Bridging the Digital Divide
for Older Adults and Seniors

A PROGRAM OF

San Diego
Oasis

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As experts in the field of aging, San Diego Oasis has identified learning technology as one of the most pressing needs for older adults/seniors. After observing the lack of tech tools, funding, and services available to this population, we talked with aging partners in government, senior community, and facility executives and funders who support aging issues to learn that everyone was talking about the need for tech help, but taking no action. San Diego Oasis decided to take action by creating a pilot program to directly confront this lack of tools and training. We identified an audience we were missing in low-income older adults/seniors.

Creating a technology package with the help of several funders, we provided a Samsung tablet, 12 months of internet, one-on-one training for two hours in small groups, and vouchers for access to some Oasis classes to this low-income population. The response has been overwhelming, with potential to grow and scale well beyond our current structure, pending funding opportunities.

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Assessment of Conditions

As outlined in this paper, the Oasis team gathered research that supported moving forward with this pilot. Attitudes toward older adults/seniors and technology were alarming. Companies were creating products for younger populations, with no concern for the aging populations who may be experiencing health issues like hearing loss, vision challenges, and arthritic conditions. Economic factors cause limitations on the purchase of tech tools. Societal attitudes cause anxiety in attempting to learn about technology for fear of being viewed as stupid or slow, even for those who can afford the products. Mobility issues present challenges for those who identify locations to learn, but have no way to access them, while fears of fraud and safety issues are top of mind. Diverse populations were even more isolated with less resources and challenges such as language barriers and understanding of what might be available to them. Finally, the sheer challenges of understanding the need to learn something new can stand in the way of adoption until necessity takes hold – such as during the pandemic when older adults/seniors had no choice but to explore ways to stave off isolation and loneliness in an unprecedented time.

Our Approach to Bridging the Digital Divide

San Diego Oasis has a long history of providing technology training. From a large number of classes to an annual Technology Fair now in its 10th year, we have offered an evolving array of topics as the tech market has grown. Apple and Android products, fraud and security, tools for workplace reintegration, telehealth, photo and imaging, smart home, and so many other relevant topics are offered on a regular basis at Oasis.

At the beginning of the pandemic, it became clear that more resources would be needed. Our organization quickly pivoted over a weekend from thousands of in-person classes to a broad selection of virtual class offerings so that our older adult/senior Oasis members would not loose touch. Instead, they came together online to continue learning. However, we quickly realized we were missing an important population of older adults/seniors in the low-income community who were completely isolated with no capacity to afford the tools or to find the training to engage online. After talking with some of our partners, we approached some of our strongest funders to make our case for supporting a program of inclusion and learning. Identifying communities of older adults/seniors in need, we created a technology package (as referenced above).

We quickly realized we were missing an important population of older adults/seniors in the low-income community, who were completely isolated with no capacity to afford the tools or to find the training to engage online.

Working with partners who could identify those low-income populations for us, we felt confident that we would be targeting those who really needed the help. In our first 9 months, we raised over $200,000 from private and corporate sources to help almost 400 low-income older adults/seniors from diverse communities. Many were experiencing technology beyond a flip phone for the first time in their lives, never having created an email, and having no knowledge of how to use a tablet. The results were encouraging.

Receptivity of Older Adults/Seniors

Sharing stories of success in this paper, we have been profoundly touched by the response to our program, from participants and partners as well as those who have funded us to date. One manager at a low-income housing facility said, *"We appreciate your willingness to work with us as we attempt to bridge the digital divide in our Senior Communities. The Oasis program has been a godsend to our seniors byallowing them the opportunity to participate in online Oasis classes and access much needed information on health care, housing issues, social security, and other important issues like updates on Covid-19. One of our residents said to me that 'Our training and getting the new tablets was an early Christmas gift that I will never forget.'"*
—Dean P. Brown, MPA,CNPM, Sr. Residential Service Coordinator, Community HousingWorks, Alabama Manor/Kalos

One additional benefit not initially expected was the peer-to-peer element, as we watch small groups of older adults/seniors bond with their learning, relying on each other to recall some of the training features, as they learn together. Several facilities have followed up with a resident who responded well to trainings, continuing to conduct supplemental sessions for people who struggle the first time.

We also identified a need to have follow up phone calls so that participants can ask questions and get immediate help. We turned to a partner nonprofit who has the capacity for telephone training that agreed to make staff available on-call for several hours a day for questions. This provided additional comfort to participants that needed more training.

Oasis continues to receive requests for this service from a variety of older adult/senior living low-income facilities and community centers, as well as individuals who live on their own and read about the program in our numerous outreach materials and media coverage. We have even received requests from refugee communities that require and provide interpreters so that this population of older adults/seniors is not left behind. The need is great!

Appetite for Support

Our development team at San Diego Oasis has been able to attract funding for this pilot because the program addresses a basic need in the community, reaching those who have little access to technology when technology was the only way to communicate. Now that the pandemic has subsided, remarkably, we continue to see a demand for this program as older adults/seniors realize that while they can get out to do some things, a great deal of the resources they need are now available and preferred online. Communications with family and friends, telehealth, financial tools, delivery of medicines and groceries, government agency access, and lifelong learning are just a few of the many sources they need to remain active, engaged, and involved in the world.

With funding, San Diego Oasis can scale this program to numerous additional participants in San Diego County and beyond to older adults/seniors in need throughout surrounding areas. Using either our current model of distribution and training or serving as the train-the-trainer for communities who wish to duplicate the model, we believe we can expand this program to meet the needs of so many more who need our services. In addition, while low-income populations

have been the priority of this program, it is clear that the training element has life beyond a low-income population as older adults/seniors of all walks of life are struggling to learn technology so that they can continue to be part of this growing trend. San Diego Oasis has the trainers to execute this potential program as well in Bridging the Digital Divide for Older Adults/Seniors from all walks of life.

