



INTEGRATED PROJECT-BASED LEARNING

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INTEGRATED PROJECT-BASED LEARNING

WHY INTEGRATE EDUCATION?

CASE FINLAND: TRANSVERSAL COMPETENCIES & PHENOMENONS

PROJECT-BASED LEARNING

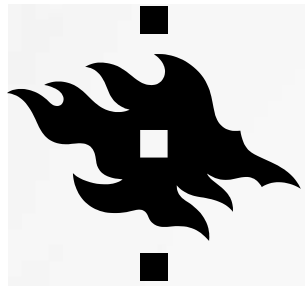
CASE: START PROGRAMME



WHY INTEGRATE EDUCATION?

- Global issues – wicked problems
- Interconnected world
- 21st century skills
- Experts in science, mathematics and technology needed, but students are not interested

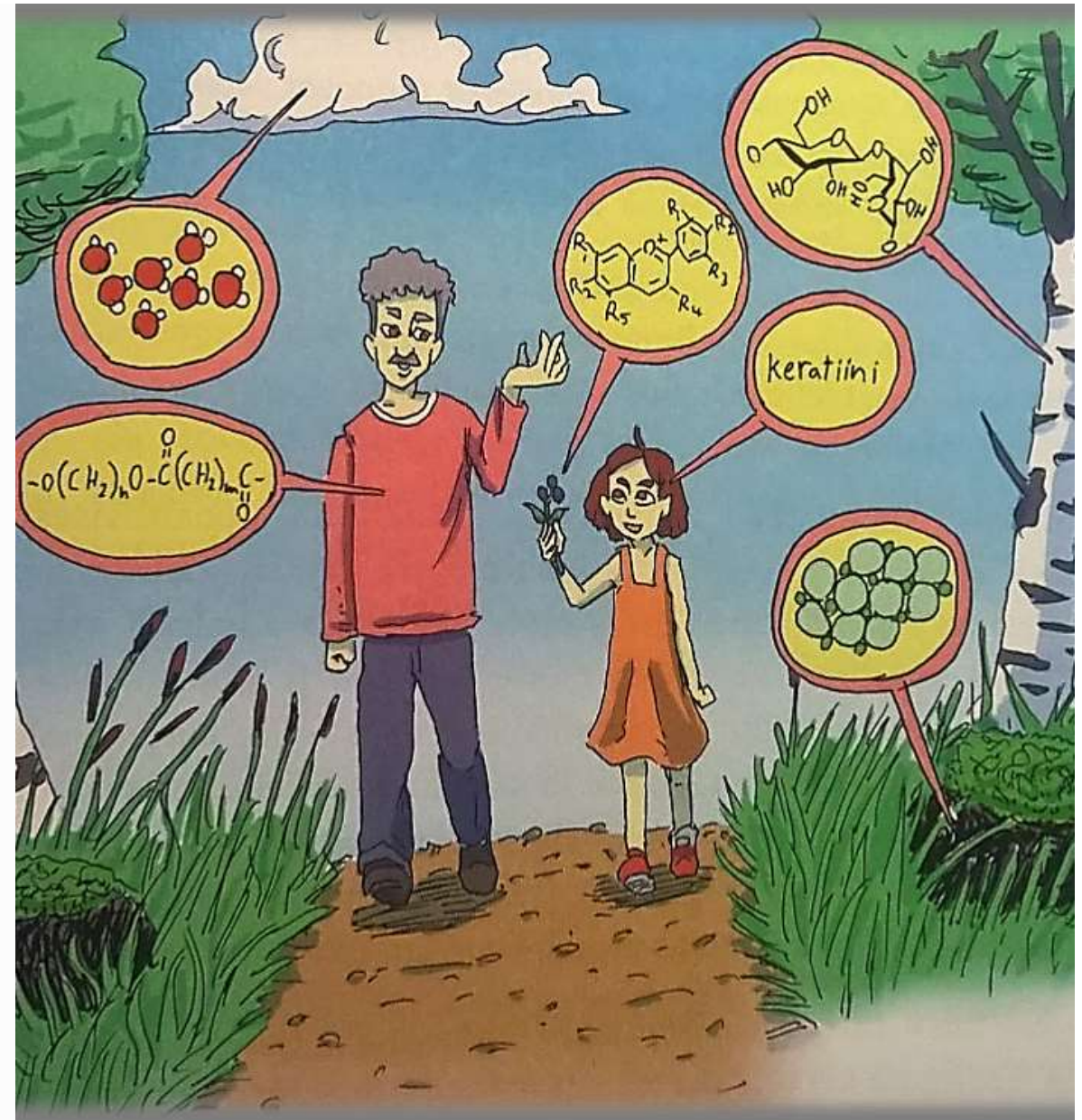


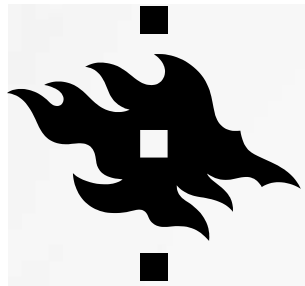


INTEGRATED EDUCATION

