eHealth literacy for the Promotion of Technology Acceptance for the Older Adults

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Abstract. Promote the use of technology by the older adults is an imperative for the enhancement of health in ageing and this is the common aim of Participatory Design (PD) and eHealth literacy. To achieve this goal, PD studies the usability of technology tools, while eHealth literacy focuses on the skills that older people need to use these devices. In the eHealth domain, there is a multiple set of barriers personal, socio-cultural, political, legal, economic, technical and legal limitations. These limitations hamper eHealth interventions and older adults' access and use of health technologies. In addition, the absence of a standardized training is a main barrier in this field of research. The standardization of an eHealth literacy training could be achieved in three steps. The first is the systematization of terms and definitions adopted in the research field to harmonize the current evidence and knowledge on eHealth literacy. The second consists in the definition of the contents of the eHealth literacy training by adopting a multidisciplinary approach. Finally, the third step should be characterized by the implementation of RCT study design, in order to provide validated and applicable results.

Two domains tailored to older adults' use of technology: Participatory Design (PD) and eHealth literacy

The promotion of the appropriate use of technological devices for health is of paramount relevance for the ageing society, with the overall purpose of making the older people aware users of technology (Lattanzio et al., 2014). There are two

actions that can be adopted to support the appropriation of technology and the inclusion in the digital world: the Participatory Design (PD) approach , that promote the usability of devices, through a set of techniques inspired by User Centered Design (UCD), by involving end users during the development stages of any technologies; and the eHealth literacy, focused on the achievement of skills for the effective use of electronic, digital and mobile health technologies (Norman and Skinner, 2006). Both the disciplines intervene in the path to the technology appropriation and use, by focusing on the improvement of the devices' characteristics through PD, and by empowering the older users with new competences through eHealth literacy.

Older adults make limited use of technology, especially in the area of eHealth (Vicente and Madden, 2017). The reasons behind this have to be deeply investigated, in order to provide strategies for researchers and policymakers to widespread the use of such devices for the health support. While the importance of PD is a well-known issue in the literature, the pragmatic role of eHealth literacy is still to be proved as there are scarcity of Randomized Control Trials (RCT) in the field that support the evidence of a direct impact of these devices on health outcomes (Watkins and Xie, 2014). Moreover, the absence of a standardized learning training on eHealth literacy, that should guarantee the achievement of a minimum set of skills to deal with technological world, does not allow the identification of the motivation behind the misuse of a technological artifact: is it a question of usability – implying a failure in the design phase – or of low competences of the user – as no learning training is available to detect problems of eHealth literacy - ?

Barriers to the development of eHealth literacy training

There are several barriers that explain the failing relationship between older adults and the use and knowledge of eHealth tools and the development of eHealth literacy training, as extensively analyzed in the Report on the public consultation on eHealth Action Plan 2012-2020 by European Commission (2012). Critical barriers are composed by cultural issues, such as the lack of users' awareness and confidence in eHealth tools, the health professionals' acceptance of eHealth solutions, and the limited users' skills in using ICTs. In this regard, the scarce health and eHealth literacy skills represent a critical personal barrier, mostly typical in older adults, that inhibits the use of tools (Coughlin et al. 2018).

Political barriers are also relevant, as the lack of leadership by policy makers and local managers. In fact, a greater European Union cross-border governance is necessary because progress toward eHealth within the 27 EU member states has been inconsistent (Currie and Seddon, 2014). Other limitations are technical, as the

interoperability between eHealth tools, and juridical, as the inappropriate legal frameworks, reimbursement schemes, and a particularly sensitive issue for older adults as the lack of security, guaranteed privacy and data protection. Moreover, in the healthcare system, there are evident constraints, as a missing large scale evidence for potential improvements of healthcare organization, and cross-sectorial coordination/integrated healthcare schemes.

Economic barriers, as the budgetary constraints or the shortage of funding for large-scale project and long term sustained investment, remain very severe. More recently, it has been observed that inadequate funding is a permanent criticality, whereas the technological progress of eHealth tools is increasing their efficiency in terms of management of care, quality of life and cost-efficiency of health interventions (Melchiorre et al., 2018). Nevertheless, the actual cost of mobile and eHealth technology remains high, especially for older people, generally living with a low/medium-low income. The expensive price, in fact, increases the sense of exclusivity of these technologies. It enlarges the digital divide and reinforces the barrier of complexity of these devices perceived by older people. Furthermore, other enduring impediments subsist, as concerns about privacy and security that make them ineffective and invasive in the eyes of the older adults (Kruse et al., 2017).

The complex of all these barriers creates impairments to learning interventions and limits eHealth literacy training opportunities for older adults. In addition, research in the field cannot rely on a systematic theoretical framework. eHealth literacy, in fact, is still in a grey area because the practical domains of intervention should be better defined and structured, while the theoretical landscape is very fragmented, without a 'gold standard' on definition and measurement (Griebel et al., 2018).

A standardized eHealth literacy training for older adults: a benefit for research and a guideline for policies

In order to overcome the barriers related to the scarce use of eHealth tools, the enhancement of older adults' eHealth literacy should be reinforced, through the availability of a standardized learning training, with aim of corroborating the results on the benefit of technology use already highlighted in the literature, such as the improvement of the psychophysical well-being, the reduction of anxiety connected to technology use and technophobia (Kokol and, 2011; Millán-Calenti et al., 2015; Xie and Bugg, 2009).

The standardization of an eHealth literacy training could be achieved in three steps. Firstly, through the systematization of terms and definitions adopted in the research field to harmonize the current evidence and knowledge on eHealth

literacy, to be reached through a common consensus of the scientific community. The second step consists in the definition of the contents of the eHealth literacy training by adopting a multidisciplinary approach. In order to collect information and expectations of the target population, PD techniques should be used to design the content of the training in a user-centered perspective. Finally, the third step of the standardization should be characterized by the implementation of RCT study design, only recently applied (Summers et al. 2018; Mitzner et al., 2019), in order to provide validated and applicable results.

The availability of a standardized eHealth literacy training will provide policymakers with an effective tool to improve the diffusion of eHealth technologies for the ageing population. Moreover, it would allow to organize standardized interventions effectively tailored to older people, in line with the guidelines and recommendations expressed in the Territorial Agenda of the European Union 2020 (Walsh, 2012).[1]

Finally, the standardization of eHealth learning training can represent a benefit also for the research field, by properly responding to the need of development of interventions that apply high-quality research design (Watkins and Xie, 2014).

Acknowledgments

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[1] TAEU 2020 (Territorial Agenda of the European Union 2020) (2011) Territorial Agenda of the European Union 2020: Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions, Agreed at the Informal Ministerial Meeting of Ministers Responsible for Spatial Planning and Territorial Development on 19th May 2011 Gödöllő, Hungary. Available at https://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_2020.pdf

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