



OUTCOME-BASED CURRICULUM REFORM OF THE FACULTY OF PHARMACY

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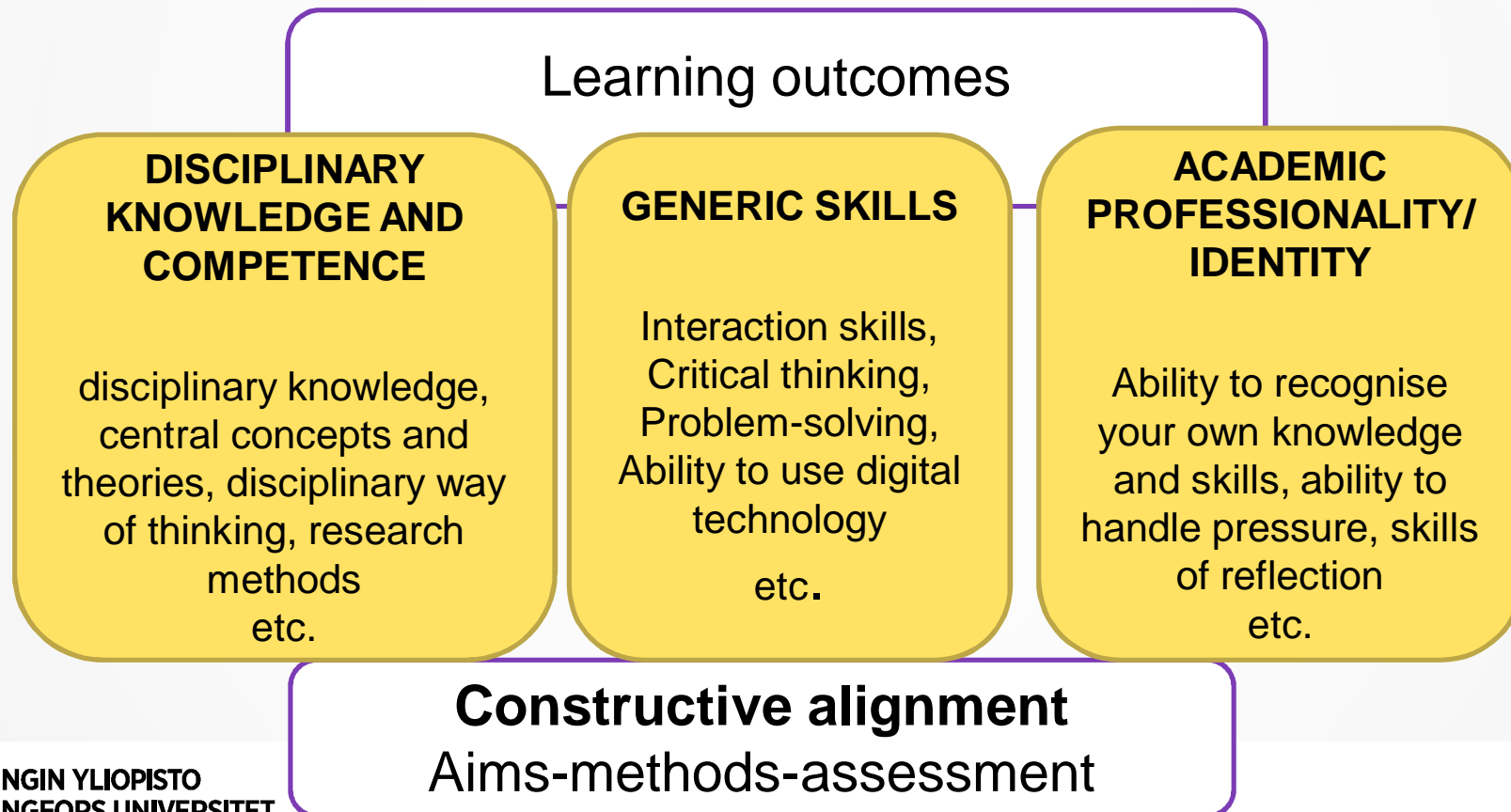
EVIDENCE-BASED DEVELOPMENT

- Empirical evidence à *Discipline-based research* on teaching and learning is crucial!
- Research about pharmacy teaching and learning à e.g.
 - Interplay with theory and practice, Importance of practical training
 - Surface-level learning, Practical orientation towards studies
 - Traditional teaching and assessment methods, Content-focused approaches among teachers
 - Fragmented curriculum

à Special attention to these themes: Teachers pedagogical skills, curriculum structure, importance of practical training, developments in teaching and assessment practices, engaging students to their studies

WHAT IS A COMPETENCY- OR OUTCOMES-BASED CURRICULUM?