Introduction

San Diego Oasis is an organization for older adults and seniors that is built upon the idea that learning and engagement are the keys to healthy and successful aging. Our mission is to ensure that adults age 50+ have opportunities to pursue vibrant, healthy, and productive lives. We provide access to socialization, active living, and intergenerational community initiatives. Our goal is to help older adults/seniors thrive by encouraging them to be physically, mentally, and socially active. We seek to positively impact the lives of older adults/seniors through partnerships to share knowledge, offering evidence- and research-based programs, conducting evaluations, and adapting to meet the needs of diverse audiences. Our approach includes the following key areas:

• Lifelong Learning
• Health and Wellness
• Community Involvement through intergenerational programs

It is in pursuit of this mission that we began to see a growing need for older adults/seniors to engage with technology. During the height of the Covid-19 pandemic, online communication became the means of accessing the outside world for so many. However, for others, digital technology, the one tool that would provide access, actually presented the largest barrier. This was especially true for older adults/seniors, many of whom had not only never used technology but also could not afford access. These older adults/seniors were isolated in their homes and unable to communicate. In order to help this vulnerable population, we offered access to online communication, social connection, and activities.

Through our Digital Divide program, we provide a technology package of a Samsung tablet, internet for 12 months and one-on-one training on how to engage with technology. We also provide a coupon for free classes to not only promote active learning, but engage with other local older adults/seniors. So far, we have served over 750 older adults/seniors in the San Diego County area. The results have been phenomenal.

Due to the overwhelming positive feedback and increased interest in the program, we have constructed this paper to outline what has made our program successful and how we believe it can be applied in the future to continue closing the digital divide for older adults/seniors. In this paper, we explore:

I.   **The Problem:** What is the digital divide and why is it important to close the gaps in access to technology for older adults/seniors?

II. **The Causes:** What are the underlying causes of the digital divide, particularly for older adults/seniors, and why do they continue to be left behind in accessing and adopting technology?

III. **The Effects:** How are seniors suffering as a result of the digital divide?

IV. **The Solution:** San Diego Oasis *Bridging the Digital Divide* program: what it is, how it works, and what we have learned along the way.

V.   **The Results:** What data we have collected and why we believe our program has been successful in helping to close the digital divide.

The Problem:
What is the Digital Divide?

The term "digital divide" refers to the widening discrepancies between the rapid growth and increased ubiquity of digital technologies and the number of people who benefit from that growth (McDonough, 2016). While necessary in the modern world, internet access is, unfortunately, still separated by demographic, socioeconomic, and health conditions. Meaning, Black, Indigenous, and people of color (BIPOC) identity, older age, poverty, less education, and poor health are associated with less internet use and decreased access (Hunsaker & Hargittai, 2018).

The disparities within the digital divide are especially of concern for older adults/seniors. Through technology, older adults/seniors can access health and community services, communicate with family, and stay active (Kim, 2021). Older adults/seniors are behind the digital curve. Although research has indicated that technology purchases increased among older adults/seniors by 55% during the Covid-19 pandemic, these gains have only marginally closed the gap in technological adoption (Nelson Kakulla, 2020). Despite the increased interest in technology, low levels of usage continue to surge (Kim, 2021).

Through our Digital Divide program at Oasis, we have discovered that the digital divide is a multifaceted issue. While the primary focus of digital divide intervention has centered upon access to devices, we have noted that access to devices is but one component that ought to be considered. In our view, lack of socioeconomic equity, ageism, lack of access to support, and tools also present significant problems. For this reason, we have chosen to expand the scope of this paper to include multiple factors that have contributed to the widening of the digital divide.

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We believe that through our consideration of these variables, we have created a successful program that tackles the digital divide from multiple angles. The factors that we have explored and the research behind them are outlined below.

The Causes: Underlying Issues

Researchers have examined multiple factors that contribute to the gap between older adults/seniors and technology access and usage. These factors include lower technological competency levels, lack of self-efficacy, and fear of digital tools. While these internal issues are problematic, newer, trending research has shifted focus to the social and economic factors shaping the conversation (Choi et al., 2020 Jolly, 2014; McDonough, 2016; Ivan & Cutler, 2021; Tappen et al., 2021). At San Diego Oasis, we observed these factors in real time along with some additional observations including socioeconomic disadvantages that prevent particular older adult populations from accessing and adopting technology, the social and institutional ageism that affects technological design and overall usage levels, and lack of access to adequate, in-person technology training.

Our experience with the digital divide program has demonstrated that over-the-phone or virtual training does little to introduce and acquaint older adults/ seniors to their new technology.

Economic Barriers

With over 25 million Americans 60 and older living 250% below the federal poverty level, economic inequality presents a significant barrier to bridging the digital divide among older adults/seniors (Vogles, 2021). Recent Older Adults Technology Services (OATS) research found disturbing correlations between digital disengagement and income (Kim, 2021). Since affordability remains an obstacle, low-income older adults/seniors do not have the same level of access to technology as their higher-income counterparts (Kim, 2021). The same OATS research also reviewed existing digital inclusion efforts targeting older adults/seniors and found minimal to no significant low-cost offerings for device access or broadband services. Intervention programs that provide low-income older adults/seniors access to devices have been recommended to mitigate economic challenges (Kim, 2021). However, what's most troubling about the financial obstacles preventing the closing of the digital divide is that even when older adults/seniors are given access to devices, ageism still heavily influences their desire to adopt technology after receiving access.

Attitudinal Ageism

Recent data has shown a growing connection between ageism and technological adoption among older adults/seniors on social and institutional levels (Choi et al., 2020; Jolly, 2014; McDonough, 2016; Ivan & Cutler, 2021; Tappen et al., 2021). On a social level, ageism functions to reduce older adults/seniors' optimism about internet technology through

discouraging messaging and stereotyping (Ivan & Cutler, 2021). Due to the widespread message that this population is not internet-competent, ageism can diminish their innovative attitude toward technology. Unfortunately, studies have also found that they may internalize this external message suggesting they are inflexible and unable to learn. The internalization of these messages often prevents older adults/seniors from utilizing technology even if it is available to them (Ivan and Cutler, 2021; Mannheim et al., 2019).

