Social-Digital Inclusion of People with Intellectual Disability: a study with the assisted of APAE in Serra Talhada

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Abstract: Social-digital inclusion is a pertinent phenomenon that seeks, among other things, to ensure access and technological appropriation to individuals who are in a situation of exclusion. While research institutes have been generating valuable insights into social-digital inclusion among the general population in recent years, there remains a dearth of specific data concerning individuals with disabilities. To address this gap, this study developed a research instrument and collected data from individuals with intellectual and multiple disabilities, who represent a social group with significant e-exclusion. The research was conducted at the Association of Parents and Friends of the Exceptional in Serra Talhada. Two questionnaires were administered: one focused on household-related data and the other on specific information regarding individuals with disabilities. Fifty families participated in the first questionnaire, with twenty individuals assisted by the association completing the second. While many results align with those found in the general population, it became evident that there is a need to consider the manner in which technology is utilized—advocating for conscious and responsible use. Finally, the findings of this research can serve as a foundation for the development of institutional and public policies, as well as for further research with this population.

Keywords: Social-digital inclusion, People with Intellectual Disability, e-inclusion, e-exclusion

1 Introduction

Nowadays, we hear a lot about inclusion. Among various forms of inclusion, social-digital inclusion is being highlighted as an ongoing topic with the necessity for studying and discussing. Digital inclusion or e-inclusion stands for educating citizens capable of using Information and Communication Technologies (ICTs) for social, economic, political, and cultural transformation (Silva et al., 2005). The opposite phenomenon, the digital exclusion or e-exclusion, for Castells (2003), corresponds to the inequality on the Internet, i.e. inequality that originates through the lack or impossibility of access to the information available in the virtual world. Moreover, Roberto et al. (2015) comprehend that e-exclusion is related to different diffusion patterns of the technology among a population, focusing on those who have or do not have access to ICTs, but also in which dimension people have the necessary competency to use it efficiently.

Digital exclusion can be one of the superficial characteristics concealing other social inequalities (Jung et al., 2001). Thus, it's possible to infer that the e-exclusion descends directly from the social exclusion. There are several situations that make an individual face e-exclusion, but the social-economical aspects still being the most common, once it ends up making it difficult to access ICTs. According to Roberto et al. (2015), people with a higher social-economic condition make more frequent, diverse, and qualified use of ICTs, in other words, individuals experiencing vulnerable socioeconomic circumstances often encounter greater challenges in accessing ICTs.

Even with the development of research in this area, there is still a lack of data and studies, more specifically highlighting the situation of the residences of people with disability (PwD), when it comes to social-digital inclusion. It's well known that, according to the Instituto Brasileiro de Geografia e Estatística - IBGE (2019)[1], between 2018 and 2019, the percentage of residences with Internet increased from 79,1% to 82,7% for the general population. Among people aged 10 years old or more, 78,3% made use of the Internet. Given this improvement, the PwD households are expected to benefit from this overview, since having access to these technologies, people can participate more actively in the economic, social, political, and cultural spheres. When it comes to PwD, the ICTs offer a possibility of overcoming the limitations imposed by their life condition.

In order to contribute to the improvement of this scenario, this paper presents data on the inclusion of PwD assisted by Associação de Pais e Amigos dos Excepcionais [Association of Parents and Friends of the Exceptional] from now on, just being referred as APAE, in Serra Talhada, a municipality located in the inland city of the state of Pernambuco. Pernambuco is one of Brazil's federal units, located in the northeast region. A survey was conducted to collect the indicators that characterize the e-exclusion by mapping the ICTs resources available and used in the residences of those un-

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[1]The Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística - IBGE) is the country's main provider of data and information, which meets the needs of the most diverse segments of civil society, as well as federal, state and municipal government bodies.

der APAE's care. We investigated the manner and frequency in which the ICTs are used. These indicators were also compared with the ones available for the general population. This article presents an extension ofSantos et al. (2023). Data collected in this first research was also highlighted and analyzed. Initiatives of this kind are not easily found in the literature, which highlights the importance, pioneering spirit and originality of this research.

We organized this paper as the following: Section 2 presents the theoretical framework of this study; Section 3 presents the research method; Section 4 details and discuss the results, and Section 5 presents the conclusion.

