The European Commission's science and knowledge service

Joint Research Centre

Capacity building for Digital Age Learning and Transversal Skills

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ATS2020 Final Conference, 2nd of February 2018

European Commission

JRC Competence frameworks with DG EAC & DG EMPL :

Digital Competence framework for citizens (DigComp)

Digital Competence framework for educators (DigCompEdu)

Digital Competence framework for educational organisations (DigCompOrg) and a self-reflection tool for schools (SELFIE)

Entrepreneurship Competence framework (EntreComp)

Open Education framework for Higher Education Institutions (OpenEdu)

Why all these frameworks…?

- Capacity building for the digital transformation of E&T and for addressing skills challenges in the digital age – covering all actors – from a holistic point of view

- Systemic change is still slow although lots of initiatives in Europe and worldwide

- Supporting peer learning and exchange within Europe-> flexible implementations

What?

- A reference framework providing an overall, complete and shared understanding

- Conceptual model, proficiency levels & (self-)assessment modules

- Competence defined as Knowledge, Skills and Attitudes

- Strong link with addressing transversal skills

Multiple uses:

- Curricula review, teacher training, (self-)assessment/reflection, policies, practical initiatives, jobseekers, certification, measurement (E.g. DESI indicators), etc...

Method:

- Strong scientific basis (Identifying – Analysing – Mapping – Piloting/Testing)

- Consensus building with multiple stakeholders

- Updating and revising

EU Policies:

- 2018 Digital Education Action Plan

- 2018 proposal for Council Recommendation on Key Competences for Lifelong Learning (revision of 2006 Recommendation)

- 2017 Education package (Schools & Higher Education)

- Digital Single Market

- 2016 Skills Communication

A free, online, easy-to-use & customisable self-reflection tool

Infrastructure

Content & curricula

Assessment practices

Professional development
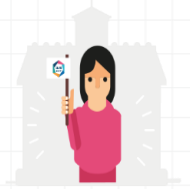
Leadership & governance practices

Sector specific

Collaboration & networking

Teaching & learning practices

SELFIE is about learning for the digital age
It´s NOT about technology

Let all the voices be heard

school leaders + teachers + students

Participatory design
- ➤ **100** European experts
- ➤ **5000** end-users

Each user has a different perspective

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SELFIE School Report

Dialogue within school community
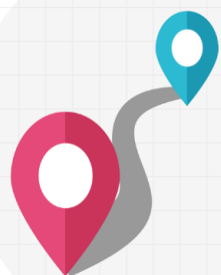
Basis for developing **an action plan** for improvement

Can be used for monitoring the **evolution** from year to year

STRENGTHS
WEAKNESSES
AREAS OF IMPROVEMENT

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Some results from SELFIE pilot

Following the DigCompOrg model and a user consultation survey **the SELFIE pilot:**

- took place end Sept – beginning Oct 2017

- in 14 countries: 11 MS, Serbia, Georgia, Russia (with UNESCO´s IITE)

- 12 languages (9 official EU languages plus Georgian, Serbian, Russian)

=> 67.741 users (headmasters, teachers, students) from 651 schools (primary, secondary, VET)

Teaching and learning practices

NON-REPRESENTATIVE DATA

Legend:
- School leaders (blue)
- Teachers (red)
- Students (green)

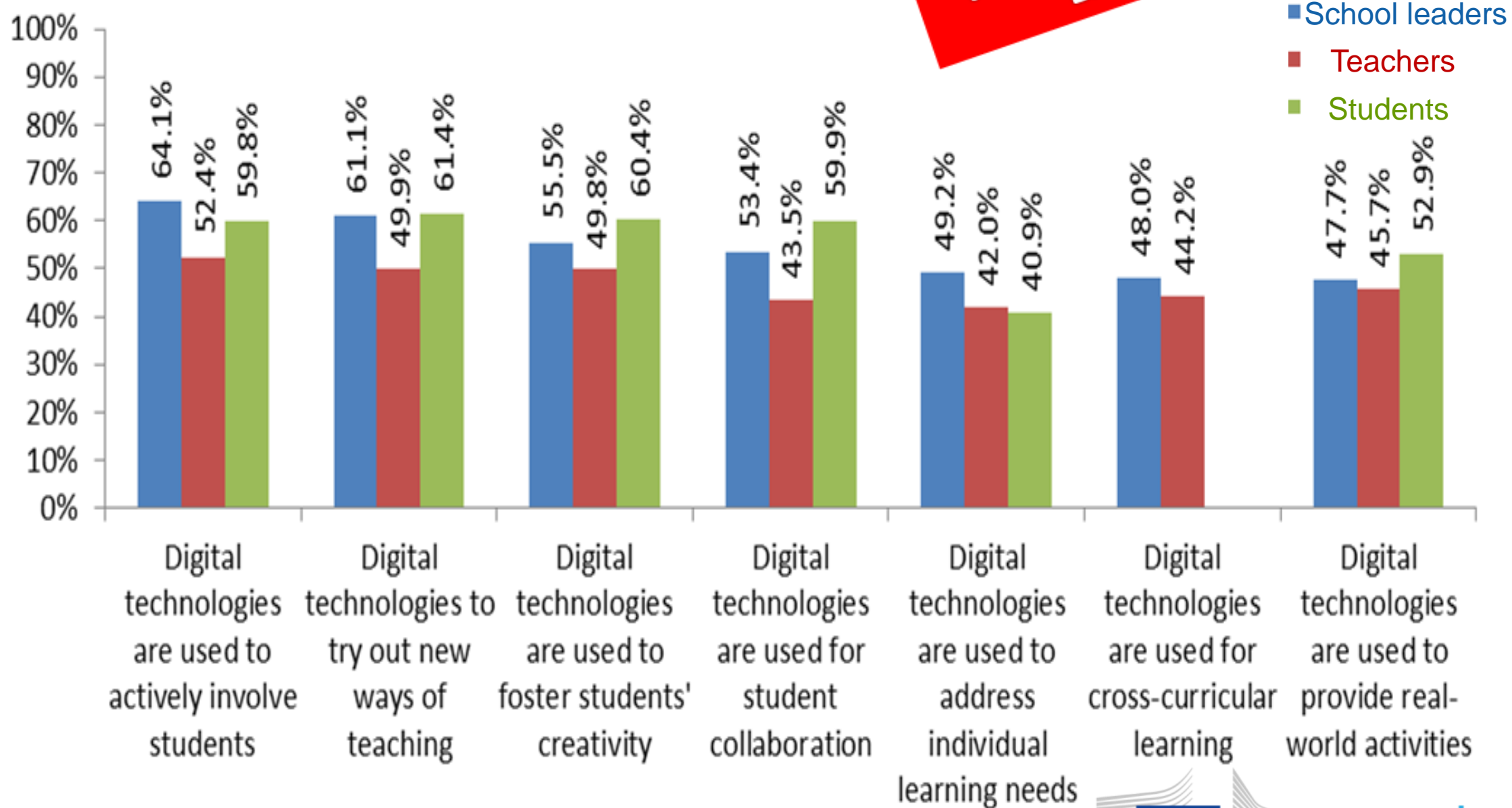| Statement	School leaders	Teachers	Students
Digital technologies are used to actively involve students	64.1%	52.4%	59.8%
Digital technologies to try out new ways of teaching	61.1%	49.9%	61.4%
Digital technologies are used to foster students' creativity	55.5%	49.8%	60.4%
Digital technologies are used for student collaboration	53.4%	43.5%	59.9%
Digital technologies are used to address individual learning needs	49.2%	42.0%	40.9%
Digital technologies are used for cross-curricular learning	48.0%	44.2%	
Digital technologies are used to provide real-world activities	47.7%	45.7%	52.9%