Ageism in Technology Design

In addition to social factors, ageism has influenced tech design to exclude older adults/ seniors on a systemic level, complicating technological adoption. According to Manfred (2019), technology developers ignore the process of aging when designing digital devices. Loss of vision, hearing, manual dexterity, and even touch sensitivity can make technology usage difficult if accommodations such as larger font, brighter screens, louder volume, and stylus pens are unavailable or challenging to access (Manor & Herscovici, 2021). Due to the continued exclusion of older adults/seniors in technological design, making the digital sphere more accessible and user-friendly for older people requires additional intentionality and effort to customize technology to fit their needs (Manfred, 2019; Manor & Hersovici, 2021). Without attention to these hindrances, it is unlikely that technology usage among this population will rise (Manfred, 2019). When considering the myriad variables that contribute to the widening digital divide, it is clear that the prevailing ageism that undergirds the discussion around older adults/ seniors and technology design is at the center of the digital divide. These issues compound other factors such as economic barriers and lack of access to training.

Lack of Access to Training

At San Diego Oasis, we have found that lack of access to training is also one of the barriers keeping older adults/seniors from technological adoption. Throughout the design and implementation of our program, we have combatted the paradoxical relationship between increased reliance on technology and the need for older adults/seniors to access technology training to encourage technology usage. We noticed that intervention programs that provide devices to low-income older adults/seniors without training are not enough to encourage participation in technology, which is further complicated by the increased reliance on virtual communication during the pandemic. In essence, our experience with the digital divide program has demonstrated that over-the-phone or virtual training does little to introduce and acquaint older adults/seniors to their new technology. Yet, as the pandemic continues to push us towards virtual and technological communications, older adults/seniors are asked to rely on digital communication even more. In-person access can be difficult, particularly with Covid-19 cases on the rise, and mobility with access to public transportation may be challenging. However, without in-person access, older adults/seniors are unable to access technology training and support services that would help them to utilize technology. Our experiences with telephone training have been less than effective as an initial tool, making in-person training a must. We have learned that providing off-site trainings can help to offer convenient access to training and help to close the gaps (see more below in program description). Throughout our experience, the most important lesson we have learned is that handing older adults/seniors a device only solves one of the many causes of the digital divide. Training is the most important piece of the puzzle. If the other factors are overlooked, it can be detrimental given that technology is a crucial tool to fight the social isolation and loneliness that continues to rise amid the pandemic.

The Effects:
Loneliness and Social Isolation

While loneliness can affect all human beings, it is particularly detrimental for vulnerable and older populations, exaggerated recently by the Covid-19 pandemic. According to AARP, more than 8 million older adults/seniors are affected by social isolation, a fact that is particularly concerning when considering that the Center for Disease Control (CDC) describes social isolation as "a serious public health risk." According to the CDC, premature death due to loneliness is just as likely as premature death caused by smoking and obesity. Moreover, the risk of social isolation combined with socioeconomic and racial factors can result in a diverse group of older adults/seniors suffering from varying stress levels. African American elders, for instance, disproportionately suffer from lower-income levels, poorer health profiles, degraded community environments, and reduced access to resources. Similarly, LGBT older adults/seniors are twice as likely to live alone and 3-4 times less likely to enjoy partner or spousal benefits. These challenges come from lingering social and cultural prejudices, lost or strained family connections, and laws that either intentionally or unintentionally exclude same-sex partnerships. These variables put BIPOC and LGBT older adults/seniors not only more at risk for social isolation, but also to the loneliness and health risks that follow (Cacioppo & Cacioppo, 2014; Lubben, Gironda, Sabbath, Kong, & Johnson, 2015).

Internet usage has become compulsory, and as the pandemic increases the importance of internet usage, lack of internet access compounds the already concerning causes and effects of the digital divide. For older adults/seniors, bridging the digital divide is about much more than access to technology; it is about generating a crucial source of enfranchisement, dignity, and independence. The San Diego Oasis *Bridging the Digital Divide* program overcomes the empowerment barrier by trusting older adults/seniors to learn and grow their sense of digital independence through access to training, education, and accommodations. Below we have outlined the details of our program including a broad overview of the program, what the program provides to participants, and itemized costs of the program.

The Solution:
Introducing the SDO *Bridging the Digital Divide* Program

San Diego Oasis has provided over 750 low-income older adults/seniors with a technology package that includes a new Samsung tablet and 12 months of internet service. Most importantly, participants receive individualized, in-person training and access to classes, which we have found to be the key ingredient to older adults/seniors embracing new technology.

For this project, we are specifically targeting low-income older adults/seniors in San Diego County. As the pandemic began, we realized that lack of mobility within the community would impact this low-income population the hardest, as even libraries and local community centers closed their doors. The tablet program has proved to be more impactful than we anticipated and we will continue to target these older adults/seniors long after we resume our pre-pandemic lifestyles.

About our program participants:

- 75% did not have an internet-connected device prior to receiving their tablet
- 71% live alone
- 54% of recipients are BIPOC; 100% are low income
- 70-71 is the average age of participants

What the program provides:

Connection & Community
As stated by Susan Nash on behalf of the Stanford Center on Longevity, "The Covid-19 pandemic has thrown into stark relief two already disturbing trends from the last couple of decades. First, as the population ages, many older adults/seniors find themselves socially isolated, often with life-threatening consequences. Second, older adults/seniors have lagged behind the rest of the population in having the means and ability to access the Internet."
For many older adults/seniors, access to working technology and internet access can mean the difference between languishing at home, alone and lonely, or finding connection, stimulation, and healthcare online. Additionally, the devices and internet access are simply the first part of the equation. Inclusion and equity simply cannot exist for this population without ongoing training, as the device will become an expensive paperweight if they feel uncertain or fearful of breaking the tablet.

Ongoing Education
Funding has been provided for each program recipient to access a number of online classes through San Diego Oasis while they participate in the Digital Divide program. The mission of San Diego Oasis is to ensure that adults age 50+ have opportunities to pursue vibrant, healthy, productive, and meaningful lives. The vast majority of the tablet recipients were not members of San Diego Oasis prior to beginning this program. Membership in this community offers opportunities for connection and ongoing education. This allows older adults/seniors to continuously grow comfortable with technology in a familiar environment. As a result, loneliness and social isolation are less likely, which is especially true for those who have mobility issues and/or are at higher risk from COVID-19.

