Online Consultation for a Framework on Digital Competence

Deliverable 1.1
Minutes of the kick-off meeting, consolidated work plan, and draft Questionnaire I

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Date of delivery 13-01-2012

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Version history

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<th>Date</th>
<th>Description</th>
<th>Editor(s)</th>
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<td>1.0</td>
<td>13-01-2012</td>
<td>Minutes of the kick-off meeting - including agreed upon adaptations of the work plan - and draft Questionnaire I</td>
<td>José Janssen (OU), Slavi Stoyanov (OU)</td>
</tr>
<tr>
<td>1.1</td>
<td>20-01-2012</td>
<td>Adaptations of the Minutes &amp; Consolidated workplan sections following comments and suggestions from IPTS. (Comments regarding the draft first questionnaire will be included in Deliverable 1.2).</td>
<td>José Janssen (OU), Slavi Stoyanov (OU)</td>
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Minutes of the kick-off meeting at IPTS

December 14th, 2011, Seville

Following brief introductions of both organisations - IPTS by Yves Punie ¹, and OUNL by José Janssen ² - Anusca Ferrari explained the wider context of the current Online Consultation for a Framework on Digital Competence project ³, as defined by the Digital Competence (DIGCOMP) study.

**DIGCOMP**

Anusca Ferrari’s presentation made clear how the Online consultation constitutes a third step in the Digital Competence (DIGCOMP) project: together with the previous two steps of conceptual mapping and case studies, it will result in a first proposal for a Framework on Digital Competence. Multi-stakeholders’ consultations on this first proposal will subsequently result in a consolidated proposal for a Digital Competence Framework that will provide a common language, bridging the worlds of education, training, work, leisure, and society.

**Online Consultation: Methodology and Tools**

Zooming in on the Online Consultation Slavi Stoyanov presented the methodology and tools to be used in this project ⁴. The Online Consultation is a Delphi study (consultation of experts) that will collect data in two rounds via online questionnaires that will be developed in Questback. Taking a Grounded Theory Approach (GTA) supported by the Weft QDA tool the first questionnaire round will result in both a grouping of statements by digital competence component (knowledge, skills, and attitudes) and a concept map. As a next step, designed to both validate and present the results, a hierarchical cluster analysis (HCA) will be performed, based on experts’ coding of the statements collected in the first round, using the WebSort tool. The results from the first round questionnaire will subsequently be presented to the experts taking part in the Delphi study by means of a second questionnaire that aims to establish to what extent the experts agree with the ‘aggregated outcome’ (e.g. whether they want to add to or modify the results). The comments and additions gathered in this second round will again be analysed following a Grounded Theory Approach using Weft QDA. In addition the results will be quantitatively cross-checked by means of text-mining techniques, using a tool called Leximancer.

*Agreement 1: combining qualitative and quantitative techniques offers a bonus in the sense that it will allow comparison of various groups of experts, e.g. from business, academia, policy etc.*

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¹ See Appendix 1 for the presentation of IPTS.
² See Appendix 2 for the presentation of OUNL.
³ See Appendix 3 for the presentation of the Digital Competence Project at large.
⁴ See Appendix 4 for the presentation on methodology and tools used in the Online Consultation.
**Competence: Knowledge, Attitudes & Skills**

The next presentation by Anusca Ferrari on Knowledge, Attitudes, and Skills\(^5\), made clear that we hold a common understanding that these three constituent aspects of competence are equally important and more likely to be intricately related, even partly overlapping, than hierarchically organised as is suggested by some theories.

*Agreement 2: the Online Consultation must enable experts to address all three aspect of competence: knowledge, attitudes, and skills.*

**Experts selection and retention**

The discussion around the presentation ‘Experts Overview & Strategies’\(^6\) by José Janssen focused around the categories to be used in the classification of experts according to sector & field, and the strategies to entice participation and overall response rates.

*Agreement 3: definite sector categories to be used must still be decided upon. At any rate experts will be asked in the first questionnaire to indicate which sector they are (mainly) working in.*

*Agreement 4: field categories to be used are Formal Education, Non-Formal Education, Lifelong Learning, and Future trends.*

*Agreement 5: a fourth advantage that will be stressed to entice participation (next to gains relating to knowledge, reputation and networks) is the opportunity to influence the European policy arena regarding digital competence.*

*Agreement 6: participants will be given a choice whether or not they want their name to appear in the list of experts included in the final report. To this end a question will be included in both questionnaires. If they have indicated they want their name to appear in the acknowledgements, they will later be asked (via email) how exactly they want their name to appear (e.g. initials, first name, titles).*

