EGH Subgroup on skills 2020 progress report

Report prepared for the 8th meeting of the EGHI by Mark Uhrbach and Peter Jiao

Background

At the 7th EGH in 2019, it was agreed by the membership of the Expert Group on Household Indicators that the subgroup on Measurement of ICT skills would continue to work on the following items:

1. Developing recommendations for additional indicators to provide measures of the following topics:

   a. Ability to evaluate the reliability of content that is found online (e.g. fake news).

   b. Awareness of the use of devices and/or the Internet as they relate to personal well-being (e.g. cyberbullying, addiction and social exclusion).

   c. Ability to recognize skills gaps and an individual's need for upskilling in the digital domain.

And

2. Developing proposals for the aggregation of ICT skill categories.

In May 2020, a call for volunteers to participate in this group was put out. Statistics Canada, given their experience in the collection of data in this area, volunteered to lead the group comprised of experts in the fields of both ICT skills and ICT measurement. The overall group is comprised of delegates from Brazil, Canada, Egypt, Ghana, Iran, Korea (Rep. of), Oman, Saudi Arabia, Tunisia, Devstat, the European Commission, International Telecommunications Union, the London School of Economics, the Organization for Economic Cooperation and Development, and a consultant to the World Bank.

Consensus on the above issues was reached through a series of weekly videoconferences with all members of the subgroup that took place in 2020. This was supplemented by the sharing of documents and experiences via e-mail.

Outcomes

1. Development of recommendations for additional indicators

The first goal of the sub-group was to develop recommendations for additional indicators to provide measures of three different topics as listed above. These indicators, or modules, are not suggested at this point for inclusion in the ITU model survey.

Instead, they are provided as a proposed common method for countries to include indicators of this type on their own country surveys of ICT adoption and use. These modules are designed to be self-contained so they can be added individually by member countries based on the current measurement and policy priorities.

Each of the sections below outline the proposed modules for inclusion.

a. Ability to evaluate the reliability of content found online

Often referred to as 'fake news' this issue has become a policy priority in many member countries and worldwide as social media and other sources can proliferate information from a questionable source very quickly. The ability of an individual to verify information that they find online is an important skill that will continue to grow in importance.

The module is based on the critical literacy questions from the most recent Model Survey of ICT Use in the European Union. Some modifications were made based on a recent qualitative test of questions of this type related to COVID-19 that were tested by Statistics Canada in June 2020.

Within the experts group, there was a robust discussion regarding the appropriate indicators. The two most crucial questions in this module (E4 and E5, see appendix A) represent a set of specific activities that demonstrate a certain level of digital competency and skill. As such, they can – if deemed relevant – be included in a larger inventory of items used to measure digital skills.

While the following short set of three questions are being proposed as key indicators of critical literacy, a larger set of related questions has been included in Appendix B for those countries who would prefer to include a wider range of questions on this topic.

The expert group chose to focus on the behavior of the individual and the question on whether a respondent saw disinformation is not included in the proposed indicators. In today's age, one can assume that individuals are exposed to 'fake news', regardless of whether they identify as such or not.   Moreover, this avoids the measurement issue of respondents not being able to identify the difference between exposure to disinformation (i.e. information deliberately created to cause harm), misinformation (i.e. information that is false but not deliberately created to cause harm), and mal- information (i.e. information that has a basis in reality and used deliberately to cause harm).

The expert group also eliminated any reference to the 'source of the information' since this was deemed to be confusing to the respondent – it becomes overly difficult to distinguish between different sources given that social media is often intertwined through links and referring documents.

b. The use of the Internet and devices and their relation to personal well-being

The use of the Internet and internet-connected devices bring an untold number of benefits to people around the world – sharing information, allowing for advanced health care and instant communication. However, there is not a complete understanding of the effect the Internet and these devices have on the overall well-being of citizens.

While a number of different approaches to measuring the impact of digitalization on well-being through surveys exist, the Expert Group considered two approaches:

> 1) self-reported incidents; and
> 2) subjective well-being approach.

The proposed module includes a hybrid of questions from both approaches.

