

A background image featuring a complex network diagram with numerous nodes and connecting lines, overlaid on a light gray grid. The lines are black and vary in thickness, creating a web-like structure.

Broadband READY

East Central Illinois Preliminary Report - August 2022

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Office of Broadband
Department of Commerce
and Economic Opportunity
Governor J.B. Pritzker



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PROGRAM SUMMARY

Connect Illinois was launched in 2020 as a central pillar of Governor J.B. Pritzker’s Five-Year Economic Plan to expand access to high-speed broadband internet and achieve “ubiquitous broadband access” across the state with an emphasis on equitable growth. Targeting areas of greatest need through a \$420 million state of Illinois allocation, the program was developed as a first of its kind state initiative for extending an equity-driven infrastructure aiming to “address disparities in broadband access and adoption in rural regions and black and brown communities across the state... while leveraging fully scalable broadband infrastructure.” [1] The program further placed priorities on promoting three areas - literacy, adoption, and inclusion around broadband and digital technologies – as specified goals.

This report represents findings and recommendations from the research collaboration coordinated by a team from the Community Data Clinic (CDC) at the School of Information Sciences (iSchool) and National Center for Supercomputing Applications (NCSA) and Research IT at the University of Illinois at Urbana-Champaign (UIUC) to represent the East Central Illinois (EC-IL) region, one of 10 state “zones” for which \$50,000 “pilot” Broadband READY funds for regional research initiatives were distributed from the Illinois Department of Commerce and Economic Opportunity (DCEO). Supported through this 2021-22 DCEO grant and in-kind support matched by UIUC, as well as an additional \$100K grant received through UIUC’s Chancellor’s Office’s Call to Action for Racial & Social Justice grant, the EC-IL team’s initiative centered on a cross-entity partnership, developed via the CDC with the national non-profit PCs for People (PC4P) and 5 local civic organizations focused on services to EC-IL’s most vulnerable populations: Project Success of Vermilion County, the Housing Authority of Champaign County (HACC), Cunningham Township Supervisor’s Office (CTSO), Champaign-Urbana Public Health District (CUPHD), and Champaign-Urbana Trauma & Resilience Initiative (CUTRI).

In explicit consideration of Connect Illinois’ priorities, the EC-IL partnership network’s program efforts centered on developing a multi-phased infrastructure to enable 1. **Distribution** of refurbished computing and new hotspot hardware to 500 vulnerable households, 2. **Outreach and support** to individual households via a new Tech Buddies Program to address their continued connectivity needs in the months following their receipt of hardware. 3. **Sustained feedback** collected from heads of households to map their continued needs and concerns around digital connectivity in the months following their receipt of hardware, and 4. **Collaborative data review & collection** process with partner organizations to ensure their central guidance and participation in the research process.

Our primary findings following the year-long pilot program center on 5 areas:

1. Scaling broadband connectivity will need **sustained support/outreach** tailored for vulnerable households’ technology use to complement any scaled-out hardware distribution. This will especially be the case if the distribution of refurbished hardware is anticipated, as the functionality of hardware cannot be assumed. Even when brand new hardware was supplied, however, our team found that a significantly large percentage of households required direct calls to support new services entailed (such as renewal for monthly EBB/ACP broadband subscriptions). **Households will need accountability in quality control for any scaled distribution.**
2. The experience of **Technological Bias and Poverty Stigma alienates many vulnerable households and the organizations that serve them** by presuming that such entities are “broken” and need to be “fixed” by technology, and by projecting middle-class and professional consumers or organizations as the “ideal” or standard users of technology. Technological bias discounts other forms of digital literacy and labor that exist in poor and vulnerable communities,



and that's often invested to overcome civic disconnection. Beyond addressing individual barriers around technological literacy, adoption, and inclusion, future programs have an opportunity to foster a culture of "**digital life and dignity**" that accounts for the unique technological experiences and literacies – often shaped by resilience and mutual aid to overcome under met needs - of marginalized households and service organizations.

3. Despite technological biases that lead local social service and community organizations to often be overlooked as innovators in digital programming, **varied local and county-level community organizations have rich expertise** and capacity that are centrally relevant for bridging gaps in digital connectivity for vulnerable households in Illinois. Connect Illinois' opportunity to include such leadership, alongside that of conventionally-defined anchor institutions – such as public schools and libraries – and recognizing varied local organizations' added expertise in supporting **diverse kinds of vulnerable households** across the state offer concrete potentials in achieving Accountable Scale.
4. Our research confirms existing literature that demonstrates how **technology can be as much a liability or source of harm** as a resource for social agency when it comes to vulnerable populations and local organizations that serve them. Organizations expressed the need for more "safe" spaces to address technology without judgment, while households expressed concerns for predatory and malicious forms of digital tracking. To connect Illinois equitably, more can be done to aim to strengthen **protections against pernicious forms of predatory digital marketing and profiling** practices that target poor and vulnerable populations.
5. **Poverty rates and other indicators of household vulnerability** (including % of female-headed households, % of household heads with less than a high school education, renter status, mobility, etc.) are advised to be **added to the Digital Indicator Dashboard** for digital equity and the interests of the most vulnerable and historically marginalized households to be centered in Illinois' broadband efforts. The EGDE Dashboard of the National Center for Education Statistics (see Figure 5 as an example) provides a model for this. Access to digital devices and broadband services are not the only key drivers or indicators of digital and civic connectivity for marginalized populations. Tracking the rate of change of other related factors that are tailored to the needs and concerns of vulnerable populations and the organizations that serve them will be critical for developing a genuinely inclusive and equitable Connected Illinois.

The below sections represent a summary of our program's design and summary of data collected on which the recommendations above are based.

I. PROGRAM OVERVIEW + REGIONAL DEMOGRAPHICS

Coordinated by co-PI's Anita Chan (Director of the Community Data Clinic and Associate Professor in the iSchool at UIUC) and Tracy Smith (Director of Research IT and Innovation at UIUC), the East Central Illinois (EC-IL) team's initiative centered on a cross-entity partnership bridging the national non-profit PCs for People (PC4P) and 5 EC-IL civic organizations represented by Kimberly David (Associate Director, Project Success), Stephanie Burnett (Move to Work Lead and Client Outreach Manager, Housing Authority of Champaign County), Julie Pryde (Administrator, Champaign-Urbana Public Health District), Danielle Chynoweth (Supervisor, Cunningham Township), and Karen Simms (Director, Champaign-Urbana Trauma & Resilience Initiative).



In explicit consideration of Connect Illinois’ priorities to develop “scalable broadband infrastructure” that addresses “disparities in broadband access and adoption in rural regions and black and brown communities across the state,” the EC-IL team built its efforts around vulnerable and historically marginalized households in Champaign and Vermilion Counties – the two counties of the six in EC-IL with the highest poverty rates. With poverty rates measured at 20% and 18.9% respectively, Champaign and Vermilion County’s poverty rates are nearly double the U.S. national poverty rate of 10.5% and Illinois state poverty rate of 11.5%, according to the 2019 U.S. Census. The 2 counties’ 2019 poverty rates are also well above those of other EC-IL counties of Ford (13.9), Iroquois (12.5%), Douglas (10.8%) and Piatt (5.2%). [See Figure 1] While Champaign and Vermilion Counties share similarly high poverty rates, they demonstrate striking distinctions in their demographic and urban density profiles. Some 45% of Champaign County’s population of those aged 25 and older have a bachelor’s degree or higher according to the U.S. American Community Survey, versus 14.7% in Vermilion County (while the Illinois state average is 34.7%). Additionally, while only 4.1% of Champaign County households were estimated by the FCC to fall outside of the available service area for minimal broadband connectivity (ie. service that would allow 25 Mbps upload/3 Mbps download speeds) in 2019, some 43.8% of Vermilion County households do. [See Figure 2]