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Positive responses on the 7 DigCompOrg areas

NON-REPRESENTATIVE DATA

Area	SL	T	ST
Area 7- Professional Development	58.2%		
Area 5- Infrastructure	55.6%	48.1%	58.7%
Area 2- Teaching and learning practices	54.2%	46.8%	55.9%
Area 4- Digital competence as outcome (ALL)	50.2%	48.1%	56.3%
Area 1- Leadership and governance	48.3%	37.4%	50.9%
Area 3- Assessment	36.7%	36.6%	44.5%

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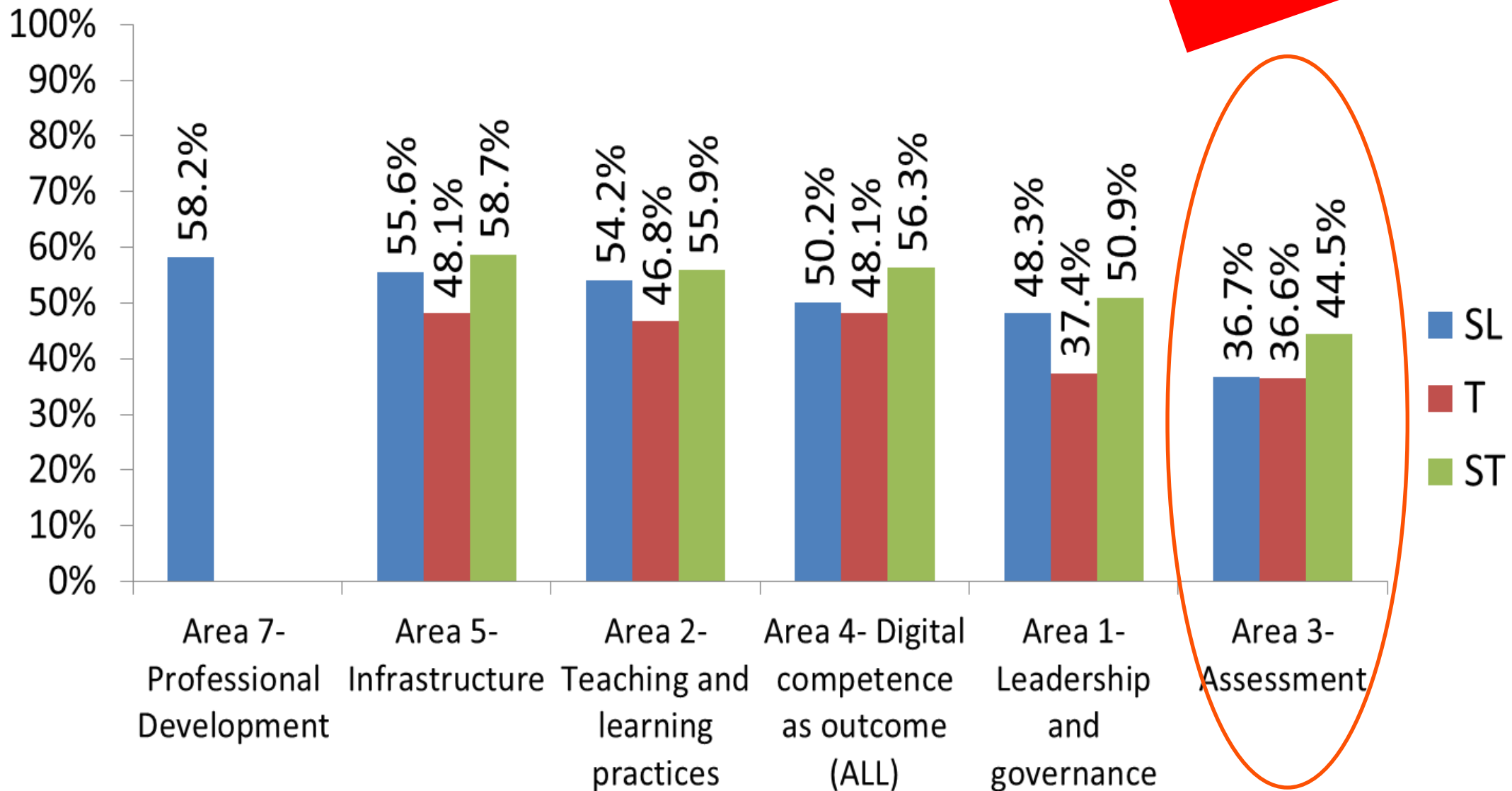
Assessment practices

NON-REPRESENTATIVE DATA

Legend: SL, T, S

- Students use digital technologies to document their learning: SL 40.6%, T 41.4%, S 51.5%
- Digital technologies are used to more holistically assess students: SL 40.0%, T 39.2%
- Digital technologies are used for student self- and peer-assessment: SL 29.3%, T 29.1%, S 37.4%