An effort to organize or integrate science curriculum content into a meaningful whole by a constructive and context-based approach that crosses subject boundaries and links learning to real world.

(Beane, 1997; Czerniak & Johnson, 2014)





FINNISH NATIONAL CORE CURRICULUM

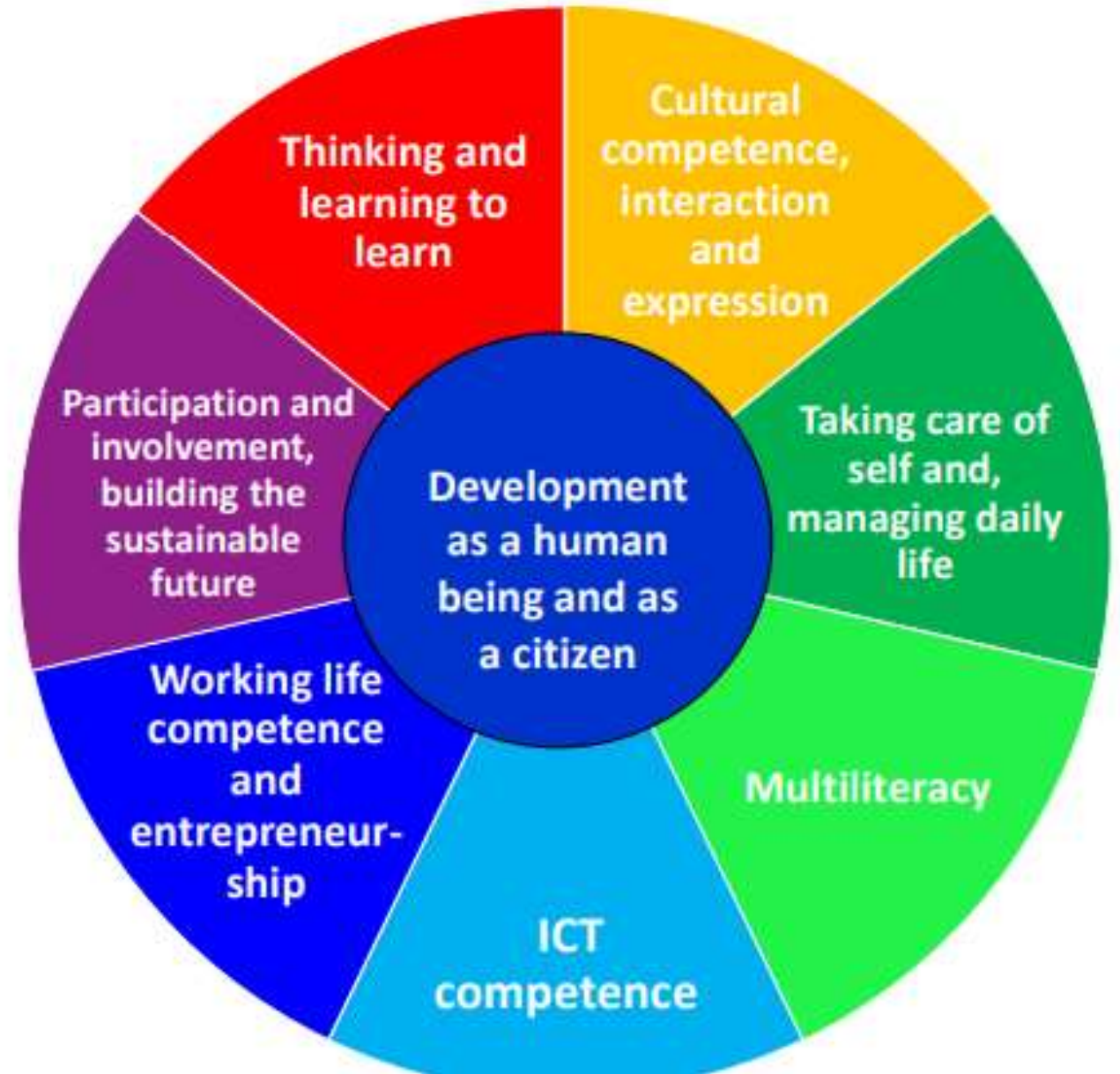
- Focus on school culture and integrative approach
- Learning of transversal competencies through multidisciplinary modules that increase dialogue between subjects
- Learning to learn in dialogue with others, importance of feelings, experiences and ideas and their joy of learning

