

Needs Assessment Regarding ICT for Elderly People and their Carers: The PROADAS study

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Αξιολόγηση Αναγκών Πρόσβασης σε Νέες Τεχνολογίες Ηλικιωμένων Ατόμων και των Φροντιστών τους: Μελέτη PROADAS

Περίληψη στο τέλος του άρθρου

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Introduction: According to the Digital Agenda for Europe (2014–2020) enhancing digital literacy, skills and inclusion is one of the main priorities. All European elderly people must become e-seniors as soon as possible. On the hand, active ageing means that senior citizens activate themselves in order to be as independent as possible and autonomous, taking part in personal, societal and financial life along with their own contribution. As a result, triggering these new digital tools and ICT skills can assist the elderly to be a more integrated part of our society. **Aim:** The Erasmus+ Proadas project promotion of Active Digital Ageing Skills aims at tackling the gap between ageing population and digital literacy and strengthening and reinforcing the stakeholders, experts and practitioners in the fields of adult education and lifelong learning, by identifying the needs of elderly people and their carers regarding the technology. **Methodology:** The study was conducted in January 2019 in all six countries participated in the Proadas project 35 carers and their assigned seniors were selected via convenience sampling by a minimum of three best practices- centres of excellence per country. A twelve-question close format questionnaire was developed, using a Delphi approach and completed by all participants. All data was analysed using SPSS 20. **Results:** A total of 188 responders from all six countries agreed to participate response rate 89.5% of which 51.5% women. Age varied significantly between 20-75 years. Regarding existing ICT skills participants in all countries were familiar with internet (60%) and communication via digital tools (skype, messenger) (56.7%) email (40%) and basic ICT skills (36.7%). Very few responders used advanced services such as e banking (26.7%) or e-health (36.7%). There was unanimous agreement that learning is facilitated in groups with the help of family or friends. The most popular option was face to face either in a group (86.7% high or more) or via a private lesson (80% high or more). Digital learning options were seen more positively, with high or more approval rates ranging between 33.4% for MOOCs, 36.7% for e-books and

40% for ppt files and forum to the most popular options of audio files and open education resources (both 50%), mobile apps at 53%, pdf and video files (both 60%) and finally tutorials (73.3%). On the other hand, traditional options were marked less favorably, with a high or more acceptance rate of only 33.3%. The main obstacles regarding digital integration involved lack of trainers, motivation and suitable educators. **Conclusion:** There is latent need for the integration of ICT in elderly care. The development of suitable digital and traditional learning material and the involvement of motivated formal and informal carers are key strategies for the successful implementation of such a reform.

Key words: Ageing, Carers, Elderly, Family, ICT, New technologies.

Introduction

Adding 30 years to the average lifespan, the cohorts of 60 plus year olds will grow to one billion by 2020, almost all relatively new to digital life. At the same time, Information and Communication Technology ICT continues to make great strides, constituting significant part of our lives, and be present in all everyday activities, including leisure and entertainment. However this integration of technology into all aspects of modern life exacerbates the skills gap between digital literate and illiterate citizens, the latter being a significant percentage of persons over 60, making the integration of this non-digital generation into the rapidly evolving digital society a real necessity and a hot challenge.¹

According to the European Commission and the key initiatives of Digital Agenda for Europe, a key priority is enhancing digital literacy. Skills and inclusion is one of the main priorities for the European Social Fund Regulation 2014–2020.² Additionally the European Economic and Social Committee on 21.10.2016 has recommended that all European citizens over 50 must become e-seniors as soon as possible since –among others– digitization leads older people to learn to be more proactive and it eliminates age division.² Hence, older peoples' access to digital technology and the accessibility of that technology based on acquisition of knowledge and skills should be facilitated and their education, lifelong learning and mentoring must also be developed without delay to ensure successful inclusion.

Increasing knowledge and use of ICT along with the application of instrumental tasks represents an opportunity to use ICT to support independence and autonomy in daily life.³

The aim of this paper is to screen existing ICT skills and practices for the elderly in Europe and reveal latent

needs for the development of new digital tools for this high priority population group.

Material and Method

Approval – bioethics

The study was performed following approval by the partner national bioethics committees and the research regulatory authority of the centres invited. In addition, the data protection regulators were informed and conformation to GDPR standards was confirmed prior to study conduction.

