PROMOTING TECHNOLOGY-ENHANCED LEARNING IN ESTONIA

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Trends in Estonian ICT strategies

- 1986: programming in the second literacy for each citizen of the Soviet Union;
- 1997: school computerization, use of IT;
- 2001: ICT integration in schools & curricula;
- 2006: e-learning environments and active learning methods;
- 2012: learning and teaching in the digital age – massive usage of social media in learning
- 2014 – 2020: National strategy:
    - Digital turn, turn towards 1:1 computing, educational cloud, e-textbooks, e-schoolbag;
    - Digital learning resources in national level, programming, organizational level digital maturity, data-driven decision making.
- 2020 – 2035: Learning analytics and personalized learning paths.

Lifelong Learning Strategy 2014 -2020

- A change in the approach of to learning:
  - *learning how to learn and how to solve problems;*
  - *collaboration, creativity, entrepreneurship.*
- Competent and motivated teachers and school leadership;
- The concordance of lifelong learning opportunities with the needs of labour market;
- Digital turn in formal education system:
  - Integrating digital culture into teaching and learning;
  - Quality digital learning resources for all curricula;
  - Access to digital infrastructure, incl 1:1 computing;
  - Digital competencies of teachers and students.

Education Strategy 2021-2035

- To equip the population of Estonia with the knowledge, skills and attitudes that prepare people to fulfil their potential in personal, occupational and social life and contribute to promoting the quality of life in Estonia as well as global sustainable development.
- Digital solutions and the increasing level of digital competence have improved the accessibility, diversity and efficiency of education. General education schools and vocational schools have a high-level digital infrastructure.

Dominant technology trends

- Digital Learning resources
  - Nationally created/made available digital content for primary and secondary education, which follow the national curriculum. Enable students to interact with the content: submit assignments, self-control tests etc;
- Internet of Things - robotic kits, sensors etc., to better understand STEAM related concepts
- (To some extent) Virtual Reality - technologies to enrich the representation of some concepts from natural sciences.
- Compact robotics – primary and pre-primary education.

Digital competence

- European Commission “the confident and critical use of Information Society Technology (IST) for work, leisure and communication”.

- Biggs (2004) describes digital competence in terms of the ability to implement and present knowledge, skills and attitudes in the context of professional activities in the suitable level of generality.

Regulating documents

- Educators qualifications standard
- Renewed curriculum
- Lifelong Learning Strategy 2020
- Tark ja tegus Eesti 2035
- Educational reality
- Real world needs

Students digital competence

Technology in teacher education

- 1993: E-mail courses, mailing lists for teachers;
- 1997: Tiger Leap, national strategy for IT in schools;
- 1999: The first teachers' portal in Estonia;
- 2005: 70% of all Estonian teachers trained in IT skills;
- 2007: LeMill.net;
- 2009: Teachers' portal Koolielu.ee; MA curriculum of "educational technology"
- 2017: Social media, eDidaktikum, first steps in digital competency assessment;
- 2022: eSchoolbag, online learning materials…

How do we support teachers to implement digital turn?

Digital competence are a part of teacher training:

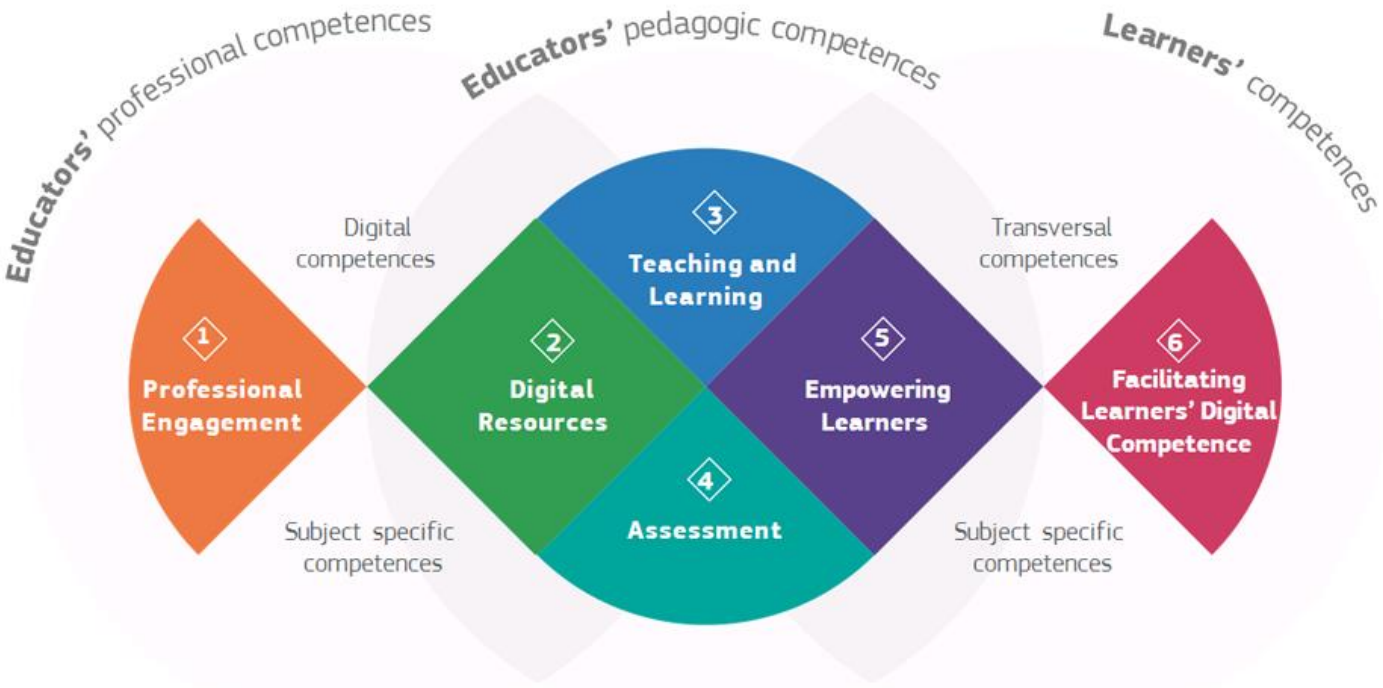
- In-service training organized nationally by HarNo – subject- or tool specific training for;
- In-service research-oriented training organized by Tallinn University: co-creation programs to design TEL practices integrating technologies (e.g. digital learning resources), didactics (meaningful mathematics learning methods) and educational psychology (how learning experience can be supported to engage students). Research has shown positive effect in adoption of TEL practices in own practices;
- Pre-service training: all teacher students are passing at the university courses where they learn to design TEL practices, innovative learning scenarios;
- Educational technologists hired by the kindergartens and schools.

