ACDC

Adult Cognitive Decline Consciousness

2017-1-IT02-KA204-036825

INTELLECTUAL OUTPUT 3

Guideline on health literature basic contents for replication & institutionalization

ACDC project is funded with support from the European Commission. This research and its content reflect the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained there in.

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Index

I. Project synopsis

The ageing of the European population is a serious social and economical challenge that calls for action and innovative solutions at all levels.

In connection with ageing, cognitive decline is a phenomenon of growing numeric dimensions, which represents a severe burden for the European families and the healthcare systems. There is therefore a need to tackle this issue with a strategic perspective, oriented towards prevention and education: health literacy of EU citizens has to improve, and to this end, adequate modern and innovative training tools have to be conceived and deployed. Many health literacy actions have been taken, but often they turn out to be ineffective. Thus, it is opportune to create and test innovative and viable learning solutions able to stimulate the adults, and consolidate these learning paths through the opportune policy actions.

The objectives of the project can be then summarised as follows: 1) to empower the European adults by making them more informed about their health and how to age well, reducing the risk of cognitive decline 2) to validate an innovative form of strategic partnership designed to conceive and deliver the most proper health literacy training tools for better ageing and cognitive decline prevention 3) to set up and test an e-learning based edutainment tool for health literacy (through a gaming approach and structure) built around an innovative approach of edu-training embedding professional communication techniques 4) to test a viable approach for making the training and educational contents available to the widest possible audience of European citizens 5) to deliver the training contents to adults and – through them – to families, in order involve a richer learning environment and efficaciously stimulate it.

The partnership mobilised is tailored to achieve these ambitious objectives and to become a seminal project for prevention through modern health literacy training and, in general, active and healthy ageing. One expert training provider in the health sector with strong skills in e-learning (ACCMED); a relevant umbrella organisational for social issues (Diesis); an Austrian no profit organisation with strong communication competences (ECECE); an important training organisation with national dimension (IAL-Italy) as project leader, a strong public scientific partner as LA SAPIENZA University (Italy); two NGO (Austria and Greece) directly involved in adult education and training (in particular, the Austrian NGO is directly linked to the Ministry and it is managed at regional level).

ACDC activities can be summarized as follow: definition of a common and shared scientific Health Literature contents; the set up an e-learning based edutainment tool for health literacy built around an innovative approach of edu-training embedding professional communication techniques; experimental courses in all the involved partner regions/areas and the evaluation and possible refinement of the tools. At the end of the pilot phase, ACDC will get all the evidences for starting the conclusive analysis and, if necessary, refining the proper framework conditions for the project contents, tools and approaches.

From a methodological point of view, the project ensures the involvement of the users and a careful identification of the needs since the beginning of the project, keeping always the user/citizens at the heart of the project. Furthermore, an accurate and reliable scientific validation of contents delivered is assured by the high quality level oft he partner La Sapienza University. The expected impact of the project will be both direct and indirect and will influence participants' life and their future. In fact, ACDC will improve behavior and healthcare of participants, their families and, eventually, will reduce costs of supporting people with cognitive decline. In particular, with reference to the Participants, main impacts will be the empowerment of the citizens, both direct and indirect. The direct effect is based on what they will concretely learn, the indirect one is more difficult to measure and is related with the change of attitude ACDC wants to stimulate.

Intellectual Output 3 - Guideline on health literature basic contents for replication & institutionalization

ACDC sets up and validates an innovative approach to health literacy for a well-ageing conception and delivery, aiming at making it replicable to other EU contexts. The only way to deal with the phenomena relative to the ageing of population, and especially to cognitive decline, which is a tremendous burden for individuals, families and the socio-health system in general is to invest on training and prevention. ACDC does that through an innovative e-learning method, based on interaction with the user and designed to stimulate at different level the adult beneficiaries and their families (an edutainment tool being a sort of 'jam' between education and entertainment). In order to make this approach replicable, we need to structure the outputs of the project – coming from the different partners settings and pilot phase – into a common narrative description that takes into account the differences and at the same time is capable of identifying a shared path of practical use for other organisations and public authorities across Europe wishing to implement the same approach.

II. Background

Mild cognitive impairment (MCI) relates to cognitive decline from a previous level of functioning, both by subjective and objective evidence. Different clinical criteria can be applied to identify people with MCI and, according to the definition used, its prevalence estimates may vary from 5.0% to 36.7% and they increase with the population age.[1]

In broad terms, the level of cognitive decline associated with MCI is greater than expected for age, but not as severe as that associated with dementia, with minimal impairment of Instrumental Activities of Daily Living (IADL).[2]

MCI increases the risk for dementia, with diagnosed individuals progressing at rates up to 6-10% per year compared with 1-2% in the general population.[3]

The major MCI subtypes are amnestic (aMCI), involving episodic memory impairment (with or without impairment in other cognitive domains), and non-amnestic (na-MCI), involving impairment in cognitive domains other than memory (e.g. language, visuospatial processing, executive functions).

From a healthcare perspective, the higher prevalence of this age-related impairment in cognitive functions and the contemporary expanding aging population highlight the need to identify quick, effective and low-cost solutions to delay pathological cognitive decline.[4]

Successfully assisting older adults to possibly slow cognitive decline, maintaining quality of life and independence, remains indeed a major challenge.[5]

Since the relative pharmacological treatment ineffectiveness to face this problem,[6] there has been a growing interest in the potential for lifestyle interventions, such as appropriate mental activities, to improve or maintain the cognitive functions.

To this purpose, cognitive training is a specific form of non-pharmacological intervention to address cognitive and non-cognitive outcomes.[7] It involves guided practice on a set of standardized tasks that aim to address specific aspects of cognition, such as memory, language, attention or executive functions.

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[1] P. S. Sachdev et al., «The Prevalence of Mild Cognitive Impairment in Diverse Geographical and Ethnocultural Regions: The COSMIC Collaboration», PLoS ONE, vol. 10, n. 11, nov. 2015.
[2] R. C. Petersen et al., «Practice guideline update summary: Mild cognitive impairment: Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology», Neurology, vol. 90, n. 3, pagg. 126–135, gen. 2018.
[3] N. J. Gates et al., «Study of Mental Activity and Regular Training (SMART) in at risk individuals: A randomised double blind, sham controlled, longitudinal trial», BMC Geriatr., vol. 11, pag. 19, apr. 2011.
[4] A. M. Kueider, J. M. Parisi, A. L. Gross, e G. W. Rebok, «Computerized Cognitive Training with Older Adults: A Systematic Review», PLoS ONE, vol. 7, n. 7, pag. e40588, lug. 2012.
[5] D. E. Barnes et al., «Computer-based cognitive training for mild cognitive impairment: results from a pilot randomized, controlled trial», Alzheimer Dis. Assoc. Disord., vol. 23, n. 3, pagg. 205–210, set. 2009.
[6] R. C. Petersen et al. [*ibidem*]

Within the different tasks, varying difficulty levels may be offered to continuously adjust task difficulty based on the subjects performance.[8]

Traditional training programs are usually delivered in groups or face-to face, which entails identifying a convenient meeting location, coordinating schedules and travel time. To overcome these aspects, novel cognitive training platforms have been developed and structured recently and, in this context, computer-based cognitive interventions are becoming a potentially cost-effective alternative to traditional training forms.

Firstly, they can be easily disseminated, reaching special populations that would otherwise not receive such interventions (e.g. older adults who have limited access to transportation are difficult to recruit for traditional cognitive training programs); secondly, they can offer a more flexible, personalized approach to anyone with access to technology; thirdly, they can provide real-time performance feedbacks to all the users.

Lastly, poor adherence can be a challenge with traditional cognitive training programs. In contrast, computer and video games are designed to be fun and exciting and may provide motivation for older adults to stick with the training program.[9]

The research as implemented for the Intellectual Output 1, given the extensive body of data reporting whether older adults can benefit from cognitive training interventions, has been specifically focused on the effectiveness of computerized cognitive training in people with mild cognitive impairment to summarize the main available evidence on the topic.

INTELLECTUAL OUTPUT 1 CONCLUSIONS

Based on the results of 17 randomized controlled trials of moderate quality, CCT[10] is an effective intervention for enhancing cognition in people with mild cognitive impairment.

In particular, participants in CCT groups improved significantly over the intervention period, while controls did not show any cognitive change, as it was found in the global cognition domain. Most of the trials used (70%) used an active control condition, but the effects across active- and passive-controlled trials were comparable.

In addition, moderate effect sizes on most memory and learning domains were relevant.

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[7] A. Bahar-Fuchs, L. Clare, e B. Woods, «Cognitive training and cognitive rehabilitation for persons with mild to moderate dementia of the Alzheimer's or vascular type: a review», Alzheimers Res. Ther., vol. 5, n. 4, pag. 35, ago. 2013.

[8] L. Clare, «Cognitive training and cognitive rehabilitation for people with early-stage dementia», Rev. Clin. Gerontol., vol. 13, n. 01, feb. 2003.

[9] A. M. Kueider, J. M. Parisi, A. L. Gross, e G. W. Rebok, [*ibidem*]

[10] Computerized Cognitive Training

Also attention, defined as a behavioral and cognitive process of selectively concentrating on a discrete aspect of information while ignoring perceivable information, significantly benefited from the computer-based training.

On the other hand, CCT lacked of efficacy on executive functions but, since cognitive training gains typically reflect training content, this result may be due to insufficient training on executive processes (mainly fluid intelligence, inhibitory control and reasoning) within studies.

Surprisingly, the effects of CCT on speed and visuospatial processing were found to be statistically not significant even though CCT exercises are typically timed and involved visuospatial skills. Moreover, these domains were among the most responsive in other meta-analyses on healthy adults and patients with Parkinson disease.

Again, changing the training content and focusing specifically on processing speed and visuospatial may improve this result.

Depression is associated with mild cognitive impairment. Notably, psychological functioning (depression, quality of life and neuropsychiatric symptoms) showed a positive improvement after the CCT training and this suggests that CCT may also benefit general mood.

Reliable effects were not seen on Instrumental Activities of Daily Living (IADL) and language outcomes, but relatively few studies investigated these domains.

In conclusion, CCT is efficacious on global cognition, memory, working memory and attention and helps improve psychological functioning, including depressing symptoms, in people with mild cognitive impairment.

These results are robust and indicate a beneficial therapeutic role for CCT in this population and, since the many advantages that it offers, it should be considered as a cost-effective tool to prevent cognitive decline and to maintain quality of life and independence in older people.

III. The pilot phase

During the pilot phase, i.e. when the innovative edutainment tool has been tested with the involved of adult users, functional feedbacks have been collected according to a shared schema and model. At the same time, in connection and coordination with the dissemination activities framed for the project, the stakeholders and the policy level have been involved and informed about the ongoing results, stimulating a debate on the issue of e-learning for well-ageing and guiding it towards the creation of a common model.

"The ACDC project is realizing an ***edutainment*** (education and entertainment) tool for the dissemination of Health Literacy contents by capturing end-users' interest and attention in an innovative way, allowing having fun while learning. The games will give the opportunity to the users to check and to learn knowledges on cognitive decline prevention."[11]

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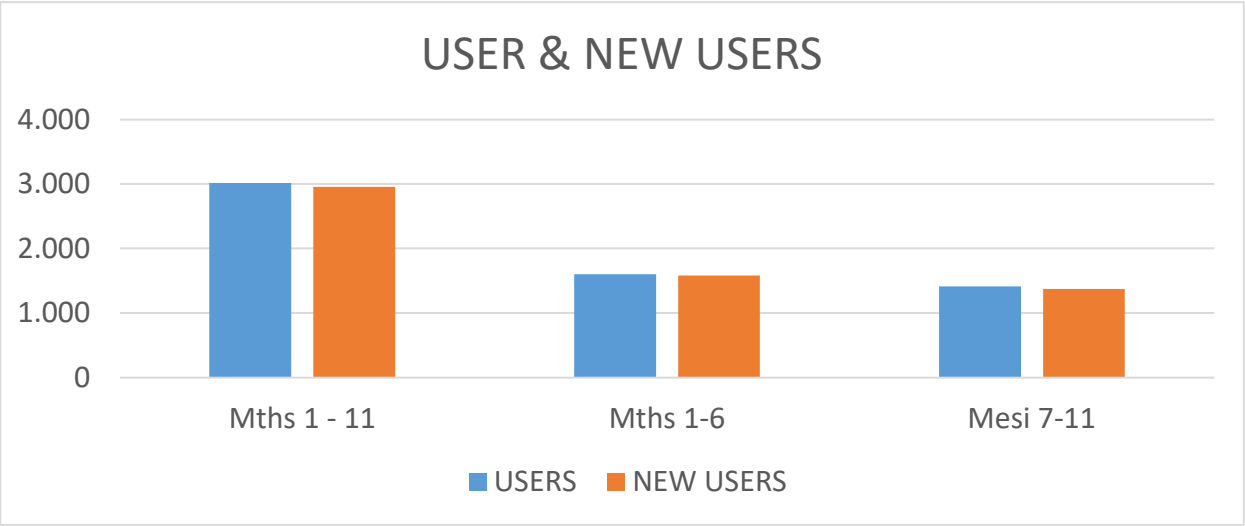
FEEDBACKS FROM THE PILOT ACTION ON A TECHNOLOGICAL / OPERATIVE POINT OF VIEW

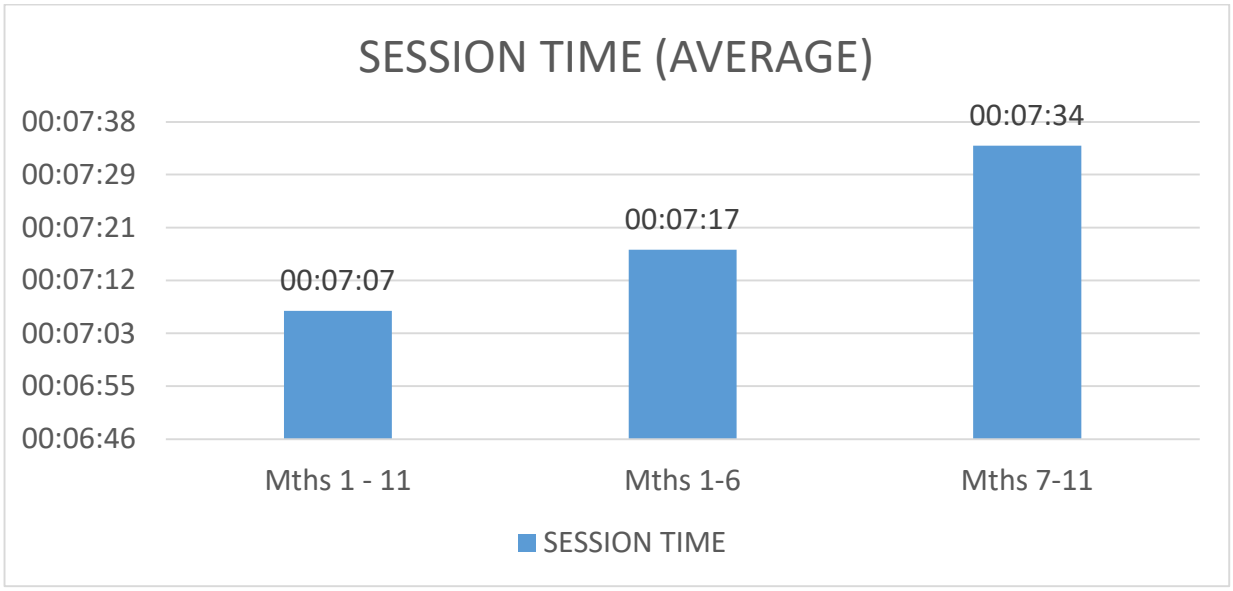
DATA ANALISYS

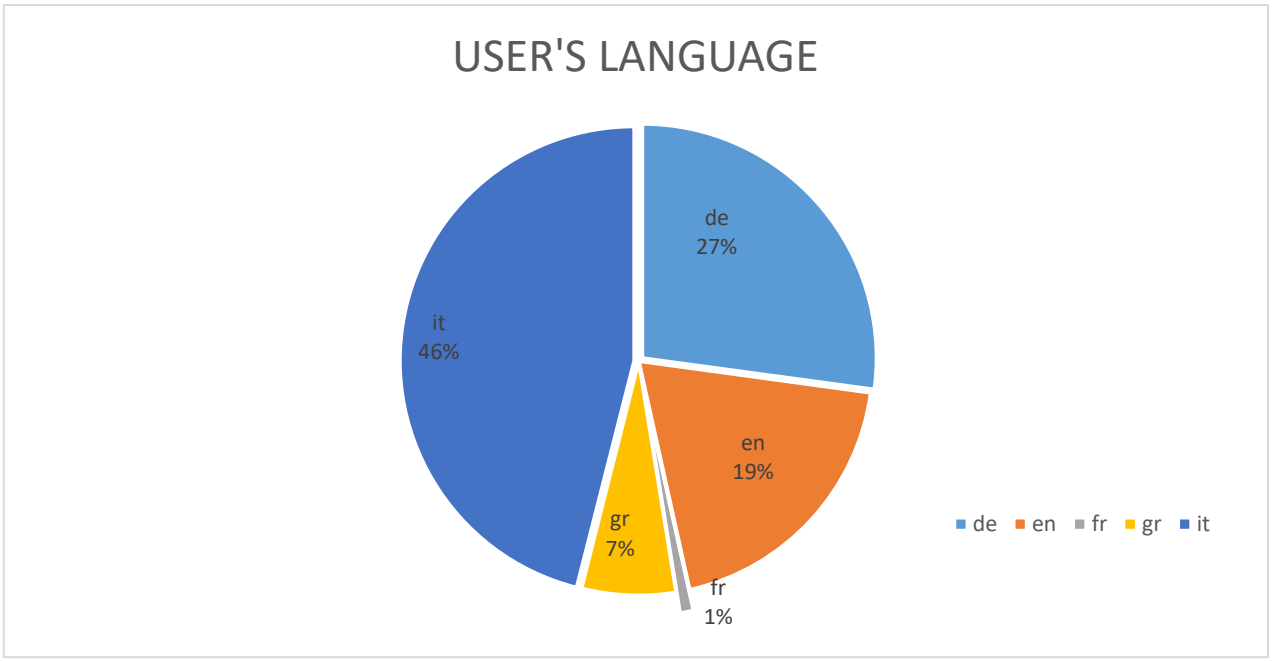
The following tables resume data about users' behaviors on the web application.

