



ICTskills4All

Empowering old adult
citizens for a digital world

Intellectual Output 5

Piloting and analysis of results
learning programs



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Contents

Abstract	3
1. Erro! Marcador não definido.	
2. Methods	4
3. Results	6
3.1 Description of the sample	6
3.2 Peer-to-peer and intergenerational	8
3.2.1 Impact of the programme	8
3.2.2 Differences between the different approaches of the program	12
3.2.3 Qualitative Analysis	14
3.3 Online	20
3.3.1 Impact of the program	20
3.4 Pilot evaluation of the platform	23
3.4.1 Satisfaction about the platform and evaluation tools	23
4. Conclusions	27
5. References	28
Annex	29

Abstract

This report aims to demonstrate the results about the evaluation of the effect on the ICT skills between Peer to peer, intergenerational and online group approaches, participating in the educational program ICTskills4All, as well as a pilot evaluation of the online platform and learning tools.

1. Introduction

The use of Information and Communications Technologies (ICTs) by older adults has been considered necessary to expand the knowledge and skills of this population and to reduce the digital divide, notably present in this age group (Midão et al., 2020). Educational programs for the 55+ population showed to be benefic and effective, increasing access to information and services, making this population feel more adapted for nowadays society (Garcia, 2017; Hinojo-Lucena, Aznar-Díaz, Cáceres-Reche, & Romero-Rodríguez, 2019; Zadworna, 2020; Zielińska-Więczkowska, 2017).

In this intellectual output, pilot's studies were run in order to evaluate and compare two in-person approaches to improve digital skills in older adults, intergenerational and peer-to-peer. As a consequence of the COVID-19 pandemic, which prevented face-to-face meetings during 2020, another approach occurred online. These pilots were run in 4 partnership countries - Portugal, Poland, Latvia and UK. The impact of these pilots on digital skills, as well as in attitudes towards ICT were evaluated in older adults' participants, at the beginning and at the final stage of pilots and during the sessions. Qualitative evaluation of pilots was also performed in all pilot participant groups, in order to collect information that was helpful to improve educational material and schedule of the in-person approaches. Moreover, a pilot evaluation of online platform and tools were also run in the 4 countries in order to evaluate its impact/satisfaction in terms of ICT skills in older adults.

2. Methods

This is a quasi-experimental study, with comparison between the intervention group from four European Countries, partners in the ICTskills4all project. ICTskills4all is an international and intergenerational project, supported by the Erasmus+ program, which is part of the European research line regarding lifelong learning. The main objectives of the project were to contribute to "Empowering old citizens for a digital world". The experiment took place in four European countries (Portugal, United Kingdom, Poland, and Latvia).

The development of the ICTskills4all program had several phases for its construction, as specified on the website program (<https://www.up.pt/ictskills4all>). The present report is limited to exposing data related to the application of the experiment in loco, where were observed three different groups of adults over 50 years of age, which had participated (experimental group) in the proposed educational program. This report also has a pilot evaluation about the website ictskills4all and its learning tools, the methodology used to do so, was in part the usability tests done along the Product Development Cycle (User Centered Design) and a survey where participants from the four countries completed a questionnaire consisting of 5 open responses and 10 closed responses.

The eight sessions were individually evaluated by the participants using the session evaluation questionnaire, in which the participants were asked to answer, "what they enjoyed most", "what would they change", "what was most difficult" and "what was easier" during the session that occurred, as well as classifying the quality of the session from 1 (very poor) to 5 (excellent). We also used the Digital Skills Self-Assessment Questionnaire, applied before the beginning of the first session (pre) and after the end of the eighth session (post), based on four areas of competencies presented in "The Digital Competence Framework for Citizens - DigComp 2.1¹ (2017), namely "Information and data literacy - I&DL"; "Communication and collaboration - C&C"; "Digital content creation - DCC" and "Safety - S". The area of "Problem

¹ Carretero, S., Vuorikari, R., & Punie, Y. (2017). DigComp 2.1: The Digital Competence Framework for Citizens. Publications Office of the European Union. Retrieved from [http://publications.jrc.ec.europa.eu/repository/bitstream/JRC106281/web-digcomp2.1pdf_\(online\).pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC106281/web-digcomp2.1pdf_(online).pdf)

solving” was excluded from this analysis because it is a competency that requires more digital skills than those recommended by the initial Curriculum of the ICTskills4All proposal.

Categorical variables are described using absolute frequencies (n) and relative frequencies (%). The questions that compose the questionnaires are described using the median (50th percentile), 25th percentile and 75th percentile.

Variables were created for the differences between pre-intervention and post-intervention values for all items in the questionnaire.

Significant differences between post and pre-test responses were verified using the Wilcoxon test. Hypotheses about differences between groups (intergenerational and peer-to-peer) were tested, using the non-parametric Mann-Whitney tests.

In all hypothesis tests, a significance level of $\alpha = 5\%$ was considered.

The analysis was performed using the statistical data analysis program SPSS® v.26.0 (*Statistical Package for Social Sciences*).

Qualitative data were analyzed according to the content analysis proposed by Minayo (2004), with the following steps: (A) Ordering of data to map the material obtained, re-reading the material and organizing the reports; (B) Classification of the data with exhaustive and repeated reading of the texts by a research team, for the next constitution of a corpus of communication, followed by the transversal reading of each body as a cut-out of the registration unit and, finally, the cutting of the most relevant data; (C) Final analysis and elaboration of the analytical categories, phase in which the research objectives and the themes that emerge from the observations are taken into account and the data is articulated with the theoretical framework, defining the analytical categories.

Following the steps, regarding the content analysis of the speeches referring to “what they liked the most” and “what would change” in the sessions, the word cloud presentation method was used, a tool that consists of a form of graphic visualization based on frequency of words written in the session evaluation questionnaires, which were categorized and released using the free *Word it out* software. The categories have colors and sizes relative to their repetitions. Connectors and words that had no meaning for the study were excluded.

As for the content analysis of the speeches about “what was more difficult” and “what was easier”, semi-integral speeches (with adaptations for categorization) were presented, tabled in their appropriate categories and with the number of repetitions. Five categories were pre-determined regarding the five competence areas presented in “The Digital Competence Framework for Citizens - DigComp 2.1 (2017)”, namely “Information and data literacy”; “Communication and collaboration”; “Digital content creation”; “Safety”; and “Problem solving”; as well as four more categories that emerged from data exhaustion, being “Class Design”; “Physical adaptation”; “Complexity of tasks”; and “Cognitive domain”.

3. Results

3.1 Description of the sample

Of the 39 participants in this study, an analysis was made of their demographic characteristics as participants in the program, subdividing by different type of approach.

