TRIO

Adult education on digital, health and data literacy for citizen empowerment

DUTCH
CO-CREATION WORKSHOPS
SUMMARY

Co-funded by the European Union

Summary

The TRIO project aims to provide adult education in digital, health and data literacy for the empowerment of citizens. A digital learning platform will be created that will ensure adaptation to the changing needs of users, technology, and context. Therefore, it is necessary to understand individuals in context, which led us to the approach of co-creation workshops.

The co-creation workshops were research sessions designed to identify the main difficulties in accessing wellbeing and health-related information via the internet. The TRIO project provides online activities with the use of games as a playful way of learning. One of the aims was to identify the games that each of the target groups of the project (18-35 years; 36-50 years and 51+ years) prefer to use for learning. The sessions were carried out in a relaxed atmosphere with groups of people of the same age and without the use of computers. The sessions took place in 5 different European countries: Portugal, Spain, Netherlands, Germany, and Romania, in February/March.

Figure 1 – Activity 1: Warm up - 2 truths and 1 lie (group 36-50).

How the workshops were held in the Netherlands

The co-creation workshops carried out with the target groups in the Netherlands involved 10 people, 6 women and 4 men, representing the TRIO age groups. All groups had 3 participants, apart from the 51+ group, which had 4 participants. The workshops were lead by employees of AFEdemy in February 2023. The workshop for the 18-35 age group was held in Leiden, and the other two workshops in Gouda. Information about the workshop was shared beforehand by email and consent forms were provided and signed on location. The event lasted about 2 hours and all participants showed interest in being involved in the project.

The workshop started with an initial icebreaker game. Participants were asked to introduce themselves using “2 truths and 1 lie”. The others were then asked to determine which statement was a falsehood. This activity created an informal atmosphere and allowed the participants to get to know each other better.

Outcomes of the co-creation workshop

In the next activity participants were asked to choose 6 cards and to sort them by difficulty level. These cards contained a goal and a practical description of that goal. The cards were grouped by the TRIO project themes: 1) Digital Literacy 2) Health Literacy 3) Data Literacy.

Figure 2 – Activity 2: What are my biggest difficulties regarding health content? Choose six and order them by difficulty (group 51+).

The following tables show the questions on the cards, with the objectives and the corresponding answers, ordered by difficulty (from 1 or most difficult to 6 or least difficult). The two rows highlighted in red and orange are the selected difficulties that were considered to be the most difficult for all age groups combined.

Table 1 presents the gathered data on digital literacy.

Table 1 - List of difficulties related to digital literacy and order of responses by age group.

DIGITAL LITERACY (Difficulties)	18-35	36-50	51+
a. Make use of your cell phone's reminder feature. Can I make use of my mobile phone's reminder function to notify me of medical appointments or exams?		4	
k. Make use of an app to track my health. Can I use an app to track my weight, blood pressure, and sugar levels?	4		2
l. Become familiar with information data with graphs. Do I understand health-related graphs, such as the one showing the transmission of Covid 19?	3	3	
m. Ability to access health information on the internet. If I lose the instructions for a medicine, can I go online and look for it?	6		1
p. Understand new types of health information, such as using 3D images of a body. Can I better understand my doctor when she/he shows me an organ in a 3D image?	2	1	5

s. Identify which digital health services are available. Are there different digital health services that are useful but I do not know them?		2	4
v. Ability to use the digital services that are available. Do I understand how to use digital health services that are available? (e.g., Insurance Health Application)	5	6	6
x. Ability to buy health products online. Can I identify if an online store is safe and legit?	1	5	3

For the topic of digital literacy, the chosen difficulties varied significantly per age group. Questions "**m. Ability to access health information on the internet"** and "**k. Make use of an app to track my health"** were experienced as most difficult for the 51+ group, but only moderately difficult for the 18-35 group, and not difficult at all for the 36-50 age group. Reversely, question "**l. Become familiar with information data with graphs"** was not perceived as difficult in the 51+ group, but both other age groups identified this card as the third most difficult option. Lastly, question "**s. Identify which digital health services are available"** was perceived as second most difficult in the 36-50 group, but received the fourth place in the 51+ group and was not chosen at all in the youngest age group.