PERIOD	USERS	NEW USERS	SESSIONS	SESSIONS TIME (AVERAGE)	
Mths 1 - 11	3.012	2.956	5.394	07:25	15/07/2019 - 14/06/2020
Mths 1-6	1.599	1.582	2.753	07:17	15/07/2019 - 14/01/2020
Mths 7-11	1.413	1.374	2.641	07:34	15/01/2020 - 14/06/2020

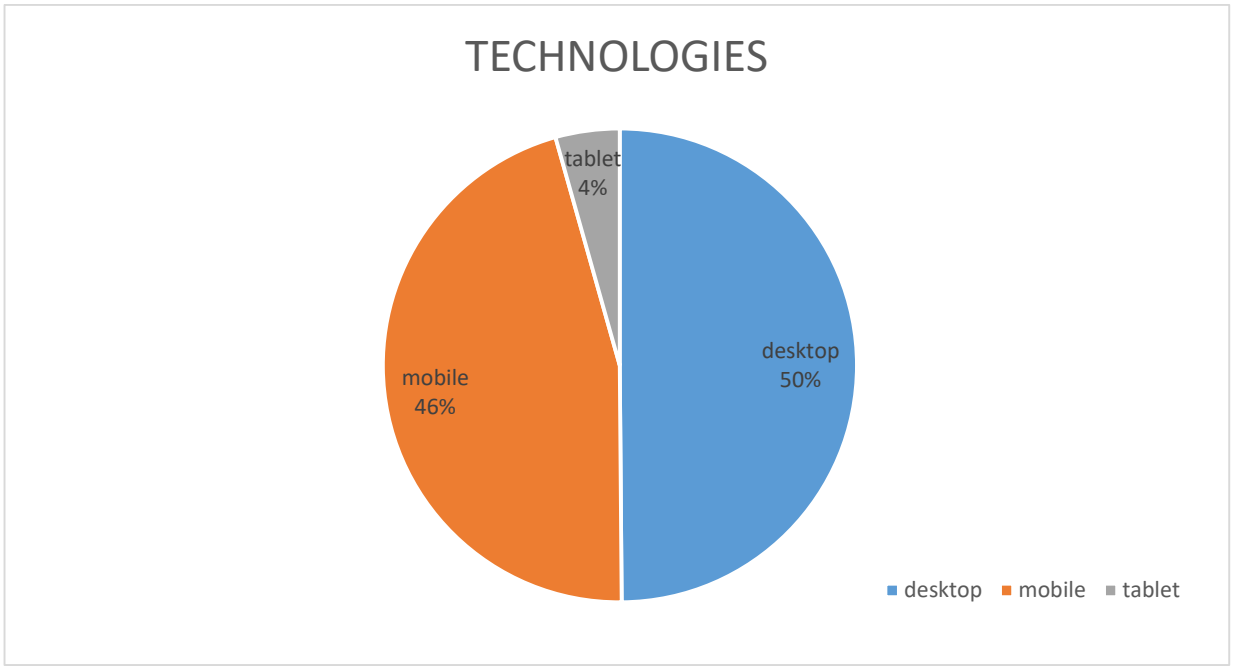


[11] From the landing page presenting the New Edutainment training module (*the games*) on the ACDC platform https://www.acdcproject.eu/en/new-edutainment-training-module





It should be noted that at the start of the pilot phase the translation into the "Greek" language required several verification cycles, slowing down the experimentation phase and leading to a lower use of the "Greek" population.



It is noted that the use of the ACDC platform is equally distributed between desktops and smartphones. During the period under observation, there was a low use of the platform on tablets.

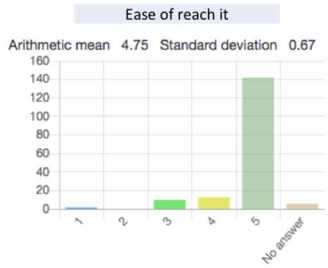
The most used operating system is Google CHROME (43%) followed by SAFARI (16%) and FIREFOX (9%).

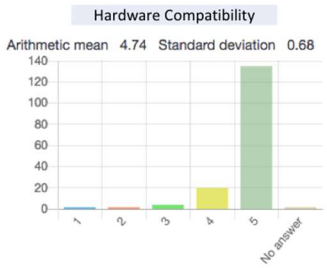
QUALITY ASSESSMENT

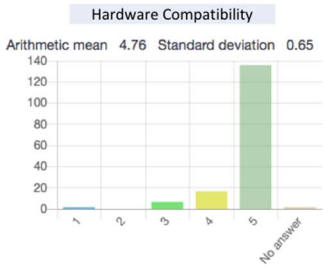
In order to assess the goodness and compatibility of the ACDC platform, an anonymous questionnaire was proposed to users. These are the detailed figures of the process:

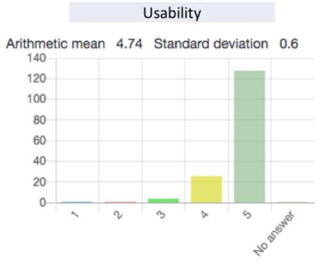
- Questionnaires sent: 369
- Complete answers: 159
- Partial answers: 210

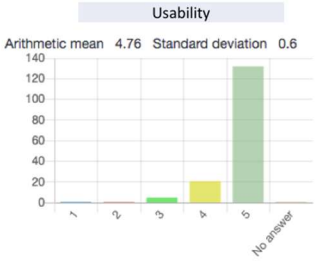
From the analysis of the closed questions, no critical issues were highlighted (notes: 1 = not at all, 5 = very much)

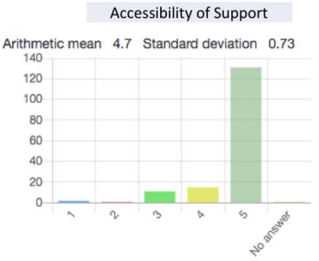


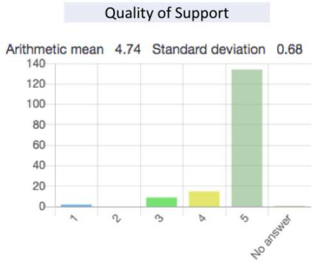


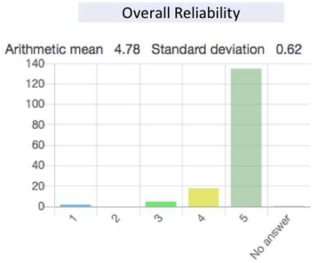


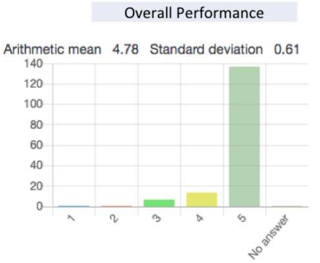












The survey included also the following "open" questions:

- **Have you any suggestion on how to improve the site in the future?**
- **Do you have you any other comment?**

All in total few significant comments were made, one relating to the Greek translation for which various errors were reported, one to the difficulty of playing on small screens (and therefore with the need to use the scrollbar) and improvements were suggested to the game "DITLOIDS".

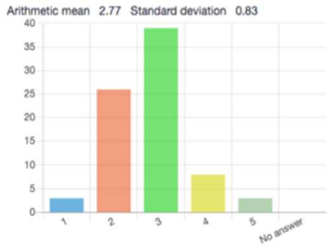
A greater number of games are also requested and the game term information pills are appreciated.

CUSTOMER SADISFACTION

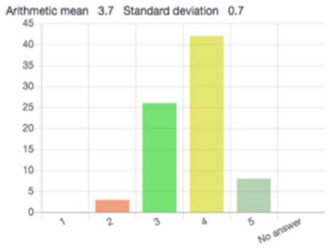
All participants were also asked to fill in a satisfaction and satisfaction questionnaire about the games and the quality of the content they convey. Here the complete figures:

- Questionnaires sent: 79
- Complete answers: 79

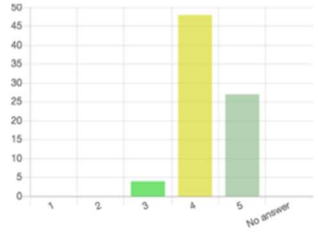
Interest in the topic before the participation to this course



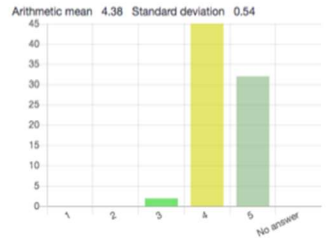
Interest in the topic after the participation to this course



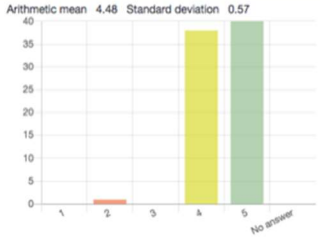
The course (games, tips and tests) is useful



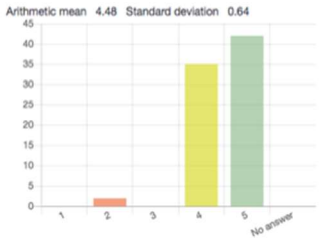
I came back many times to games and contents because I liked it



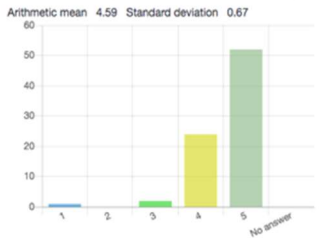
The tips at the end of the games are useful



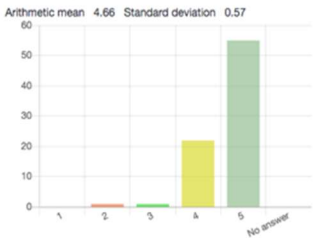
I learned new things about cognitive decline and its prevention



The structure of the games is clear and easy to understand

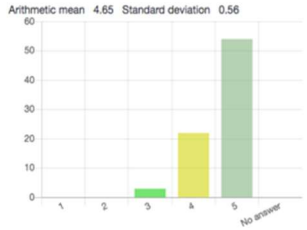


The texts of the games are clear and easy to understand

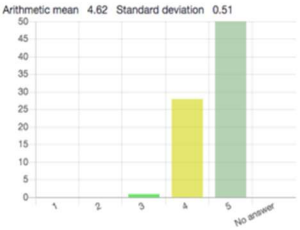


From this first part of the analysis it can be concluded **that interest in cognitive decline has increased following participation in ACDC activities**.

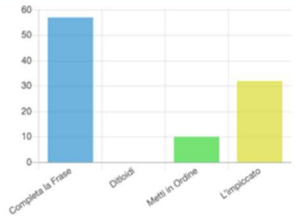
The contents and the games are interesting and appealing



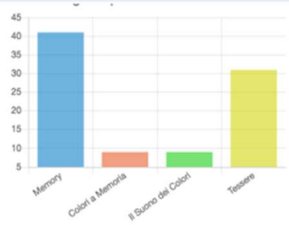
Did you have fun playing the games?



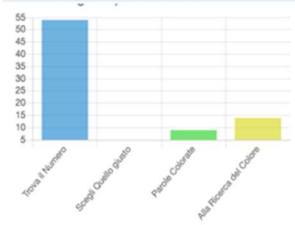
11. What is your favorite game? VERBAL DOMAIN



11. What is your favorite game? MEMORY DOMAIN



11. What is your favorite game? ATTENTION DOMAIN



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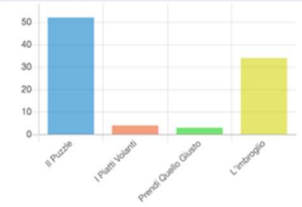
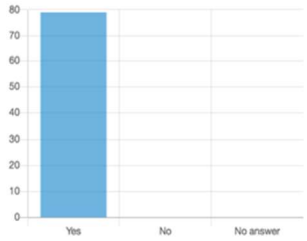
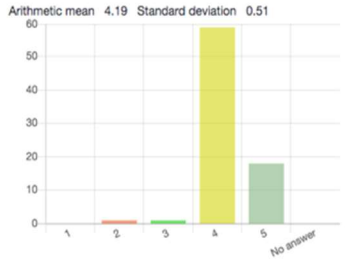
11. What is your favorite game? VISUAL SPATIAL DOMAIN



What would you improve if you could?



In general will you keep going playing and practicing as the tips are suggesting?



From the detailed analysis of the individual games, aspects to be improved emerge: the game of DITHLOIDS in the verbal domain is not appreciated due to too much complexity. Also in this case, in open questions the suggestion loudly is to replace the game of DITHLOIDS or in any case to simplify it

FEEDBACKS FROM THE PILOT ACTION EVALUATING THE IMPACTS ON THE USERS

Participants who registered on the online platform

Overall, 295 users registered on the online platform [Table 1]. Half of the gamers came from Italy (N=149, 50.5%); the remaining 50% came mostly from Austria (N=109, 37%), Spain (N=13, 4.4%) and the other project countries (N=13, 4.4%). Most users were females (69.2%) and married (81.4%). The mean age was 50.5 years (standard deviation [SD]: 14 years), while the median age was 50 (interquartile range [IQR]: 42-61 years). Most users had a middle-high educational level (having attended upper secondary school, N=98; having attended university, N=124). More than 50% were employed full-time (N=167, 56.6%); 25.4% were employed part-time and 18% were retired or unemployed (N=53).

Table 1. Sociodemographic characteristics of the platform users (N=295).

Country	N (%)
Austria	109 (37%)
Belgium	5 (1.7%)
Germany	1 (0.3%)
Greece	5 (1.7%)
Italy	149 (50.5%)
Spain	13 (4.4%)
Other	13 (4.4%)
Sex	
Male	91 (30.9%)
Female	204 (69.2%)
Age (years)	
Mean, SD	50.5 (14)
Median, IQR	50 (42-61)
Marital status	
Married	240 (81.4%)
Unmarried	55 (18.6%)
Education	
Primary school	7 (2.4%)
Lower secondary school	9 (3.1%)
Professional qualification	18 (6.1%)
Upper secondary school	98 (33.2%)
University graduate	124 (42%)
Post-graduate	39 (13.2%)
Employment	
Employed full-time	167 (56.6%)
Employed part-time	75 (25.4%)
Retired/unemployed	53 (18%)

SD: Standard deviation. IQR: Interquartile range.