Table 1 Description of the characterization variables of the peer-to-peer, intergenerational and online

	Total (n=39)		Peer-to-Peer (n=18)		Intergenerational (n=12)		Online (n=9)	
	n	(%)	n	(%)	n	(%)	n	(%)
Gender								
Female	25	(64.1)	13	(72.2)	7	(58.3)	5	(55.6)
Male	14	(35.9)	5	(27.8)	5	(41.7)	4	(44.4)
Age								
50-64	9	(23.1)	2	(11.1)	4	(33.3)	3	(33.3)
65-74	16	(41.0)	4	(22.2)	6	(50.0)	6	(66.7)
75-84	13	(33.3)	11	(61.1)	2	(16.7)	0	(0.0)
85+	1	(2.6)	1	(5.6)	0	(0.0)	0	(0.0)
Country								
Portugal	3	(7.7)	0	(0.0)	3	(25.0)	0	(0.0)
Latvia	19	(48.7)	10	(55.6)	9	(75.0)	0	(0.0)
Poland	8	(20.5)	8	(44.4)	0	(0.0)	0	(0.0)
UK	9	(23.1)	0	(0.0)	0	(0.0)	9	(100.0)

3.2 Peer-to-peer and intergenerational

3.2.1 Impact of the programme

Before realizing which of the approaches (peer-to-peer or intergenerational) was more effective, the impact of the program on 30 participants was studied, using the responses of the participants before and after the intervention, looking for significant differences.

Table 2 Comparison for each item of pre- and post-intervention values (paired) for program participants in the peer-to-peer (P2P) and intergenerational format (IG).

Q		P2P + IG				p
		P25	P50	P75	n	
1	I know the difference between digital media like laptop, desktop computer, tablet, and smartphone. _ PRE	1.8	3.0	4.0	30	0.002
	I know the difference between digital media like laptop, desktop computer, tablet, and smartphone. _ POS	3.8	4.0	5.0	30	
2	I know what is the screen. keys the layout of letters on the keyboard and function keys (important Enter. Delete. Shift. Backspace. Spacebar). _ PRE	1.0	3.0	4.0	30	<0.001
	I know what is the screen. keys the layout of letters on the keyboard and function keys (important Enter. Delete. Shift. Backspace. Spacebar). _ POS	4.0	4.0	5.0	30	
3	I know what is e-learning, or interactive learning through the Internet. _ PRE	1.0	3.0	4.0	30	0.001
	I know what is e-learning, or interactive learning through the Internet. _ POS	3.0	4.0	5.0	30	
4	I am able to switch on/off all medias (laptop. desktop computer. tablet and smartphone). _ PRE	1.8	3.0	4.0	30	0.001
	I am able to switch on/off all medias (laptop. desktop computer. tablet and smartphone). _ POS	4.0	4.0	5.0	30	
5	I am able to use the mouse. double click. right-left button. scrolling. and sliding. _ PRE	3.0	3.5	4.3	30	<0.001
	I am able to use the mouse. double click. right-left button. scrolling. and sliding. _ POS	4.0	4.0	5.0	30	
6	I am able to find on the keyboard the basic function keys like Enter. Delete. Shift. Backspace. Spacebar. _ PRE	1.8	3.5	4.0	30	0.001
	I am able to find on the keyboard the basic function keys like Enter. Delete. Shift. Backspace. Spacebar. _ POS	4.0	4.5	5.0	30	
7	I am aware of basic principles of safe use of digital media at the level of switching on and checking security (programs. security applications - icons). _ PRE	2.0	2.0	3.0	29	<0.001
	I am aware of basic principles of safe use of digital media at the level of switching on and checking security (programs. security applications - icons). _ POS	3.0	4.0	4.0	30	
8	I am aware of possibilities and consequences of sharing information about myself. _ PRE	3.0	4.0	5.0	30	0.121
	I am aware of possibilities and consequences of sharing information about myself. _ POS	3.0	4.0	5.0	30	
9	I know what browsers are for. how to identify it (icons). their basic differences and usefulness regarding to the purpose. _ PRE	1.0	2.0	3.0	30	<0.001
	I know what browsers are for. how to identify it (icons). their basic differences and usefulness regarding to the purpose. _ POS	4.0	4.0	5.0	30	

10	I know how to identify secure websites and advertising pages. _ PRE	1.0	1.0	3.0	30	<0.001
	I know how to identify secure websites and advertising pages. _ POS	3.0	4.0	4.0	30	
11	I am able to use the browser by myself - choose and connect to/disconnect from the Internet. _ PRE	1.0	2.0	4.0	30	<0.001
	I am able to use the browser by myself - choose and connect to/disconnect from the Internet. _ POS	3.8	4.0	5.0	30	
12	I am able to open the secure side. search for information and open it. _ PRE	1.0	2.5	3.3	30	0.001
	I am able to open the secure side. search for information and open it. _ POS	3.0	4.0	4.3	30	
13	I know how to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ PRE	1.0	2.0	3.0	30	<0.001
	I know how to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ POS	3.0	4.0	4.0	30	
14	I am able to create. make an account. login. read and send an email. _ PRE	1.0	1.0	3.0	30	<0.001
	I am able to create. make an account. login. read and send an email. _ POS	2.0	3.0	4.0	30	
15	I am aware of consequences of safe/dangerous use of search engines and websites. _ PRE	1.0	1.5	3.0	30	<0.001
	I am aware of consequences of safe/dangerous use of search engines and websites. _ POS	3.0	4.0	4.0	30	
16	I am aware of consequences of opening advertising pages. _ PRE	1.0	3.0	4.0	30	<0.001
	I am aware of consequences of opening advertising pages. _ POS	3.0	4.0	4.3	30	
17	I know how to create an account on a social network. _ PRE	1.0	1.0	3.0	30	0.001
	I know how to create an account on a social network. _ POS	2.0	3.0	4.0	30	
18	I know which benefits I can take from being part of a social network. _ PRE	1.0	2.5	3.3	30	<0.001
	I know which benefits I can take from being part of a social network. _ POS	3.0	4.0	4.0	30	
19	I know how to share my localization using my cellphone. _ PRE	1.0	1.5	3.0	30	<0.001
	I know how to share my localization using my cellphone. _ POS	3.0	3.0	4.0	30	
20	I am able to scroll the web page - different ways (keyboard. roller mouse. touchpad. sliders. arrows. etc) _ PRE	1.0	2.0	3.0	30	<0.001
	I am able to scroll the web page - different ways (keyboard. roller mouse. touchpad. sliders. arrows. etc) _ POS	3.8	4.0	5.0	30	
21	I am able to add friends to the social network. _ PRE	1.0	1.5	3.0	30	<0.001
	I am able to add friends to the social network. _ POS	2.0	3.0	3.3	30	
22	I am able to use skype and WhatsApp. _ PRE	1.0	1.5	3.0	30	<0.001
	I am able to use skype and WhatsApp. _ POS	2.0	3.0	4.0	30	
23	I am able to make video and phone calls using skype and WhatsApp. _ PRE	1.0	1.5	3.0	30	0.001
	I am able to make video and phone calls using skype and WhatsApp. _ POS	2.0	3.0	4.0	30	
24	I am aware of several social networks and their differences - interactive ways to create entries in Wikipedia (rules for creating an entry. checking. validating. data approval. publishing an entry). _ PRE	1.0	2.0	3.3	30	<0.001
	I am aware of several social networks and their differences - interactive ways to create entries in Wikipedia (rules for creating an entry. checking. validating. data approval. publishing an entry). _ POS	3.0	4.0	4.0	30	