Technological Accommodations
This program provides a variety of accommodations to overcome design barriers. These accommodations include stylus pens and instructions to adjust settings to fit the needs of older adults/seniors. As stated above, mobile technological design is often built with younger users in mind. Touch screen usage requires higher levels of collagen in hands and fingers and font sizes, screen brightness, and volume is typically set on low from the start. These challenges often prevent older adults/seniors from using their tablet and increase frustration and decrease confidence. For this reason, we ensure that accommodations are made from the beginning so older adults begin training feeling comfortable with their device.

<u>Technological Know-How</u>
Because 75% of recipients did not have an internet connected device prior to entering this program, they often had low levels of confidence when handling the device. Some recipients were too nervous to even take the first step of turning the device on without someone walking them through the process. This came from a fear of breaking or harming the device. We have noticed that providing hands-on, in-person training has been the most efficient way to build confidence and comfort with technological devices. We also ask them to sign up for educational Oasis classes, which encourages them to continue utilizing the device, rather than leaving it on a shelf to gather dust. For many of these recipients, this program is opening a new world of possibilities.

<u>Access to Information & Benefits</u>
This program makes it simpler, easier, and quicker for older adults/seniors to access vital information and benefits. They desperately need access to organizations and company contact information, program information, online forms, etc., all of which are easily accessible online, but only if you have an internet-enabled device, internet connectivity, and the training and confidence to use these tools.

Description of Program Intervention

<u>Step 1</u>: Recipients apply to access the program by using either a printed application or online application provided to them by Oasis. Our application is brief, but collects important demographic, self-assessment, and cultural data used for program analysis. Often, San Diego Oasis partners with low-income senior living facilities, the staff of which assists in filling out the application.

<u>Step 2:</u> Within 15-20 days of applying, recipients receive a call from San Diego Oasis telling them that their tablet has been purchased and assigned. They are then given a variety of dates and locations for training. Trainings occur either at San Diego Oasis offices, the low-income senior living facility where the recipient is living, or other public location.

<u>Step 3:</u> Most recipients attend a 2-hour, in-person training. The goal of the training is for the recipients to come away with basic knowledge of their tablet for immediate use, which includes:

- Turning the tablet on and off
- Changing settings to accommodate seeing/hearing needs, such as font size and volume
- Accessing and browsing the internet
- Accessing email
- Accessing and registering for San Diego Oasis classes

Pre- and post-tests are administered during this training time. Some recipients are unable to leave their homes due to mobility concerns or fear of COVID-19. In those rare cases, training over the phone is provided by a partner organization. Phone training is generally more time intensive and can be a frustrating experience for the trainee and trainer, which is why in-person training is preferred.

<u>**Step 4 (optional)**</u>: The recipient can return for additional training, if necessary and/or desired.

<u>**Step 5**</u>: Once they are computer literate, they can attend no or low-cost classes that can expand their horizons, connect them to new friends and communities, and help them prepare to reenter the workforce in some way with education about managing excel, selling items online, utilizing the cloud, etc.

<u>**Step 6**</u>: The tablet is theirs to keep and no-cost internet access is maintained for 12 months, after which the recipient can sign up for low-cost internet access of their own, that may be available by local providers or through federally incentivized programs.

Key Partners

The Digital Divide program has required collaboration across corporate, non-profit, and governmental organizations. AT&T provides affordable pricing for internet and technology, senior living centers continue to provide possible participants, and the City of San Diego initially provided a large portion of the phone training to participants, now offered by the San Diego Futures Foundation. Ongoing relationships with low-income senior living facilities have been vitally important as the program has matured and grown. By partnering with these facilities, San Diego Oasis is provided with a large group of qualified low-income recipients, staff who will assist the recipients with applications and technical questions, a single location for training to which the recipients do not have to travel, and opportunities to return for continuing training and/or new recipients.

Select List of Partners (not exhaustive)

- AT&T – Providing discounted tablets, internet access, and technical assistance
- City of San Diego – Providing a pipeline to applicants and phone training for recipients
- Los Arcos – Applicant Source
- Millennium Housing – Applicant Source
- MJ Housing (various locations) – Applicant Source
- Serving Seniors – Applicant Source
- St. Paul's Pace Program – Applicant Source
- Poway Senior Center – Applicant Source
- Community Housing Works – Applicant Source
- Elderhelp – Applicant Source
- Brookview Village – Applicant Source
- La Mesa Senior Center – Applicant Source and educational partner
- Catholic Charities – Applicant Source
- San Diego Futures Foundation – Phone Training

Distinguishing Characteristics of this Program

Through a great deal of trial and error and deep connections with the community, San Diego Oasis has set this program apart from other attempts to bridge the digital divide among older adults/seniors. We have pinpointed the following distinguishing characteristics, which have served this program well and increased the likelihood of success:

- Willingness and ability to pivot quickly based on survey results and training outcomes.
- Outreach to diverse, low-income communities
- Providing no-cost internet access in addition to the device
- Partnership with low-income living facilities making it simple and easy for participants to pick up their tablet and access training, regardless of mobility issues
- In-Person Training Model
  - Providing step-by-step training, which includes specific goals, fosters a sense of mastery and ownership over the device.
  - Patience and respect during training creates an environment in which attendees are not made to feel ignorant.
  - Group training allows all participants to feel better about being beginners.

Barriers to Success: Challenges & Lessons Learned

While San Diego Oasis and the partner organizations consider this program a success, there have been some stumbling blocks that have required some creative problem-solving. We supply this in the hopes that future partners and/or organizations that would like to duplicate this effort can create new solutions or learn from our experience.

Training Efficacy: Shortly after the first round of tablets were sent out, prior to COVID-19 vaccinations being available, the State of California implemented a severe lockdown. This caused us to halt all trainings, which had been happening primarily in-person up to this point. We partnered with the City of San Diego, as they had procured grant funding to supply technological training by phone to older adults/seniors. San Diego Oasis supplied these staff members with tablets, our version of the training, handouts, etc., so they could be prepared to fulfill the trainings required to make older adults/seniors successful program participants.

For those participants who were trained exclusively by phone, we noticed the following:

1. Their internet usage was much lower than the participants who had been trained by our staff in person.
2. Their registration for San Diego Oasis classes were almost nonexistent.
3. They were calling back multiple times, confused and unable to use their technology.