Overall, the cards that gained the most consensus were: "**p. Understand new types of health information, such as using 3D images of a body.**" and "**x. Ability to buy health products online**".

Table 2 presents the gathered data on health literacy.

Table 2 - List of difficulties related to health literacy and order of responses by age group.

HEALTH LITERACY (Difficulties)	18-35	36-50	51+
g. Know how to look for more information. If I want more information about my health, do I know what to look for?	6	4	6
n. Ability to understand health information. Can I understand the instructions on a medication?		6	
q. Make use of the social media for getting health information. Can I use social media to find out health information?	5	3	2
r. Identify the best food choices. It is possible for me to identify which foods promote good health?	2	5	
t. Ability to use health information in real life. Can I adequately use the health information that I find on the internet?	3	2	5
u. Ability to read documents like diagnoses, blood tests etc. Is it possible for me to understand a medical diagnosis or results of a blood test, without a medical professional that explains it to me?	1	1	4
y. Make online health procedures. Can I handle a medical consultation online?	4		3
z. Using 24-hour health services. Can I find online a pharmacy that is open at night?			1

Again there is a significant variation in the chosen answers, especially between the 51+ group and the other participants. Question "**z. Using 24-hour health services**" was identified as the most difficult option for the 51+ group, while not chosen at all in the other two groups. At the same time, question "**r. Identify the best food choices**" was seen as second most difficult by the youngest group, but received a moderate rating in the 36-50 group and a low one in the 51+ group.

In general, the card that received the greatest consensus was "**u. Ability to read documents like diagnoses, blood tests etc**.", which was seen as the most difficult by the two youngest age groups. Questions "**q. Make use of the social media for getting health information**" and "**t. Ability to use health information in real life**" share second place.

Table 3 presents the gathered data on data literacy.

Table 3 - List of difficulties related to data literacy and order of responses by age group.

DATA LITERACY (Difficulties)	18-35	36-50	51+
b. Identify why it is important to accept or decline access to your private data in an app. In an app, can I understand what is important to accept or deny access to?	5		
c. The ability to access your own health data. It is possible for me to log in to an app and access my health information?			6
d. Identify why some health apps are more trustworthy than others. It is possible for me to tell whether one health app is more careful with my personal information than another?	2	1	1
e. Make sure your personal health record is protected. Do I know whether or not my personal health record can be accessed by others without my permission?	3	4	2
f. Decide with whom my personal health record will be shared. If I want, can I grant permission to anyone to access my health data, such as my doctor?		5	
h. Become familiar with saving data digitally. Can I organize my medical documents digitally (on my computer or cell phone)?			5
i. Understand important medical data. Can I understand the results of medical tests?	4	2	3
j. Identify what is important to accept/or not in medical documents. Can I read and sign a document accepting the use of my personal data, like General Data Protection Regulation?	6	6	
o. Identify the accuracy of health Information on the internet. Can I identify the reliability of health information on the Internet?	1	3	4

The differences were smaller for the topics on data literacy. Questions **b, c, f, h,** and **j** were identified as not very difficult, while questions "**e. Make sure your personal health record is protected**" and "**i. Understand important medical data**" received moderate to high difficulty ratings. Card "**d. Identify why some health apps are more trustworthy than others**" was almost unanimously chosen as the most difficult one, followed by "**o. Identify the accuracy of health Information on the internet**".

