

## RESEARCH

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# DIGITAL COMPETENCIES IN OLDER ADULTS: FROM THREAT TO OPPORTUNITY

*Las competencias digitales en personas mayores: de amenaza a oportunidad*

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### ABSTRACT

Population aging is a social phenomenon present in most advanced countries, which means that governments, organizations, and societies face new challenges. Prolonging the autonomy, health, and quality of life of the elderly, while promoting active aging, is a priority in this regard. To achieve these objectives, the reduction of the digital divide, which is common among the elderly, is an urgent need. Through the presentation of two real projects, carried out in the city of Zaragoza, with the active collaboration between groups of older people, evidence is presented of the situation of digital vulnerability in which older people find themselves, as well as their predisposition and willingness to improve their skills in the use of new technologies. The analysis of the results obtained in both projects leads us to conclude that the potential offered by the regular use of ICTs for the elderly is enormous, with a long list of existing opportunities for the benefit of this group that should be taken into full consideration.

**KEYWORDS:** ICT - Digital divide - Population aging - Active aging - Healthy cities - Digital empowerment - Empowerment - Focus groups.

## RESUMEN

El envejecimiento poblacional es un fenómeno social presente en la mayoría de los países avanzados, lo que supone para los distintos gobiernos, organizaciones y sociedades tener que afrontar nuevos retos. Prolongar la autonomía, la salud y la calidad de vida de las personas mayores, fomentando a su vez un envejecimiento activo, se constituye en una prioridad en este sentido. Para el logro de estos objetivos, surge como una necesidad imperiosa la reducción de la brecha digital presente de forma común en el colectivo de las personas mayores. A través de la presentación de dos proyectos reales, llevados a cabo en la ciudad de Zaragoza, con la colaboración activa entre colectivos de personas de mayor edad, se presentan evidencias de la situación de vulnerabilidad digital en la que se encuentran las personas mayores, así como de su predisposición y voluntad para mejorar su capacitación en el uso de las nuevas tecnologías. El análisis de los resultados obtenidos en ambos proyectos nos lleva a concluir que el potencial que para las personas mayores ofrece el uso habitual de las TIC es enorme, con una larga lista de oportunidades existentes para el beneficio de este colectivo que deben ser aprovechadas.

**PALABRAS CLAVE:** TRIC - Brecha digital - Envejecimiento poblacional - Envejecimiento activo - Ciudades saludables - Capacitación digital - Empoderamiento - Grupos focales.

## HABILIDADES DIGITAIS EM PESSOAS IDOSAS: DA AMEAÇA À OPORTUNIDADE

### RESUMO

O envelhecimento populacional é um fenômeno social presente na maioria dos países avançados, o que significa que diferentes governos, organizações e sociedades têm que enfrentar novos desafios. Prolongar a autonomia, saúde e qualidade de vida dos idosos, ao mesmo tempo que se promove o envelhecimento ativo, é uma prioridade neste quesito. Para atingir esses objetivos, a redução da exclusão digital comumente presente no grupo de idosos surge como uma necessidade imperiosa. Através da apresentação de dois projetos reais, realizados na cidade de Saragoça, com a colaboração ativa entre grupos de idosos, são apresentadas evidências da situação de vulnerabilidade digital em que se encontram os idosos, bem como a sua predisposição e disposição para aprimorar sua capacitação no uso de novas tecnologias. A análise dos resultados obtidos em ambos os projetos leva-nos a concluir que o potencial que o uso habitual das TIC oferece aos idosos é enorme, existindo uma longa lista de oportunidades em benefício deste grupo que devem ser exploradas.

**PALAVRAS-CHAVE:** TRIC - Cisão digital - Envelhecimento populacional - Envelhecimento ativo - Cidades saudáveis - Treinamento digital - Empoderamento - Grupos focais.

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## 1. INTRODUCTION

The aging of the population is a social reality present in advanced societies, which, being a global phenomenon, is especially pronounced in certain countries such as Spain (Domènech, 2019). The increase in life expectancy, coupled with a constant decrease in the birth rate since the end of the so-called baby boom in the 1970s, has caused the population pyramid to follow a gradual reversal process throughout the last decades (Díaz & García, 2018). In Spain (Ministry of Health, 2020) life expectancy currently reaches 83.4 years- with an increase of more than four years since 2000- and the percentage of the population over 65 years old is 19.7% of the total. Regarding the aging index<sup>1</sup>, it is 120%.

The social phenomenon of aging is one of the events with the greatest expected impact in the short- and medium-term future (Conde-Ruíz & González, 2021). It implies, for governments and societies, having to prepare to face new challenges. Thus, to the classic problems related to health care or dependency- whose intensity and incidence will increase- other issues related to the phenomena of loneliness and isolation among the elderly have been and will continue to be added. Personal situations that combine advanced age, absence of a family support network, and sometimes financial precariousness may not have a direct and immediate impact on people's health and autonomy, but they generate social isolation and negative consequences for health and cognitive ability over time (Arranz et al., 2009; Puig Llobet et al., 2009).