Table 2. Tasks included in the adapted version of the Montreal Cognitive Assessment test that were administered to the platform users.

Task	Domain	Score
Task 1. Draw a line going from a number to the letter in ascending order, as fast as you can. Begin with number 1 and draw a line from 1 then to A then to 2 and so on. End with letter E.	visuospatial	1
Task 2. Resolve the puzzle, as fast as you can.	visuospatial	1
Task 3A. This is a memory test. You are shown a black-and-white pattern on a grid for 7 seconds. Reproduce it, as fast as you can.	visuospatial	1
Task 3B. Now you are shown another black-and-white pattern on a grid for 7 seconds. Reproduce it, as fast as you can.	visuospatial	1
Task 3C. You are shown the last black-and-white pattern on a grid for 7 seconds. Reproduce it, as fast as you can.	visuospatial	1
Task 4. Write the names of the animals, as fast as you can.	verbal	3
Task 5. You are shown for 15 seconds a list of words that you have to read out loud and remember now and later on.		0
Task 6A. You are shown a list of numbers for 10 seconds. Remember such numbers. Write such numbers.	memory	1
Task 6B. Now you are shown a list of numbers for 7 seconds. Remember such numbers and write them in the inverse order.	memory	1
Task 7. You will be shown a list of letters at a rate of one per second. Every time you see the letter A, double click.	attention	1
Task 8. You are asked to count by subtracting 7 from 100 for five times. Write the results, as fast as you can.	memory	3
Task 9A. You are shown a list of words. Match each word with its correct antonym, as fast as you can.	verbal	1
Task 9B. You are shown another list of words. Again, match each word with its correct antonym, as fast as you can	verbal	1
Task 10. This time, you are asked to match each word with its correct synonym, as fast as you can.	verbal	1
Task 11A. You are shown two images; write the category they belong to, as fast as you can.	verbal	1
Task 11B. You are shown other two images; write the category they belong to, as fast as you can.	verbal	1
Task 12. Earlier you were shown some words which you were asked to remember. Now write them, as fast as you can.	memory	5
Task 13. Write today's date: year, month, exact date, and day of the week, as fast as you can.	memory	2
Task 14. Which image can be made from the three shapes shown? Select the correct answer, as fast as you can	visuospatial	1
Task 15. Which answer shows a reflection of the image below? Select the correct answer, as fast as you can.	visuospatial	1
Task 16. How many blocks make up the shape below? Select the correct answer, as fast as you can.	visuospatial	1
Task 17. When folded, which box can be made from the 2D image shown below? Select the correct answer, as fast as you can.	visuospatial	1

Performances of the platform users in the online cognitive test

An adapted version of the Montreal Cognitive Assessment Test was administered online during the user's registration to the platform.

The cognitive test consisted of 17 tasks that were grouped into four domains for the analysis (visuospatial, verbal, memory and attention) [Table 2].

The maximum score including all the domains was 30 points. The maximum score for the visuospatial domain was 9 points (7 tasks); for the verbal domain, it was 8 points (4 tasks); for the memory domain, it was 12 points (4 tasks); for the attention domain, it was 1 point (1 task). In one task (number 5), it was not possible to score any point.

The mean total score for all the domains was 15.5 points (SD: 5.6 points), while the median was 16 (IQR: 12-19 points) [Table 3]. In the visuospatial domain, platform users scored 4.7 points on average (SD: 2.1 points), while median score was 5 points (IQR: 3-6 points). The verbal area had a mean score of 5.3 points (SD: 2.3 points) and a median of 6 points (IQR: 4-7 points). The memory domain had a mean score of 5.2 points (SD: 2.8 points) and a median of 5 points (IQR: 3-7 points). Lastly, the attention domain had a mean score of 0.3 points (SD: 0.4 points).

Table 3. Score performances of the platform users (N=295).

	Maximum score (points)	Score (points)	
		Mean (SD)	Median (IQR)
Visuospatial domain	9	4.7 (2.1)	5 (3-6)
Verbal domain	8	5.3 (2.3)	6 (4-7)
Memory domain	12	5.2 (2.8)	5 (3-7)
Attention domain	1	0.3 (0.4)	-
Total	30	15.5 (5.6)	16 (12-19)

SD: Standard deviation. IQR: Interquartile range.

Table 4 shows the time performances of the 295 users who registered on the platform. Mean total time for the entire cognitive test was 561.1 seconds (SD: 220.8 seconds) while the median time was 537 seconds (IQR: 437-643 seconds). To complete the visuospatial domain, users spent 233 seconds on average (SD: 109.7 seconds) or a median of 217 seconds (IQR: 173-279 seconds). The verbal domain took 149.1 seconds on average (SD: 85.1 seconds), while the median time was 126 seconds (IQR: 100-175 seconds). The mean time spent to carry out the tasks in the memory domain was 120.9 seconds (SD: 54.4 seconds) or a median of 111 seconds (IQR: 93-136 seconds). Lastly, the task in the attention domain had a fixed amount of time to be completed.

Table 4. Time performances of the platform users (N=295).

	Time (seconds)	
	Mean (SD)	Median (IQR)
Visuospatial domain	233 (109.7)	217 (173-279)
Verbal domain	149.1 (85.1)	126 (100-175)
Memory domain	120.9 (54.4)	111 (93-136)
Attention domain	-	-
Total	561.1 (220.8)	537 (437-643)

SD: Standard deviation. IQR: Interquartile range.

Platform users who completed two hours of online gaming

Out of 295 users, 75 gamed for more than two hours and were administered a second cognitive test. Table 5 summarizes the general characteristics of the sample. The vast majority of gamers came from Austria (N=36, 48%) or Italy (N=29, 38.7%). They were mainly females (N=57, 76%) and married (N=57, 76%). Approximately half of them were employed full-time (N=38, 50.7%), while the remaining 50% were employed part-time (N=18, 24%) or retired/unemployed (N=19, 25.3%). The mean age was 51.7 years (SD: 15.4 years), while the median age was 54 (IQR: 43-64).

Lastly, most platform users were completed upper secondary school (N=31, 41.3%), were university graduates (N=26, 34.7%), or post-graduates (N=7, 9.3%).

Table 5. Sociodemographic characteristics of the platform users who completed two hours of gaming (N=75).

Country	N (%)
Austria	36 (48%)
Belgium	1 (1.3%)
Germany	1 (1.3%)
Greece	1 (1.3%)
Italy	29 (38.7%)
Spain	1 (1.3%)
Other	1 (1.3%)
Sex	
Male	18 (24%)
Female	57 (76%)
Age (years)	
Mean, SD	51.7 (15.4)
Median, IQR	54 (43-64)
Marital status	
Married	57 (76%)
Unmarried	18 (24%)
Education	
Primary school	1 (1.33%)
Lower secondary school	3 (4%)
Professional qualification	7 (9.3%)
Upper secondary school	31 (41.3%)
University graduate	26 (34.7%)
Post-graduate	7 (9.3%)
Employment	
Employed full-time	38 (50.7%)
Employed part-time	18 (24%)
Retired/unemployed	19 (25.3%)

SD: Standard deviation. IQR: Interquartile range.

The paired t-test was used to compare scores and the amount of time (in seconds) used to carry out the tasks within each domain, before and after two hours of online gaming [Table 6].

All four domains registered an improvement; the mean score always increased, and the time spent always decreased.

Specifically, the mean score in the visuospatial domain increased from 4.76 to 5.24 points (p-value = 0.07), while the mean time use to carry out the tasks decreased by almost 100 seconds (p-value < 0.001). Similarly, the score of the verbal domain increased from 4.53 to 4.92 points (p-value = 0.11), and the amount of time decreased from 172.8 seconds to 121.8 seconds (p-value < 0.001).

The score of the memory domain registered the greatest increase, from 4.97 to 6.73 points (p-value < 0.001), while the time spent to carry out these tasks decreased the least (from 125.1 to 111.8 seconds, p-value = 0.02).

Overall, the mean score significantly increased from 14.5 to 17.2 points (p-value < 0.001), and the time spent to complete the cognitive test decreased from 616.1 to 454.9 seconds (p-value < 0.001).

In conclusion, apart from the memory domain that reached statistical significance in both score and time, the visuospatial and verbal domain registered a significant improvement in the time performances only. However, in our opinion, these results are probably due to the low size of our sample that made the analysis underpowered. Indeed, it is noticeable that mean score improved in all the domains, meaning that the platform users benefited from the two hours of gaming on the platform for the number of tasks correctly carried out. Besides, the mean time was always significantly reduced, meaning that, after training on the platform, the participants not only performed better, but were meaningfully quicker.

Therefore, based on these results, we may conclude that this computerized cognitive training could be a viable intervention to enhance cognition in older adults. Particularly, the gaming platform seemed to be effective in improving the online users' performances and could represent a useful tool to prevent or slow cognitive decline in older adults offering a flexible, personalized approach to anyone with access to technology and providing real-time performance feedbacks to all the users.

Table 6. Performances of the platform users who completed the cognitive test at the beginning and after two hours of gaming. Results are expressed in terms of mean and standard deviation.

	Score (points)			Time (seconds)		
	Initial	Final	p-value	Initial	Final	p-value
Visuospatial domain	4.76 (2.30)	5.24 (2.29)	0.07	260.7 (101.6)	163.2 (79.6)	<0.001
Verbal domain	4.53 (2.32)	4.92 (2.43)	0.11	172.2 (81.4)	121.8 (69.9)	<0.001
Memory domain	4.97 (2.58)	6.73 (2.80)	<0.001	125.1 (43.8)	111.8 (44.1)	0.02
Attention domain	0.24 (0.43)	0.32 (0.47)	0.26	-	-	
Total	14.5 (5.7)	17.2 (6.2)	<0.001	616.1 (191.6)	454.9 (163.4)	<0.001

PILOT PHASE IN AUSTRIA

The **Kärntner Volkshochschulen**, shortly VHS Ktn, have used all available channels to bring the project closer to the population and the target group. The VHS Ktn is very well networked throughout Carinthia, also in the media, and this fact was also used in the implementation of the project.

The following methods were used to promote the ACDC gaming platform:

- **Network partners of VHS Ktn:** The VHS can offer a wide range of different network partners, especially in health area. These contacts were used to acquire potential participants for the gaming platform. The information was given to them by email or personally through the management oft he VHS and through the coordination of the ACDC project. The State of Carinthia (Land Kärnten), the Carinthian regional health insurance (GKK) and many other health institutions have been informed about ACDC or asked to forward the information to other instututions (Volkshilfe, Hilfswerk, Caritas, Alzheimer Austria, Demenzservice NÖ,…).
- **Regional media:** Through various cooperations, projects and many years of experience, the VHS is well versed in the field of public relations and has very good contacts with different media channels. As part of the international meeting in Austria 2018, the VHS was able to invite the regional media to the meeting and give an insight into the project ACDC. As a result a very successful report was published in a regional newspaper, which aroused the interest of many potential participants. This enabled some participants to be acquired for the project. There is also another report about ACDC, which was published online (information about ACDC and call for test persons). The response rate was also high through this report.
- **Course program of the VHS Ktn:** The Volkshochschule is generally devided in „classic VHS“ and „project VHS“, but as one part in whole. The classic VHS alone offers over 1,700 courses with about 7000 participants annually. In addition, there are also the participants from the project area. This resource was effectively used in testing the ACDC platform. This enabled some participation in the ACDC program.
- **Internal network of the VHS**: All people employed at the VHS and interested in ACDC were also informed in detail about the ACDC project. Some have tested ACDC and gave very helpful and constructive feedback.

During the participant acquisition it was expressly pointed out to evaluate the platform by the questionnaire and to give feedback directly to the project coordinator of the VHS. Many participants gave feedback and suggestions for improvement of the platform during the test phase. These were continuously discussed with the entire ACDC-team and the platform was adapted accordingly. The biggest challenge for the users was on the one hand many of them had less computer skills, on the other hand many participants don’t have appropriate technical equipment. The participants were offered to use the premises and computers at the VHS, but this was barely accepted. It would also be more helpful to be able to test the

application as an app on a smartphone. Other difficulties were typographical errors, difficulties in entering words or moving tiles/puzzles etc. or the level of difficulty of some games was too high. The transition to the next games was also confusing for some participants. For this reason many users lost interest in testing the application.

However, there was also positive feedback. The health tips that appear after while playing were found to be very good and helpful, also the detailed explanation of the games. The ACDC logo was also seen as very appealing and earning points by playing was seen as motivating for the continuation of the games.

It was astonishing in the test phase that there was a large crowd of participants who did not fall into the target group. Especially people over 60 showed a keen interest in the ACDC program.

As soon as all changes or feedback were made, information was again sent to potential participants, personally as well as by e-mail and via word of mouth.

In addition, several newsletters were sent out from the VHS, in which ACDC was introduced and advertised. The response rate and interest in the application here was also high.

During the testing phase all in total there were over 700 users in Austria.

„5 min Klagenfurt“ is an online platform that provides information about current events in the region. On September 2019 „5 min Klagenfurt“ published an online article describing the ACDC project and calling on potential participants to test the platform.

Kooperationsprojekt „ACDC“

Kärntner Volkshochschulen starten Online Plattform für Demenzprävention

And here follows an overview of the article:

Demenz in unterschiedlichen Ausprägungsformen wird Prognosen zufolge im Jahr 2030 rund neun von zehn Personen der 80+-Jährigen betreffen. Die Geschäftsführerin der Kärntner Volkshochschulen, Mag.a Beate Gfrerer macht mit einem neuen Projekt auf dieses zentrale gesellschaftliche Anliegen aufmerksam. „Gerade deshalb ist es mir wichtig, dass die Kärntner Volkshochschulen an userfreundlichen, präventiven Maßnahmen aktiv mitarbeiten, die von der breiten Masse genutzt werden können und Spaß machen."

ACDC Onlineplattform

Laut Schätzungen sind in Österreich über 130.000 Menschen an einer Form von Demenz erkrankt. Mit zunehmendem Alter der Gesellschaft, wird diese Zahl in Zukunft noch deutlich ansteigen. Um diesem Thema zu begegnen, entstand unter Federführung der KärntnerVolkshochschulen das Kooperationsprojekt „ACDC". Gemeinsam mit Partnerinstitutionen aus Italien, Belgien und Griechenland wurde eine Spiele-Plattform, als frühe Maßnahme, gegen Demenz entwickelt. Diese fördert den Sprachgebrauch, die Gedächtnisleistung, die Aufmerksamkeitsfähigkeit und die Wahrnehmung. Spiele die an Memory, Puzzeln oder Begriffspaarbildung erinnern, fördern nachweislich die geistige Leistungsfähigkeit undkönnen nach Lust und Laune ausprobiert werden.

Teilnehmer gesucht

Wer es sportlicher mag, kann seine erreichten Punkte mit anderen Spielern vergleichen und in einen motivierenden Wettstreit einsteigen. Neben den spielerischen Herausforderungen erhält man nützliche Tipps zur aktiven Gesundheitsvorsorge. „Ich empfehle allen, diese App

Alles auf einen Blick

- Onlineplattform
- Personen zwischen 40 – 60 Jahren ohne eine dementielle Erkrankung(en)
- ca. 1-2 Stunden (je nach Spielintensität)
- verfügbar in den Sprachen Deutsch/Englisch/Italienisch/Griechisch
- am PC und Tablet verfügbar

Carinthian regional media: since its foundation in 1994, the company has focused on positive and regional reporting and sees itself as a local journalist in the country. In the following article, a lot of information about ACDC have been given, as well as inviting the target group to test the new ACDC platform.