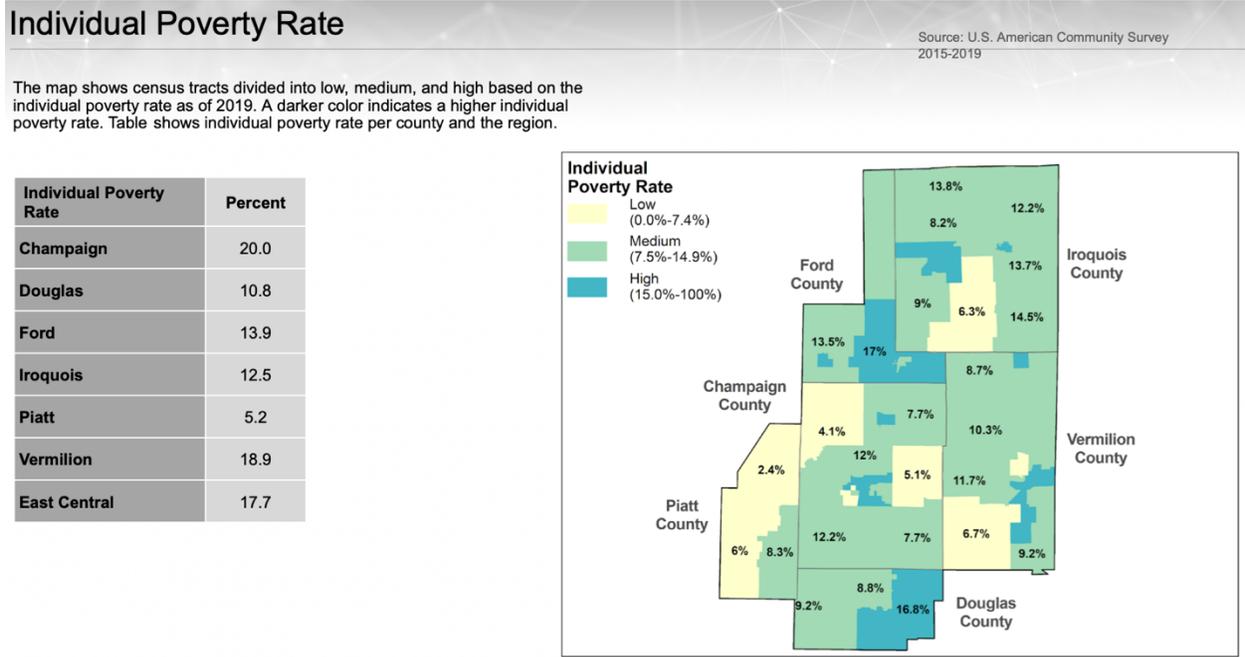


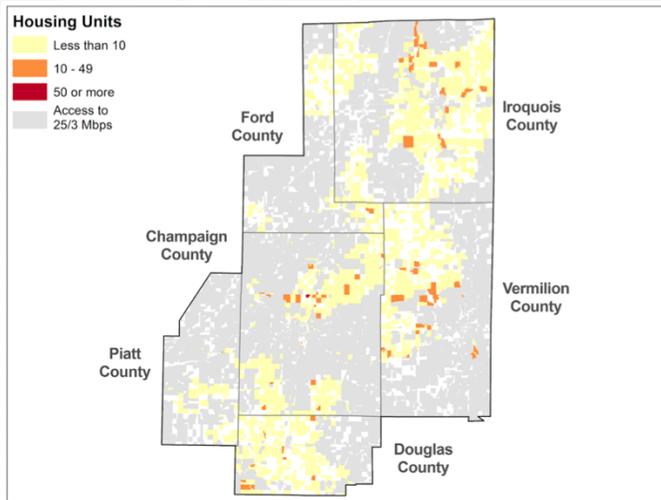
Figure 1. 2015-19 American Community Survey data compiled by the Purdue Center for Regional Development.





Housing Units Density Outside 25/3 Footprint

Source: FCC Form 477 December 2019
v1



Housing Units Outside 25/3 Footprint	Percent
Champaign	4.1
Douglas	17.9
Ford	14.5
Iroquois	9.5
Piatt	19.2
Vermilion	43.8
East Central	15.3

Figure 2. 2019 FCC data compiled by the Purdue Center for Regional Development.

To develop a program to meet the diverse forms of vulnerability and varied connectivity needs of marginalized households across the 2 counties, the EC-IL research team developed a six-stage program for collaborative research, outreach, and responsive design. This began by first identifying community partners in Vermilion and Champaign County interested in committing for the next year to a collaborative research project during the project’s **Stage 1** (between February – April 2021). This entailed three months of outreach to over 20 community organizations focused on services to vulnerable populations to identify interested organizations, five of which finally expressed interest.

For the following three months of **Stage 2** (May-July 2021), partners worked together and met regularly via Zoom (in accordance with COVID-19 distance restrictions) to develop a multi-pronged program design the next 4 research stages that involved the 1. **Distribution** of refurbished computing and new hotspot hardware supplied by PC4P to 500 vulnerable EC-IL households qualifying for Emergency Broadband Benefits (EBB) and Affordable Connectivity Program (ACP) of the U.S. government’s FCC [2] during **Stage 3** (that lasted 6 months from August 2021 to February 2022); 2. **Outreach** to individual households via a new Tech Buddies Program, that employed and trained 19 UIUC students and local community members to support households’ continued connectivity needs in the months following their receipt of hardware during **Stage 4** (that lasted 10 months from August 2021 to June 2022); 3. **Sustained feedback** collected from heads of households by Tech Buddies during outreach calls to map their continued needs and evolving concerns around digital connectivity during **Stage 5** (that lasted 9 months from September 2021 to June 2022); and 4. **Collaborative data review & collection** via routine meetings with partner organizations to ensure their central guidance and participation throughout the evolving stages of the research process during **Stage 6** (that lasted throughout the program, until the final report was completed in August 2022).

Stage 3, focused on the distribution of refurbished computing and new hotspot hardware supplied by PC4P, took place over 6 months from August 2021 to February 2022. The major design consideration for the timing/pacing of this phase was the limitation of adequate inventory of refurbished computers from PC4P. This obligated the team to set a pacing of no more than 100 computers per month. Although the team’s initial plans and budget had intended for only “best” quality computers to be distributed (the top





grade of 3 grades of refurbished computers supplied), PC4P reported shortly after distributions began that it would not be able to commit to such a supply, and a mix of “best” and “better” (mid-grade) quality laptops was ultimately supplied during distribution events. Ultimately, over two-thirds of the refurbished laptops that were distributed were “better” quality laptops from PC4P.

A total of 6 different distribution events (4 in Champaign and 2 in Vermilion County) were held, at a pacing of roughly 1 distribution event per month (except during January 2021, when UIUC was on winter break). Events generally distributed 100 laptops to households across 2 back-to-back half-day events. Project partners worked closely in the months leading up to distribution events to plan: a. the selection of an event site that would be accessible and inviting to participating local households and open/ample enough to store 100 hardware packages while host partner teams (roughly 10-15 people per event) worked with a safe distance for COVID-19 protocols; b. selection protocols with partner organizations to ensure participating households qualified for the EBB or ACP program; c. the design of communication materials for participating households to ensure they were adequately informed of program benefits, research protocols and what to bring to a distribution event to finalize their entry into the program; d. coordination of intake data and the design of a survey for participating household heads to complete at a distribution event; and e. apply lessons from past distribution events to refine the distribution designs with the aim of processing households as quickly and efficiently as possible. It was discovered, for instance, that many household heads could only rely on public transportation, had to find childcare, or had to use worktime lunch hours to attend distribution events. To meet households’ needs, the project team worked to plan distribution sites at public bus terminals or places of residence (for HACC residents), and aimed to complete households’ on-site processing to less than 30 minutes (scheduling appointments and asking households to complete some paperwork in advance of events).

Stage 4 focused on the design and implementation of our Tech Buddies Program to extend outreach and support to individual households. The Tech Buddies Program, that employed and trained a team of UIUC students and local community members over 10 months (from August 2021 to June 2022), called each household every two weeks to support households’ continued connectivity needs in the months following their receipt of hardware. Several community organizations also added their own paid staff members to be trained and work as a Tech Buddy for up to 10 hours per week. (Although most organizations were not able to commit a staff member to the program, those that did mentioned that they found the training to be a benefit. Additionally, this design ensured an added bridge back to partner organizations.) In total, 19 Tech Buddies were trained to support households through outreach calls, with 8 individuals coming from the community, and 9 joining as university students. On average, tech buddies were given a list of between 30 and 50 families to support with outreach calls (where 1 household would be called once every 2 weeks), and worked 7-10 hours per week (with 10 hours roughly being the amount of time needed to support 25 families in 1 week). All tech buddies were able to work remotely from home to accommodate COVID restrictions. Additionally, in accordance with PC4P’s staggered inventory supply, the hiring and training of tech buddies was also staggered. The Tech Buddy team grew in size from an initial group of five to a final team of 15 members (working roughly 10 hours a week each) providing support for 500 households.

To ensure a team of Tech Buddies with mixed backgrounds (and only 2 with previous experience in Tech Support) would be supported in their work, we created a user-friendly digital folder system to store resources and documents that are relevant for the program: instructions on how to set up a google voice account, information about how to renew the EBB/ACP program, a general FAQ document to reference, and call scripts for short, 2-3 minute household calls.



Stage 5 focused on documenting feedback received from heads of households by Tech Buddies during outreach calls to map continued needs and evolving concerns around digital connectivity during the months following households' receipt of hardware (September 2021 to June 2022). To address technology concerns and interests expressed by households from their intake data surveys, outreach call scripts were also designed to inform and engage household heads on topics such as basic online privacy protection, browser child filter activation, and free and low-cost adult education options in their county. These were to be integrated into outreach calls, once households confirmed basic functionality of hardware received.

To support Tech Buddies' outreach and feedback collection, a weekly meeting structure was established that all tech buddies were required to attend. In these one-hour team check-in meetings, a Tech Buddy Coordinator would lead the group to discuss updates on their phone calls, review upcoming call scripts, announcements, and share highlights. (To better accommodate the schedules of the entire group, there were two scheduled options available for check-in meetings, each led by one of two Tech-Buddy Coordinators). One week would be primarily dedicated to sharing highlights of their most memorable phone calls, and the other week was dedicated to preparing for the next call script, brief updates, questions, and other needs. To complement the CITI Ethics training all Tech Buddies were required to complete for the project, ongoing Trainings were also offered during these weekly meetings, including an IRB training workshop. The Tech Buddies shared that the weekly meetings were an overwhelmingly positive space for them to connect with others and share ideas about strategies for connecting with the families in their call list and share challenges. They also felt like the space energized them each week. As one Tech Buddy reported, "Every time we [had a] meeting, I felt real positive energy, especially when we are talking about appreciation, or about... feedback from the households... Even though [the meeting is] just an hour meeting every week, I feel like it's really powerful." Another specified, "The community we have here is really good ... it's really nice to have a group of people... to bounce ideas off... [T]here were so many times throughout the year when somebody said something and I said 'oh that's a great idea'... The Tech buddy meeting is going to be a missed ritual every week."

Stage 6 established a collaborative data review and collection process with partner organizations to ensure their central guidance and participation throughout the evolving stages of the research program. This lasted throughout the data collection process until the final report was completed in August 2022, and entailed multiple engagement pillars. One was ensuring that weekly check-in meetings open to community partners, and dedicating specific check-in meetings to address the feedback from the relevant households affiliated with their organization. Additionally, we intentionally created a Tech Buddies team that included and trained community partners' staff, so that partner organizations would be organically connected to the data collection process and routine outreach to program households. Finally, following deployment events, debriefing meetings were also scheduled with partner organizations and PC4P to gather feedback, address challenges diagnosed, and strategize and refine plans in advance of next stages.

