AAL Joint Programme

HOME4DEM

HOME-based ICT solutions FOR the independent living
of people with DEMentia and their caregivers

D3.2 –Instruction for the users training

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	4	University of Lund	ULUND
	5	Eichenberger-Szenografie	EIS
	6	DOMO SAFETY	DOMO
	7	Trelleborg Kommunen	TREL
	8	Karde AS	KARDE
	9	AUTOMA Srl	AUTOMA

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Acronyms

ITEA	International Technology Education Association
ICT	Information e Communication Technology
PwD	Person with Dementia
GPS	Global positioning system

Executive summary

The aims of the deliverable 3.2 are:

- to describe how the technical assistance will be assure to the end-users during the Home4Dem field trial, in the four countries;
- to give useful tips and materials for supporting the older users and their caregivers in the learning process, using some insights from the International Technology Education Association (ITEA) standards.

The material is not intended as substitute of a detailed training on the system use, that will be conducted on site by the researchers, but as a support for understanding the real potentialities of technology and thus mitigating false representations before the use of the system.

The document is the output of the task T3.3. *Training with the users and Field trial management*.

1. Introduction

1.1 Scope of this document

To improve the digital literacy of the users means to support the overall well-being of the users, in terms of social inclusion, positive health outcomes and healthy life regained.

The link between health and technology is widely debated; still it can be assumed that the technological literacy represents a driver to improve and sustain the overall health literacy of the older people.

The issue of improving the technological literacy of the European older population is strictly linked with the health condition: many older people, with no previous experience with technology, often start to use ICTs for managing their health, reminding them to take medicines or treatment, or feeling less loneliness.

For these users the need of assistance become higher and higher; in addition to support for their health, they may also need support for understanding how to properly use the devices for remaining at home, as they prefer.

This picture clearly explains how the motivations, the values and personal needs of the user can work together to shape erroneous representations of the technologies, that can be too positive – i.e. “the system can save my life in every circumstances” – or too negative – i.e. “this system is too difficult for me!” -, and in both case, they can lead to the refuse of adopting the technologies.

The technological literacy intended by the International Technology Education Association (ITEA) can be defined as “far more than the ability to use technological tools. Technologically literate citizens employ systems-oriented thinking as they interact with the technological world, cognizant of how such interaction affects individuals, our society, and the environment. Technological literacy is the ability to use, manage, assess, and understand technology. It involves knowledge, abilities, and the application of both knowledge and abilities to real-world situations. Citizens of all ages benefit from technological literacy, whether it is obtained through formal or informal educational environments".

It is important to support elderly and their families expectations for the promotion of a real image of technology, in order to understand how it could help them in everyday life and needs, what is the knowledge and skills required to have an objective vision of the ICT world, and who are the key person that can support elderly in this acceptance process.

To do this, the mediators of technologies can play a crucial role to improve the technological skills of the older people: they can be daughters, sons, recreational and volunteering associations, but also health professionals, that can encourage the use of technologies for taking care of the own health.

2. Training

Despite the strategic importance of the technology for supporting ageing, nowadays a lot of hi-tech products and services remained unused, due to their difficulty in being introduced into the daily life of the older people and their families.

Moreover, there are practical issues that explain why older users do not use technologies: lack of motivation, lack of experience with current technology, cognitive differences and age-related decline, lack of knowledge on how to use ICT devices, no access to the technological artifacts, no understanding of what to do with an ICT device, and usability problems.

The individual acceptance of ICT is influenced by individual differences, social and situational influences, believes and attitude (Agarwal, 2000). The term "attitude" is usually intended to describe the individual predisposition directed toward some object, person or event, that can influence the behavior, for example, of technology usage (Regan & Fazio, 1977).

The importance of "technological literacy" for elderly and the "mediators" may aim to correct false beliefs and attributions that can hinder the creation of realistic representations of technology.

An adequate training, in fact, can provide skills and expertise to have a comprehensive use of technology, and knowledge on how technology can improve the daily life and when it cannot (ITEA, 2007).

Should we say more about the importance of training the "mediators of the technology" mentioned above?