Study tool

The study was conducted in January 2019 simultaneously in all 6 countries participating in the PROADAS project. A population of 35 elderly carers per country and their assigned senior citizens were invited to complete a structured 12 question questionnaire relevant to their experience with ICT and their preference regarding further training and skills building. This screening questionnaire was developed by an expert panel consisting of two health professionals per country. Initial open questions were used to prepare a first questionnaire draft, followed by two rounds of progressive selection of statements of common approval using a Delphi approach. The final tool consisted of 12 closed format questions plus an option for a final free comment – open response as depicted in the appendix.⁴

Study population

In terms of participants' recruitment, 35 individuals were approached per country based on an extensive search of existing best practices/centres of excellence. A convenience sample of carers and their elderly companions was chosen in each setting with a minimum of 3 sampling sites per country. Participation was voluntary

and no incentive was offered. In all cases, questionnaire completion was manual and anonymous, with the participant offered assistance for completion by the study field researcher only if needed.

Statistical analysis

All data was introduced in anonymous tables and descriptive statistical processing was performed using IBM SPSS Version 20.

Results

A field-based research has been performed in all countries aiming at the improvement of the latent training needs of seniors regarding new technologies. A structured questionnaire has been distributed among stakeholders involved in elderly care, adult education and also seniors themselves in order to gather seniors' needs, motives, interests, obstacles, experiences, or expectations towards the learning of new technologies.

Study population and participation rate

In total, 188 respondents answered to the questionnaire proposed in the 6 partner countries in Europe. The average response rate was 89.5% with a standard deviation of 3.46, with a minimum in Croatia and Cyprus (85.7%) and a maximum in France (94.3%). Details regarding participation rate per country can be seen in table 1 below.

Population distribution per country

Table 1. Summarizing the number of respondents in partner countries.

Countries	Number of respondents
Belgium	32
Italy	31
Cyprus	30
Greece	32
Croatia	30
France	33
TOTAL	188

Demographics - sex

Regarding the sex of the respondents, the percentages are quite well balanced. The percentage of women is higher in Croatia (60%) and in Greece (63.9%) whereas in other countries the percentage is between 51 to 54%. Details on sex distribution are presented in table 2.

Table 2. Sex distribution in the sample.

Countries	Men (%)	Women (%)
Belgium	50.2	49.8
Italy	45.2	54.8
Cyprus	46.7	53.3
Greece	37.1	63.9
Croatia	40.0	60.0
France	48.5	51.5

Age

Furthermore, the age of the respondents varies between countries. In Belgium, most respondents are aged between 65 and 75 and in Italy around 68 years old. In France as well, the great majority of respondents is aged over 60 years old. In Croatia the average age is 53.6 years old. In Greece, the most represented age group is 40 to 60 years old with 85.5% of the total number of respondents. In Cyprus, the largest age group with 76.7% of the respondents is comprised between 20 and 29 years old since elderly carers are mostly young nurses, non-professional carers and/or young volunteers.

Prior exposure to new technologies/digital tools

Regarding the question "Which kind of technological devices and how often do you use?", most of the respondents in all countries use laptops and smartphones on a daily basis whereas the tablets are not very popular (except in Croatia). This is relevant in countries where respondents are younger, as well as in countries where the average age is higher. For communicating on a regular basis, regardless of age, everyone use the same devices, which means that even older people have an interest in using those tools nowadays. Using a score system where each country's positive evaluation accounts for one point (0 minimum to 6 maximum) the results are those exhibited in table 3.

Table 3. Overview of learning skills score.

