



## Project Plans (*compilation of summary based on the seminar*)

*Conceptual framework for increasing society's commitment in ICT: approaches in general and higher education for motivating ICT-related career choices and improving competences for applying and developing ICT*

### What problems do you hope this ICT research project will help solve?

- Prevent dropout of ICT students (why do they dropout?, have to **motivate** students so they don't dropout, find the interventions that work)
- **Select** students better who will not dropout
- Find initiatives to raise the interest of ICT with students
- Justify effective interventions with rigorous research methods
- Help students make the right choice when selecting their profession
- Bring together diverse research groups to concentrate on an important problem
- Identify how education research on ICT issues should be done
- Identify weaknesses in the current ICT curriculum

### In the context of this project what do you think is the most important survey data to collect from *students*?

- Interview and gather data from **students who dropped out** (interview prior dropouts to get information on how to structure our survey methods, )
- The motivation of students changing over time
- Assessing the influence of work on students in ICT studies
- Self-reported knowledge and skills
- Correlating the survey data to actual results in practice
- Factors that are working obtained from successful students
- Largest difficulties facing students to complete their ICT studies (academic difficulty, motivational?)
- Learning methods in schools and universities from the point of view of students
- Student views and attitudes of ICT at secondary schools?
- Prior programming experience (visual or text based first language)

### In the context of this project what do you think is the most important survey data to collect from *teachers*?

- Technology course teachers in high schools may provide useful data
- ICT teaching methods at schools and universities
- Main subjects where students are not successful (identify new methods for teaching these subjects)
- Attitudes towards using ICT in their classroom (confidence/competence with ICT)
- First course of programming at school and university level (visual or text based, what methods are used, survey of teachers around Estonia)
- ICT lessons in secondary schools (what are they doing?)
- Capabilities of ICT teachers in secondary schools (inviting outside specialists to class)
- Impact of **teacher training** courses
- **Motivational activities** for increasing interest in ICT (topic domain applications that are relevant to students)
- Methodology of teaching and assessment methods (focus group interview)
- Role model influence of teachers to draw attention to ICT



## What interventions are you aware of that positively affect students' ICT-related attitudes, knowledge, and skills but have not been rigorously tested?

- Modeling, creating computer models, creativity in learning
- Learning environment (programming tools, methodology, social environment)
- Tutoring (by university staff as well as other students), social dimension
- Awareness of ICT (role models, teachers successfully using IT in classes)
- Curriculum level changes in ICT (recommend this for testing)
- School visits to present ICT
- Robotics and relation to dropout

## What is missing in the current project that should be considered for future related projects?

- How to ensure that the **findings** of this project are **applied**
- Extend the time range of the data collection
- Curriculum level changes based on the results
- Dropout in STEM is a general problem that deserves consideration and our results can help other departments research the dropout problem
- Making it easier to get a degree while working
- Collaborations between universities and companies so that there is mutual benefit for students to complete their degrees
- Large-scale interventions in learning with ICT based on small-scale studies
- Follow ICT and STEM attitudes among younger students, find the critical moment when the interest towards these fields happens
- System to easily access this data so that future projects can build on it