

Digital inclusion of elderly individuals during a pandemic: Experience report of an extension project



A inclusão digital de pessoas idosas em momento de pandemia: relato de experiência de um projeto de extensão

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ABSTRACT

Objective: To present the development of a digital inclusion project for the elderly conducted in a virtual learning environment. Methods: Experience report on the development of a remote digital inclusion project for the elderly offered in Curitiba and Rio de Janeiro. Participants were invited through WhatsApp® groups and social media promotion. The criteria for participation were: being 60 years old or older, owning a Smartphone with internet access, ability to download the Google Meet® application, and ability to send messages via WhatsApp®. Four workshops for Smartphone use were held between April 2020 and January 2021, two in Curitiba and two in Rio de Janeiro. The meetings were conducted by 19 Occupational Therapy students. Result: 47 elderly individuals participated in the workshops, aged between 61 and 85 years, mostly female. In the analysis of reports, the barriers indicated by the workshop monitors were related to technology itself, the environment, the teaching and learning process, and personal factors. Facilitators included the creation of instructional video material, the exchange of the teaching platform, the possibility of rescheduling meetings, and task division in pairs. Conclusion: With the context of the pandemic, the digital inclusion project took place in a virtual format and highlighted

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its importance as a practice to promote technology use, learning and skill development, and especially to promote social inclusion of the elderly in adverse situations.

Keywords: older people, digital inclusion, virtual learning environment.

RESUMO

Objetivo: apresentar o desenvolvimento de um projeto de inclusão digital para idosos realizado em um ambiente virtual de aprendizagem. **Métodos:** Relato de experiência sobre o desenvolvimento de um projeto remoto de inclusão digital para idosos ofertado em Curitiba e Rio de Janeiro. Os participantes foram convidados por meio de grupos no *WhatsApp*® e divulgação nas redes sociais. Os critérios para participação foram: ter 60 anos ou mais, possuir Smartphone com acesso à internet, capacidade para baixar o aplicativo *Google Meet*® e habilidade para enviar mensagens pelo *WhatsApp*®. Foram realizadas quatro oficinas para o uso de *Smartphones*, entre abril de 2020 e janeiro de 2021, duas em Curitiba e duas no Rio de Janeiro. Os encontros foram conduzidos por 19 estudantes do curso de Terapia Ocupacional. **Resultado:** Participaram das oficinas 47 idosos, com idades entre 61 e 85 anos, a maioria do sexo feminino. Na análise dos relatos, as barreiras indicadas pelas monitoras que conduziram as oficinas estiveram relacionadas à própria tecnologia, ao ambiente, ao processo de ensino e aprendizagem e decorrentes de fatores pessoais. Como facilitadores, destacaram-se a confecção do material instrucional em vídeo, a troca da plataforma de ensino, a possibilidade de reagendamento dos encontros e a divisão de tarefas em duplas. **Conclusão:** Com o contexto da pandemia, o projeto de inclusão digital ocorreu no formato virtual e evidenciou a importância enquanto prática para promover o uso da tecnologia, o aprendizado e desenvolvimento de competências e, principalmente, favorecer a inclusão social dos idosos em momentos adversos.

Palavras-chave: pessoa idosa, inclusão digital, ambiente virtual de aprendizagem.

INTRODUCTION

The context of the coronavirus pandemic has rapidly and significantly changed people's lives, especially for the elderly, who are considered a high-risk group for morbidity and mortality in cases of illness. These individuals were advised to practice physical distancing, meaning to stay at home (CALLOW; CALLOW; SMITH, 2020).

Physical distancing and self-isolation have been the main measures to reduce the transmission of the coronavirus, impacting activities carried out in the community or those that involve social interactions, such as going to supermarkets, banks, restaurants, community centers, clubs, family gatherings, and places of worship. During the pandemic, daily activities have become more confined to the home environment, requiring people to create new strategies to continue performing essential tasks or activities that bring enjoyment and relaxation.

In this scenario, the use of digital information and communication technologies (DICTs) has proven to be a resource capable of mitigating the impact of restrictions on participation in routine activities, as well as being a means to foster social connections (SEIFERT; COTTEN; XIE, 2021).

As information and communication technologies (ICTs) facilitate communication management and social participation (AOTA, 2020), they contribute to physical and psychological well-being, assist in reducing isolation (BALL et al., 2019), and engage in leisure activities (LARSSON-LUND; NYMAN, 2020). Moreover, they promote social connections and enable participation in video conferences, remote courses, access to telehealth services, and delivery (SEIFERT; COTTEN; XIE, 2020; XIE et al., 2021).