Learning skills	Score
Basic IT skills	6
Internet	6
E-mail	5
Communication via digital tools	3
Online banking	2
E-health services	2
Social networks	1
Online shopping	1

Regarding the question, “what are the most sought/ burning needs for seniors in learning new technologies in your country?” respondents from all countries agree on the fact that learning basic IT skills and learning to use the Internet are most appropriate for seniors. When were seniors asked to estimate their learning needs in the field of new technologies, respondents listed the following as their current needs beginning with the most important one are:

- Internet (60%)
- Communication via digital tools (skype, messenger) (56.7%)
- E-mail (40%)
- Basic IT skills (36.7%)
- E-health services (36.7%)
- Social Network (33.3%)
- Photo – Video editing (30%)
- On-line banking (26.7%)
- On line shopping (13.3%)
- E-administration (10%)

Details regarding the responses to this question are presented in figure 1:

Learning methods

With regard to the preferred learning methods, irrespective of age or current professional situation, all respondents prefer face-to-face learning in groups. Both seniors and still active participants also appreciate learning with the help of family or friends. Based on the responses to this question, the most popular option is face to face either in a group (86.7% high or more appropriateness) or via a private lesson (80% high or more appropriateness). However all other proposed options including e-learning, blended or learning via family, friends or peers still received more than 50% high or more approval rate.

Figure 2 summarizes the participants’ learning method preferences.

Teaching format

All countries agreed on the fact that seniors need to learn through traditional formats such as handouts, handbooks, guidelines for better ICT learning. Indeed, seniors prefer to have a manual with didactic tools and images for a better understanding and visualizing the content. Regarding the digital formats, opinions are divided. Vid-

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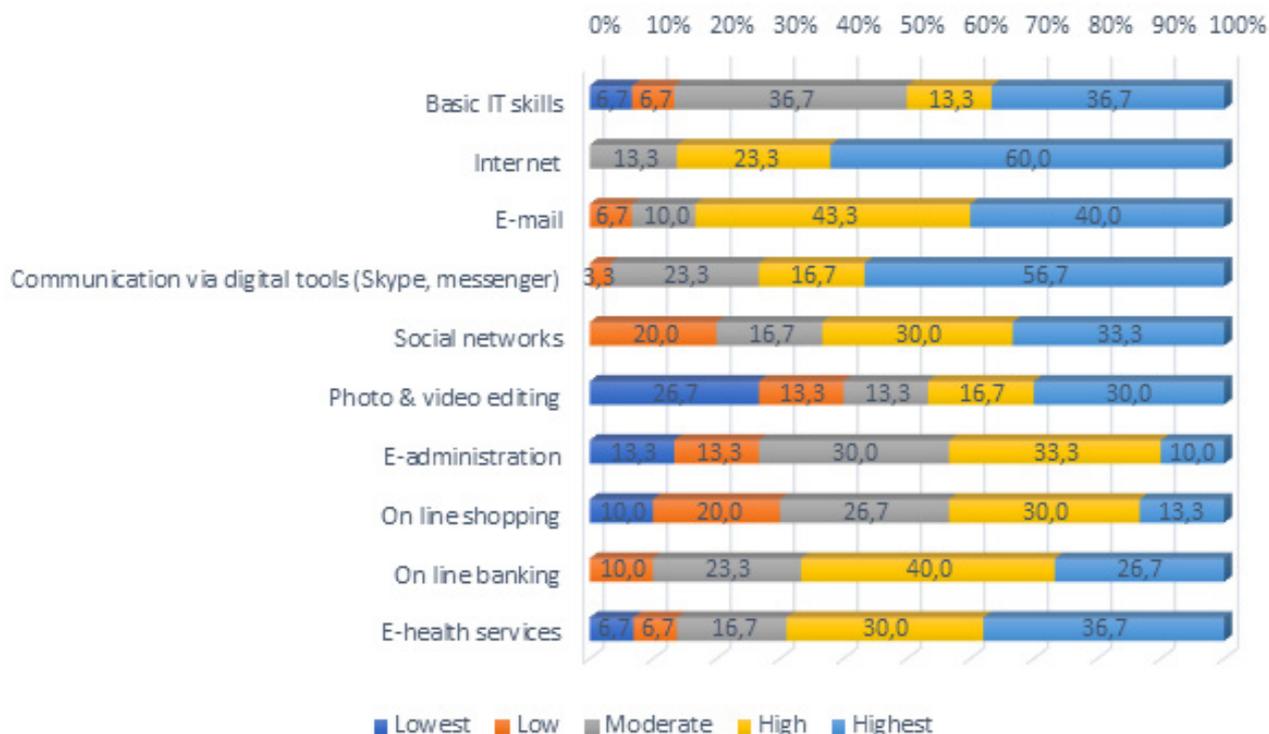


Figure 1. Learning needs of elderly and their carers based on screening questionnaire.

