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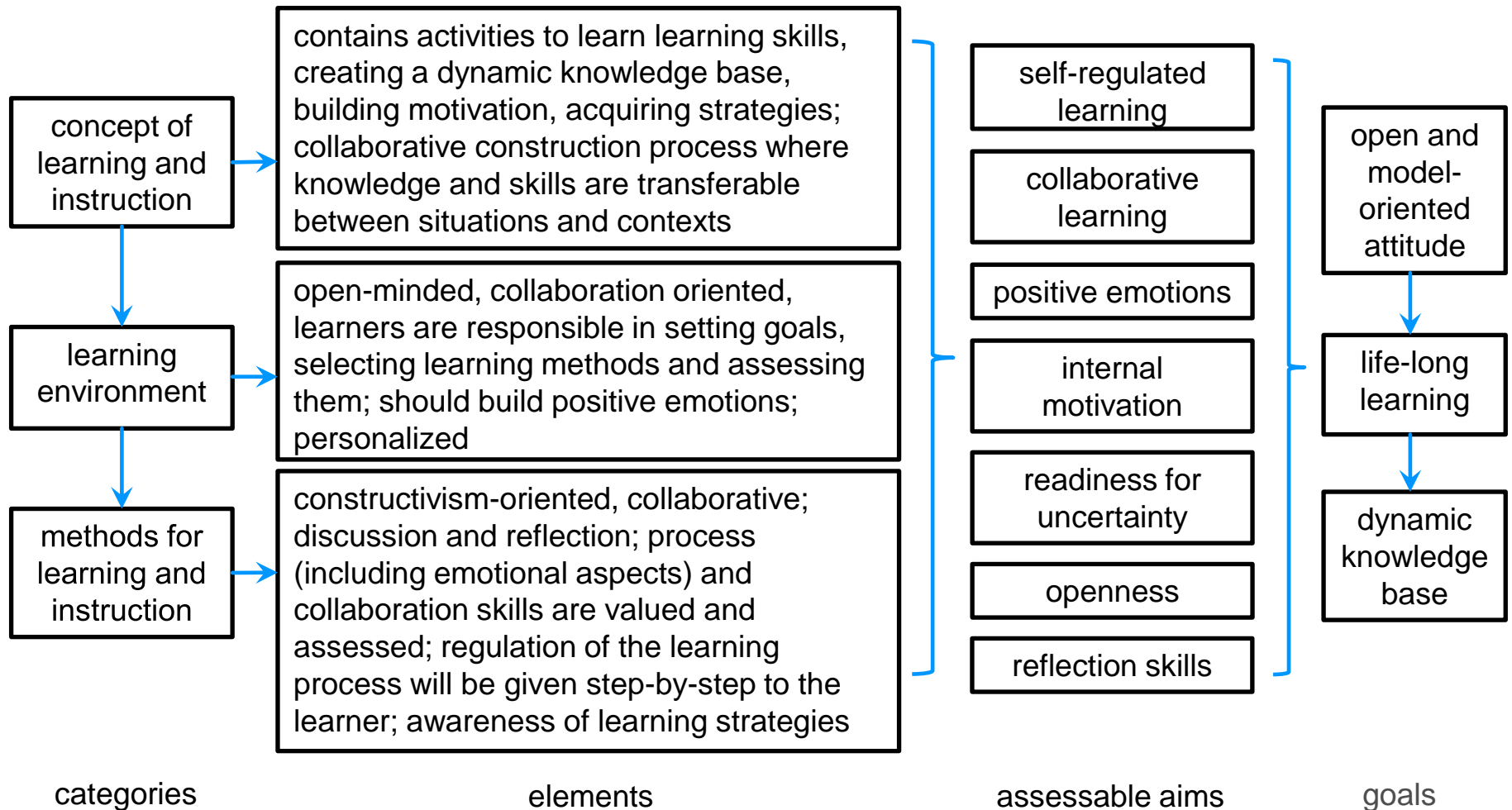
# Assessment and development of Digital Competence in Estonia in the Framework of New Learning