However, the elderly population is considered the most digitally excluded when compared to other age groups, given that throughout their lives, their experiences were shaped by technologies vastly different from the current technological landscape (BALL et al., 2019). Furthermore, personal, contextual, or technology-related barriers further hinder the integration of these technologies into the daily lives of older adults (TAVARES; SOUZA, 2012). Considering the "confinement" imposed by the pandemic, the elderly may feel doubly excluded in this technology-driven society, whether due to physical distancing or difficulties in using, assimilating, or understanding technological devices (SEIFERT; COTTEN; XIE, 2021).

In the face of the challenges outlined, the establishment and advancement of digital inclusion programs for seniors have been acknowledged as a promising avenue to empower and foster independence in technology use. These initiatives aim to facilitate connections between individuals, mitigate feelings of isolation, enhance well-being, and promote participation in daily activities and lifelong learning (AOTA, 2020; BALL et al., 2019; EYNON; MALMBERG, 2021).

In conducting these programs, aspects pertaining to the physical and social environment, the teaching and learning process, the technology itself, as well as the personal factors of the elderly individual should be considered to attain success in learning new technologies (ALVARENGA; YASSUDA; CACHIONI, 2019; PÁSCOA; GIL, 2019).

Given the foregoing, there arise reflections and inquiries regarding the potential of programs aimed at empowering the elderly to use ICTs in a scenario where health authorities recommend staying at home and avoiding social contacts. Another question arises: how to develop a remote teaching and learning program for the use of ICTs, utilizing the technology device itself, since this is the most viable and safe resource for the current pandemic situation?

Drawing from the guiding questions, the purpose of this article was to showcase the development of a digital inclusion project for seniors carried out within a virtual learning environment.

METHODS

This is an experiential report on the development of a remote digital inclusion project for seniors offered in Curitiba and Rio de Janeiro, coordinated by faculty members from the Occupational Therapy program. The digital inclusion project began in Paraná in 2016 and expanded to Rio de Janeiro in 2018. To date, it has served over 260 individuals. The project aims to empower elderly individuals for independent use of technologies integrated into their daily lives. This report will focus on the smartphone as the mobile device used in this study.

The project adopts an approach that is focused on the demands and needs of the elderly, meaning that participants determine the content they wish to learn. As a result, the planning of the sessions is tailored to each individual. In its in-person format, the project was conducted through a workshop series, consisting of weekly sessions (n=10) lasting 90 minutes each, followed by a socialization period during which participants enjoyed a snack. Since the beginning of the pandemic, the workshops have transitioned to a remote format, with adjustments made to the number of sessions and their duration, utilizing both synchronous and asynchronous tools.

The remote study involved elderly individuals aged 60 years and above. Between April 2020 and January 2021, four digital inclusion workshops for smartphone usage were conducted, with two workshops in each city where the project was implemented. Throughout the program, 10 monitors assisted in Paraná, and 9 monitors in Rio de Janeiro.

Participants were invited via WhatsApp® groups consisting of elderly individuals who had either completed in-person digital inclusion sessions or were involved in other projects aimed at this demographic within these institutions. Additionally, promotion was carried out through social media channels.

As a selection criterion for participation, elderly individuals needed to possess a smartphone with internet access and sufficient memory capacity to download the Google Meet® application (except for the first workshop in each city), as well as the ability to send messages via the WhatsApp® application. In addition to the prerequisites assessed for workshop participation, project participants also indicated whether they had a support network at home to assist with any potential obstacles that might arise during the sessions and could not be resolved remotely.

The meetings were facilitated by undergraduate students in Occupational Therapy. Following the workshops, the monitors wrote reports about their experience in leading the remote virtual inclusion project.

In terms of ethical considerations, the project received approval from the ethics committees of the corresponding universities under opinions numbered 4,589,302, dated March 13, 2021, and 3,824,627, dated February 6, 2020. Participants provided informed consent to participate in the digital inclusion project.

IN PURSUIT OF DIGITAL INCLUSION: AN EXPERIENTIAL ACCOUNT

A total of 47 individuals participated in the virtual digital inclusion project, with 42 being female and ages ranging from 61 to 85 years old. Elderly individuals interested in learning about various smartphone functions were contacted to introduce the monitors, assess the presence of family support in the home environment (as previously mentioned), gather information on their specific demands regarding cellphone usage, and collect personal data.

Following the assessment of each participant's needs, elderly individuals indicated the type of instructional material they preferred to receive as study support, whether through handouts, podcasts, or explanatory videos. These materials were sent out two days before the synchronous virtual meeting to allow learners sufficient time for study.