Competency-based organisation of teaching from faculty, programme and module levels to course level





CURRICULUM REFORM IN THE FACULTY OF PHARMACY

- During 2012-2016
- How to educate pharmacy experts for future, how to respond to the needs in working life?
- What kind of skills and knowledge students should have when they graduate? → *learning outcomes for the degrees*
 - Students (and teachers!) should know what is expected of them
 - Learning outcomes should be relevant for current working life in pharmacy field

DEFINING LEARNING OUTCOMES

“What kind of knowledge, skills and competencies pharmacists should have in order to work as pharmaceutical experts in working life?”

- Learning outcomes were defined in co-operation with teachers, students and interest groups
- **Theoretical knowledge and generic skills**
- **Constructive alignment** – learning outcomes as a basis for planning and designing the curriculum and courses
- More detailed learning outcomes with competencies defined at the course-level
 - Need to assess the content and update it if needed
 - Need to develop teaching and assessment practices



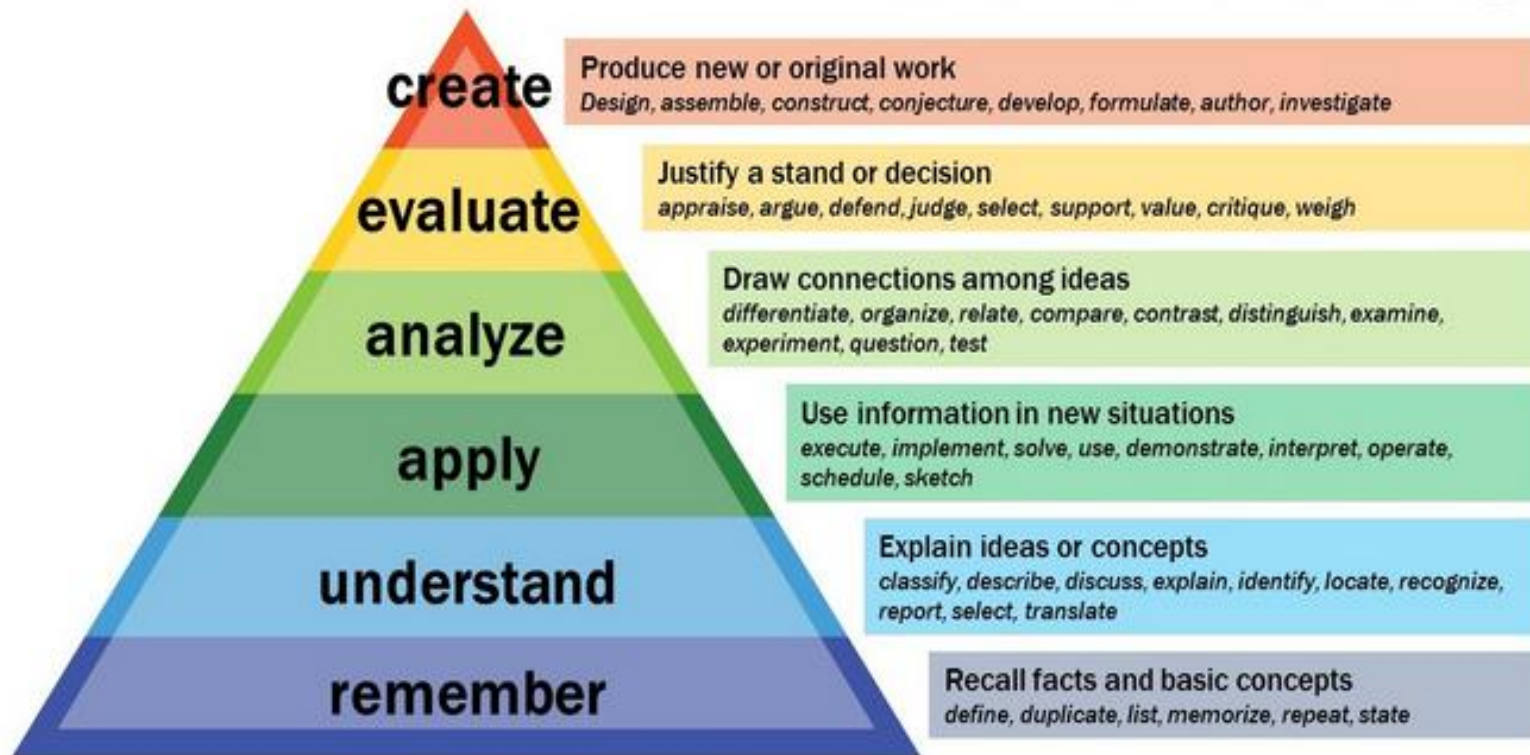
LEARNING OUTCOMES

- **Content knowledge and skills** (incl natural sciences, biomedicine, pharmacotherapy, manufacture of medications, economical principles, communication and language skills)
- **Generic skills and knowledge** e.g.
 - Understanding of the field of pharmacy as a whole
 - Professional identity
 - Critical thinking and problem-solving skills
 - Life-long learning and self-directed, creative and ethical behaviour
 - Communication and interacting with customers and other health-care professionals, also in international level

Bloom's Taxonomy

by Patricia Armstrong, Assistant Director, Center for Teaching

Bloom's Taxonomy



<https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>

Bachelor of Science (Pharmacy)
Learning outcomes concerning
knowledge

Can *apply basic knowledge* of the natural sciences and biomedicine in pharmaceutical work

Have a comprehensive command of pharmacotherapy, from the manufacture of medications to their safe and appropriate use