2 Background

In this section, the contextualization of the survey (Subsection 2.1), the description of the research environment (Subsection 2.2), as well as the related work (Subsection 2.3) are presented.

2.1 Contextualization

PwD are considered to be those who present permanent impairments of a physical, mental, intellectual, or sensory nature (Brasil, 2008); being associated with social obstacles that hinder equal, full, and effective participation in society (Régis et al., 2020). When it comes to intellectual disability, according to the American Association on Intellectual and Developmental Disabilities (AAIDD)[2], it is a disability characterized by limitations in intellectual functioning and adaptive behavior, which involves conceptual, social, and practical skills. Intellectual functioning is related to cognitive skills, such as learning, reasoning, problem-solving, and so on. Adaptive behavior corresponds to the collection of conceptual, social, and practical skills that are learned and executed by people in their everyday lives. According to data from the Demographic Census of 2010, 1,4% of the population declared to have an intellectual disability IBGE (2010).

As stated by de Moraes (2017), intellectual disability does not prevent people from being able to learn how to use some of the main current technological devices, such as computers, cell phones, and the Internet, but this is an audience that requires more learning time and specific teaching approaches. Because of this, they often end up not being assisted by digital inclusion courses and workshops, making explicit the need for policies and projects to specific inclusion for this audience.

2.2 Association of Parents and Friends of the Exceptional (APAE)

Among the institutions working on the inclusion of people with an intellectual disability (PwID), there is APAE, which is the largest social assistance and support network for People with Intellectual and Multiple Disabilities in Brazil. There are 26 APAES in Pernambuco and more than 2,000 APAES in Brazil. The APAE in Serra Talhada (APAEST) provides social assistance for more than 1,000 PwID in its main areas,

which are: social services; health and prevention; education, sports, leisure, and longevity.

In the APAEST, a Digital Inclusion Project is carried out in a partnership between the association and the Bachelors program of Information Systems at the Federal Rural University of Pernambuco, in Serra Talhada (UFRPE-UAST). The project has been implemented within the institution for over six years, and has the goal of, among other activities, promoting digital inclusion of APAEST beneficiaries, through workshops on information technology, robotics, and computational thinking.

2.3 Related Work

Concerned about the socio-digital inclusion of people with disabilities, Fornaciali et al. (2014) realized the need to train them in ICT topics in order to prepare them for the IT job market. To this end, together with the Eldorado Research Institute, they ran a training course called "Workshop of the Future PwD", focused on training people with disabilities in ICT topics to act as IT protagonists. The activities were divided into specific modules, exploring the various skills required by the market. The authors acknowledged that efforts towards the socio-digital inclusion of people with disabilities are already being made in the country, but they only aim to prepare them to interact with ICTs as users, i.e. they prepare the individual to use the resources offered by technology in the same way as a non-disabled user would, i.e. they found that little has been discussed about training people with disabilities to act as IT protagonists and that it is not easy to find training to make them professionals able to fill vacancies in the job market.

Verbicaro et al. (2021) conducted a theoretical and bibliographical study with the objective of analyzing how people with disabilities can be guaranteed the right to quality sociodigital inclusion. The authors argue that these people should be secured access to information and the exercise of other prerogatives, such as political and cultural advantages, through digital platforms, including using technological resources that allow them to develop and enjoy a better quality of life, with autonomy. Nowadays, technology has been considered a vital means of communication, especially the internet and social media. As a result, people with disabilities are also trying to insert themselves into the digital environment. However, they find it difficult to ensure this right, especially due to the lack of access and/or accessibility to digital platforms. The authors conclude that it is necessary not only to include people with disabilities in the digital environment, but also to guarantee this valuable access with quality, through continuing and interdisciplinary education, as well as greater protection of personal data that guarantees people with disabilities the exercise of their privileges with freedom.