The educational resources were planned to facilitate reading or viewing directly on the mobile device. Therefore, handouts were designed with appropriate font styles and sizes, and functions were taught step-by-step according to each stage of the chosen content. Video materials were created using apps that captured on-screen commands along with the narrator's voice. These videos were edited with the insertion of arrows or images to simplify the instructions provided at each step of the function.

The workshops took place in two formats: with participants who had previously attended the digital inclusion project in its face-to-face format (the first two workshops, one in each city), and with elderly individuals who had no prior experience with this type of project (the two subsequent workshops).

Support for the elderly in asynchronous format was provided by sending instructional materials, and each participant was ensured assistance in resolving smartphone function issues via WhatsApp® messages.

Synchronous meetings were conducted via video conferencing on WhatsApp® (the first two workshops, one in Curitiba and the other in Rio de Janeiro) or on Google Meet® (the remaining workshops), with an average duration of 30 to 60 minutes. These meetings aimed to address questions and assess learning through review exercises, as well as to exchange experiences regarding the ease and difficulties encountered in learning the content sent during the week.

The first workshops, in each city, typically comprised three sessions, aiming to address three specific interests of each participant. In both cities, each pair of monitors was assigned to one elderly individual. The most requested functions included learning to free up memory on the phone, downloading and deleting applications, instructions for smartphone security, applications for making video calls, as well as storing files in the Google Drive® app and Facebook® functions.

In the last two workshops, there was a difference in the approach between the proposing institutions. In Curitiba, each student was responsible for one elderly individual, while in Rio de Janeiro, a ratio of two students to two elderly individuals was structured. In the latter case, the criterion for grouping the elderly was based on their level of prior knowledge in using mobile devices. In Curitiba, the monitors conducted the sessions according to the format of the first workshop (up to 3 demands), while in Rio de

Janeiro, the workshop was conducted following the format of the in-person model (10 sessions).

In these workshops, since the Google Meet® app was not commonly used by the elderly and not all of them were familiar with smartphone usage, the monitors sent an instructional video on how to download and use the tool before commencing the teaching of the requests made by them. At this stage, the elderly were instructed to download the app, activate/deactivate the camera and microphone, access the chat, and share their screen presentation.

The participants' most requested tasks included: storing files on Google Drive®, adjusting screen timeout settings, enabling screen lock, managing calendar appointments, downloading and deleting applications, using Facebook®, accessing the phonebook during calls, setting alarms, sending emails, and editing photos. Additionally, participants showed interest in learning how to create a meeting on Google Meet®.

In reviewing the workshop facilitation, challenges related to technology itself, the environment, the teaching and learning process, or arising from personal factors were the obstacles encountered in achieving digital inclusion.

When considering the teaching and learning process, the initial workshops stand out, where exclusively WhatsApp® was used as the virtual learning environment. It was noted that the absence of screen-sharing capabilities was perceived as a barrier, as it prevented elderly individuals from demonstrating step-by-step actions to execute the functions they were learning. Consequently, the monitors encountered difficulties in following the stages of a function solely through verbal instructions. Even when asking the elderly to take a screenshot and send the image as an attachment, not all participants were proficient in this function and/or knew how to attach a photo on WhatsApp®.

Taking these barriers into account, the decision was made to change the platform for conducting synchronous meetings. In this regard, the Google Meet® application was chosen for its capability to share screens, thereby allowing visual tracking of the steps performed by the learner in real-time. The switch to this virtual environment was considered by the monitors as a facilitator of the teaching and learning process.

Similarly, the development of instructional materials was identified as a potent resource for incorporating new knowledge, as expressed by one of the monitors below:

"The handouts I created for virtual monitoring felt more prioritized and emphasized compared to when we do them in person ... they pay attention to them ... I noticed that virtually, because it deals specifically with their doubts, they valued them more (M. 05)."

Additionally, there were reports that the lack of experience with the methodology used in the workshops posed a challenge for the monitors, especially in the early workshops, as the activity was conducted remotely, and they felt they lacked expertise to fully support the elderly participant. Moreover, physical distancing restricted the understanding of the skills the participants were developing. The testimony below exemplifies this situation:

The class itself became more challenging because there were times when I took longer to cover a topic due to not being able to see clearly what the student was showing me, and the student couldn't understand me through the camera. This was quite disruptive because in-person, we can show our phone in front of them so they can follow the steps, and if they "make mistakes" and get stuck on a screen on the phone that they don't know how to resolve (as was the case with one of my students in the virtual setting), we could show them on their own phone how to do it (M. 05).