Based on the discussions, there was varying support on both approaches. While the **self-reported incidents approach** could produce indicators of prevalence of negative impacts that would be relatively easy to interpret, there was some concern on the potential challenges in collecting this information through in-person interviews. Moreover, some members indicated the needed to include some measures of positive well-being as a result of digitalization (e.g. using digital technologies as a way to stay connected during the pandemic).

The **subjective well-being approach** has also been included in the proposed questionnaire as it can provide a general useful measure of well-being across different digital technology usage profiles (e.g. by type of activity that is already captured in the ITU model ICT survey).

This approach is in line with a recent in-depth review of the topic that was conducted for the Conference of European Statisticians on Digitalization and well-being:

> People's own assessments of the impacts of technology in their lives is an important line of evidence for understanding digitalization and well-being. Nonetheless, it appears that relatively little information of this type is being collected on dedicated ICT surveys. **Adding well-documented measures of subjective well-being to these surveys would yield valuable analytical returns. Well-documented single-item measures (e.g. self-assessed mental health, life satisfaction) may be most feasible given space limitations on most surveys.** Multi-item measures (e.g. psychological functioning, positive and negative affect) are another option.

The proposed module of six questions can be found in Appendix A. Regarding the placement of questions in the survey, the Canadian Internet Use Survey can be used as an example. These questions have been placed following questions about the types of activities done online. If there is not a natural transition available in the survey, a stand-alone statement can be used to indicate the purpose of the questions.

c. Individual Upskilling in the Digital Domain

As employers demand new skills, and individuals' personal lives become more reliant on technology use, a constant need to upgrade skills in the use of technology will be required. This module attempts to capture the efforts of individuals to upgrade their digital skills.

This proposed module elicited a spirited discussion amongst the expert group since there are many directions this topic could be taken. However, given the limited space available on the survey, it was decided to focus on a self-reported module in addition to two questions on the type and the topic of the training undertaken.

These questions are based on the Community Survey on ICT Usage in Households and by Individuals which will encourage comparability. The module of three questions allows the capture of information on the perceived need for upskilling by an individual in particular domains, an indicator of the use of formal vs. informal learning, and a third indicator on the topic(s) of study chosen by individuals.

Given the structure of the questions, it is not possible to identify the type of training that was undertaken for each topic identified. To make this linkage would have required additional response and processing burden. Additionally, it is recommended to administer this module in relation to the use of digital tools and applications for both personal and professional activities.

2. Development of a proposal for the aggregation of categories into a single skills indicator

Currently, the ITU model survey contains measures of multiple types of ICT skills, which can be categorized as falling within different skill levels. There is a desire to consolidate these different skills into a single indicator for ease of dissemination and understanding. Given that there are different ways of doing this, it is proposed that an interactive dashboard approach would be used, whereby member countries would be able to combine indicators of different levels of skills into a single indicator, emphasizing whichever levels of skills they are interested in, according to their needs and their policy priorities.

In attempting to construct such an overall indicator, the working group considered a number of options and previous work that had been attempted in this area. While a fixed specification for this indicator could potentially offer the simplest way to communicate the total stock of digital skills in a country, a dashboard approach considering multiple digital skill levels and user-selectable weighting schemes was proposed for two principal reasons:

1) Only aggregate data is available from the member countries

2) A single uniform weighting approach applied to the individual digital skills may not be appropriate given conceptual limitations and varying policy priorities in member countries.

The grouping of digital skills into different levels within the dashboard builds on an earlier work undertaken under the EGH and EGTI, which categorized ICT skills into basic, standard, and advanced levels as presented in Table 1.

Table 1. Coding of digital skills to digital skill levels

Digital skill	Group
Copying or moving a file or folder	basic
Sending e-mails with attached files	basic
Transferring files between a computer and other devices	basic
Using copy and paste tools to duplicate or move information within a document	basic
Connecting and installing new devices	standard
Creating electronic presentations with presentation software	standard
Finding, downloading, installing and configuring software	standard
Using basic arithmetic formula in a spreadsheet	standard
Writing a computer program using a specialized programming language	advanced

The current dashboard being proposed takes the mean (average) of the skills within each dimension (i.e. basic, standard, advanced), although other metrics such as the maximum values among indicators of a given level could also be considered. The reason why it is proposed to calculate basic-level and standard-level skill using the mean of the indicators corresponding to that level is because the mean value would be less effected by any year-to-year fluctuation that might occur in a single indicator of that level.