Understand *the field of pharmacy as a whole*, including employment prospects as well as the role and significance of pharmacy in Finnish and other societies and healthcare systems

Have the *language and communication skills* required for expert pharmaceutical work

Understand the *basic economic principles* of business operations and the social functions of healthcare

Learning outcomes concerning generic skills

Have developed a *professional identity* and understand their expert role and duties in healthcare

Are capable of critical thinking, that is, can assess information and apply the results of research in their work

Have good *problem-solving skills*, can tolerate uncertainty and can acquire information independently

Understand the *necessity of lifelong learning*, are motivated to enhance their expertise and can act in a self-directed, creative, ethical and responsible manner in compliance with the principles of sustainable development

Can *communicate and interact* both with customers and in multiprofessional groups

Learning outcomes concerning knowledge

Students who have completed the degree have expanded the knowledge and skills acquired through their Bachelor of Science (Pharmacy) degree, in addition to which they:

Profoundly understand the broad scope of the discipline of pharmacy and have a command of its key phenomena, theories and concepts

Have a command of the basics of pharmaceutical development, understand the process of pharmaceutical development and can apply their knowledge as experts in pharmaceutical development and pharmacotherapy

Have acquired good theoretical competence and methodological knowledge in their specialist area

Can work in an expert environment in compliance with the principles of expert leadership and have the competence to develop in supervisory positions

Have a command of the basic concepts of business administration and understand the realities of business, particularly from the perspective of pharmaceutical

Learning outcomes concerning generic skills

Can work as experts, trainers and developers in multiprofessional groups in both the pharmaceutical industry and the healthcare sector in Finland and abroad