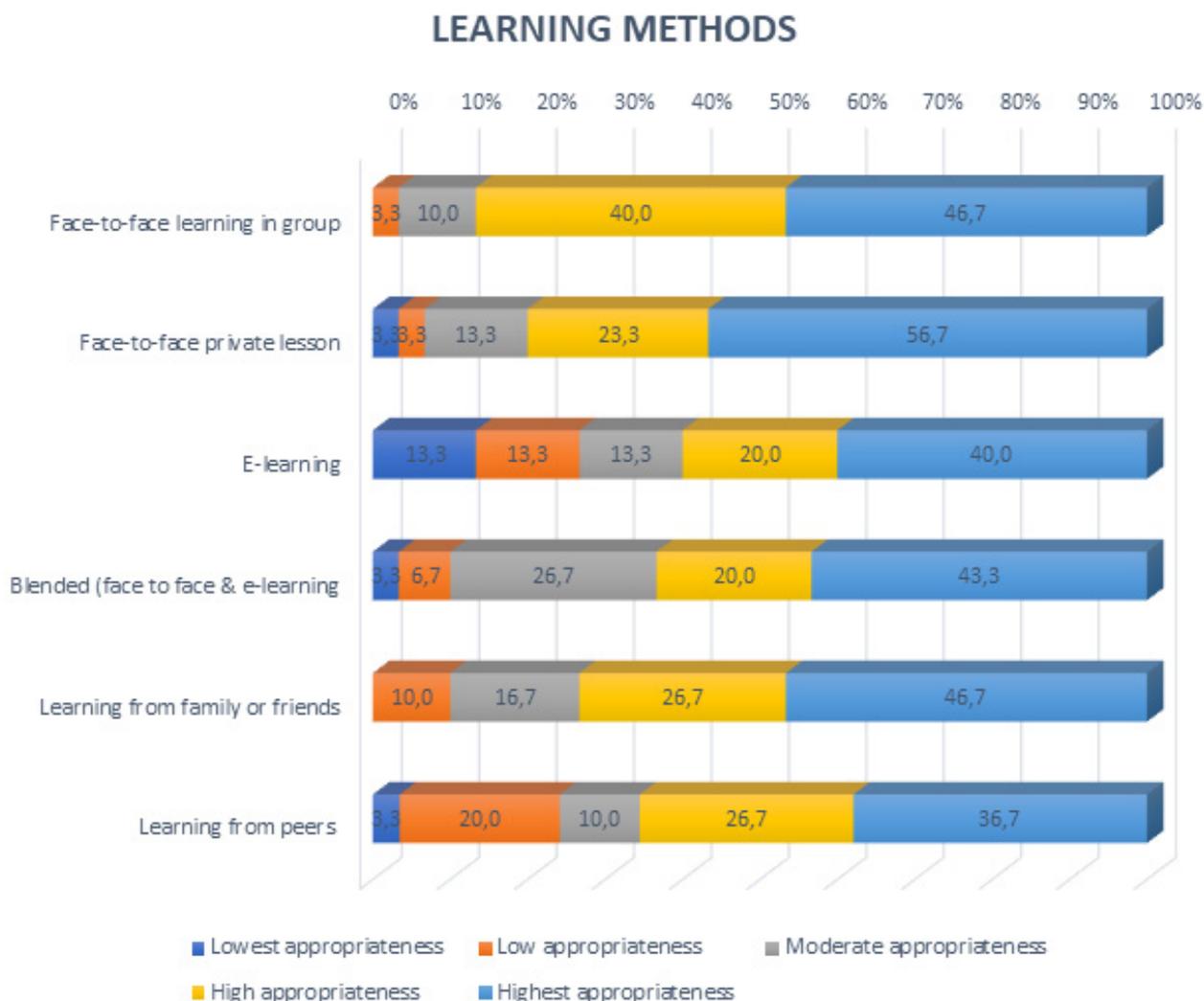


Figure 2. Learning preferences of the elderly and their carers.

eo and audio files are quite appreciated in most partner countries. Tutorials are underlined as a good format of ICT learning in France, Cyprus, Italy and Croatia. As for the interactive formats, Croatia, Cyprus and Greece agree on the efficiency of the e-learning platforms. On the other hand, powerpoint formats as well as e-books are not very popular in all countries. More specifically, digital options were seen more positively, with high or more approval rates ranging between 33.4% for MOOCs, 36.7% for e-books and 40% for ppt files and forum all the way to the most popular options of audio files and open education resources (both 50%), mobile apps at 53%, pdf and video files (both 60%) and finally tutorials (73.3%). On the other hand, traditional options were marked much less favorably, with a high or more acceptance rate of only 33.3%.

