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Mapping of experts' opinions

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1.0	13-03-2012	Mapping of experts' opinions	José Janssen (OU), Slavi Stoyanov (OU)
1.1	23-03-2012	Adapted introduction, cluster labels, clusterdescriptions, clusterorder, and mind map. Added appendix with removed statements	José Janssen (OU), Slavi Stoyanov (OU)

Table of Contents

Introduction.....	5
Digital Competence captured in fourteen clusters	6
Mind map digital competence	15
Appendix I Removed statements	16

Introduction

In the first round of the Online Consultation for a Framework on Digital Competence experts in the field were asked to generate as many ideas as possible on what it means to be digitally competent. A total of 204 experts were invited to take part in the online brainstorm, of which 78 (38 %) actually completed the questionnaire.

In order to provide a mapping of the expert opinions the following steps of data handling and analysis were carried out:

1. Two researchers went through all the statements to select unique single statements and remove duplicate items. This resulted in an initial selection of 134 statements.
2. Fifteen experts attending a workshop on Digital Competence were asked to individually group the 134 statements into categories according to similarity of meaning. Based on their groupings a cluster analysis was carried out by the researchers, which led to an initial solution of 15 clusters. These were presented back to the experts (15+2) attending the second day of the workshop, asking them to comment on these clusters and the items describing them and to provide labels and descriptions. This follow-up activity was carried out in three groups of four experts and one group of five experts.
3. Based on the results from the cluster analysis, as well as the feedback and suggestions from the workshop participants, the initial solution was adapted, e.g. some clusters were combined, another split up, some statements were moved and seven statements (see appendix I) were removed. Removal of statements was based on one or more of the following criteria:
 - a. The statement was not grouped either in the cluster analysis or by several experts.
 - b. The statement had a high bridging value (indicating that the way the statement was grouped by the experts varied widely).
 - c. The statement was considered unclear.
 - d. The statement was considered redundant.
 - e. The statement was considered not to fit well with the other statements in the cluster.

The above steps resulted in an adapted solution consisting of 127 statements divided among 14 clusters, as described in the following section. The final section of this deliverable provides a mind map to visually summarize the results.

Digital Competence captured in fourteen clusters

A. General technical knowledge and functional skills

Description: *The digitally competent person knows the basics of digital devices and can use one or more of them in a functional way.*

Possesses general computer skills (typing, using computers, getting into a new programme in no time). (31)

Is comfortable using a computer, which may be one of many types (e.g. Desktop PC, Laptop, Tablet, Smartphone). (44)

Knows the basics about the technology. (58)

Understands the relations and differences between hardware and software. (125)

Has seen at least once a computer from inside and understands its different parts and components. (126)

Knows that there are several operating systems running out there and understands the differences between them. (128)

B. Basic use in everyday life

Description: *The digitally competent person is able to integrate technologies into his/her everyday life activities and to enhance everyday life by using digital means for a range of routine transactions/processes.*

Is able to use at least office applications, or other applications that have to do with his/her work. (40)

Is able to search, collect, process, evaluate, store data, information and concepts. (9)

Can create and edit content (text, numeric, images...even movies). (67)

Can share content and/or store personal content using cloud services. (68)

Shares photos and travel reports via applications. (96)

Is able to download different information types from the Internet. (80)

Possesses the skills to obtain and process digital information and transform it into knowledge. (36)

Consults online sources as a matter of routine in all aspects of life. (66)

Utilises different digital resources to get information for their leisure time (on sports, equipment, travel). (95)

Is able to use digital media for entertainment (gaming, culture, tourism, etc). (22)

Utilises apps to improve the quality of his/her own life (jogging, health, diet plans). (97)

Is able to look for a job online. (74)

Can shop online and/or conduct transactions online (e.g. pay bills, submit tax declaration electronically, book a hotel, interact with government or local services). (59)

Can participate fully in society through engagement in democratic actions (lobbying, parliament, online petitions, etc.) (133)

C. Specialized and advanced skills for work and creative expression

Description: The digitally competent person uses ICT to improve his professional performance and the products of his/her creativity.