As a result of this collaborative review process, the research team was able to optimize an evolving design process to respond to new challenges that emerged. One concrete design element that was added into our outreach and data collection process to create a new **troubleshooting** reporting and follow-up process to address the unanticipated but significant technology issues households were reporting related to hardware. Relying on PC4P's existing tech support service was not sufficient to support this. We thus worked with PC4P to design a direct reporting system, with a timely follow-up process to provide updates to households on what next steps would be to address urgent hardware





issues (from inoperable computers to broken or non-compatible chargers). The team also created an online digital ticketing process to manage the list of tech issues with PC4P staff. [3] [See Figure 3]

Figure 3: Tech Buddy Ticketing Systems designed to expedite hardware failure reporting and households response.

II. DIGITAL INDICATOR DASHBOARD

Our program distributed 500 laptop and hotspot packages to low-income households: 200 of which were residents of Hoopeston and Georgetown-Ridge Farm in Vermilion County, the former designated as a “distant town” and the latter as a “rural-fringe” area of Vermilion County; and 300 of which were distributed to residents of Urbana-Champaign, designated as a “small city” in Illinois. The below offers summary profiles of the three areas across the two counties. Although all are part of East Central Illinois, the three areas demonstrate very distinct resident populations, with vulnerable communities that further demonstrate particular needs. While geographically proximate and all sharing disproportionately high poverty rates, the needs of the historically marginalized sectors across each area demonstrate the multiple factors that shape household vulnerability, and how marginalization and poverty are complex phenomena that cannot be understood as a monolithic experience.

- In 2019, Hoopeston, IL had a population of 5.1k people with a median age of 45.7 and a 22.1% poverty rate. [4] According to the National Center for Education Statistics (NCES) data, Hoopeston, IL school district serves a 2.8K households with a median household income of \$45,595. 24% of its households fall below the poverty level, 33.6% qualify for SNAP benefits, 24% are female headed, 32.9 rent their homes, 22.3% are not in the labor force, and 18.6% have less than a high school education. Its students are 84% were white, 11% Hispanic, 2% are African American, 2% Asian, and 1% American Indian/ Alaskan Native. 77% of its households have Broadband Internet. [5]
 - Additionally, the Illinois Report Card data demonstrates a 69% 4-year 2020 graduation rate (compared with the state average of 88%). This is down from 71.4% rate in 2019





(below the state average in 86.2), and from 2016's 70.9% rate, which was below the state average of 85.5%. In 2021, 13% of its students experienced at least one transfer in or out of the school during the school year. Roughly 12.5K was spent per student in 2021. Chronic absenteeism of students (those who missed 10% percent or more of school days per year either with or without a valid excuse) was at 25% (compared to the state average of 21.1%). [6]

- In 2019, Georgetown, IL had a population of 3.27k people with a median age of 44.6 and a 16.1% poverty rate; Ridge Farm, IL had a population of 940 people with a median age of 42.6 and a poverty rate was measured at 11.6%. [7] NCES data indicate that Georgetown-Ridge Farm, IL school district (which serves Georgetown and Ridge Farm's combined populations) serves 2.7K households with a median household income of \$47,756. 18.5% of its households fall below the poverty level, 17.4% qualify for SNAP benefits, 17% are female headed, 24.6 rent their homes, 10.9% are not in the labor force, and 4.2% have less than a high school education. Its students are 93% white, 4% African American, 2% Hispanic, 2% bi-racial. 78.2% of its households have Broadband Internet. [8]
 - Additionally, the Illinois Report Card data demonstrates that Georgetown-Ridge Farm's school district demonstrates a 83.1% 4-year 2021 graduation rate (compared with the state average of 86.9%). This is up from an 82.1% rate in 2020, but down from 2016's 89.4% rate, which surpassed the state average of 85.5%. In 2021, 15% of its students experienced at least one transfer in or out of the school during the school year. Roughly 13K was spent per student in 2021. Chronic absenteeism of students was at 26% (compared to the state average of 21.1%). [9]
- In 2019, Champaign-Urbana, IL had a population of 226.37k people with a median age of 30.9 and an 18.9% poverty rate. [10] NCES data indicate that the Urbana, IL school district serves 21K households with a median household income of \$37,749. 23.7% of its households fall below the poverty level, 36.8% qualify for SNAP benefits, 34% are female headed, 45% rent their homes, 12.4% are not in the labor force, 11.4% have less than a high school education, and 6.3% are bi-lingual households where English is spoken "less than well." Its students are 57% white, 17% Asian, 15% African American, 7% Hispanic, 3% bi-racial. 78.2% have broadband connectivity. [11] NCES data indicate that the Champaign, IL school district serves 40.2K households with a median household income of \$52,587. 14% of its households fall below the poverty level, 26.6% qualify for SNAP benefits, 25% are female headed, 46.2% rent their homes, 14.6% are not in the labor force, 5% have less than a high school education, and 10.8% are bi-lingual households where English is spoken "less than well." Its students are 62% white, 16% African American, 13% Asian 6% Hispanic, 3% bi-racial. 84.5% of its households have Broadband Internet. [12] The education profile of vulnerable populations in Champaign-Urbana contrasts with the presence of the University of Illinois, the state's largest public university and the largest employer in the area, and the roughly 48% of the population there that has attained a bachelor's degree or higher.
 - Additionally, the Illinois Report Card data demonstrates that Champaign's school district had a 82.7% 4-year 2021 graduation rate (compared with the state average of 86.9%). This is down from an 87% rate in 2020, and down from 2016's 84.4% rate, which was slightly below the state average of 85.5%. In 2021, 9% of its students experienced at least one transfer in or out of the school during the school year. Roughly 14K was spent per student in 2021. Chronic absenteeism of students (those who missed 10% percent or more of school days per year either with or without a valid excuse) was at 26%. [13]

- o The Illinois Report Card data demonstrates that Urbana’s school district had a 88% 4-year 2021 graduation rate (compared with the state average of 86.9%). This is down from an 83.3% rate in 2020, and down from 2016’s 84.9% rate, which was below the state average of 85.5%. In 2021, 11% of its students experienced at least one transfer in or out of the school during the school year. Roughly 15K was spent per student in 2021. [14]

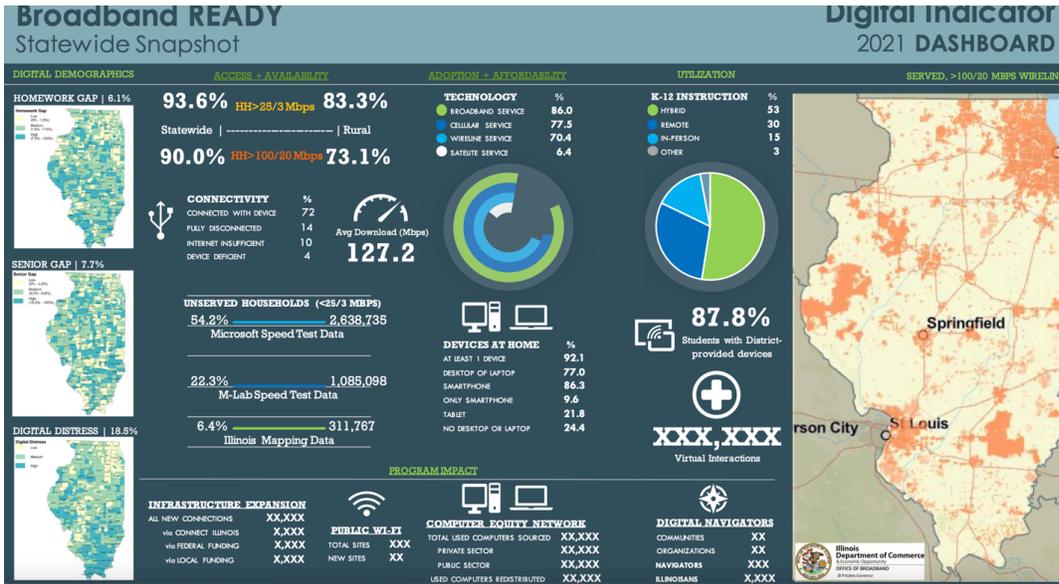


Figure 4: Illinois State – 2021 Digital Indicator Dashboard Design

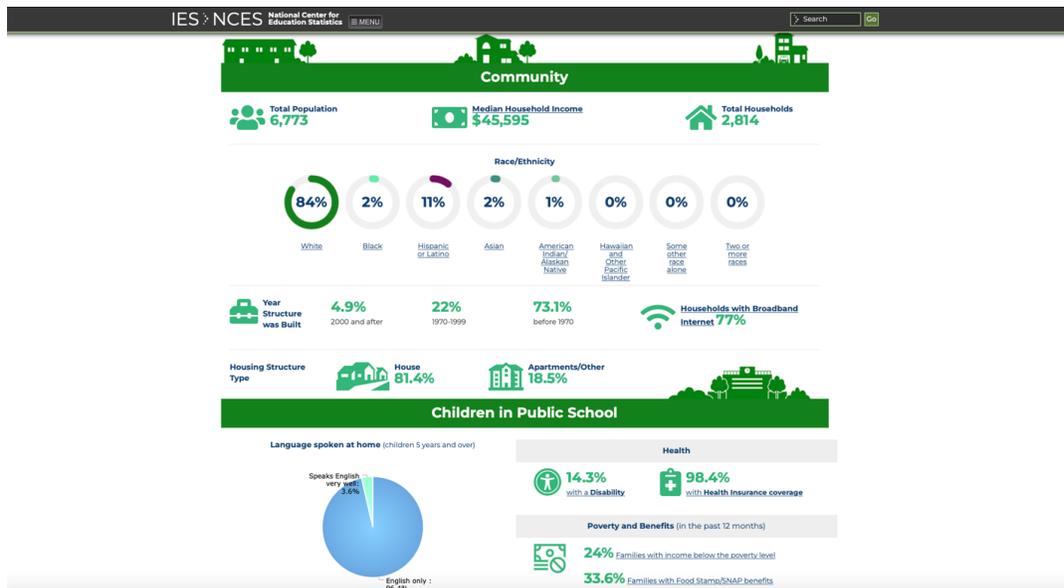


Figure 5: IES National Center for Education Statistics 2021 Dashboard for the Hoopston, IL Area Community Unit School District 11.