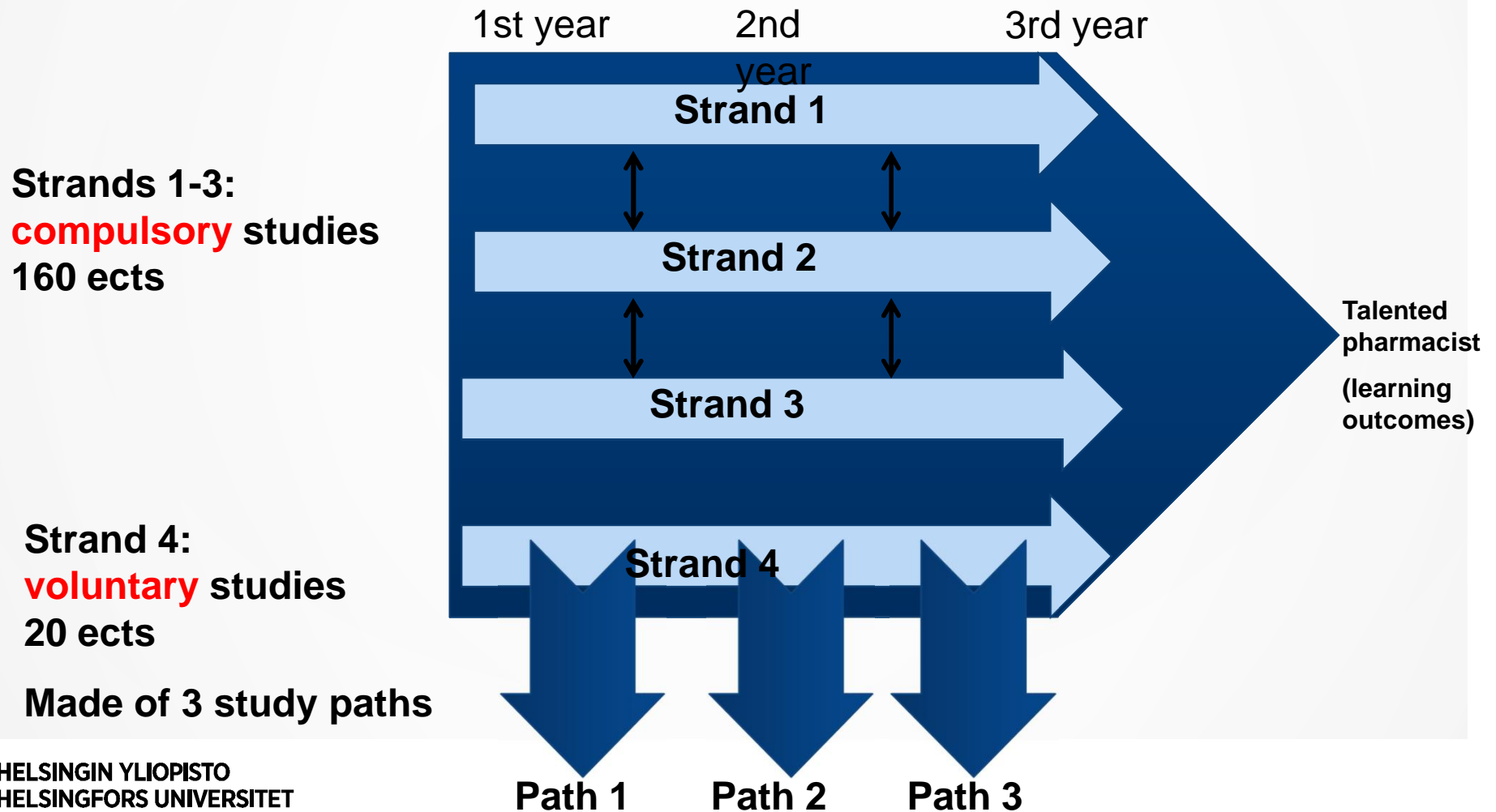
Have a command of key research methods as well as the research-based work method, can draw scientific conclusions and can produce scientific texts

Have acquired the competences needed for research work in their specialist area as well as the competences for independent work in an international multiprofessional research community

Can think critically and analytically and apply research-based knowledge in their work, and have acquired good argumentation and problem-solving skills

Understand the potential provided by their expertise in various international environments

STRAND MODEL FOR BACHELOR'S DEGREE (180 CR)