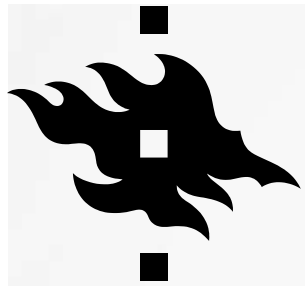


Rethinking competences

National Goals for Basic Education and Transversal Competences

- knowledge
- skills
- values
- attitudes
- will





PROJECT-BASED LEARNING

- A model that organizes learning around projects
- Authentic and interdisciplinary phenomenon – linked to daily life
- Constructive approach that has potential to engage students
- Adaptable to different types of learners and learning situations



7 steps to successful PBL

- STEP 1: Involve your students from the beginning
- STEP 2: Break down the topic into well defined tasks
- STEP 3: Plan well, set goals, define outcomes
- STEP 4: Divide your class into working groups with well defined tasks
- STEP 5: Create a tangible artifact as an outcome
- STEP 6: Arrive at a conclusion
- STEP 7: Document and present to a public audience

Integrative, interdisciplinary learning

Questions

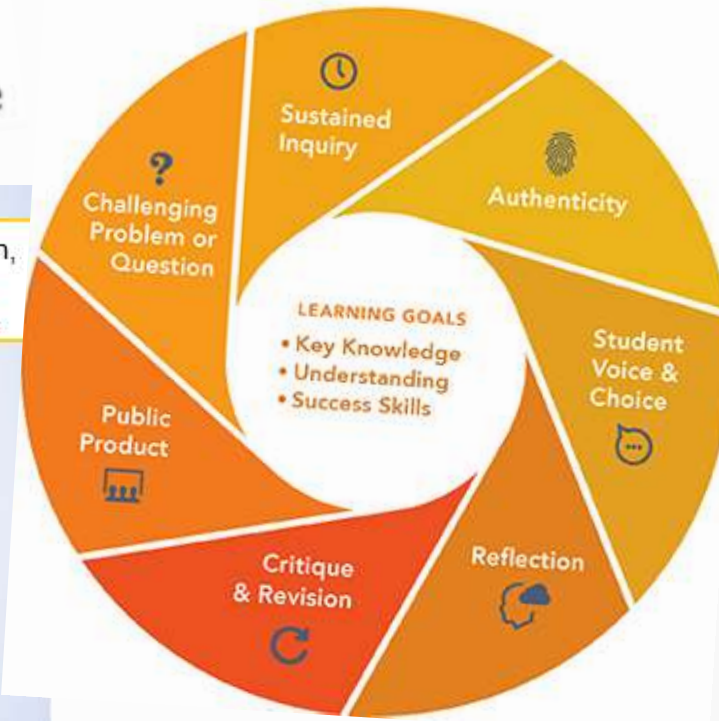
Searching for information from the perspectives of different fields

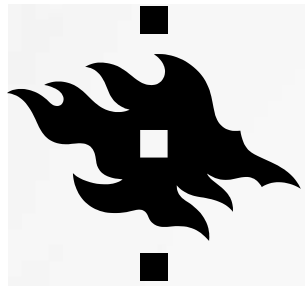
Building new knowledge and information

Application, project creation

Gold Standard PBL

Seven Essential Project Design Elements



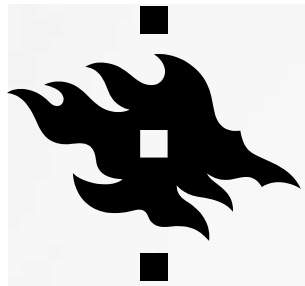


PROJECT-BASED LEARNING

Two essential components of project working:

1. They require a driving question or problem that serves to organize the project activities
2. The activities should result in artifacts that culminate in a final product that addresses the driving question.