III. CURRENT CONDITIONS SUMMARY

Participants' Demographic Background

Below are some details about the participants' demographic information. We collected the data through an intake form the participants filled out before or when they picked up the equipment. Participants can skip questions if they wish to. Data of the participants that asked to exclude their data for research purposes are not displayed in the tables of visualizations below.

1. Ethnicity of participants

The ethnicity distribution of the participants in Champaign and Vermilion counties is very different (see Table 1, Figure 6 & 7 below). More than 60% of the participants in Champaign are African Americans, while the percentage of African Americans among the participants in Vermilion is only 4.3%. On the other hand, over 80% of the participants in Vermilion county is White. White is the second largest ethnicity group among the Champaign participants, but it is only 14.5% of the participants. In both counties, we have a dozen or so Hispanic participants (Champaign: 4.0% vs. Vermilion: 8.6%). We have tech buddies that can provide tech support in Spanish to work with these families.

Ethnicity	Champaign	Vermilion	Overall
African American/Black	192 (63.4%)	7 (4.3%)	199 (42.7%)
American Indian/Alaskan Native	5 (1.7%)	(0.0%)	5 (1.1%)
Asian/Pacific Islander	1 (0.3%)	1 (0.6%)	2 (0.4%)
Caucasian/White	44 (14.5%)	134 (82.2%)	178 (38.2%)
Latino/Latina/Hispanic	12 (4.0%)	14 (8.6%)	26 (5.6%)
Other	3 (1.0%)	1 (0.6%)	4 (0.9%)
Did not answer	46 (15.2%)	6 (3.7%)	52 (11.2%)
Grand Total	303 (100.0%)	163 (100.0%)	466 (100.0%)

Table 1: Ethnicity of participants.

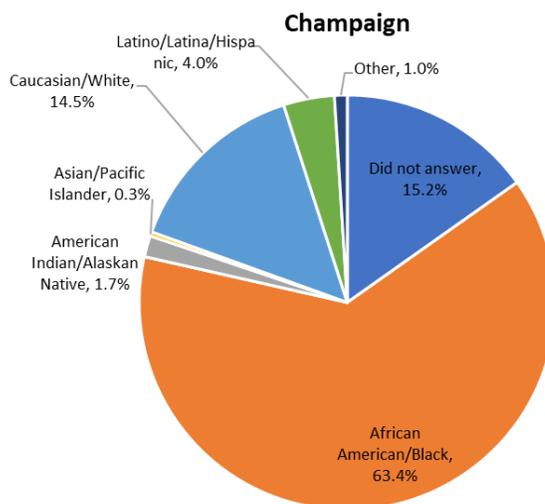


Figure 6: Ethnicity of participants in Champaign.



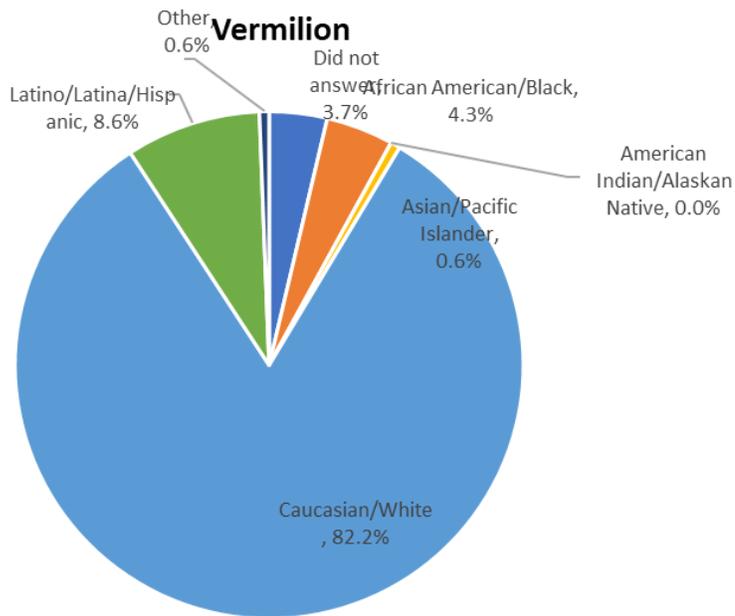


Figure 7: Ethnicity of participants in Vermilion.

2. Gender and age of participants

We asked the gender and age of the person who picked up the equipment for their family and will be the main contact for the household. For both counties, the majority of the main contact for their family is female. In terms of age, the top age groups are from 25 to 34 and 35 to 44. For both counties, we have a few participants over 65 picking up the equipment to use with their grandchildren (see Figure 8 below and Figure A.1 & A.2 in the appendix).

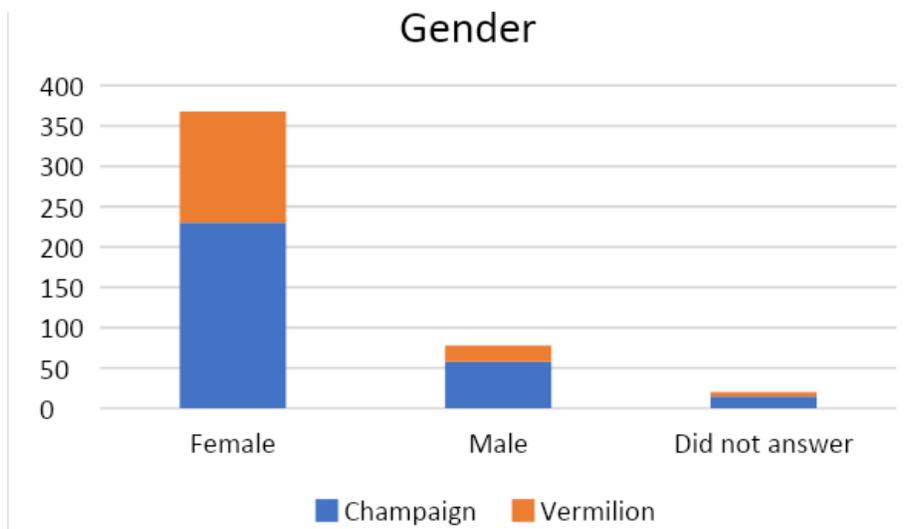


Figure 8: Gender of participants.



3. Annual Income of the participants

Participants self-reported their annual income in the intake form. Both counties have participants reported \$0 annual income. The maximum annual income reported in Champaign is \$61,000; while the maximum annual income reported in Vermilion is \$80,000. The average income in Champaign is \$11,295.80; whereas the average income in Vermilion is \$23,173.50, about \$11K higher than Champaign (see Table 2). As shown in Figure 9, more than half of the Champaign participants (162 out of 303) reported the annual income of their households is less than \$10,000. In Vermilion (Figure 10), only about 25% (43 out of 163) of the participants reported an annual income less than \$10,000; 91 out of 163 Vermilion participants reported their annual income ranges between \$10,000 and \$40,000. There are a few participants who have household annual income more than \$50K in Vermilion, whereas in Champaign only one participant reported their household annual income is over \$50,000.

County		
	Champaign	Vermilion
Annual Income		
Minimum	\$ 0.00	\$ 0.00
Maximum	\$ 61,000.00	\$ 80,000.00
Mean	\$ 11,295.80	\$ 23,173.50
Standard Deviation	\$ 12,470.52	\$ 17,452.41

Table 2: Minimum, maximum, mean, and standard deviation of annual income of participants.

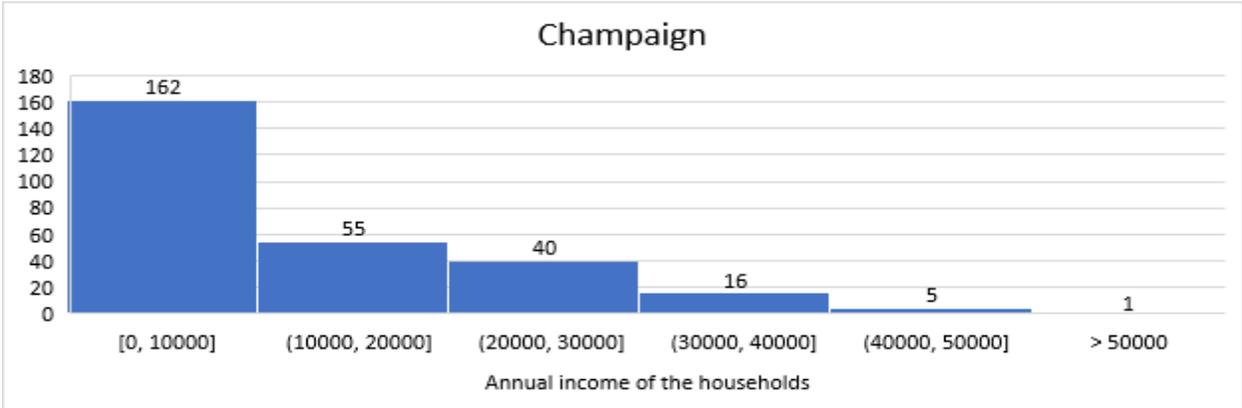


Figure 9: Annual income of participants in Champaign.