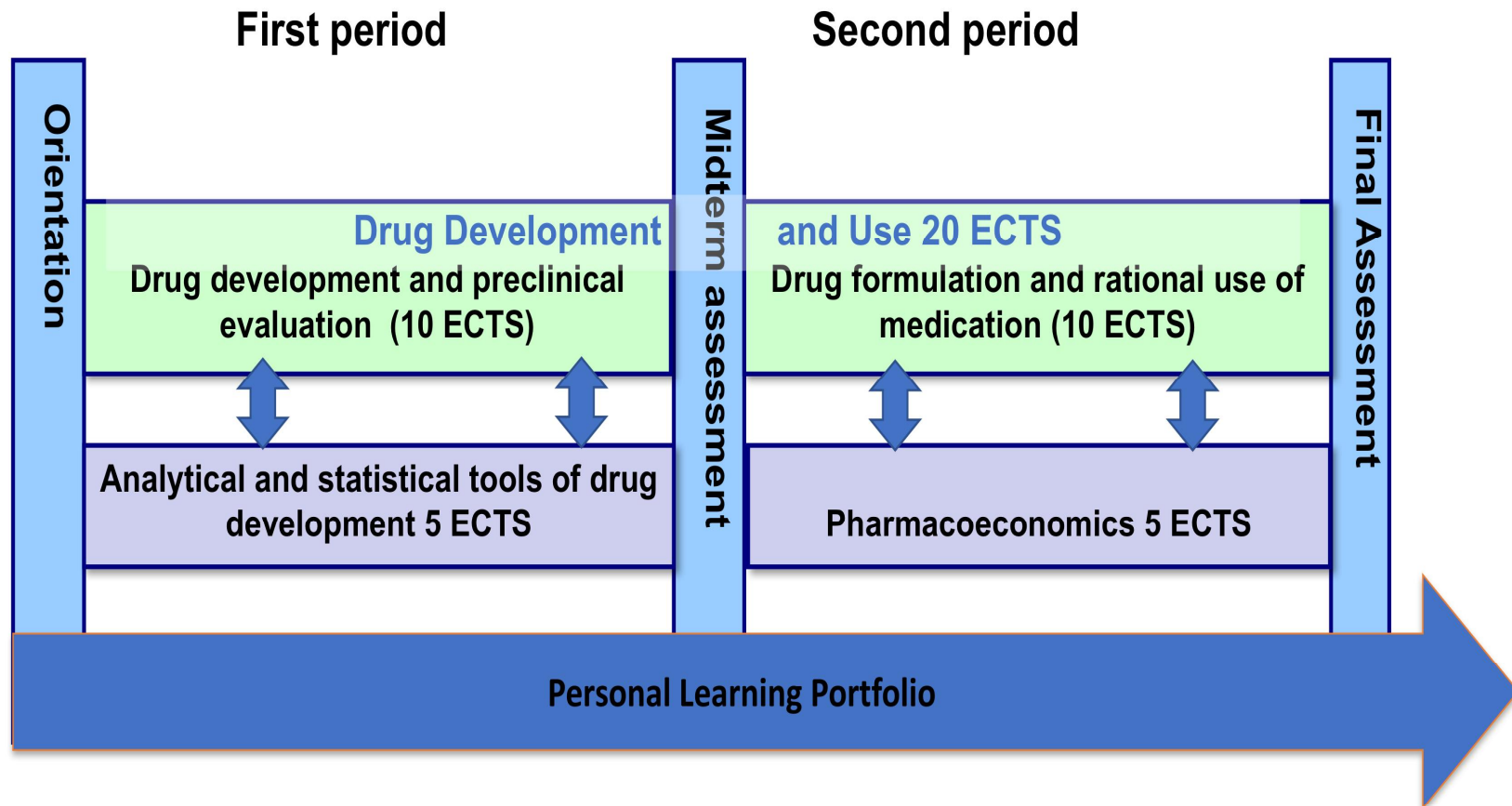


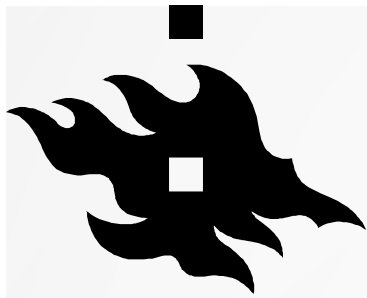


MASTER'S DEGREE (120 CR)

- INTERMEDIATE STUDIES (50 cr)
 - Obligatory studies for all the students (30 cr)
 - Optional studies (20 cr)
- ADVANCED SPECIALISATION STUDIES (70 cr)
 - Optional advanced studies (30 cr)
 - Studies for Master thesis (study proposal, seminars etc, 10 cr)
 - Master's Thesis (30 cr)

