Technology Matching Fund 2018-2021 Qualitative Review

City of Seattle Innovation & Performance | August 2023

Seattle

Contents

Executive Summary

Seattle works together for digital equity, to ensure all residents and neighborhoods have the information technology capacity needed for civic and cultural participation, employment, lifelong learning, and access to essential services. Seattle is a highly connected city overall—as of 2018, 95% of Seattle households had a way to access the internet in their home through wired or wireless services. However, digital access is not equitable. In 2020, 21% of households with incomes under $25,000 were living without internet access at home.[1]

The City's Technology Matching Fund (TMF) program was established in 1997 and has awarded over $5 million to support community efforts to close the digital divide, create opportunities, and reduce and eliminate historical barriers to technology access and use.

Each year, community-based organizations receiving TMF grants submit reports detailing what their program achieved. Reports include data such as how many devices were purchased and distributed, how many hours of digital literacy classes were offered, and other metrics. These reports also include narrative responses detailing how the funding has impacted the organization and the people it serves.

In this report, the City's Innovation and Performance Team analyzed four years of quantitative and qualitative data to identify key themes and program achievements across TMF partners. This report identifies TMF outcomes, challenges, and lessons learned to help inform future programs.

Qualitative data analyzed in this report emphasized the need for the core foundations of internet for all, digital skills, access to devices to actualize the vision of civic and cultural participation, employment, lifelong learning, and access to essential services. Overall, common outcomes reported by funded organizations included:

1. Increased internet access
2. Increased access to digital devices
3. Increased access to digital literacy training
4. Increased confidence in digital navigation
5. Increased access to economic opportunities
6. Increased access to educational opportunities
7. Increased access to social service benefits and essential services
8. Increased overall wellbeing and quality of life

Organizations also experienced an increase in their overall capacity to provide services, thanks to building new partnerships, creating new classes or resources using the funding, purchasing new or better equipment, and more actions taken using TMF funding.

While these outcomes were seen across organizations, there were differences in how digital equity services impacted different communities. For example, an outcome that was specific to immigrant and refugee families was the emphasis on improved digital skills to help children and family members with online platforms.

[1] City of Seattle, Internet for All Seattle Report

Practices that worked well to achieve the overarching outcomes across all groups included:

1. Ensure a deep understanding of the needs of the population you serve
2. Patience and flexibility
3. Culturally and linguistically aligned programming
4. Meet participants where they are
5. Partnerships are key

Overall, common challenges encountered by organizations across all demographic groups included:

1. COVID-19 and new virtual learning environments
2. Lack of staff capacity to provide one-on-one support to all participants
3. Large skill gap between students
4. Slow internet and devices
5. Lack of devices and internet

In addition to analyzing the successes and challenges of past TMF programs, a secondary goal of this analysis was to identify ways the TMF team can better understand and document the long-term outcomes of programs moving forward.

Recommendations for improving qualitative data collection include:

- Add questions to participant intake forms to gauge skill level and/or other qualitative measures of success at the beginning and end of a TMF class or program
- Conduct follow-up outreach with TMF participants to understand outcomes after the programs
- Undertake a similar review process to the one completed in this report on an annual basis to continue tracking trends and feedback
- Reduce the number of narrative questions asked in TMF partner reports, to reduce analysis for City staff and reduce work for TMF partners
- Offer the option for TMF partners to give their narrative reports via a phone call or meeting, since this may be an easier option than providing a written report for some partners

This report also recommends evaluating the TMF grant process and criteria to help ensure that organizations applying for funding are focused on serving the TMF program's specific goals and target populations.

Findings from this report will be shared with past and future Technology Matching Fund partners and Digital Navigators. The advice and strategies outlined here can be highlighted as resources for future TMF funding grantees. This report will also be shared internally with City of Seattle staff to identify ways to refine the TMF program, facilitate communication and collaboration between partners, and best serve the community.

Introduction

The Information Technology Department (ITD) Digital Equity Team has collected qualitative data through narrative reports from their community partners since 2018 through the TMF and Digital Navigators Programming. ITD's Digital Equity Team and the Innovation & Performance team (IP) have partnered to identify key learnings from their qualitative program data and develop a streamlined approach for future analysis and communication. Collected quantitative program data is also included to provide context to the breadth of the program.

Program Background

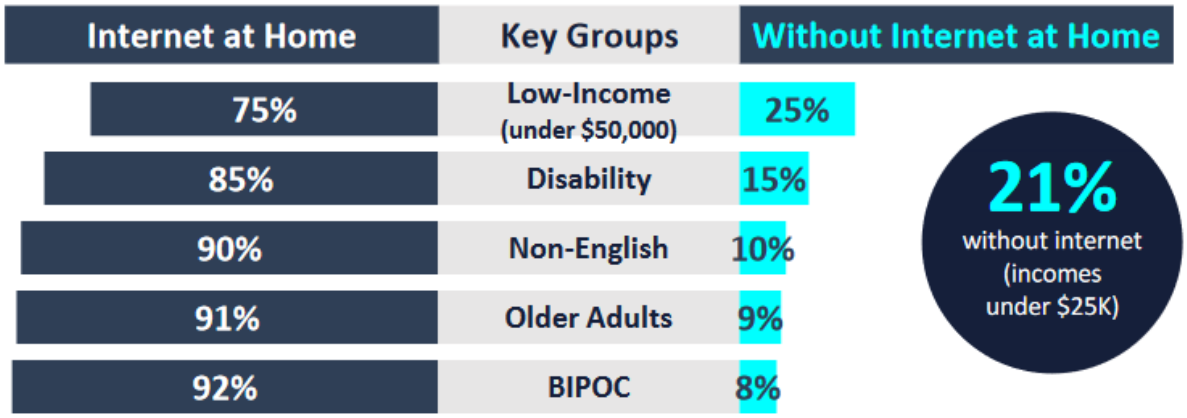
The vision of the City of Seattle's Digital Equity strategy is to ensure all residents and neighborhoods have the information technology capacity needed for civic and cultural participation, employment, lifelong learning, and access to essential services. ITD strives for Seattle to be a place where technology equitably empowers all citizens and communities, especially those who have historically been underrepresented or underserved.