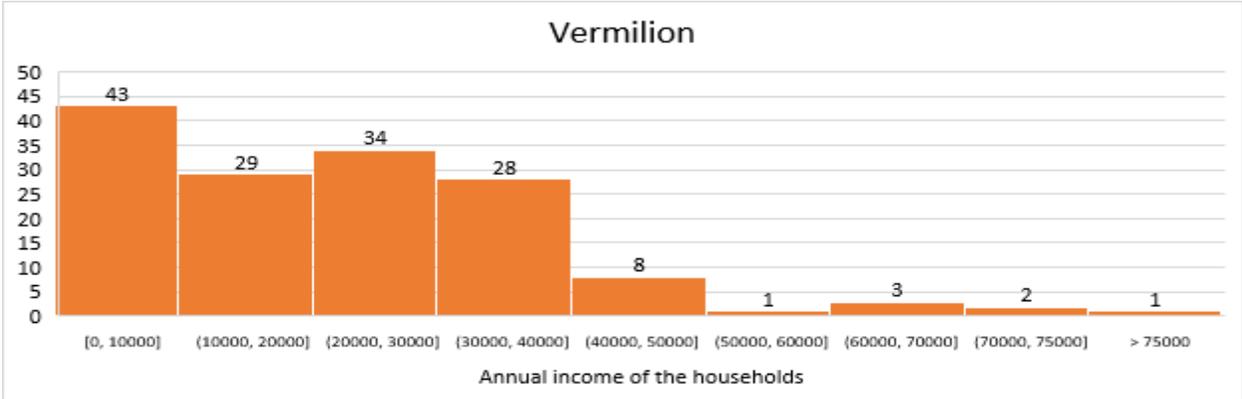


Figure 10: Annual income of participants in Vermilion.



4. Employment status of the participants

The participants were also asked to self-report their employment status. For both counties, about half of the participants reported that they are employed. Champaign has more than 45% of the participants are not employed; Vermilion has less than 40% of the participants reported they are unemployed. Approximately 15% of the Vermilion participants did not provide their employment status (see Table A.2 Figure A.3, & Figure A.4 in the appendix).

Broadband Adoption + Affordability

Beyond the aggregate profiles provided by the demographic statistics above, our Tech Buddies outreach calls provided more granular profiles of the beneficiaries of our program. These included: an older woman who said she'd never had a laptop before and she was very excited to own one now, retired grandparents, and individuals who reported they used computers to watch church sermons during COVID-19 distancing requirements.

Varied individuals reported using their **new hardware for work or career advancement**, with one individual reporting that although she had recently received a laptop from work, she had to share it with her co-worker, and now no longer had to. Another individual reported how very happy he was with his services, how easy it was to use them, and how appreciative he was for the work we were doing and the outreach calls. He mentioned job hunting efforts as an explicit activity that was supported by the hardware.

Individuals also reported that they furthered their **educational goals** because of their new hardware. Participants included students taking classes online, taking adult classes, and pursuing degrees at the University of Illinois and at Eastern Illinois University. One individual reported using their laptop for her marketing class, and another hoping to finish her GED¹ at Parkland using the laptop.

Others reported explicitly advancing their **general digital literacy skills** due to access to new hardware. One head of household reported he was using his tech to teach himself to type-something he always wanted to do and never had access to do before. Others reported taking classes online to learn how to use the computer. One grandmother reported her granddaughter knows more about technology than she does, and that she was excited to learn more about using her new hotspot and how to activate child filters, as our Tech Buddy outreach calls informed households about.

Many individuals also reported using the new hardware to **benefit the education of children in the household**. One mother reported her children were homeschooled. Another reported benefitting from the hotspot's use, in particular when the family had to go back and forth to care for a grandma with dementia; having a hotspot enabled the family to have online accessibility as kids completed their homework and assignments remotely. One grandmother discussed how happy she was to have access to the hardware for her grandchildren, who live with her as her dependent.

Numerous individuals reported how **helpful it was to simply have our outreach calls** to check in with them. This was despite our tech buddies' finding that it was challenging to make voice-to-voice contact with households, and that more often than not, households did not pick up outreach calls. Of those that

¹ Graduate Equivalency Degree or General Educational Diploma.



did, however, a significant portion reported how appreciative they were for the routine support and focused attention.

Barriers to Adoption

Tech access can empower vulnerable households, but this is far from automatic. Feedback from program participants on their general concerns around technology prior to and independent of our program demonstrated various invisible and under-acknowledged barriers and challenges exist for vulnerable and historically marginalized households that negatively impact middle-class and professional users less. Studies of the impact of digital technologies on marginalized populations demonstrate that tech is not only a tool for personal progress and development; it can also be an enabler to predatory or toxic forms of data targeting and profiling that disproportionately harm vulnerable populations. [15] Households that enrolled in our program regularly **expressed concerns that data collected from them during the research could harm them**. This concern was most frequently expressed at deployment events, when questions about whether users' browser or keystroke history would be tracked, to questions on if their children's use was also being routinely tracked. We assured participants that this would not be the case, and ensured that specific UIUC staff on site during deployment events would take time to walk households through the IRB protocol for the project, the principles of anonymization, and prioritization of protections and benefits to vulnerable households.

Additionally, households reported to us how maintaining all the added infrastructure for broadband connectivity required for **“standard” technology use by “average” home users requires invisible labor from users from poor and marginalized backgrounds**, who technology designers and standard infrastructures typically do not presuppose and anticipate. Standard designs of consumer computing hardware—that presume such elements as a single user to a computer, stable and reliable (and even high-speed) connections in private environments, and the ability to sustain monthly subscriptions associated with broadband use at a primary place of residence—can thus often re-marginalize users from marginalized background.

Our participants reported on how their routine use included various forms of **mutual aid around technology**: sharing hardware with multiple household members, having to routinely move to a friend's or family member's home or outside locales for reliable connection, routinely relying on friends or family members for troubleshooting and tech support, and rarely relying on standard technology support services to troubleshoot tech issues. One participant reported that when he found his hotspot was not working, he moved himself and his daughter to his parents' house so his daughter could attend school online. Another participant reported that when her laptop stopped working, she borrowed a computer from a friend in order to have access to a device. Another participant reported someone helped her set up the hotspot for use, and she was very thankful for our calls.

Varied households reported **experiencing hostility when trying to access technology support services**, with individuals describing calls where the tech support agent seemed to question the user's own reports of technology failures, speaking down to them, and generally **not providing them with technology support experience that treated them with dignity**. One household head even asked that we stay on the phone with them as they called a T-Mobile to confirm and legitimize their report, fearing they would not be taken seriously. Another participant remarked on his surprise to even receive a call from our Tech Buddy team whose purpose was to check-in and support and, as our Tech Buddy described the call, “help him rather than grill him with questions. He appreciated my time and me calling him.”



Partner organizations mentioned their frustration too with what they observed to be the routine experience of **services not ideally designed for poor and marginalized households**: that obligated confusing paperwork, long waits for service or extra steps and clearances not required of other users, lack of multi-lingual support, and that didn't account for scarcities of "free" or "waiting" time that vulnerable households often have, due to work hours or lack of childcare.

Finally, participants expressed concerns around **internet privacy** and tracking of internet activities as a barrier to their participation in technology programs. One individual specified during a Tech Buddy outreach call that "she didn't want anyone to track her internet activities." At least one individual during a Tech Buddy outreach call expressed a **heightened awareness and sensitivity to being tracked** because of the magnified levels of surveillance and predatory marketing [16] that people of color [17] and the poor [18] have historically experienced. Parents mentioned they were pleased to get tips on child browser protections, with some specifying during outreach calls that they had already activated these features for their child's browsing.

In sum, while technology can be a benefit, **vulnerable households do not always experience a high tradeoff** between owning and having technology access (even when the computer and connectivity are subsidized), the labor required to maintain their use, or the lack of services that are well-tailored to meet the needs of diverse households. Further, the **digital safety** of vulnerable and historically marginalized communities, and not just digital literacy and access, needs to be a high priority in digital equity initiatives.

Improving Adoption + Affordability

The months of outreach to households following their receipt of laptop-hotspot packages allowed the research team to refine an understanding of vulnerable households' concerns. Given the staggered timeline of deployments that PC4P's inventory limitations required, households received between three to six months of outreach calls. All households were scheduled to receive outreach calls once every 2 weeks.

The overwhelming topic households sought to report during these calls was **failure of computing hardware** they had received from the deployment, or **problems renewing their monthly broadband subscription** via Emergency Broadband Benefit (EBB) or Affordable Connectivity Program (ACP), which led to their hotspot no longer functioning. At least half of all our Tech Buddies' working time was spent addressing and attempting to resolve hardware failure. Significantly less time than project partners had initially hoped or anticipated was spent addressing broader concerns around technology use from households. Resolving hardware failures reported by households typically entailed:

- Replacing non-functional hardware (a process that could take more than a month as households had to first report the issue to PC4P, have a box with postage paid shipped to them for them to send back broken hardware, and the wait for new hardware to be shipped to them), or
- Walking households through the EEB/ACP renewal process online to:
 - a. Remind them of the necessity of a monthly renewal
 - b. Helping households to contact PC4P when households forgot the username and password required to sign into the renewal platform, or
 - c. Contact T-Mobile when the hotspot itself was in need of replacement.

Households reported not knowing who to contact for hardware failures, or experiencing long and frustrating wait times when attempting to contact PC4P's own tech support hotline themselves. PC4P





reports that their hotline has a typical wait time of over 30 minutes. The **Tech Buddy Program thus became essential in expediting resolutions** to equipment failures with weekly reporting and follow-up calls, and becoming a direct intermediary between PC4P and households.

Tech Buddies were also essential for more **routine technology troubleshooting** when mundane issues occurred. These included: 1. How to get a laptop out of airplane mode, 2. How to use the refresh button, 3. Saving documents regularly when in progress, 4. How to create digital reminders (for EBB/ACP renewal, for instance) in their calendars, 5. Advice on laptop care/cooling (when the participant noticed the “strange sound” of a cooling fan coming on from inside the laptop), and 6. How to charge a hotspot. They were also helpful for more **individually-tailored support needs**: 1. One participant requested help for a digital literacy exam they were required to take to qualify for a job they were applying for and 2. Another participant asked for advice on graduate programs they were interested in.