For example, attitudes of older adults towards computer technology can be manipulated through training that provides positive computer experience (Charness, Schumann & Boritz, 1992; Danawski & Sacks, 1980, Dyck & Smither 1994). Moreover, brief training sections were found to be effective at such attitudinal enhancement (Jay & Willis, 1992, Morrell, Park, Mayhorn & Echt, 1996).

The technological literacy should thus increase the motivation to use, the artefact, relieve stress and fear in the use of technology.

It is clear that the only training can facilitate the acceptance of technology by acting only on the expectations and sense of confidence experienced during use, but everything about the usability of the artefact is a complex issue related to a good design.

2.1 General strategy

For the Home4Dem project, dedicated materials on how to deal with technology and with the system was developed and left to the end-users, during the Baseline evaluation. During the recruitment, in fact, it was found that a group training with the PwDs was not the appropriate choice, due to the different stage of the disease and ability with technology. For this reason, it was decided to prepare a short presentation to be left to the participants, during the first interview at home, in order to have time to talk with each user and evaluate the resistance to the system.

The presentation is in Annex 1 of this document. It was drafted starting by the analysis of the ITEA Standards on Technology Literacy to help the caregivers in supporting the older people during the trial.

2.2 General topic for the interviewer/trainer

Since the interviewer can control the quality of the results she/he has to be careful and cautious with her/his words and actions. The Interviewer needs to know the purpose of the training/interview. She/He needs information about the study and the project.

Qualification criteria for the trainer are:

- Knowledgeable - being familiar with the topic and the methods used.
- Structuring - outline the procedure of the interview.
- Clear - simple, easy and short questions, which are spoken distinctly and understandably.
- Gentle - being tolerant, sensitive and patient to provocative and unconventional opinions.
- Steering - to control the course of the interview to avoid digressions from the topic.
- Critical - to test the reliability and validity of what the interviewee tells.
- Remembering - retaining the subject information from the interviewee.
- Neutral – being neutral versus the topic.

(Modified after:Valenzuela, D., & Shrivastava, P., 2002)

Self-preparation for the trainer includes:

a) Familiarise yourself to the system, it's services and functions

b) Familiarise yourself to the study and it's state

c) Clarify methods used

d) Be informed about the training or the interview and test, their duration and procedure

e) Be aware of the use cases

f) Prepare informed consent, clarify data privacy

g) Prepare methods for recording data (notes, video recording) → test the technical devices for functionality e.g. charge battery

h) Prepare contact information to the project partners for further questions

i) Clarify any doubts or questions

j) Practice interview guide

k) Every trainer/interviewer introduces a test person with the main topic of the study and gives also a rough overview of all tasks

l) During the training, the researcher animates the test person to speak free and motivates the test person to have a natural conversation.

3. Assistance to the participants

During the field trial, the technical assistance will be offered by technical partners as follows.

INRCA, Italy

During the recruitment INRCA team collects data as provided for by the installation excel file. INRCA, AUTOMA/ARIELAB will be present during the installation. During the installation, the team marks GPS coordinates of the PwD's home to find it easily for the next time.

At the beginning the INRCA researcher will introduce the system to the caregiver. A simple training on the system functionality will be done to the caregiver by the technical team. An easy handbook will be given to the caregiver, but during the installation the team will try to guide caregiver in re-assembling the magnetic sensors and if it is necessary repositioning them. The ignition and the switching off of the system will be also explain by INRCA technical team.

The caregiver will be also trained in the main functionality of the caregiver app. A document with the access credentials will be left to the caregiver (token and Memas).

Caregiver using the app will be also able to access to the dementia literacy portal, so the technical team will introduce the contents of the dementia literacy portal.

The Memas will be installed before the installation in the prepared tablet by the INRCA team, in addition they will explain the functions and the possibilities to personalize it. If the caregiver is not able to upload the customized contents, INRCA will provide to finalize them.

During the installation, a floor plan map will be drawn up by the technician and they will also take photos of the sensors to remember the installation places. This material will be collected in a .pdf format in a specific archive.

At the end of the installation, the caregiver will sign a document of loan for use, where there will be the list of the system components (AUTOMA)and the tablet (INRCA).INRCA and AUTOMA/ARIELAB will sign a document that guarantee that the system has been installed correctly.