The Technology Matching Fund is one key component of Seattle's overall Digital Equity program. Seattle's Digital Equity strategy focuses on four elements to give residents the technologies they need to succeed in society:

- Internet – Affordable & sufficient
- Digital Skills & Tech Support – In a cultural context
- Devices – For all uses
- Application & Services – That are accessible

In 2020, ITD conducted the Internet for All study. The study helped identify key underserved demographic groups throughout the city to specifically target through the Digital Equity Initiative:

- Low-Income (households earning under $50K annually)
- People with Disabilities
- Non-English Speaking
- Older Adults
- BIPOC



Source: City of Seattle, Internet for All Seattle Report

Purpose of the Qualitative Assessment

To date, there has not been a systematic review of the incoming qualitative data from TMF community partners to identify key themes across years and organizations. This qualitative review focuses particularly on identifying potential outcomes of the programs, challenges experienced through implementation, and best practices to share with other organizations.

Evaluation Approach

This programmatic qualitative review aimed to answer the following questions:

1. What are the key self-reported program outcomes mentioned in narrative reports by partner organizations?
2. What are the key challenges encountered during program implementation?
3. What are the key lessons learned across Digital Equity Programming to share with others implementing these programs?
4. What is the variation of potential outcomes and barriers across socio-demographic groups?

Table 1: Reports included in the qualitative review

Community Partner	Report Year	Population Served
Helping Link	2018	Immigrant/Refugee
Southeast Effective Development (SEED)	2018	Immigrant/Refugee, Low income
Somali Family Safety Task Force	2018	Immigrant/Refugee
PROVAIL	2018	People with disabilities
Seattle Neighborhood Group	2018	Immigrant/Refugee
Full Life Care	2019	Older Adults
Jack Straw Foundation	2019	People with disabilities
Villa Comunitaria	2019	Immigrant/Refugee
206 Zulu	2020	BIPOC youth
Boys and Girls Club King County	2020	Low Income
Literacy Source	2020	Immigrant Refugee
Low Income Housing Institute	2020	Low-income/Low-income housing
SIFF	2020	BIPOC youth
Somali Family Safety Task Force	2020	Immigrant/Refugee
Year Up PS	2020	BIPOC youth
Young Women Empowered	2020	BIPOC youth
East African Community Services	2021	Immigrant/Refugee
El Centro de la Raza	2021	Immigrant/Refugee
Kin On Final	2021	Older Adults
Literacy Source	2021	Immigrant/Refugee
Path With Art	2021	Older Adults
Renaissance 21	2021	BIPOC youth
Senior Center of West Seattle	2021	Older Adults

SIXR	2021	BIPOC youth
Somali Family Safety Task Force	2021	Immigrant/Refugee
Sound Generations	2021	Older Adults
Totem Star	2021	Youth
Tribal Tech	2021	BIPOC
Vera Project	2021	Youth
Villa Comunitaria	2021	Immigrant/Refugee
Wa Na Wari	2021	BIPOC
YMCA	2021	Youth

The IP team, consisting of two qualitative reviewers, conducted an initial review of the mid-point and final reports outlined above to identify any specific themes based on the report outline and program goals using a thematic analysis approach. The initial coding systematically identified patterns and themes based on the high-level codes of potential outcomes, challenges faced, and best practices or "what worked" for organizations.

The report findings were collated in an Excel spreadsheet and then verified and corroborated through collaborative theme building in Google Jamboard. The summarizing of themes identified need for specific sub-population analyses, which aligned with the key populations outlined on the Internet for All study.

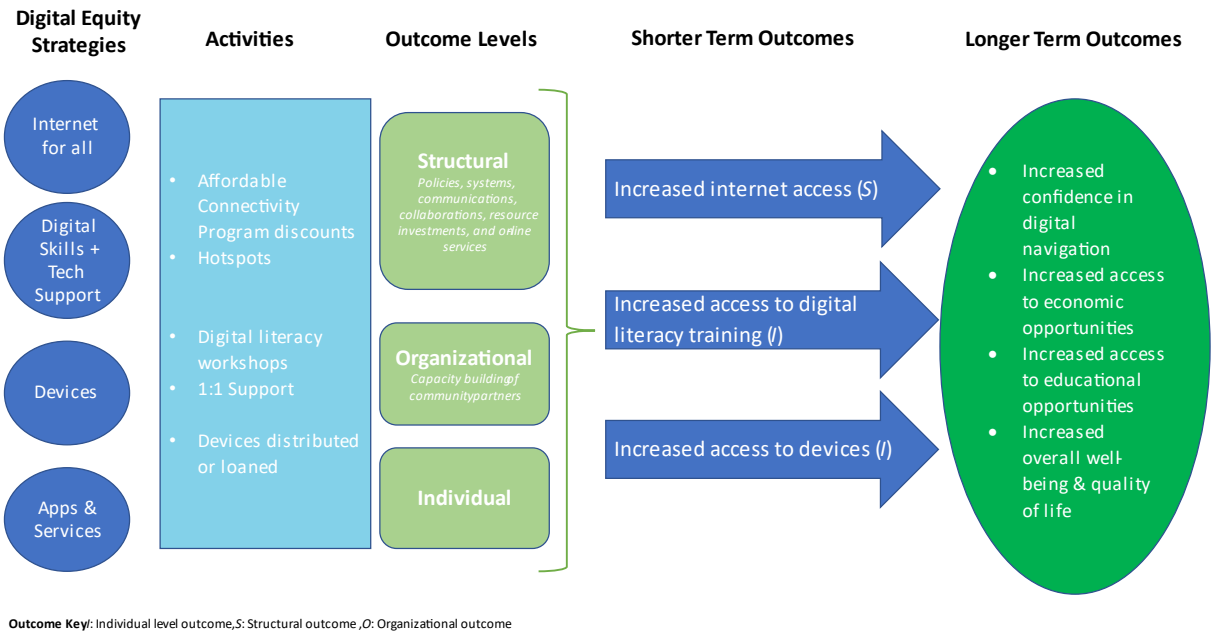
Overall Key Findings

The Technology Matching Fund review identified programmatic results across individual participants, organizations, and some structural changes. The qualitative data bore out the initial Digital Equity Initiative's theory of change and emphasized the need for the core foundations of internet for all, digital skills, access to devices to actualize the vision of civic and cultural participation, employment, lifelong learning, and access to essential services.

