School-university-industry partnership for co-creating educational innovation: Lessons learnt

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Motivation

- StartUp Community is developing quickly in Estonia:
 - Industry partners are interested in collaborating with schools and teachers to find users and improve the products, but **no systematic platform to access** the schools and collaboration mainly based on the individual contacts;
 - Young emergent industry partners **lack of skills to understand the effect of products** and services to teaching and learning practices;
 - Gap to bring together **the competence related to the learning sciences**, didactics, educational psychology etc and technological innovations;
- Academy often fails to collaborate with industry, because of different culture, needs and expectations (timeframe, maturity of the products)



Although there is a need for evidence-based practices, the skills readiness of and companies and educational institutions to assess the impact of practices and services on learning and teaching are **deficient** (Cukurova et al, 2019)

EDUCATE: to support such SMEs who can't afford to have researchers in team, but still are interested in evidence-informed product development





experience and

judgment



and why' works

			Your Assumptions
Resources or Input	Table computers There computers There computers The computer computers The computer computer computer computers The computer computers The computer computer computers The computer computer computers The computer computer computers The computer computers The computer computer computer computers The computer computer computer computers The computer computer computer computer computer computers The computer computers The computer comput	What resources/ input are needed?	Tablets available to all children, and allowed for this use. School has paid for app, which has been loaded onto tablets and child has login. School has a working internet connection. SB training or teacher intro has taken place.
Activities	Child uses the 58 structure to identify the problem and try out adequate strategies in stuck moment Child iongust a reflection on the experiment of appropriate in stuck moment Child iongust a reflection on the experiment of appropriate strategies on the reflection of the reflection on t	What does your product do for users, and what do they do with it?	Teacher allows use of tablet during activity/task. Tablet available to child during task. Child initiates use when in a stuck moment. Child doesn't get distracted by app, and engages with it appropriately.
Outputs	Child tries a strategy Child continues with work Child continues with work Child makes mensingly reflections of the experiences Child able to see adaptive everyiese of journey and gain inlights to inform learning process S. Child use direct message functions communicate with teacher appropriately	What are the intended products of the activities?	Enough strategies to cover all possible problems. Child understands strategy instructions. Child finds appropriate strategy.
Outcomes	Child develops improved metaccepition (mesacepitive knowledge, self-reflection and self-regulation) Child develops a growth mostet Child develops and configured, metavitative, realisence Child shows improved antilanness metavitative, realisence Child shows improved antilanness (mesaured in months etra learning?)	What are the intended outcomes (i.e. what change will your users experience)?	S8 activity improves metacognitive skills and knowledge over continued use. S8 activity develops growth mindset. Improved GM and Metacognition lead to improved attainment.
Impact	All children leave primary school meeting or exceeding expected standards in reading, writing and maths. They operate with a growth mindset and use their metacognitive skills confidently, preparing them for a bright future of being lifelong learners.	What is the intended impact of your product?	That our target context (London TF eligible primary schools) is transferable to schools across England.

of EdTech users (direct

or indirect)

Goal

- Bring together researchers and start-ups, teachers and policy makers to support research and **evidence-based thinking** in product development and foster collaboration between stakeholders
- Encourage collaboration between educational institutions and companies in order to create educational innovations that **meet the needs of schools**
- Find out what kind of collaboration model is needed in the educational landscape that would enable evidence-based and pedagogically meaningful educational technology innovation in practice



What we did?

- Two iterations of co-creation program in collaboration with HarNo, Startup Estonia and TLU (2020 & 2021)
- 6 teams: EdTech Startup partner, two teachers and one university mentor (+ when needed other scientific expertise)
- 6 months: monthly reflection session, co-design sessions
- Trainings: Service design, usability, design thinking, research-oriented service development





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Co-creation team as Activity System



Rules: Contracts, development goals, business models, national curriculum

TALLINN UNIVERSITY School of Digital Technologies Community: Academy, HarNo, StartUp Estonia, Students

Division of labour: Mentoring, testing & validating, additional expertise

Opportunities

- University:
 - Integrating industry partners to our 'ecosystem' and to demonstrate our research to industry
 - **Teachers**:

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- Opportunity to shape the development of a product that meets their pedagogical and instructional needs (real-life needs)
- Possibilities for professional development and acquisition of new knowledge
- Industry partners:
 - Immediate feedback from end-users and dynamic validation
 - Networking and collaboration



Lessons: It's about mindset and the culture

- What is **co-creation**?
 - What is the role of teachers?
 - What is the role of university?
- Evidence-informed product development:
 - Need for impact studies;
 - Lack of interest to monitor the process
- 'One-size-fits all' doesn't work: mentors, trainings, timeline





Next:

- Improving the model 3rd iteration planned
- There is a need for approaches in the edtech sector that emphasize co-creation and is embedded into social processes: Living Lab Approach



Co-creation for educational innovation

- Co-creation approach: A change that leads to new practices
- Positive impact on stakeholders (students, teachers, school leaders, researchers, society)
- Evidence-based approach to creation of innovation
- Sustainable change: change agents, regional innovation, entering platforms





Living Lab..



Sustainable cooperation
between schools, research labs, industry and other stakeholders
Co-designing new learning methods and a research process

-Collecting data to establish
 evidence of impact
 -Scaling up research and innovation (networks)

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Example





Program activities:

- Industry goal: to develop modules for chemistry in secondary school that can be used with VR technologies
- University didactics (working as a teacher) involved in the co-creation team
- Success:
 - Mutual research interest: does the 'method' helps students to learn more effectively (develop a deeper conceptual understanding)
 - \circ Integration to main activities of research group

Follow-up actions in Living Lab

- Follow-up co-creation between didactics and the company
- Cyclical semi-experimental research interventions, inclusion of MA students to research
- Industry as a partner in project proposals

Takeaway message

.... Social practices are important to create a shared understanding of the 'innovation' and to build two-directional interest \rightarrow sustainable collaboration based on mutual interests and needs



Thank you!

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