Technology in Use

When hardware and renewal issues were not present, households often reported strong benefits to their households—around economic savings, remote learning and education support, and remote work support—during Tech Buddy outreach calls.

One participant, who self-described “as old school in terms of use with technology,” reported to a Tech Buddy that “she was very thankful for our calls. She also said that the program is **saving her over \$100 per month** because of how much she is saving on the internet. During the deployment, she also was able to sign up for a reduced cable program. [She] was very happy and pleased with the program and said, ‘I hope the next person you call is having as good of an experience as me!’”

Another participant expressed she was “very appreciative of [Tech Buddy] phone calls and customer service and said that some people do not go above and beyond when calling to do support and she appreciated that [Tech Buddies] did.” During the call, the participant shared her **goals of going back to school** and looking into Masters and PhD programs but not knowing about scholarships. She shared that she was the first in her family to graduate high school and then attend college and had recently been inspired by friends to return to school. The Tech Buddy reported they “shared some resources for scholarships and also shared personal stories attending graduate school through scholarships and we had a bonding moment. Our conversation unexpectedly went on for about 20 minutes and ended on a positive note and I said I would follow up with her about more resources about scholarships and graduate school.” The Tech Buddy further observed, “I think that all of my previous calls trying to support [this participant] with these tech concerns actually led to a significant rapport for her.”

Another Tech Buddy reported the program helped a parent who was taking community college classes and borrowing a hotspot from the school. Her borrowed hotspot was going to expire, and she wasn’t sure how she would access the internet, so she signed up for the program to get her own hotspot, which she reported helped significantly. As the Tech Buddy reported: “She was trying to figure out how she would get her work done from her class online, so that really helped her out a whole lot with us having the hotspots.”

Varied household heads reported how critical added hardware was to their **households for the education needs of their children**. One participant reported “she was happy to have [working equipment] for her grandchildren who live with her to use.” Another household head reported “how much of a ‘game changer’ the program is for her household,” specifying that she does not and would not





have internet access in her home without the hotspot. She also shared that during COVID's social distancing and remote work period, having the capability to allow her children to access the internet and use the laptop for entertainment in addition to doing homework while she worked has been essential and appreciated. As the Tech Buddy reported: "One of our families, she had two daughters... [We] got really close [through these calls]... and my favorite part was hearing the harmony that it brought to the house to have good internet connection and an extra device... They had a really spotty internet connection before so like—she said the girls got along better and she felt better and it changed her whole household dynamic and I thought it was cool and she repeated this to me every time I talked to her."

One other household head specified she has four children at home and while the older children were issued laptops from school, the youngest were still without a laptop. Another household head reported simply, "I used the laptop and internet every day. My kids also use them for school. I really depend on it." One Vermilion County resident reported that "The greatest benefit of this laptop is providing an individual study tool for each [of her 2 children]" during the remote learning requirements of the pandemic. One daughter uses the laptop for online classes and to learn to read with special software provided by her school; she also studies in a private room that typically has poor signal on their home Wi-Fi connection, but becomes functional as a connected space using the hotspot.

Households also reported supporting work needs as a benefit of our program. One participant reported how much the portability of the hotspot helps her to connect to the internet in her work on a routine basis. "She said she must be very disciplined to renew the EBB every month and she always receives the email and can renew the program in just a couple of minutes." Another Tech Buddy reported a 1-hour call with an "older" participant who asked for help with passing a digital literacy test on Windows and social media applications that she was required to pass by at least 80% in order to qualify for employment. After reviewing questions to prepare for the exam together, the participant later reported that she passed by 86%.

Finally, households reported how appreciative they were to receive tech support calls from Tech Buddies that supported multilingual households (in Spanish and French). As one native French-speaking Tech Buddy reported: "[It] was really fun because they were just surprised to hear someone from the customer service calling them in French... they were just like, 'Hey I wasn't expecting that—I have never gotten a call you know from a service in French'... usually when they get a call it is always in English... getting a customer service in French was just amazing for them so they were just like 'This is so beautiful that you guys take care of people by making sure you call people in French.'"

Other participants were interested in learning more about how to enroll others in our program, or whether additional laptops might be available for other children in the household.

Technology Challenges

The benefits of the program notwithstanding, the overwhelming topic households sought to report during these calls was **failure of computing hardware** they had received from the deployment, or **problems renewing their monthly broadband subscription** via Emergency Broadband Benefit (EBB) or Affordable Connectivity Program (ACP), which lead to their hotspot no longer functioning. Of some 120 distinct clients who discussed hardware issues during their outreach calls, nearly half at 44% reported critical hardware liabilities that made their equipment inoperable for them for extended periods of time. This entailed:

- 
- Non-functional laptops (15 reports in 120 clients) that required replacement
 - Laptops that functioned so slowly as to appear inoperable or discourage use (4 reports in 120 clients)
 - Non-functional hotspots (2 cases in 120 clients)
 - Failure to have EBB/ACP subscriptions renewed (32 cases in 120 clients) due to:
 - a. Not knowing renewal was required
 - b. Errors/unclarity in the renewal process online despite attempting to renew
 - c. Being discouraged from renewing due to a complicated/unclear process
 - d. Forgetting required passwords
 - e. Forgetting to renew/not receiving reminders sent via PC4P

Cases of **non-functional laptops** that required replacement involved one participant who reported that although her children had been using the laptop, it stopped working, so she simply put it away. Several participants reported being issued laptops with the incorrect charger, the replacement of which entails a long process of one or more months that participants experience as tedious and frustrating. This requires a first report of the issue, often 2 weeks after first receiving a call from a Tech Buddy after receiving their device, then having to wait to confirm the error to PC4P, then waiting for a shipment label can be mailed to them to enable them to return the unit without cost, then waiting for a replacement once the hardware had been shipped.

One participant reported that because she was issued a non-working laptop, she ultimately borrowed a computer from a friend in order to have access to a device. A Tech Buddy reported this participant's issue directly to PC4P for her after also informing her of the contact information for PC4P. She reported she "was very appreciative" that the Tech Buddies program called her and was there to help. But two weeks later, in a follow-up Tech Buddy call, she reported that she was still waiting for a shipment label, despite receiving an earlier email from PC4P notifying her that she would receive a return shipping label for the defective laptop. In the period, she reported that her hotspot proceeded to stop working. According to the Tech Buddy assisting her: "She was very frustrated and said that she previously was using an EBB program where she paid for subsidized internet and said that paying for a service is better than not having any service at all. I apologized for her experiences and she was very understanding and I said that I would work to resolve the issue immediately."

Cases of **laptops that functioned so slowly as to be a concern** or discourage future use included one participant who reported that reported the laptop she was issued was simply "too old and too slow to use," at all, and another who reported that his "laptop ran too slow to be operational" for his needs, and aimed to contact PC4P to request a replacement.

Cases of **non-functional hotspots** included one participant who reported her hotspot device suddenly stopped working, despite her proper renewal of her EBB/ACP subscription. After contacting T-Mobile directly and going through the trouble shooting options with them, the device continued to fail. She reported that T-Mobile confirmed it would send a replacement device for her.

Cases of **failing hotspots because of a failure to have EBB/ACP subscriptions renewed** were the largest category of hardware error reporting, and involved varied cases, many of them exceeding normal participant calls as Tech Buddies walked participants through troubleshooting options. In one Tech Buddy call that lasted 43 minutes, a participant who identified as elderly and not tech-savvy reported she had not previously updated her hotspot and was unsure of how to do so. The Tech Buddy shared written instructions for renewal with her, reviewed the directions with her on an initial call, and found they had



to continue to walk the participant through the same steps again each month. Although the participant had instructions provided to her on how to renew the EBB via her laptop, when she used her phone for these steps, the renewal interface looked much different.

Another participant reported to a Tech Buddy that she was not aware her hotspot required a monthly renewal for an EBB subscription and reported that she thought she had to pay for the internet. The Tech Buddy documented that they “walked her through the process of how to renew the subscription and it seems like she knows how to do it.”

In another case, a participant worked with a Tech Buddy on a call to attempt to renew the hotspot. According to the Tech Buddy, however, “we both arrived at a place of frustration because after logging in correctly, she still could not find the appropriate buttons to click that would renew her subscription.”

Another participant, who was not a native English speaker, reported her frustration with a slow hot spot. According to the Tech Buddy, “We also talked about how to renew the EBB subscription. She told me those steps are too much work because she does not know how to navigate through the website due to the language barrier.”

In a 30-minute call that a Tech Buddy reported was one of “the longest calls I’ve had,” the call was spent trying to help the participant renew their internet: “In the midst of that, he realized he didn’t have an account made or had never logged into the account so I guided him through that as well.” In various other cases, participants forgot or were not expecting to renew subscriptions, and needed to be reminded of their password and user account, or update contact information to ensure the monthly reminders sent by PC4P are received by email or text.

Households’ frustration with the program’s hardware failures and long wait times required to resolve or replace non-functional hardware also **resulted in their returning all equipment and unsubscribing from the program** in at least 3 of the 120 contact calls in which hardware issues were directly raised. In one case, a participant asked to be taken out of the program because the “hassle is not worth it.” This followed attempts to replace a laptop by PC4P, but a shipment label never being received, and a hotspot device also not holding a charge. In another case, a participant reported dropping the laptop off at a partner organization’s office after PC4P had “called her to ask about her address to drop off a replacement laptop, but the laptop never arrived.” As the household head surmised following the more than month-long exchange: “I don't need it anymore. There are a lot of hassles to get this laptop.” Finally, another participant returned all of his equipment, including the hotspot, after his frustrations with the renewal process.