The review was able to bring to light some secondary or longer-term potential outcomes of the Digital Equity Strategies which are outlined in the Theory of Change framework below. To provide context on the progress made to date through the Digital Equity programs, the review included a summary of quantitative findings to increase understanding of the qualitative results.

Digital Equity Theory of Change Framework

The conceptual framework presented below summarizes the broad theoretical framework developed through the qualitative review.



Outcome Key*I*: Individual level outcome,*S*: Structural outcome ,*O*: Organizational outcome

Outcomes and Results Summary

Using a thematic analysis, three overarching themes were identified, which were derived from questions asked in the TMF partner reporting template. The three themes included 1) self-reported outcomes from partner organizations, 2) challenges experienced, and 3) what worked in their programs and advice they would give others working in the Digital Equity space.

Technology Matching Fund (TMF) grantees have provided robust data to quantify progress connecting residents with internet, devices, and skills to participate in the digital world. Outlined below are the self-reported outcomes identified through the qualitative review, framed in short- and longer-term outcomes. The qualitative findings reflected the quantitative data around the core foundational outcome areas of digital equity, which included the overall increased access to internet, increased access to devices, and increased access to digital literacy trainings.

Self-Reported Outcomes

Short-term outcomes	Longer-term outcomes
1.Increased internet access	5. Increased access to economic opportunities
2.Increased access to digital devices	6. Increased access to educational opportunities
3. Increased access to digital literacy training	7. Increased access to benefits and essential services
4. Increased confidence in digital navigation	8. Increased overall wellbeing & quality of life

Outcome 1. Increased internet access

382

Internet hotspots distributed

One of the foundational elements of digital equity is access to internet connectivity, and ensuring it is affordable and sufficient. Technology Matching Fund partners provided 382 internet hotspots to program participants as well as provided computer labs and other spaces for participants to access internet connectivity.

Outcome 2. Increased access to digital devices

1,185

Devices distributed

Programs provided digital devices to participants permanently or on loan, or through computer labs during programming. The devices were invaluable to participants, particularly for those in low-income programs.

> "The laptop is nice because I can move it around and be in different rooms. Bought a mouse to get around the touchpad issue, much better. I can access my doctor appointments now."
>
> *-Laptop recipient, Sound Generations, 2021*

Outcome 3: Increased access to digital literacy training & technical support (in a cultural context)

12,724

Total residents served citywide with digital skills & tech support

45,693

Total hours of training & tech support provided citywide

$615,000

Total funding provided for digital skills & tech support

The majority of partner reports included a component of digital literacy training and some hands-on technical support, either online or in-person. Organizations emphasized the need to provide training specific to the community's needs that they are serving and particularly in a culturally competent manner. Language capability and deep understanding of cultural background of participants was a primary area of focus.

> "'Inga' took English classes at Literacy Source and obtained her GED. She then went to South Seattle to become a certified nursing assistant. She continued to take classes at Literacy Source and gained lots of valuable tech skills through classes and a tutor. Because of all of the tech skills, she learned how to look for and apply for jobs online. The tech skills helped her to apply in a way that got her a job in nursing, something she had been trying for a few years but lack of tech skills had been a barrier. She now has a higher-paying job she loves, doing exactly what she wanted to do, thanks to the tech support she received."
>
> *-Program Staff, Literacy Source, 2021*

Outcome 4. Increased confidence in digital navigation

A commonly cited outcome from the programs reviewed were around **increased digital literacy skills**, specifically through access to **culturally relevant digital literacy training**. The more tangible digital outcomes mentioned by organizations and their participants included:

- Improved **digital skills and ability to navigate technology**, such as setting up email, accessing the internet, and using Microsoft Office applications.
- Increased **confidence navigating and using digital technology.**
- Increased **sense of self-sufficiency and independence** in daily life.

> "A program participant had never used a computer before this course, she did not know how to turn on or turn off the device, she was too afraid to start learning. She found out about this program from a friend and at the beginning she was hesitant to enroll in the program because she never thought she would learn technology at this point in her life. At the end of the course, she was more confident and self-sufficient. In her own words, Aula Digital en Accion opened pathways of opportunities and success in her life.
>
> She said, 'I felt helpless and ashamed, I wanted to give up, but now thanks of this program I can use the computer, browse on internet and use office programs, now I can attend an international virtual class without help, I can access health care appointments, I am so proud of myself and the accomplishments that I got, I do not feel isolated anymore.' Her advice for the people that are afraid to try new things such as technology devices: It is never too late to try something new, especially in the technology field."
>
> *-Program Staff, Villa Communitaria, 2019*

Outcome 5. Increased access to economic opportunities

The most common outcomes reported for programs serving low-income communities were **increased economic opportunities, increased access to services, and increased quality of life**. The reported improvements in **economic opportunity and mobility** included gaining the ability to:

- Apply for more and better jobs
- Create resumes and cover letters
- Increased clientele for small businesses owners who can advertise and sell through online platforms.

The programs also reported building **skills and confidence for success in the workforce**, including:

- Basic computer skills needed for office-based jobs.
- Programs teaching skills like music production, etc. taught tech-based skills for specific vocations.
- One program reported two students started to promote their food business online and the skills they gained helped them to design flyers and business cards.
- One program reported that two of the participants were able to apply for a job online and successfully obtained a job.