25	I know what keywords are. search terms. _ PRE	1.0	1.5	3.0	30	<0.001
	I know what keywords are. search terms. _ POS	3.0	3.5	4.0	30	
26	I know what and why to "ask" the search engine. _ PRE	1.0	1.0	3.0	30	<0.001
	I know what and why to "ask" the search engine. _ POS	3.0	4.0	4.0	30	
27	I am able to navigate using search engines. _ PRE	1.0	2.0	3.0	30	<0.001
	I am able to navigate using search engines. _ POS	3.0	4.0	4.0	30	
28	I am able to identify the symbols. images and buttons. _ PRE	1.0	3.0	3.0	30	<0.001
	I am able to identify the symbols. images and buttons. _ POS	3.0	4.0	4.3	30	
29	I am able to search for information and open it. _ PRE	1.0	2.0	3.3	30	<0.001
	I am able to search for information and open it. _ POS	3.8	4.0	4.3	30	
30	I am able to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ PRE	1.0	1.5	3.0	30	<0.001
	I am able to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ POS	3.0	4.0	4.0	30	
31	I am aware of consequences of building knowledge about reality only based on one source on the Internet – one information portal (comparison of content). _ PRE	1.0	2.0	3.0	30	<0.001
	I am aware of consequences of building knowledge about reality only based on one source on the Internet – one information portal (comparison of content). _ POS	3.0	4.0	4.3	30	
32	I know how to distinguish information from advertising. text information from photo gallery or video account. _ PRE	1.0	2.0	3.3	30	<0.001
	I know how to distinguish information from advertising. text information from photo gallery or video account. _ POS	3.8	4.0	4.0	30	
33	I know how to identify potential online threats. _ PRE	1.0	1.0	3.0	30	<0.001
	I know how to identify potential online threats. _ POS	2.0	3.5	4.0	30	
34	I know how to create a secure password. _ PRE	1.0	1.0	3.0	30	<0.001
	I know how to create a secure password. _ POS	3.0	3.5	4.0	30	
35	I know how to identify a secure website to make payments. _ PRE	1.0	1.0	2.3	30	<0.001
	I know how to identify a secure website to make payments. _ POS	2.8	4.0	4.0	30	
36	I know how to identify a trick or scam. _ PRE	1.0	1.0	2.0	30	<0.001
	I know how to identify a trick or scam. _ POS	3.0	3.5	4.0	30	
37	I am able to verify the credibility of the websites. _ PRE	1.0	1.0	2.0	30	<0.001
	I am able to verify the credibility of the websites. _ POS	2.8	3.0	4.0	30	
38	I am able to identify where I can use personal information and which information I can share. _ PRE	1.0	1.0	3.0	30	<0.001
	I am able to identify where I can use personal information and which information I can share. _ POS	3.0	4.0	4.3	30	
39	I am able to avoid insecure websites. _ PRE	1.0	1.0	3.0	30	<0.001
	I am able to avoid insecure websites. _ POS	3.0	3.0	4.0	30	
40	I am able to download and keep my documents. _ PRE	1.0	1.5	2.3	30	<0.001
	I am able to download and keep my documents. _ POS	2.0	3.0	4.0	30	
41	I know how to use antivirus tools and avoid potential virus contamination. _ PRE	1.0	1.0	2.0	30	<0.001

	I know how to use antivirus tools and avoid potential virus contamination. _ POS	2.0	3.0	4.0	30	
42	I am aware of consequences of submitting my personal data during registration. _ PRE	1.0	2.0	4.0	30	0.001
	I am aware of consequences of submitting my personal data during registration. _ POS	3.0	4.0	4.0	30	
43	I know what e-learning is and how to use it to develop and improve my own skills. _ PRE	1.0	1.5	3.0	30	<0.001
	I know what e-learning is and how to use it to develop and improve my own skills. _ POS	3.0	4.0	4.0	30	
44	I know what the YouTube service is and how to use it. _ PRE	1.0	2.0	3.0	30	<0.001
	I know what the YouTube service is and how to use it. _ POS	3.0	4.0	4.3	30	
45	I am able to search videos on selected topics. listen to or play a song on YouTube. _ PRE	1.0	2.0	3.0	30	<0.001
	I am able to search videos on selected topics. listen to or play a song on YouTube. _ POS	3.0	3.0	4.0	30	
46	I am able to use the tools in the movie window: volume. full screen. stop and start from the selected sequence. _ PRE	1.0	2.0	3.0	30	0.003
	I am able to use the tools in the movie window: volume. full screen. stop and start from the selected sequence. _ POS	3.0	4.0	4.3	30	
47	I am motivated to continually develop and update my skills and competences. _ PRE	2.8	4.0	5.0	30	0.164
	I am motivated to continually develop and update my skills and competences. _ POS	4.0	4.0	5.0	30	
48	I am aware of thematic diversity and differences in the level of content posted. _ PRE	2.8	4.0	4.0	30	0.509
	I am aware of thematic diversity and differences in the level of content posted. _ POS	3.0	4.0	4.3	30	
49	I am aware of the existence of copyright regarding content posted on websites. _ PRE	2.0	4.0	4.0	30	0.261
	I am aware of the existence of copyright regarding content posted on websites. _ POS	3.0	4.0	5.0	30	

Wilcoxon Test; P25 – percentile 25; P50 – percentile 50 or median; P75 – percentile 75; 1 – Strongly disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 – Strongly agree

In the peer-to-peer and intergenerational formats, the course proved to be effective in improving the skills assessed in 45 (91.8%) questions (1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45 and 46), while in 4 questions there were no significant changes (questions 8, 47, 48 and 49). By dividing the questions by the 4 identified domains (in annex), the peer-to-peer and intergenerational programs were effective in improving: all 23 competences in information and data literacy, all 9 competencies in communication and collaboration and 13 of the 14 competences (93%) in safety. There were no significant changes in any of the 2 competencies assessed in digital content creation or in the question on motivation (question 47).

3.2.2 Differences between the different approaches of the program

To understand the most effective approach, a new variable was created, resulting from the difference in the responses of the participants after and before the intervention. Values equal to "0", mean that there was no change; values below 0, mean that there was a negative change; values greater than 0, mean that there was a positive change.