In this way, the social reality of aging must be approached from a broad perspective that considers the breadth and variety of involved factors. As stated by the World Health Organization (WHO) in its section *Aging and life-course*, "health and well-being are determined not only by our genes and personal characteristics but also by the physical and social environment in which we live" (World Health Organization, n.d.). With this, environments in their broadest sense become part of the problem and solution, playing an important role in determining the physical and mental capacity throughout a person's life until they reach an advanced age (Osorio et al., 2010), as well as how they adapt to the loss of functions and other forms of adversity that can be experienced at different stages of life and particularly in recent years. Both older people and the environments in which they live are diverse, dynamic, and changing. By interacting with each other, they have incredible potential to allow or limit healthy aging (Petretto et al., 2016; Triadó & Villar, 2008).

At a supranational institutional level, improving the quality of life of the elderly is one of the pillars of action of different social programs in the public sphere. Thus, since 1995 the European Committee for Social Cohesion of the Council of Europe (CECS) coordinates, guides, and encourages cooperation between the Member States concerning actions focused on the elderly and especially dependents. Specifically, the Group of Experts on the Improvement of the Quality of Life of Dependent Elderly

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<sup>1</sup> Quotient between the population over 65 years of age and those under 16 years of age.

people (CS-QV) develops its work based on the ideas put forward by European and international organizations related to the quality of life of people of old age, to propose and promote policies and resources to optimize the living conditions of this population segment, maintaining their quality of life and autonomy for as long as possible. Their actions focus on aspects such as (O'Shea, 2003):

- To sensitize the population about the problems of aging and dependency.
- Promote measures to reduce inequalities in the living conditions of the elderly.
- Promote the social integration of dependent elderly people.
- Promote the dissemination of information and guidance on aid and different existing services for the elderly.
- Encourage and enhance the different forms of solidarity (family, neighbors, volunteers).
- Maintain national developments in legislation and practices in the field of the elderly and dependency.

At the global level, there are currently cities and communities that work to be more friendly with the elderly (World Health Organization, 2007). The WHO Global Network is made up of more than 830 cities and communities in 41 countries, working to improve their physical and social environments and become better places to grow old (Zamarro, 2017). The creation of these age-friendly environments requires the adoption of measures in many sectors: health, dependency care, transport, housing, work, social protection, information and communication, etc. It requires the work and cooperation of many agents- governments, service providers, civil society, non-governmental organizations- and also the involvement of older people themselves and their families and friends. It also requires action at multiple levels of administration, from international to local. This last level acquires an active leading role in the success of the different actions carried out, due to a key quality such as its proximity to the end-user. Cities in the 21<sup>st</sup> century are, thus, becoming actors of an enormous influence on the quality and way of life of people, acquiring new adjectives such as intelligent, interconnected, sustainable, or friendly (Caragliu et al., 2011; Rodríguez-Porrero & Gil -González, 2014; Telefónica, 2011).

Commonly, on the different actions and lines of work of the WHO Global Network, the following approaches can be identified on the different stakeholders (Fernández-Ballesteros, 2011; Fernández-Ballesteros et al., 2011; Havighurst, 1963):

- Combat age discrimination;
- allow autonomy;
- support healthy aging in all policies at all levels.

Specifically, the WHO encourages the creation of age-friendly environments through (World Health Organization, n.d., 2007; Zamarro Cuesta, 2017):

- compiling evidence-based guidance on age-friendly environments;
- information platforms for sharing information and experiences; and
- the generation and development of the WHO *Global Network of Elderly-Friendly Cities and Communities*.

In the specific case of elderly people, three elements must be taken into account when carrying out an adequate analysis of the information and design of policies aimed at achieving an environment adapted to their needs (Fernández-Ballesteros, 2011; Fernández del Moral, 2012; Marta-Lazo and Gabelas, 2016; Pérez-Calle et al., 2020). First of all, the contents. Elderly people must have adequate information for their needs. Second, the adaptation of this information and the communication channels through which they access it. Third, the need for them to participate in the information society, overcoming the so-called digital divide.

Regarding the content, having sufficient and accessible information means for the elderly to increase the possibilities of maintaining contact with other people, participating in interesting events for them, managing their life, and attending to their personal needs. The development of daily and usual activities by the elderly and the satisfaction of their needs in the different orders require the necessary information. Social participation, for example, is clearly facilitated if adequate information is available to be able to take part in programmed activities.