> "Equip the Kids enabled The Vera Project to connect with, train, and provide resources to dozens of young people without access to arts education throughout the pandemic. As a digital equity initiative, it also effectively illustrated and helped bridge the massive gap in technology access among Seattle youth and continues to provide an effective model in overcoming these historic issues of inequity for both career-connected learning opportunities in Seattle's creative economy and city-funded projects in general."
>
> *-Program Staff, The Vera Project, 2021*

Outcome 6. Increased access to educational opportunities

Another theme raised across many organizations and target populations was **increased access to educational opportunities** through their digital access and literacy. Digital literacy training, one-on-one support, and access to computer labs all increased participants' access to educational opportunities. Several organizations provided accomplishments highlighting the next educational steps taken by their participants, such as the following:

- TMF created opportunities for students, many of whom do not have access to reliable internet service at home, to **keep up with remote learning and online classes during extended school closures** during COVID-19.
- Participants mentioned the **new ability to engage with non-formal education programs** from YouTube to Coursera in addition to abilities to apply to and **participate in formal online education programming.**
- Organizations reported the following **education related accomplishments**:
    - Eight previous students are currently enrolled in the ESL (English as Second language) program at South Seattle College to pursue further education after acquiring digital skills.

- Ten parents learned how to access and use the different platforms from Seattle Public Schools Website, and they were ready to support their children when the remote learning started.
- Three participants enrolled in a GED course. The Aula Digital en Accion (ADA) program through Villa Communitaria gave them the motivation to keep advancing in education.
- Two additional students were able to enroll in college and pursue further educational opportunities in Culturally Responsive Early Childhood Education and Mechanical, Industrial & Aerospace Engineering at South Seattle College.

Outcome 7. Increased access to benefits and essential services

As a result of their tech skills and access, programs reported that clients were better able to **apply for benefits and access social services online**.

- **Virtual programming made programs more accessible** for people who can't afford to live in Seattle.
- TMF programs helped **increase internet connectivity and awareness of low-income internet programs**, even when the organizations did not include this as a specific goal of their program.
- TMF programs also supported **resource navigation to bring awareness to utility discount programs** with SCL and SPU.
- Programs that supported digital literacy and devices provided increased **access to telehealth services** across all areas of healthcare.
- Participants from organizations working primarily with immigrant and refugee populations reported the importance of their newly **increased access to citizenship and immigration resources.**

> "A program participant and stay at home mom had always struggled to pay her utility bills and access to human resources online. When she enrolled in the ADA-2109 program she learned how to pay her utility bill and apply for Utility Discount Program herself. In March of 2020, Seattle Public School transitioned to online learning. Her children did not have a device to sign into online classes and complete their assignments. She had to use the computer borrowed from ADA program and she was able to support their children thanks to the skills acquired. She can now help their children succeed in school because she knows how to send emails to her daughter's teachers, and how to navigate the school district's' website. She also enrolled in college to pursue further educational opportunities. Her goal is to get a GED or High School equivalence Diploma and find a job to increase the family income."
>
> *-Program Staff, Villa Communitaria, 2019*

Outcome 8. Increased overall wellbeing & quality of life

An emergent theme that came up across several key demographic groups was around **overall increase in wellbeing and quality of life** through newly gained digital skills and access. The aspects of wellbeing and quality of life highlighted included the following:

- **Better connection with friends and family** via technology, which was especially critical during the pandemic.
- **Decreased social isolation**, which was particularly impactful for home-bound populations.

- **Improved mental health** during COVID-19 isolation and beyond thanks to participants' ability to access virtual communities, classes, music, and programs.
- A computer lab located in an affordable housing community created a **safe, communal space for youth** to spend time.

> "Participants had very little knowledge on how to use a computer, and many of them had never graduated from an educational program. The class helped them develop important life skills, and participants received a digital literacy certificate for successfully completing the class. We have a huge, huge digital literacy gap in the community. Our digital literacy program helped Somali mothers getting the skills they need to apply for jobs, find information for their families, help their kids with school."
>
> *-Program Staff, Somali Family Safety Task Force, 2021*

Key Outcome: Community Based Organization Capacity Building

Building the capacity of community-based organizations is a key piece of Seattle's digital equity strategy and theory of change. Community agencies are best able to serve their neighbors with culturally relevant, tailored, and trusted services. It is vital to invest in these community partners to expand their reach and ensure they can provide the best possible support.

Across all programs reviewed, regardless of the program type or population served, a common outcome was **increased organizational capacity**. Many programs reported that their organization's overall capacity to provide services and leverage partnerships was strengthened because of their Digital Equity grants.

Strengthened or new collaborative partnerships between agencies was one of the most common reported outcomes across organizations. To implement their TMF grant funded programs, organizations relied on their existing networks and built new connections to recruit participants, offer additional resources for their clients, and share curricula and best practices. These collaborative partnerships between community-based organizations live beyond the lifespan of the TMF programs and strengthen our local community.

In some cases, new partnerships fostered by the TFM grant program allowed an organization to **reach more diverse populations** than the organization had been able to on its own. For example, PROVAIL, an organization serving children and youth with disabilities, formed a new partnership with Open Doors for Multicultural Families as part of their 2018 grant program. PROVAIL had previously lacked resources to reach children with disabilities from immigrant and refugee families.

> "By working together with Open Doors and partnering with their native language translators, we now have a structure to bring assistive technology to these families who have been largely overlooked previously."
>
> *-Program Staff, PROVAIL, 2018*

Other commonly reported outcomes included:

- **Increased the community's long-term access to internet, devices, and digital resources** by building or expanding community-based organizations' computer labs, lending libraries, and educational resources.
- Many organizations **launched a new, ongoing class or program** using the TMF grant funding.
- Some organizations used grant funding to **hire additional staff, retain existing staff, or expand their volunteer program** to support their clients.
- Grant funding was critical to **support organizations during the COVID-19 pandemic**, as programs had to quickly buy equipment for their staff and their clients and adapt to offer virtual or hybrid programming for the first time.

What Worked

Organizations' advice on what worked for their Technology Matching Fund Technology Matching Fund
1. Ensure a deep understanding of the needs of the population you serve
2. Patience & flexibility
3. Culturally & linguistically aligned programming
4. Meet clients/participants where they are – (metaphorically and literally)
5. Partnerships are key

The mid-point and final reports included questions asking partner organizations what worked well for them during program implementation and any advice they might share with others working in the area of Digital Equity. Themes across this question are detailed below.