Carbonera et al. (2020) addressed in their work the conscious use of technology as an indispensable factor for more efficient socio-digital inclusion. Based on the activities accomplished by the "Education and Technology Research Group: People and Protagonists" at the Federal University of Paraná (UFPR), which performed research and extension activities. The initial objective of the study executed by the authors was to reflect on the process of socio-digital inclu-

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[2]Available in: https://www.aaidd.org/intellectual-disability/definition

sion, which begins with literacy, passes through literacy and reaches inclusion through the conscious use of digital technologies. The authors sought to outline a previous concept of what the conscious (aware) use of technologies is and to show that this element is essential for effective socio-digital inclusion. Finally, the research and extension activities implemented made it possible to see that people who master the technique behind digital technologies are not always able to realize the scope of their actions when they develop such technology or access content available on the web. The authors conclude that it is necessary to go one step further and use the knowledge acquired to make conscious use of what is available in terms of digital technologies, the central object of which is effective socio-digital inclusion, enabling people to become the protagonists of their actions in the digital world.

The work of Bayor et al. (2018) aimed to demonstrate how social networks can influence the social-digital inclusion of PwID. The authors studied the following social networks: YouTube, Facebook, Instagram, and Snapchat. It was noticeable that each of them was used according to the specific needs of users, and criteria for usage were identified based on the need for social interaction, playful interactions, and the development of new skills linked to the content offered by the social network, such as YouTube. The methods used for conducting the research included questionnaires, semi-structured interviews, and observation. The provision of training workshops and the use of field studies were also part of this study. Despite the benefits and barriers encountered in this process of social and digital interaction, it is evident that studying the participation of PwID in social networks is crucial. The information obtained by the authors characterizes skills and competencies that can be acquired by this audience, as well as the risks and vulnerabilities that can be faced and avoided, considering the used social networks.

3　Method

This section describes the method used during the research, from the definition of the Survey (Subsection 3.1) to the structuring of the questionnaire and data collection about social- digital inclusion (Subsection 3.2).

3.1　Survey

Survey rresearch can be described as obtaining data or information about characteristics, actions, or opinions of a certain group of people, indicated as representative of a target population, through an instrument of survey, usually a questionnaire (Pinsonneault and Kraemer, 1993). From this point of view, a questionnaire was prepared aiming at those assisted by APAEST, to verify the situation of their social-digital inclusion.

The classification of research in terms of its proposal is descriptive (Pinsonneault and Kraemer, 1993),which consists of describing the distribution of some phenomenon in a given population, with the purpose of verifying perceptions about this phenomenon, being the survey considered as a quantitative method. For the questionnaire application, it was nec-

essary to define a sample, as it would be very difficult to interview everyone assisted by the association. For this purpose, a non-probabilistic for convenience sample was used, which according to Freitas et al. (2000), is obtained based on some criteria, which does not guarantee that all members of that population have the same chance of being selected and, therefore can not be generalized and subjects are chosen by availability.

As this topic has not been explored that much, the research instrument described here does not seek specificities, but a general view of the social-digital inclusion situation of PwID and their families. Considering this situation, we decided to carry out an exploratory research, following the ideas of Gil (2008), which considers that this type of research is appropriate when the chosen topic is little explored and it becomes difficult to formulate instrumental and precise hypotheses about it, and at the end of the research the tendency is for the problem to be more clarified, capable of investigation through more systematized procedures.

3.2　Questionnaires

To structure the questionnaires, we observed some standards when preparing the questions. The first standard is the concept of e-exclusion, as defined by Roberto et al. (2015), while it is possible to identify whether the individual is or is not in a situation of e-exclusion. The second standard observed was the available government data, as that they were also collected through surveys, such as those from the National Sample Survey of Households (PNAD) (IBGE, 2021), from the last demographic census (IBGE, 2010), and also from the TIC Household Survey NIC.br (2021), which collected data on the situation of individuals and their families households, bringing indicators that may be relevant for formulating the questionnaire questions. Finally, the last standard corresponded to related studies as they bring already developed and validated research that explores various aspects of social-digital inclusion, such as: concepts, practices, methodological procedures, and other concerns.

In order to accomplish the results, two questionnaires were structured: one more general, to check the situation of families and households of those assisted; another to research the individual situation of PwID. The questionnaires were applied at different times, even though each one had its own focus, both converge to verify the situation of social-digital inclusion of those assisted by APAEST. When managing the questionnaires, we identified specific limitations, which are discussed in detail in the Results Section.