Uses technology to improve the quality of his/her work. (93)

Masters specialized digital skills needed by his/her area of work. (26)

Is able to develop something new by using specific tools and software, and is able to remix different existing texts into something new. (84)

Is able to express him/herself, to create and understand knowledge representations using digital media. (77)

Is a "digital writer", who understands how meaning is produced through multimedia and transmedia texts, how culture is produced through the Internet and social media in particular. (78)

Has broadened his/her competence in line with his/her age/job/focus, for example using project management software if s/he is a project manager, using CAD software if s/he is interested in design. (47)

Has broadened his/her competence to database use, editing websites, editing digital images. (46)

Is able to create complex models and simulations of the real world using digital information. (85)

Can program in at least one high-level language. (49)

D. Communication and collaboration

Description: *The digitally competent person is able to communicate, collaborate, and connect with others effectively in digital environments.*

Is able to communicate through ICT. (8)

Is able to communicate through email. (37)

Is able to use social media. (38)

Is able to use digital media to be part of a community. (20)

Uses digital equipment to keep in touch with friends and others. (57)

Is able to use digital media to cooperate (productively). (21)

Can use ICT for team work (collaboration, co-construction of content), work at a distance. (13)

Shares information with a social network. (60)

Can, if they choose to, engage in social networking either for personal or professional purposes. (69)

Is able to take advantage of digital technology to cooperate and take part in networks and networked learning. (81)

Is able to manage his/her professional reputation online. (73)

Uses Web 2.0 and social networks to promote results of their work. (94)

Is willing to contribute to the public knowledge domains. (7)

E. Privacy and security

Description: *The digitally competent person has the capacity to protect personal data and take appropriate security measures.*

Is able to create, share/present, protect and monitor his/her digital identity and footprints. (51)

Is able to find out who the other person might be (if strangers are met on the internet). (33)

Understands how major players like Google, Facebook and Twitter use personal data that they collect about users and can act prudently in this knowledge. (72)

Knows that most major interactive services use information about him or her to filter in commercial messages in more or less explicit manners. (112)

Understands the risks associated with online use and encounters with unknown persons. (64)

Is able to protect him/herself (at least to some extent) from threats of the digital world (fraud, malware, viruses etc.). (41)

Understands the risk of identity theft and is able to take steps to mitigate risk. (65)

Has an understanding of security implications related with ICT. (45)

Is aware of privacy issues when using Internet/mobile Internet and is able to act prudently. (70)

Is aware of the impact and longevity of digital information that s/he considers for publishing. (119)

F. Legal and ethical aspects

Description: The digitally competent person behaves appropriately and in a social acceptable way in digital environments, demonstrating awareness and knowledge of legal and ethical aspects on the use of ICT and digital content.

Never uses digital applications in a way that adversely affects others (from abuse to the unnecessary use of 'reply all'). (50)

Is able to communicate and collaborate with others in line with digital etiquette. (52)

Fosters awareness of his/her own personal responsibilities and the respect of reciprocal rights/obligations in building shared and collaborative knowledge. (56)

Understands basic e-ethics and demonstrates appropriate behaviours when using digital products and online information and communicating with others through digital tools. (11)

Considers legal and ethical principles of use and publication of information. (10)

Understands the rights of others and behaves ethically, e.g. in relation to piracy/copyright and truthfulness in general. (12)

Understands and abides by copyright and licence rules. (18)

Knows there are different ways of licensing intellectual property production, understands differences between using copyright, public domain, copyleft and/or creative commons licenses. (130)

Has an advanced sense of suitable behaviour, finely tuned to media context, audience and legal provisions. (111)

Understands the ethics and possibilities implied by using either a closed source operating system or an open source one. (129)