Ab Mai kann man sein Gehirn via solcher Online-Spiele trainieren

Die Projektverantwortlichen bei einem Meeting in Klagenfurt: hinten von links: Lorenzo Mammi, Alberto Rossi, Frymzim Pushkollaj. Mitte von links: Elena Lechiancole und Panos Antonopoulos. Vorne von links: Alessia Sebillo, Antonella Kostoni und Riccardo Cariani

Computerspiele gegen Demenz

Kooperation der Kärntner Volkshochschulen mit Projektträgern aus verschiedenen Ländern. Das Erasmus+Projekt „ACDC" soll dem kognitiven Verfall des Gehirns ab dem 40. Lebensjahr durch spezielle Computerspiele vorbeugen. Testpersonen gesucht! Thomas Kiose

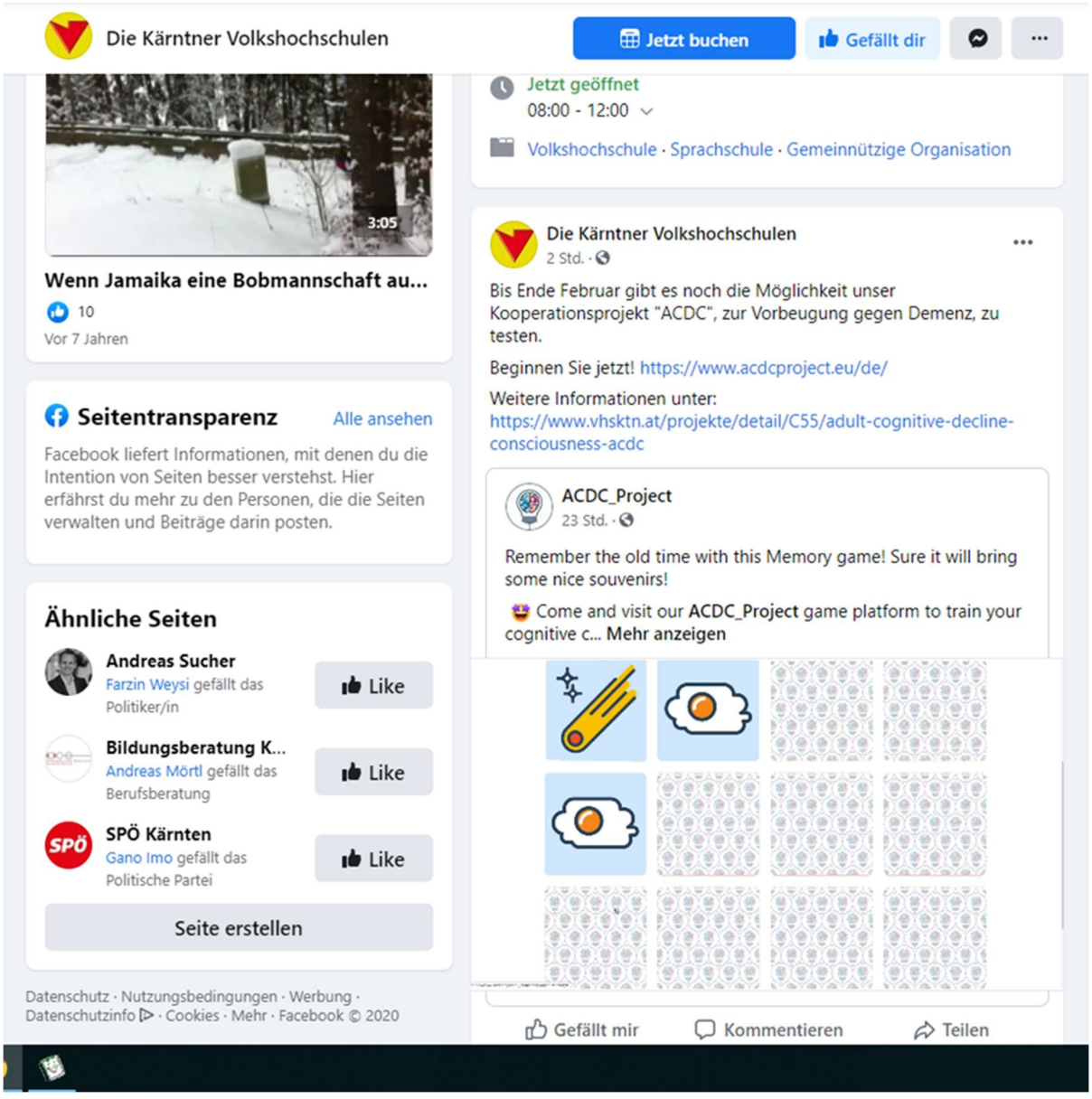
ACDC hat nichts mit der australischen Rockband „AC/DC" zu tun. Viel eher steht die Abkürzung für „adult cognitive decline consiousness", also dem kognitiven Verfall des Gehirnes im Erwachsenenalter. Denn: Laut Studien nimmt die kognitive Leistungsfähigkeit des menschlichen Gehirns ab dem 40. Lebensjahr ab!

Kostenlos. Konkret sollen im EU-geförderten Projekt eine webbasierte Plattform und eine App für Mobiltelefone zur Umsetzung gelangen. Im Vordergrund der Spiele steht das Training von Erinnerung, Aufmerksamkeit, Sprache und räumlichem Vorstellungsvermögen. Die Spiele werden via www.acdcproject.eu/ kostenlos abrufbar sein. Beate Gfrerer, die Geschäftsführerin der Kärntner Volkshochschulen: „Demenz in ihren unterschiedlichen Ausprägungsformen wird Prognosen zufolge zunehmen. Gerade deshalb ist es mir ein besonderes Anliegen, dass die Kärntner Volkshochschulen an userfreundlichen, präventiven Maßnahmen aktiv mitarbeiten."

VHS-Geschäftsführerin Beate Gfrerer

Testpersonen gesucht. Von Mai bis Oktober findet eine Pilotphase statt im Rahmen derer die Computerspiele erstmals getestet werden können. Teilnehmer zwischen dem 40. und 60. Lebensjahr werden noch gesucht. Interessenten können sich für weitere Informationen an Projektkoordinator Frymzim Pushkollaj von der Kärntner Volkshochschulen (f.pushkollaj@vhsktn.at, Tel.: 050/4777025) wenden

Last but not least **Facebook-/Homepage-Calls:** several calls were made via VHS homepage and Facebook page to acquire potential participants.



PILOT PHASE IN BELGIUM

Diesis is working to support the development of the social economy, social entrepreneurship and social innovation in Europe through the implementation of knowledge-based activities, such as training, project design, consultancy and advisory services, technical assistance and research. Diesis Network is one of the widest EU networks specialised in supporting social economy and social enterprise development covering 19 countries through major national federations and national support networks associating more than 80,000 organisations and 1.2 million workers.

In order to validate our approach to health literacy for a well-ageing conception and delivery and to make our innovative e-learning method replicable to other EU contexts, Diesis used its wide network to disseminate the ACDC edutainment tool to a European and Belgium public. In this regard, several tools were used to reach the audience.

First, Diesis shared newsletter to their members and network. In January 2019, Diesis sent a newsletter to 164 of its European contacts explaining the context of the project creation, its general purpose and its specific objectives.[12] In July 2019, the game platform were finalised and the partners organised a launching communication strategy. Diesis created a launching newsletter sending the information to 456 persons of its network. The purpose of this newsletter was to announce the opening of our game platform inviting people to play with the sixteen games and discovering all the health tips to prevent cognitive decline. As we tried to reach more people even at the end of the pilot phase, we created a last newsletter on March 2020, to invite again people to discover or go back to play with our platform. We sent this third email to 645 contacts around Europe.

Diesis also used its Facebook account to reach different audience. To explain better the project, its goals and the way of playing with the sixteen games, Diesis created sixteen short videos.[13] The social media are a good way to raise awareness about cognitive decline and to interest people, giving them the envy to play our games. Also, to promote the project, we tried to promote publicize others initiative, publications, report and organisations working closely or remotely on the subject of the cognitive decline.

Finally, Diesis organised a wide emailing campaign reaching several French, Belgium and European organisation working in the topic of cognitive decline. We presented the project and its goal of developing a set of innovative training tools to prevent and manage cognitive decline in the elderly population. We asked their help to disseminate the ACDC tool to their network. Several of them show their interests in the project and were agree to promote it inside their own network.

We reached:

[12] https://mailchi.mp/613b34f014fd/acdc-project-newsletter
[13] https://www.facebook.com/ACDCerasmusplusproject/

- Age platform Europe:[14] AGE Platform Europe is a European network of non-profit organisations of and for people aged 50+, which aims to voice and promote the interests of the 200 million citizens aged 50+ in the European Union (Eurostat, 2018) and to raise awareness on the issues that concern them most. Their work focuses on a wide range of policy areas that impact on older and retired people. These include issues of anti-discrimination, employment of older workers and active ageing, social protection, pension reforms, social inclusion, health, elder abuse, intergenerational solidarity, research, accessibility of public transport and of the build environment, and new technologies (ICT).
- European Public Health Alliance:[15] EPHA is a member-led organisation made up of public health NGOs, patient groups, health professionals and disease groups to improve health and strengthen the voice of public health in Europe. Their mission is to bring together the public health community to provide thought leadership and facilitate change; to build public health capacity to deliver equitable solutions to European public health challenges, to improve health and reduce health inequalities. They monitor the policy making process within the EU institutions and support the flow of information on health promotion and public health policy developments amongst all interested players including: politicians, civil servants, NGOs, stakeholders and the public.
- Social Platform:[16] Social Platform is the largest network of civil society organisations in the European Union advocating for a social Europe. It is driven by a membership of European federations united in the fight for social justice, equality between all people, inclusion, sustainability and participatory democracy in the EU and beyond. For this, the network will work together in the coming years to ensure that Social Justice becomes the compass guiding all political decisions and economic actions in Europe.
- Ligue Alzheimer ASBL:[17] The Alzheimer Belgique is an association of information and support for patients, relatives and professionals confronted with Alzheimer's disease and other forms of dementia. It constitutes a network of self-help and information groups in Wallonia and Brussels. These actions are specific and empathetic towards families, professional careers and anyone in need. It is also involved in scientific research.
- Pédagogie Interactive en Promotion de la Santé:[18] PIPSA is the website of the Outilthèque Santé, a health promotion programme of Solidaris, funded by the Walloon and Brussels Region. They offer an online directory of games and intervention tools evaluated to bring prevention and health promotion project to life. They also give methodological support for the design of prevention and health promotion tools and training courses on the design of such tools.

[14] https://www.age-platform.eu
[15] https://epha.org
[16] https://www.socialplatform.org
[17] https://alzheimer.be
[18] http://www.pipsa.be

- Ligue des usagers des services de santé:[19] The LUSS is the francophone federation of patient and family associations and the spokesperson for users of health services. It works for access to quality health care for all and promotes the participation of users in health policies. The LUSS supports patient and family associations to enable them to carry out their missions with complete peace of mind. They also offer activities and tools aimed at associations and health service users to enable them to become full stakeholders in their own health. Finally, the LUSS is the official representative of patients in health policy.
- Alzheimer Belgique ASBL:[20] Alzheimer Belgium vzw was born from the initiative of a few people who have been confronted with the disease in their close family or who have worked with it in their professional life. They offer psychological support for the sick person and the caregiver, social support in the pursuit of activities and social contacts, information on the disease, its screening and therapeutic accompaniment to help people understand the disease and evaluate its impact on the daily life of the sick person and the quality of life of the caregiver. They propose and relay towards adapted respite formulas, decision support (choice of place to live) and also give financial and legal support relaying service for information on financial aid, protection of the sick person and their property, anticipation of end-of-life care.
- European Network in Aging Studies:[21] The European Network in Aging Studies (ENAS) was first established in 2010. The European Network in Aging Studies (ENAS) facilitates sustainable international and multi-disciplinary collaboration among all researchers interested in the study of cultural aging.
- Research Network on Ageing in Europe:[22] They are an association of researchers who are interested in ageing. They aim to facilitate contacts and collaboration among these researchers, and to provide them with up-to-date information. To attain these goals, they organize conferences and workshops, publish a regular newsletter, and maintain an email list.
- Association for Research and Training on Integration in Europe:[23] ARFIE was set up in 1992 as a European NGO to improve the support, the social inclusion and the availability of services to people with disabilities, people with important dependency needs and with associated mental health needs, and provide quality staff training for social service professionals.

[19] https://www.luss.be
[20] https://alzheimer.be
[21] http://www.agingstudies.eu
[22] https://www.ageing-in-europe.net
[23] https://arfie.info

PILOT PHASE IN GREECE

InterMediaKT, following the application form guidelines, organized, co-organized and participated in a series of events promoting ACDC project and its' deliverables, along with testing by playing ACDC Platform games. Below you can find the events in chronological order:

2nd meeting of the spring cycle of caregivers' seminars for people with dementia
Within the framework of the programme "I care for dementia in the community", ACDC partner InterMediaKT together with the associated partners Frontizo, organized the 2nd local meeting of the spring cycle of caregivers' seminars for people with dementia presented the project and the aim the participants, mostly composed by Senior citizens and caregivers, and inform them about the upcoming outcomes and deliverables. The programme "I care for Dementia in the Community", funded by the Stavros Niarchos Foundation (www.snf.org), started in August 2017 and is due to be completed in July 2019. Implemented by an interdisciplinary team consisting of a psychologist, a social worker, a physiotherapist, a trainer and a nurse it has the aim to support -with an holistic approach- patients with dementia and their families in the prevention of dementia in the Third Age in the wider area of the Municipality of Patras. More info: http://www.frodizo.gr https://www.snf.org/ Nr. Of attendance: 20+ - Link: https://tinyurl.com/ycq9kpu6

Raising awareness event for the World Alzheimer's Day 2018

In occasion of the World Alzheimer's Day, on Friday, 21st September 2018 InterMedi@KT along with the associate Partner Frontizo, organized in Patras a Dementia and Alzheimer awareness-raising local event were ACDC project was disseminated. More than 150 people participated, mostly Senior citizens and caregivers, to the event with the "Some Forget, We Do Care", chosen in order to sensitize the community on the issues of dementia and the problems faced by families treating people with dementia.

Activities started from Friday morning at the Astir Hotel in Patras, where professionals and volunteers of Frodizo carried out topics such as memory reviews, blood pressure and glucose measurements in the elderly over 60 years, physical and mental empowerment for the elderly. Instructors from the "Nina Service Dogs" organization, a Thessaloniki-based organization dedicated to the training of assistant dogs, who conducted a pioneering workshop where specially trained helper dogs interacted with the elderly and people with dementia were also hosted.

Nr. Of attendance: 150+ - Link: https://tinyurl.com/yb5xe95k

Raising awareness event for the World Alzheimer's Day 2019

On Saturday, 21st of September, a raising awareness event took place for the World Alzheimer's Day in Patras, Greece, organized by our associate Partner frodizo, along with our Partners, InterMediaKT where we had the pleasure to inform the audience about our project and the ACDC games platform.

The activities started from Friday at the Astir Hotel in Patras, where professionals and volunteers of Frodizo carried out the following: memory reviews, pressure and glucose measurements in the elderly over 60 years, as well as physical and mental empowerment for the elderly.

Admission to the public was free and monitoring attestations were given.Actions for World Alzheimer's Day 2019 were under the auspices of the Panhellenic Federation of Alzheimer and Related Disorders and supported by InterMediaKT.