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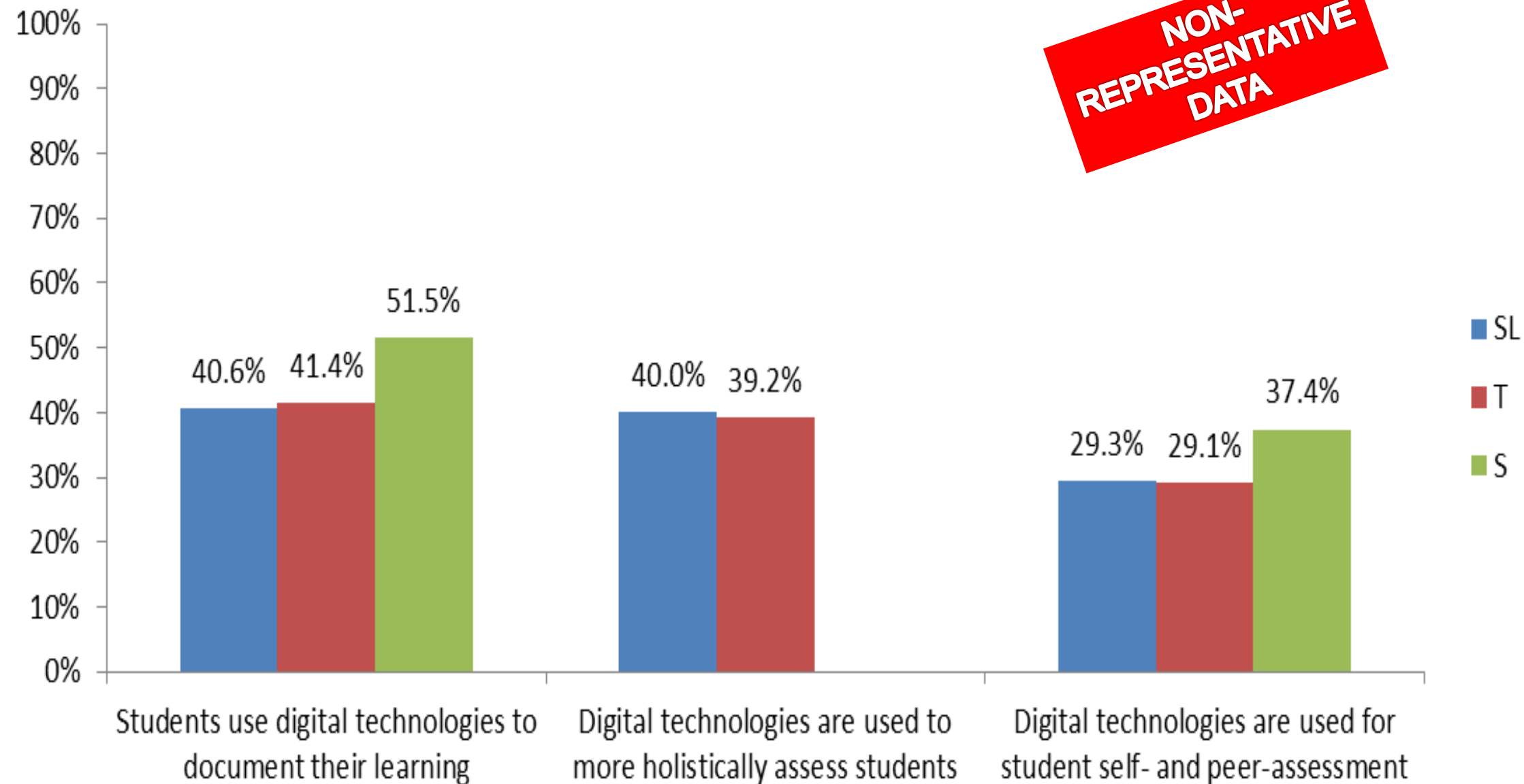
Students' Digital Competence

NON-REPRESENTATIVE DATA

Legend:
- SL
- T
- S

Category	SL	T	S
Students learn how to behave safely and responsible	63.4%	55.1%	67.8%
Students' learn to use information critically	56.6%	60.3%	60.6%
Students develop their digital skills in all subjects	50.8%	40.3%	51.0%
Students are creators of digital content	44.5%	35.6%	49.3%
Students learn how to avoid plagiarism (By referencing)	35.5%	49.5%	52.9%