G. Information processing and management

Description: *The digitally competent person demonstrates the ability to gather, organise, analyse, and assess information using digital technology and can judge the relevance and purpose of digital information.*

Can integrate, compare and put together different types of information related to multimodal content. (83)

Is able to structure, classify and organize information according to a certain classification scheme or genre. (82)

Is able to gather relevant digital information, e.g. other users' experiences, and to assess the quality of goods based on that information. (117)

Is able to judge content found on the Internet (true/false), how to find appropriate material, and what sources can be trusted. (32)

Is able to compare and contrast information from diverse sources (triangulate information) before it is used in a knowledge-making process. (113)

H. Informed and flexible decision-making

Description: *The digitally competent person is aware of most relevant or common technologies and is able to decide upon the most appropriate technology according to the purpose or need at hand.*

Knows more about the tools s/he daily uses than just where to click. (101)

Understands the potential of digital devices and resources for her/his work. (25)

Knows the range of things that can be done using ICT/Internet. (63)

Is aware of the most relevant or popular digital technologies used by peers. (86)

Has reasonable knowledge of available technologies, their strengths and weaknesses and whether and how they might support the achievement of personal goals. (2)

Chooses the most appropriate technologies according to the task. (90)

Will not opt for a particular technology because it is the latest or most trendy/sexy one, but instead seeks to find the best solution for the problem at hand. (98)

Will use a widely diverse and well-balanced mix of digital and non-digital technologies for different problems and will dynamically change options over time, consciously contributing to and adapting to change in the world around. (99)

Is able to use digital services without being completely dependent on them (or: helpless without). (53)

Can determine if appropriate and safe digital means are available, that are efficient and cost-effective in comparison with other means. (29)

Understands the technologies they are using at a level that is sufficient to underpin good purchasing decisions, e.g., about devices or Internet Service Providers. (71)

Knows which digital technologies are used by (reputed) experts in his/her field. (87)

Has first-hand knowledge and expertise of the major digital technologies used in his/her field. (88)

Has a comprehensive mental map of how the online world works. (62)

Understands the environmental impact of computers and electronic devices and how s/he can make them last longer by recycling parts of it (such as changing hard disks). (127)

Is able to make informed decisions (with human or technological assistance where appropriate) about whether and how to use technologies to pursue goals that have personal meaning and relevance to his/her life. (1)

I. Exploration of digital opportunities and adaptation to own needs

Description: The digitally competent person actively explores emerging technologies and integrates them in his/her environment.

Is able to adapt very quickly to new advanced technology and to integrate technology into his/her environment. (17)

Is able to learn how to work with any new digital technology by trying it out, and using its internal advice, guidance and help. (48)

Possesses the skills to constantly update knowledge about which digital instruments are available. (30)

Is able to learn the new technologies that emerge. (39)

J. Self-directed learning with digital technologies

Description: *The digitally competent person uses ICT for lifelong learning.*

Is able to use digital media to learn (develop oneself). (19)

Is able to use a digital environment for lifelong learning (formal or informal). (76)

Continuously self-monitors personal goals and diagnoses deficiencies of competencies required for reaching these goals. (28)

Knows how to self-regulate his/her technology enhanced learning. (107)

Can use ICT resources to safely expand his/her knowledge and connect to the world around him/her including both people and resources. (35)

Is able to use learning management systems, information management systems, etc. (134)

Is capable of exploiting technological potentials in order to represent and solve problems. (55)

Has sufficient social and cultural capital so that technology use is supported and encouraged in the communities to which s/he belongs. (4)

K. Understanding and awareness of role of ICT in society

Description: *The digitally competent person understands the broader context of use and development of information and communication technology.*

Understands the wider context of digital tools in a 'digital age' characterised by globalisation, networks and flows i.e. can 'read the world' as well as 'read the word/texts'. (131)

Understands where ICT comes from, who develops it and for what purposes, and knows about the historical evolution of internet, the web and its basic architectural principles. (124)