Regarding the adaptation of the information and the use of the most appropriate communication channels, it is important to note that the reception of the information becomes a right linked to enjoying an optimal quality of life and that the guarantee of rights is understood as defining the precise information content and the establishment of adequate communication channels. The fundamental fact is that the information is easily accessible to the elderly in all its contents, assuming that according to the need to cover these will vary. Culture is an example, but there are other aspects in which information becomes a right and a service for elderly people. The Democratic Union of Pensioners and Retirees of Spain (2019) carries out a dimensioning of this problem, highlighting that more than 15% of the elderly do not consider themselves to have enough knowledge and information to do everything they need to live as they would like. The percentage exceeds 20%, among those with a lower level of education, 21.8%; among those

who have insufficient spending capacity, 21.2%; or among those who live in rural areas, 23.6%.

Finally, the digital divide is a key factor in the process. Its elimination should promote integration, reduce vulnerability, and avoid the isolation of the group of elderly people. ICTs have penetrated most human activities, which poses new educational challenges (Gros and Contreras (2006). With information technologies, "people acquire new skills and ways of participating and expressing themselves in a clearly interconnected society" (Galera et al., 2018, p.290). Faced with an increasingly digital and interconnected society, new skills, competencies, and aptitudes are required. Their development and possession, the so-called digital empowerment (Mäkinen, 2006) that fosters autonomy and the degree of citizen participation, are increasingly innate characteristics in the new generations but become a plus in older age and even become stock generators of the so-called digital illiteracy (Pérez-Calle et al., 2020). A clear indicator of this phenomenon is that 53.3% of the population over 65 have never accessed the internet, compared to more than 90% of regular users among young people between 16 to 24 years of age. For those over 75 years of age, the percentage of users remains at 23% (National Institute of Statistics, n.d.; Democratic Union of Pensioners and Retirees of Spain, 2019). Regarding digital skills, only 6.5% of those over 65 have the necessary skills to use new technologies, with only half of the people between 65 and 74 years old who, being users of the Internet, consider themselves endowed with the necessary digital skills to manage it- and this despite the widespread use of the mobile phone for years in this age group. These data highlight the existence of a double gap: the first one, that of access to ICTs, in decline; the second, that of training for their use- both functional and attitudinal- based on the lack of motivation, knowledge, and habits and which is a fact that is maintained over time (Neves et al., 2013). Furthermore, a third digital divide can be considered- implicit in the use of new technologies and generated environments- associated with their relational capacity. This capacity supposes the evolution and the passage from ICT to the so-called RICT, a term coined by Marta-Lazo & Gabelas (Relationship, Information, and Communication Technologies), with the inclusion of the so-called R-elational factor, which leads digital skills to acquire a new dimension, surpassing mere technological and instrumental ones (Gabelas et al., 2015; Marta-Lazo and Gabelas, 2016).

However, if there is one aspect that deserves less attention in the different studies available, it is the capacity to carry out and obtain the necessary information for each need. This includes a group of activities that are really important for the development of the daily life of the elderly. This category can include banking procedures, procedures and claims before public bodies, complaints or claims for purchases, health procedures, request help from the dependency, request home help service, whether tele-assistance or place in a residence or report an assault or abuse. In this regard, the most notable data offered by the previous studies is that 60% are not able to carry out procedures online. Furthermore, the Covid-19

pandemic has worsened this situation of vulnerability by making it impossible to carry out various procedures by non-telematic means (Fernández and Cama, 2020).

The administration, as the sole provider of various services aimed at elderly people, is the main interlocutor in these communications. Faced with the need for greater support and backing in their usual activities, the departments, councils, agencies, or offices of Health, Social Services, and Dependency are faced with the obligation to develop adaptation and explanation actions of the different services provided, whose content must be understood by the people in the elderly group to whom they are directed.

At this point, the need to promote and adapt new technologies to all user groups, as well as education and training in them in a non-formal educational environment, comes into play. In this context, the WHO raises the approach to health education in its document "Skills for life" (SF): there is an urgent need to integrate non-academic aspects in education that respond not only to a cognitive dimension. That is, that they also learn to be, to live, to do, and to learn. In this way, acquiring skills in the management of information and communication technologies has a double effect. On the one hand, to become a recipient of the information in an incomparably faster, broader, and more efficient way, and, on the other, to fully join a way of managing all kinds of affairs and obtain services unknown until now, to become an active and autonomous element of a society undergoing a radical change (Pérez-Calle et al., 2020). And, in the case of elderly people, facilitating their access to ICT allows these technologies to serve to promote independent living, active aging, as well as increase their social participation.

Different administrations have been making efforts to promote the incorporation of elderly people into the digital society, creating favorable environments for this group and removing barriers that may imply or aggravate their social isolation. Eliminating the threat that new technologies pose to them and turning them into a powerful ally in their day-to-day life, in line with the potential advantages of so-called active aging (Havighurst, 1963).