Nr. Of attendance: 150+ - Link:

- https://patrinorama.com/pagkosmia-imera-alzheimer-2019-10/
- https://alphapatras.gr/2019/09/patra-ekdilosi-gia-tin-pagkosmia-imera-altschaimer/
- https://www.pde.gov.gr/gr/enimerosi/deltia-tupou/item/12354-diimero-draseon-enimerosis-gia-ti-noso-alzheimer.html
- https://tinyurl.com/wsz85xj

Participation at Unlimited Abilities Days Oct. 2019
People with or without disabilities, visible or not, people with abilities that can bring change to life, without limitations. Social entrepreneurship can provide viable solutions to important issues related to health, care and empowerment. Civil society demands a world of justice with equal opportunities and opportunities, a world of human beings. These days are dedicated to this change that can be made by people with skills, combining design with care, health and innovation. For the first time in Greece, on Saturday, October 26, 2019, the Unlimited Abilities Days event was held in Technopolis, Athens. An event dedicated to people with abilities beyond any limit! It was a real celebration that came to shatter stereotypes about visible and invisible disabilities This was given by representatives of the state accepting the role of co-modifier in a fight for: more accessible cities and municipalities, equal integration into daily living, equal work and participation of people with disabilities in cultural activities Mr. Domna - Maria Michailidou, the Secretary General of Modern Culture, Mr. Nikolas Yatromanolakis, the representative of the Municipality of Athens, Mr. Fotini Leobila and the MEP Mr. Stelios Kympouropoulos video greeting from Strasbourg. The Unlimited Abilities Days aims to highlight the abilities of people with visual or invisible disabilities as well as initiatives aimed at empowering them to engage and engage every citizen. Stories of will, inspiration and innovation from around the world were presented with representatives of civil society, social entrepreneurship, and institutions. Nr. Of attendance: 200+ - Link: • https://tinyurl.com/td8953b • http://abilitiesdays.com/vision/ • https://tinyurl.com/u5rrank • http://abilitiesdays.com/speakers/

Testing of ACDC Games Platform mini workshop "People Behind" Office in Athens
On Saturday, 07/12/2019, our Associate partners in Athens (GR) People Behind tried out our Games Platform (https://www.acdcproject.eu) and introduced our project to their beneficiaries. Aims of people behind: Empower 65+ people through Active and Healthy Aging programs: Life-long learning Digital education & inclusion, Intergenerational solidarity, Active participation in civil society Following "People Behind" values for: Exchange of positive energy Fighting age discrimination Society for all ages Equal opportunities for all Beneficiaries tested the draft version of our ACDC Games Platform. Quoting them: "The result is really impressive, and we are eagerly awaiting the final release to start playing". Nr. Of attendance: 11 - Link: https://tinyurl.com/tmu63z2

20 years celebration event for Panhellenic Society of Geriatrics and Gerontology in Patras
The Panhellenic Society of Geriatrics and Gerontology celebrated its 20 years of action and struggles to improve the quality of life of the elderly, on the 14-15 December 2019 in its privately owned space, in Patras. Both days, the venue was full of friends, stakeholders and beneficiaries, doctors and fellow citizens interested in the problems of the Elderly. There Dr. Ioannis Manou, in his presentation "Media and 3rd age" presented the activities of our project along with its' members and InterMediaKT. The event highlighted the great importance of the social - psychological factor in improving the lives of the elderly and it was emphasized by the wonderful suggestions of experts that represented the health sector, the 3rd sector, caregivers organizations and local government. Nr. Of attendance: 50+ Link: • https://tinyurl.com/yx5h7qac • https://tinyurl.com/rxrbub4 • https://giriatriki.org.gr/

PARTICIPATION & PRESENTATION OF ACDC PROJECT AT NEW TECHNOLOGIES FOR BETTER AGING - the Pan-European Conference on Geriatrics, EuGMS ATHENS 2020
With this year's 3rd pre-conference event, the cycle of seminars that has started in 2018 and 2019 before the organization of the Pan-European Conference on Geriatrics, EuGMS ATHENS 2020 "Growing old in better health. Building Synergies across Europe", on October 7-9, 2020, at the Athens Concert Hall, where we will receive more than 2000 delegates in our country. The "New Technologies and Healthy Aging" Conference enabled doctors and health professionals to meet and exchange views on the challenges and obstacles they face in implementing integrated care for older people through the application of new technologies. InterMediaKT participated at the event along with our associate partners "People Behind" Leading a specific session titled "Gamification & Digital formats" - We play on the prognosis of dementia under the European Program ACDC Adult Cognitive Decline Consciousness Nr. Of attendance: 250+ Link: https://drive.google.com/file/d/16YbCZ8T9b7wILHTOGQO9CR9FgXPETLK8/view

PILOT PHASE IN ITALY

IAL Nazionale started the pilot phase on July 2019 but some preparative activities have been developed before the launch of the platform. The aims of the pilot phase were:

- to test the ACDC platform
- to disseminate and to illustrate the project
- to attract the interest of the people to health literacy, in particular to cognitive decline
- to facilitate the involvement of the stakeholders engagement towards agreeing common ways of approaching health literacy

The objective of the pilot phase was also the one to identify what has worked and what did not during this period, and to evaluate potential fields of policy application in the light of the deliverables of the project, so to draw lessons from that for the implementation of such tool.

The conclusions of the evaluation will serve to the partnership to consider appropriate changes, if they are necessary. The lessons learned through the series of pilot phases are intended to deliver valuable insight to other entities – both public and private – seeking to adopt a similar result.

TARGET REACHED

As the project proposed, the target reached and involved in the pilot phase through specific strategies had been:

- scientific community (MDs, specialists on health literacy and cognitive decline),
- Social partners and Public authorities
- After work associations and labour unions and voluntary associations
- Educational and training institutions
- Participating organizations, through the active participation in all project activities
- Citizens, Enterprises
- Professionals and all potential end-users

The main target was all adults from 40 to 60 because according to La Sapienza University, prevention of cognitive decline can start when people is 40. The pilot actions involved both the direct participants and their families (the first indirect target).

ACTIVITY DEVELOPED/ How the pilot was organize

Being a national VET network, IAL organized the pilot phase at a national level, involving its network and other strategic players. The first activities were developed on a large scale.

A few days before the official launch of the platform, IAL promoted it and presented the project at the CISL national executive conference attended by over a thousand delegates and leaders of the trade union CISL Confederation from all over Italy. This event represented an opportunity to reach, in addition to direct beneficiaries (people from 40 to 60) stakeholders and other players interested in promoting the platform. CISL Campania, CISL's brunch in the Campania Region, for example, supported with great enthusiasm the ACDC project at regional level. They participated in the testing of the platform and promoted it with the great number of people that daily visit the CISL, in addition to the promotion on social media and its website.

As above mentioned, IAL involved its network to recruit testers. In this way we could reach different types of target such as:

- adults. Each IAL brunch organizes lifelong training courses or training courses for adults, so they could promote the platform to ex and current participants
- companies through lifelong projects
- other educational and training organizations. IAL Nazionale and its branches usually work in partnership with other organizations, both Italian and European, to develop training projects
- European organizations. IAL nazionale and some of its branches, in fact, work in partnership within European projects. They have been informed about the project and invited to test the platform. In this way we extended the recruitment of the testers to other European Countries in addition to the partners ones.

In particular, IAL Piemonte, IAL's brunch in the Piemone Region, presented the ACDC project during a conference dedicated to innovation for companies and training. Since the main target was common people and not a specific category, the strategy has been to take advantage of public events, even if not related to health literacy or cognitive decline, to promote the platform.

Other methodology adopted to reach target people on a large scale was an extensive use of social and online media for public dissemination.

Social media has been considered a powerful 'easy to access' and participation tool. It allows project promotion and information to be disseminated to wider audiences that may seldom engage with traditional measures. To this end IAL Nazionale and ACCMED launched a campaign of the ACDC Facebook page to promote the platform that reached more than 10.000 people. In addition to this we tried to recruit testers promoting the platform also in other Facebook groups dedicated only to the dissemination of Erasmus+ projects visited by thousands of people. We tried also this option because the objective of these groups is also the creation of sinergiys between partners to create, implement and improve present and future projects. The idea was to find similar projects with which to create cooperation and organize testing sessions in other Countries.

Other digital/social media channels used for the recruitment were the EPALE platform (they posted the invitation to test the ACDC platform on their website and on their Facebook page) and the INDIRE facebook

page. Some testers were also recruited during the monitoring event organized by INDIRE in Florence. At this event the project was presented and we collected the contacts of the people interested to participate.

Social media is a powerful 'easy access' participation tool, but other resources are required to get the project closer to the people. So another approach/strategy to recruit testers was adopted. This approach wanted to involve directly the main target and other stakeholders. A 'face to face' approach: consultation, events with public, businesses, communities to discuss the platform. Following this approach the main activities developed were:

- presentation of the platform in each lifelong training course organized by IAL Nazionale. Its core business, in fact, are lifelong training projects for companies. The training courses of these projects are organized at IAL Nazionale when the company can't host it or when the courses are directed to different companies. During the pilot phase, before the beginning of each course, the ACDC platform was presented to the participants. For the training courses developed in the companies, the teachers were in charge to show the platform to the participants. In this way, also the trainers were informed about the project and were invited to participate and to test the platform.
- to look for and to approach associations working in health literacy, in particular on cognitive decline. The purpose was, in addition to disseminate the project and test the platform, to create cooperation and give them the possibility to know and to use the platform to develop their work also after the end of the ACDC project as well as to involve stakeholders, to collect their suggestions and to promote the use of the tool.
- organization of meetings/information sessions for people from 40 to 60 already involved in other training activities or previous national and European projects. IAL Nazionale has a database of adults who participated in the past in adult education courses and in the pilot phase of other Erasmus+ projects. They were invited to participate to these face to face sessions by e mail, to which they could confirm and request further information centralized mailing of invitation letters with the scheduled sessions was well received.
- meetings and information sessions were organized also for cultural/social/adult associations. They were directed both associations included in the network of IAL Nazionale, that already collaborated in the past with IAL (partners in other projects, local and national synergies….) and to other associations (who never worked with IAL), above all the ones dedicated to health literacy and cognitive decline looked for the purpose of the pilot phase. The visibility of the project on Facebook was so great that in some cases (for example the association "*Web per tutti*") after viewing the ACDC Facebook page, the same associations wrote to IAL Nazionale to ask for the organization of the pilot test sessions. In this case and for those organizations not in Rome, the pilot sessions were organized with the help of IAL by Skype. The associations organized the meetings at their location and invited their members to participate. During the meeting IAL, by Skype, presented the project and how to work the platform. Then the associations followed their members in the test of the platform. In other cases, IAL organized the pilot sessions at the location of these new organizations after a first meeting with them to know each other. These association are of different type (cultural, social inclusion, adult education, to help

people of 40 and more, to find a job, all directed to adults), not only working in health literacy in order to reach a greater number of people.

STAKEHOLDERS INVOLVEMENT

For the applicability of the approach of the project to be successful, relevant stakeholder and institutions were identified at the scientific and medical level. Contributions were required for each different type of stakeholder.

ACCMED has informed all the doctors and professor in medicine, members of the Academy about the project and the platform. Their involvement was requested, as they suggested, to use the tool, the platform, in their training courses directed to caregivers and other professionals in the health sector working with adults and their families.

At governmental level, the possibilities to reach them, were:

- to inform them about the project through the IAL Magazine sent, among different addresses, also to Ministries and public Institutions
- on the occasion of the Conference organized by the Trade Union CISL

At the local level, we involved the ASLs (local health authority) of some areas of Rome. Two of them, ASL 1 and ASL 6, reached through the collaboration with the Association “Salute Cognitiva-Viversi” organized by some families a test session. Their comments about the platform were very positive and they didn’t give us any suggestion in particular, in their opinion the platform is efficient and works.

At this level, we can mention the associations working in health literacy. As we mentioned above, the first associations we looked for since they considered one of the main stakeholders were the ones working in health literacy, in particular on cognitive decline. The objective as already explained, is to reach the target people and their families.

In Italy, in particular in Rome, it seems that there are no associations working in this field. The only one, we founded a few months ago, is “Salute cognitiva- Viversi “. We found also a voluntary association “Non ti scordar di me” dedicated to help families to manage elderly people. Among the different courses that they organized for the families, there is also one dedicated to cognitive decline. These are the only two about cognitive decline. The highest number of associations in Italy are dedicated to Alzheimer or elderly people or people affected by dementia. Even if they are topics close to cognitive decline, the purpose is different: Alzheimer and dementia work on ill people, cognitive decline is for healthy people, it works on prevention. Neither La Sapienza University knew organizations dedicated to cognitive decline.

LESSONS LEARNT DURING THE PILOT

During the pilot phase we could analyze what works and what works less about the same pilot phase and to learn lessons useful for the replicability of the approach of the project for other topics especially related to health literacy.

First of all, there was a general lack of understanding and interest about health literacy in general and about cognitive decline. Citizens did not engage with it widely and actively, presumably because the issue was not of significant importance to them.The low number of associations working on it and the lack of interest from some Public authorities is a proof. Based on the comments collected to the meeting sessions, the reason could be:

- confusion among dementia, cognitive decline and Alzheimer. A moderate number of people didn't want to participate because they "weren't affected by cognitive decline" or they "were young and sane".
- they ignored the possibility to prevent cognitive decline and they feel it as something that doesn't concern them. Some people refused to participate in the meetings sessions of the pilot, because they did not perceive there to be benefits to participation that are aligned with their needs. Above all people of 40 they feel themselves too young for thinking in cognitive decline.
- The general consideration is that cognitive decline is a illness of old people. They don't know that cognitive decline could be prevented.

During the meeting sessions we discovered the possible solution to this problem: people need to know what cognitive decline is and its prevention to be interested in it. People in fact, change their mentality or were more interested in the topic when we presented the project and its platform. *"Interesting", "I didn't know it"*are the most common comments. People need explanations, clarifications about cognitive decline and its prevention. It is necessary to repeat that cognitive decline is a topic less known respect to Alzheimer and dementia because there is not an appropriate health literacy about it.

People need explanations also from a technical point of view, in particulat for those that we recruited by social media. We discovered that in some cases the platform had something that the pilot participants didn't understand immediately. So, based on review of questions and comments from invitees the invitations to participate to the pilot test published on line in the different social and web channels, was enhanced for the main phase of recruitment in order to give more detailes about how to test the platform. For example were added videos to show the games and how to play them (the videos were also a strategy to catch the attention of the possible testers). We also added information about the login and how to fill the final questionnaires in. Also the communication on which type of device it was possible to play on the ACDC platform, should have been clearer. In fact, people tried to play on their smartphone but the platform it is supported only by pc and tablet. We added also this information. In this way the further clarifications of the invitation materials for the main phase of recruitment minimized any residual uncertainties.

In some cases we modified the platform on the basis of the difficulties and of the suggestions of the people. For example, we added the possibility to login without registration because someone, especially in other Countries than Italy didn't want to register themselves on the platform.

The pilot was used to try out new approaches to citizen and stakeholder participation to use different tools for the health literacy and cognitive decline. We can recognize a general good level of stakeholder engagement in particular from the associations perspective who gave valuable insights into the possibilities for this project. A point less strong have been identified in term of Public Authorities even if this pilot phase was useful to identify the strategy to involve them. As mentioned in the previous paragraph, in fact, we reached two ASLs (local health authority) in Rome thanks to the collaboration of the association Salute cognitiva-Viversi. This means that is easier and more effective to reach Public entities through synergies and collaborations with other local actors. The lack of participation of public organizations may be attributed to several reasons, including lack of deeply technical content of this topic. One of the reason, for sure, as one of the representative of the ASL told us, is also the bureaucracy that make difficult their participation in projects. Sometimes they need a lot of months to take decisions due to the approval of the different departments constitute the public entity.

Reaching new organizations, associations allows the sustainability of the ACDC project (they can guarantee the use of the tool and help in the dissemination activities) but was also useful for future projects related to health literacy and adult education.

The new collaborations and synergies is to intend also with adult people. During the pilot phase we involved adults of previous projects but also new participants. This means that IAL can increase its network of adults who direct the current and future training activities.

Last but not the least, other objective reached with the pilot phase was to teach the Erasmus+ Programme to adult people. In fact, it still unknown for a lot of people from 40 to 60. During the presentation of the project and platform, people was interested in the Programme and they asked for more information about how it works.

IV. Framing the model

After the end of the pilot phase of the project, the collected inputs (both from the users and the involved organisations and from the stakeholders/policy level awareness rising campaign and activities) have been addressed to better shape the common final Guidelines indicating the suggested way to:

1. make the service sustainable from a technical/operative point of view;
2. stress the need for making it a permanent element of the training strategy for prevention of the health/public authorities;
3. integrate the different levels of competence of the various involved public and private subjects, that of course vary from region to region and from country to country.