Table 3 Comparison for each item of pre-intervention values with post-intervention (paired).

	P25	P50	P75	N	U	<i>p</i>
Q1_POS_PRE	0	1.5	2	30	67	0.071
Q2_POS_PRE	1	2	3	30	89.5	0.419
Q3_POS_PRE	0	1.5	3	30	82.5	0.271
Q4_POS_PRE	0	1	3	30	100	0.729
Q5_POS_PRE	0	1	2	30	90	0.429
Q6_POS_PRE	0	1	3	30	96.5	0.619
Q7_POS_PRE	0.5	2	2	29	99	0.885
Q8_POS_PRE	-0.25	0	2	30	98.5	0.676
Q9_POS_PRE	1	2	3	30	104.5	0.878
Q10_POS_PRE	1	1.5	3	30	96	0.601
Q11_POS_PRE	0	2	3	30	102.5	0.811
Q12_POS_PRE	0.75	1	3	30	83.5	0.287
Q13_POS_PRE	1	2	2	30	88.5	0.385
Q14_POS_PRE	0.75	1	2	30	104.5	0.879
Q15_POS_PRE	0	2	2	30	91.5	0.474
Q16_POS_PRE	0	1	3	30	81	0.243
Q17_POS_PRE	0	1	2	30	84	0.289
Q18_POS_PRE	0	1	3	30	100.5	0.744
Q19_POS_PRE	0	1.5	2	30	74.5	0.142
Q20_POS_PRE	1	2	3	30	96.5	0.616
Q21_POS_PRE	0	1	2	30	94	0.531
Q22_POS_PRE	0	1	2	30	105.5	0.911
Q23_POS_PRE	0	1	2	30	96.5	0.614

Q24_POS_PRE	0	1	2	30	104.5	0.879
Q25_POS_PRE	1	2	2	30	76.5	0.166
Q26_POS_PRE	1	2	3	30	84.5	0.305
Q27_POS_PRE	0.75	2	3	30	99	0.694
Q28_POS_PRE	0	1	2	30	81	0.238
Q29_POS_PRE	1	2	3	30	79.5	0.211
Q30_POS_PRE	0.75	2	3	30	93.5	0.525
Q31_POS_PRE	0	1.5	2	30	94.5	0.556
Q32_POS_PRE	0	2	3	30	108	1.000
Q33_POS_PRE	0	1	3	30	102.5	0.811
Q34_POS_PRE	0	1	2.25	30	77	0.178
Q35_POS_PRE	1	2	3	30	89	0.411
Q36_POS_PRE	1	2	3	30	95	0.570
Q37_POS_PRE	0	2	2.25	30	105	0.895
Q38_POS_PRE	1	2	3	30	103.5	0.846
Q39_POS_PRE	0	2	3	30	99	0.694
Q40_POS_PRE	0	1	2	30	88.5	0.396
Q41_POS_PRE	0	1	2.25	30	106.5	0.948
Q42_POS_PRE	0	1	2	30	80.5	0.235
Q43_POS_PRE	1	2	3	30	76	0.161
Q44_POS_PRE	0.75	2	3	30	94	0.545
Q45_POS_PRE	0.75	1	2	30	107	0.965
Q46_POS_PRE	0	1.5	3	30	83	0.280
Q47_POS_PRE	-1	0	1	30	100.5	0.742
Q48_POS_PRE	-1	0	1	30	85.5	0.319
Q49_POS_PRE	0	0	1	30	94.5	0.534

Mann-Whitney Test; P25 – percentile 25; P50 – percentile 50 or median; P75 – percentile 75

Of the 49 questions analysed, none showed significant differences between the different approaches.

3.2.3 Qualitative analyses

In order to understand the main perceptions of the participants about the sessions and seek to contribute to the understanding of the quantitative data was carried out the content analysis of the participants' speeches, presented in Table 4 and Figure 1.

Table 4 Categorization of the participants' discourse regarding the main difficulties and facilities related to the presential sessions.

Category	Description	Most difficult <i>"discuss" (number of citations)</i>	Most easy <i>"discuss" (number of citations)</i>
Information and data literacy	Browsing, searching, and filtering data, information and digital content; Evaluating data, information and digital content; Managing data, information and digital content; Using the equipment; mouse and keyboard; screen.	<p>"Coordination between the mouse and screen" (4)</p> <p>"Hard to find the mouse pointer" (4)</p> <p>"The technical terms." (1)</p> <p>"Typing and navigation with the mouse was challenging, especially with special characters such as Ā, Ń, Š, Ľ, Ů, Ž" (7)</p> <p>"Understand details, apply" (25)</p> <p>"Using the computer keyboard." (1)</p> <p>"To use the commands." (1)</p>	<p>"Activities with the mouse" (2); "Creating an email." (1); "Doing internet research." (1); "e learning to write." (2); "Formulate and saving passwords." (2);</p> <p>"Interactive training tools (planting flowers, placing apples in a basket)"(2); "Learning how to draw." (1);</p> <p>"Making folders" (1); "Managing excel work" (3);</p> <p>"Opening up excel"(2); "practical application of new skills." (3);); "start the computer." (5); "Switching outlook calendar on and off." (2); "The interaction with the subject." (1); "To use the computer again." (1);</p> <p>"Turning on/off"(8); "Typing"(3); "Unpinning icons." (2); "Using excel" (1); Using the keyboard." (2)</p> <p>"Windows updates." (2); "Working with spreadsheets"(2); "Working with the mouse"(1).</p>
Communication and collaboration	Interacting through digital technologies; Sharing through digital technologies; Engaging in citizenship through digital technologies; Collaborating through digital technologies; Netiquette; Managing digital identity	<p>"Dealing with multiple email accounts"(2)</p> <p>"How to do electronic signatures." (2)</p> <p>"The email subject." (1)</p> <p>"Understanding how to use microphone and camera options on zoom." (2)</p>	<p>"Emailing." (5)</p> <p>"Finding greeting cards on the Internet"(1) "Talking on Zoom." (2)</p>