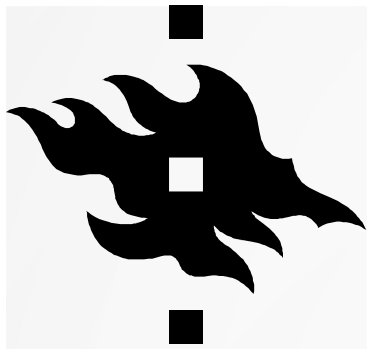
Master's degree program, compulsory studies 4th year of pharmacy degrees, 1st term





CONSTRUCTIVE ALIGNMENT IN PRACTICE

- Learning outcomes have to be implemented in all levels in curriculum: from program-level to module and course level
 - **Engaging teachers to constructive alignment in curriculum design**
 - Program leaders & steering groups
 - Strand- and module leaders
 - Increased, systematic co-operation with teachers
 - Integration of courses within the strands and modules
 - Integration of courses within the periods
 - Meetings for the whole faculty personnel



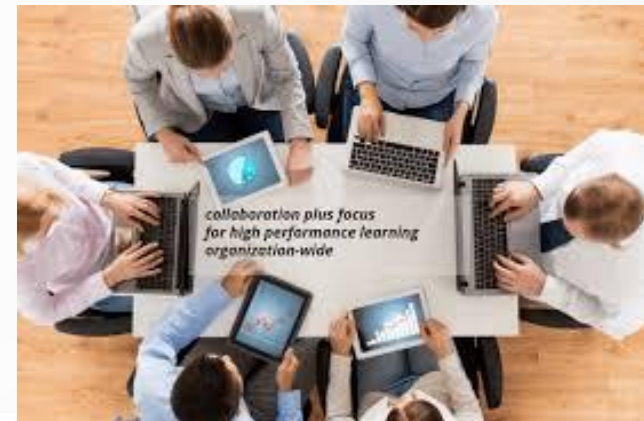
ACHIEVING DEFINED LEARNING OUTCOMES - PROJECTS

- Developing teaching and assessment methods: for example flipped classroom, project works, new assessment methods incl. peer- and self-assessment
- Systematic group work emphasizing the generic skills
- Portfolio working throughout the studies
- Progress testing
- Assessment of practical skills/knowledge in the end of Bachelor's studies

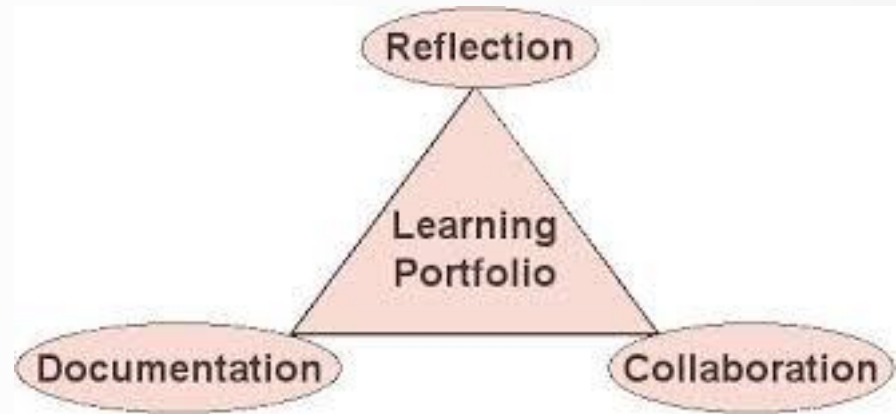
Systematic group work

- One course in in each period
- Content knowledge & learning generic skills
- Working in groups, communication skills, problem solving skills, time management, learning skills etc..