The dashboard approach allows flexibility for the user to select the weighting with which skills components of different levels are combined, which can be adjusted based on policy relevance. For this draft approach, 4 pre-set weighting configurations are displayed but in theory, these could remain flexible and adjusted by countries based on their own priorities:

a. Equal weighting (basic: 33%, standard: 33%, advanced: 33%)
b. Emphasis on basic skills (50% - 25% - 25%)
c. Emphasis on standard skills (25% - 50% - 25%)
d. Emphasis on advanced skills (25% - 25% - 50%)

Appendix A. Questionnaire Modules

Ability to evaluate the reliability of content found online

Indicator	Question
Behaviour: checking accuracy of online info	E4. Have you checked the accuracy of the information you found online in the last 3 months? Yes No

Behavior: action taken to check accuracy of online info	*(if E4 = Yes)*
	
	E5. How did you check the accuracy of the information you found on the internet?
	    a) Checking the sources or finding other information on the internet (e.g. other news sites, Wikipedia etc.)
	    b) Following or taking part in discussion on the internet regarding the information
	    c) Discussing the information offline with other persons or using sources not on the internet

Reason for not checking	*(if E4 = No)*
	
	E6. Why did you not check the accuracy of the information you found on the internet?
	    a) You already knew that information, content or source was not reliable
	    b) Lack of skills or knowledge (e.g. Did not know how to check information on the internet or it was too complicated to do)
	    c) *Did not think about checking*
	    d) *Did not care about checking.*
	    e) *Trusted the source without having to check.*
	    f) Other reasons

The use of the Internet and devices and their relation to personal well-being

Indicator	Question
Evaluative well-being	Q1. Taking all things together, how happy would you say you are? Extremely unhappy 0 1 2 3 4 5 6 7 8 9 10 Extremely happy *Source: European Social Survey, 2018*
Self-rated health	Q2. The next question is about your health. By health, we mean not only the absence of disease or injury but also physical, mental and social well-being. How is your health in general? Would you say it is.. 1 Very good 2 good 3 fair 4 bad 5 very bad *Source: European Social Survey, 2018 (with modifications)*
Smartphone habits	(if respondent uses a smartphone) Q3. In a typical day, which of the following scenarios apply to you? Select all that apply • You check your smartphone at least every 30 minutes • Before going to sleep, the last thing you do is check your smartphone • After waking up, the first thing you do is check your smartphone • You use your smartphone while watching television • You use your smartphone while eating dinner with others *Source: Canadian Internet Use Survey, 2020 (with modifications)*
Taking a break from Internet	Q4. During the past 12 months, did you do any of the following for the benefit of your well-being? • Used software or adjusted device settings to limit the amount of time spent on devices (e.g. smartphone) • Took extended breaks from or decreased time spent on social media

Self-perceived impact of digital technologies	**Q5. In general, would you say your use of the digital technologies and the Internet have had a mainly positive or negative impact on the following?**			
		Positive	Negative	Neutral
	Connectedness with friends or family			
	Sense of belonging to your community			
	Your mental health			
	Your physical health			
	How you spend your time			
Self-perceived victimization	Q6. During the past 12 months, have you felt that you were a victim of any of the following incidents on the Internet? Select all that apply. Did you experience: • Bullying, harassment, discrimination • Stalking • Misuse of personal pictures, videos or other content • Fraudulent use of your identity • Other incident OR • No *Source: Canadian Internet Use Survey, 2018 (with modifications)*			

Individual Upskilling in the Digital Domain

		I don't have enough skills and I need training to be able to use…	I have the skills but I need training to make more effective use of…	I have enough skills to use effectively and don't need training on…	I don't need to use…
	Q1. Which of the statements below best describes your skills relating to the use of the following digital tools and applications in your daily life?				
a)	Desktop or laptop computers				
b)	Tablets (e.g. iPads, etc.)				
c)	Smartphones				
c)	IoT devices				
d)	Cloud storage tools				
e)	….				