We managed both questionnaires in the form of a structured interview, in which an interviewer read out the questions and collected the answers provided by the participant. We carried out the research within the context of the Association, which already obtained authorization from the assisted individuals and their parents or legal guardians to collect this specific data. Participants were regularly reminded of their right to withdraw at any time, if they were uncomfortable.

3.2.1 Assisted Families Questionnaire

Considering the physical structure of APAEST, the therapeutic resources, technical capacity, the relevant number of assisted people, and their experience in the area, we decide to carry out our research there, taking advantage of the opportunity of the family meeting, which is held once a month and it has a relevant number of those assisted who participate in person. During the meeting, there was an announcement of the research inviting those present to participate, and as the meeting was also broadcasted via YouTube, some families who were participating online, looked for us on the next day to participate in the research. We applied the questionnaire on December 13 and 14, 2022. A sum of 50 families participated. As we structured the interview, it was necessary to ensure that the interviewees understood the questions in the questionnaire, not to mention that some interviewees were not literate, so often when it came to more technical terms, it was necessary to make adaptations regarding the way of asking, using synonyms, presenting technical concepts, and making use of a everyday language so that interviewees understood the question and could provide data correctly.

The first questionnaire was structured as follows: general data; ICTs data; Internet data: access to the Internet. After the general data, the questionnaire is subdivided into two different perspectives: one is related to the people who is in a situation of e-exclusion according to the concepts already mentioned by Roberto et al. (2015) and Castells (2003), with questions to investigate the reasons for this lack or precarious access to ICTs and which aspects of life could be improved if they could access these technologies; the other part sought to investigate how this inclusion happens, mapping the technologies present in the households and its usefulness, checking Internet access and how social-digital inclusion happens.

In general, we structured the questionnaire in a way that if the interviewee was in a situation of e-exclusion, they would answer questions related to investigating this situation and otherwise they would have to answer more specific questions to investigate social-digital inclusion. However, if the people interviewed were in a situation of information exclusion, but at least one resident of the household was included. It would also be possible to investigate the e-inclusion situation of the household. This first questionnaire allowed us to collect more data related to the household, more general data, such as Internet access and ICT mapping. We built the other questionnaire to collect more specific data related to the PwID.

3.2.2 PwID Individual Questionnaire

To prepare the individual questionnaire, we considered the criteria already mentioned and used in the first questionnaire, such as: the studies, concepts, and authors mentioned, and the databases already described. Just like the first questionnaire, this was also structured to collect general data and ICT mapping, however the focus was not on the house-hold situation, but on the use of ICTs by the PwDI. We structured the last part of the questionnaire to investigate how their social-digital inclusion happens, which equipment they access, which activities they carry out over the Internet, what types of content are accessed and how the Internet contributes to their lives. As aforementioned, we applied the questionnaire to young people and adults who are assisted by the APAEST longevity team. These young people attend support groups every Thursday, so taking advantage of these moments and having the collaboration of professionals from this team, we applied the questionnaire to them during these appointments, interviewing one at a time. In total, we interviewed 20 PwID.

4 Results and Discussions

In this section, the data collected in the general questionnaire (Subsection 4.1), in the individual questionnaire (Subsection 4.2), as well as the data discussion (Subsection 4.2) are presented.

4.1 General Questionnaire Results

The results from this questionnaire are presented in Table 1. Considering the Interviewed, 88% were female and distributed between those who are PcDI (4%) and those who are guardians (84%). Concerning the male audience, among the 12%, 8% are PwID and 4% are fathers or male guardians. Overall, among the 50 interviewed people, we observed that 12% are assisted and 88% are parents or guardians. From the 88% who are parents or guardians, only 4% are male. This perhaps indicate the unequal distribution of responsibilities, since 84% of the interviewed parents and guardians are women.

Regarding the *Interviewees Age Group*, we observed a variation in relation to ages, in which the majority of interviewees are adults, from 30 to 39 years (36%) and 40 to 49 years (32%). Analyzing the *Marital Status*, 46% answered that they were married, 42% of those married were women and 4% were men. However, some of them argued that, despite being civilly married, they no longer live with their husband. As a matter of fact, the child is generally under the mother's custody, so she needs to dedicate more time to caring for the child and this increases the chances of them becoming overwhelmed.

