training had significantly higher scores on unintegrative conception.
- **Pedagogical practices: long-term training matters**
  - Integrating theory and practice, sharing experiences and reflection and feedback were applied more among teachers who had pedagogical training, and they statistically significantly differed from the teachers with no pedagogical training

# WHAT IS MEANT BY LONG-TERM PEDAGOGICAL TRAINING?


## Basic studies (25 ECTS credits)

- Learning in Higher Education
- Constructive alignment in course design
- Assessment of learning and giving feedback
- Academic supervision and supervisor training
- Development of Teaching and basic practical training

## Subject studies (35 ECTS credits)

- Challenges of learning and studying
- International and collaborative environment
- pedagogical leadership and development of university education
- Research methods in university pedagogy
- Bachelor thesis in university pedagogy
- Advanced practice
  - Practical training in higher education
  - Practical training in school and adult education


# CONCLUSIONS

How can we enhance the generic skills of undergraduate students?

# HOW CAN WE ENHANCE THE GENERIC SKILLS OF UNDERGRADUATE STUDENTS?

- There is a **substantial variation** in the mastery and level of generic skills among undergraduate students
  - Prior educational background and growth environments matter
- Higher education teachers need to be aware that prior education may give little guidance to generic skills
- Successful implementation of generic skills in study programmes requires an active interplay between leaders, teachers, and students in higher education
  - Generic skills need to be **explicitly embedded in the curriculum**, along with feedback to students on how to improve and build their skills (Hyytinen et al., 2019; Arum & Roksa, 2011; Virtanen & Tynjälä, 2018)
  - **Long-term pedagogical training** for teachers
  - **Co-operation between faculty teachers** and, for example, writing teachers
  - **Leaders of higher education** institutions need to recognize the importance of generic skills in study programmes and **provide support for teachers**

# THANK YOU!

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- **Heidi Hyytinen**, PhD, Title of Docent
- Senior Lecturer in university pedagogy (equivalent with associate professor) at the Faculty of Educational sciences, Center for University Teaching and Learning, University of Helsinki
- Her research interests are students' generic skills, critical thinking, self-regulation and performance-based assessment in the context of higher education.
- She has lead and co-lead several international multi-method research projects on higher education. are 'PIONEERED' (Pioneering Policies and Practices Tackling Educational Inequalities in Europe, Horizon 2020), 'KAPPAS!' (CLA+ international) and 'International Collaborative for Performance Assessment of Learning in Higher Education – Research and Development' (iPAL).
- She received the Finnish Educational Research Association's (FERA) best educational dissertation award of the year 2015.

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