	Q2. Have you carried out any of the following learning activities to improve your skills to use digital tools and applications in the last 12 months? (Select all that apply)
a)	Training paid by yourself or third parties (e.g. employer, public organisations)
b)	Free online course
c)	Self-study (e.g. books, YouTube videos, tutorials etc.)
d)	Learning from others (e.g. colleagues, family, friends etc.)

If yes, to any item in Q2, please go to Q3.

	Q3. Which of the following topics on the use digital tools or applications did you learn about in the last 12 months?
a)	Configuring and installing devices
b)	Using a software (e.g. Microsoft Office)
c)	Online marketing or e-commerce
d)	Social media
e)	IoT applications (e.g. smart TV, connected watch)
f)	Cloud services (e.g. Google drive, Amazon Web Services etc.)
g)	IT-security or privacy management
h)	Programming languages, including design or management of websites
e)	Other (please specify)

Appendix B: Fake news (aka: disinformation) and critical literacy questions inventory

Indicator	Questions	Source
Self-perceived identification of fake news	E3. In the last 3 months, have you seen online information or content (e.g. videos, images) on news sites, social media or social networking services of which you doubted the truthfulness?	2021 Eurostat draft model questionnaire Module E: E-Skills
Self-perceived identification of fake news	How often do you come across made-up news and information that is intended to mislead the public? • Often • Sometimes • Hardly ever • Never	Source: 2019 Pew Research Center's American Trends Panel on Made-Up News
Self-perceived identification of fake news	FC_Q25 Since the beginning of the COVID-19 pandemic, how often have you seen information related to COVID-19 on the internet that you suspected was misleading, false or inaccurate? ○ Multiple times a day ○ Once a day ○ At least once a week ○ Rarely ○ Never	Source: Canadian Perspectives Survey Series 4 – Information Sources Consulted During the Pandemic
Self-perceived ability to identify fake news	How do you feel about YOUR OWN ability to recognize each type of news and information? (easy/hard) a. Made-up information that is intended to mislead the public b. Satire about an issue or event c. Breaking information that is published before everything is verified d. Factual information presented to favor one side of an issue e. A video or image that is altered or made up to mislead the public	Source: 2019 Pew Research Center's American Trends Panel on Made-Up News
Self-perception: prevalence of fake news	How much made-up news and information do you think is created about each of the following topics (A lot; Some; Not much; None; No answer)? a. Politics and elections b. Entertainment and celebrities c. Science and technology d. Health and medicine e. Emergencies, such as shootings or disasters f. Business and finance	Source: 2019 Pew Research Center's American Trends Panel on Made-Up News

Indicator	Questions	Source
Behavior: checking truthfulness of online info	E4. In the last 3 months, have you checked the truthfulness of the online information or content you found on online news sites, social media or social networking services?	2021 Eurostat draft model questionnaire (not agreed yet)1 Module E: E-Skills
Behavior: checking truthfulness of online info	FC_Q10 Since the beginning of the COVID-19 pandemic, how often did you check the accuracy of information about COVID-19 on the Internet? o Always o Often o Sometimes o Rarely o Never	Source: Canadian Perspectives Survey Series 4 – Information Sources Consulted During the Pandemic
Behavior: action taken to check truthfulness of online info	E5. How did you check truthfulness of the online information or content? a) Using other information sources on the internet, e.g. news sites, Wikipedia etc. b) Discussing the information on social media groups c) Discussing the information with other persons or using sources not on the internet	2021 Eurostat draft model questionnaire Module E: E-Skills
behavior: action taken to check truthfulness of online info	IN29 When you read or see a news story or article on social media site or apps which, if any, of these things would you ever do if you wanted to check the information in the article to see if it was true? READ OUT: Please choose as many as apply IF NECESSARY: For example, this might be a news story or article that appears in your news feed, or a link to an article that is shared with you or sent to you, something that you see through a 'trending' section of the site or through any channels you visit on social media Check if it was by an organisation I had heard of...1 Check if it was by an organisation I thought was trustworthy...2 Look at how professional the article looks, e.g. are there spelling mistakes, do the images or videos look high quality...3 Think about what the article is about to assess how likely it is to be true.............................4 Check to see if the same information in the article appears anywhere else..........................5 Think about whether the person who shared it was someone I trusted...............................6 Look at the comments/ what people have said about the article..7 Check to see if it is by someone who was there when it happened/ saw it for themselves 8	Source: OFCOM making sense of media questionnaire 2019