The socioeconomic situation of the domicile is often a factor that contributes to the e-exclusion of residents. Since people with higher socioeconomic status use ICTs more often, diversity and quality. The existing inequality of knowledge is reinforced by Viswanath and Finnegan Jr (1996).

Slightly more than 40% of the interviewed families have a gross monthly up to current minimum wage, such as families receiving the Continuing Benefit Program (Benefício de Prestação Continuada-BPC). According to Roberto et al. (2015), saying that e-exclusion is explained, in general, by socioeconomic factors assumes a reductive reasoning. However, socioeconomic factors are one of the reasons linking a direct relationship with the e-exclusion phenomenon.

When mapping ICT resources, we noted that regarding the use of ICT devices, the vast majority (96%) replied that they have already used it and 2% said that they have never used it. Regarding the number of computers (desktops, laptops, and tablets) per domicile (except smartphones), it was found that

Table 1. General Questionnaire Results

Interviewed
12% PwID | 88% Guardians
88% female (4% PcDI |84% Guardians)
12% male (8% PcDI | 4% Guardians)
Interviewees Age Group
36% 30 to 39 years old
32% 40 to 49 years old
14% 20 to 29 years old
14% 50 to 60 years old
2% 14 to 19 years old
2% above 60 yeras old
Marital Status
46% married | 34% single | 14% divorced | 6% Widowed
Gross Monthly Income
58% from $R1,001.00 to R 2,000.00$
21% from $R501.00 to R 1,000.00$
21% bellow R$ 500.00
ICT Mapping Resources
96% already used
2% never used
70% - no ICT devices | 13% only one | 2% two | 4% three
Smartphones popularity
100% have smartphones in their homes
48% have two smartphones
22% have only one
20% have three
8% have four
2% have five or more
Internet access
74% always access
22% a few times
2% never accessed
88% have Internet access at home
Household Internet Quality
48% Good
41% regular
5% bad
5% excellent
2% don't Know
Participated in any course, qualification, training, project
50% have already participated
20% participated in the Digital Inclusion Project
46% claimed it was a lack of training or qualification

70% of the households do not have any of these devices, 13% of them only have one, 2% have two, and other 2% have three devices. The data collected in the ICTs mapping demonstrated that the most used device is the smartphone. Perhaps this disparity in relation to other technologies is due to their popularity, besides being more practical in terms of use and more affordable compared to laptops or desktop computers.

Regarding the presence of computers at domiciles, The TIC Household Survey 2021 shows that, 39% of households have *desktops*, 72% have laptops and 30% have *tablets*. In relation to APAEST data, 30% of the people interviewed reported having computer devices (except *smartphones*), which include laptops, *desktops*, and *tablets*.

The *smartphones* popularity can be evidenced once again

in Table 1, in which we noticed that there is, at least, one smartphone in all domiciles, as long as, in 48% of them, there are two smartphone devices available. Considering the presence and use of smartphones in households, 100% of the interviewed people have *smartphones* in their homes, according to what was reported by them, since the questionnaire mapped the number of these devices per household. Accordingly to the IBGE (2021), in 99,5% of Brazilian households, Internet access happens through *smartphones* and, according to TIC Household Survey NIC.br (2021), in 95% of homes, people use these devices. It can be seen that the percentages are very approximated, which shows a certain correlation between the APAEST reality and the national reality. In the face of the data, *smartphones* are the most popular and used ICT devices.

Considering Internet access, the majority (74%) of respondents replied that they always access it, 22% reported that they accessed the Internet a few times and 4% reported that they have never accessed it. For those who responded that never have accessed it or only did it a few times, we sought to investigate the reasons for that. Concerning the reasons for not accessing the Internet, approximately 46% of APAEST interviewees responded that one of the reasons is the lack of training or qualifications, which is the most cited reason by them. At TIC Household Survey NIC.br (2021), there is a similar scenario, as it was found that among the households that do not have Internet access, in 47% of them, one of the reasons is because residents do not know how to use it, and 20% of households said that this is the main reason for not accessing the Internet. Analyzing these data, it is clear that there is a need for policies and actions aimed at training people in ICT topics, so they can be effectively social-digitally included. Furthermore, we asked them whether accessing the Internet would improve some aspect of their lives, and 84,62% replied "Yes".