**First round questionnaire**

Finally, Slavi Stoyanov presented three versions of the first questionnaire\(^7\), based on a range of possible versions, depending on the inclusion of various specific items: a) reference to knowledge, attitudes, skills; b) definitions of knowledge, attitudes, skills; c) action verbs; d) answering format; e) examples. The discussion following this presentation resulted in a number of agreements:

*Agreement 7: A good point in the draft general instruction is that it refers to various contexts of digital competence, suggesting various purposes: learning, work, leisure, everyday life and participation in society.*

*Agreement 8: The demographic variable age, which is not mentioned in the presentation, will be added. We need not ask the experts names for tracking purposes as the Questback tool already facilitates this.*

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\(^5\) See Appendix 5 for the presentation ‘Knowledge, Attitudes and Skills’.

\(^6\) See Appendix 6 for the presentation ‘Experts overview & strategies’.

\(^7\) See Appendix 7 for the presentation ‘Digital Competence First Round Questionnaire’.
Agreement 9: There was general agreement that there are arguments in favour of both a more structured and very free format of the questionnaire, as indicated by for instance, provision of a definition of digital competence, examples, verbs etc. It was decided to leave this an open issue for the time being – to be further reflected and decided upon later.

Agreement 10: It was generally agreed that reminders are to be send after week 1 and towards the end of week 2. Response figures will be communicated to LPTS after one week and after two weeks, in order to timely decide on contingency measures in case response rates develop less well than required.

Agreement 11: Finally, the discussion was closed leaving another open issue regarding the question whether experts should be prompted to describe digital competence ‘at a minimum’, ‘ideally’, or at a specific level (e.g. post secondary level). This issue too will be decided upon at a later stage.

Consolidated Work plan

In sum the original work plan as described in the proposal was largely consolidated, including:

1. Methodology: both qualitative (GTA) and quantitative analyses (HCA).

Minor adaptations were made regarding:

3. Planning: both parties will strive for a launch of the first questionnaire towards the end of January, so that
   a. experts who are invited to a workshop organised by IPTS on February 29th might be involved in the analysis involving the sorting of statements through Websort. However, their involvement in the sorting cannot be guaranteed as at the time of writing we cannot assure a good response rate in the times foreseen for the data collection.
   b. initial results could be presented at a meeting of representatives of European ministries in Brussels early in March, depending on the response rate of the first round.

Table 1 provides the adapted deliverables calendar. (Following the above, we strive to complete deliverable 2.1 prior to the date mentioned in table 1).

In addition it was agreed that:

4. Data ownership lies with IPTS
5. Working relations will not strictly represent a contractor-client relation as IPTS staff express a wish to be actively involved in the further design and analyses of the Delphi study and to collaborate in ensuing publications of the results.
Table 1 Deliverables calendar

<table>
<thead>
<tr>
<th>WP</th>
<th>Deliverables</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.1 Minutes of the kick-off meeting &amp; consolidated work plan, draft first questionnaire</td>
<td>13 January 2012</td>
</tr>
<tr>
<td></td>
<td>1.2 Extended list of experts and validated questionnaire</td>
<td>28 January 2012</td>
</tr>
<tr>
<td>2</td>
<td>2.1 Launch of online first consultation</td>
<td>6 February 2012</td>
</tr>
<tr>
<td></td>
<td>2.2 Mapping of experts' opinions</td>
<td>6 March 2012</td>
</tr>
<tr>
<td>3</td>
<td>3.1 Questionnaire for the second consultation round</td>
<td>21 March 2012</td>
</tr>
<tr>
<td></td>
<td>3.2 Launch second online survey</td>
<td>5 April 2012</td>
</tr>
<tr>
<td></td>
<td>3.3 Validated mapping of knowledge, skills, and attitudes of Digital Competence for all</td>
<td>13 May 2012</td>
</tr>
<tr>
<td>4</td>
<td>4 Final report</td>
<td>13 June 2012</td>
</tr>
</tbody>
</table>

NOTE: CHANGES SUGGESTED BY IPTS TO THE DRAFT FIRST QUESTIONNAIRE WILL BE INCLUDED IN DELIVERABLE 1.2. THE SECTION BELOW THEREFORE REMAINS UNCHANGED IN VERSION 1.1 OF THIS DELIVERABLE.

Draft first questionnaire

DIGITAL COMPETENCE FRAMEWORK

We ask you to generate as many ideas as possible on what it means to be digitally competent in any possible context: learning, work, leisure, everyday life and participation in society. Prior to this activity some demographic questions are set up. Your answers will be kept confidential and will be used for research purposes only. The questionnaire will not take longer any longer than 20 minutes of your time.