Indicator	Questions	Source
	Something else – (WRITE IN) ....9 OR I wouldn't tend to check the information in the article to see if it was true ....10 I don't see news stories/ articles on social media ....11 Don't know 12	
behavior: action taken to check truthfulness of online info	IN38 When you find factual information online, perhaps on search engines like Google, do you check if the information is truthful in any of these ways? READ OUT: Please choose all that apply Check different websites to see if the same information appears on them all ....1 Check that the website address looks genuine ....2 Check whether people I trust use the site or sites ....3 Check the credibility of the information (authors name or link to original publication) ....4 Check whether the site is regularly updated ....5 Check whether the site looks professional ....6 Make checks in other ways – (WRITE IN) ....7 OR I don't make any checks ....8 Don't know 9	Source: OFCOM making sense of media questionnaire 2019
Behavior: action taken to check truthfulness of online info	CRAAP test Wichowski, D. E., & Kohl, L. E. (2013). Establishing credibility in the information jungle: Blogs, Microblogs, and the CRAAP test. In M. Folk & S. Apostel (Eds.), *Online credibility and digital ethos: Evaluating computer-mediated communication* (pp. 229–251). Heshey, PA: Information Science Reference. https://digitalcommons.bryant.edu/cgi/viewcontent.cgi?article=1002&context=libr_jou https://library.csuchico.edu/help/source-or-information-good https://library.csuchico.edu/sites/default/files/craap-test.pdf	

Indicator	Questions	Source
Behavior: action taken to check truthfulness of online info	COV_CONF_Q022 What did you do to check the accuracy of information you found about COVID-19 on the Internet? Select all that apply ☐ Did a search on the author or source to see if they are credible. ☐ Consulted other sources of information to check for consistency and accuracy. ☐ Clicked on the link to read the entire news article. ☐ Verified the URL address to see if the site is credible. ☐ Verified the date of the information. ☐ Read the comments to see discussion on the topic and source. ☐ Consulted my friends, family or online network to validate the information. ☐ Other, specify:	Source: Canadian Perspectives Survey Series 4 – Information Sources Consulted During the Pandemic

Behavior: method to access / source of news online	SOUR_Q050 Since the beginning of the COVID-19 pandemic, which of the following online sources have you used to find information on COVID-19??
	    Select all that apply
	☐ Social media posts from other users or influencers (e.g., Twitter, Facebook, LinkedIn, Instagram, Tumblr)
	☐ Social media posts from news organizations, magazines
	☐ Online newspapers (e.g., Globe and Mail, National Post, CBC News)
	☐ Online magazine on current events (e.g., Macleans, Vice, Narcity, National Geographic)
	☐ Online forums (e.g., Reddit, 4Chan,Yahoo Groups)
	☐ Online encyclopedia or repository (e.g., Wikipedia)
	☐ Blogs
	☐ Podcasts
	☐ Online video sharing platforms (e.g., YouTube, Tiktok)
	☐ Email from a friend or family
	☐ Other
	
	    OR
	
	☐ Did not use the internet to find information on the COVID-19
		Source: Canadian Perspectives Survey Series 4 – Information Sources Consulted During the Pandemic

Indicator	Questions	Source
Behavior: action taken in response to fake news	IN30B Did you take any of the following actions as a result of seeing this upsetting or offensive content? READ OUT: Please choose as many as apply and just read out the numbers on the card I reported it through the report function or the block content function on the website................................1 I blocked the person who shared the content or made the comments...2 I responded publicly to the person who shared the content or made the comments ....3 I responded privately to the person who shared the content or made the comments ....4 I stopped using that social media site ....5 I shared it to highlight the issue to others...6 I didn't take any of these actions ....7 Don't know 8	Source: OFCOM making sense of media questionnaire 2019
Behavior: action taken in response to fake news	Q_LIT_2019. Have you done of any of the following in the last year? 1. I started relying more on sources of news that are considered more reputable 2. I stopped using sources with 'less accurate' reputation 3. I decided NOT to share an unreliable news article 4. I checked accuracy the accuracy of news or a fact by comparing multiple sources 5. None of the above	Reuters Digital News Questionnaire
Attitude: preference for news source	Which of the following would you say you prefer for getting news? • A print newspaper • Radio • Television • A social media site (such as Facebook, YouTube or Snapchat) • A news website or app	Source: 2019 Pew Research Center's American Trends Panel on Made-Up News