Regarding Internet access at home, we noted that a major part of households have Internet access (88%), either by Wi-Fi or mobile networks (3G or 4G). This data is close to the one that IBGE raised in the PNAD, in which it was found that 90% of domiciles have Internet access. By contrast, in the TIC Household Survey 2021, there was a variation slightly higher compared with those already mentioned, since they observed that, nationally, 82% of households have Internet access. When the northeast region is analyzed, the data variation is greater, in which 77% of households have Internet access. Therefore, the analyses on Internet access at the home of the people assisted by APAEST, showed that the data is very significant and it is similar to the databases of the northeast region situation. Concerning the Internet signal at home, 47.73% said it is good, and 40,91% regular (Table 1).

We also pursued to identify whether the interviewees had already participated in any course, qualification, training, project, or something related to informatics, ICTs, or similar areas. 50% said they had already participated, and among them, 20% are people who participate or have already participated in the APAEST Digital Inclusion Project. This demonstrates the importance of this project in terms of e-inclusion within the institution.

Regarding e-exclusion, 4% of interviewees declared that they had never accessed the Internet or even used an ICT de-

vice before. These people are in a situation of e-exclusion, according to Castells (2003). It was also noted that 50% of interviewees declared that they have never participated in projects, courses, workshops, etc., related to ICTs or related areas. According to Roberto et al. (2015), these people would also be in a situation of e-exclusion because digital literacy develops the skills to use these technologies and when you do not have this training, this creates inequality and precarious access to the Internet and ICT devices.

During the first questionnaire application, it was possible to identify some difficulties: one of them was regarding the interviewee's marital status, we should have put an option for a domestic partnership, the original question was very categorical, deducing that if you are not civilly married, then you are single. Besides that, the questionnaire could have a question about the interviewee's literacy, this could help to better understand their social-digital inclusion situation. Another difficulty encountered during the interviews was the language use, the interviewees had difficulties to understand the questions, so the interviewers needed to adapt their language to provide a better understanding of the questions. A clear example of the difficulty in understanding was when they were asked about the type of Internet connection they have, among the people who said that they have Internet access at home, 37% could not name what type of connection they have.

In relation to ICT mapping, we could have asked each computer device individually *(desktop, laptops, tablet, smartTV)* to better map them. Regarding *smartphones* and Internet access, we could have asked what they use them for, what activities they perform, etc. The way the first research was structured, it was only possible to analyze the situation of the families of those assisted by APAEST. Thus, we developed another questionnaire, the individual one, to verify the situa- tion of the PwID itself.

4.2 Individual Questionnaire Results

The results from this questionnaire are presented in Table 2 with participation of 20 PwID, who are assisted by APAEST and supported by the longevity team, of which 55% are male and 45% are female. We interviewed people between 18 and 64 years old, as shown in Table 2. Regarding marital status, 75% reported that they are single, 10% are married and 15% are in a domestic partnership.

Considering the education level of the interviewees (Table 2),we could observe that the low schooling might be related to the fact that half of them did not complete primary school, and only 10% completed secondary school. 70% of them affirmed that they are not literate yet, even though they are in the literacy acquisition process through the services of the APAEST's pedagogical team. Currently, only 25% attend regular school, and 65% informed that they had attended before.

Among the interviewed people, 55% attend the computer classes of the APAEST Digital Inclusion project. It has boosted the use of ICT equipment, as 85% of the interviewees reported that they had already used *desktop computers*, and 75% stated that they had already used a *laptop*. Regarding Internet access, 95% said that they access the Internet