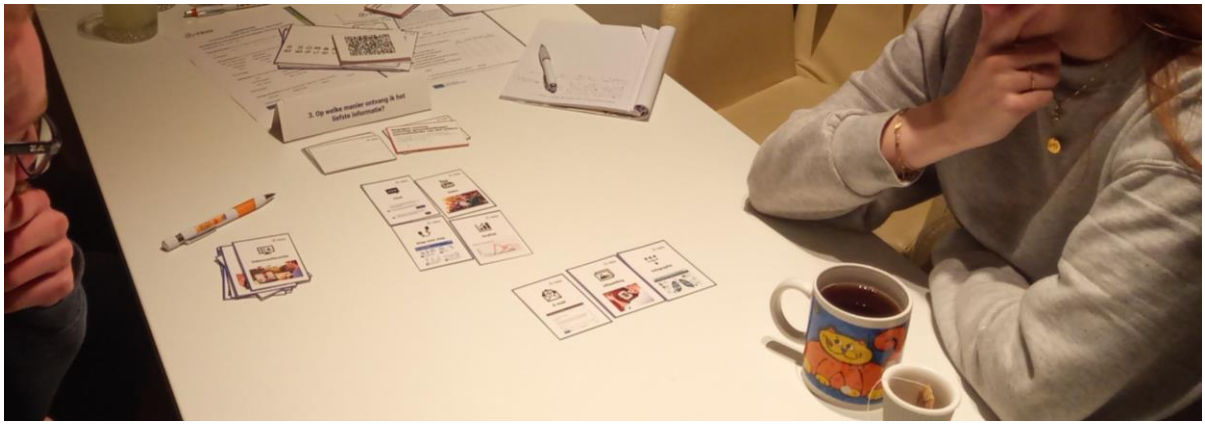

Figure 2 - Activity 3: How do I prefer to receive information? Choose 6 out of 14 cards with the types of media you prefer (group 18-35).

The third activity consisted of a set of cards with pictures of media sources . This activity was designed to determine what media types the participants preferred for receiving information about health. The 6 most preferred media are shown per age group in the table below.

Table 4 - List of the preferred media for the reception of health information.

Type of media (preferred)	18-35	36-50	51+
Step by step	X	X	X
Video conference		X	
Infographic		X	
Video	X		
Social media post			
Image	X		X
Augmented reality			
E-mail	X	X	X
Graphs	X		X
Chat	X	X	X
Podcast			
3D			
Newspaper			X
Text only		X	

The table shows that all age groups favour information through **email**, **chat**, or a **step-by-step guide**. Additionally both the youngest and oldest age groups prefer to receive information through an **image** or a **graph**, even though the 18-35 group had also chosen question "**l. Become familiar with information data with graphs**" as their third most difficult card. **Social media, Augmented Reality, Podcast,** and **3D** were not chosen by any of the age groups.

For the fourth activity, participants were asked to combine their preferred information sources with the two most difficult cards of each topic (digital, health, and data literacy). The results can be found in table 5.

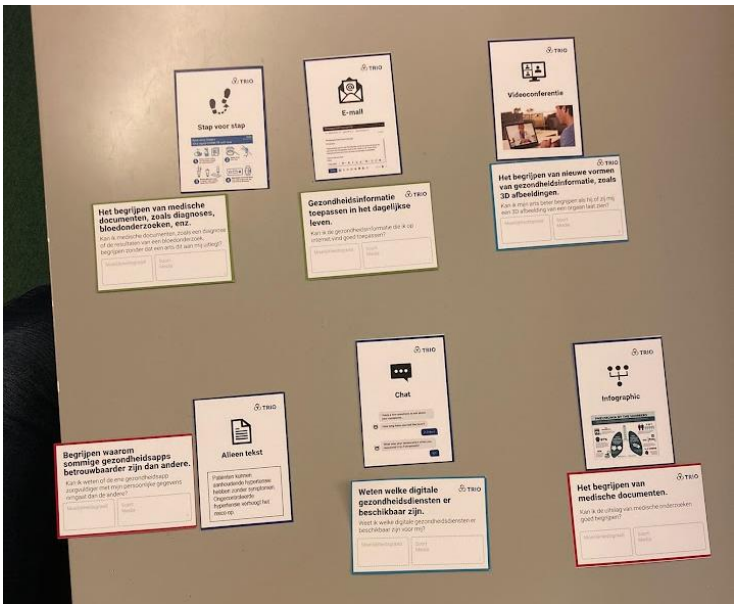

Figure 3 - Activity 4: How can I better understand health information? Match the 2 main difficulties with the preferred type of media.