After noticing this, and as vaccines became available to older adults/seniors, we began in-person training again. Internet usage numbers went up, fewer participants called with questions, instead opting to come in for additional in-person training, and more participants reported feeling confident with their new technology.

Training Locations, Distance, & Mobility: We know that in-person training is the most efficient way to deliver quality, effective training to the older adults/seniors in our program. One of the issues we've run into is finding accessible space options for our program participants, especially those with low mobility. San Diego Oasis has two office locations, but a 20-minute drive is simply out of the question for many low-income older adults/seniors.

We have partially solved this complexity by partnering with low-income senior living facilities to gather applicants who live there and utilize the facilities' space to hold trainings. This has the added benefit of including the caretakers and staff of the facility, who can be present, learn the technology, and answer questions as they arise.

Cost: This program has high hard costs built in, including a starting cost of $345.18 per person for the tablet and 12 months of internet (this number fluctuates slightly, but never falls below $325). When staff time, training materials, and distribution to participants with low mobility are factored in, the cost averages $550 - $575 per person. This has been viewed as a per-person cost that is too high for some funders.

Itemized Costs of the Program through 11/30/2021

- AT&T charges including purchases, taxes, and service including tablets, internet and third-party service — $168,883.00
- Total amount of voucher use — $ 40,037.00
- Estimated Staff Time $50 per hour
  • One full time employee and one part-time employee — $100,000.00
- Vaule of volunteer hours @ $30 per hour
  • 365 hours to date — $ 10,950.00
- Mileage During Trainings — $ 2,000.00
- Remaining internet/third party costs for additional 12 months — $ 48,000.00
- Admin of 15% for Fundraising, Marketing, and Promotion — $ 55,480.00
- **Total Program Costs to Date** — **$425,350.00**
- **Total Per Person Cost of Program to Date @ 750 people** — **$ 567.13**

Cost Justifications:
1. <u>Third Party Service</u>: The Knox service allows us to standardize devices' home pages in order to simplify training and to quickly identify problems for participants who have IT issues.
2. <u>Continued Participation</u>: $550-$575 per participant also factors in a voucher from San Diego Oasis for online classes to encourage continued participation. For more information on the importance of continued participation, please see section on "on-going education."

The Results:
Important Data and Testimonials

The above training and program model has shown promising results in terms of effectiveness. To provide evidence of the program's effectiveness, we conducted an informal, in-house study that surveyed participants to measure their feelings of technological self-efficacy and proficiency. We believe that our program provides a holistic intervention that focuses on autonomy. It does so by allowing older adults/seniors to grow comfortable with technology within a safe space that includes adequate accommodations. As the following data and analysis will demonstrate, the digital divide program at Oasis focuses on the root causes of the growing gap in technological adoption among older adults/seniors.

Our program allows older adults/seniors to grow comfortable with technology within a safe space which includes adequate accommodations.

Internal research indicates that this program model has shown increases in older adults/seniors' self-efficacy, improvement in technological skills, and increased usage overall.

1. Technological self-efficacy (TSE) is the belief in one's ability to successfully perform a new task using technology. TSE does not focus on the skills one has, but rather the judgments of one's ability to learn a new technology skill.
2. Technological Proficiency (TP) is one's self-perceived ability to apply the technical knowledge and skills.

<u>Participants and Procedure:</u>
A total of 100 older adults/seniors (both men and women) participated in a survey conducted using pre-test/post-test survey design. Participants agreed to fill out the survey voluntarily after providing informed consent. This study comprised of three steps:

1. For step 1, training participants were introduced to their new tablet and asked to fill out a survey to report their feelings of technological self-efficacy and proficiency at the beginning of the training.
2. For step 2, the participants filled out post-test surveys measuring the same variables after training.
3. For step 3, valid samples were collected and data analyzed using Excel data analytics.

Digital Divide Program Pre-Training Survey Questions:
1. I am able to use search engines (e.g., Google, Yahoo, Bing).
2. I know how to use a touch screen.
3. I know how to access email.
4. I am comfortable accessing the internet.
5. I find technological errors easy to fix.
6. I am confident that I will learn how to use my tablet.

Digital Divide Program Post-Training Survey Questions:
1. I am able to use search engines on my tablet (e.g., Google, Yahoo, Bing).
2. I know how to use a touch screen.
3. I know how to access email on my tablet.
4. I am comfortable accessing the internet on my tablet.
5. I am confident in my ability to fix technological errors on my tablet.
6. I am confident in my ability to learn how to use my tablets

We derived the surveys above from modified versions of the measures listed below:

Technological Self-Efficacy Scale
Items 4-6 of the survey were questions modified from the technological self-efficacy scale questionnaire from Teo (2009). This scale was used to assess participant's perceptions of technology self-efficacy, which was evaluated using 3 items, e.g., I am comfortable accessing the internet. A five-point Likert scale was used for the questionnaire items, ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicated higher perceptions of technological self-efficacy.

Technological Proficiency Scale
Items 1-3 of the survey were derived from the technology Proficiency Self-Assessment (TPSA) is a scale, developed by Ropp (1999). This scale was used to assess participant's perceptions of technology proficiency, which was evaluated using 3 items, e.g., I am able to use search engines. A five-point Likert scale was used for the questionnaire items, ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicated higher perceptions of perceived technological proficiency.

Predictions/Hypotheses
Based on anecdotal data collected throughout the program, and the preliminary research, we made the following predictions/hypotheses prior to data analysis:
1. H1: Average scores will increase after training.
2. H2: Pre-training technological self-efficacy (confidence) will be positively related to post-training proficiency.
3. H3: There will be no significant difference in average scores between participants who are trained on-site versus participants trained off-site.

Results

H1: An assessment of the averages revealed a slight, overall increase in both technological self-efficacy (items 4-6) and proficiency (items 1-3) after training, with the exception of item 6, which remained consistent. Item 6 asked participants to evaluate their self-efficacy with regard to the tablet specifically. It is possible that self-efficacy remained constant rather than increasing, due to the introduction of new technology, which presented new challenges. Results presented below in Table 1.