Table 2. Individual Questionnaire Results

Interviewed (PwID)
55% male | 45% are female
Interviewees Age Group
40% 26 to 35 years old
25% 18 to 35 years old
25% 36 to 45 years old
5% 46 to 55 years old
5% 55 to 60 years old
Interviewees Educational Leve
50% incomplete primary education
30% incomplete high school
10% complete high school
10% no formal education
Marital Status
75% single | 10% married | 15% stable union
Digital Inclusion project
55% participed | 45% not participate
55% attend the computer classes of the project
85% had already used desktop computers
75% had already used a laptop
Internet access
95% access the Internet every or almost every day
90% have Internet access at home
95% used smartphones to access the Internet
ICT Mapping Resources
100% have smartphones in their homes
20% have desktops computers
20% have laptop
Smartphones popularity
20% have only one
30% have two
35% have three
25% have four
Use the Internet to study
53% Yes | 47% Not
Use of the Internet in decision-making / resolving problems
42% Yes | 47% Not
Internet searches in general or with some curiosity
74% Yes | 26% Not
Needed help or support to use ICTs
58% Yes | 21% Not | 21% Sometimes
Content accessed on the Internet
95% social networks
68% games
68% searches on Google
Social networks the most used
95% WhatsApp | 79% YouTube
Play educational games
58% Yes | 42% Not
Participated in any other online course related to ICTs
5% Yes | 95% Not

every or almost every day and 90% of domiciles have Internet access. Once again, we observed that the most used technology to access the Internet, according to 95% of the interviewed, is the *smartphone*, which is present in 100% of interviewee's households. Besides that, in the vast majority

of households, there is more than one *smartphone*, with 35% of them having up to three devices and 30% having two. As in the first survey, the great popularity and dissemination of *smartphone* can be seen, as 100% of respondents stated that they have already used it and they have these devices in their homes. In relation to other devices, this research sought to investigate each individually, and this data evidences a very high disparity in relation to the presence of other devices such as *desktop computers* and *laptop*, which are present in only 20% of the interviewed households.

In the second questionnaire, we sought to understand for what those assisted by APAEST used these ICTs. We wanted to know whether there was evidence of a conscious use of it, as stated by Carbonera et al. (2020). For such, we asked about how these ICTs were used, especially the Internet, what they accessed, and which activities they performed in these devices, that is, if this use had some objective or it was an aimless access.

The interviewees were asked whether they use the Internet to study, perform academic research or other activities of the same type and, 53% of them, said yes. It also investigated the use of the Internet in daily decision-making and resolving everyday problems, so it was questioned whether they seek support on the Internet for these day-by-day challenges and, 42% of them, answered yes. Regarding Internet searches in general, like when they are in doubt about a cer- tain subject or with some curiosity, the interviewees were asked whether they use the Internet to resolve their doubts or possible curiosities and, 74% of them, answered yes. It was also asked whether the interviewee needed help or support to use ICTs (Table 2) and, 58% of them, answered yes.

Regarding Internet searches in general, like when they are in doubt about a certain subject or with some curiosity, the interviewees were asked whether they use the Internet to resolve their doubts or possible curiosities and, 74% of them, answered yes. It was also asked whether the intervie-wee needed help or support to use ICTs (Table 2) and, 58% of them, answered yes.

Regarding content accessed on the Internet, 95% of them said they access social networks, 68% access games, and 68% reported that they conduct searches on Google. Among the social networks, the ones most used by them are *WhatsApp* (95%) and YouTube (79%). With regard to games, we asked if they usually play educational games. 58% reported that they play games that teach some content or work on cognitive skills.

Regarding the use of these technologies with some purpose and objective, the analysis of the data showed that the Digital Inclusion Project certainly has a relevant role in encouraging the responsible use of ICTs. Thus, when we asked the interviewees, for example, if they use the Internet to study, perform research, and do school activities, 53% of them responded yes, among these, 42% are participants in the mentioned Project. In relation to the 47% who responded that they did not use the Internet for those purposes, only 15% participa-ted in the project. Furthermore, they were asked whether they use the Internet to search when they are curi-ous or have doubts about a specific subject, 74% responded yes, among them, 47% are project participants, and the 26% who answered no, 10% are project participants.

Finally, related to the usage of the Internet to make deci-sions and resolve daily problems, 42% said yes, among them, 31% are participants in the Project. 58% answered that they do not use the Internet to make decisions or resolve everyday problems, among them, 26% are participants in the project. When analyzing these data, it is clear that the project has the potential to encourage the conscious use of ICTs, according to Carbonera et al. (2020), and that even though these data alone do not guarantee that there will be a conscious use, they are indicators that can point out to this issue and serve as a starting point for in-depth analyzes, using more specific re-search instruments. It is important to clarify that we are not suggesting that using ICTs solely for leisure, entertainment, or other purposes should be considered "purposeless". How-ever, relying exclusively on ICTs for such activities is restric-tive, particularly for individuals lacking sufficient access to education. Thus, there is an urgent need for broader inclu-sion, enabling individuals to use ICTs autonomously for ed-ucational and civic purposes, according to Carbonera et al. (2020).