IV. DIGITAL DIVIDE ELIMINATION PLAN

Employ Best Practice Utilization – Community Organizations as Expert Resources

Community organizations based across state locales offer expertise in the diverse forms of vulnerability that vulnerable households in their communities face—whether around class, race, age, ethnicity, language, etc. The trust many households have built with community partners is a further asset for Connected Illinois’ expansion.

The community partners who were part of this research collaboration demonstrated remarkable leadership and insight throughout the stages of this project. Moreover, their guidance and input was





essential in developing key frameworks—around notions of digital dignity, technological bias, and poverty stigma—that allowed us to center and better respond to the needs of vulnerable households.

Cunningham Township’s Jessica Black stressed to us that many of the Champaign County residents she works with see technology as a “barrier,” not merely because they “could never afford \$70 a month for internet,” but because of being made to “feel” that “it’s just not the space that they belong in. Like *they* [aren’t supposed to] get technology ... [or] don't deserve that because they don't have a high enough income ... [for] products [that] are so ridiculously unaffordable.” She further stressed the “stigmatization” and re-marginalization that low-income populations are made to feel from what she called “elitist” products designs—even ones that are popularly marketed. “It’s like this intentional barrier, a very closed space, like very exclusive. It’s elitist [when] ... phones are thousands of dollars [and] there’s ... shame [to have] a crappy phone. [T]here’s a stigmatization.”

Kimberly David, Associate Director of Project Success of Vermilion County, stressed a parallel phenomena with organizations that serve low-income households, underscoring how technology can be made into a “scary word” for many organizations, so much so that some organizations can be discouraged from “committing” to initiatives involving technologies.

Such insights helped the team to continuously evolve responses to attend to the diverse needs and forms of vulnerability experienced by participant populations across distinct deployment sites.

Trent Eisenbarth, the technology manager for the Georgetown-Ridge Farm School district in Vermilion County, underscored the necessity of creating “safe” and non-judgmental spaces for people—whether fellow colleagues and school teachers or local families—when developing technology programs that genuinely engage and respond to local needs. As he stated, for his role as a technology steward in the district: “Relationships are the most important thing ... It’s about coming in and listening and building those relationships [and] not about coming in and changing everything ... [Y]ou need to be the listener and actively listen and work with individuals and give them options ... and then working side by side with them in ... [P]eople [should be] willing to come in and talk to you and not be not feel unsafe ... [Y]ou got to make it a safe place.” Stephanie Burnett of the Housing Authority of Champaign County noted that the research team’s adoption of a similar inclusive and “iterative planning” model allowed genuine “value” and accountability in research to be generated for organizations and the households they serve.

Local community organization leaders further sensitized the team to the differential forms of vulnerability distinct communities across the state experience, and underscored the complexity of how households experience poverty and historic forms of marginalization. Neither of which can be understood as monolithic.

Julie Pryde, the administrator of Champaign Urbana Public Health District, specified how developing an accessible infrastructure that was able to serve diverse forms of vulnerable communities in the County required intentional design and commitment. As she said: “I’m the most proud of is that we have made our agency accessible to way more people, people that we are supposed to be here for ... A lot of people that had no idea who we were ... We had to reach out to all kinds of different communities [and] actually [work to] get into the different communities—[because] you know there’s not just one ... Spanish speaking community here, there’s not just one LGBT community, or any type of community ... [You need to] work with all levels and always always always try to push social justice issues to the front.” HACC’s Stephanie Burnett added that in Champaign County, the shifting needs and profiles of the





households she serves led her to regularly deploy her own surveys to develop programs. As she reported, according to the 2020 data collected, “50% of our clients had a high school diploma [with] single mothers as our largest service population ... A lot of them wanted to go back and get their diploma or go to college ... [But] they say the reason that they don't [is that] they have children, so they don't have the [extra] time or the funding.”

Georgetown-Ridge Farm’s Trent Eisenbarth mentioned that an often under-acknowledged challenge he faces in developing technology programs is the high rate of family mobility he’s observed in districts like his. “Families are switching between districts and then coming back ... especially in a low income district like ours. ... There are a lot of families that are rental families so they're running to their homes and then to jobs [and] we don't have a lot of ... high paying jobs [locally], so they're basically moving wherever they can find a job from place to place.”

The collaborative work and research process we developed with community partners and civic organizations also underscores how much research capacity exists within diverse local organizations across the state. It likewise demonstrates the rich opportunity that exists for undertaking collaborative projects around data collection, assessment and interpretation to meet shared organizational and civic needs. Project Success’s Kimberly David spoke at length at how much data tracking on households, families and individual students had become part of her organization’s work: “We track a lot of data,” she stated bluntly, from student, parent and teacher surveys, to attendance and graduate rates, test scores, program participation rates and support available to individual student. Rather than use such data to only create aggregate “average” profiles of the district, however, Kimberly specified that she instead worked to tailor support programs for individual students. As she put it: “There were several students that some people are considering the ‘bad’ students. And secretaries were talking to me about this kid we had in our program and they [would ask], ‘How he is in your program every day and he's so good, [when] during the school day he's always getting in trouble ... [Project Success] is a smaller environment and we try very hard to pick [staff] that are going to be able to have those bonds and those relationships with kids. I mean you have to be relatable to them.”

CUPHD’s Julie Pryde added that her agency’s priorities to undertake research also resulted in CU building a healthy ecology of knowledge partners and relationships around them. As she put it: “I'm proud that our agency integrates with and works well, plays well, with others ... and Champaign-Urbana has always been a wonderful place to work, because we've been able to partner with the university all the time... In my job, I [have been able to] just call the university and speak to a virologist or, or an immunologist or an entomologist or veterinarian ... And so a lot of my job is really a lot of communication ... and taking stuff that's complicated and scary and and getting it out there so that people can understand it.”

Julie Pryde also remarks: “Public health is a holistic approach to look at the person in their environment, not just the person, not just the situation. Activism actually plays a real role in the kinds of solutions that we're able to develop, and [when] we are successful, it's because of social justice ... The purpose of public health is social justice; its philosophical base is social justice and its scientific basis is epidemiology.

Improving Adoption + Affordability – Immediate Recommendations

Poor and marginalized communities’ experience of technology is routinely shaped by a form of **Technological Bias/Poverty Stigma that deprives them of an experience of dignity**, sense of agency,





respect, and support when relevant. Receiving non-functional hardware, experiencing hostility or condescension when trouble shooting with a support agent, or encountering tech programs that are not designed to anticipate and accommodate basic needs of vulnerable communities (need for fast and conveniently located support services, due to issues around child care, transportation, or work hours) further alienates communities from technological use, or incentivizes them to resort to the simplest and most convenient to access commercial solutions for tech users which may not be the most ideal for vulnerable households in the longer term. To equitably Connect Illinois, broadband initiatives must prioritize dignity in technology use and access for users of diverse backgrounds, and not merely those who fit the profile of middle-class or professionally-oriented users.

Our findings following our year-long pilot suggest 5 primary recommendations relevant for the immediate, near-term expansion of the Connect Illinois initiative.

1. Scaling broadband connectivity will need **sustained support/outreach** tailored for vulnerable households' technology use to complement any scaled-out hardware distribution. This will especially be the case if the distribution of refurbished hardware is anticipated, as the functionality of hardware cannot be assumed. Even when brand new hardware was supplied, our team found that households required direct calls to support new services they entailed (such as renewal for monthly broadband hotspots). **Households will need accountability in quality control for any scaled distribution.**
2. The experience of **Technological Bias and poverty Stigma alienates many vulnerable households and the organizations that serve them** by presuming that such entities are “broken” and need to be “fixed” by technology, and by projecting middle-class and professional consumers and organizations as the “ideal” or standard users of technology. Technological bias discounts other forms of digital literacy and labor that exist in poor and vulnerable communities, and that’s often invested to overcome civic disconnection. Beyond addressing individual barriers around technological literacy, adoption, and inclusion, future programs have an opportunity to foster a culture of **“digital life and dignity” and Design for Dignity** that accounts for the unique technological experiences and literacies of marginalized households and service organizations.
3. Despite technological biases that lead local social service and community organizations to often be overlooked as innovators in digital programing, **varied local and county-level community organizations have rich expertise** and capacity that are centrally relevant for bridging gaps in digital connectivity for vulnerable households in Illinois. Expanding alongside conventionally-defined anchor institutions—such as public schools and libraries—and recognizing varied local organizations’ added expertise in supporting diverse kinds of vulnerable households across the state offer concrete potentials in achieving Accountable Scale.
4. Our research confirms existing literature that demonstrates how **technology can be as much a liability or source of harm** as a resource for social agency when it comes to vulnerable populations and local organizations that serve them. Organizations expressed the need for more “safe” spaces to address technology without judgment, while households expressed concerns for predatory and malicious forms of digital tracking. To connect Illinois equitably, more can be done to aim to strengthen protections against pernicious forms of predatory digital marketing and profiling practices that target poor and vulnerable populations. **Digital Safety, not just literacy and access, needs to be high digital priorities** for a Connected Illinois. Community partner organizations based across state locales offer expertise in the diverse forms of vulnerability that vulnerable households in their communities face—whether around class, race, age, ethnicity,





language, etc. The trust many households have built with community partners is an asset for a Connected Illinois.

5. **Poverty rates**, other indicators of household vulnerability (including % of female-headed households, % of household heads with less than a high school education, renter status) and rate of change are advised to be **added to the Digital Indicator Dashboard** for digital equity and the interests of the most vulnerable and historically marginalized households to be centered in Illinois' broadband efforts. The EDGE Dashboard of the National Center for Education Statistics (see <https://nces.ed.gov/Programs/Edge/ACSDashboard/1719660> as an example) provides a model for this. Access to digital devices and broadband services are not the only key drivers or indicators of digital and civic connectivity, particularly for marginalized populations. Tracking the rate of change of other related factors that are tailored to the needs and concerns of vulnerable populations and the organizations that serve them will be critical for developing a genuinely inclusive and equitable Connected Illinois.