Professional qualification standard (ESTQF)

- Before: Digital competence as a singular/separate competence focusing on using tools and software for teaching and designing the learning environment.
- Now: Digital competence as a cross-cutting competence based on the DigCompEdu model dimensions and including a specialization on digital pedagogies (higher level of digital competence

Digital Competence of Educators - frameworks

- ISTE (until 2019)
  - Described teachers educational technology competence in five proficiency levels
  - Facilitating student learning, designing and developing digital learning experiences and assessment, model digital age work and learning, digital citizenship and professional growth.
- DigCompEdu (2019-…)
  - Describes educators digital competence in six proficiency levels
  - Professional Engagement, Digital Learning Resources, Teaching and Learning, Assessment, Empowering Students and Developing Students Digital Competence.


Educators' professional competences
Educators' pedagogic competences
Learners' competences
Digital competences
Transversal competences
1
Professional Engagement
2
Digital Resources
3
Teaching and Learning
4
Assessment
5
Empowering Learners
6
Facilitating Learners' Digital Competence
Subject specific competences
Subject specific competences

1. Kutsealane areng ja kaasatus	2. Digiõppevara	3. Õpetamine ja õppimine	4. Hindamine	5. Õppijate võimestamine	6. Õppijate digipädevuse arendamine
1.1. Suhtlus organisatsioonis 1.2. Koostöö kolleegidega 1.3. Tööalane refleksioon 1.4. Eesmärgi-pärane enesetäiendus	2.1. Otsimine, hindamine ja valimine 2.2. Loomine ja kohandamine 2.3. Haldamine, kaitsmine ja jagamine	3.1. Õpetamine 3.2. Juhendamine 3.3. Koostöös õppimine 3.4. Enesejuhitud õppimine	4.1. Hindamis-meetodid 4.2. Tõendus-materjalide analüüsimine 4.3. Tagasiside planeerimine	5.1. Kaasav haridus 5.2. Diferentseeri-mine ja individuali-seerimine 5.3. Õppijate üldpädevuste toetamine	6.1. Info- ja andmekirjaosku s 6.2. Suhtlus ja koostöö digikeskkonnas 6.3. Digisisu loomine 6.4. Digiturvalisus 6.5. Probleemi-lahendus

Who is educational technologist?

- Most of the Estonian schools (kindergartens) have ed. technologists, but not always full position (sometimes integrated with the IT-manager position or some active teacher is playing the role)
- Part of the management at the organization and responsible for: promoting new teaching practices, taking care of the infrastructure, supporting change management
- Working closely with the teachers by:
  - Helping to better understand how to integrate some tools with music lesson or how to design ‘flipped classroom’ scenario in math;
  - Taking care of the maintenance – e-learning systems, accounts, updates in iPads, …
  - Organising individual or group training for the staff
  - Initiating projects

Conclusion

- Estonian teachers are autonomous, curious and quite well-prepared to test out different innovations in their own practice. However, such innovation is often very individual and focusing on the same teachers (innovation does not scale).
- Our kindergartens are very well equipped with the technologies (wifi, iPads, robotics kits, presentation tools), but now we should focus more on methodological preparation of the teachers.
- Estonian digital success story was too long tool-based: new emerging technologies have been made available and teachers were eager to try them out. Such approach was lack of methodological approach (why are we doing what are we doing) and monitoring approach (does it work).
- Evidence-informed implementation of innovation is our next focus to understand how to better support teachers to design the learning environment for supporting and engaging students.

Useful materials

- https://digipadevus-ee.translate.goog/oppija-digipadevusmudel/hindamiskriteeriumid/?_x_tr_sl=et&_x_tr_tl=en&_x_tr_hl=et
- https://www.riigikogu.ee/pressiteated/muu-pressiteade-et/menetlusse-voeti-eelnou-lasteaedade-ja-lastehoidude-susteemi-uuendamiseks/
- https://educators-go-digital.jrc.ec.europa.eu
- https://www.riigikogu.ee/tegevus/eelnoud/eelnou/fa9e8969-7a92-4870-934d-185c9f69ac43/Alushariduse%20ja%20lapsehoiu%20seadus_(seletuskirja lisa 1)

Thank you!

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