Demographic Questions

1. Country:
   
2. You are:
   - Female
   - Male
3. What is your age?

[ ]

4. Educational background
   - Social Sciences
   - Life Sciences
   - Engineering & Computer Sciences
   - Business & Administration
   - Media & Arts
   - Other:

[ ]

5. You are mostly involved in:
   - Academia
   - Business
   - Public
   - Other:

[ ]

6. Professional Experience
   - Less than 5 years
   - 6-10 years
   - More than 10 years

Idea generation on Digital Competence

7. We ask you now to share your opinion on what it means in an ideal world to be digitally competent. Please try to complete the following sentence in as many different ways as you consider relevant: "A digitally competent citizen is someone who...."

[ ]

Digital Competence of a 7 year old

8. Think of a 7 year old child. Please generate ideas about what it means to be digitally competent at this age.

[ ]
9. Think of a 14 year old adolescent. Please generate ideas about what it means to be digitally competent at this age.

10. Please generate ideas describing the minimal level of digital competence of senior citizens.

Thank you for your efforts and time.
Appendices

Appendix 1 - Presentation IPTS
Appendix 2 - Presentation OUNL
Appendix 3 - The DIGCOMP project
Appendix 4 - Methodology and Tools
Appendix 5 - Knowledge, Attitudes and Skills
Appendix 6 - Experts overview & strategies
Appendix 7 - Digital Competence First Round Questionnaire
Appendix 1 - Presentation IPTS
INTRODUCTION

Yves Punie

IPTS - Institute for Prospective Technological Studies
Seville - Spain
http://ipts.jrc.ec.europa.eu/
http://www.jrc.ec.europa.eu/
Institute for Prospective Technological Studies

Part of Joint Research Centre of the EC

IPTS: Research Institute supporting EU policy-making on socio-economic, scientific and/or technological issues
Supporting the Digital Agenda and EU2020 flagships

Publication of scientific & technical reports & policy briefs

RESEARCH: In-house and outsourced

BUDGET: Institutional and competitive

40 Scientists, 1/3:1/3:1/3 economists, sociologists, techno-analysts
Head of Unit: DAVE BROSTER

IDEA: International Digital Economy Analysis
Action Leader: Marc BOGDANOWICZ

ICTLI: Socio-Economic Analysis of ICT for Learning and Inclusion
Action Leader: Yves PUNIE

TIESC: Techno-economic Impacts Enabling Societal Change
Action Leader: Ioannis MAGHIROS
ICTLI Action within IS Unit

“Socio-Economic Analysis of Information and Communication Technologies (ICT) for Learning and Inclusion”

Since 2005, working on:

1) ICT for Learning and Digital Competence
   In support of Education and Training policies in DG Education and Culture (but with links to other policies and DG’s). Main themes:
   - Future of Learning
   - Innovation and Creativity
   - Learning 2.0 in formal and informal education
   - Digital Competence
   - Teachers’ networking

2) ICT for inclusion
   In support of Inclusion policies in DG Information Society and Media (but with links to other policies and DG’s). Main themes:
   - ICT based initiatives for inclusion of migrants and excluded youth,
   - ICT for language learning for migrants and minorities
   - ICT to support domiciliary carers of elderly people
   - Civil society, Third Sector and other intermediaries

Resources
- 5 staff
- Principal client DG EAC

Resources
- 4-5 staff
- Principal client DG INFSO
EAC policy instruments: E&T 2020 EU-wide co-operation

<table>
<thead>
<tr>
<th>Project contributions to EAC policies (2007-2011)</th>
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**EU 2020 Flagships**
- Especially Youth on the Move, NS&J, DAE and Innovation Union

**EU COM, SEC, Impact Assessment, inter-service WG**
- E.g. SIC, Inter-service working groups,
- IPTS EAC dissemination days and kick-off meetings

**MS Exchange of good practice and peer learning**
- E.g. ICT Cluster; Key Competences Thematic Working Group
- Policy handbooks (E.g. ICT and entrepreneurship; Assessment of Key Competences, end 2011)

**Monitoring progress**
- E.g. 2010 progress Report to be published in February 2011

**Lifelong Long Learning Programme**
- E.g. LLL Programme Days

**EU presidency conferences**
- E.g. Madrid & BXL 2010; 2011 not yet planned

**European reference tools**
- Recommendations and common principles such as European Qualifications Framework (EQF)

**Partnerships and stakeholder relationships**
- Scientific conferences, publications and events

**2009 European Year of Creativity and Innovation**

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<table>
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<tr>
<th>DIGCOMP</th>
<th>COMPASS</th>
<th>TELLNET</th>
<th>FORESIGHT</th>
<th>ICEAC</th>
<th>LEARN2.0</th>
<th>eL NMS</th>
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(Blue: ongoing or just finished - Black: past project)
Further information…