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# Framework of New Learning





## Assessment of pupils

- **Use** of mobile devices in learning science and mathematics according to the DIGCOMP framework
  - if something is not used then you cannot assess the competence (e-country (!) – attitudes (+))
- Digital **competence** on four levels
  - Framework (DIGCOM)
  - Operationalization (matrix, not for self-evaluation)
  - Tools (assessment, improvement)



# DigComp framework (Ferrari, 2013)

1. **Information:** identify, locate, retrieve, store, organise and analyse digital information, judging its relevance and purpose.
2. **Communication:** communicate in digital environments, share resources through online tools, link with others and collaborate through digital tools, interact with and participate in communities and networks, cross-cultural awareness.
3. **Content-creation:** Create and edit new content (from word processing to images and video); integrate and re-elaborate previous knowledge and content; produce creative expressions, media outputs and programming; deal with and apply intellectual property rights and licences.
4. **Safety:** personal protection, data protection, digital identity protection, security measures, safe and sustainable use.
5. **Problem-solving:** identify digital needs and resources, make informed decisions as to which are the most appropriate digital tools according to the purpose or need, solve conceptual problems through digital means, creatively use technologies, solve technical problems, update one's own and others' competences.

Sul on trennirakendus, mida saad treeningute ajal kasutada. Treeningu tüüpi, kestust ja heli tugevust (treeningu lõpumärguande andmiseks) saab muuta kolme nupu abil (◀, ○, ▶). Vajutades „LÄHTESTA“ saab algolekusse tagasi. Trennirakenduse alumine rida näitab sinu valitud seadeid.



Loe väiteid ja vali iga väite puhul, milline on kaasnev oht.

Klõpsa rippmenüül ja vali õige vastus.

Väide	Valikud
Prüjimägedel arvutijäätmete põletamine metallide saamiseks	-- Vali --
Majakatuse serval selfi tegemine	-- Vali --
Vanade nutiseadmete metsa alla viimine	-- Vali -- -- Vali --
Nutiseadme kasutamine autoroolis	oht keskkonnale ja tervisele oht keskkonnale oht tervisele oht on minimaalne
Nutiseadmega mängimine, istudes bussiootepaviljonis	-- Vali --
Tänaval kõndides nutiseadmega uudiste lugemine	-- Vali --
Pokemonide otsimine tiheda liiklusega tänaval	-- Vali --
Sportirakenduse kasutamine jooksmisel	-- Vali --
Selfi tegemine linna ausamba juures	-- Vali --
Jalgrattaga sõites nutiseadmega filmimine	-- Vali --

Allpool on toodud väited trennirakenduse kohta. Otsusta iga väite puhul, kas väide on õige või vale.