Thus, the City Council of Zaragoza, from its adhesion to the Network of Elderly-Friendly Cities and Communities of the WHO in 2011 and within the framework of its Action Plan, has launched some initiatives to improve the digital skills of the elderly. Among them, two experiences that have served as a source for the development of this research:

- Evaluation of the usability of its website by elderly people themselves.

- Generation of geolocated maps through a co-creative process with the elderly in the city.

This article is organized as follows. In the first place, after the introduction to the work, the main objectives of the research carried out are presented. Next, the methodology used in the research is described. Subsequently, the results obtained are presented, carrying out an analysis and discussion of them, to end by stating the main conclusions drawn from the study and the proposal of next steps to be carried out in line with the research.

## **2. OBJECTIVES**

The main objectives pursued in this research have been the following:

- Assess whether the results of this research warn of potential discrimination in digital skills.
- Show the advantages that overcoming the digital divide could bring to vulnerable groups and specifically for older people, as well as the opportunities that digital training would provide to this group.
- Present the practical cases of two real projects carried out in this context.

## **3. METHODOLOGY**

The research has been carried out through the development and analysis of two participatory co-creation processes (Osuna-Acedo Marta-Lazo & Frau Meigs, 2018) with elderly people using RICTs. These are two initiatives that are part of the Zaragoza City Council's Elderly-Friendly Cities program. On the one hand, the development of friendly routes in three districts of the city, with their corresponding collaborative maps, and on the other, the usability evaluation of the municipal website in its section for the elderly.

The first co-creation process produced a service (collaborative maps), which improves the age-appropriateness of neighborhoods through age-appropriate routes and requires access to the Internet or mobile devices. The second co-creation process produced a web page on the municipal website that is usable and accessible to older people and contains all the information they need.

### 3.1. First project: Elderly-Friendly Routes

The first of the initiatives, *Elderly-Friendly Routes*, was a project that was launched to improve the routes most traveled by the elderly, through their own participation, suggesting improvements and registering them on collaborative maps on the Zaragoza City Council's website.

Thus, a "friendly route" is one that:

- Is a useful and frequent route: it is a common route that the elderly use in their daily life in the neighborhood. The district Coexistence Center is taken as a point of reference.
- It can be walked safely and is accessible. This implies that elderly people will have previously studied the existence or not of a series of important needs for this group.
- It is made through the participation and consensus of a team of elderly people.

To carry out the design of a route and establish the improvements to comply with the requirements that define it as a friendly route, a process based on participation and agreement is developed, through a methodology that promotes collective intelligence through intellectual consensus of a group, looking for the sum of criteria when establishing the improvements to be able to define the friendly routes. This was the initial methodological design, to validate it by proposing improvements that would facilitate its development in the future.

Elderly people were the main agents of the project, their participation was fundamental for the elaboration of the routes, so the proposed methodology was fully participatory based on consensus and the sum of knowledge and opinions, allowing diversity in the composition of participants.

**Regarding the teams of elderly people**, each group consisted of 6-8 people. For them to be representative, they sought to have gender parity and they were made up of people over 60 to 75 years old and over 76 years old. In each group, there were at least two people with mild physical problems, one person who liked to walk or who belonged to hiking groups, one person who was an advanced RICT user, and two with a medium level. The Zaragoza City Council -through its technical staff- was the one who made the selection of the teams.

The tasks that each elderly person who was part of the group had to perform in the sessions were distributed so that the most frequented and useful routes would acquire the degree of friendly routes. Dynamization techniques were used, developing participation to the maximum and creating an atmosphere of companionship and trust. Teamwork, participation, and decision-making were promoted, reaching consensus through agreements between the teams, using specific techniques for this.

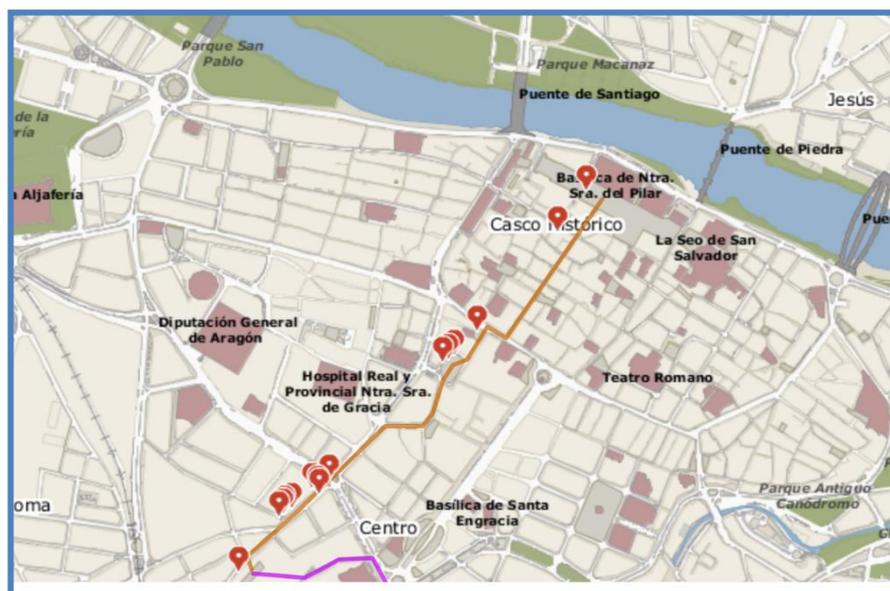
The **planning of the project** was carried out on the basis that the entire process had to follow the methodology of adapting and adjusting both to the needs and objectives of the project and the characteristics of the groups. Thus, it was necessary to define the times necessary to use in each of the sessions, as well as the number of sessions to be developed. To design two friendly routes per group, a consensus selection was made of the most frequent destinations in the district. The inclusion of the friendly route in the Open Government Portal was subsequently carried out using the collaborative maps tool. The facilitators designed and prepared the documents to work with the different teams of elderly people, collecting the following points:

- Information about the participants.
- Information about the most frequented destinations.
- Proposals for improvement based on the following criteria: benches, metered traffic lights, curb cuts, access difficulties at bus stops, points of interest (public toilets, parks for the elderly...), any other aspect that the elderly team deems appropriate.
- Evaluation reports.

Regarding the **execution of the project**, in the first place, for the previous analysis of the routes, different walking routes were carried out together with each of the groups of elderly people. In the different routes, the necessary improvements were agreed to make this route a friendly route. Once the friendly route had been loaded into the Open Government Platform -collaborative maps- and the necessary improvements had been established so that it could be considered as such, each of the routes was again comprehensively covered together with the members of the groups using the collaborative maps on the different mobile phones and tablets for the review of the agreements made on the necessary improvements, the measurement of the average time required, and the establishment of possible improvements in the collaborative maps. All the improvement proposals for the routes were reached by consensus of the different groups of elderly people.

RECURSO	DESCRIPCIÓN	PROPUESTA	DIRECCIÓN	COORDENADA X	COORDENADA Y	FOTO (SI/NO)	NOMBRE
Escaleras	Escaleras en mal estado y escalón sin altura	Mayor altura en los escalones	Calle de Sigüés 2, 50017	41.647.136	-0.913209	Sí	1
Alcorques	Alcorques vacíos	Rellenar los alcorques	Calle Mosén Andrés Vicente 38	41.647.683	-0.913276	Sí	2
Baldosas	Baldosas rotas	Arreglar las baldosas	Calle Monsén Andrés Vicente 38	41.647.815	-0.913327	Sí	3
Alcorques	Alcorques vacíos y en mitad de la acera	Rellenar los alcorques	Calle Mosén Andrés Vicente 36	41.648.107	-0.913313	Sí	4
Rampa	Rampa mal acabada, falta baldosa en la terminación (dificultad para sillas)	Hacer un añadido al final de la rampa	Calle de Ciudadela 16	41.648.337	-0.912510	Sí	5
Alcorques	Alcorques sin tapar en acera estrecha	Rellenar los alcorques	Calle Andrés Vicente 32	41.648.421	-0.913803	Sí	6
Baldosas	Baldosas levantadas	Arreglar las baldosas	Calle Escultor Palao 36	41.648.725	-0.915328	Sí	7
Alcorques	Alcorques vacíos	Rellenar los alcorques	Demetrio Galán Bergua 13	41.649.411	-0.916256	Sí	9
Farolas	La altura de los árboles dificulta la visibilidad de farolas	Mantenimiento de hojas y ramas, no permitir que crezcan tanto los árboles, no colocar las farolas tan cerca de los árboles		41.650.701	-0.916315	Sí	10
Alcorques	Alcorques muy profundos	Rellenar los alcorques y hacerlos menos profundos	Avda. de Madrid 277	41.650.786	-0.915770	Sí	11
Limpieza	Falta de limpieza; orina, suciedad, basura...	Más personal de limpieza // educación cívica // multas	Avda. de Madrid 267	41.650.985	-0.914831	Sí	12 y 13
Paso de cebra	Paso de cebra en mal estado, obstáculo alcantarilla	Arreglar el paso de cebra	Avda de Madrid y Andrés Vicente 1	41.651.039	-0.914670	Sí	14
Marquesina	Ocupa más de la mitad de la acera		Avenida de Madrid 261	41.651.085	-0.914143	Sí	16
Baldosas	Baldosas sueltas y hundidas	Arreglar baldosas	Avenida de Madrid 247	41.651.329	-0.912763	Sí	17
Suciedad	Suciedad y excrementos	Mayor limpieza y medidas para los dueños de los perros	Avda. de Madrid 235	41.651.641	-0.912108	Sí	18
Paso de cebra	Rebaje colocado hacia la carretera	Rebaje en el centro	Avda de Madrid y Calle Sta Teresita 1	41.651.756	-0.911349	Sí	19
Escaleras	Sucias, en mal estado	Cuidar la limpieza	Avda. Madrid 181	41.652.639	-0.907404	Sí	20, 21, 22
Rebajes	No hay rebaje en el paso de peatones	Poner rebaje	Calle Daroca 2	41.649.483	-0.904459	Sí	23
Papeleras	Sólo 2 papeleras en toda la calle	Poner más papeleras	Calle Daroca	41.649.430	-0.906969	Sí	24
Paso de cebra	Paso de cebra en mal estado	Mejorar el mantenimiento del paso de cebra	Vía Universitat 55	41.649.498	-0.909255	Sí	25
Paso de cebra	Sobra semáforo y paso de cebra	dos calles unidas por un único paso	Vía Universitat 52-56	41.649.692	-0.909212	Sí	26
Alcorques	Agujero en alcorque	Rellenar alcorque	Vía Universitat 46	41.648.785	-0.909002	Sí	27
Graffitis	Graffitis en bancos y paredes	Multas	Calle Duquesa Villahermosa 661	41.647.392	-0.909369	Sí	28-29
Baldosas	Baldosas sueltas y salpican	Arreglar las baldosas	Duquesa Villahermosa 662	41.647.083	-0.912324	Sí	30