The insecurity, beyond the remote format and physical distancing, appeared to stem from the fact that in many workshops, the participants and their learning styles were unfamiliar. This virtual learning format was new to everyone involved in the project, so it was natural for individuals to feel uncertain when facing previously unknown obstacles. According to the monitors' accounts, confidence in leading the meetings grew as bonds were formed with the participants.

On the other hand, the planning and execution of workshops in pairs emerge as facilitators of the teaching and learning process, ensuring task division, fostering confidence in leading the sessions, and mitigating the risk of participants not receiving assistance in case of various issues. One of the monitors exemplifies the significance of this reorganized approach in cases of internet instability:

Working in pairs was one of the positive aspects because it allowed for the division of tasks such as creating teaching materials and providing support for participants' questions and needs. Additionally, having one of the monitors present during the workshop provided reassurance. In the event of internet instability for one monitor, the other would be available, ensuring that elderly participants were not left unsupported or feeling anxious about how to proceed (M. 10).

Regarding factors related to the complexity of technology, the diversity of smartphone models, the device's capacity to store instructional resources, or to download materials were the most prevalent obstacles in all workshops. This may have been due to the device's inherent capacity or the amount of materials (photos, videos, other apps) already stored by the elderly on their phones. This barrier was overcome after adopting material sharing via Google Drive®, thereby avoiding the use of the device's memory capacity and providing participants with the opportunity to incorporate this new knowledge.

Moving forward, when analyzing obstacles stemming from personal factors, difficulty in understanding the instructions given during synchronous meetings was one of the observations made by the monitors. This was due to the fact that mobile devices, depending on the brand and type of device, result in very specific explanations, as the step-by-step process varies among different smartphone models.

According to the monitors, this obstacle was compounded by the challenge of sustaining dialogue between the monitors and the elderly participants, as reports suggested limited interaction from the elderly, particularly in the early sessions. However, communication gradually improved as bonds were strengthened.

The reports highlight the participants' low sense of self-efficacy and insecurity when it comes to experimenting and using their mobile devices. One of the monitors emphasizes:

Elderly individuals with a low sense of self-efficacy were often hesitant to follow commands due to fear of making mistakes. This occurred more frequently in the initial workshops where confidence and emotional bonds with the monitor were not yet established (M. 03).

In this context, adjustments to the meetings were implemented to enhance self-efficacy and underscore the lifelong learning capacity. To achieve this, the monitors started giving feedback on the skills developed (or in progress) in each session and used multiple examples when explaining the instructional material to address doubts, fostering a safer environment for the elderly. Moreover, the elderly individuals themselves sought to take notes on new knowledge and began practicing functions on their own devices, thereby improving their perception of their self-efficacy in managing and utilizing mobile devices.

Finally, in examining environmental factors that could impact the digital inclusion process, synchronous meetings revealed hurdles related to internet network instability (both on the part of the elderly and the monitors), lack of time to study new content, and constant rescheduling of meetings. Regarding the social environment, some monitors noted the absence of family support during the workshops. The significance of family members in sustaining motivation for learning is a noteworthy observation made by one of the monitors:

I'd like to report the challenge with elderly individuals who lack family support. The absence of someone who could assist with tasks throughout the week, or even during the initial workshops, was highly detrimental, given that technical issues (internet outages, slow cellphone, volume adjustments, etc.) are common. Having someone capable of dealing with these unexpected situations is essential (M. 03).

In addressing the challenges encountered, the monitors, whenever feasible, rescheduled meetings to ensure that the elderly didn't miss out on the opportunity to become proficient in using their smartphones. However, they didn't have the opportunity to implement strategies to educate family members about their role as encouragers and even facilitators of activities that promote lifelong learning.

Amid the adversities imposed by the pandemic, the experience of developing this remote digital inclusion project was an opportunity given to elderly individuals to learn how technology could ease their lives. It enabled them to carry out essential and enjoyable activities through their mobile devices and facilitated the (re)establishment of social connections safely, respecting the restrictive measures adopted by health organizations.

Upon analyzing the formative process, the development of the workshops enabled the students to structure a new format of teaching and learning, to devise materials that could be engaging and suitable for study through mobile devices, as well as to deal with obstacles not previously encountered. These activities positively contributed to the formative process of the students.

DISCUSSION

Given the elements addressed in this experiential account, it becomes relevant, first and foremost, to highlight the role that the Smartphone assumed as a resource for learning about technology in the context of the pandemic, although the various functionalities and applications of this resource were already known, such as making calls, sending messages, browsing the internet, interacting on social networks, and conducting meetings, all in a single device with numerous concentrated functions (BORGES et al., 2016). With the need for physical distancing, a large portion of education-related activities, such as classes, events, courses, and workshops, had to be adapted to the virtual format (SANDARS et al., 2020).