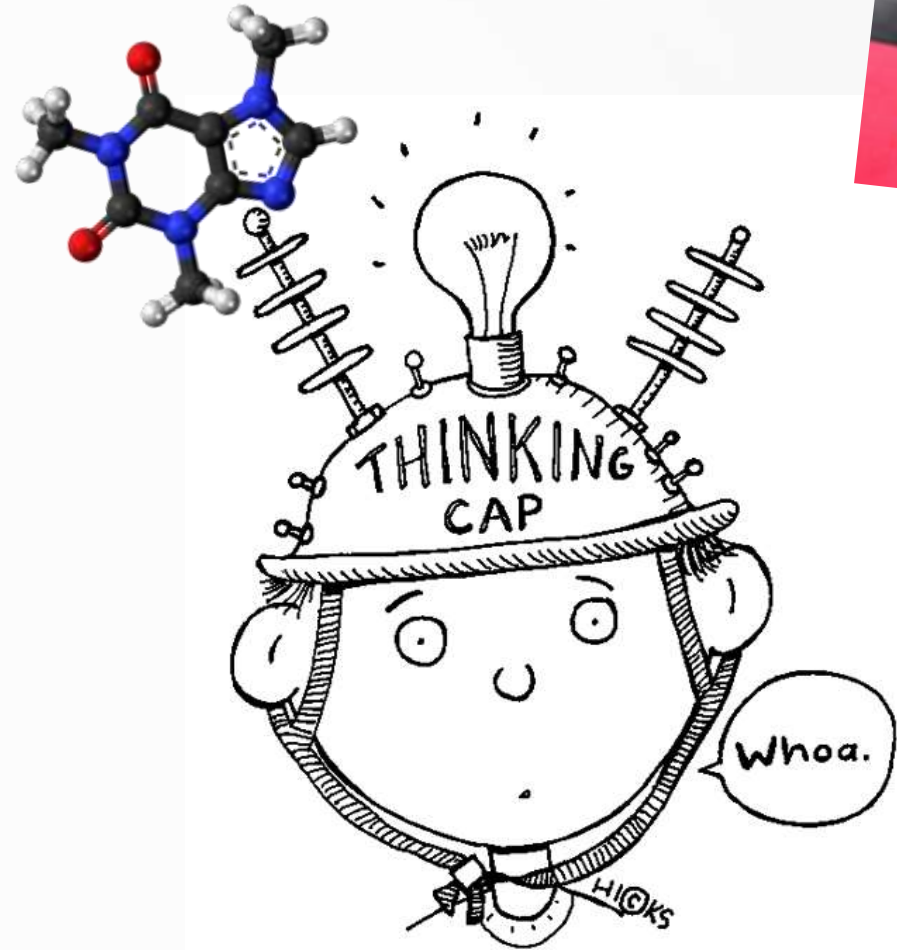


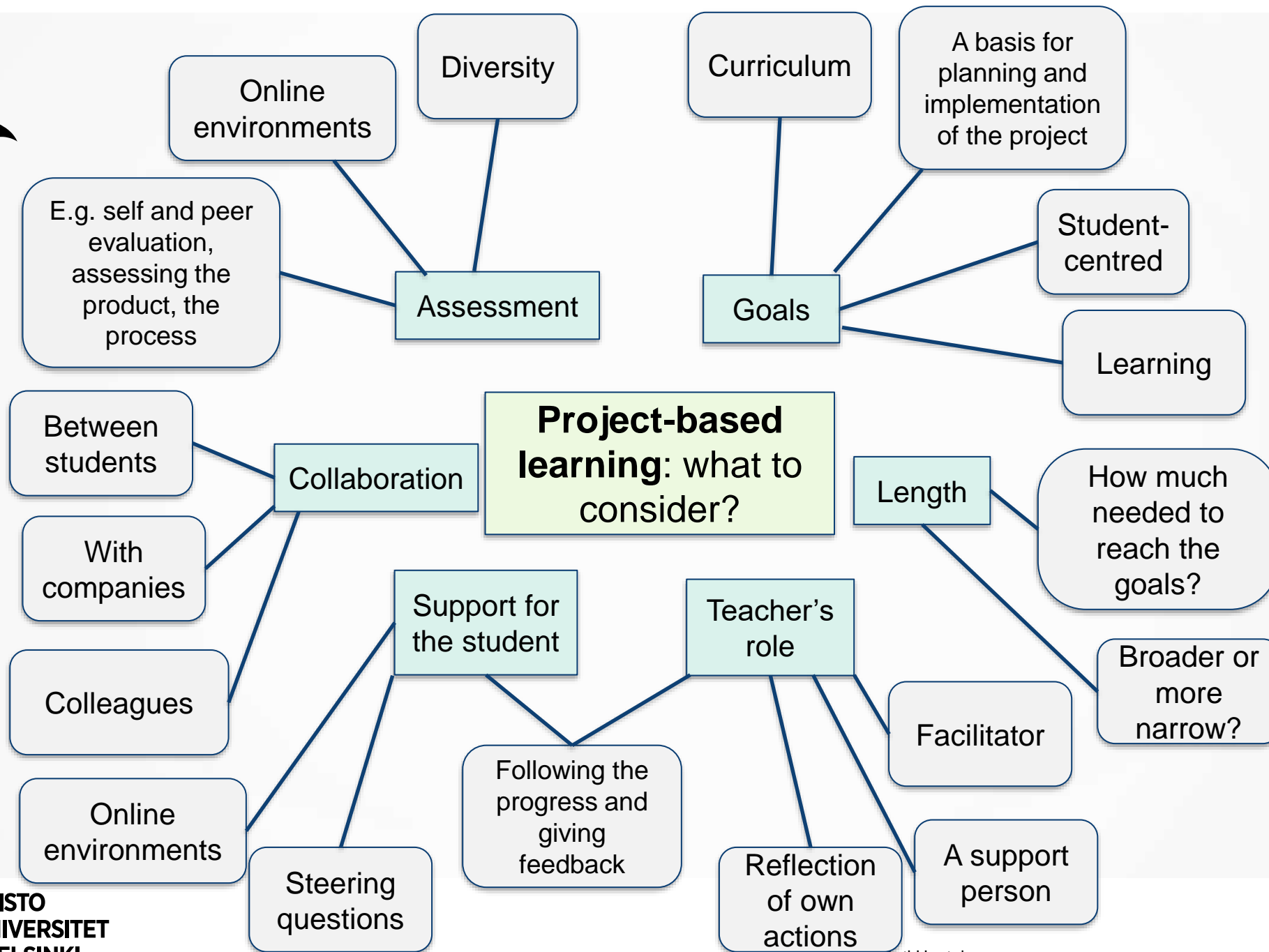
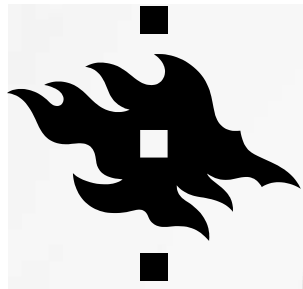


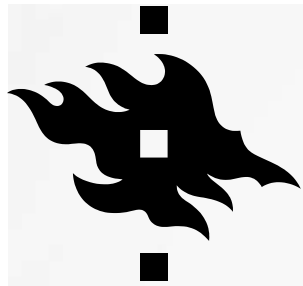
PROJECT-BASED LEARNING

Teachers' role to guide and support:

1. Transfer of knowledge does not happen automatically
2. Ensuring learning goals are achieved
 - Framework for project working
 - Scaffolding instructions
3. Multidisciplinary collaboration







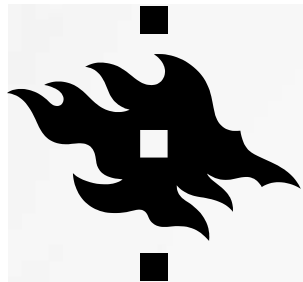
FORMATIVE ASSESSMENT AT THE CORE - HELPING STUDENT FORWARD

8

Educ Asse Eval Acc (2009) 21:5–31

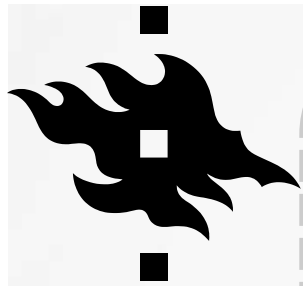
	Where the learner is going	Where the learner is right now	How to get there
Teacher	1 Clarifying learning intentions and criteria for success	2 Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	3 Providing feedback that moves learners forward
Peer	Understanding and sharing learning intentions and criteria for success	4 Activating students as instructional resources for one another	
Learner	Understanding learning intentions and criteria for success	5 Activating students as the owners of their own learning	