"The definition of "strategy model" exists within the term itself. Basically, a strategy model constitutes a strategic plan, or model, designed to improve a process. Organizations use strategy models to improve operations and meet their goals" [24] Thus, also according to this definition, the process for assessing the basic elements for the replication & institutionalization of the ACDC tools and outcomes consists of the following conceptual elements.

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EDUTAINMENT TOOLS SUSTAINABILITY

FOR A SUITABLE MANAGEMENT

For a suitable management of the ACDC Project web application here below listed the necessary technical requirements relating to the server environment:

- Intel (R) Xeon (R) Platinum 8124M CPU @ 3.00GHz, 4 cores
- 8GB RAM
- 30GB + disk space

We suggest the use of a web hosting on a dedicated server. Recommended operating system: Linux ubuntu 18.04 or higher.

[24] "Definition of Strategy Models". https://smallbusiness.chron.com/. Retrieved by Will Gish

FOR TECHNICAL MAINTENANCE

The following parameters apply for a proper maintenance:

- for technical maintenance of the application it is estimated that the commitment of a senior operator is 104 hours / year;
- for recurrent base software updating, it is estimated that the commitment of a senior operator is 12 hours / year;
- for the tutoring of users, the management of help requests and the updating of contents it is estimated that the commitment of a junior operator is 104 hours / year.

THE REGIONAL / NATIONAL TRAINING SUPPORT SCHEMES

"Sustainability is the ability to exist constantly […] For many in the field, sustainability is defined through the following interconnected domains or pillars: environment, economic and social".[25] In this sense the future sustainability of the ACDC tools is strongly connected with the availability of new economic resources to be attracted and displayed in each regional / national contest to support the maintenance, improvement and then the proper dissemination of the platform as a whole.

In this sense this § has been conceived to provide a brief outlook of the national / regional framework on vocational / non formal education and most relevant funding schemes / incentives in all the 4 countries whose use could be better explored by each single partner to give more strength to the project follow-up strategy.

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In **Kärnten** (Austria) the main funding and supporting agencies (being the majority already partners of the VHS Knt) are:

- *ESF (Europäischer Sozialfonds):* The European Social Fund (ESF) is the financial instrument of the European Union for social policy and investments in people.

  The ESF finances and promotes projects

  - to avoid and counteract against unemployment,
  - to increase the training offer
  - and it promotes the functioning of the labor market
- *ÖIF (Österreichsicher Integrationsfonds)* is a fund of the Republic of Austria and a partner of the federal government in promoting integration. In its work, the ÖIF is aimed at
  - People entitled to asylum, people entitled to subsidiary protection and third-country nationals
  - People with a migration background
  - Institutions, organizations and multipliers in the area of integration, social and education
  - Austrian society
- *AK (Arbeiterkammer Kärnten)*

[25] "What is sustainability". www.globalfootprints.org. Retrieved 2 May 2018.

The Carinthian Chamber of Labor/Arbeiterkammer advises on questions of labor law, tax law, consumer protection, work & family, education, grants. They work really closely together with the VHS and enable in cooperation a wide variety of projects, also in the health area.

- *Provincial Goverment of Carinthia (Land Kärnten):* They support financially a lot of projects at the VHS in the youth, as well as adult and health area.
- *FGÖ (Fonds Gesundes Österreich)*

  Austria Health Fund supports and enables projects related to health. „FGÖ" made a lot of health projects possible at VHS.
- *City of Klagenfurt/Villach* (Stadt Klagenfurt/Villach): The VHS offers a lot of courses and projects in Cooperation with the City of Klagenfurt and Villach.
- *Labour Market service* (Arbeitsmarktservice) also promotes different projects in cooperation with the VHS.
- *Federation* of Austria (Bund)
- *Austrian health insurance fund* (Österreichische Gesundheitskasse (ÖGK) : The VHS has been cooperating with the ÖGK for years and offers various projects in the field of health.

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In **Belgium**, the relationship between the world of work and vocational and educational training (VET) is very close. Social partners are associated with many establishments offering VET qualifications, but additionally, and more widely, with employment market regulations, via stringently organised social negotiations, at all levels of decision-making. In the framework of the Lisbon Strategy and the Copenhagen Process, intended to encourage and promote lifelong learning and to better adapt the field of VET qualifications to the development of skills expected, each three Belgium Region has developed its own systems. These systems communicate and converge widely.

In each Community, the relevant government sets out the framework within which educational institutions can organise their programmes. The framework for provision of VET is set out in different acts or circulars, per educational level: secondary education, adult education and higher education. Besides this general principle, each community/region has developed its own approach to defining or reviewing skills and qualifications in VET.

In the Walloon Region, standards outlined for training programmes leading to qualifications produced by the former CCPQ (Community Commission for Professions and Qualifications) continue to be applicable. Today, it is the French-speaking Service for Professional Sectors and Qualifications (SFMQ) which has taken over this mission and establishes reference professional profiles and translates these into common training

profiles. It is important to observe that the scope of this mission has been extended to all training bodies (education, vocational training, socio-professional insertion) and to the Skills Validation Consortium.

The new mechanism brings together all parties involved in qualifications, as well as social partners and Public Services in the Walloon and Brussels regions. The new SFMQ allows for relations to be established between:

- Training profiles based on Approved Learning Units (UAA), an assessment profile and a material profile which are imposed on all operators;
- Professional profiles pertinent in relation to the employment market (based on the sectoral profiles of social partners and information provided by Public Employment Services).

It also issues a common terminology and references to all VET providers. The purpose of this mechanism is to provide guarantees as to the quality of profiles on which training programmes and providers' references will be based, in addition to the legibility and transparency of systems.

French-speaking public training operators have implemented a common mechanism for identification and recognition of skills, based on the skills-based approach and on a common methodology for identification and assessment of training and education results (training skills). These are placed along a coherent line of reference programmes based on sources in force (CVDC, sectoral sources, R.O.M.E, etc.).

The Skills Validation Consortium develops standards which are then imposed on Skills validation Centres, by involving social partners, public vocational training operators and education in social promotion.

In progression with SFMQ productions, the Consortium will base its approval references on these professional profiles. During the transition period underway, collaboration is implemented between the teams at the SFMQ and CDVC in order to lead to economies of scale and to produce a multiplier effect.

In the Flemish region, professional qualifications' are based indirectly on the occupational profiles in Competent. The data of Competent are used to constitute 'qualification dossiers'. Once these dossiers have been validated by the social partners, they are referenced to one of the eight levels of the Flemish Qualification Framework. After confirmation by the Flemish government they become professional qualifications.

The references for the development of the curricula at SYNTRA are the professional references of the SERV. However, the apprenticeship training programme requires approval by the Minister of Education for trainees still in compulsory education. Existing and the new professions have to be screened by a Screening Committee under the aegis of the Department of Education which outlines a list of professions and their standards (references and learning outcomes).

Since 2012 the SERV has created a new web based system called '**Competent'** which contains all occupational profiles. Competent covers all sectors (public and private) and all professions. It is based on the French ROME-system, which is adapted to the Flemish situation (labour market, regulations, etc.) and contains added information on competences. The added information is a detailed description of 'know

how' (kunnen) i.e. behaviour which must be shown on the workfloor to prove that the related activities are performed adequately. The content of Competent is either commented on by experts of the sectors concerned or other stakeholders and validated by the same organizations, or it is either published after approval by the SERV social partners of the process on the basis of a set of quality criteria.

The data of Competent are also used for the creation of 'qualification dossiers' which, after validation by the social partners in AKOV (Agency for Quality in Education and Training), are assigned a level of one of the 8 levels of the Flemish Qualification Structure. After the official confirmation by the Flemish government, the professional qualifications of level 1 through 5 form the basis of the educational qualifications which then constitute the standards for education and training providers. The 'certificate of vocational experience' (Ervaringsbewijs) is also to be transposed into the Flemish Qualifications Structure by way of a 'qualification dossier' and – after assignment of a level – a professional qualification.

In the German-speaking Community, identification of skills, development and updating educational and training content of IAWM programmes is the responsibility of the Ministry for Education. This Ministry works in close collaboration with professional sectors, companies and professional associations.

Updating training programmes and the development of new programmes continue to take due consideration of commercial opinions, socio-economic requirements and also the working environment. These programmes take account of general skills and professional skills in addition to operational skills. Integration and training programmes offered by the ADG are designed in line with the situation on the employment market. Social partners, members of management committees, and the Employment Office are all involved in decision making. The ADG is moreover certified to issue training in the security and construction sector.

In Belgium, how do non-formal and informal training approval methods operate and what are the relations with qualification/certification? Skills validation leads directly to certification which may be used either on the employment market or in inter-operator transfers. This is the case of the Skills Validation Consortium (CDVC) in the Walloon region which issues Skills Certificates on behalf of the three Governments. The Skills Certificate may be promoted on the employment market, and taken into account by public employment services and allow for transfers between vocational training operators which are members of the Consortium. In the Flemish region, there is an equivalent mechanism, developed by the SERV and organised by the Flemish government with approved centres (Ervaringsbewijs). It should be noted that despite the differences, both skills validation systems are communicable. In the German-speaking Community, a skills validation system is under development.

Also, skills recognition allows an individual to promote a certain previous pathway (experience, training) when entering a public VET provider in order to save repeating a portion of the pathway and to then go on to obtain certification with same provider. This is the case of the Valorisation of the Skills and Experience (VAE), organised by French-speaking universities and higher education institutes, which enables entry into postgraduate education (Master's level). We can also cite here the, article 879 of the Adult Education Act which allows an individual to save repeating all or part of the training modules already covered, with the

exception of the final test (épreuve intégrée) which approves the certification pathway. In Flanders, the concept is generally referred to under the name of Erkenning van Verworven Competenties or EVC (Recognition of Acquired Competences). With regard to higher education, the recognition process of non-formal and informal learning aims at the recognition of 'knowledge, understanding, skills and attitudes acquired through learning processes for which no diploma was awarded', for adults wishing to enter or re-enter universities. It allows non-standard access, course exemptions (partially or in totality), and credit transfers. The process offers students recognition of prior formal learning acquired in other establishments and institutions in order to facilitate their mobility and transfer; it moreover widens the process of recognition to those people able to demonstrate that they have acquired knowledge, skills and competences through professional or personal experience. The immediate result of a successful recognition process is a proof of competences, which then in turn may lead to access to higher education programmes, or to the award of credits or a full degree (on the basis of exemption). Adult education pays great attention to the approval of acquired competences, both with regard to dispensations and the certification of acquired competences.

In Belgium, the notion of certification is traditionally associated with certificats and diplomas issued by education and training operators organised by the Communities, with these being legally recognised. On the basis of the European reference definition (without taking account here of private certifications which are becoming increasingly commonplace), other certifications issued by public operators have gradually begun to appear in the VET field:

- Certifications issued by operators organising training which are recognised by all Communities (or are in the progress thereof);
- The Skills Certificate awarded by the CVDC, certifying the recognition of particular competences associated with a profession (generally comprising several Skills Units and therefore several certifications); however, this is not legally recognised as a diploma as the French-speaking Community Diploma, even if it is recognised for entry into the professional field or in the framework of promotions to certain posts in the Walloon region;
- Certificate of vocational experience (Ervaringsbewijs);
- Certifications issued by French-speaking public vocational training operators, through the Recognition of Skills Acquired during Training (RECAF)

In this relatively recent mechanism (2010), a certification test is associated with each training unit, which then corresponds to employability on the employment market, taken separately or in combination with other skills acquired. A Training Skills Certificate is awarded once a unit is successfully completed or following completion of the training pathway. The Supplement to the European certificate, EUROPASS, is awarded in annex. Moreover, a procedure has been established allowing for the correspondance between these certifications with Skills Certificates, which are then automatically awarded to those persons holding these Certificates.

Certifications may be considered for individual training pathways, notably following interoperator routes, or eventually for diplomas, via adult education. In the same manner as common standards, the adoption of certification framework(s) allows for an increase in the legibility and transparency of systems and therefore to an increased mobility of trainees.

The three Communities have their own certification framework.

The Act on the Flemish Qualifications Structure (FQS) adopted in 2009 consists of eight levels, described with elements of knowledge, skills, contextual elements, autonomy and responsibility. Within this framework, there are two kinds of qualifications: the 'professional qualification' and the 'educational qualification'. Both are outlined with the same elements. Professional qualifications are based on the content of 'Competent'. Educational qualification (e.g. a secondary education certificate, a bachelor's or master's degree, an associate degree) can only be obtained and therefore exclusively developed by educational partners. A vocational education programme will lead to an educational qualification. FQS is also a reference for validation of non-formal and informal learning and as an orientation point for guidance and counselling.

The intra-French-speaking framework is still under development. However, several significant advances have been achieved. A dual branch framework principle has been adopted: one branch for the 8 levels for all education certifications; one branch for the 8 levels for vocational training certifications and certifications for skills validation. At this stage, common generic descriptors and principles in the positioning methodology have been adopted.

In Wallonia and in Brussels, workers and job seekers can obtain official recognition of professional skills. 4 specific pathways have been developed (Validation of skills, VAE in High schools, in universities or in the Social Advancement Education).

Validation of competences is implemented by a decree of July 2003, thanks to the Consortium de validation des compétences (CVDC) and to the affiliated Center of validation. They are organized by the five public institutions of education and vocational training: FOREM, Bruxelles Formation, Education for social advancement (EPS), the Institute of Training of Small and Medium Enterprises (IFAPME) and Service Training for Small and Medium Enterprises (SFPME).

In the German-speaking Community, the Decree on the Qualifications Framework is currently in the parliamentary phase. The regional qualification framework of BEDG consists of eight levels, described with elements of knowledge, skills, contextual elements, autonomy, responsibility and social competences. Within this framework, there are two kinds of qualifications the 'professional qualification' and the 'educational qualification'. Both are described with the same elements.

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In **Greece** the main funding and supporting agencies are:

REGIONAL LEVEL:

1. STATE FUNDING

   Creation of Structures for the prevention and management of dementia in the Region of Western Greece (Day Center for Patients with Dementia, Interconnection Program of the Day Center with KAPI) with funding through the Regional Operational Program Western Greece 2014-2020[26]

2. DONATIONS / GRANTS

   Companies, within the framework of Corporate Social Responsibility, provide sponsorships to non-profit organizations that deal with vulnerable groups. Indicatively:

   - Olympias Odos (*via the Vinci association*)[27]
   - GEFYRA SA (*sponsorships to member organizations of the Solidarity Pillars in the Prefectures of Achaia and Etoloakarnania*)[28]

NATIONAL LEVEL

1. COMMUNITY FOUNDATIONS

   Public Benefit Institutions from Greece and abroad frequently donate to non-profit organizations that support and care for the elderly and patients with dementia. Indicative Institutions that make donations at the national level:

   - TIMA Public Benefit Foundation (*Priority in the donation of projects related to age issues*)[29]
   - Stavros Niarchos Foundation[30]
   - Ioannis S. Latsis Public Benefit Foundation[31]
   - Bodossaki Foundation (*through the EEA Grand program grants projects to civil society organizations*)[32]
   - Helidoni Foundation[33]

[26] https://www.espa.gr/el/Pages/Proclamationsfs.aspx?item=4363 [record source funding for Dementia and Alzheimer disease]
[27] http://syndesmos-vinci.gr
[28] https://www.gefyra.gr/company/Etairikh-politosunh/
[29] https://www.timafoundation.org/
[30] https://www.snf.org/
[31] https://www.latsis-foundation.org/ell/
[32] https://www.bodossaki.gr/- https://www.activecitizensfund.gr/
[33] https://www.helidonifoundation.org/

2. RESEARCH PROGRAMS

- Research-Innovate-Create (*research projects in collaboration with research institutes, academic institutions and private sector companies*). Among the areas of funding is the health sector[34]
- "I Support" Program (*Integrated System to support the independent living of the elderly*)[35]

EUROPEAN PROGRAMS

The source of funding for institutions are the various European programs that are announced every year, both centrally, by the European Commission, and decentralized, by the national operators of European programs.