Digital content creation	Developing digital content; Integrating and re-elaborating digital content; Copyright and licenses; Programming	"Spreadsheets, readers and PDFs." (4) "Spreadsheet discussion, there was a lot of information to digest." (2)	"To elaborate the drawings"(1)
Safety	Protecting devices; Protecting personal data and privacy; Protecting health and well-being; Protecting the environment.	"Session on security." (4) "Realizing how many ways we could be hacked." (2) "Learning how exposed I was to risks and scams." (2) "Security issues." (2) "Understanding anti-viruses." (2) "Password security." (2) "Recognizing spam emails." (2) "Saving information on excel securely." (2) "The discussion about the types of cybercrime." (1)	"Checking website authenticity." (2) "Information about getting rid of old hard drives." (2) "Sessions on scams." (4) "Learning some of the tools to help me avoid risks and scams."(2) "Shredding for security"(2)
Problem solving	Solving technical problems; Identifying needs and technological responses; Creatively using digital Technologies; Identifying digital competence gaps.	"Learning to do the same tasks in different ways." (4) "Talking about your own set-up." (2) "Updating software." (2)	"Having confidence to be able to do things correctly." (2)
Class Design	Session time; Pedagogical approach; Content; Group interaction; Assistant support	"adapt to the pace of work of others" (36) "Differences between the learners" (4) "Could be more coordination training tasks"(4) "Could be more typing tasks"(3)	"All explained if I had any problems." (2); "Confidence that I could always ask other delegates." (2); "Friendly atmosphere." (2); "Learning from other comments." (4); "Surprising how much we have covered in such a short time." (2); "The dialogue with the assistants." (2);

		<p>"Difficulties in explaining specific functions and actions" (4)</p> <p>"It was a harder class for me because the time of it was short." (1)</p> <p>"Mistakes in English classes" (1)</p> <p>"New information and too little time" (4)</p> <p>"Questionnaires are tiring" (1)</p> <p>"The subject of the class was a little difficult for me to learn." (1)</p> <p>"The teacher's explanation." (1)</p>	<p>"The didactic method." (6); "The session on email." (2); "The teacher's clear explanation"(2); "The way it was presented, was easy to follow" (2); "Verbal explanations" (2); "Verbal guidance"(2); "Visual examples" (2); "when starting work, work after the presentation with the support of an assistant." (55); "Working with the assistant"(1).</p>
Physical adaptation	Adapt the eyes to the screen; hear the computer noises; adapt to the posture using mouse and keyboards.	<p>"Poor vision, found it difficult to see everything on the screen." (2)</p> <p>"Poor eyesight and small screen." (2)</p> <p>"Coordination with the hands and fingers" (4)</p>	--
Complexity of tasks	Perform simple tasks	<p>"Each new topic was difficult at first, but then proved to be understandable." (24)</p> <p>"It was a little bit difficult, but I was able to learn." (1)</p> <p>"Difficulties to switch to new topics" (4)</p> <p>"Concentration, understanding" (4)</p> <p>"Realize how much I had forgotten"(2)</p>	--
Cognitive domain	Remembering the content; assimilate the symbols.	<p>"Remembering all content that had already been covered." (6)</p> <p>"Remembering the images"(1)</p> <p>"To hear the sound of the video." (1)</p> <p>"To recognize the symbols" (1)</p>	<p>"Feeling positive about what I had remembered." (2)</p> <p>"Recapping previous lessons and the reinforcement of messages." (2)</p>

"To remember the explanation of the previous class."

(1)

Nothing or	"Nothing" (46)	"Nothing" (6)
Everything	"Everything" (5)	"Everything" (20)

In order to understand what would need to be modified and what was most enjoyable in the sessions for the participants, the speeches were analyzed and categorized, being presented in figure 1.

1

2



Class Design

More individual attention**Nothing**
 More practical class

My way of learning

Class duration

Class Content

Legend: 1. What was most enjoyable; 2. What to change.

Figure 2. Word cloud about "what was most enjoyable" and "what to change" about the sessions, mentioned by the participants.

3.3 Online

3.3.1 Impact of the program

To understand if the online approach was effective, the impact of the program on the 9 participants was studied, using the pre- and post-responses of the participants.

Table 5 Comparison for each item of pre- and post-intervention values (paired) for program participants in online format.

Q		Online				p
		P25	P25	P50	n	
1	I know the difference between digital media like laptop. desktop computer. tablet and smartphone. _ PRE	1.8	4.0	5.0	9	0.046
	I know the difference between digital media like laptop. desktop computer. tablet and smartphone. _ POS	3.8	5.0	5.0	9	
2	I know what is the screen. keys the layout of letters on the keyboard and function keys (important Enter. Delete. Shift. Backspace. Spacebar). _ PRE	1.0	4.0	5.0	9	0.102
	I know what is the screen. keys the layout of letters on the keyboard and function keys (important Enter. Delete. Shift. Backspace. Spacebar). _ POS	4.0	5.0	5.0	9	
3	I know what is e-learning. or interactive learning through the Internet. _ PRE	1.0	3.0	4.0	9	0.131
	I know what is e-learning. or interactive learning through the Internet. _ POS	3.0	4.5	5.0	9	
4	I am able to switch on/off all medias (laptop. desktop computer. tablet and smartphone). _ PRE	1.8	4.0	5.0	9	0.046
	I am able to switch on/off all medias (laptop. desktop computer. tablet and smartphone). _ POS	4.0	5.0	5.0	9	
5	I am able to use the mouse. double click. right-left button. scrolling. and sliding. _ PRE	3.0	4.0	5.0	9	0.317
	I am able to use the mouse. double click. right-left button. scrolling. and sliding. _ POS	4.0	4.5	5.0	9	
6	I am able to find on the keyboard the basic function keys like Enter. Delete. Shift. Backspace. Spacebar. _ PRE	1.8	4.0	5.0	9	0.046
	I am able to find on the keyboard the basic function keys like Enter. Delete. Shift. Backspace. Spacebar. _ POS	4.0	5.0	5.0	9	
7	I am aware of basic principles of safe use of digital media at the level of switching on and checking security (programs. security applications - icons). _ PRE	2.0	3.0	3.0	9	0.008
	I am aware of basic principles of safe use of digital media at the level of switching on and checking security (programs. security applications - icons). _ POS	3.0	4.0	5.0	9	
8	I am aware of possibilities and consequences of sharing information about myself. _ PRE	3.0	4.0	4.0	9	0.034
	I am aware of possibilities and consequences of sharing information about myself. _ POS	3.0	5.0	5.0	9	
9	I know what browsers are for. how to identify it (icons). their basic differences and usefulness regarding to the purpose. _ PRE	1.0	3.0	4.0	9	0.380
	I know what browsers are for. how to identify it (icons). their basic differences and usefulness regarding to the purpose. _ POS	4.0	3.5	4.0	9	
10	I know how to identify secure websites and advertising pages. _ PRE	1.0	3.0	3.0	9	0.027
	I know how to identify secure websites and advertising pages. _ POS	3.0	4.0	5.0	9	
11	I am able to use the browser by myself - choose and connect to/disconnect from the Internet. _ PRE	1.0	4.0	5.0	9	1.000