Figure 3 summarizes the key responses regarding teaching modality preferences.

Main obstacles observed in learning digital skills

The main obstacles underlined by responders, regardless of their age or professional status, are lack of knowledge and skills and lack of motivation and interest. Among obstacles identified, the most common problem reported was lack of knowledge and skills with a frequency of 29.8%, while common responses also included lack of motivation from supervisors / managers (17.5%), lack of time (15.8%), lack of suitable trainers (12.3%) and lack of suitable methodology (10.5%). In Croatia and Italy, they also mention that there is a lack of competent persons in adult education as well as a lack of adapted teaching methodology. In Croatia in particularly, the respondents also mention health issues as an obstacle in ICT skills.

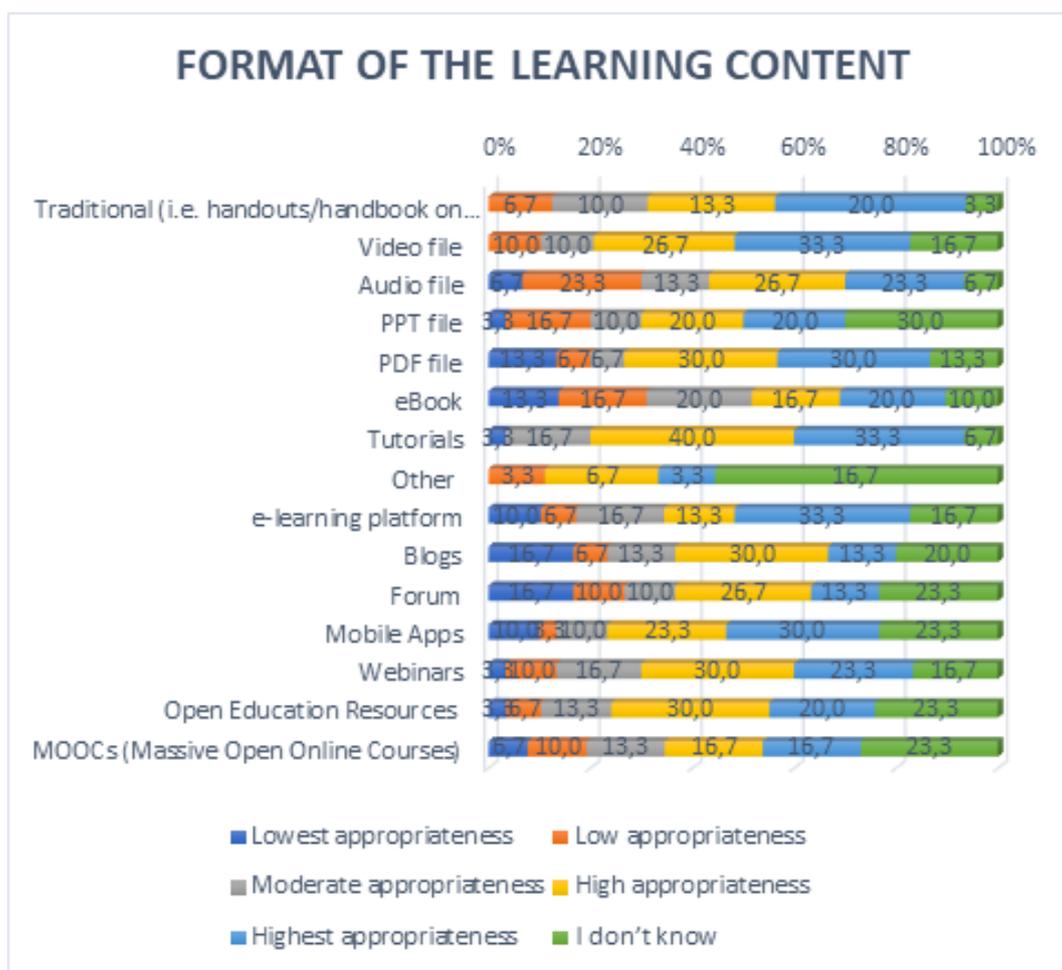


Figure 3. Teaching modality preferences among project participants.