1. **Deep understanding of the needs of the population you serve.**

Organizations emphasized fully understanding the greater need or goals of the populations served and finding the best ways for technology to help them meet their needs. Understanding the need beyond the "tech task" is key.

> "Help seniors with their 'tech task,' but to achieve a personal goal or meet a personal need. For example, [the tech task is] to get online, but the real reason for being there is to sign up for post-secondary classes, to renew all kinds of licenses, to connect with friends and family, to find affordable housing, to arrange for healthcare, and so many other things."
>
> *-Program Staff, Senior Center of West Seattle, 2021*

A best practice shared by a partner organization was to survey their community to understand what type of access and skills they already have and what they will need to move forward. Their staff is also part of the community, and they understand firsthand the challenges that the community faces to access devices, training, and internet connection.

2. **Patience & flexibility**

Almost every partner organization mentioned the importance of patience, time, and flexibility for relationship building. There is vulnerability in learning new skills, and providing personalized support

through working one-on-one with people and listening to their anxieties and excitement helped partners immeasurably.

Tips included:

- Keep classes small and allow for personalized support.
- Provide resources for participants to practice their skills.
- Allow for program adjustments as you go in response to participants' needs, as possible.
- Ensure there is tech support if the program is providing devices.

> "We had one Elder Somali woman who… in all honestly, was one of the most difficult participants. She wanted to hold on to her way of doing things. She was frustrated easily. We reminded her that she indicated an interest in the program so that she can more fruitfully engage her grandchildren….'understanding the world they live in…and being able to live in it with them and… protect them from bad stuff out there.' By the time we entered advanced internet modules, she would actually get up and help other participants! It was a sight to see and one we will never forget. At the recent end of the program year, she noted, in tears, 'Thank you for believing in old people like me. I can help my grandchildren… understand the world they live in, and it makes sense. The internet is so big, and we must have more Somalis understand its the way to get money…lots of it!'"
>
> *-Program Staff, East African Digital Literacy Program, 2021*

3. **Culturally & linguistically aligned programming**

Having culturally, linguistically competent, and community-rooted staff creates legitimacy, credibility and understanding for program participants. Digital literacy training with cultural context looked like:

- Having staff from the community they served.
- Staff speaking their community's language.
- Providing course materials in the community's language.
- Staff with understanding and patience to translate new experiences.

> "We had a Somali instructor who instructed the lessons both in Somali and English. It was easy for most participants to understand the technical words in their native language."
>
> *-Program Staff, Somali Family Safety Task Force, 2021*

Programs also emphasized the need to anticipate language barriers, cultural barriers, and participant's feelings of anxiety and include that in the design of programs.

4. **Meet people where they are – in their community**

Many participants in the Technology Matching Fund Technology Matching Fund are new to technology, and there were many strategies utilized by partner organizations to ensure they were effectively reached. Some of those included specific recruitment strategies like the following:

- Using population specific ethnic media.
- Word of mouth & community outreach via churches, local businesses, and service providers.
- Distributing flyers in communities.
- Door-to-door outreach to share information in person.

Other organizations stated that providing mobile services to meet people where they are was a useful approach, particularly for populations that experience challenges with transportation, such as people with disabilities and older adults. Another organization created a mobile lab so that devices were brought to families and allowed them to access new devices on a regular basis.

While adapting to virtual or hybrid programming was difficult, organizations also expounded on the benefits of making the change. Virtual/hybrid programming doesn't work in all situations, but can benefit participants by making programs more easily accessible from anywhere.

> "This program afforded us the infrastructure development to engage students who are unable to participate in in-person programming. We anticipate offering virtual programs in tandem with in-person learning opportunities that may afford students who are in areas outside of the reach of our or any other filmmaking programs to learn and collaborate without having to travel to a major center."
>
> *-Program Staff, SIFF, 2020*

Specific advice included:

- If there is a large skill gap in the class, divide into small groups to allow more experienced students to mentor others and enhance their skills by teaching others.
- Encourage note taking and continued practice to better retain skills.
- Sustained classes and instructions help people who have memory challenges retain what they learn.

> "A participant came to us and mentioned she had lost her husband recently. Because she had some health concerns and because Covid was raging, she did not want to see anyone in person, but she wanted emotional and mental support. She knew her church offered such things online, but she had no idea how to access them. We provided a WiFi hotspot and gave her tutorials on how to access her church's grief support services."
>
> *-Program Staff, Senior Center of West Seattle, 2021*

5. **Partnerships are key**

Lastly, many organizations mentioned the critical nature of developing and maintaining relationships and partnerships with their community and other organizations who are serving the same community. Approaches for developing and maintaining partnerships included:

- Communicating with partners frequently – using personalized methods like phone calls, in person visits etc.
- Identifying other orgs who can synergistically help with meeting space, devices, class curriculum.

"Sound Generations and the other Senior Centers are great partners in Digital Equity Work. We met on a regular basis to discuss what each of us were doing and where we could make adjustments. Some of our future plans include sharing a bi-lingual Digital Equity Coordinator instead of each of us hiring our own."

-Program Staff, Senior Center of West Seattle, 2021

Overall Challenges

Challenges through implementing digital equity programming
1. COVID-19 and new virtual learning environments
2. Need for one-on-one support
3. Large skill gap
4. Slow internet and devices
5. Lack of devices and internet

Challenge 1: **COVID-19 and new virtual learning environments**

The reports included in this review were from 2018-2021, spanning the beginning of the COVID-19 pandemic. As expected, COVID-19 and the swift move to virtual programming was listed as one of the key challenges for implementing digital equity programs. Even as organizations have adjusted to the pandemic over time, there are still challenges with virtual learning that programs are experiencing. A few of the specific challenges mentioned by providers included:

1. The need for **a base level of digital literacy to effectively participate** in online programming, and there were many participants who were coming to the programs without much or any prior digital skills and knowledge.
2. In addition, virtual programs made it **difficult to monitor progress and challenges** that participants may be experiencing during and after classes.
3. With the rapid move to virtual programs, **staff were not initially trained in providing content and curriculum in a virtual classroom**, and some experienced steep learning curves in this area.
4. Participants required **a level of sufficient internet access and speed, as well as adequate devices to participate** in virtual learning that were not always available.
5. Lastly, some programs mentioned the difficulties of adult learners participating at home and **experiencing distractions and complications of participating remotely**, due to lack of childcare, family requests, and the like during class time.