Regarding the assistance, INRCA receives the calls from Monday to Friday. The service time will be from 9 A.M. to 1 P.M. and from 2 P.M to 6 P.M. (9-13/14-18).

An assistance protocol will follow to define the category of the problem and try to solve it during the call. If the problem can't be solved during the call, it will be necessary to ask for a home help.

If the problem compromises the use of the system it will be solved within 3 working days otherwise7 working days.

The requests for assistance will be collected in a shared excel file. In this document, it will be a column to write down what is the technical intervention to solve the problem (during the call with a home help).

KARDE, Norway

The Home4Dem trials in Norway will lean on the professional and ethical conduct of end user involvement and participation as presented in the previous chapters of this document.

In order to manage the Home4Dem field trial concerning the relationship withthe end users for both technical and non-technical support in Norway, the following seven information packages and actions have been designed:

Before roll-out and trial:

1. **Introductory information** material for recruitment planning of the system, including
   - Overall system description (verbal)
   - Preliminary recruitment criteria (inclusion, exclusion)
   - Photos of sensors

This package is part of the initial awareness raising for the personnel in Vaksdal Municipality that is the main deployment environment for the Norwegian Home4Dem trial.

2. **Meetings with key personnel for introduction before roll-out**
   - Presentation of the principles of the functioning and overall architecture of the Home4Dem system (home sensors, data capture, rule engine and algorithms, and the app)
   - Demonstration of DomoSafety sensors and pairing with the base unit
   - Short videos of sensors under configuration process
   - Presentation of how to place the sensors in the homes of the PwD
   - Basic features of the Home4Dem app
   - Presentation of the principles of data collection instruments during the trial
   - Presentation of the principles of the functioning and overall architecture of the Memas(memory assistant) system for cognitive training
   - Hand-on workshops covering the set-up, configuration and functionality options of Memas

The carrying out of this action is part of the training of the key personnel in Vaksdal Municipality (both technical and managerial personnel and care professionals).

For the trial period

3. **Preparation of user manuals for caregivers**
   - DomoSafety sensor system (set-up and configuration, troubleshooting)
   - The Home4Dem app (configuration, functionalities, use options, and troubleshooting)
   - The Memas caregiver's administration website and the Memas app
   - Idea booklet for the usage of Memas for cognitive training

4. **Preparation of user manuals for PwDs**
   - Screenshots of Memas describing the spectre of functionalities in an easy language

These packages of user manuals and booklets support the non-technical end users during the trials.

5. **Preparation of short instruction videos of the Home4Dem system:**
   - Set-up and configuration of the sensor system in the home of the PwD
   - Set-up and configuration of the Home4Dem app.

These videos support both the technical and the non-technical end users during the trials.

6. **Support telephone** will be opened for daily contact with Karde AS on Monday-Friday during ordinary office hours.

This resource will support for the formal caregivers, administrative personnel, and technical personnel at the trial site. This is also the communication channel vis-à-vis technical personnel in the project for help, clarification, troubleshooting and the like.

7. **Site visits** with demonstrations, tests and installations for operation by projects researchers
    - Roll-out visit: The whole system and all applications will be set up and configured in a test apartment/home (lab). This will be repeated in 1-2 real homes to make sure that everything works and that the personnel involved in the trial can manage the system and all its aspects.
    - Follow-up visits: In connection with re-recruitment (to compensate for possible dropouts), second part of the trial and/or the main interviews, researchers will pay the site visit(s) .

These actions support both administrative and technical personnel at the trial site, as well as the PwDs and their formal caregivers so that all rising issues can be handled and improved.

TREL, Sweden

At the beginning of the installation visit the TRELLEBORG team will introduce the system to the caregiver. A simple training on the system functionality will be done to the caregiver by the technical team from miThings. A short manual will be given to the caregiver, during the installation the team will try to guide caregiver in repositioning the magnetic sensors. The door-alarm and the switching on/off the system will be also explain by the technical team.

The technical team will download the caregiver app to the caregiver's phone, install the token train the caregiver in the main functionality of the caregiver app.

Caregiver using the app will also able to access to the dementia literacy portal, the TRELLEBORG team will introduce the contents of the dementia literacy portal.