**Figure 1:** Example of the information entered for the elaboration of the collaborative map.  
**Source:** Zaragoza City Council



**Figure 2:** Example of a friendly route marked on the collaborative maps of the Zaragoza City Council website

**Source:** Zaragoza City Council

### 3.2. Second project: Improvement of web usability

The second of the initiatives was to improve the usability of a website aimed at elderly people on the Zaragoza City Council website. An objective that was fully met since all the conclusions adopted after the analysis and evaluation of the website were adopted. The basic methodology of the project was the use of focus groups.

To carry out the recruitment of the components of the groups, 85 people over 65 years of age were selected, in different Coexistence Centers for the Elderly, of which 45 were women and 40 were men. They did not know each other. The directors of the different centers took care of the selection of participants through personal interviews, mainly trying to find out their level of knowledge of new technologies.

**Regarding the profile of the participants**, 53% were women and 47% were men. 47% were between 65-70 years of age, 29% between 71 and 75 years of age, and 24% were older than 75 years of age. 42% of the participants had completed primary education, 26% secondary education, 13% had intermediate university studies, and 15% had higher university studies. 76% stated that they had no limitations, 15% stated that they had some type of limitation, and 8% stated that they did have limitations. Regarding the use of new technologies, 25% said they used a tablet and mobile phone, 34% used a tablet, computer, and mobile phone, and 40% said they only used a mobile phone.

Following the size recommendations between 6 and 10 people to carry out a focus group, the 85 participants were divided into eight homogeneous groups based on their experience with new technologies. Unique sessions were held with each of the groups, lasting approximately 2 hours, on different days. In each of the focus groups, we tried to adapt to the characteristics of the participants. To start each focus group, besides welcoming all attendees and following the usual rules of courtesy, the matter to be discussed was specified with a small talk in which the basic rules of respect and procedure were established in the discussion. The participants were given a computer each showing the web page to be analyzed. The division of the groups was as follows:

- **4 groups made up of 46 people with little or no experience (Level A)** in the field of new technologies. Part of the session (between 30 and 60 minutes) was dedicated to offering them the necessary information to use the web portal, that is, use of the mouse and scroll bar, explanation of what a web page is, and how to use it. The rest of the session was used to ask the most basic questions of the sections to be analyzed (accessibility, identity, information architecture, browsing, and content).
- **2 groups made up of 21 people with a medium level (Level B)** of knowledge about new technologies: Approximately 30 minutes were dedicated to asking them about the use of other web pages to know the level and also establish comparisons with the portal of elders to evaluate.

- **2 groups made up of 18 people with a high level (Level C)** of knowledge about new technologies. 30 minutes were dedicated to determining both their level of knowledge of web pages and sharing their experience with other users since in many cases they were volunteer elderly people who train or support other elderly people in the initiation of new technologies.

The process was developed in all cases following the methodology stipulated for the development of focus groups (Callejo, 2001; Wilkinson, 1998), adapting it to the specific characteristics of the object of the study and the profile of the participants. Besides carrying out a specific questionnaire to ask the participants in an orderly manner, part of the methodological process focused on directly questioning people to promote personal and collective reflection that would also give way to debates taking into account the characteristics of the different groups. The established guidelines were followed to create a cordial environment in which everyone felt comfortable and uninhibited to express their opinions. Special attention was paid to avoid the proliferation of dominant opinions that would invalidate the rest. All interventions were recorded from the beginning to the end of the sessions.