Fig. 1 Aspects of formative assessment

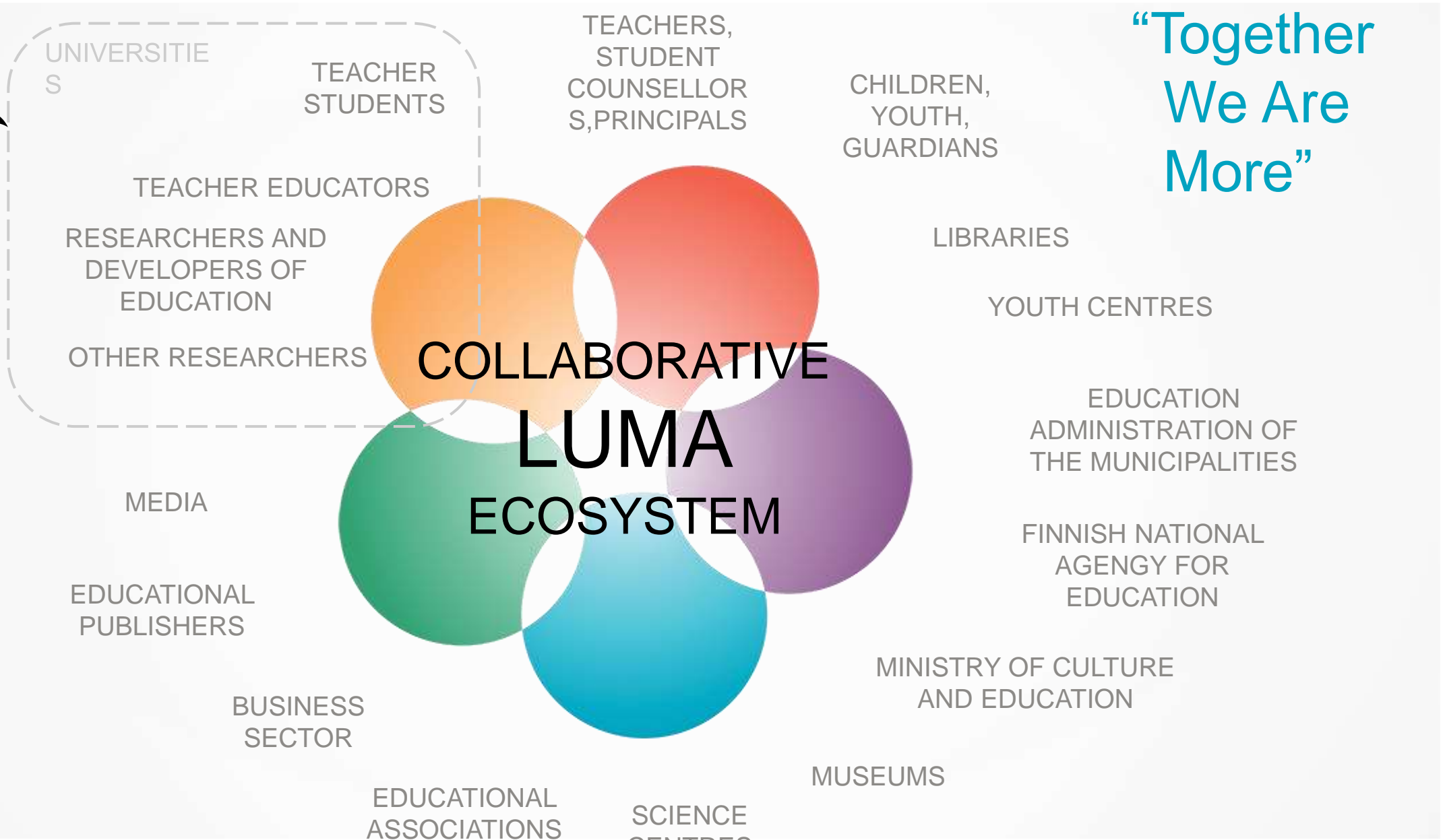


CARRYING OUT INTERDISCIPLINARY PROJECTS WITHIN THE START PROGRAMME





“Together
We Are
More”





NOVEL WAYS TO PROMOTE SCIENCE, MATHEMATICS AND TECHNOLOGY EDUCATION



**A community for collaborative
interdisciplinary Project-Based Learning**

“LUMA StarT is a universal school, with best practices, an educational laboratory synchronized with the 21st century.”