IS Unit web
http://is.jrc.ec.europa.eu

ICT and Learning
http://is.jrc.ec.europa.eu/pages/EAP/DIGCOMP.html

IS Unit Newsletters: http://is.jrc.es/pages/newsletter.html
IS Unit Publications: http://is.jrc.ec.europa.eu/pages/Publications.html
IS Unit Contact: jrc-ipts-is-NEWS@ec.europa.eu
Kick off meeting December 14th Seville

Jose Janssen & Slavi Stoyanov

Centre for Learning Sciences and Technologies

Open University of the Netherlands
The Open University of the Netherlands

1. Distance education (any time, any place, own pace)

2. Research & Innovation (learning sciences & technology-enhanced learning)

3. Teacher training & professional development
Facts & Figures

• Founded in 1984, one of 14 Dutch universities
  – 6 bachelor & 13 master programmes
  – ± 20 000 students

• Adult education, lifelong learning
  – 10% <25, 33% between 26-35, 33% between 35-45, 24% >45
  – 60% employed; 50-50 M/F
  – Two enrolment conditions: EU nationality & 18+

• 700 FTE
  – study centers in the Netherlands (12), Flanders (6), and Dutch Antilles (1)
  – main office in Heerlen
• Research & development
• Around 30-40% external funding
Learning & Cognition Programme

Themes:

• Creating flexible environments for acquiring complex cognitive skills

• Solving complex information problems

• Development of domain-specific expertise
Learning Networks Programme

- Non-formal professional development
- Networked learning
- Social media
Serious Games Programme

*Simulations and games:*

- Game design & evaluation (EMERGO)
- Sensors, Language Technologies
Mobile Learning Programme

• Ubiquitous & cross media access
• Contextualisation & personalisation
Master Programme

- MSc Learning Sciences
- 150 students
Appendix 3 - The DIGCOMP project
DIGCOMP:
A conceptual framework and descriptors of digital competence

Anusca Ferrari & Yves Punie
Objectives of the DIGCOMP study

• **Identify** the key components of Digital Competence (DC) in terms of the knowledge, skills and attitudes needed to be digitally competent;

• **Develop** DC descriptors that will feed a conceptual framework/guidelines that can be validated at European level, taking into account relevant frameworks currently available;

• **Propose** a roadmap for the possible use and revision of a DC framework and descriptors of DC for all levels of learners.
Related policy and stakeholders initiatives
A conceptual framework on Digital Competence

What?
• Guidelines or meta-framework
• Descriptors of DC
• Point of connection, bridging the worlds of education, training, work and society

Why?
• DC is one of the 8 key competences for LLL (2006 Recommendation)
• Europe 2020 Flagships: DAE, YoM, NS&J, Innovation Union
• Transversal basic competence important for learning, employability, inclusion, participation, innovation, creativity and competitiveness
• Given the rapid technological developments, unclear what DC should consist of
• Many initiatives exists but lack of a common/comparable language in Europe
• Internet use ≠ digital competence (E.g. Youngsters)

How?
• Not only technical but also as social, critical and higher order competence
• For all levels (school; pre-school, VET, adult learning, workers, informal learning)
• Through intensive stakeholders’ consultation
Phases of the study

- Conceptual mapping
- Case studies
- Online consultation
- First proposal
- Multi-stakeholders' consultations
- Consolidated proposal
Phases of the study

- **Conceptual mapping**: completed
- **Case studies**: under revision
- **Online consultation**: ongoing

**First proposal**
- April 2012

**Multi-stakeholders’ consultations**
- May-Nov 2012

**Consolidated proposal**
- End 2012
Mapping of concepts

- Digital Literacy
  - Internet literacy
    - ICT Literacy
      - Information literacy
      - Media literacy
Case studies

**UNESCO ICT Competency Framework for Teachers**

The United Nations, through the Millennium Development Goals (MDGs) and the UNESCO Education for All (EFA), World Summit for the Information Society (WSIS) and Literacy Decade initiatives, has set a high priority on 4th improvement of education world-wide.

The G8 Heads of Government have acknowledged the importance of information and communication technology (ICT) in supporting education system improvement. The Competency Framework for Teachers project is a follow-up of the support of the G8 Heads of Government of the 2007 G8 Communication Technology Initiatives.