For the analysis to be uniform, the same questions were asked in all groups, in a single battery, adapting the language to each level (A, B, and C). As an exception, the participants in level A answered a smaller number of questions, more general, simple to formulate, and easy to understand. Participants in level B answered most of the questions and compared the rating with other websites they knew. For the participants in level C, we tried to adapt the questions to their experience and level, assessing their opinion as users but also as trainers of other elderly people, which allowed knowing their opinion based on their experience with them. To assume these opinions as valid criteria to take into account, the coincidence of the comments in the different groups was valued, that is, the opinions about a specific aspect that were repeated by several people, as well as the personal points of view that would be adopted by the others, after the pertinent debate, before the end of the session.

The areas to be evaluated on the website were divided into six different blocks:

- Accessibility
- Identity
- Information architecture
- Browsing
- Contents

**Accessibility:** the opinions and perceptions of the participants that determine accessibility were assessed, such as contrast, image, colors... also taking into account the possible visual, motor, auditory, and cognitive limitations that could exist.

**Identity:** the graphic representation of all the logos that appeared on the web was assessed to verify that there is a unity in the composition at all levels, as well as the style of written communication and functionality.

**Information architecture:** in this section, the structure, organization, and labeling of the elements that make up the informational environments that facilitate the location -or access- of information and its usefulness and use by users were assessed.

**Browsing:** the order and grouping of the contents were analyzed according to a category that allows the user to identify the content relationships, enable and facilitate browsing between them, and guide the user.

**Content:** the coherence, organization, and understanding of the main information was explored.

**Usability:** it is a key quality attribute that evaluates the degree of ease with which users access and interact with a web page (Nielsen, 2000). The level of usability perceived in the different groups was analyzed through real-time experience.

#### 4. DISCUSSION

In the first of the initiatives, an evaluation was carried out through questionnaires and the teams shared the methodological design from which they started. The results are summarized in the following points.

- Elderly team: Adequate in number and composition. The division of tasks did not pose any major difficulties.
- Dynamization techniques used:
  - «Presentation by Couples»: The facilitators must have prior information regarding the team since if there are several people who already know each other, they would either have to pair them with unknown people or design another dynamic that better fits. The document designed to collect information on the participants ("Participant Profile") has been useful and appropriate.
  - «Group reflection»: The exercise was not only gratifying for the team because of the possibility of expressing their experiences, but it also provided information about the degree of understanding of the task they had to carry out.
  - «Affinity Diagram»: It is a group dynamics tool that synthesizes a set of verbal data (frequent destinations) grouping them according to the relationship they have with each other. It is based on the principle that many of these data are related so that they can be brought together under a few general ideas (short routes, long -

importance- frequency). This dynamic has been totally appropriate for the goal that was pursued.

- «Evaluation session»: In general, they have been satisfied. They would only value the possibility of increasing the time in some of the sessions. It is considered absolutely necessary to maintain this evaluation exercise since their opinion is essential to properly design future editions.
- Planning: The number of sessions carried out is sufficient to achieve the proposed objectives; however, for future editions, it is proposed to hold one more session (between Sessions I and II). Regarding the duration, it is proposed to increase each session from 1.30 hours to 2.00 hours. The schedule (09.30-11.00) was also adequate.
- Execution: The entire process has been adequate without presenting greater difficulty than the time available for it. For future editions, it is proposed to divide the team in two so that the time spent on it can be optimized.
- Consensus agreements: All decisions have been made by consensus. In some cases, it has been necessary to use techniques designed for this ("Affinity Diagram") that have been described above but for the rest of the decisions, dialogue and debate have been used in the classroom, through the participation of all the components of the group.

The creation of groups beyond adjusting to the previous profiles has not generated any problem in any of the 3 districts. This not only contributes to the participatory nature of the group of elderly people but also to the availability of a network of centers for the elderly where they collaborate and attend regularly. From the selection of the participants, the creation of a group capable of working in a coordinated way is facilitated, on the one hand, by the existence of a facilitator, who promotes this dynamic, as well as by the experience of the elderly in working with other groups of people. The ease of achieving these first two aspects in the co-creation process allows an agile process that, as mentioned on other occasions, has instruments and technical tools that, without excessive complexity, have proven useful and effective to promote these co-creation processes. Due to its simplicity, the transfer of these instruments, tools, and techniques to other people or group facilitators does not represent an excessive level of difficulty.

The project's own methodology -based on the stimulation of participation and the making of agreements by consensus, uniting the experience and knowledge of the participants of the physical environment in which the activity takes place- offers a permanent stimulus in which all participants involved in the whole process had in all terms.

Understanding that the decisions made were based on the agreement of the group, also adding a technical assessment on them, it is assumed that the most important

decisions taken -such as those of the improvements to be proposed- are adequate not only to the objectives of the project, in terms of stimulating participation and co-creation, but also in terms of improving the urban environment.