Trust Networking
Community Free
Reciprocity Creativity
Openness
Social Participation
Collaboration
Access



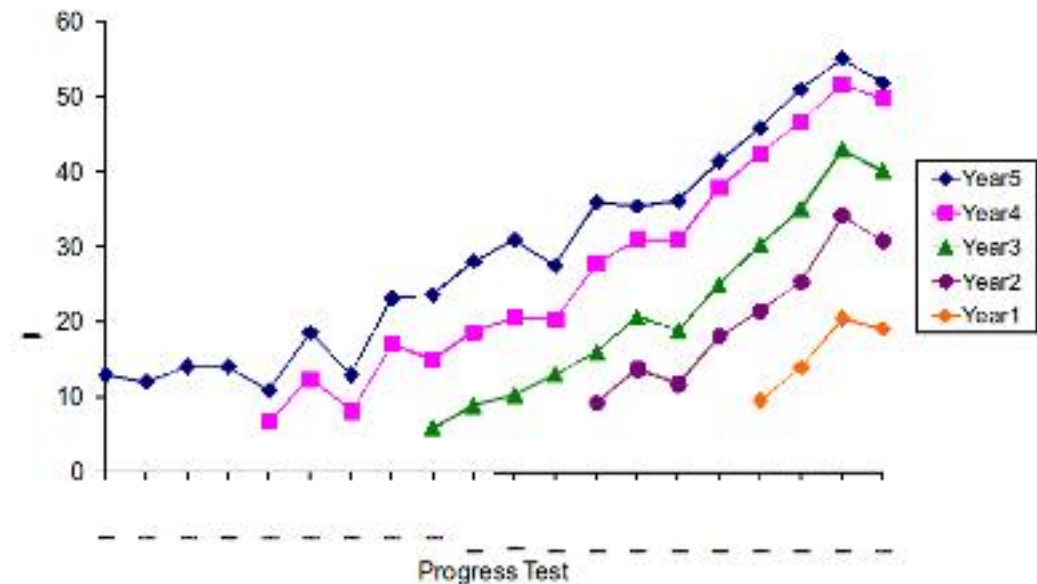
Learning portfolio



- *Portfolio working throughout the studies
- *Reflection of learning; learning outcomes
- *Makes visible one’s development and learning and aims to help to develop generic skills
- *Orientation towards working life

Progress testing

- *In the end of each year students complete progress test
- *Same questions to all students in all levels
- *Students see the increase of their knowledge
- *Quality assurance: Faculty gets information of students learning à difficult and easy subject matters



Practical skills assessment

- *Final assessment in the end of bachelor's studies
- *Students solve real life problems in pharmacy field
- *Panel assess their solutions: innovations, creativity, professionalism, content knowledge



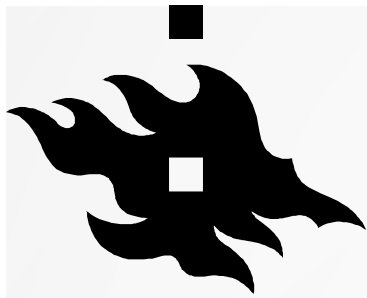


LESSONS LEARNT

- Co-operation with teachers and students at the faculty
- Involvement of interests groups
- Evidence-based development
- Given mandate to the leaders is necessity
- Longitudinal step-by-step process