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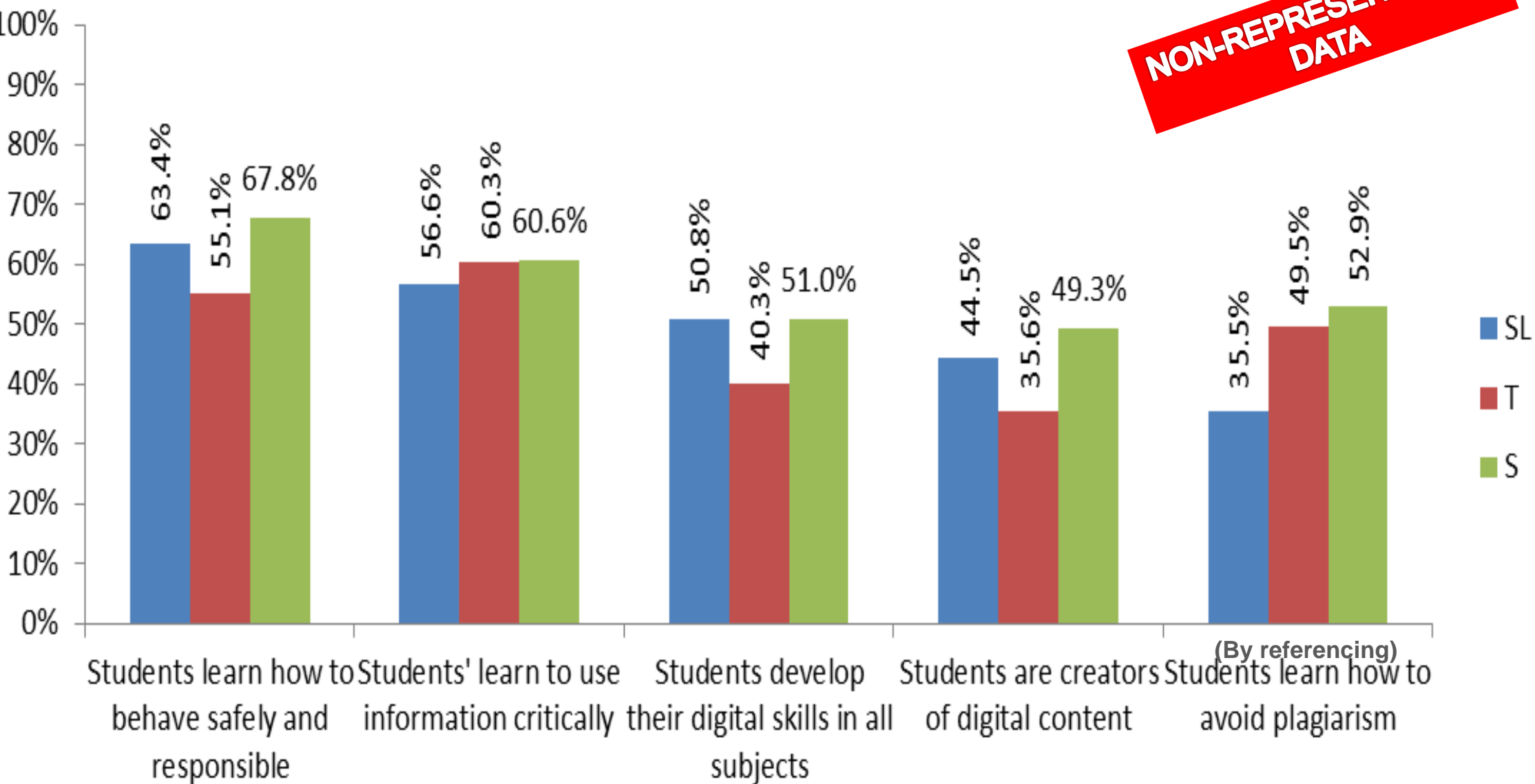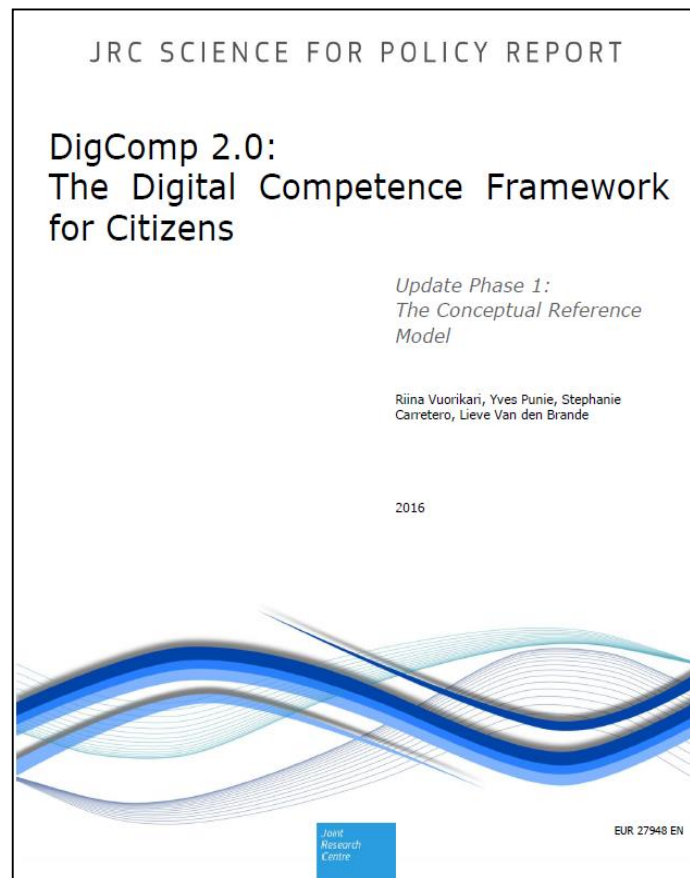
The Digital Competence framework for citizens (DigComp)

Working definition:

Digital Competence refers to confident, safe and critical use of, and engagement with the full range of digital technologies for all aspects of life.

DigComp 2.1

The Digital Competence Framework for Citizens

With eight proficiency levels and examples of use

Authors:
Stephanie Carretero,
Riina Vuorikari and
Yves Punie

Joint Research Centre

EUR 28558 EN

JRC SCIENCE FOR POLICY REPORT

DigComp 2.0: The Digital Competence Framework for Citizens

Update Phase 1: The Conceptual Reference Model

Riina Vuorikari, Yves Punie, Stephanie Carretero, Lieve Van den Brande

2016

Joint Research Centre

EUR 27948 EN

JRC SCIENTIFIC AND POLICY REPORTS

DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe.

Author: Anusca Ferrari
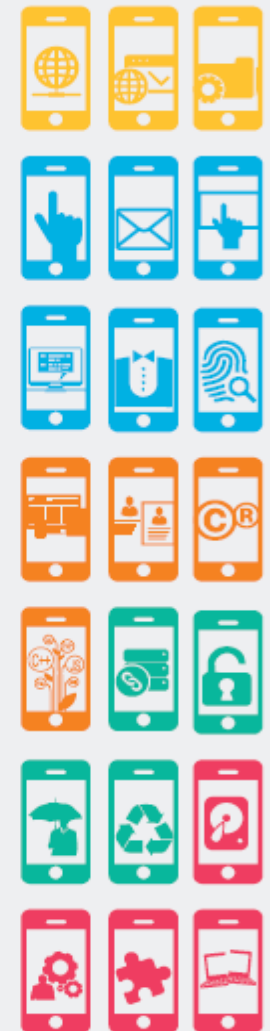Editors: Yves Punie and Barbara N. Brečko