Is aware of the general trends within new media even if s/he does not use them. (116)

Understands the role of ICT in everyday life, in social life and at work. (6)

Has a deep and transversal competency in how digital devices, media and networks play together. (110)

L. Effective & efficient use

Description: *The digitally competent person increases personal and professional effectiveness and efficiency through the use of digital technologies*

Is able to arrange and develop his/her personal working environment as an effective and reliable system. (16)

Includes more and more digital instruments in every day life to increase the quality of life and personal involvement in overall social life. (108)

Is able to stay informed and evaluate information delivered through pull and push technology. (75)

Can use different ICT in a way that helps to achieve certain results more quickly, or more easily, or to achieve better results. (5)

Demonstrates fluent application of general digital devices available in her/his surroundings and digital resources transmitted through Internet or other communication tools, for daily life and life-long learning needs. (23)

Knows how to use digital equipment cost-efficiently and also time-efficiently. (34)

Can solve a theoretical or practical problem, of individual or collective interest, through or with the support of digital tools. (14)

Is able to safely use digital standard technologies for learning, solving problems, communication and collaboration, creative activities, work. (15)

M. Seamless use and appropriation of technology

Description: *The digital competent person uses technology naturally and confidently, demonstrating self-efficacy.*

Does not need high technical skills, because digital technology is becoming very usable. (79)

Can access technology and uses it without realising that s/he is actually using it. (104)

Reaches for technological tools as easily and as unselfconsciously as s/he might reach for a pencil. (91)

Knows the language of new media (exactly the same way as being proficient in one or more human languages makes our life easier). (123)

Is able to manage several virtual identities in different contexts. (118)

Is a digital native, who makes natural use of participative technology and of social media. (106)

N. Balanced attitude towards technology

Description: *The digitally competent person demonstrates an informed, open-minded, and balanced attitude towards Information Society and the use of digital technology. The digitally competent person is curious, aware of opportunities and new developments, and is comfortable to explore and exploit them.*

Has a critical view about information technologies. (61)

Has (often implicit) views on the benefits and drawbacks of each major digital technology used in his/her field. (89)

Has a positive but realistic attitude towards the benefits and risks associated with using technologies. (105)

Sees digital media as enablers rather than inhibitors of choice and action. (42)

Uses digital media and tools without fear, always aware that digital enablers should serve the human being to have a better life (and not the opposite). (122)

Is self-motivated to seek and share information, to learn new skills, and – at least initially – experience new information with an open mind. (121)

Holds a positive attitude to learn about emerging digital technologies. (24)

Is always open to new ideas and willing to learn new technologies. (92)

Has a general level of confidence, meaning that s/he is willing to experiment with new technologies, but also to reject inappropriate technologies. (3)