	I am able to use the browser by myself - choose and connect to/disconnect from the Internet. _ POS	3.8	4.0	5.0	9	
12	I am able to open the secure side. search for information and open it. _ PRE	1.0	3.0	4.0	9	0.059
	I am able to open the secure side. search for information and open it. _ POS	3.0	4.0	5.0	9	
13	I know how to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ PRE	1.0	3.5	4.0	9	0.414
	I know how to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ POS	3.0	3.5	4.0	9	
14	I am able to create. make an account. login. read and send an email. _ PRE	1.0	2.5	4.0	9	0.102
	I am able to create. make an account. login. read and send an email. _ POS	2.0	3.5	5.0	9	
15	I am aware of consequences of safe/dangerous use of search engines and websites. _ PRE	1.0	3.0	4.0	9	0.008
	I am aware of consequences of safe/dangerous use of search engines and websites. _ POS	3.0	4.5	5.0	9	
16	I am aware of consequences of opening advertising pages. _ PRE	1.0	3.5	4.0	9	0.007
	I am aware of consequences of opening advertising pages. _ POS	3.0	5.0	5.0	9	
17	I know how to create an account on a social network. _ PRE	1.0	2.0	4.0	9	0.024
	I know how to create an account on a social network. _ POS	2.0	3.5	5.0	9	
18	I know which benefits I can take from being part of a social network. _ PRE	1.0	3.5	4.0	9	0.034
	I know which benefits I can take from being part of a social network. _ POS	3.0	4.5	5.0	9	
19	I know how to share my localization using my cellphone. _ PRE	1.0	2.0	3.0	9	0.054
	I know how to share my localization using my cellphone. _ POS	3.0	2.5	4.0	9	
20	I am able to scroll the web page - different ways (keyboard. roller mouse. touchpad. sliders. arrows. etc) _ PRE	1.0	4.0	4.0	9	0.014
	I am able to scroll the web page - different ways (keyboard. roller mouse. touchpad. sliders. arrows. etc) _ POS	3.8	5.0	5.0	9	
21	I am able to add friends to the social network. _ PRE	1.0	4.0	4.0	9	0.020
	I am able to add friends to the social network. _ POS	2.0	5.0	5.0	9	
22	I am able to use skype and WhatsApp. _ PRE	1.0	4.0	4.0	9	0.014
	I am able to use skype and WhatsApp. _ POS	2.0	5.0	5.0	9	
23	I am able to make video and phone calls using skype and WhatsApp. _ PRE	1.0	3.5	4.0	9	0.025
	I am able to make video and phone calls using skype and WhatsApp. _ POS	2.0	4.0	5.0	9	
24	I am aware of several social networks and their differences - interactive ways to create entries in Wikipedia (rules for creating an entry. checking. validating. data approval. publishing an entry). _ PRE	1.0	1.5	2.0	9	0.008
	I am aware of several social networks and their differences - interactive ways to create entries in Wikipedia (rules for creating an entry. checking. validating. data approval. publishing an entry). _ POS	3.0	3.0	3.0	9	
25	I know what keywords are. search terms. _ PRE	1.0	3.0	4.0	9	0.038
	I know what keywords are. search terms. _ POS	3.0	5.0	5.0	9	
26	I know what and why to "ask" the search engine. _ PRE	1.0	4.0	4.0	9	0.005
	I know what and why to "ask" the search engine. _ POS	3.0	5.0	5.0	9	
27	I am able to navigate using search engines. _ PRE	1.0	3.5	4.0	9	0.023

	I am able to navigate using search engines. _ POS	3.0	4.5	5.0	9	
28	I am able to identify the symbols. images and buttons. _ PRE	1.0	3.0	4.0	9	0.020
	I am able to identify the symbols. images and buttons. _ POS	3.0	4.0	5.0	9	
29	I am able to search for information and open it. _ PRE	1.0	4.0	4.0	9	0.025
	I am able to search for information and open it. _ POS	3.8	5.0	5.0	9	
30	I am able to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ PRE	1.0	3.5	4.0	9	0.025
	I am able to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow. _ POS	3.0	4.0	4.0	9	
31	I am aware of consequences of building knowledge about reality only based on one source on the Internet – one information portal (comparison of content). _ PRE	1.0	3.0	3.0	9	0.024
	I am aware of consequences of building knowledge about reality only based on one source on the Internet – one information portal (comparison of content). _ POS	3.0	4.0	5.0	9	
32	I know how to distinguish information from advertising. text information from photo gallery or video account. _ PRE	1.0	2.5	4.0	9	0.084
	I know how to distinguish information from advertising. text information from photo gallery or video account. _ POS	3.8	3.5	4.0	9	
33	I know how to identify potential online threats. _ PRE	1.0	2.5	3.0	9	0.020
	I know how to identify potential online threats. _ POS	2.0	4.0	4.0	9	
34	I know how to create a secure password. _ PRE	1.0	2.0	4.0	9	0.047
	I know how to create a secure password. _ POS	3.0	4.0	5.0	9	
35	I know how to identify a secure website to make payments. _ PRE	1.0	3.5	4.0	9	0.020
	I know how to identify a secure website to make payments. _ POS	2.8	4.0	5.0	9	
36	I know how to identify a trick or scam. _ PRE	1.0	3.0	3.0	9	0.016
	I know how to identify a trick or scam. _ POS	3.0	4.0	5.0	9	
37	I am able to verify the credibility of the websites. _ PRE	1.0	2.5	3.0	9	0.006
	I am able to verify the credibility of the websites. _ POS	2.8	4.0	5.0	9	
38	I am able to identify where I can use personal information and which information I can share. _ PRE	1.0	3.0	3.0	9	0.010
	I am able to identify where I can use personal information and which information I can share. _ POS	3.0	4.5	5.0	9	
39	I am able to avoid insecure websites. _ PRE	1.0	2.5	3.0	9	0.016
	I am able to avoid insecure websites. _ POS	3.0	4.0	5.0	9	
40	I am able to download and keep my documents. _ PRE	1.0	4.0	4.0	9	0.014
	I am able to download and keep my documents. _ POS	2.0	4.5	5.0	9	
41	I know how to use antivirus tools and avoid potential virus contamination. _ PRE	1.0	2.0	3.0	9	0.030
	I know how to use antivirus tools and avoid potential virus contamination. _ POS	2.0	3.5	4.0	9	
42	I am aware of consequences of submitting my personal data during registration. _ PRE	1.0	3.0	4.0	9	0.009
	I am aware of consequences of submitting my personal data during registration. _ POS	3.0	4.5	5.0	9	