- Erasmus +[36]
- HORIZON[37]

STATE FUNDING

- Funding for the creation of structures for the prevention and management of dementia through the Regional Operational Programs in the NSRF 2014-2020[38]
- Day Centers for Patients with Dementia[39]
- Memory Clinics[40]
- Boarding schools for end-stage patients
- Day Centers Connection Programs with local government structures

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Until 2012, **Italy** lacked a formal national framework for connecting education to NATIONAL guidance. This was mainly because of legal and organisational complex distribution of institutional competences on vocational guidance at NA and regional level and between the divergent systems of education.

In 2012, the Italian government, together with those regional and local has done an agreement, which aimed to integrate guidance activities. Its main go promote a common national strategy for lifelong

[34] https://www.espa.gr/el/Pages/Proclamationsfs.aspx?item=4315
[35] https://www.ypostirizo-project.gr/
[36] https://www.iky.gr/el/
[37] https://ec.europa.eu/programmes/horizon2020/en/area/health
[38] https://www.moh.gov.gr/articles/ethniko-parathrhthrio-gia-thn-anoia-alzheimer/6144-apotimhsh-ylopoihshs-kai-proodoy-efarmoghs-ethnikoy-sxedioy-drashs-gia-thn-anoia-%20noso-alzheimer-2019
[39] https://alzheimerathens.gr/kentra-imeras-gia-atoma-me-ania/
[40] https://www.gerontology.gr/χρήσιμα/ιατρεία-και-κέντρα-μνήμης/

guidance in education and employment, as well as to form an interinstitutional working group with responsibilities.

In 2013, Italy issued the National guidelines for lifelong guidance (Accordo Regioni ed Enti locali sul documento recante: Definizione delle linee guida sull'orientamento permanente, 5 dicembre 2013), agreed between the Education Ministry (Ministero dell'Istruzione dell'Università e della Ricerca, MIUR), the Labour Ministry (Ministero del Lavoro e delle Politiche Sociali) and the regions.

The national guidelines establish the right to lifelong guidance for and define five main functions that national and regional career guidance must provide:

a. career education: activities for learning career management skills (CMS
b. information: services and tools for addressing the information needs o guidance stakeholders with reliable information resources;
c. supporting transitions: services and activities for providing help and ad reach learning and career goals and to manage changes and transition
d. guidance counselling: interviews and guidance tools focused on the pathways;
e. functions of management of system: development of networks for training and updating of career guidance practitioners.

Law no. 92/2012 on the reform of the labour market provides an official definition of lifelong learning: "the term lifelong learning refers to all learning activities formally, non-formally and informally undertaken throughout life with the aim of improving knowledge, skills and competences in a personal, civic, social and/or employment-related perspective".

Non-formal learning is an intentionally chosen learning that takes place outside the formal education and training system. It takes place in any organisation with educational and training purposes, also in voluntary bodies, national civil service organizations, organisations of the private social sector or enterprises.

'Certifiable competences' are a structured combination of knowledge and skills recognisable also as formative credits through a special procedure for the validation of non-formal and informal learning. The certification of competences is defined as a public deed that ensures learning transparency and acknowledgment, consistently with the objectives set by the European Union. A certification, diploma or qualification formally attests that assessment and validation have been carried out by a public institution or an authorised subject.

The decree no. 13/2013 – issued in application of law no. 92 - provides the general rules of the national system for competences certification. The decree makes the new National system for competences certification operational; it aims at increasing the professional competences acquired at work, as well as those acquired in leisure time in order to promote mobility, to foster the meeting together of demand and supply in the labour market, to increase learning transparency and the relevance of certifications at national and European level.

Subsequently, an inter-ministerial decree issued on 30 June 2015, has defined the National framework of the regional qualifications. The decree has established:

1. a tool for the mutual recognition of regional qualifications,
2. standard procedures and certification for the identification/validation of non-formal and informal learning and of the certification of competences.

Finally, the inter-ministerial decree issued on 8 January 2018 has established the National framework of qualifications (Quadro nazionale delle qualificazioni - QNQ), which is the tool that describes and classifies all qualifications released within the National system for the certification of competences.

The QNQ is the national tool for referencing national qualifications to the European qualification framework. Moreover, the QNQ has the purpose of coordinating the various systems offering lifelong learning and the services for the validation and certification of competences.

An innovative aspect of the new adult education system, that contributes to promote the national lifelong learning policies, is the promotion of the cultural heritage and the professional experience of the individual. The introduction of the Individual formative agreement allows for the acknowledgement of the adult's knowledge, formal, informal and non-formal competences.

The agreement is signed by the adult, the specific relevant board and the head of CPIA and – for learners of the second level pathways – also by the school head of the upper secondary school. The Individual formative agreement formalises the personalised study pathway related to the teaching term of the path chosen by the adult at the time of enrolment. The Certificate for the recognition of credits is annexed to the Agreement for the personalisation of the pathway.

FUNDING

The funding framework for validation activities has not changed since 2016 and is mostly represented by public funds, mostly regional and European (ESF or the Leonardo da Vinci Programme of the Lifelong Learning Programme, LLP). Also Employers' Training Funds (*Fondi Interprofessionali*) have been used for financing validation projects and models.

Within the last two years, there has been an increased use of the Youth Guarantee funds for validation procedures addressed to NEET beneficiaries, including the national project of validation in the Civil Service.

There are no new official data about costs. An unofficial estimation made within the validation system of the region of Tuscany estimated that the cost of an average process of validation would range from EUR 500 to EUR 1 200 per individual (depending on the complexity of the individual experience and on the need/opportunity for external assessment).

Usually in Italy no charges are expected from the validation beneficiaries. Most of the validation practices are carried out with public funds but in some contexts. there are some pilot experiences of co-funding between private and public funds. For instance, in the Lombardia regional system, there is a contribution requested to the candidate of validation and certification services (around EUR 600) but just if he or she needs tutorship in building up the portfolio and if he or she is not classified as belonging to a disadvantaged group.

In Emilia Romagna, there are some experiences of funding in cooperation between public and specific enterprises interested in validation for their employees.

VALIDATION IN EDUCATION AND TRAINING

According to Legislative Decree on the 'National competences certification and validation of non-formal and informal learning' n. 13/2013, there is a national system of validation in Italy but it is not fully developed.

The emergence of a national policy on validation is related to the Law No. 92/2012 about the reform of the labour market in Italy. This Law approaches validation by defining a national system of certification of competences and validation of non-formal and informal learning. In the chapter related to lifelong learning this law indicates employment services and enterprises, together with schools, universities and VET providers, as relevant actors. The law states that these stakeholders should constitute local networks for the concrete application of the policies on lifelong learning which also aim to re-trace and value formal, non-formal and informal learning.

INFORMATION, ADVICE AND GUIDANCE

In Italy, there are several information and advice networks and these are not always coordinated with each other. Their responsibilities are mainly to give information about the territory and job opportunities. Nevertheless, every regional validation system includes in its guidelines a clear reference to a duty of information and guidance prior to commencing the validation procedure.[41]

[41] All references:
CEDEFOP (2018) *European inventory on validation of non-formal and informal learning 2018 update*, Luxembourg, Office for Official Publications of the European Communities
CEDEFOP (2014). *The use of validation by enterprises for human resources and career development purposes*. Luxembourg, Office for Official Publications of the European Union, in http://www.cedefop.europa.eu/EN/publications/23963.aspx
CEDEFOP (2008) *Validation of non-formal and informal learning in Europe - A snapshot 2007*, Luxembourg, Office for Official Publications of the European Communities
CEDEFOP *(2014). Use of validation by enterprises for human resource and career development purpose.* Luxembourg: Publications Office of the European Union. Cedefop reference series; No 96.
CEDEFOP (2015), European *Guidelines for validating non-formal and informal learning.* Office for Official Publications of the European Communities

EU PERSPECTIVE

ACTIVE & HEALTHY AGEING AND HEALTH LITERACY: DEFINITIONS AND INTERACTION

This chapter is about health literacy in older adults and active and healthy ageing under the perspective of the prevention of cognitive decline in the elderly population, and how these concept fit into the framework of the EU initiatives, programs and projects.

There are various definitions of health literacy in the literature. The most common one is "*the degree to which individuals have the capacity to obtain, process and understand basic health information and the services needed to make appropriate decisions to improve their well-being*". This definition encompasses both the skills needed to look for the adequate information and the cognitive functions used move form data/information to action. In particular, cognitive health is an important component of brain health and it refers to the ability to clearly think, learn, and remember. Cognitive impairment, on the other hand, is one of the most common indicators of human ageing and poor cognitive health, including mild cognitive impairment, dementia, and so on, affects the health status and well-being outcomes of older adults and increases the level of care and psychological impact on families.

As reported by a training scheme of the Council of Europe, research shows at the same time that a person's health status is seriously influenced by the degree of health literacy, in particular that a low level of health literacy is associated with:

i. Less frequent use of preventive services;
ii. Higher risk to have chronic illness;
iii. Lower competence to self-manage their health problems;
iv. Poor health outcomes of treatment.

Health literacy means thus being able to understand one's personal health needs and, for an ageing population in particular, being aware of the risks associated with the ageing process, being able to understand what can be done in order to balance those risks and being consequently prepared to take positive action on a daily basis in the long term. Cognitive decline is a serious obstacle to health literacy and therefore a serious threat to the wellbeing of the ageing population, besides being a great social and economic cost for the European society as a whole.

As for the concept of "***active and healthy ageing***", the World Health Organisation defines Healthy ageing in the following terms: "*the process of developing and maintaining the functional ability that enables wellbeing in older age*". Functional ability is about having the capabilities that enable all people to be and do what they have reason to value. This includes a person's ability to:

- meet their basic needs;

- learn, grow and make decisions;
- be mobile;
- build and maintain relationships;
- contribute to society.

Healthy Ageing, like Active Ageing, emphasizes the need for action across multiple sectors and enabling older people to remain a resource to their families, communities and economies.

It can be therefore stated that healthy ageing is needed to prevent cognitive decline and subsequently sustain health literacy while ageing. At the same time, health literacy gives to individuals the tools they need to take the actions needed for a healthy lifestyle, and this process should beging well before entering the so called third age (the threshold is still at 65 years, although for example the Italian Society of Geriatrics already proposed – with solid scientific reasons - to raise it to 75 years).

ACTIVE AGEING UNDER THE EU PERSPECTIVE

Over the last decade, the attention of the EU towards the ageing phenomenon grew constantly and was expressed by several initiatives, actions, programs, projects and policy documents.

The early policy documents of the Europan Commission on this topic date back to 2005 (the "Green Paper *A new solidarity between generations in the face of demographic changes", "the European values in the globalized world*") and 2006 ("*The demographic future of Europe, transforming a challenge into an opportunit*y), allowing to define active aging as the tool through which Europe would be able to face the continuous and unstoppable demographic change, its future well-being and ensure social cohesion to meet the challenge.

The EU launched in 2012 the "European year of active aging and solidarity between generations", which proved to be the starting point of several actions and initiatives to achieve three main objectives: a) allow women and men to work longer by overcoming structural barriers and by offering appropriate incentives, so that many older people shall be helped to remain on the labor market with individual and systemic benefits; b) romote active citizenship by creating environments that exploit the contribution that the elderly can still give to society; 3) allow women and men to stay healthy and lead independent lives over time, thanks to an approach to healthy aging throughout life to be combined with adequate housing and local environments that allow the elderly to stay in their homes for as long as possible.

Among the initiatives stemmed from 2012 "European Year of active ageing and solidarity between generations", the European Social Fund financed the ESF-Age Network, a showcase for best practices in managing older workers in 14 Member States and the EU sustained the Best Agers initiative in the Baltic Region to help people 55 or plus to work with different age groups in business and skills development. At the end of the European Year, the Council set out guidelines for active ageing as a checklist for the actions

to be undertaken after 2012, going ahead with many education, benefits and employment measures, as well as providing support for healthy and independent living. The promotion of active and healthy ageing was also one of the investment priorities of the European Social Fund for 2014-20. In accordance with a growing interest for ageing related policy development, the European Programme for Employment and social innovation (EASI) in 2014 validated the Active Ageing Index (AAI – an instrument designed to check active ageing results at the country level and to outline potential participation of elderly people to social life) for the EU regions, concentrating on the usefulness of the Active Ageing Index for policy making.

The ACPA (Acclimating European Cities to Population Senescent) project of ESPON recently (2019) investigated the efficacy of policies and initiatives to develop age-frineldy cities and initiatives that support "ageing in place" in eight cities and city-regions. ACPA's results directly sustain the adaptation and development of policies and action plans for shaping up ageing-adequate urban environments in the perspective of post-2020 cohesion policy.

In October 2019, the European Committee of the Regions (CoR) adopted an opinion on Active and healthy ageing, a very paramount one, considering that people aged 65 and plus are 19.4% of the European Union's population. It stressed the pertinence of regional and local levels in developing policies aiming at ameliorating the health and quality of life of seniors, underlining that "Regions have a competence on health policies in 20 out of 28 Member States and can embolden the utilization of Silver Economy goods and services". The CoR highlights withal that "local and regional authorities play a pivotal role in designing and scaling up innovations that make life easier for older people" and can "turn the 'demographic tsunami' into an authentic opportunity to conceive innovative solutions in our cities and regions while stimulating their business community. Regions can thus support older adults in our territories by developing policies tailored to the emerging seniors' needs, at the same time backing Silver Economy entrepreneurs in the development of innovative goods, services and tools.

THE EU INNOVATION PARTNERSHIP ON ACTIVE AND HEALTHY AGEING

The European demographic scenario is well known: according to Eurostat, the number of people aged 65 and over will almost double from 17% to 30% by 2060, and those aged 80 and over will rise from 5% to 12%. In the light of such impressive numbers, it appears clear that ageing is one of the key challenges for Europe in the coming decades, both at the economic and social level, and active ageing and health literacy as drivers for prevention are two fundamental pillars of the strategies that are being developed at EU, national, regional and local level. Furthermore, both active ageing and health literacy have be put in relation with the parallel growth of digital tools and systems which can facilitate their effective deployment.

In this scenario, the European Commission launched the European Innovation Partnership on Active and Healthy Ageing in 2011 (the first EIP to be launched by the Commission, in the context of the 2014-20

Flagship Initiatives), which proved to be a valuable initiative throughout the programming period, and that will have a prosecution after 2020.

The EIP is a partnership that fortifies EU research and innovation by putting together all the pertinent actors at EU, national and regional levels across different policy areas to handle the societal challenge of ageing, involving all the innovation chain levels. The EIP has three goals:

i. *Enabling EU citizens to lead healthy, active and independent lives while ageing*
ii. *Improving the sustainability and efficiency of social and health care systems*
iii. *Boosting and improving the competitiveness of the markets for innovative products and services, responding to the ageing challenge at both EU and global levels, thus creating new opportunities for businesses*

The EIP-AHA, under the coordination of the Commission, works through six Action Groups and 102 Reference Sites. Action Groups put together public and partners which are interested to work jointly and contribute with their knowledge, experience and ideas in these areas of Active and Healthy Ageing: integrated care, adherence to prescription, falls prevention, lifespan health promotion, independent-living solutions and age-friendly environments. Reference sites are regions or local entities (cities, hospitals or other health organisations) which represent “inspirational ecosystems, distributing ingenious and workable solutions that ameliorate the lives and health of older people and the whole community”. The EU Commission sustains and finances twinning between them in order to ensure the scaling up of their best practices at the EU level. Reference sites collaborate in the Reference Sites Cooperative Network at the EU level, shape up together innovative projects and develop innovative solutions for the benefit of EU senior citizens and their regional/local ecosystems. The Reference Sites all together committed more than € 4 billion in the period 2016-2018 for digital innovation solutions in the area of active senescent and reached out with this positive innovation more than 5 million people. The best practices are included in a public repository with more than 200 entries which is per se, a great added value of this impressive work, carried out under the Commission's coordination but without a dedicated line of financing.