2013

Report EUR 26035 EN

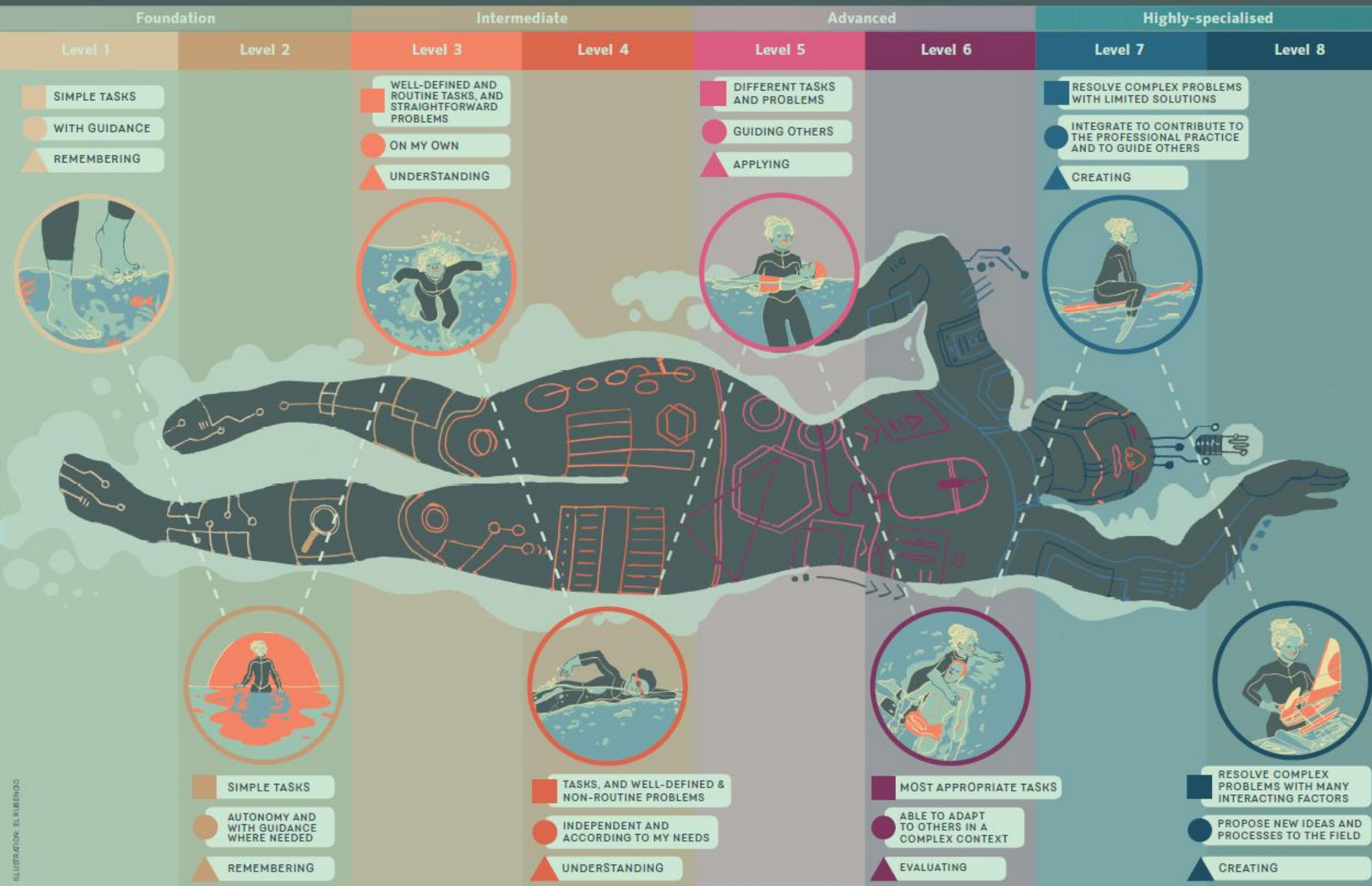Joint Research Centre

DIGCOMP 2.0

THE DIGITAL COMPETENCE FRAMEWORK FOR CITIZENS
THE COMPETENCES

Digital content creation

Communication and collaboration

Safety

Information and data literacy

Problem solving

5 AREAS

21 COMPETENCES

Competence areas	Competences
1. Information and data literacy	**1.1 Browsing, searching and filtering data, information and digital content** **1.2 Evaluating data, information and digital content** **1.3 Managing data, information and digital content**
2. Communication and collaboration	**2.1 Interacting through digital technologies** **2.2 Sharing through digital technologies** **2.3 Engaging in citizenship through digital technologies** **2.4 Collaborating through digital technologies** **2.5 Netiquette** **2.6 Managing digital identity**
3. Digital content creation	**3.1 Developing digital content** **3.2 Integrating and re-elaborating digital content** **3.3 Copyright and licences** **3.4 Programming**
4. Safety	**4.1 Protecting devices** **4.2 Protecting personal data and privacy** **4.3 Protecting health and well-being** **4.4 Protecting the environment**
5. Problem solving	**5.1 Solving technical problems** **5.2 Identifying needs and technological responses** **5.3 Creatively using digital technologies** **5.4 Identifying digital competence gaps**

Learning to swim in the Digital Ocean: THE DIGITAL COMPETENCE FRAMEWORK FOR CITIZENS (V. 2.1)

Foundation		Intermediate		Advanced		Highly-specialised	
Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8

Level 1
- SIMPLE TASKS
- WITH GUIDANCE
- REMEMBERING

Level 3
- WELL-DEFINED AND ROUTINE TASKS, AND STRAIGHTFORWARD PROBLEMS
- ON MY OWN
- UNDERSTANDING

Level 5
- DIFFERENT TASKS AND PROBLEMS
- GUIDING OTHERS
- APPLYING

Level 7
- RESOLVE COMPLEX PROBLEMS WITH LIMITED SOLUTIONS
- INTEGRATE TO CONTRIBUTE TO THE PROFESSIONAL PRACTICE AND TO GUIDE OTHERS
- CREATING

Level 2
- SIMPLE TASKS
- AUTONOMY AND WITH GUIDANCE WHERE NEEDED
- REMEMBERING

Level 4
- TASKS, AND WELL-DEFINED & NON-ROUTINE PROBLEMS
- INDEPENDENT AND ACCORDING TO MY NEEDS
- UNDERSTANDING

Level 6
- MOST APPROPRIATE TASKS
- ABLE TO ADAPT TO OTHERS IN A COMPLEX CONTEXT
- EVALUATING

Level 8
- RESOLVE COMPLEX PROBLEMS WITH MANY INTERACTING FACTORS
- PROPOSE NEW IDEAS AND PROCESSES TO THE FIELD
- CREATING

Legend:
- ▢ COMPLEXITY OF TASKS
- ● AUTONOMY
- ▲ COGNITIVE DOMAIN

DigComp 2.1 is a collaboration between the Joint Research Centre and DG Employment Social Affairs and Inclusion