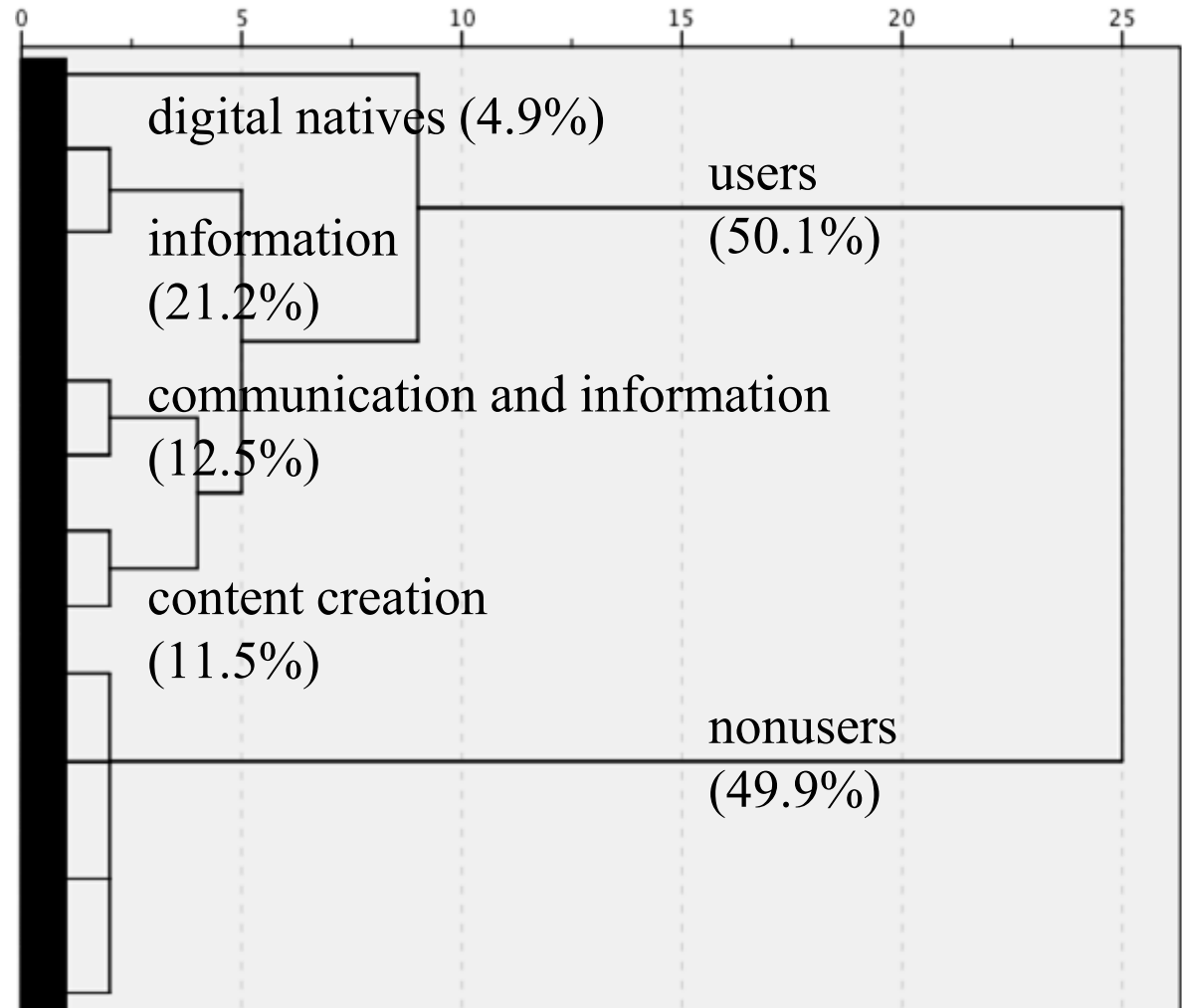
Väide	Õige	Vale
Treeningu tüüpi vahetamiseks tuleb kasutada keskmist nuppu ○	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Enne helitugevuse muutmist tuleb muuta trenni kestust.	<input type="checkbox"/>	<input type="checkbox"/>
Kui oled kestust pikendanud, saad seda lühendada ainult treeningu tüüpi muutes.	<input type="checkbox"/>	<input type="checkbox"/>

Problem solving, DigComp 5.1 (technical problems)

Safety, DigComp 4.3 and 4.4. (health and environmental issues)

## Assessment of pupils' use of mobile devices

- n=3521
- Grade: 6<sup>th</sup>, 9<sup>th</sup>
- Context: science and mathematics
- CFA – no factors
- parallel analysis – one factor
- Hierarchical cluster (Ward)



Variables	Model 0	Model 1	Model 2
Intercept	-.045(.036)	-.113(.025)	-.096(.017)
Gender		.196(.024)	.184(.012)
Communication at school		-.053(.013)	-.055(.012)
Self-efficacy		.407(.017)	<b>.407(.017)</b>
Relatedness		.082(.013)	.083(.013)
Deep strategy		.383(.013)	<b>.371(.013)</b>
Grade		-.072(.015)	-.069(.015)
Self-efficacy (school)			-.403(.049)
Interest (school)			<b>.969(.054)</b>
Deep strategy (school)			<b>-.342(.061)</b>
<i>School level variance</i>	.126(.021)	.037(.007)	.000(.000)
<i>Student level variance</i>	.883(.021)	.456(.011)	.437(.011)
<i>-2 likelihood</i>	9728.826	7115.354	6836.667



## Assessment of students and teachers

- Teacher education students (agents of changes), 360° data (self-assessment, peer-assessment...)
  - Information: good competence
  - Communication: not bad
  - Content creation: not bad
  - Safety: not clear
  - Problem solving: should be better





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Thank you

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