43	I know what e-learning is and how to use it to develop and improve my own skills. _ PRE	1.0	3.5	4.0	9	0.059
	I know what e-learning is and how to use it to develop and improve my own skills. _ POS	3.0	4.0	5.0	9	
44	I know what the YouTube service is and how to use it. _ PRE	1.0	3.0	4.0	9	0.131
	I know what the YouTube service is and how to use it. _ POS	3.0	4.0	5.0	9	
45	I am able to search videos on selected topics. listen to or play a song on YouTube. _ PRE	1.0	2.5	4.0	9	0.039
	I am able to search videos on selected topics. listen to or play a song on YouTube. _ POS	3.0	4.0	5.0	9	
46	I am able to use the tools in the movie window: volume. full screen. stop and start from the selected sequence. _ PRE	1.0	3.5	4.0	9	0.096
	I am able to use the tools in the movie window: volume. full screen. stop and start from the selected sequence. _ POS	3.0	4.0	5.0	9	
47	I am motivated to continually develop and update my skills and competences. _ PRE	2.8	3.5	4.0	9	0.257
	I am motivated to continually develop and update my skills and competences. _ POS	4.0	4.0	5.0	9	
48	I am aware of thematic diversity and differences in the level of content posted. _ PRE	2.8	2.0	3.0	9	0.037
	I am aware of thematic diversity and differences in the level of content posted. _ POS	3.0	3.5	4.0	9	
49	I am aware of the existence of copyright regarding content posted on websites. _ PRE	2.0	2.0	3.0	9	0.009
	I am aware of the existence of copyright regarding content posted on websites. _ POS	3.0	4.0	4.0	9	

Wilcoxon Test; P25 – percentile 25; P50 – percentile 50 or median; P75 – percentile 75; 1 – Strongly disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 – Strongly agree

In the online format, the course proved to be effective in improving the skills evaluated in 35 (71.4%) questions (1, 4, 6, 7, 8, 10, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 45, 48, 49) vs. (questions 2, 3, 5, 9, 11, 12, 13, 14, 19, 32, 43, 44, 46, 47). Dividing the questions by the 4 identified domains (attached), the online program proved to be effective in improving: 14 out of 23 (61%) information and data literacy skills, 5 out of 9 (56%) communication and collaboration skills, all 14 skills (93%) in safety and all 2 skills in digital content creation. There was no significant change in the question on motivation (question 47).

3.4 Pilot evaluation of the Platform

3.4.1 Satisfaction about the platform

There was a total of 44 participants in this survey, 8 from the United Kingdom, 14 from Poland, 12 from Latvia and 10 from Portugal. The questionnaire had a total of 15 questions, consisting of 5

open responses and 10 closed responses. In order, to answer the questionnaire all the participants had to access and use the platform and learning tools. The link to the respective questionnaire/survey <https://forms.gle/zK3KN7xDW8QSFPzB6>.

Table 6 Comparison of data about satisfaction with the website from the 4 countries

Question	Answer	Country				
		England N (%)	Portugal N (%)	Latvia N (%)	Poland N (%)	
1	How much experience do you have taking on-line training courses?	Many		2 (20)	1 (8.3)	4 (30.8)
	Reasonable	2 (25)	7 (70)	3 (25)	1 (7.7)	
	Few	3 (37.5)	1 (10)	2 (16.7)	2 (15.4)	
	None	3 (37.5)		6 (50)	6 (46.2)	
2	What were your ICT skills before testing this course?	Very good			5 (41.7)	
	Good	4 (50)	4 (40)	3 (25)	4 (30.8)	
	Fair	2 (25)	6 (60)	2 (16.7)	5 (38.5)	
	Basic	2 (25)		2 (16.7)	4 (30.8)	
3.1	It was easy to find my way through the Learning Topic Basics	Strongly agree	2 (25)	2 (20)	3 (25)	
		Agree	5 (62.5)	5 (50)	3 (25)	5 (38.5)
		Neither agree nor disagree	1 (12.5)	2 (20)	5 (41.7)	
		Disagree		1 (10)	1 (8.3)	5 (38.5)
		Strongly Disagree				3 (23.1)
		No opinion				
3.2	I like the way this Learning Topic was designed	Strongly agree	2 (25)	2 (20)	2 (16.7)	
		Agree	5 (62.5)	8 (80)	5 (41.7)	7 (53.8)
		Neither agree nor disagree	1 (12.5)		2 (16.7)	2 (15.4)
		Disagree			3 (25)	2 (15.4)
		Strongly Disagree				1 (7.7)
		No opinion				1 (7.7)
4	The Learning Topic kept my attention	Strongly agree	3 (37.5)	2 (20)	2 (16.7)	5 (38.5)
		Agree	5 (62.5)	8 (80)	8 (66.7)	6 (46.2)
		Neither agree nor disagree			2 (16.7)	
		Disagree				1 (7.7)
		Strongly Disagree				
		No opinion				1 (7.7)
5		Strongly agree	3 (37.5)	2 (20)	6 (50)	4 (30.8)

		Agree	4 (50)	8 (80)	6 (50)	5 (38.5)
		Neither agree nor disagree	1 (12.5)			1 (7.7)
		Disagree				
		Strongly Disagree				2 (15.4)
		No opinion				1 (7.7)
	The content made sense for me					
		Strongly agree	4 (50)	1 (10)	4 (33.3)	1 (7.7)
		Agree	3 (37.5)	8 (80)	4 (33.3)	5 (38.5)
		Neither agree nor disagree		1 (10)	3 (25)	1 (7.7)
		Disagree			1 (8.3)	3 (23.1)
		Strongly Disagree				
		No opinion	1 (12.5)			3 (23.1)
6	The interactive elements of the Learning Topic were effective					
		Strongly agree	1 (12.5)	4 (40)	5 (41.7)	1 (7.7)
		Agree	4 (50)	6 (60)	6 (50)	5 (38.5)
		Neither agree nor disagree	1 (12.5)		1 (8.3)	1 (7.7)
		Disagree				2 (15.4)
		Strongly Disagree				1 (7.7)
		No opinion	2 (25)			3 (23.1)
7	The use of mixed media (graphics, animation, audio, and video) was effective?					
		Strongly agree			2 (16.7)	5 (38.5)
		Agree			1 (8.3)	3 (23.1)
		Neither agree nor disagree		1 (10)	4 (33.3)	2 (15.4)
		Disagree	4 (50)	2 (20)	3 (25)	2 (15.4)
		Strongly Disagree	3 (37.5)	7 (70)	1 (8.3)	1 (7.7)
		No opinion	1 (12.5)		1 (8.3)	
8	I got lost in this Learning Topic					
		Content		4 (50)	6 (66.7)	3 (27.3)
		Didactics	8 (100)	4 (50)	2 (33.3)	8 (72.7)
		No	5 (100)	7 (77.8)		2 (16.7)
		Too much complicated		1 (11.1)	4 (57.1)	7 (58.3)
		Inconsistency		1 (11.1)	3 (42.9)	3 (25)
	Did anything about the way the Learning Topic was structured confused or frustrated you? If yes, please describe it.					
		No	5 (100)	4 (66.7)		2 (18.2)
		Expand topics				2 (18.2)
		Less steps within the site		1 (16.7)		2 (18.2)
		Unclear terminology		1 (16.7)		5 (45.4)
11	Is there anything about the Learning Topic Basics that you would change to improve it?					
		0-29 minutes		7 (70)	4 (66.6)	
12						