Recommended solutions from community partners

- Provision of childcare, if possible, for in-person adult learning to allow participants full attention, especially if they are primary care givers.
- If participants are remote, recommend that they set aside a place at home for class and provide understanding and empathy when distractions from home situations occur.

Challenge 2: **Need for One-on-One Support**

Another challenge that was frequently reported focused on the **need for direct one-on-one support for Technology Matching Fund Technology Matching Fund participants.** This issue came up more frequently for organizations that worked with groups such **as non-English speaking populations, older adults, and people with disabilities**. Some organizations went as far as to have two support staff for

each participant to ensure that their needs were met. Challenges arose when there was a higher demand for support than resources allowed, and if there were specific needs that had not been considered, such as language or accessibility.

Recommended solutions from community partners

Programs recommended several ways to provide direct one-on-one support, as resources allow:

- In-person digital skills training and workshops.
- Technical support for devices at program locations and at participants' homes.
- Technical assistance provided through virtual meetings.

Challenge 3: **Large skill gap**

Some organizations mentioned the large skill gap that existed for participants starting digital literacy training, as many had never used a computer or digital device before, while others entered programs with some foundational skills. The workshops included participants across the learning spectrum and therefore, there were challenges making sure that everyone's needs were met.

Recommended solutions from community partners

- Separating the participants into smaller groups and using breakout rooms to address each skill level, once assessed by program staff.
- Design a mixture of learning opportunities to meet students' learning goals, availability, and access to technology.
- Program staff check-in regularly to support students via phone, email, video conferencing.

Challenge 4: **Technical issues – slow or spotty internet & devices**

Technical issues were found to be quite common across community partners. Internet connections could be spotty or slow for participants in both in-person and at home locations. In addition, devices encountered issues of freezing, shutting down, or any variety of problems. Partner organizations reported that ongoing connectivity issues were complex and that their projects were not always able to address the issue due to the structural nature of the problem. This problem presents another layer of bridging the digital divide for underserved communities that will require structural changes.

Recommended solutions from community partners

- Partners emphasized the importance of supporting students and validating that they are not alone in the technical issues, they should allow themselves the patience to work through the problem.
- If an organization is purchasing equipment, such as laptops or tablets, they may want to invest in higher quality devices. While purchasing more expensive devices within a budget means getting fewer devices, this may save organizations money and frustration from purchasing cheaper devices that break quickly or don't work well. Several organizations expressed regret at having purchased cheaper devices for these reasons.

Challenge 5: **Lack of devices and internet**

Another challenge listed by organizations, particularly those working with low-income populations, was the difficulty of ensuring devices and internet availability for participants. This issue was especially notable at the beginning of the pandemic when programs had to quickly shift to virtual programming. Programs had to quickly pivot to spend funding to purchase devices for staff and participants, and in some cases help participants get set up with hotspots, when device and internet access was not part of their original program design.

Recommended solutions from community partners

- Check with participants on their home internet and device access at the outset of the program, and have a plan to connect people with internet and devices as needed.

Population-Specific Findings

The qualitative review quickly identified some unique learnings across targeted populations. The key learnings outlined above encompass themes that were seen across partner organizations, but the section below provides populations specific results and lessons learned that can be useful for those working within these communities.

People with Disabilities

Program Summary

- Two reports reviewed
- Programs included access to accessibility devices, one-on-one technical assistance with accessibility devices, and career-connected tech skills training
- Populations reached: Kids and teens with disabilities, and Blind and visually impaired youth

Two reports from organizations focusing on reaching people with disabilities were included in this review. One program focused on providing kids and their families access to specialized assistive technology and teaching how to use assistive technology. Another program focused on skills training in sound, multimedia, and other emerging technologies for blind and visually impaired youth.

While only two organizations had programs specifically focused on serving people with disabilities, other organizations also served people with disabilities. Programs serving older adults often worked with people who were disabled and taught tech skills focused on accessibility.

Outcomes

> "Faith is a 12-year-old girl with cerebral palsy. Faith and her family moved from the South Sound to work with PROVAIL in order to gain access to assistive technology…After completing an assessment and evaluation with our staff, Faith received her very first communication device. Both Faith and her mom received weekly training and support to learn the device, and it wasn't long at all until Faith gained a voice through her device for the first time. Faith is now participating at school, is obsessed with expanding her shoe collection, and wants to be a fashion designer when she grows up. The funding from the TMF grant ensured that our Assistive Technology Lab was outfitted to meet Faith's needs."
>
> *-PROVAIL Staff, 2018 TMF Report*

The TMF-funded programs serving people and families with disabilities reported the transformative power of their work. **Assistive technology—and the tech skills to use it—can be life-changing and vital to participating in everyday life.** Children served by the PROVAIL program got access to and learned how to use assistive technology that allows them to communicate with others, opening doors to participate in school, hobbies, and pursue their dreams for the future.

What Worked

One organization recommended **providing mobile services to meet people where they are.** This organization used TMF funding to create a mobile assistive technology lab for staff to use out in the field and reported that "the ability to have an expanded range of technology and adapted devices out in the community is directly benefiting dozens of local children and families, as well as programs at elementary, middle and high schools throughout the City of Seattle."

Challenges

The program that took place during the pandemic reported that beyond the standard challenges of transitioning an in-person class to online, participants' **accessibility needs were difficult to meet in a virtual environmen**t.

Organizations should consider students' accessibility needs and **consider offering an in-person option in cases where it would better meet a student's needs**, when possible.