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CITATIONS

- [1] Office of Broadband Department of Commerce and Economic Opportunity. Connect Illinois Broadband Strategic Plan. February 2020. See: <https://www2.illinois.gov/dceo/ConnectIllinois/Documents/Broadband%20Strategic%20Plan%202.5.20.pdf>
- [2] The Emergency Broadband Benefit (EBB) Program, now renamed as The Affordable Connectivity Program (ACP), is an FCC benefit program that helps ensure that households can afford the broadband they need for work, school, healthcare and more. The benefit provides a discount of up to \$30 per month toward internet service for eligible households and up to \$75 per month for households on qualifying Tribal lands. Eligible households can also receive a one-time discount of up to \$100 to purchase a laptop, desktop computer, or tablet from participating providers if they contribute more than \$10 and less than \$50 toward the purchase price. The Affordable Connectivity Program is limited to one monthly service discount and one device discount per household. See: <https://www.fcc.gov/acp>
- [3] For issues related to non-functional hotspot, participants were directed to call T-mobile, as they managed the hotspot devices.
- [4] See: <https://datausa.io/profile/geo/hoopeston-il>
- [5] See: <https://nces.ed.gov/Programs/Edge/ACSDashboard/1719660>
- [6] See: <https://www.illinoisreportcard.com/District.aspx?districtId=54092011026>
- [7] See: <https://datausa.io/profile/geo/georgetown-il> and <https://datausa.io/profile/geo/ridge-farm-il>
- [8] See: <https://nces.ed.gov/Programs/Edge/ACSDashboard/1700092>
- [9] See: <https://www.illinoisreportcard.com/District.aspx?districtId=54092004026>
- [10] See: <https://datausa.io/profile/geo/champaign-urbana-il>
- [11] See: <https://nces.ed.gov/Programs/Edge/ACSDashboard/1739960>
- [12] See: <https://nces.ed.gov/Programs/Edge/ACSDashboard/1709420>
- [13] See: <https://www.illinoisreportcard.com/District.aspx?districtId=09010004026>
- [14] See: <https://www.illinoisreportcard.com/District.aspx?districtId=09010116022>
- [15] See Benjamin, Ruha. *Race after Technology: Abolitionist Tools for the New Jim Code*. Medford, MA: Polity Press, 2019; Greene, Daniel. 2021. *The Promise of Access: Technology, Inequality, and the Political Economy of Hope*. Cambridge, MA: MIT Press; Noble, Safiya. *Algorithms of Oppression: How Search Engines Enforce Racism*. New York: NYU Press, 2018; O’Neill, Cathy. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Crown, 2016; Zuboff, Shoshana. 2019. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: Public Affairs.
- [16] McMillam Cottam, Tressie. *Lower Ed: The Troubling Rise of For-Profit Colleges*. New York: The New Press. 2017.
- [17] See Browne, Simone. *Dark Matters: On the Surveillance of Blackness*. Durham, NC: Duke University Press, 2015.
- [18] See: Eubanks, Virginia. *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. New York: Picador. 2019.



APPENDIX

County			
	Champaign	Vermilion	Overall
Gender			
Female	230 (75.9%)	138 (84.7%)	368 (79.0%)
Male	58 (19.1%)	20 (12.3%)	78 (16.7%)
Did not answer	15 (5.0%)	5 (3.0%)	20 (4.3%)
Grand Total	303 (100.0%)	163 (100.0%)	466 (100.0%)

Table A.1: Gender of participants.

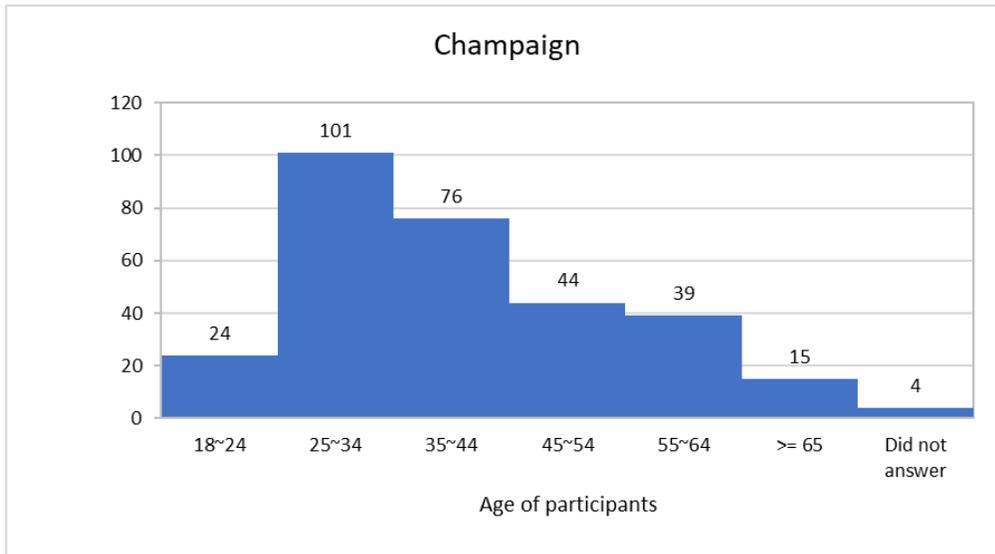


Figure A.1: Age of participants in Champaign.

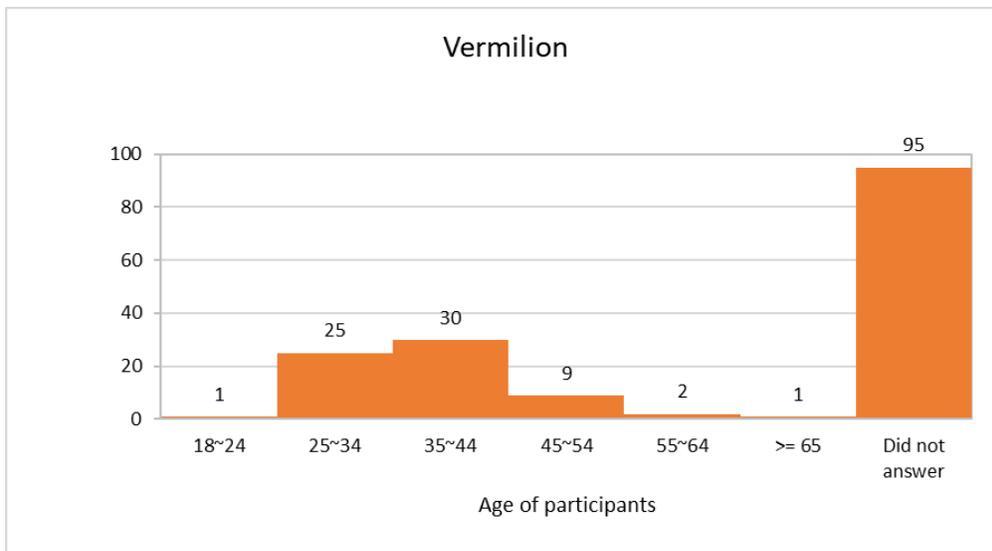


Figure A.2: Age of participants in Vermilion.



County			
	Champaign	Vermilion	Overall
Employment Status			
Employed	146 (48.2%)	80 (49.1%)	226 (48.5%)
Unemployed	142 (46.8%)	59 (36.2%)	201 (43.1%)
Did not answer	15 (5.0%)	24 (14.7%)	39 (8.4%)
Grand Total	303 (100.0%)	163 (100.0%)	466 (100.0%)

Table A.2: Employment status of participants.

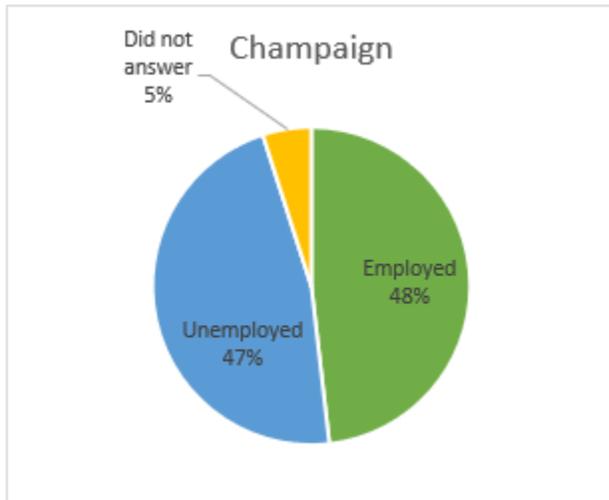


Figure A.3: Employment status of participants in Champaign.

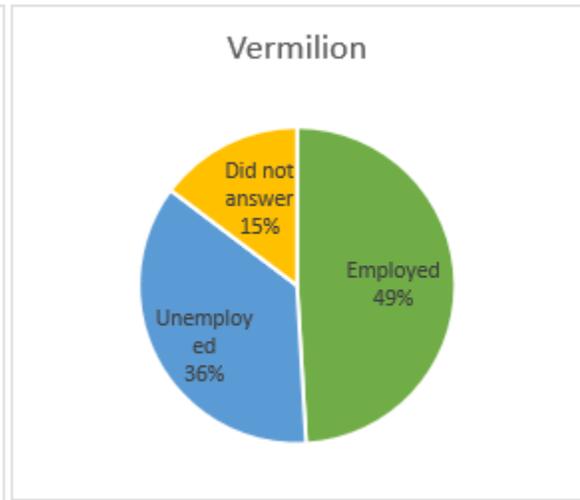


Figure A.4: Employment status of participants in Vermilion.