**AIMS:**

- to analyse how DC is currently developed and acquired
- to map sub-competences
- to compare current definitions
Digital competence is the set of knowledge, skills, attitudes, strategies and awareness that are required when using ICT and digital media to perform tasks; solve problems; communicate; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, socialising, consuming, & empowerment.
Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet. (EC, 2006)
Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet. (EC, 2006)

Digital competence is the set of knowledge, skills, attitudes, abilities, strategies and awareness that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, socialising, consuming and empowerment.
Communicate

online and off-line identities;
behaviour in chats and instant messaging;
online privacy,
safe online profiles;
sharing content;
online and off-line networking.

Disseminate information tailored to a particular audience in an effective digital format by:

1) Formatting a document to make it useful to a particular group;
2) Transforming an email into a succinct presentation to meet an audience's needs;
3) Selecting and organizing slides for presentations to different audiences;
4) Designing a flyer to advertise to a distinct group of users
Example: IC3 Certiport

computing fundamentals

- Computer Hardware, Peripherals and Troubleshooting.
- Computer Software.
- Using an Operating System.

living online

- Communication Networks and the Internet
- Electronic Communication and Collaboration.
- Using the Internet and the World Wide Web.
- The Impact of Computing and the Internet on Society.

Key applications

- Common Program Functions.
- Word Processing Functions.
- Spreadsheet Features.
- Communicating with Presentation Software.
→ Focus on factual knowledge
Internet and Communication Core Certification (IC3) exam sample question

→ Focus on operational skills
Erstad: 3 phases of digital literacy

1\textsuperscript{st} (60s - 80s)  
\textbf{Mastery phase}
- Professionals only
- Programming languages
eSkills

2\textsuperscript{nd} (mid 80s - 90s)  
\textbf{Application phase}
- Educated
- Graphic user interfaces
- Mass certification

3\textsuperscript{rd} (90s - today)  
\textbf{Reflective phase}
- Digital inclusion
- Natural user interfaces
- Critical/transversal skills

Many frameworks are based on the assumptions and needs of the second phase
Towards Digital Competence descriptors

knowledge and skills

- Information management
- Collaboration
- Communication and sharing
- Creation of content & knowledge
- Problem-solving
- Evaluation
- Technical operations

attitudes

- Effectiveness
- Awareness
- Critical perspective
- Creative approach
- Purposefulness
- Ethics and responsibility
- Autonomy
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Information management</td>
<td>identify, locate, access, retrieve, store and organise information</td>
</tr>
<tr>
<td>Collaboration</td>
<td>link with others, participate in online networks &amp; communities, interact constructively &amp; responsibly</td>
</tr>
<tr>
<td>Communication and sharing</td>
<td>communicate through online tools, taking into account privacy, safety and netiquette</td>
</tr>
<tr>
<td>Creation of content &amp; knowledge</td>
<td>integrate and re-elaborate previous knowledge and content, construct new knowledge</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>define problems to be solved or tasks to be achieved, &amp; resources and means for achievement</td>
</tr>
<tr>
<td>Evaluation</td>
<td>identify digital needs, assess the information retrieved or the media product consulted</td>
</tr>
<tr>
<td>Technical operations</td>
<td>use technology and media, perform tasks through digital tools</td>
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Phases of the study

- Conceptual mapping
- Case studies
- Online consultation

First proposal

Multi-stakeholders’ consultations

Consolidated proposal
# Information Management

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<tr>
<th>Description of Competence</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
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<tr>
<td>Identification, location, access, retrieval, storage, organisation and evaluation of information</td>
<td>basic - to be determined -</td>
<td>medium - to be determined -</td>
<td>advanced - to be determined -</td>
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<thead>
<tr>
<th>Knowledge</th>
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<tbody>
<tr>
<td>identifies information needs</td>
<td>understands digital information sources</td>
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<tr>
<td>interprets information</td>
<td>assesses and articulates information needs</td>
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<thead>
<tr>
<th>Skills</th>
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</thead>
<tbody>
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<td>is able to retrieve information from search engines</td>
<td>knows how to store and manage digital information</td>
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<table>
<thead>
<tr>
<th>Attitudes</th>
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</thead>
<tbody>
<tr>
<td>is critical about information sources</td>
<td>is aware of the limits of information retrieval mechanisms</td>
</tr>
<tr>
<td>searches from and selects resources effectively</td>
<td></td>
</tr>
</tbody>
</table>
Thank you for your attention!

anusca.ferrari@ec.europa.eu

http://is.jrc.ec.europa.eu/pages/EAP/DIGCOMP.html
Appendix 4 - Methodology and Tools
Questionnaire I