In the last activity 9 different cards were presented with a blank space on the left side to place the difficulty card and a list of icons with types of media, as well as a space to write. The right side of the card shows a drawing of a mobile phone with different types of games. In total, 9 types of games were presented (see table 5).

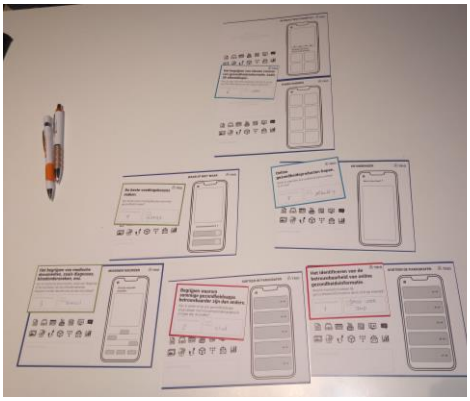

Figure 4 - Final workshop outcomes (group 18-35).

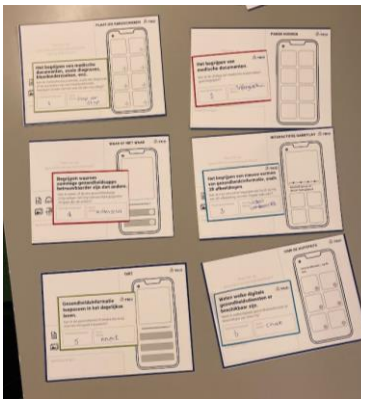

Figure 5 - Final workshop outcomes (group 36-50).

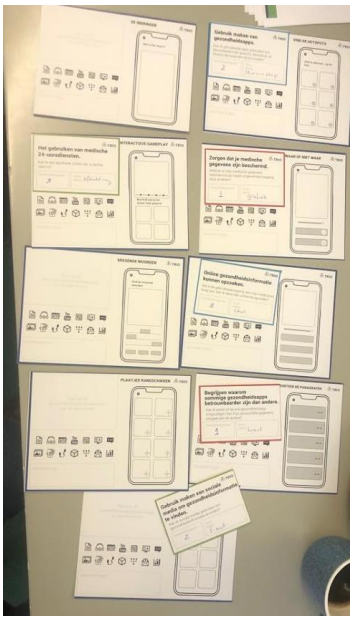

Figure 6 - Final workshop outcomes (group 51+).

This activity aimed to identify the types of games that participants would like to learn with. They were asked to choose the game they thought best suited for the six chosen cards and media types. Table 5 shows the gathered data per age group.

Table 5 - The results of the preferred media types and games for the most difficult digital literacy cards. N indicates the difficulty ranking for each age group.

DIGITAL LITERACY (Difficulties)	18-35			36-50			51+		
	N	MEDIA	GAME	N	MEDIA	GAME	N	MEDIA	GAME
k. Make use of an app to track my health.	4						2	Step by step	Find the hotspots
m. Ability to access health information on the internet.	6						1	Chat	Quiz
p. Understand new types of health information, such as using 3D images of a body.	2	Video	Interactive game progress	1	Video conference	Interactive game progress	5		
s. Identify which digital health services are available.				2	Chat	Find the hotspots	4		
x. Ability to buy health products online.	1	Image	The intruder	5			3		

The game **interactive game progress** was chosen by both the 18-35 and 36-50 groups for learning about **"understanding new types of health information, such as using 3D images of a body"**. Also the game **find the hotspots** was chosen twice, albeit for different topics ("**making use of an app to track your health"** and "**identifying which digital health services are available**"). The other chosen games are **the intruder** and **quiz**.

Table 6 - The results of the preferred media types and games for the most difficult health literacy cards. N indicates the difficulty ranking for each age group.