Needed skills for adult educators

The most important skills for an adult educator detected in all partner countries are patience and communication skills regardless of respondents' age or profession. Among various options of potential desirable carer skills, participants mostly chose creativity at 12.8%, followed by patience and communication skills (both at 11.5%) and finally motivation and practical skills, both at 10.1%. In Cyprus, where there is an important number of respondents under 30, they underline the importance of creative and practical skills. In Greece, practical skills and tutoring skills are necessary for an adult educator. As for France, Belgium and Italy, the older participants highlight the importance of motivational skills, basic IT skills and tutoring skills.

Based on the above, the study has resulted in the development of the following overall needs assessment /

SWOT analysis table regarding the integration of new technologies in elderly care (table 4).

Discussion

In a recent trial using a mobile risk assessment tool, researchers have managed to prove that mobile applications can be used to personalize stroke risk and subsequently use this information to tailor individual prevention strategies.⁵ In our study, participants were less enthusiastic towards mobile applications and their use to resolve daily health challenges, but this may be due to a lack of relevant information and may therefore be amenable to targeted health promotion interventions.

Specifically within the context of patients with stroke, video – assisted technology has been shown to improve patient satisfaction and self-management capacity.⁶ This

Table 4. SWOT Analysis regarding ICT integration in elderly care training.

Strengths	Weaknesses
Desire for improvement of skills	Health – related limitations
Involvement of family – carers	Lack of motivation
Existence of appropriate formats	Lack of trainers and suitable material
Availability of internet and established basic IT/Internet skills	Limited applicability for daily challenges
Opportunities	Threats
Desire of young carers or family members to assist	Insistence on use of traditional materials/formats
Ability to be creative/innovative	Resistance to introduction of interactive digital and social media
Existence of highly motivated/gifted young individuals acting as facilitators	Resistance to change

approach can combine traditional and more modern learning tools based on individual patient preferences to improve their independence and well-being. In our study this finding has been confirmed, as indeed most participants expressed a preference for a mixed learning approach in which video technology and tutorials can be included, without however the loss of a minimum degree of face to face interaction with their carer.

In another recent review,⁷ researchers have identified the need to enhance the multidisciplinary nature of elderly care intervention teams. Since many of the new rehabilitation and psychosocial support disciplines are currently severely understaffed, a need for virtual applications allowing both remote and asynchronous access should be considered. Our study confirms these findings, showing that most carers and patients would be willing to accept such an approach, assuming that family or friend input can be guaranteed throughout the transition process.

Particularly with regard to patients with Parkinson's disease, it is vital to consider the possibility of developing an integrative care model. This has been achieved in the US already, using new technologies to bring the various specialties and modalities together.⁸ In smaller countries this is still an open challenge, but this trial suggests that new technologies may significantly facilitate this process by allowing patient needs to be better understood and considered in subsequent planning.

The potential application of new technologies in elderly care is not limited only in hospitalized or severely ill individuals. Indeed, a recent study,⁹ has confirmed the benefits of distance education and teleconferences for elderly home dwellers with chronic diseases. Since our study has mostly emphasized the needs of elderly already under professional care it is less easily to detect the needs of relatively autonomous home dwellers, but the respons-

es have indicated a preference for learning in groups or via active participation / support of family members that needs to be taken into account in a similar setting.

Since arterial hypertension remains a primary source of morbidity and mortality in the elderly population, it is reasonable to examine the contribution of existing training programs in the improvement of the condition's outcome for the elderly. Indeed, a recent systematic review,¹⁰ has concluded that technology enhanced training programs have a measurable benefit in the outcome of elderly citizens with hypertension. In our study, although no specific health condition has been analysed, participants have expressed a lack of motivation regarding the potential benefit of their participation in a training program and, therefore, concrete evidence regarding the clinical benefit from this intervention needs to be provided to increase participation and to consolidate the changes required.