In this context, the use of mobile devices in diverse educational formats became apparent due to their quick access and ease of information sharing (IYENGAR et al., 2020; SANDARS et al., 2020). In the implementation of the digital inclusion workshops, smartphones were the main tool for mediating the flow of communication and executing the entire process, covering stages such as promoting the initiative, initial contact with monitors, sharing materials for asynchronous activities, and conducting synchronous classes.

The simultaneous role that mobile devices played during the workshops is also noteworthy: while smartphones mediated the learning process, they also held the main demands and expectations for learning. Some inquiries were related to optimizing the use of the device and its functionalities, while others pertained to communication intent and social interaction.

The first situation mentioned above can be attributed to the various applications of technology during this pandemic, such as financial management, shopping, and increased file sharing, which required better device performance and more frequent use (DAVID;

ROBERTS, 2021). Regarding communication and social interaction, it is noted that this aspect converged with the guidance for physical distancing. Maintaining social interaction, especially through virtual means, manifested through the need to connect with family, friends, engage in cultural and religious activities, and manage health, including the telemedicine modalities offered during this time (CASTRO et al., 2020; GRÁCIO, 2020; KHILNANI; SCHULZ; ROBINSON, 2020; MENDES, 2020).

These changes in the pattern of providing information and services through technological means prompt reflections not only on the elderly's access to these elements but also on the extent to which these services can reach this population. For instance, at this juncture, participation in the current proposal was viable for elderly individuals with smartphones and basic knowledge of their use, coupled with access to the internet and information regarding the proposal's dissemination. While these factors are acknowledged as limiting in terms of the population's reach, establishing such conditions as prerequisites for participation was imperative for the proposal's implementation, given the necessity of maintaining social distancing.

Although there are guidelines for planning and executing digital inclusion projects in in-person formats (RAYMUNDO; GIL; BERNARDO, 2019), and considering the experience gained from digital inclusion workshops for elderly individuals, the primary challenge in the pandemic context lies in adapting to remote work. This aspect became evident through procedural adjustments made both during the workshops, guided by the facilitators, and in the organization for the provision of new workshops, such as adjusting the number of sessions, distributing facilitators, and selecting platforms for synchronous activities. Making the necessary adjustments required collaboration among all parties, with particular emphasis on the facilitator - in the workshops represented by the monitors - needing to be attentive to the participant's attitude and understanding the barriers and opportunities in each teaching and learning situation (RAYMUNDO; GIL; BERNARDO, 2019).

Although the accounts from the facilitators aimed to identify barriers and facilitators in the implementation of remote workshops, it's worth noting that both perspectives acknowledge challenges. Therefore, it's essential to validate adaptation strategies given the conditions imposed by the pandemic. This also underscores the

project's significance as an extension activity in shaping students' educational experiences and aligning educational institutions' practices with community needs (NUNES; SILVA, 2011).

The provision of digital inclusion workshops for older adults during a pandemic assumes a significant role not only due to the function attributed to technology as an alternative to reducing physical distancing, but primarily because it allows the elderly to engage in a learning process and take on occupational roles inherent in this engagement. It is known that, at its core, the premises of digital inclusion point towards social inclusion (MARTINI, 2005). Digital inclusion promotes knowledge and access to resources that enable individuals to identify and participate in their social context, thereby achieving "digital citizenship" and, consequently, enabling a more egalitarian society (RAYMUNDO; GIL; BERNARDO, 2019).

The lifelong learning process is highly significant and contributes to the perspective of inclusion. For older adults, gaining access to knowledge and developing skills for using technology represent ways to foster learning in this stage of life (MACHADO et al., 2016). This aspect, therefore, aligns with the ideals of integrating individuals into the digital realm while also promoting active and autonomous participation across various social spheres.

FINAL CONSIDERATIONS

The proposal for digital inclusion workshops for seniors was previously conducted in person at two higher education institutions. However, with the physical distancing guidelines in place due to COVID-19, adjustments were necessary to continue offering the workshops remotely, particularly as technology has become one of the primary means of communication, information, and access to services.

This experience report provided insights into the structure and organization of the workshops, allowing for the identification of the primary challenges associated with implementing the initiatives. While there is a clear need to adapt the proposal to a remote format and to address the individual needs of the participants, the pandemic underscored the significance of digital inclusion for older adults as a means to foster technology

adoption, learning, skill enhancement, lifelong education, and, most importantly, social inclusion within this demographic.

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