HEALTH LITERACY (Difficulties)	18-35			36-50			51+		
	N	MEDIA	GAME	N	MEDIA	GAME	N	MEDIA	GAME
q. Make use of the social media for getting health information.	5			3			2	E-mail	The intruder
r. Identify the best food choices.	2	Graph	True or false	5					
t. Ability to use health information in real life.	3			2	E-mail	Quiz	5		
u. Ability to read documents like diagnoses, blood tests, etc.	1	E-mail	Missing words	1	Step by step	Order the images	4		
z. Using 24 Hours health services.							1	Image	Interactive game progress

For the topic of health literacy there is no overlap in which games were chosen for which learning needs, although **the intruder**, **quiz** and **interactive game progress** are recurring choices from the previous topic (digital literacy). The other chosen games are **missing words**, **true or false** and **order the images**.

Table 7 - The results of the preferred media types and games for the most difficult data literacy cards. N indicates the difficulty ranking for each age group.

DATA LITERACY (Difficulties)	18-35			36-50			51+		
	N	MEDIA	GAME	N	MEDIA	GAME	N	MEDIA	GAME
d. Identify why some health apps are more trustworthy than others.	2	Chat	Sort the paragraphs	1	Text only	True or false	1	Newspaper	Sort the paragraphs
e. Make sure your personal health record is protected.	3			4			2	Graph	True or false
i. Understand important medical data.	4			2	Infographic	Image pairing	3		
o. Identify the accuracy of health Information on the internet.	1	Step by step	Sort the paragraphs	3			4		

For the topic of data literacy, both the youngest and the oldest age groups chose **sort the paragraphs** as their preferred game for learning about to "**identify why some health apps are more trustworthy than others**". The youngest age group also chose this game to "**identify the accuracy of health information on the internet**". Furthermore, the game **true or false** was chosen twice for the topic of data literacy (and already once for the topic of health literacy).

Overall, the games **interactive game progress**, **true or false** and **sort the paragraphs** were the most preferred games, all of which were chosen 3 times. No games were left out completely, but **missing words**, **order the images**, and **image pairing** were the least popular games.

Participants indicated that using games can benefit the learning process. It helps to keep attention, makes learning more fun, and creates diversity. It is therefore a good idea to vary the types of games used, as long as they are clear and practical.

The findings

In conclusion, the results showed that there was no homogeneity in the choices between the different groups. The youngest group indicated that many of the questions posed during activity 2 can be googled and therefore are not considered particularly difficult for them. The same was visible in the answers of the 36-50 age group. In the 51+ group on the other hand, participants relied more on their own knowledge and expertise. Evidently, this results in different difficulties. Topics that are both difficult to google and are not very well known, like online privacy, reliability of information, and personal medical data, are therefore exactly the areas were the most difficulties were perceived across all age groups.

The age gap was less reflected in the preferred information sources. There seemed to be a larger consensus as to which media types are more practical than others, including digital sources such as email and chat. More technologically advanced media types were less popular. During an individual evaluation most participants from the 18-35 and 36-50 age groups indicated to have the most difficulty with video conference, while participants from the 51+ group had more trouble with augmented reality. Of course there is great deal of personal preference involved as well, which was noticeable in the discussions between participants. Regardless of age, different people have different ways of learning and where one person may prefer infographics, the other will favour text.

Matching specific games to specific learning needs proved difficult. Participants indicated that choices were often ambiguous and could not be connected to specific games, because it depends on the exact topic and the way this is transferred through the game. The main point to take away from this is that the way an educational game is made is more important than which type of game is chosen. The visual aspect of games was stressed by participants as well; visualising information through a game may help in understanding it better and retaining it longer. Furthermore, participants from the 51+ group mentioned that digital technologies are often not adapted for older people, who can have poor eyesight, be hard of hearing, or have less motor control. In order to reach this peer group, both the learning platform and the games that are included should be adapted to their needs. A good educational game should therefore be inclusive, functionally well executed, and visually outstanding.

Overall, the Dutch participants were positive about the workshop and how it was set up. They felt that it helped them to reflect and discuss about topics that they otherwise never really thought about. The co-creation workshops proved to be a good way of getting to know citizens and understanding what the main difficulties are by project focus area and age group. It also allowed us to validate the games and understand their suitability. The results provided important conclusions for building the learning platform and identifying functional issues for future workshops.