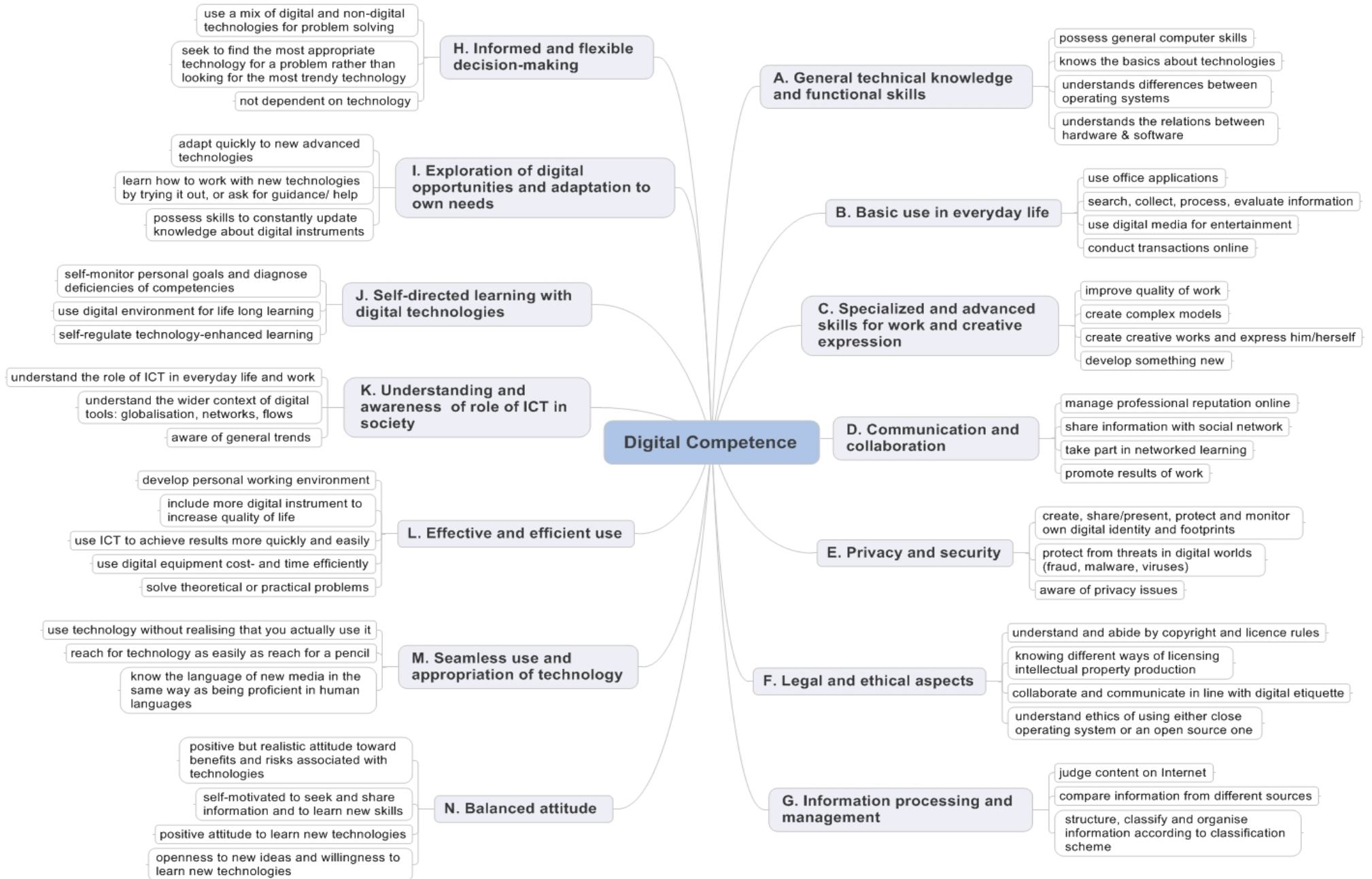
Feels part of the current discourse on the opportunities afforded by new media. (43)

Is able to assess and reduce/avoid technology related threats to one's health. (54)

Is able to manage the potentially distracting aspects of working digitally. (132)

Has understood that the digital environment we are facing can make things better or worse - it all depends on how we are using it and what rules we find for it. (100)

Mind map digital competence



Appendix I Removed statements

Statements that were removed following the cluster analysis and feedback from the workshop:

- 7. Is able to critically use ICT (use ICT when necessary)
- 102. Will only write you expensive text messages if Twitter is down.
- 103. Has trust in a bright future and less fear about the present.
- 109. Is able to create creative works/products, using digital technologies.
- 114. Is likely to use digital media to structure and raise awareness of his/her life experiences in order to amplify his/her sense of coherence in life (an example of this is the personal digital photo collection or the ongoing formation of files in a work portfolio).
- 115. Derives an overall sense of meaning and joy of life by building and formatting an identity on the net.
- 120. Is not only aware of things that s/he does not yet know about, but is also aware that there are even more things that s/he 'doesn't know s/he doesn't know'.