Low-Income

Program Summary

- Ten reports reviewed
- Programs included basic digital skills training, device and internet access, and one-on-one tech support
- Populations reached: People living in low-income housing, tiny home village and short-term shelter residents, low-income youth, adults, and older adults

Ten reports from organizations focusing on low-income populations were included in this review. Programs serving low-income housing communities provided device access and one-on-one technical assistance. Programs serving low-income adults and older adults provided skills training, while several programs serving low-income youth focused on career-connected tech skills, such as video production.

Outcomes

The most common outcomes reported for programs serving low-income communities were **increased economic opportunities, increased access to services, and increased quality of life**.

What Worked

Programs recommended **providing case management and working one-on-one with people** when providing low-income community members with device and/or internet access. A program that used TMF funding to create a computer lab recommended dedicating an employee to staff the lab, to help people use the equipment and to protect equipment from any misuse.

Organizations advised **focusing on getting people internet in their homes by connecting them with affordable internet providers**, rather than providing hotspots for a short period of time.

Other advice included:

- Use gift cards to incentivize completion of homework and other participation in class activities
- For vocational training, work with employers to ensure curriculum fits their recruitment needs

Challenges

Programs that provided community device access through a computer lab or technology lending library needed to overcome **logistical challenges**, including:

- Creating a checkout system for equipment
- Protecting equipment from vandalism and misuse while still allowing open access
- Making a communal space welcoming for everyone in a community

Immigrant/Refugees

Program Summary

- Eight reports reviewed
- Programs included skills training workshops (online and in person), devices, one-on-one technical assistance, and developing population specific curriculum.
- Populations Reached: Hispanic/Latinx/Spanish Origin Adults, East African Adults & Youth

Two of the inequitably impacted groups identified from the City's Technology Access and Adoption Community Study are non-English speaking, and BIPOC populations. Eight reports focusing on reaching immigrant and refugee populations were included in this review. The programs reviewed primarily included activities related to digital literacy skill building workshops – this encompasses one-on-one technical guidance and support and in-person and online courses. Organizations working with immigrant and refugee populations also included developing and translating digital literacy curriculum for specific language needs. Two immigrant refugee groups that were well represented included Hispanic/Latinx/Spanish origin adults and East African adults & youth.

Outcomes

> "I learned to use new computer programs, which I did not know, for my work is essential, since now everything has to be online, and also to be able to help my daughter, to connect with her teachers, thank you so much."
>
> *- Program Participant, Villa Communitaria, 2019*

One emergent theme that was specific to immigrant and refugee families was the emphasis on **improved digital skills to help children and family members** with online platforms. This theme came up numerous times in relation to online platforms for students attending schools within the Seattle School District. SPS uses an online portal called the Source to display attendance, assessment scores, progress reports, and other important student data and registration forms. Parents expressed that gaining the digital literacy to access and navigate the Source helped them better connect with their kids and monitor their progress in school.

Increased capacity built within the community was identified as a helpful outcome of community members participating in digital literacy programs and gaining digital literacy skills. Two organizations listed key accomplishments around capacity building of community members and how they were trained with skills and knowledge to coach others in the community in the future around digital literacy.

Community members in digital literacy training workshops **reported the following additional longer-term outcomes that were specific to their experience** after they gained better digital skills and knowledge:

- Increased technological skills led to more opportunities to learn English
- Increased access to citizenship and immigration resources
- Increased connection and participation within the community that they live in and society
- Increased understanding and connection across adults and children

> "Two past participants joining a new Latinx South Park Preschool Cooperative, which sessions are online, and this program helped them to acquire digital skills required to participate in the Cooperative."
>
> *- Program Staff, Villa Communitaria, 2021*

What Worked

Particularly when serving immigrant and refugee communities, having **culturally, linguistically competent, and community-rooted staff** creates legitimacy, credibility and understanding for program participants. Organizations provided the key elements for digital literacy training with cultural context to include:

- Having staff from the community they served
- Staff speaking their language
- Providing course materials in the community's language
- Staff with understanding and patience to translate new experiences
- Tailor the program to your community's needs
- Keep class sizes small to ensure personalized support for participants

- Practice respect, love and patience as you co-navigate the learning journey

Programs also emphasized the **need to anticipate language barriers**, cultural barriers, and participant's feelings of anxiety and include that in the design of programs. Also providing **advocacy for why digital literacy is important within communities**, such as the connection of digital access to economic resources and social services.

Challenges

The challenges face by immigrant and refugee populations when accessing and navigating digital spaces can be different than for other groups. One organization stated, "don't underestimate difficulty of using computer for first time," and that is the case for many participants in the digital equity programs.

A challenge mentioned by several participants and organizations was around the **anxiety and frustration experienced using technology as new users.** One organization mentioned that most English Language Learners, immigrant and refugee participants, particularly over the age of 49 had high levels of anxiety and a level of imposter syndrome navigating digital literacy. There are layers of **language barriers, cultural norms, and fears to address**. Another partner organization mentioned how technology can be "lost in cultural translation," as the cultural norm can be to call family and friends for solutions as opposed to utilizing technology, such as searching online for answers.

> "Personally, it has helped me a lot, because it is easier for me to connect to my children's therapists or meetings with teachers and doctors. Before I did not know how to turn on a computer and it gave me fear and stress when I had to fill out a document online or had to connect to a meeting. Now I can use some applications and I am learning to use some programs."
>
> *- Program Participant, Villa Communitaria, 2021*

Older Adults

Program Summary

- Four reports reviewed
- Programs included skills training workshops, devices, and one-on-one technical assistance
- Populations Reached: 55+ Asian Older Adults, Black Older Adults

Several organizations focused on reaching older adult populations, those in assisted living residences and others staying in their home. There were clear outcomes and challenges specific to their needs that impacted this population.

Outcomes

The main outcome provided by participant stories was around an **overall increase in quality of life**. This increase in quality of life and wellbeing manifested through **decreased social isolation** due to more access to **connection with family, friends, and overall communities**.