The EIP-AHA was withal among the group of “champions” that elaborated the Blueprint to innovate health and care in Europe, a document officially handed over to the European Commission in December 2016 in the context of the European Ageing Summit flagship event was organised by the EC in partnership with the European Parliament and the Committee of the Regions, with around 1200 participants engaged in developing, investing in and deploying digital innovation for active and healthy ageing. Concerning health literacy and healthy ageing, the two concepts of most direct interest for the ACDC project, the Blueprint states that “citizens' digital health literacy is an essential element for successful transformation towards Integrated Care. The established education systems across Europe have increased their level of digital literacy amongst the population. In that respect a population wide approach to improve health literacy is likely to reach population better and give better results”. At the same time, while ICT tools and devices are nowadays of widespread use across ages, “the same cannot be claimed concerning health literacy, despite

the recognition that health literacy is a determinant factor in improving public health outcomes". The Bluprint confirms that "Digital literacy can help boost health literacy. Digitally and health literate citizens are enabled to play a more active role in their health management (improved self-management) and will be better informed about health issues. Being better informed also means being able to manage, detect and anticipate" In conclusion "digital health literacy can indeed help improve prevention and adherence to a healthy lifestyle, improve therapy compliance, enhance the safe and proper use of medicines, strengthen the patient involvement and empowerment, and finally improve health outcomes and provide safer care".

In the updated version of the Blueprint, issued in December 2019, the scenario is developed through twelve "Personas" as different potential user cases, and the suggested ICT solution are indicated for each of them. It is interesting to note that the ICT "Education, including gamification or serious games; health and digital health literacy, empowerment" is present in all the scenarios,

In terms of what operative scenarios best accompany the transformation, the European Innovation Partnership on Active and Healthy Ageing recently focused specifically in the creation and implementation of innovative ecosystems in the health system, mostly at the regional level, considered as the ideal scenario to develop care, cure, prevention and community based healthy ageing processes. So, the point is to establish: 1) common strategic objectives and type of activities carried out and in what context; 2) specific characteristics of the ecosystem, through formal and informal cooperation modalities; 3) communication within and outside the ecosystem to encourage continuous discussion between the coalition of stakeholders involved; 4) recommendations needed to keep the established ecosystem proactive. In other terms, to find a shared path to make these successful regional ecosystems scalable and replicable.

ACTIVE AND HEALTHY AGEING IN THE SMART SPECIALISATION STRATEGIES AND IN THE EU PROGRAMS

Smart Specialisation Strategies in the 2014-20 period, meaning significant funding from the ERFD Operational Programs, included active and healthy ageing or similar domains form many European Regions: for example, Challenge 3 - A new healthy lifestyle model based on active ageing of the Galicia Region; in this spanish region, the technological improvement of environment and living spaces is paramount to the regional development, based on the Regional Smart Specialisation Strategy within the "Smart Health" area and pursued through the support and participation in technological innovation initiatives and projects. In Lazio Region, in Italy, life sciences and well-being are now part of the same industrial sector which includes all products and services for personal health. They not only cover the traditional "diagnose, cure, rehabilitate" process but also increasingly respond to new needs such as "to prevent, look and feel better, to slow down aging". The "Life Sciences" Specialization Area takes its cue from the production sector called "Health Industry". The Region of Southern Denmark has Health and social innovation at the core of its Smart Specialisation Strategy, coherently with the strong emphasis on healthy living and active ageing they bring forward as members of the European Innovation Partnership.

Within the societal challenge of Horizon 2020 “health, demographic change and well being” the focus on personalizing health and care was determined by the aging of the European population, by the growing burden of communicable and non-communicable diseases and by the fallout due to the economic crisis. These combined factors are endangering the sustainability and equity of Europe's health and care systems, where Europe already spends almost 10% of its GDP. The personalization of health and care aims to create opportunities for real avant-garde research and radical innovation in response to these challenges, supporting the translation of results into clinical practice and more generally of health and care, in order to improve the health itself, reduce health inequalities and promote healthy and active aging.

The Ambient Assisted Living joint research program supports research and development activities jointly developed between different states in order to improve the quality of life of the elderly and disabled through the use of ICT technologies. This program is implemented with financial support from the European Union on the basis of article 169 of the Treaty of the European Union. The program aims to: 1) extend the life time of people in their preferred environment by increasing their autonomy, safety and mobility; 2) support the maintenance of the health and functional capacities of the elderly; 3) promote a better and healthier lifestyle for individuals at risk; 4) strengthen security, prevent social isolation and support the maintenance of a multifunctional network around individuals; 5) support loved ones, family members and care organizations; 6) increase the efficiency and productivity of the resources used in societies that face the problem of aging.

Recently, with the aim of communicating the available and potentially useful solutions to alleviate the challenges created by social distancing and quarantine measures in the different countries, the Active Assisted Living - AAL program has included in its website a collection of solutions, developed by different projects financed by AAL and now available on the market.

These solutions are divided into: "Prevention of social isolation" and "Feeling safe at home". The first category includes a series of easy-to-use tools that promote online communication, while the second category includes solutions useful to support healthcare professionals in helping the elderly to feel safe at home. Overall, the solutions have been developed as part of a pan-European effort.

The EU pursues the goal of protecting health and ensuring that human health is safeguarded in every policy. As a policy of shared competence between the EU and the Member States, the EU collaborates with the Member States to improve public health, promote prevention policies and reduce risks for physical and mental health. This is the context of the third EU Health Program, following up on the two editions of the "Community Action in the Health Sector" program, 2003-2007 and 2008-2013. The program has four specific objectives: 1) promote health, prevent disease and improve conditions for a healthy lifestyle; 2) protect citizens from cross-border health threats; 3) contribute to the innovation, efficiency and sustainability of health systems; 4) facilitate access to better and safer healthcare. This program is used as a Commission tool to implement the European Health Strategy, "Together for Health". The Health program is

implemented through annual work programs, within which the priorities and funding criteria for the individual actions are established. The program also supports Member States in responding to current economic and demographic challenges and improving the conditions for a longer and healthier life for their citizens by reducing inequalities.

"More Years Better Lives - The Potential and Challenges of Demographic Change" is a joint programming initiative that aims to improve coordination and collaboration between European and national research programs related to demographic change. The JPI "More Years Better Lives" therefore adopts a transnational and multidisciplinary approach, which brings together different research programs and researchers from different disciplines in order to provide solutions for the upcoming challenges and exploit the potential of societal changes in Europe.

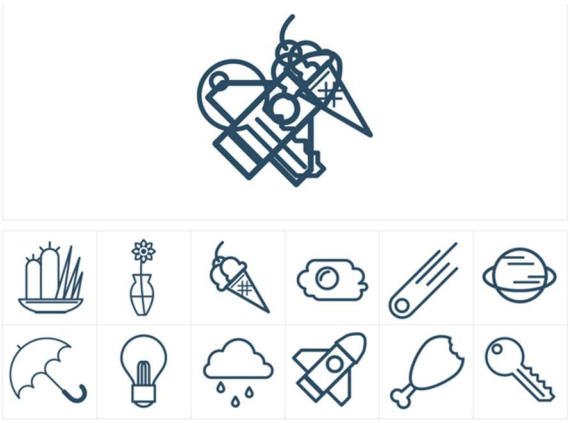
Overall, hundreds of project have been financed by the European Commission and by the EU in general covering the field of Active and Healthy Ageing under many angles in the last programing period (2014-20209: research and development (Horizon 2020); health and frailty (Public Health), ICT (Ambient Assisted Living), social aspects (EASI and ESF), business development (S3-ERDF), Lifoelong Learning (Erasmus Plus), in addition to the many others financed by the European Territorial Cooperation Programs (in most of them a clear reference is made to tackling the demographic change), of course with many areas of overlapping between programs and AHA visual angles. One successful way to keep at least part of them together was the Innovation Partnership, a collaborative network which, over the years, managed to group under action groups and reference sites many relevant public and private stakeholders, and developed good schemas for scaling up the best practices in the framework of dedicated regional ecosystems. The heart of the matter is that Active and Healthy ageing and health literacy and the enormous chellanges they pose to the sustainability of our communities can only be dealt with through an holistic approach, because they affect almost every aspect of our future life, including the way we imagine to build or re-build our urban environments and the relation between the urban ecosystem with the inner territories.

In other terms, it is not possible to talk about old age without talking about the whole society. The topic of aging immediately concerns what our societies intend to do for themselves in the coming decades. The unprecedented demographic situation that we are facing today means that we have no historical experience of the aging populations and that the related policies must be written from scratch. It is necessary to try to conceive/invent a model of future society and try to anticipate the evolution of relations between the main components of the social system, being always aware that it is not only the levels of the phenomena that evolve but also the bonds that unite them together.

V. Conclusions

Quoting from the definition of UNESCO in 1997 "***Non Formal Education***" can be defined as any organized and sustained educational activities that do not correspond exactly to the definition of formal education. Non-Formal education may therefore take place both within and outside educational institutions, and cater to persons of all ages. Depending on country contexts, it may cover educational programmes to impart adult literacy, basic education, for out-of-school children, life-skills, work-skills, and general culture. Non-formal education programmes do not necessarily follow the "ladder" system and may have differing durations, and may or may not confer certification of the learning achieve.

"Non-formal training" involves continuing training (lifelong learning) which, by going beyond vocational training, develops throughout an individual's life and also includes personal growth, based on professional experience arising from individual, non-institutionally organised training courses. Non-formal training results from activities in daily life, related to work, family, or leisure (it is often unintentional and may not be recognized).



The main objectives of Non Formal Education can be considered as:

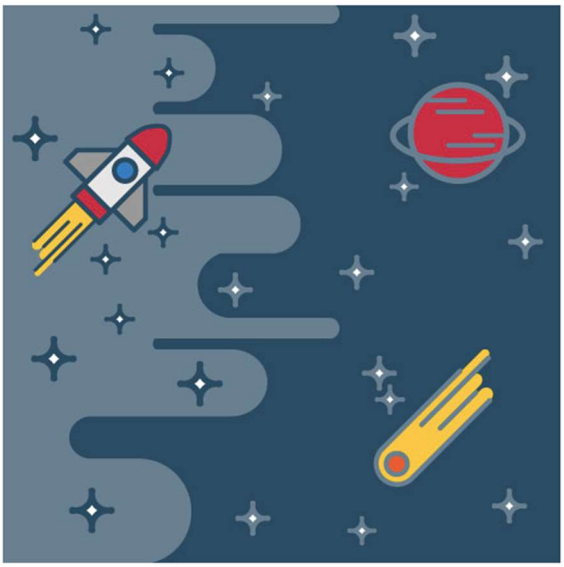
i. Provides functional literacy and continuing education for adults and youths who have not had a formal education or did not complete their primary education;
ii. Provide functional and remedial education for the young people who did not complete their secondary education;
iii. Provide education to different categories of graduates to improve the basic knowledge and skills;
iv. Provide in-service, on-the-job, vocational and professional training to different categories of workers and professionals to improve their skills;
v. Give adult citizens of different parts of the country necessary aesthetic, cultural and civic education for public enlightenment.

The main features connected with the evolution of Non Formal Education currently are:

- All those formative and educational experiences in the fields of social commitment, participation, social inclusion, environmental education, global education (global education) and active citizenship must be accessible to all;

- Formal recognition through recognised accreditation forms at European level of individual training experiences developed in "non-formal" contexts;
- The recognition of those who provide non-formal training in the fields of social commitment, participation, social exclusion, environmental education, education to globalization and active citizenship;
- Envisage those legislative mechanisms that allow the widest possible forms of access to and participation in non-formal training structures and in their provision;
- Provide and establish free advisory and assistance services and/or facilitation of non-formal training projects (for example: administrative and bureaucratic support, tutorship, etc.);
- To increase financial availability, with a view to bridging the existing gap between eligible and eligible projects.

The “EU4Health 2021-27” Program includes actions for the prevention of illness and health promotion, digital transformation of the national and regional Health Systems and empowerment of the access to cure for vulnerable groups.



The European Innovation Partnerships (EIPs) formally ends in December 2020 but, in the light of its success, the European Commission asked to conceive a plan for its sustainability after 2020, strengthening the links with the Active and Assisted Living programme (AAL) and More Years, Better Lives Joint Programming Initiative (JPI MYBL), already mentioned.

The expected beginning of the Horizon Europe with pillar II will be in 2023.

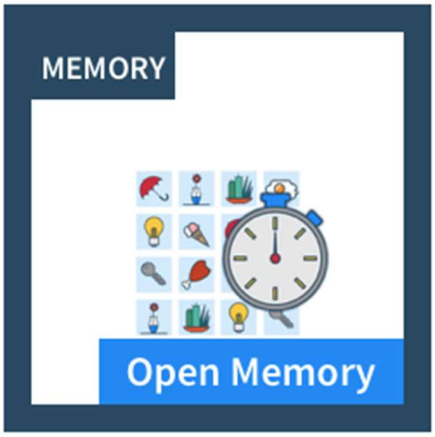
In the Communication “A strong social Europe for just transitions”, the European Commission has set out clear policy plans for the upcoming programming period concerning active and healthy ageing and health literacy for older adults, which – according to AGE Platform – include:

1. Adoption of a report on the impact of demographic change in March 2020 and a Green Paper on Ageing at the end of 2020;
2. Update of the Skills agenda for Europe to further encourage Member States to provide skills validation and life-long learning;
3. Reinforcement of the Erasmus+ Program, which also finances exchanges of adult learning staff;
4. Adoption of the Digital Education Action Plan to promote digital skills of young people and adults;
5. Allocation of 40 billion Euro to social infrastructure projects and social investments as part of the InvestEU investment fund;

6. Strengthening the commitment of the EU towards inclusion and equality, including on the grounds of age
7. Looking at affordable healthcare for the vulnerable, promoting healthy lifestyles and preventive measures and integrated models of health and social care; publishing a plan against cancer

The way the EU tackles ageing and health literacy from 2020 on will be crucial for the sustainable growth of our society. As briefly described in the previous paragraph, a lot has been done in the last years in terms of knowledge growth, awareness raising, project development in many fields. What is needed now is a step forward for integrated policy development at EU level, on the basis of the promising experiences made at local, regional, and national level.

In its small way the ACDC project has provided one simple but concrete tool towards the promotion of an active and healthy ageing and health literacy as a whole for older adults. In particular the project moved its steps from the assumption that *Computerized Cognitive Training* is efficacious on global cognition, memory, working memory and attention and helps improve psychological functioning, including depressing symptoms, in people with mild cognitive impairment, being the situation when a person has trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life.[42]



Also the ACDC experience has confirmed a beneficial therapeutic role for C.C.T. in in people with mild cognitive impairment and, since the many advantages that it offers, it should be considered as a cost-effective tool to prevent cognitive decline and to maintain quality of life and independence in older people.

The pilot process implemented in all the four project countries has built a better understanding of how the ACDC platform could potentially be delivered. The pilot projects confirmed a need for ongoing work of awareness about the importance of health literacy and cognitive decline among a wide range of stakeholders and adult people. For adult people, the topic is so unusual that they need explications clarifications to stimulate their understanding and motivation to adopt a correct lifestyle to prevent cognitive decline. We have also to underlined that people lack true understanding of the impacts of their actions on their health and on their brain and on the ones of their families.

The impact and the effectiveness of a good prevention should be then communicated to the people!

[42] As per project Intellectual Output 1, Scientific Research [*Effectiveness of Computerized Cognitive Training in Preventing Cognitive Decline in Older Adults with Mild Cognitive Impairment*]

The public/private partnerships are important because rapidly increase the diffusion of knowledge and can lead to mutually beneficial outcomes. The value of multi-party collaboration is the diversity of thought and contribute to accelerate the quality of the results. A collaborative environment with diverse skillsets and multiple organisations creates a stimulating and accelerated learning environment for participants. Furthermore, when something is proposed by a public entity, has more credibility for the citizens.

The project and the pilot phase was a new attempt to raise awareness among stakeholders about the need for improved health literacy systems and effective means of achieving them. It remains an important goal to reach.

In conclusion, the project pilot action has reached some important objectives:

- Provide the target group[43] with **free of charge and user-friendly basic tools to limit and delay cognitive decline** thus promoting an active ageing;
- **Capabilities to initiate long-term change**: the pilot has raised awareness of people and organizations about health literacy and cognitive decline;
- **Sustainability of the platform**: the work initiated by this pilot will continue beyond the end of the project. It is likely that the relationship established will continue and certain associations and stakeholders remain proactive about the use of the tool.

[43] Adults in the age 40-60 as main targets for prevention, according to the Application form.