Indicator	Questions	Source

Attitude: importance of fake news as a problem	How much of a problem do you think each of the following are in the country today? (A very big problem; A moderately big problem; A small problem; Not a problem at all; No answer)
	   a. Made-up news and information
	   b. The affordability of health care
	   c. Racism
	   d. The way the U.S. political system operates
	   e. Illegal immigration
	   f. The gap between the rich and poor
	   g. Violent crime
	   h. Climate change
	   i. Drug addiction
	   j. Terrorism
	   k. Sexism
		Source: 2019 Pew Research Center's American Trends Panel on Made-Up News

Attitude: importance of fake news as a problem	Q_FAKE_NEWS_1. Please indicate your level of agreement with the following statement. – Thinking about online news, I am concerned about what is real and what is fake on the internet.	Source: Reuters Digital News Questionnaire

Attitude: trust in accuracy of news sources	How much do you trust the accuracy of the news and information that you get from… (A great deal; Some; Not much; Not at all; No answer)
	   a. Your main news outlets
	   b. News outlets you don't come across often
	   c. Political leaders and public officials
	   d. Friends and family
	   e. Social media sites (such as Facebook, Twitter or Snapchat)
		Source: 2019 Pew Research Center's American Trends Panel on Made-Up News

Attitude: trust in accuracy of news sources	IN46 When you use a search engine to find information, you enter a query in the search box and the search engine will then show some links to websites in the results pages. Which one of these is closest to your opinion about the level of accuracy or bias of the information detailed in the websites that appear in the results pages? I think that if they have been listed by the search engine, these websites will have accurate and unbiased information.. 1 I think that some of the websites will be accurate or unbiased and some won't be .... 2 I don't really think about whether or not they have accurate or unbiased information, I just use the sites I like the look of .... 3 Don't know.. 4	Source: OFCOM making sense of media questionnaire 2019

Indicator	Questions	Source
Reason for not checking	FC_Q20 Why did you not check the accuracy of information related to COVID-19 on the Internet? Select all that apply ☐ Did not think about checking. ☐ Did not have time to check. ☐ Did not know how to check. ☐ Did not care about checking. ☐ Thought it would be too difficult to check. ☐ Did not check because knew the source was not reliable. ☐ Trusted the source without having to check.	Source: Canadian Perspectives Survey Series 4 – Information Sources Consulted During the Pandemic
Victim of fake news	FC_Q30. Have you ever believed that information related to COVID-19 was true and then later realized that it was not? o Yes o No	Source: Canadian Perspectives Survey Series 4 – Information Sources Consulted During the Pandemic
Frequency of spreading fake news	FC_Q35. How often have you shared Covid-19-related information that you found online, without knowing about its accuracy? o Always o Often o Sometimes o Rarely o Never	Source: Canadian Perspectives Survey Series 4 – Information Sources Consulted During the Pandemic
Knowledge and beliefs	This survey collects data on a number beliefs that could be a model to assess spread of fake news type beliefs. For example, from this survey: KBP3_R05A Thinking about vaccines in general, please indicate to what extent you agree with the following statements. KBP3_Q05E A vaccine can give you a serious case of the very same disease it was meant to prevent 1: Strongly agree 2: Somewhat agree 3: Somewhat disagree 4: Strongly disagree KBP3_Q05F The use of alternative practices, such as homeopathy or naturopathy, can eliminate the need for vaccination	Childhood National Immunization Coverage Survey - 2019

Indicator	Questions	Source
	1: Strongly agree 2: Somewhat agree 3: Somewhat disagree 4: Strongly disagree KBP3_Q05G A healthy lifestyle, such as healthy nutrition and hygiene, can replace the need for vaccination 1: Strongly agree 2: Somewhat agree 3: Somewhat disagree 4: Strongly disagree	