Finally, specifically with regard to cardiovascular disease, which is the primary cause of morbidity and mortality in the western world, a number of trials have attempted to detect a potential benefit from the introduction of new technologies. Indeed, it has been possible to show that a structured intervention based on new technologies can indeed improve patient adherence to prescribed medication.¹¹ Since a major challenge particularly regarding the elderly population refers specifically to the over-prescription of medication (along with the additional use of non prescribed agents, including nutritional supplements, vitamins and herbal remedies) the use of new technologies has been proposed to revolutionize this challenging domain. Indeed, our study has demonstrated that, although participants are less likely to use new technologies or web passed services to acquire products and health services, they are willing to examine opportunities to improve their

current routine, assuming that a motivated and dedicated trainer is assigned to facilitate this process.

Conclusions and recommendations

As a general feeling, there appears to be a large interest in ICT training among the target group participants, and there is a latent need for more information and development of new materials within this concept. There was also unanimous agreement on the fact that new technologies are essential in seniors' daily lives. Taking into account numerous good practices already existing in the field of all partner countries, it can be noticed that this is the sector that is being developed a lot but there is still a wide range of actions for improving ICT training for older persons.

The following recommendations can be made to ensure that the proADAS curriculum and resources are relevant and useful to the target groups:

ICT learning for seniors requires appropriate tools and trainings for both older persons and trainers, due to existing linguistic, generational and cultural gaps;

There are social and personal competences that this report has identified that are essential for adult educators

such as patience, motivation, communication and the ability to have basic IT skills. Moreover, practical skills (time management and organizational skills) are not underestimated as well;

Learning by talking with other people and having face-to-face trainings are commonly suitable for each target groups of proADAS project;

Due to age and cultural reasons, video and other media supports working with images have to be used to support understanding and the learning acquisition;

Traditional media format for learning content (usually printed materials, i.e. handbooks, guidelines, handouts) need to be used during the training in combination with new, modern ones (digital tools, open educational resources, e-learning platforms) depending on the individual features and level of ICT.

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Περίληψη

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Εισαγωγή: Σύμφωνα με την Ψηφιακή Ατζέντα για την Ευρώπη (2014–2020) η οποία υποστηρίζει και ενισχύει τον ψηφιακό πολιτισμό, η ανάπτυξη δεξιοτήτων και η ενσωμάτωση είναι μία από τις βασικές δεξιότητες. Όλοι οι Ευρωπαίοι πολίτες που ανήκουν στην ομάδα της τρίτης ηλικίας πρέπει να γίνουν γνώστες των νέων τεχνολογιών (e-ηλικιωμένοι) το συντομότερο δυνατόν. Από την άλλη πλευρά η ενεργός γήρανση προϋποθέτει να παραμένουν οι ηλικιωμένοι δραστήριοι ώστε να παραμείνουν όσο πιο ανεξάρτητοι και αυτόνομοι γίνεται, λαμβάνοντας μέρος στην προσωπική, κοινωνική και οικονομική καθημερινή δραστηριότητα με τη δική τους ατομική συμβολή. Ως αποτέλεσμα, ενεργοποιώντας νέα ψηφιακά εργαλεία και δεξιότητες πληροφορικής μπορούν να υποστηριχθούν τα άτομα τρίτης ηλικίας ώστε να είναι πιο ενεργά μέλη στην κοινωνία. **Σκοπός:** Το Ευρωπαϊκό Πρόγραμμα (Erasmus+Proadas) που αναφέρεται στην προαγωγή δεξιοτήτων ενεργούς ψηφιακής γήρανσης, στοχεύει να καλύψει το κενό μεταξύ του γηράσκοντος πληθυσμού και της επάρκειας δεξιοτήτων τεχνολογίας, ενδυναμώνοντας και ενισχύοντας τους επαγγελματίες υγείας, τους ειδικούς και τους βοηθούς φροντίδας, στο πεδίο της εκπαίδευσης ενηλίκων και της διά βίου μάθησης, με την αναγνώριση των αναγκών των ατόμων τρίτης ηλικίας και των φροντιστών τους σε σχέση με την τεχνολογία. **Μεθοδολογία:** Η έρευνα πραγματοποιήθηκε τον Ιανουάριο του 2019 σε έξι ευρωπαϊκές χώρες που συμμετείχαν στο Ευρωπαϊκό Πρόγραμμα (Proadas). Συνολικά 35 φροντιστές και οι ηλικιωμένοι που βρίσκονταν υπό την φροντίδα τους επιλέχθηκαν με ευκαιριακή δειγματοληψία μέσω τουλάχιστον τριών κέντρων αριστείας- καλής πρακτικής σε κάθε συμμετέχουσα χώρα. Αναπτύχθηκε με τη μέθοδο Delphi τυποποιημένο ερωτηματολόγιο που περιελάμβανε 12-κλειστές ερωτήσεις και συμπληρώθηκε από όλους τους συμμετέχοντες. Τα δεδομένα αναλύθηκαν χρησιμοποιώντας το στατιστικό πακέτο SPSS 20. **Αποτελέσματα:** Συνολικά συμμετείχαν στην έρευνα 188 άτομα από όλες τις έξι ευρωπαϊκές χώρες που συμ-