• Data collection
  – Brainstorming Questionnaire
    • Questback

• Data Analysis
  – Grounded Theory
    • Weft QDA
  – Card sorting
    • Websort
Quest Settings

Texts

Quest Language: Default language: English

Quest Name: DIGITAL COMPETENCE

Quest Introduction: Learning, work, leisure, everyday life and participation in society. Prior to this activity some demographic questions are set up. Your answers will be kept confidential and will be used for research purposes only. The questionnaire will not take

Thank You Note: Thank you very much for your time and effort.
Quest Designer

Question Type (Multiple Choice Vertical)

Question Properties
- Include additional information

Question Text:
You are involved in: (More than one option can be selected)

Answer Alternatives:
- Academia
- Business
- Public

Also Include the Following Answer Alternatives:
- I don't know
- Other
WEFT QDA
Concept Mapping Example

Adaptive models, modes and controls

Definition of adaptation

Adapting to instruction

Adapting to learners

Differences in learners' traits

Modeling adaptation

Preferential adaptation

Compensation adaptation

Adaptive mode

Adaptive model

Adaptive control

Design-time adaptation

Run-time adaptation

Pre-assessment

Embedded

Level constructs

Style constructs

Concept learning

Solving ill-structured problems

Differences in learning outcomes

Concept learning are different

Solving ill-structured problems are different

Run-time adaptation

Pre-assessment

Embedded

Design-time adaptation

Adaptive mode

Adaptive control

Adapting to instruction both includes

Adapting to learners includes

Differences in learners' traits can be

Modeling adaptation is

Preferential adaptation is

Compensation adaptation is

Adaptive model includes

Adaptive control includes

Level constructs are different

Style constructs

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WebSort Settings

Instructions

INTRODUCTION:
We are conducting research that will help us gain a better understanding of how Handover toolbox should be organized and make it easier to use.

INSTRUCTIONS:
On the left, you'll see a list of items. They are results from Plus, Minus. Interesting exercise conducted by project's partners and external experts. Click on the items to drag them onto the empty white area in the middle of the screen. A category will appear, and the item will be placed inside it. Repeat with the remaining items, grouping items that belong together. Although the method works better with close categories, you will be able to make your own categories if you think it is necessary.

The close generic categories created are as follows:
Purpose, Target group, Content, Technology Platform, Guidance, Structure, and Interface/Navigation.
Purpose is about why toolbox has been created. Target group should include items about people who are going to use it and how likely they will adopt the tool. Technology Platform is about technological aspects of the toolbox. Guidance is about the support embedded in the tool. Structure is about the organization of the tool. The meaning of usability is about interface and navigation; that is anything that makes the tool easy to use and easy to learn how to use it. You do not need...
## Web Sort Statements

### Items

1. TB looks complicated for healthca...
2. Lack of link between the content ...
3. Need for basics information: what... need to fix a label or description? Contact support@websort.net.

<table>
<thead>
<tr>
<th>Label</th>
<th>Description (optional)</th>
<th>Image (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB looks complicated for healthca...</td>
<td>Need for basics information: what is TB? what kind of tool can be found on this site?</td>
<td></td>
</tr>
<tr>
<td>Lack of link between the content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for basics information: what is TB?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to select what to “read”.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When assessing the site, HP and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide handover scaffolding (ex.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web application - access and net</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for expert users.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professionals are sometimes not</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users: needs a lot of work; not so</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This is for facebook lovers, not for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is too little content in it.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Purpose
Be very clear about for WHOM it is a toolbox. WHY it is a toolbox for me and WHAT I can find there and what I can give OTHERS.
I am not sure if health professionals would like to use a platform only for handover.

### Target Group
- Need for expert users.
- Access to patients and their education (empowerment).
- Might limit usage to young generation

### Content
- Examples you can take over and adapt to local situations is important.
- TB content, like SEAR = solution for handover problem.
- There is too little content in it.

### Usability
- Absolutely necessary: to have a toolbox translated in all EU languages.
- Navigation is too complex to get one’s very concrete needs.
- Profiles might facilitate, but require extra work (might hinder visitors to work with it).

### Technology Platform

### Structure

### Guidance
HC Analysis

Groupings based on an Average Linkage Cluster Analysis algorithm.