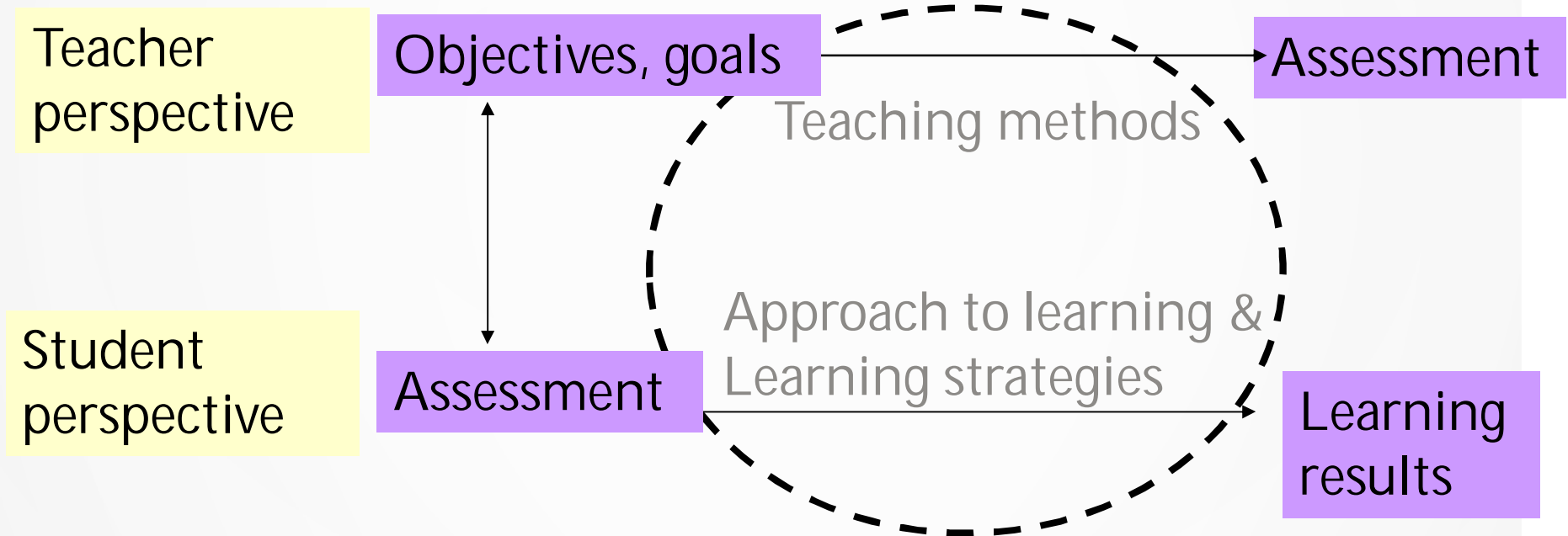


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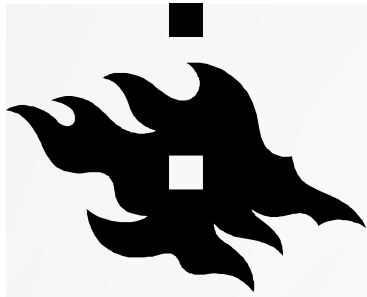


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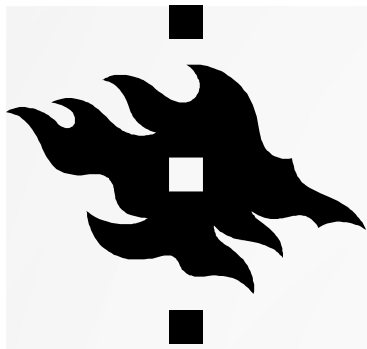
Constructive alignment



(Biggs 2003)

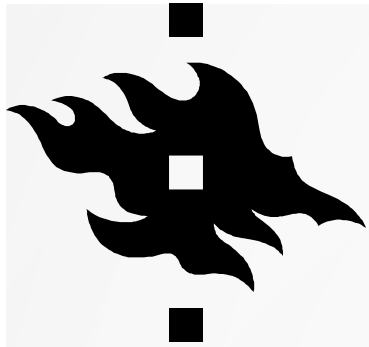


- a competence-based curriculum in higher education aims at responding to the needs of the working life. In a competence-based curriculum the defined learning outcomes describe what the students are expected to know, understand and/or be able to do after completing a degree or attaining a passing grade in a course
- expertise in the field, but also the knowledge and skills required for the employment
- Learning outcomes should be defined for the whole study program, but also for each study-module and individual course within the program. The defined learning outcomes are more general at the program level and more specific in the module and course levels (Biggs & Tang 2011). The defined learning outcomes affect both the curriculum design and teaching; curriculum structure as well as teaching methods should be derived from and linked to the specific learning objectives
- (1) to create the learning outcomes for the Bachelor and Master programs which would meet the current and future needs of working life, (2) to create a more challenging curriculum and to develop teaching and assessing methods which would foster students' deep level learning and active work by the students, (3) to increase the flexibility and amount of optional studies, and (4) to strengthen the professional orientation and identity of the students



LEARNING OUTCOMES

- What the student actually knows, understands or is able to do
 - e.g. for graduating or passing a course
- The desired levels of understanding are defined
 - E.g. the student "knows" vs. "can apply"
 - Attitudes and/or behaviour included (professionalism)
- The student can show the mastery by doing a certain task
- Are flexible enough to allow students to pursue own related interests
- Include knowledge, skills and attitudes
- Take into account the levels of knowledge that the students should reach
- Should be understandable, measurable, specific, achievable, relevant, time related



QUESTIONS? THEMES FOR FRIDAY?

- <http://presemo.helsinki.fi/eafp2017/>