During the installation, a floor plan map will be drawn up by the technician and they will also take photos of the sensors to remember the installation places. This material will be collected in a .pdf format in a specific archive.

Regarding the assistance, miThings receives the calls from Monday to Friday. The service time will be from 9-13 and 14-18. If the PwD wants the alarm to go to the social care unit, this can be done.

An assistance protocol will follow to define the category of the problem and try to solve it during the call. If the problem can't be solved during the call, it will be necessary to ask for a home help.

The requests for assistance will be collected in a shared excel file. In this document, it will be a column to write down what is the technical intervention to solve the problem (during the call with a home help).

IHOME, Switzerland

iHomelab will partner with another department inside of the University of Applied Science of Lucerne namely the department of social work during the field trial. Together with DomoSafety, the three of us will support requests during the trial. The type of request determines who specifically will help.

Once the participants have been recruited, the systemis introduced to the caregiver. The focus will be on the app as this will be the caregivers' main access point to the system. This includes the alarms, notifications, statistics of behaviour analysis, the dementia literacy portal and Memas. Additional to the verbal explanation, a handbook will be provided detailing important functions. If problems with

the hardware arise, a technical employee of iHomeLab will fix it.The hardware part of the system (i.e. sensors, main station) will only be briefly explained to the caregivers as no interaction with the hardware is required on their side.

All components will be configured before installing them at the participants' home to ensure an as quick and easy as possible installation process. A floor plan of the participants home will be recorded also containing the location of the sensors.

There are two ways for the participate to initiate contact with the support team. One way is to contact the residence manager of their apartment who will forward their request to us. The second way is to use the contact information provided in the app to contact us directly. We will be on standby Monday to Friday during office hours (9am to 5 pm). We will try to solve the problem over the phone first. If this approach is unsuccessful, an employee will visit the participant and solve the problem on site.

When contact has been established, a protocol iscreated detailing all the important information about problem, procedure and solution. All protocols will be collected and reused if an already addressed problem occurs again.

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Annex 1

A short training on Technology Literacy

What you should know to have a good use of technology

1

Human interest in technology

- People are always been interest in technology since the prehistoric era
- Technology is a suitable way to gain benefits offered by the modern society
- For this reason it is important that each person can became able not only to use, but to understand the nature of the technological word

2

The technological literacy

- By improving the individual technological literacy, we can assure to have a clear understanding of how to deal with daily problems and how to remain included in the society.

3

The *Standars on Technological Literacy*

- The standars derived in the Educational context, emphasizes the comprehension of basic elements, for example:
- The Design process = the approch used by developers to solve the problems
- The development and production = the translation of the design into a real product
- The use and mantainance = everything that can determine the success/failure of a product

4

The *Standars on Technological Literacy*

- The standars have been designed to prescribe the content knowledge and ability of what people should know and use to be technologically literate.
- They are organized into five main aereas: The Nature of technology, Technology and society, Design, Abilities for a technological world, The designed world.

5

Before starting using any device, you should remember that:

- New products can be developed to solve problems or to help to do things that could not be done without the help of technology
- Systems have parts or components that work together to accomplish a goal
- Technological system include input, processes, output and feedback
- Malfunctions of any part of a system may affect the function and quality of the system
- Optimization is an ongonig process or methodology of designing or making a product and is dependent on criteria and constraints
- When using technology, results can be good or bad.
- The use of technology can have unintended consequences.

6

- Technology by itself is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.
- Products are made to meet individual needs and wants.
- Individual, family, community and economic concerns may expand or limit the development of technologies.
- Social and cultural priorities and values are reflected in technological devices.
- Design is influenced by personal characteristics, such as creativity, resourcefulness and the ability to visualize and think abstractly.

7

- A prototype is a working model used to test a design concept by making actual observations and necessary adjustments.
- Asking questions and making observations helps a person to figure out how things work.
- All products and systems are subject to failure. Many products and systems, however, can be fixed.
- Some technological problems are best solved through experimentation.
- Not all problems are technological and not every problem can be solved using technology.
- Many technological problems require a multidisciplinary approach.
- People use symbols when they communicate by technology.
- Letters, icons, signs represent ideas, quantity and operations.

8