	How much time did you spent taking the Learning Topic?	30-59 minutes		3 (30)	1 (16.7)	9 (75)	
		1-4 hours			1 (16.7)	3 (25)	
		4-6 hours	2 (33.3)				
		6-9 hours	4 (66.7)				
13	Do you like having printable short guides? Do they have adequate information?	Strongly agree	1 (12.5)	6 (60)	4 (33.3)		
		Agree	2 (25)	4 (40)	2 (16.7)		
		Neither agree nor disagree	1 (12.5)		4 (33.3)	1 (7.7)	
		Disagree			1 (8.3)	1 (7.7)	
		Strongly Disagree			1 (8.3)	1 (7.7)	
		No opinion	4 (50)			6 (69.2)	
14	Do you like the videos?	Strongly agree	1 (14.3)	5 (50)	2 (16.7)		
		Agree	1 (14.3)	5 (50)	7 (58.3)	4 (30.8)	
		Neither agree nor disagree	1 (14.3)		2 (16.7)	2 (15.4)	
		Disagree			1 (8.3)	3 (23.1)	
		Strongly Disagree			2 (16.7)		
		No opinion	4 (57.1)			4 (30.8)	
15	What would you change in the videos?	Nothing	3 (100)	3 (60)		6 (60)	
		Uniformize languages		1 (20)	2 (50)		
		Videos not working					1 (10)
		Better explanations					3 (30)
		Decrease video pace				2 (50)	
		Explain how to do a print screen			1 (20)		

The results show that the majority of participants from different countries had little or no experience in online courses, with the exception of Portugal, where the participants reasonably claimed to have some experience. Most participants declare to have facility to find their way through the Learning Topic Basics, with the exception of participants from Poland who revealed difficulties in the process. Most of the participants declared that they enjoyed how the website was designed and that the content made sense to them, as well as the learning topic kept their attention. Once participants declared not being confused or frustrated by how Learning Topic was structured and would not change anything about the videos and contents, the results show satisfaction with the content and design of the website.

4. Conclusion

The programmatic content of the courses proved to be effective in improving the skills of its participants: in the peer-to-peer and intergenerational formats, the course proved to be effective in improving the skills assessed in 45 (91.8%) questions, while in the format online, the course proved to be effective in improving the skills assessed in 35 (71.4%) questions.

Peer-to-peer and intergenerational courses were more effective in improving information and data literacy and communication and collaboration skills (100% effective in both domains, compared to 61% and 56% effective in online courses). The online course was more effective in improving safety skills (100% effectiveness compared to 93% in peer-to-peer and intergenerational courses) and was the only one capable of improving digital content creation skills. None of the formats was effective in improving participants' motivation.

Comparing the peer-to-peer and intergenerational courses, no significant changes were found in improving skills.

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Annex

Table 5 Division of issues by domains of *Digital competence framework for citizens*.

Q	Question	Dimension
47	I am motivated to continually develop and update my skills and competences.	ND
1	I know the difference between digital media like laptop, desktop computer, tablet and smartphone.	I&DL
2	I know what is the screen, keys, the layout of letters on the keyboard and function keys (important Enter. Delete. Shift. Backspace. Spacebar).	I&DL
4	I am able to switch on/off all medias (laptop. desktop computer. tablet and smartphone).	I&DL
5	I am able to use the mouse. double click. right-left button. scrolling. and sliding.	I&DL
6	I am able to find on the keyboard the basic function keys like Enter. Delete. Shift. Backspace. Spacebar.	I&DL
9	I know what browsers are for. how to identify it (icons). their basic differences and usefulness regarding to the purpose.	I&DL
11	I am able to use the browser by myself - choose and connect to/disconnect from the Internet.	I&DL
12	I am able to open the secure side. search for information and open it.	I&DL
13	I know how to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow.	I&DL
18	I know which benefits I can take from being part of a social network.	I&DL
20	I am able to scroll the web page - different ways (keyboard. roller mouse. touchpad. sliders. arrows. etc)	I&DL
25	I know what keywords are. search terms.	I&DL
26	I know what and why to "ask" the search engine.	I&DL
27	I am able to navigate using search engines.	I&DL
28	I am able to identify the symbols. images and buttons.	I&DL
29	I am able to search for information and open it.	I&DL
30	I am able to use the search toolbar: a new window. a new tab. adding bookmarks to pages you want to follow.	I&DL
31	I am aware of consequences of building knowledge about reality only based on one source on the Internet – one information portal (comparison of content).	I&DL
32	I know how to distinguish information from advertising. text information from photo gallery or video account.	I&DL
40	I am able to download and keep my documents.	I&DL
44	I know what the YouTube service is and how to use it.	I&DL
45	I am able to search videos on selected topics. listen to or play a song on YouTube.	I&DL
46	I am able to use the tools in the movie window: volume. full screen. stop and start from the selected sequence.	I&DL
3	I know what is e-learning. or interactive learning through the Internet.	C&C
14	I am able to create. make an account. login. read and send an email.	C&C
17	I know how to create an account on a social network.	C&C

19	I know how to share my localization using my cellphone.	C&C
21	I am able to add friends to the social network.	C&C
22	I am able to use skype and WhatsApp.	C&C
23	I am able to make video and phone calls using skype and WhatsApp.	C&C
24	I am aware of several social networks and their differences - interactive ways to create entries in Wikipedia (rules for creating an entry. checking. validating. data approval. publishing an entry).	C&C
43	I know what e-learning is and how to use it to develop and improve my own skills.	C&C
48	I am aware of thematic diversity and differences in the level of content posted.	DCC
49	I am aware of the existence of copyright regarding content posted on websites.	DCC
7	I am aware of basic principles of safe use of digital media at the level of switching on and checking security (programs. security applications - icons).	S
8	I am aware of possibilities and consequences of sharing information about myself.	S
10	I know how to identify secure websites and advertising pages.	S
15	I am aware of consequences of safe/dangerous use of search engines and websites.	S
16	I am aware of consequences of opening advertising pages.	S
33	I know how to identify potential online threats.	S
34	I know how to create a secure password.	S
35	I know how to identify a secure website to make payments.	S
36	I know how to identify a trick or scam.	S
37	I am able to verify the credibility of the websites.	S
38	I am able to identify where I can use personal information and which information I can share.	S
39	I am able to avoid insecure websites.	S
41	I know how to use antivirus tools and avoid potential virus contamination.	S
42	I am aware of consequences of submitting my personal data during registration.	S

ND- non defined; I&DL – information and data literacy; C&C – communication and collaboration; DCC – digital content creation; S – safety



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