PhD. Georgeta Cozma,
Echipa Multitouchcnme-Colegiul National Mihai Eminescu, Romania



LUMA CENTRE FINLAND



Schools, kindergartens, families and extracurricular activity groups from all around the world are invited to take part in StarT to share ideas, inspiration and the joy of collaborative learning!

Two series:

- 1. Projects (by kids and youth)**
- 2. Best practices**



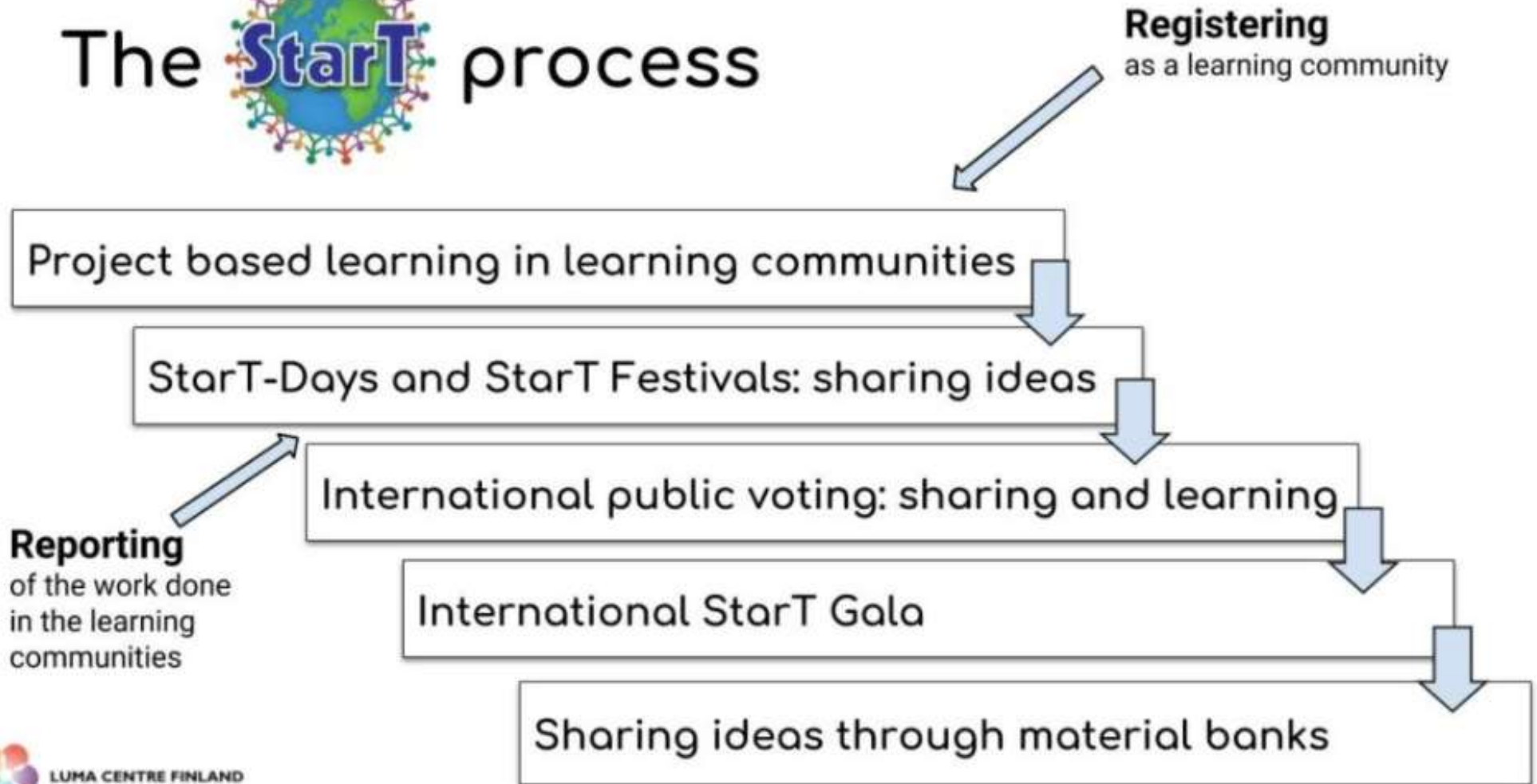


Organized annually
Over 50 countries since 2016

In 2019–2020:
850 communities
4000 teachers
41500 children and youth
570 projects
almost 300 best practices



The process





StarT Projects

StarT projects are made by student teams.

- It is important that the project is a product of the students' work.