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ILLUSTRATION: EL RUBENOO

Assessing digital competence for individuals: challenges

JRC literature review and analysis of 22 digital competence assessment instruments:
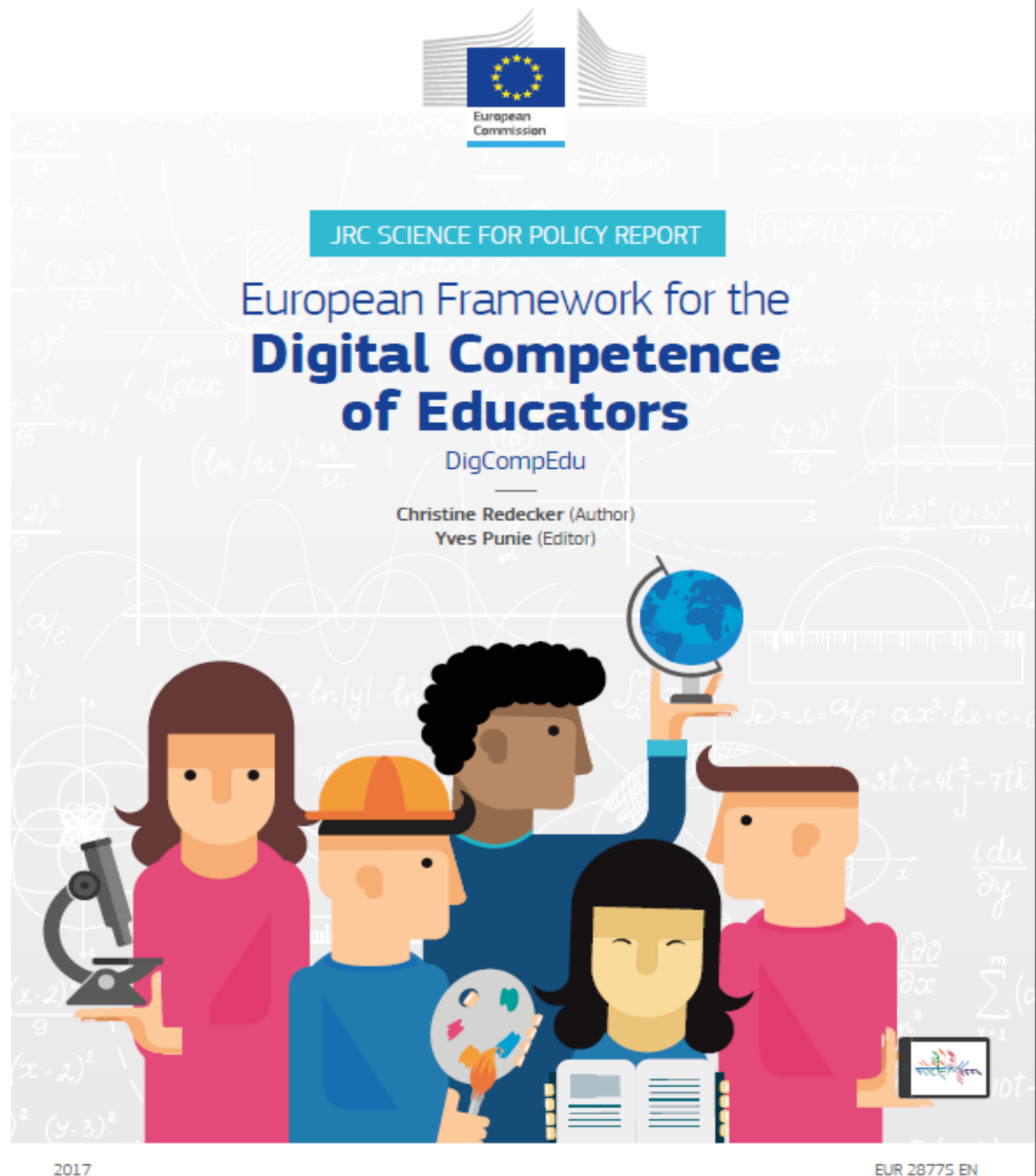
- Limited academic research on assessment of digital competence (Meelisen, 2008)

- Little consensus on what should be assessed and how (Maderick et al 2015)

- Existing instruments usually only assess some elements (Siddiq et al., 2016)

- Lack of transparency on assessment methodologies (only 13 of 22 reviewed)

- Lack of reliability (e.g. item tests) and validity studies (only 7 of 22 reviewed)

- Need to have conceptual model to guide assessment

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- Diversity of formats: Activity/task based, self-assessment, knowledge-based, combinations of these

- Also depends on purpose of assessment

- Always a compromise: cost-benefit analysis

- JRC resarch indicates that a combination of task- and knowledge-based items with self-assessment on attitudes seems to be most adequate

- JRC is currently developing such an instrument (with All Digital) based on DigComp 2.1:

  - for proficiency levels 1-4

  - combining knowledge-based items and self-assessment of attitudes

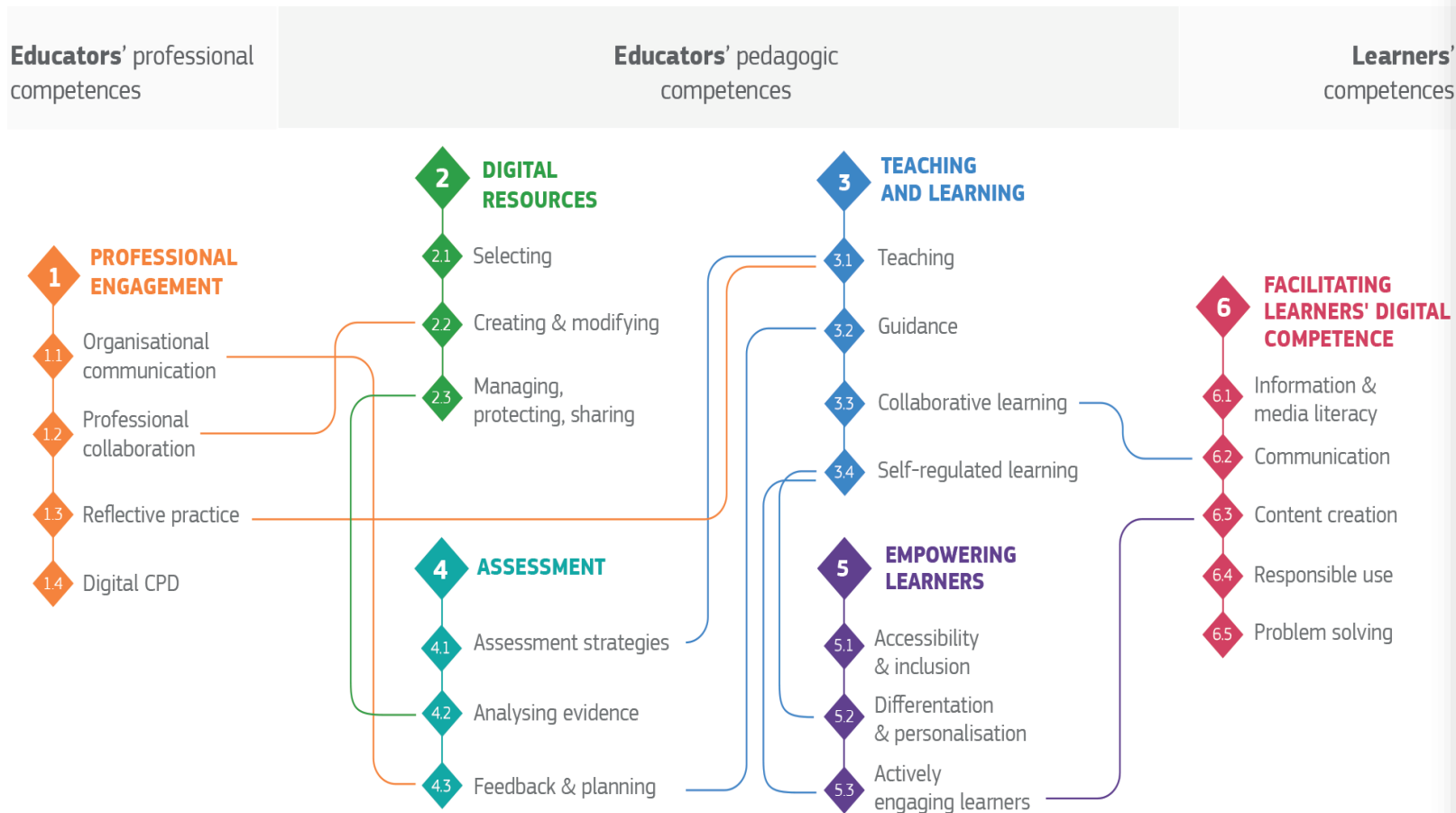 - containing reliability and validity tests with real users (pilot in 3 MS)
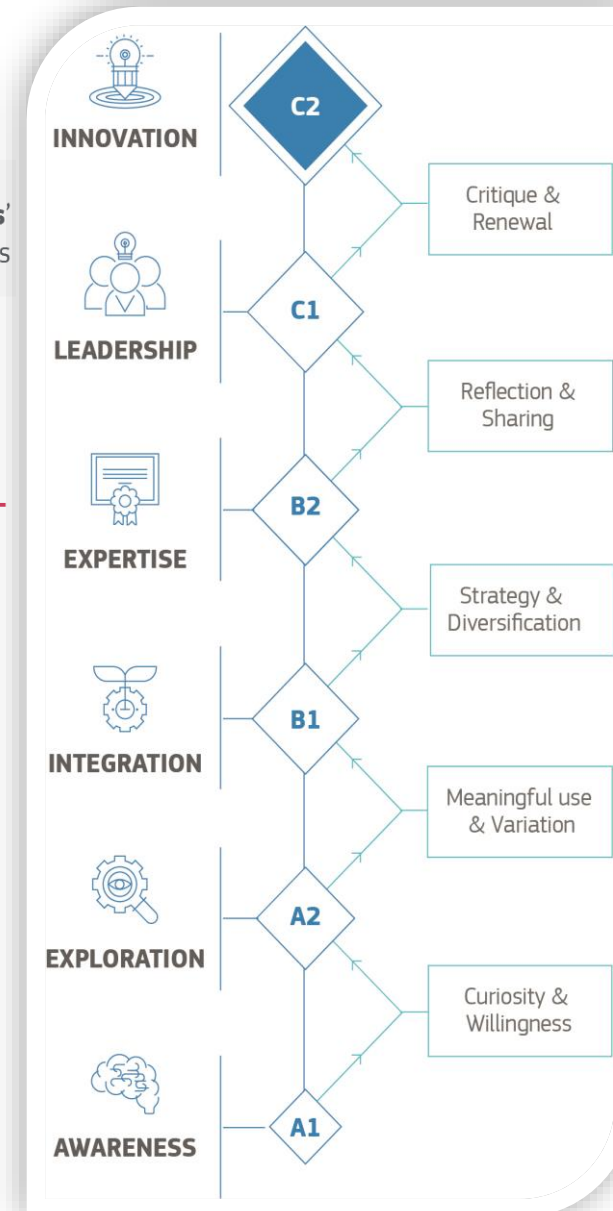
  -> Autumn 2018

DigCompEdu

Published Nov 2017

Conceptual model: 6 competence areas - 22 competences

Educators' professional competences

Educators' pedagogic competences

Learners' competences

1 PROFESSIONAL ENGAGEMENT
- 1.1 Organisational communication
- 1.2 Professional collaboration
- 1.3 Reflective practice
- 1.4 Digital CPD

2 DIGITAL RESOURCES
- 2.1 Selecting
- 2.2 Creating & modifying
- 2.3 Managing, protecting, sharing

3 TEACHING AND LEARNING
- 3.1 Teaching
- 3.2 Guidance
- 3.3 Collaborative learning
- 3.4 Self-regulated learning

4 ASSESSMENT
- 4.1 Assessment strategies
- 4.2 Analysing evidence
- 4.3 Feedback & planning

5 EMPOWERING LEARNERS
- 5.1 Accessibility & inclusion
- 5.2 Differentation & personalisation
- 5.3 Actively engaging learners

6 FACILITATING LEARNERS' DIGITAL COMPETENCE
- 6.1 Information & media literacy
- 6.2 Communication
- 6.3 Content creation
- 6.4 Responsible use
- 6.5 Problem solving

6 proficiency levels

- INNOVATION — C2 — Critique & Renewal
- LEADERSHIP — C1 — Reflection & Sharing
- EXPERTISE — B2 — Strategy & Diversification
- INTEGRATION — B1 — Meaningful use & Variation
- EXPLORATION — A2 — Curiosity & Willingness
- AWARENESS — A1