Pre-Test | Post-Test Averages
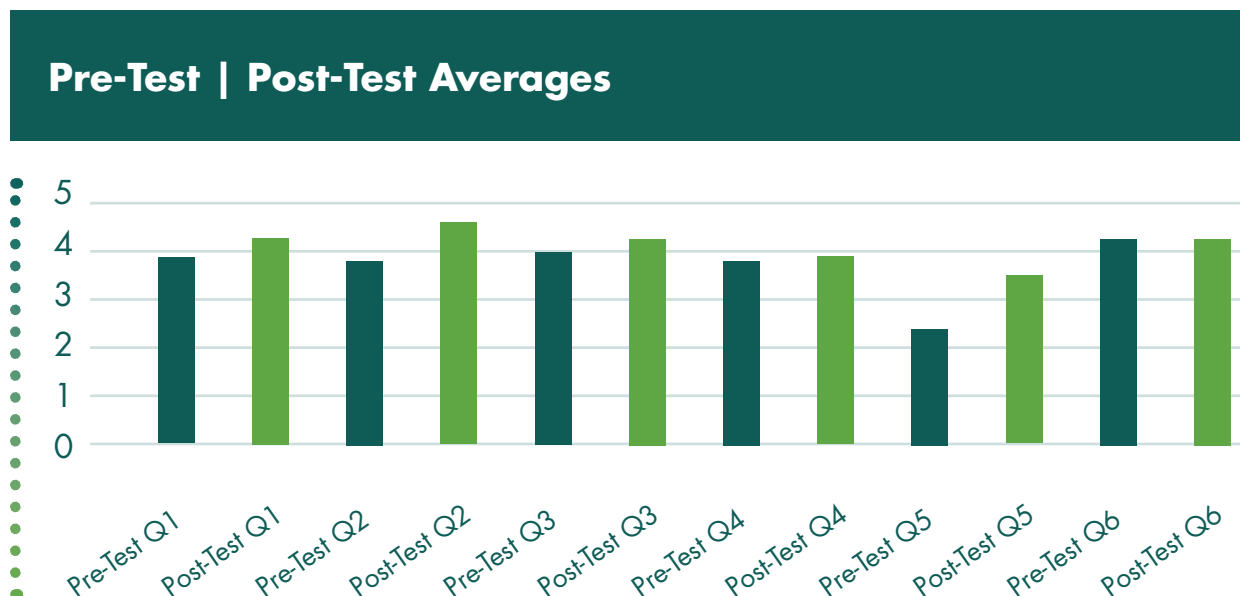
Table 1

H2: A one-tailed Pearson correlation between pre-training self-efficacy (Independent variable) and post-training proficiency (Dependent variable) revealed a significant, positive correlation between them. Meaning, when participants enter training with a strong belief in their ability to succeed in the training, they generally exit training with more tangible technological skills. Results reported below in Table 2.

Pre-Training Self-Efficacy and Post-Training Proficiency

	Pre-training self-efficacy	Post-training proficiency
Pre-training self-efficacy	1	
Post-training proficiency	0.7698	1

Table 2

H3: A paired sample t-Test compared the differences between on-site and off-site post-training results and did not show any significant difference between the two groups (P>0.05). This shows that training remains consistent for both off-site and on-site participants regardless of instructor. Results reported below in Table 3.

t-Test: Paired Two Sample for Means

	On-Site Training Results	Off-Site Training Results
Mean	25.22222	25.77778
Variance	23.19444	12.19444
Observations	9	9
Pearson Correlation	0.649934	
Hypothesized Mean Difference	0	
df	8	
t Stat	-0.45314	
P(T<=t) one-tail	0.331242	
t Critical one-tail	1.859548	
P(T<=t) two-tail	0.662483	
t Critical two-tail	2.306004	

Table 3

Discussion/Implications
The results above have a few implications for the Digital Divide program:
1. Our results demonstrate that training is key to higher levels of self-efficacy and proficiency. Trusting older adults/seniors to learn and grow their sense of digital independence through access to training provides them with the skills necessary to thrive on their own.
2. Higher confidence overall improves skill outcomes. Making older adults/seniors confident and comfortable is essential. The more confident they feel, the more they will learn.
3. Consistency across training is key to consistent results.
4. More research is needed to assess long-term participants.
5. Higher usage data among participants post-training along with increases in confidence and skills shows that our program works. Training older adults/seniors, and providing them with accommodations, increases their skills and confidence, which increases their overall usage as a result.

To further prove the efficacy of our program in terms of increase in technology usage, we have collected and reported participant usage data below:

Participant Usage Data
San Diego Oasis has the ability to track a portion of the participants' usage of their device. We can gather:
  – Data used through AT&T (monthly report)
  – Classes registered for through SanDiegoOasis.Org, using the participant's unique coupon code

Data Usage
It is important to note that data used through WiFi is not trackable (65% of our participants have existing internet personally or through their housing facility). Furthermore, AT&T usage reporting only includes the last three months of service. With those caveats in mind, we reviewed the last three months of usage (Sept. – Nov. 2021.) We found that the vast majority (95%) of those using the AT&T data plan are considered "light" users (see table 4). Based on our discussions with participants, much of this usage comes from video calls, such as Zoom classes and speaking with their family members, web browsing, and email. We consider "light" usage a victory in that they are using the tablet regularly, but not glued to it all day. We assume that those who are "heavy" or "very heavy" users are primarily using the tablet to stream video content, which is not the primary purpose of this program, though there is something to be said for access to entertainment. (For more information on what constitutes light, medium or heavy usage data, please see figures 1-3).