Regarding the second of the initiatives, the usability evaluation of the website, the following results were collected:

*Use of internet access:*

- Elderly people, in general, have a lot of time to dedicate to ICT and take advantage of it, if they had adequate education and training.
- The use of computers and the Internet network are not shown as priority issues but it is progressively less and less difficult for them to approach these information technologies since, when they overcome the initial barriers, they tend to develop great interest in the possibilities that are offered to them, which facilitates their gradual enthusiasm for the use of this tool.
- Every little advance was of great interest to the elderly. They appreciated having their opinion on something that directly affects them and being able to interact on the website.

*Usability of the website:*

- Elderly people do not reject the incorporation of technology.
- Elderly people are capable of learning to use technology.
- Design aspects play a bigger role than ease of use.
- The scroll bar puzzles them. It is difficult for them to intuit that there is more information on a page than what is currently seen on the screen and that they have to use the scroll bar to view it.
- They tend to click on an image, not on the underlined text below it.
- For elderly beginners, the magnifying glass leads them to think of it as a tool to increase size.
- Drop-down menus are difficult to use.
- Icons or images related to a specific text are useful to them
- Although it was not the object of this study, it was considered of interest to ask the elderly about the use of social networks (Facebook, Twitter, Instagram). Most of the people participating in the focus groups were not users of social networks, and they also had the perception that they were very "dangerous".

The inclusion of projects of this type in an action plan aimed at improving the "friendliness" of the city in all its aspects is an important initial motivation for elderly participants. The concrete production of improvements that later transcend the field of public management that is exclusively provided to the elderly, such as the dissemination of these routes on the website, the involvement of local parks, gardens, and urban planning services, and the inclusion of their proposals through the representative boards in processes such as participatory budgeting definitely contributes to the relevance of this process for the participants.

Taking into account that technological innovations mean facilitating access to citizens in different types of services, they are undoubtedly promoting social participation. The creation of a safe and accessible city for the elderly allows them to remain in their communities and neighborhoods and, furthermore, connect and interact with other inhabitants and be part of a "safety net" and have information on the location of specific resources.

Information on resources in the neighborhood seems to be a good starting point for engaging elderly citizens in the co-creation of digital services that meet their needs and offer rewards to a broader group of elderly people.

## **5. CONCLUSIONS**

With the presentation of these two experiences, an attempt has been made to evaluate the participation of the elderly in learning RICT and it has been shown that they are the group with the greatest disadvantage when it comes to obtaining and selecting truthful information. And, besides, according to the experiences described, the older the person, the greater the gap that exists.

People who do not have access to the RICTs are not only at a disadvantage in the face of information, they are also at a disadvantage in the face of the leisure and social relationship possibilities that the RICTs allow: video calls, social networks, etc.

The current resources on RICT, which began in the management of computers for the use of the internet, office automation, photography, etc., have progressively been derived towards the use of mobiles and a multitude of apps that they offer since they are the tool more available for the elderly but on which they have quite limited uses. In this sense, access to social networks is still very limited, the mobile is used for communication with families and friends, as a telephone and as a means of messaging through WhatsApp.

The management of RICTs offers multiple opportunities to the elderly which, for the most part, are not being exploited: food delivery, online shopping, relationship not only with their closest contacts but also with people from all over the world, occupying time free in an orderly manner, obtaining true and current information,

etc. The lack of access to them places them at a disadvantage and vulnerability compared to other younger groups.

During the confinement and restrictions due to the COVID-19 pandemic, elderly people are being victims of isolation, even more than usual in many cases. The lack of access to RICTs generates even greater isolation, which leads to anguish, depression, cognitive and health deterioration. All of this has repercussions on life, social relationships, and the ability to stay informed and related. The lack of accessibility or lack of ability to use RICT prevents elderly people from accessing multiple available resources for recreational, sports, or health purposes, such as videos of physical activity, games to strengthen memory, etc.

In the focus groups described above, it was detected that older people who access RICTs have symptoms of an information overload problem. It is not only about access but about knowing what information they need and where they can get it truthfully. Fake news can greatly affect elderly people with less capacity for digital understanding.

The goal that most elderly people have is to have autonomy and stay at home for as long as possible, to stay in their environment. As a facilitating element of this objective, which offers a large number of opportunities to achieve this goal, the adaptation of digital technologies to the elderly is of the utmost importance and not the opposite, as is currently being done. In our opinion, this adaptation is more important than some sanitary measures that are currently proposed or the advances that home automation offers. It is necessary that the RICT can be handled by anyone, beyond limitations by physical or mental criteria. For this, the development of more intuitive and visual systems is essential, as has been detected in the evaluation of the usability of the web, where elements such as the use of the scroll bar or the magnifying glass were not clear indicators for the participants in the groups. Systems with better controls and telecare support, accessible and domestic home systems.

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