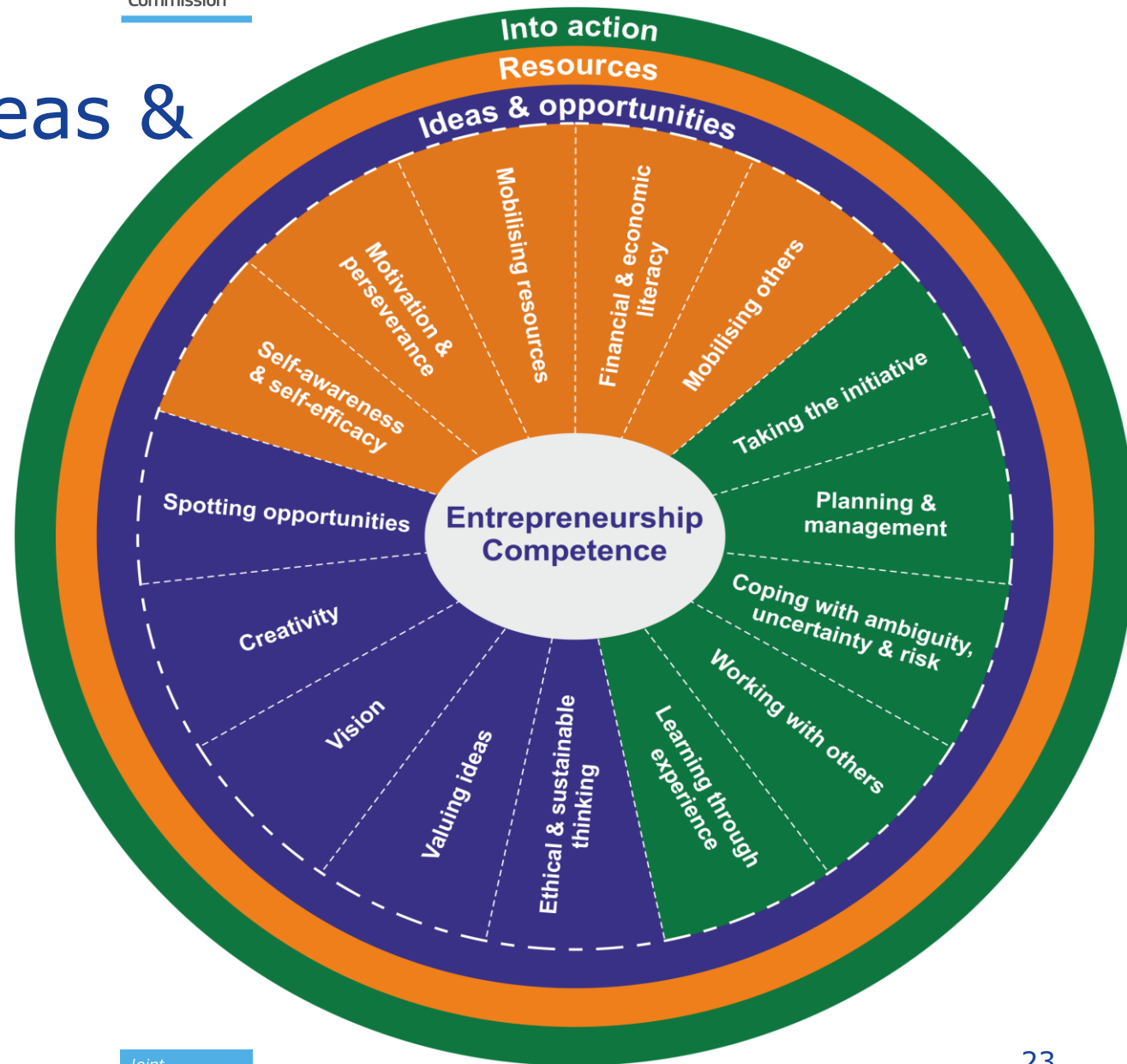https://ec.europa.eu/jrc/digcompedu

EntreComp: 3 areas & 15 competences

Each competence is accompanied by a hint and a descriptor and is further unfolded into threads.

Threads are turned into more than 400 learning outcome statements along 8 levels of **proficiency**
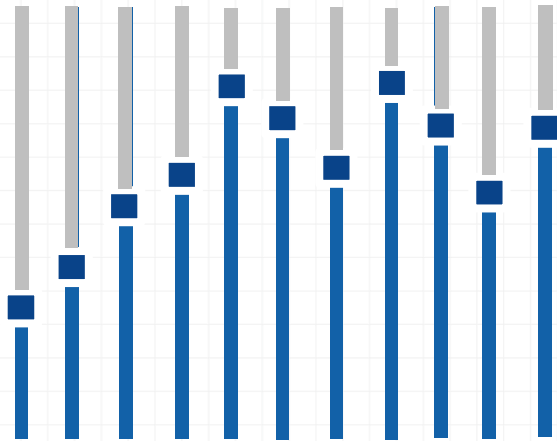

Into action

Resources

Ideas & opportunities

Motivation & perseverance

Mobilising resources

Financial & economic literacy

Mobilising others

Self-awareness & self-efficacy

Taking the initiative

Spotting opportunities

Entrepreneurship Competence

Planning & management

Coping with ambiguity, uncertainty & risk

Creativity

Working with others

Vision

Valuing ideas

Ethical & sustainable thinking
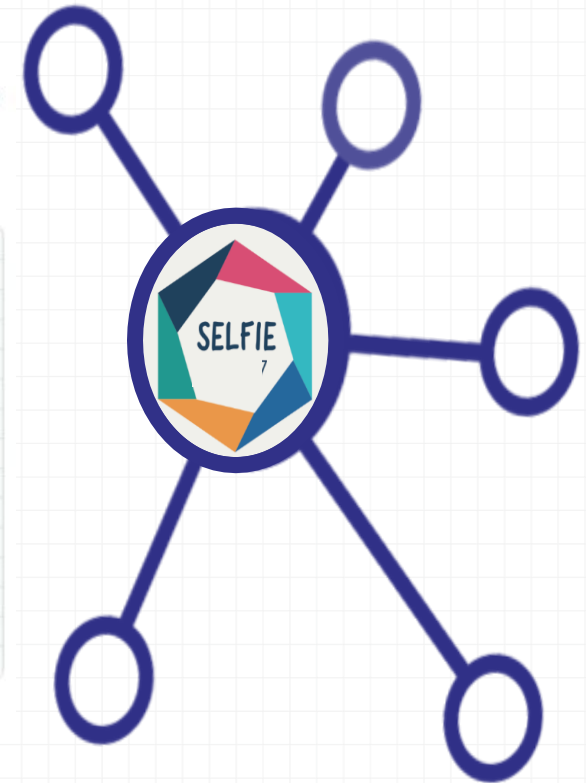
Learning through experience

What's next?

SELFIE

Tibor Navracsics ✔ @TNavracsicsEU · Nov 23
Looking forward to launching #SELFIE_EU in 2018 – this tool will enable #schools to better use #digital technologies in teaching & learning bit.ly/2g4r93V

European Commission, Digital Skills EU, Erasmus+ and 2 others

Fine-tuning   **Scale up**   **Ecosystem**

**Digital Education Action Plan:
1,000,000 users by the end of
2019**

European Commission

What's next?

- "Get inspired – make it happen": User guides for both DigComp and EntreComp: March 2018

- DigComp (self-)assessment pilot for levels 1-4: Autumn 2018

- EntreComp self-assessment pilot for young people: Autumn 2018

- Exploration of open badges recognition system for DigComp and EntreComp: Summer 2018

- DigCompEdu (self-)assessment pilot to be launched soon -> End 2018

Hopefully leading to a stronger theoretical and empirical basis for assessment, self-assessment, self-reflection of/on transversal skills

And learning from other projects such as ATS2020 ☺

Thank you

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