Besides the investigation of whether the interviewees par-ticipated in the Digital Inclusion Project or not, it was inves-tigated if they have already participated in any other online course related to ICTs, and only one interviewee answered yes. The study should have also explored the participation in face-to-face courses, as well as in the general question-naire. For this reason, we do not have detailed data, so 45% responded that they did not participate in the Digital Inclu-sion project, they also said that they never participated in on-line courses related to ICTs, this means that these people are likely to be in a situation of e-exclusion according to Roberto et al. (2015).

Describing the majority of interviewees, 40% have an age group from 26 to 35 years old, among them, 1% have no schooling and 25% have incomplete primary school, these groups have a greater need of help to use ICTs. In face of this perspective, as shown in the research of Santos et al. (2023), the adult audience has greater difficulties using the In-ternet, lack of qualification and training are the reasons they used to explain the problem. However, 25% of the mentioned group did not participate in the inclusion project, so it is clear that the education factor has a great impact when it comes to the use of digital technologies, influencing not only digital but also social inclusion. Access and use of technological de-vices and infrastructure, in itself, does not guarantee digital inclusion. The acquisition of skills through training and good use of these resources by users is necessary to, from an ed-ucational point of view, reduce e-exclusion (Alcalá Casillas, 2017).

The understanding of the questionnaire by the intervie-wees was a pertinent problem in the application of both questionnaires. To collect the data correctly, the applicators needed to adjust their language, often using examples and as-sociations so the interviewees could properly understand the questions. For future research, it is important to think about how we can improve the questionnaires to make it more un-derstandable, without needing so much adaptation when ask-ing questions.

5   Conclusion

The investigation of the social-digital inclusion situation of PwID, and their families assisted by APAEST, provided an opportunity to understand the context of the homes in which they live. Many of the results obtained are similar to data from PNAD and TIC Household Survey 2021, when they point out, for example, to Internet access, ICT mapping, and reasons for e-exclusion.

However, although the majority of them have access to the Internet and technological resources in their homes and use the Internet all (or at least most) the time, it is necessary to properly direct this access. We observed that it is not enough to just provide access to the Internet and ICT equipment in general for effective social-digital inclusion to occur, it is necessary to think about the form of use, conscious and responsible use, and training for such use. The problem requires analysis from different perspectives, considering the skills and needs of each user regarding technology, since there are particularities in the way they interact with this reality and in the context in which they are inserted.

Given the scenario outlined through the data described here, it is necessary to consider the next steps and how this data can contribute to the social-digital inclusion of PwID. There are actions that can be implemented to reduce some barriers that may disguise the lives of people in general, such as actions focused on education, democratization of internet access, and ICTs in general, as well as the adoption of digital assistive technologies. Additionally, policies for distributing these devices to PwID and also to individuals experiencing infoexclusion due to a lack of financial resources can be considered.

Furthermore, the data collected by this research can serve as a basis for institutional and public policies focused on this axis. They can be presented at state and municipal conferences on PwD, where the rights of these individuals and actions to ensure these prerogatives are discussed. This can provide guidelines for combating infoexclusion and formulating public policies to assist this audience suffering with digital inclusion. Among the aforementioned actions, considering APAEST as a social assistance institution for PwID, some of these actions can be adopted as institutional policies to work in collaboration with the public sector, especially concerning knowledge distribution.

Declarations

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Authors' Contributions

Availability of data and materials

The questionnaires are available at the links below and the files will also be made available as supplementary materials when submitting.

Questionnaire Available at: `https://drive.google.com/file/d/1OFF8FhVIWjuri9zr6XRGOOdbKX_jZWe9/view?usp=`

Individual Questionnaire Available at: `https://drive.google.com/file/d/12oM6IpIeTOyT8WIr11kp-sUBcgSa59jk/view?usp=sharing`

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