"The Digital Equity Coordinator received a phone call from a senior center participant who had received a Chromebook from the center. He expressed his nervousness about using the device and asked if he could receive some tech help in his home. The DEC arrived at his home and asked what he would like to spend time learning. Participant stated he would like to learn how to use email so he could send one to his wife. Participant ended the session by showing DEC the steps of sending an email and wrote an email to his wife as his first correspondence. Participant was happy at the end of the session and was excited to be able to communicate better with his family and friends."

- Program Staff, Sound Generations, 2021

Another layer of wellbeing was connected **to increased access to arts, culture, and components of life that provided joy**. Participants mentioned the importance of new access to music, movies, online exercise classes they could participate in with friends, and games.

"A woman, KJ, was the first person we served in our Tech Room. She came to learn how to access an online Webex meeting for a community organization. She visited us 4 more times over 2 months. During the course of these visits, she learned how to 'utilize email, access music online, adjust web browser settings, and the like.' After her 5th visit, KJ stopped coming. In late July, she wrote us what would be the last email we would receive from her. She wanted to explain why she had 'disappeared.' Her pancreatic cancer had returned and she was now in hospice care. And she wrote to tell us that after she'd visited our Tech Program, she was able to attend the Seattle International Film Festival virtually and she was able to access and listen to the scores of the movies as much as she wanted. She finished her email with the following: 'I want you to know that your generous and heartfelt computer help made such a difference in my understanding so many questions I had. … I love this device and you helped me love it more so for that I thank you/thank you/thank you.'"

- Program Staff, Senior Center of West Seattle, 2021

Lastly, one other outcome mentioned after enhancing their digital skills was **the increased ease of daily tasks**, such as paying bills online, making and attending telehealth appointments, and accessing essential services.

What Worked

The main advice provided by organizations working with older adults **was to have patience and understanding of their needs**. One organization made sure to employ deep listening for each participant to understand the need beyond the "tech task" to help participants reach their goals. A few other key learnings shared by organizations including the following:

- Providing sustained classes helps people with memory challenges
- Encourage note taking and continued practice to retain skills
- Ensure providing one-on-one tech support if you are including devices
- Provide personalized support and relationships build trust

The reports provided clearly demonstrate the level of positive impact that increased digital access and utilization can have on older adults and their overall wellbeing.

Challenges

The challenges mentioned by partner organizations were the **need and demand for personalized tech support**. There were long wait times for one-on-one support as demand at times was more than support available.

There were also **issues around ensuring sustained learning,** as it is easy to forget newly learned skills and knowledge, as memory challenges were present at times. **Difficulty tracking usernames and passwords** was an element of trying to ensure sustained learning and highlighted the importance of taking notes and using secure username and password protectors.

Recommendations and Next Steps

Take Steps to Better Track and Document Long-Term Outcomes

ITD's Digital Equity team has a goal of better understanding and documenting long-term program outcomes from TMF projects. In addition to the retrospective review of TMF grantees' reports, this analysis has a secondary goal of identifying ways to improve qualitative program analysis moving forward.

Written reports from TMF partners provide a window into the long-term impacts TMF programs can have for people and organizations. However, creating this report required systematic review of a high quantity of written feedback to pull out common themes. This work is time-consuming and impractical for City staff to undertake on an ongoing basis. Writing lengthy narrative reports is also time consuming for community partners.

With this in mind, we recommend several possible ways to improve qualitative and quantitative data collection and track outcomes moving forward:

Collect participant-reported data on key outcomes.

- TMF partner organizations already fill out intake forms with participants at the start of their programs. **Organizations could add questions to their existing intake forms to gauge participants' skill level and confidence once at the beginning of a program, then present the same question(s) again at the end to measure the difference.**
    - For example, a program focused on basic digital literacy skills could ask a question like, "How confident do you feel when using a computer?" with a one-to-five rating option. Participants could answer this question on the first day of class, then again at the end of the class.
- **Organizations could follow up with participants at regular intervals following the program to collect long-term outcome information.**
    - For example, a program focused on teaching digital skills to improve employment opportunities could contact a participant several months after the program to ask whether the participant has gained a new job or promotion.

Refine the existing partner feedback process and template.

- ITD can **undertake a similar review process to the one completed in this review on an annual basis**. This would require an investment of staff time from ITD, but could help ensure that qualitative information shared by TMF partners is being analyzed and that trends are identifiable over time.
    - ITD can **reduce the number of narrative questions asked in the TMF partners' final reports.** This would reduce workload for community partners and for the ITD staff reviewing the reports, making it more feasible for ITD staff to systematically analyze feedback coming in from partners.
    - ITD can **offer the option for community partners to give their narrative reports via a phone call, video call, or in-person meeting** at the end of their program instead of providing a written report. This may be a less time-consuming and more accessible option for some partners.

Adjust Application Process and Section Criteria to Focus on Program Goals and Target Populations

TMF grants are primarily intended to achieve a base level of digital literacy for low-skilled community members, and to ensure that our highest-need neighbors have access to affordable internet and devices. The grant application process and selection criteria have been updated in 2023 to help ensure that organizations applying for TMF funding are focused on achieving these goals.

After the 2023 grant cycle, the Digital Equity staff can evaluate what types of programs applied for funding and what types of programs were selected to see how well they align with TMF goals. The grant application process and selection criteria can then be further revised as needed.

Conclusion

TMF-funded partners have done an excellent job over the years of tracking metrics like the number of people signed up for affordable internet programs and number of skills trainings provided. This review of qualitative program reports sheds light on how the increased internet access, increased device access, and increased digital skills provided by TMF programs has impacted community members and are foundational to achieve the longer-term outcomes of the digital equity initiative.

Findings from this analysis support the Digital Equity program's theory of change, suggesting that digital equity interventions have long-term, multifaceted positive benefits that ripple out through the community. A relatively small investment—providing affordable internet, devices, and the necessary skill training to use them—can result in increased economic opportunity and stability, increased access to education, and better quality of life.

While there are challenges in this work, findings in this report demonstrate the power of collaboration between partners to solve problems and close the digital divide. Lessons learned in this report can be shared among TMF partner agencies and future grantees to continue the program's history of continuous improvement and collaboration.