Data Usage	
Light Usage (.1 - 5.9 GB)	454
Medium Usage (6 - 19.9 GB)	19
Heavy Usage (20 - 20.9 GB)	1
Very Heavy Usage (30+ GB)	5

Table 4

Internet Data Usage

Data	Activity
100K	Single email, text only
500KB	Single email with photo attachment
1MB	Browse a single web page
5MB	Download an MP3 music track
25MB	Browse for an hour
40MB	Download an MP3 album
50MB	Play online videogame for an hour
150MB	Download 30 minute SD TV programme
650MB	Stream an hour of SD video
2GB	Stream an hour of HD video
5GB	Download a High Definition movie
39GB	Download an Xbox One game

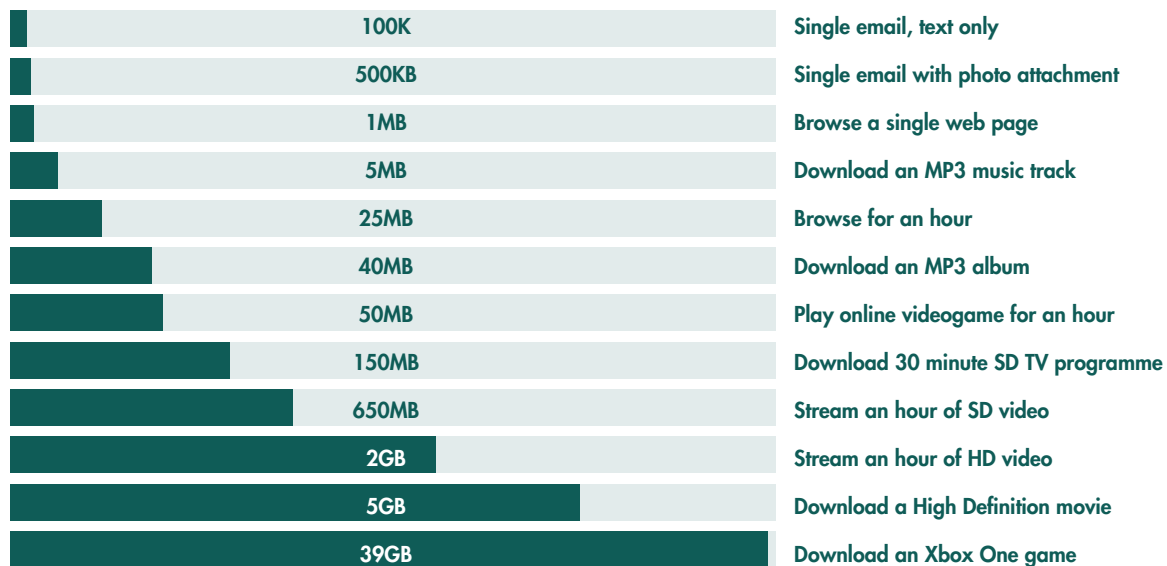*Figure 1* | www.iow.gov.uk/azservices/documents/2720-Internet-data-usage-explained-1.pdf

Data Needs

Activity	Average Data Use (per hour)
Web browsing	Social Media	20 - 120MB
Instant Messaging	50 MB
Email	1 - 100 MB
Music Streaming	45 MB
Video Streaming	250MB
Online Gaming	3 - 300MB
Music Streaming	200 - 300MB

(depending on attachments)

Figure 2 | 3g.co.uk/guides/how-much-data-do-i-need

Data Usage

Overall Usage	Data (per month)
Light	1GB+
Medium	6GB+
Heavy	20GB+
Very Heavy	30GB+

Figure 3 | 3g.co.uk/guides/how-much-data-do-i-need

Class Usage

The second way in which San Diego Oasis can track the usage of the tablets is through registrations for San Diego Oasis classes. Before presenting this data, however, it is important to note the following qualifications: First, many users have been confused about class registrations, only registering for "free" classes instead of utilizing their coupon code to register for any class they wish. Second, classes registered without using a coupon code are not trackable. All participants register for a single class during their training session. We have removed users who only show a single registration, in an attempt to correct for the confusion experienced by some participants and show true utilization for those who understood this program benefit

Having considered these caveats, we looked at the participants with 2 or more classes associated with their unique coupon code. Within the year we reviewed (Sept. 1, 2020 – Nov. 15, 2021), participants used their code for an average of six (6) classes during their 6-month program participation. This is a smaller number than we would prefer, but still shows regular, monthly engagement and an opportunity to receive some education or physical activity, in addition to connection to a community of older adults/seniors with similar interests.

**Program Highlights and Testimonials**

Providing Access to Recently Homeless, Low-Income Older Adults/Seniors
For many older adults/seniors, access to working technology and internet access can mean the difference between either languishing at home, alone and lonely, or finding connection, stimulation, and healthcare online. Additionally, the device and internet access is simply the first part of the equation. Inclusion and equity simply cannot exist for these older adults/seniors without ongoing training, as the device will become an expensive paperweight if they feel uncertain or fearful of breaking the tablet.

Recently, we began a partnership with Trinity Place, a senior-living facility to provide furnished affordable studios for older adults/seniors who experienced homelessness with chronic health issues. We provided tablets and training to six residents initially. Currently, we have 20+ additional requests for tablets and training from Trinity Place and are expecting 50 total. While these applicants are fortunate to have a furnished apartment through Trinity Place, not all of them have telephones, let alone internet access or working technological equipment.

Meet William Jimenez, one of our Oasis tablet recipients:

Three years ago, William could no longer afford housing and began living in his car in the Mission Beach area. William said, "It's very hard to be homeless, but now I am in my own home thanks to Trinity Place. Thanks to San Diego Oasis, I also now have this wonderful tablet that will allow me to reconnect with my family and friends. I am also looking forward to taking these technology classes that I have signed up for through Oasis so I can use the internet and learn more about support services that are available online."
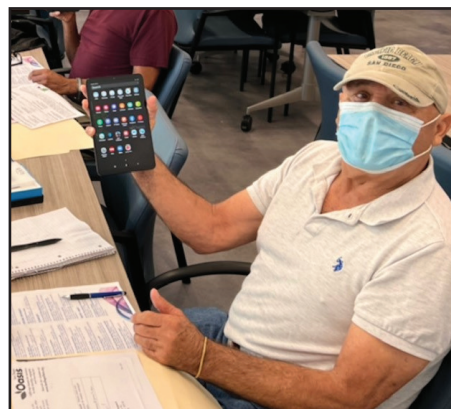
Providing Access to Telehealth
Recently, San Diego Oasis received a call from a woman desperate to join the Digital Divide program. She explained that her healthcare provider was sending and receiving information primarily through their website and email. She does not own an internet-enabled device and the only access to the internet she has is through her local library. This is a big problem as she's in the process of scheduling a hip replacement and communication with her healthcare team is being slowed because of her lack of access to a device.

She explained that her healthcare provider was sending and receiving information primarily through their website and email.