Number of groups: 5

Too internet dependent.
Web application - access and net...
Need for basics information: what...
Make a standard frontpage for th...
May be beneficial to note the "se...
Ensure userfriendliness
How to select what to "read".
Absolutely necessary: to have a t...
It takes a lot of time to go through...
Sorting through posts by others m...
Navigation is too complex to get ...
Too much info that is not sorted i...
Profiles might facilitate, but requ...
With accumulating content it can...
Needs coordination.
How to communicate the structur...
Sorting through posts by others m...
How do you filter input?
ICT could be a major barrier. Sho...
TB looks complicated for healthc...
Users: needs a lot of work; not so...
When assessing the site, HP and ...
Access to patients and their educ...
Professionals are sometimes not s...
Think about users that will devel...
This is for facebook lovers: not fo...
Outcomes Questionnaire I

- Report
  - results from GTA and HCA
    - List of statements (knowledge, skills, attitudes)
    - Cross-category themes
    - Clusters with statements
  - Mind maps
Questionnaire II

- Experts get the report
- Experts comment on the report
- Experts rate statements on importance
Questionnaire II Analysis

• Experts Comments
  – GTA with WEF QDA
  – Cognitive Mapping with Decision Explorer
  – Text mining techniques with Leximancer
Cognitive Mapping - Analysis

- Apply cognitive apprenticeship approach
  14 from 24 concepts.
- Extend the scope of ID approaches
  12 from 20 concepts.
- Ineffective supervision
  12 from 24 concepts.
- Training design issues
  12 from 20 concepts.
- Training for impact
  10 from 20 concepts.
- Redesigning clinical microsystem
  10 from 23 concepts.
- Increase of workload
  10 from 19 concepts.
- Handover bad practices
  10 from 15 concepts.
- Effective on-the-job support
  9 from 20 concepts.
- Increase of handovers
  9 from 17 concepts.
- Additional work and re-work
  9 from 16 concepts.
- Help is unwanted
  8 from 17 concepts.
Leximancer Themes
Leximancer Themes

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Leximancer Concepts

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Appendix 5 - Knowledge, Attitudes and Skills
Knowledge, Attitudes and Skills

Anusca Ferrari

Joint Research Centre (JRC)
Key Competences Recommendation: combination of knowledge, skills and attitudes appropriate to the context.

(European Parliament and the Council, 2006)

European Qualifications Framework Recommendation: the proven ability to use knowledge, skills and personal, social and/or methodological abilities.

(European Parliament and the Council, 2008)
Competence in France

- **Savoir**
  - Theoretical competence
- **Savoir-faire**
  - Operational or functional competence
- **Savoir-être**
  - Behavioural competence
Bloom’s Domains of Learning

- Cognitive: Mental skills (Knowledge)
- Affective: Growth in feelings (Attitude)
- Psychomotor: Manual/physical skills (Skills)

• Created in 1954
Cognitive Domain

Knowledge

Comprehension

Application

Analysis

Synthesis

Evaluation

Judgement

Putting things together
Creative thinking

Breaking things down
Critical thinking

Using knowledge in new situations

Understanding

Recall

Knowledge Retention
Foundation for higher order thinking
“no sane educator would propose starting with knowledge in grade 1, moving to comprehension in grade 2, application in grade 3 and so on. Rather, the levels of the taxonomy refer to processes that need to go on in concert at all levels [...] however, the Taxonomy has encouraged schools to continue an emphasis on low level factual knowledge”

(Breiter & Scardamalia, 2005)
Example: digital literacy for inclusion

Case: an elderly wanting to use Skype to talk to his family who lives away
three inter-related elements?

Attitudes

Knowledge

Skills
Knowledge

Know what – know that – know about – understand

Factual knowledge
Understanding
Knowledge creation

Skills

Know how - know that

(Practical) abilities
Tacit knowledge
Dexterity

Attitudes

Know why – understands why
Is ready to – is aware of...

Values
Beliefs
Behaviours
Appendix 6 - Experts overview & strategies
Online Consultation for a Digital Competence Framework

Experts overview & strategies

José Janssen & Slavi Stoyanov

Kick off meeting December 14th Seville

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OUNL Experts list (94)

- approach
- overview sector and field
- merging the sets
- strategies to enhance response
Approach

- as described in proposal

- evaluation:
  - Journals & conferences most fruitful
  - LinkedIn more useful than the touchgraph tool
Overview

Sector & Field
<table>
<thead>
<tr>
<th>% of total</th>
<th>Formal Ed.</th>
<th>Non-formal Ed.</th>
<th>Lifelong Learning</th>
<th>Frameworks</th>
<th>Future trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education &amp; Training</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Policy</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>IT-Business</td>
<td>12</td>
<td>4</td>
<td>11</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Research</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>6</td>
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</tr>
<tr>
<td>Training</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Practice</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>
Question

How useful are these classifications / categories:

a. for our own understanding?
b. to include in reports?
Merging the two sets:

- only four experts overlapping
- total now: 166
Enticing participation and response rates
Stages