μετείχαν στο πρόγραμμα, με ποσοστό ανταπόκρισης 89,5% από τους οποίους το 51,5% ήταν γυναίκες. Οι ηλικίες των συμμετεχόντων κυμαίνονταν από 20–75 χρονών. Όσον αφορά στις υπάρχουσες δεξιότητες ΤΠΕ, όλοι οι συμμετέχοντες γνώριζαν το διαδίκτυο (60%) και την επικοινωνία μέσω ψηφιακών εργαλείων (skype, messenger) (56,7%), τη χρήση ηλεκτρονικού ταχυδρομείου (40%) και βασικών δεξιοτήτων ΤΠΕ (36,7%). Πολύ λίγοι ανταποκριτές χρησιμοποίησαν προηγμένες υπηρεσίες όπως η e-τραπεζική (26,7%) η ηλεκτρονική υγεία (36,7%). Υπήρξε ομόφωνη συμφωνία ότι η μάθηση διευκολύνεται σε ομάδες με τη βοήθεια της οικογένειας ή των φίλων. Η πιο δημοφιλής επιλογή ήταν πρόσωπο με πρόσωπο είτε σε μια ομάδα (86,7%) ή μέσω ενός ιδιωτικού μαθήματος (80%). Οι επιλογές ψηφιακής εκμάθησης αξιολογήθηκαν πιο θετικά, με υψηλά ή περισσότερα ποσοστά συμφωνίας που κυμαίνονται μεταξύ 33,4% για τα ΜΟΟC, 36,7% για τα ηλεκτρονικά βιβλία και 40% για τα αρχεία ppt και φόρουμ ως τις πιο δημοφιλείς επιλογές αρχείων ήχου και ανοικτών εκπαιδευτικών πόρων (50%), εφαρμογές για κινητά στο 53%, αρχεία pdf και βίντεο (και τα δύο 60%) και διαδικτυακά σεμινάρια (73,3%). Από την άλλη πλευρά, οι παραδοσιακές επιλογές αξιολογήθηκαν λιγότερο ευνοϊκά, με υψηλό ή μεγαλύτερο ποσοστό αποδοχής μόνο 33,3%. Το κύριο εμπόδιο που αναγνωρίστηκε ότι ήταν η απουσία κινητοποίησης και κατάλληλης εκπαίδευσης των εκπαιδευτών. **Συμπεράσματα:** Υπάρχει λανθάνουσα ανάγκη για ενσωμάτωση των νέων τεχνολογιών στη φροντίδα των ηλικιωμένων. Η ανάπτυξη κατάλληλου ψηφιακού και παραδοσιακού μαθησιακού υλικού και η εμπλοκή κινητοποιημένων επαγγελματιών και μη φροντιστών είναι στρατηγικές κλειδιά για την επιτυχή εφαρμογή μιας σχετικής μεταρρύθμισης.

Λέξεις-ευρητηρίου: *Γήρας, Φροντιστές, Ηλικιωμένοι, Οικογένεια, Τεχνολογία υπολογιστών, Νέα τεχνολογία.*

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