Access provided by this program opens up the world to older adults and seniors in need, making it easier for them to access healthcare, social services, and loved ones, all of which are necessary to maintaining health and wellbeing.

Providing Access to Low-Income Older Adults/Seniors in Senior Living Facilities
San Diego Oasis has had the opportunity to partner with many of the senior living facilities in San Diego. While many of the older adults/seniors in these facilities have access to computers in common areas of their buildings, many cannot afford devices of their own. Here are some testimonials from the directors of these facilities that express the importance of access to devices and the Digital Divide program for their older adults/seniors.

"Oasis has been a godsend to our older adults/seniors by allowing them the opportunity to participate in online Oasis classes and access information on healthcare, housing issues, social security and other important issues." (Dean P. Brown, MPA,CNPM Sr. Residential Service Coordinator Alabama Manor/Kalos).

"Learning, connection, and community through technology is so vital in helping prevent social isolation for senior adults. San Diego Oasis has worked with us to bridge the digital divide by providing us with free tablets and training for our residents. We are so grateful." (Tina Borngen, Service Coordinator, Sorrento Tower).

Connecting Older Adults/Seniors to their Peers:
Meet James Klug (left) and Gerald Mahoney (right).

Both recipients had never used technology before, but bonded during the training and quickly became friends. In fact, once Gerald found out that James does not have any personal mode of transportation, he drove James home to save him the long journey back home on public transportation. They plan on coming back together for more follow up tablet trainings in the near future and stay in touch with each other, as they both live alone. One of our San Diego Oasis staff members had the pleasure of interviewing James to find out what inspired him at 84 years old to apply to our Digital Divide program, which you can read below.

James Klug is 84 years old and a veteran of the United States Army. He is the oldest of six and lives alone, as the rest of his family all live in the Midwest. James has never used technology and has always relied on postage stamps and the telephone to connect with his friends and family. His family, especially his daughter, have all been encouraging him to embrace technology for years. He always thought, *"I have gone all these years without it, so I am sure I can survive just fine without it."* James often relied on the local Parks and Recreation as well as the local library to stay active and engaged…then the pandemic hit.

James realized quickly that he was isolated, but was not sure how to get started on his technology journey. Then, one day, he came across an article in the newspaper discussing the San Diego Oasis Digital Divide Program. He took two buses and a trolley ride for 90 minutes to come to Oasis to find out about the program. At the time, he was not even sure what a tablet looked like, but knew that it was time to reconnect with the outside world. After coming to the training at Oasis, he was excited to be able to enroll in multiple Oasis online classes, and he even sent out his very first email! James informed our staff that, *"Every day [he] practices using the tablet and every day [he] learns something new."*

Recommendations and Future Directions

San Diego Oasis is dedicated to creating programs that are replicable and scalable. With that in mind, we offer the following posssibilities for other organizations that would like to start or improve programs like our *Bridging the Digital Divide* for older adults/seniors.

SDO Can Create a Train-The Trainer Model to Scale This Program

Using our team, we can create a program for any entity by training staff and volunteers to execute. We would share our vendor recommendations, collateral, set up and training methods, and data management, along with suggestions for coordination. We recommend at least one full-time employee in order to ensure the success of the program. In-person trainings are recommended, even as they require significant time commitment. Phone trainings have been attempted, and generally failed, though we have found some success as a follow up support. Volunteers are wonderful, but need staff direction and supervision for optimal and consistent operation. Oasis is available to consult at any time.

SDO Can Expand Operations to Serve Additional Communities

With additional funding, the Oasis team can expand operations to serve additional communities. We have become experts in this area, understanding the requirements of this program including prompt coordination with partners, vendors and participants, set up and delivery of tablets, data management, and participant training that is specifically geared to older adults/seniors. Our team understands the patience and temperament needed to work with this population when doing technology training, while also being mindful of the different needs of participants based upon culture, language, attitudes toward technology, and ability to comprehend.

SDO Suggests Research Opportunities to Collect Long-Term Data & Surveys for Measurement of Usage and Impact of Program

In partnership with academic or other research-based entities, it may be possible to offer research opportunities to study the habits, needs, and opinions of older adults/seniors as they face the challenges of learning and adapting to technology. San Diego Oasis currently gathers some basic information, but would be open to gathering additional information, conducting focus groups, and testing new products.

SDO Welcomes Community Partnerships to Reach Low-Income Seniors

Partnerships with low-income senior living facilities, government programs, senior centers, community foundations, and corporations are welcome as we attempt to understand the true depth and breadth of this program and its implications. Contact Jolyn Parker, VP of External Relations, to explore further: Jolyn@SanDiegoOasis.org or (858) 353-0439.

<u>**SDO Anticipates Expanding This Program to All Older Adults/Seniors
Who May Need Help With Technology**</u>
We know the challenges of technology are not limited to low-income older adults/seniors. All of this population is having to continue their learning curve with new technology introduced every day. San Diego Oasis recently partnered with Cox Communications to create a Tech Tank center to answer questions and further learning for any older adult/senior who has questions and needs help with technology. As a pilot, one-of-a-kind program, we are already seeing high demand for our offerings of one-on-one 30-minute help sessions and demonstrations, which are free of charge thanks to Cox, as well as low-cost ($5) workshops that are limited to low attendance to ensure each participant receives time for specific questions.

Conclusion

Technology is a great equalizer. With technology comes access to healthcare, community and connection, work training and job prospects, entertainment options, and connection to family and friends. However, technology and software are often created with younger people in mind, making it difficult for older adults/seniors to see, hear, and utilize devices to their fullest extent. San Diego Oasis is committed to increasing access and ease of use within all San Diego older adult communities, short-circuiting the ageism inherent in the vast majority of technology and software offerings.

By providing no-cost or low-cost classes and training, as well as devices and internet access, San Diego Oasis is looking to decrease the Digital Divide that exists between older adults/ seniors and younger generations, particularly older adults/seniors who are BIPOC, low income, and/or have not had previous access to devices or computers. All older adults/seniors should have equal opportunity to access the telehealth, socialization opportunities, and quality of life improvements. With this project, we are moving one step closer to making that a reality and hope to inspire other organizations to join us in the revolution of technological access.

For more information or to learn more about the Digital Divide program at San Diego Oasis, please feel free to contact us:

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