The topic of the project – only 2 requirements:

- A link to science, mathematics and/or technology
- A link to StarT themes

All projects should include:

- A project creation
- A video describing your project
- A project diary



Findings: Advantages

Learning outcomes 61%

- Skills
- Increased awareness

Collaboration 54%

- Multidisciplinary
- Sense of community

Motivation 40%

- Positive attitudes
- Relevance

Student-centred 40%

- Active learners
- Group working

Learning outcomes:

'Issues and phenomena will form entities, and all will be linked together.' (Teacher F12)

'Students can get a better understanding of the fact that chemistry is part of everyday life.' (Teacher 98)

Collaboration:

'Belonging to a bigger unity has given structure to our project. The educators have had an opportunity to get peer support and ideas to own project.' (Teacher F103)

Motivation:

'Motivation increases when one can apply what one has learned in new situations.' (Teacher F100).

Findings: Challenges

Facilitating PBL 60%

- time management
- project facilitation
- teachers' skills

Structural issues 21%

- technical
- resources

Interaction 22%

- student-related
- collaboration

Laborious:

'Finding suitable topics that offer enough, yet not too much material. I will have to be the one to find all of the reading tasks, invent topics for art and guide writing essays etc...' (Teacher 68)

Time-consuming:

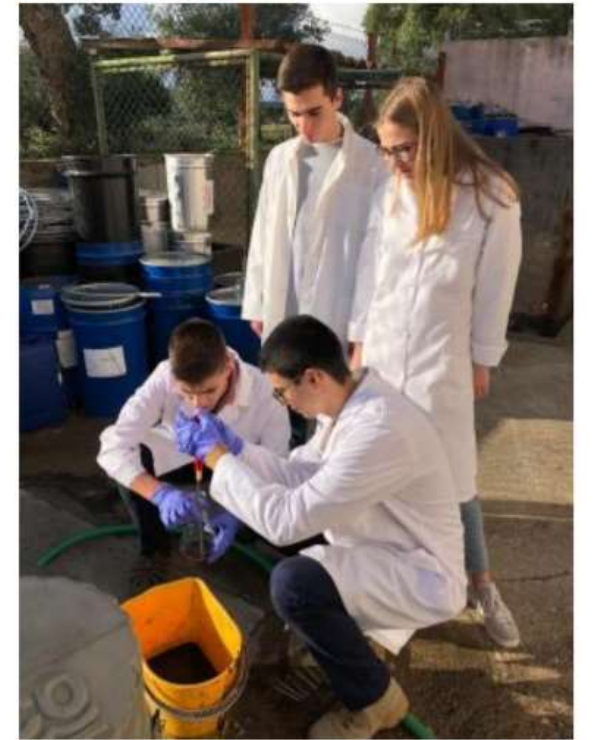
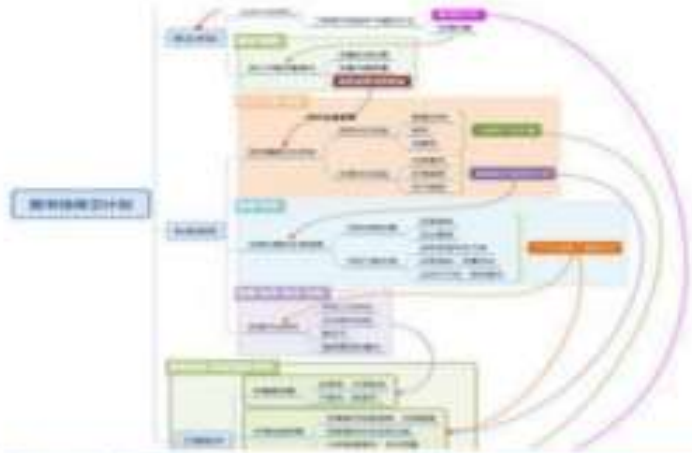
'More time is spent with guiding personal project works and assessment. There are also many meetings' (teacher 82)

Administrative issues:

'...one can't execute integration, because of the large number of students and it is impossible to arrange decent size groups, in a manner that allowed students into all the courses at the same time. We have even tried to execute an integrated unit with four teachers and four different disciplines, but we did not manage to make the students choose all the required courses at the same time. The current structure should be dismantled for authentic integration to be possible.' (Teacher 64)



Engaging students in inquiry



23 - Water polluted collection.



Learning is sharing StarT-days and festivals





Sharing ideas through videos

<https://start.luma.fi/en/>