- Invitation
- Initial non-response
- Drop-out
Invitation

• Personally address people we know

• Stress advantages:
  – knowledge
  – reputation
  – network

• Stress importance of commitment & suggest replacement
Initial non-response

- Extended sample (166)
- Reminder email
- Ask suggestion for replacement
If all else fails:

additional sampling
Appendix 7 – Digital Competence First Round Questionnaire
DIGITAL COMPETENCE
First Round Questionnaire
Slavi Stoyanov & José Janssen
Requirements

- Stimulates generation of a broad scope of ideas
- Stimulates generation of many ideas
- Simple
Brainstorming Questionnaire Sections

- General Instruction
- Demographic Questions
- Content Question(s)
General Instruction

We ask you to generate as many ideas as possible about what it means to be digitally competent in any possible context: learning, work, leisure, everyday life and participation in society. Prior to this activity some demographic questions are set up. Your answers will be kept confidential and will be used for research purposes only. The questionnaire will not take any longer than 20 minutes of your time.
Demographic Questions

- Country
- Gender
- Educational background (Social Sciences, Life Sciences, Engineering & Computer Sciences, Business & Administration, Media & Arts, Other)
- Sector (Academia, Business, Public, Other)
- Professional Experience (Less than 5 years, 6-10 years, More than 10 years)
# Content Item Instruction

<table>
<thead>
<tr>
<th>Version</th>
<th>DC Components</th>
<th>Definition</th>
<th>Action verbs</th>
<th>Brainstorming rules</th>
<th>Format</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>Version I</td>
<td>X</td>
<td>X</td>
<td></td>
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<td>Version II</td>
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<tr>
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</tr>
</tbody>
</table>
Content Item (V1)  
(general)

“Please generate as many ideas as possible for each component of the digital competence: knowledge, skills and attitudes. You can certainly add more components.

<For each <<component>> we provide a generally accepted definition but you can use your own definition or a frame of reference> (optional)

<<component>> = knowledge, skill, attitude

...
Content Item (V1) (knowledge)

...  

- **Knowledge** is typically defined as the body of facts, principles, theories about a particular field of work or study, here digital competence.  

When generating ideas about the knowledge component of digital competence, please use the following format:

  “Knowing <that, about,…> <subject, topic, …>”.

For example:

  “Knowing about search engine functions”.

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Content Item (V1)
(skills)

... 

- **Skill** is the ability to apply knowledge and use know-how to accomplish tasks and solve problems. Skills can be cognitive (involving logical, critical and creative thinking) or practical (involving the use of methods, tools, instruments and materials).

When generating ideas about the skill component of digital competence, please use the following format:

“Being able to <action> <subject…>”.

For example:

“Being able to perform search”.
Content Item (V1)
(attitudes)

... 

- **Attitude** includes beliefs, values, ethics, responsibility, autonomy, beliefs, feelings, interests, opinions, values.

When generating ideas about the attitude component of digital competence, please use the following format:

   “Being willing to <action> <subject…>”.

For example:

   “Being willing to share information”.

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Content Item V2 – Action Verbs (general)

• Include all components of version 1
• Replace the general terms “knowing about”, “being able to”, “being willing to” with action verbs
• Use the following format:
  – Knowledge: “<action verb> <subject, topic, …>”
    ▪ Example: “<action verb> <subject, topic, …>”
  – Skills: “<action verb> <subject, topic, …>”
    ▪ Example: “<action verb> <subject, topic, …>”
  – Attitudes: “<action verb> <subject, topic, …>”
    ▪ Example: “<action verb> <subject, topic, …>”
Content Item V2
(Action Verbs)

• Action verbs for the knowledge component of digital competence:
  { acquire, choose, collect, complete, define, describe, detect, differentiate, distinguish, identify, arrange, estimate, explain...}

• Action verbs for the skill component of digital competence:
  {apply, calculate, change, classify, compute, conduct, construct, develop, discover, employ, generalize, manipulate, modify, operate, organize, predict, produce, show, solve, transfer, use, analyze, categorize, classify, combine, conclude, contrast, criticize, defend, evaluate, create, design, devise, develop, argue, assess, critique, judge, justify...}

• Action verbs for the attitude component of digital competence:
  {express, feel confident, inspire, mobilize, motivate, negotiate, nurture, respect, respond, sensitively, take responsibility, value, commit to, get excited about, tolerate, care for...}
Content Item Version 3

“We ask you now to share your opinion on what it means in an ideal world to be digitally competent. Please try to complete the following sentence in as many different ways as you consider relevant:

“A digitally competent citizen is someone who…..”