Center for Technology in Government

Assessing Mobile Technologies in Child Protective Services

Washington County Department of Social Services District Profile

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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is an initiative to assess the use of mobile technologies in child protective services work in New York State. The project, a collaborative effort among the NYS Office of Children and Family Services (OCFS), 23 NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG), focused on two core questions – how is mobile technology used in the work setting and did the technology impact the work itself?

In this project, OCFS was responsible for the selection, procurement, and deployment of mobile technologies. The County DSS was also responsible for the deployment of mobile technologies, in addition to the coordination and procurement of wireless connectivity, training, and the selection of Child Protective Services (CPS) staff to participate in the demonstration. CTG was responsible for the independent assessment of the use of the technology.

The *Demonstration Project in 23 Local Social Service Districts* produced profiles for each of the participating districts as well as a summary report. It may be useful to read through the summary report before reading the local district profile as the summary report explains the variability in the CPS environment across the state as well as describes the many polices and practices developed and implemented by districts. The report is available at: http://www.ctg.albany.edu/publications/reports/demonstration2008.

This profile presents findings for the Washington County DSS. Findings are based on data collected through online surveys, teleconferences, district questionnaires, and analysis of CONNECTIONS data (data collection methodology and timeframe can be found in Appendix A). The field test lasted 55 days from 11/14/07- 1/9/08.

District Deployment

Washington County DSS has 13 CPS staff responsible for child protective services. Washington County is a rural, agricultural area in Northeast New York and has approximately 63,000 residents. The Washington County DSS participated in the demonstration project to learn if mobile technologies increase caseworkers' performance by creating more opportunities to directly access CONNECTIONS from court and other remote areas. The county is geographically dispersed and, as a result, caseworkers spend a large amount of time traveling to and from the office. The hope is that mobile technologies will alleviate the need to travel to and from the office as frequently to enter and access information.

The Washington County DSS deployed 12 Dell Latitude D620 laptops to 12 CPS caseworkers between the dates of 11/15/07 and 11/28/07 (see Appendix B for device specifications). Each person received their own laptop and docking stations with keyboards and monitors. External Verizon broadband cards were ordered, but not received during the pilot period. Therefore, the wireless connectivity options were public networks within the area and any home Internet Service Provider (ISP) access. Regardless of the network connections used, all access to the State network

was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network. In addition, PointSec encryption software was installed on each device before deployment.

Formal training sessions were not conducted, however, if caseworkers had any questions, they were told to ask the Computer Coordinator. Caseworkers were advised to be mindful of the security issues related to data stored on the laptops, as well as the proper precautions for storing their laptops.

Finally, no policies were changed to support the introduction of mobile technologies in the pre-pilot or pilot period.

Characteristics of Respondents

A total of 12 CPS caseworkers participated in this study: nine took the baseline survey (response rate 75%); six took the post-pilot survey (response rate 50%); and five took both the baseline and post-pilot surveys (response rate 42%).

The length of experience in CPS work, amount of overtime accrued weekly, the number of court days and estimated court waiting time are all important to understanding the overall context of the work environment. The Washington County DSS respondents[1] were moderately experienced in CPS field work, with an average of 4.2 years of experience; 56% reported CPS experience of three years or less. Respondents were working less overtime during the pilot period. The percentage of respondents reporting overtime of one hour or less in a week went from 40% in the pre-pilot period to 80% in the pilot period. As a result, the average overtime hours dramatically decreased from 3.1 hours in the pre-pilot period to 0.8 hours in the pilot period. Sixty-seven percent of respondents reported a typical court waiting time of 1.5 hours or less and 50% reported spending four or fewer days in court per month.

Mobility

The laptops provided caseworkers opportunities to work outside the office environment in new ways. This section reports on how the participants used those opportunities in terms of the type of work done, locations, and issues that influence use. Survey questions inquired about use at home, in court houses, and in the field. Issue questions focused on using the laptop outside of the office, such as: (1) difficulty establishing connection, (2) loss of connection, (3) the speed of connection, (4) level of privacy (or personal work space and ability to ensure confidentiality of information), (5) personal safety, and (6) amount of time available to use the laptop. How information was accessed and entered by participants was also examined.

[1] Participant(s) refers to those CPS caseworkers who tested the technology. Respondent(s) refers to the total number of participants who answered specific questions in either the baseline or post-pilot surveys or participated in the district teleconferences.

Use

Washington County DSS respondents reported using the laptop during normal work hours, after work hours, on-call, and when working overtime. Washington County DSS desktops were removed and docking stations installed. Therefore, the full range of CPS-related work was completed using the laptops. The laptop was used in case investigation and interventions, documentation and reporting, and court-related activities. Case documentation was the most frequent use, including inputting and updating notes, and word processing. Very few Washingon County DSS participants responded to the questions regarding specific uses of the laptop. None of the respondents reported using the laptop to access various forms of information from government Web sites. Three respondents accessed email at least once a day or more, while one respondent reported using the laptop at least once a day or more to access map directions.

The extent to which caseworkers can access information while out of the office has a big influence on what kinds of mobile work are possible. Again, very few participants responded to the survey questions regarding accessing information. However, of those who did, laptop use slightly decreased the frequency of respondents returning to the office to access information. Only two respondents reported returning to the office two or more times a week to access case information during the test period, compared to four in the pre-pilot period.

Washington County DSS did not have district-provided external broadband cards during the pilot period. A few did use their personal Internet Service Providers (ISPs) while at home. Most stated the biggest problem was not having wireless connection. There was not enough information in the open-ended survey questions or the teleconference interviews to determine specific types of connectivity problems. However, a few open-ended comments revealed some participants were having difficulty with the docking stations. One recounted, "When reconnecting the laptop after using it in the field, there have been some difficulties with the display properties (e.g., size of screen icons) before rebooting several times."

Participants were also asked about ease of logging-on to the device. Overall, 67% said it was "Easy" to "Extremely easy," 33% rated it as "Neither difficult nor Easy," and none of the respondents rated the log-on process as "Difficult" or "Extremely Difficult."

Location

Table 1 below details the percentage of respondents using the laptop at different locations, as well as the average length of time the laptop was used. Aside from in the office, one respondent reported using the laptop at home for less than one-half hour per week. Two each reported using the laptop in the field and at court for an average of about a half-hour per week.

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	Average length of use per week
Field	33% (2)	0.50 Hours
Court	33% (2)	0.50 Hours
Home	17% (1)	< .50 Hours
Do not use at all	17% (1)	--

** Based on survey respondents who took the post survey n=6. Total number of testers n=12.*

In the open-ended survey comments and during the teleconference, respondents stated the importance of being connected and some emphasized that having constant connectivity would enhance the benefits of using a laptop. One respondent stated, "It is convienent. You can utilize your time better. While waiting for court or for a co-worker to complete a visit, I can be writing on the laptop. The only downfall is that in Washington County we do not have access to CONNECTIONS so all we can use the laptops for is [Microsoft] Word. That is still a help, but not nearly as much as it will be in the future." Another said, "I was really excited about receiving the laptop, but without access to CONNECTIONS it isn't very useful in the field. It would be also helpful to access maps for driving directions and to gather resources and information for our clients."

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work in many districts. However, Washington County DSS respondents spend on average five days a month at court and wait about 1.5 hours during a court visit. Caseworkers may not be using the laptop in the court house because of other competing interests that may limit the amount and type of work they can do. There was not enough information provided through open-ended comments to understand why court use was so low.

Caseworkers could work from home with the laptop for overtime reasons and accrue 'flex time', if they received prior approval. Several respondents reported that using the laptop while on-call and at home has been beneficial.

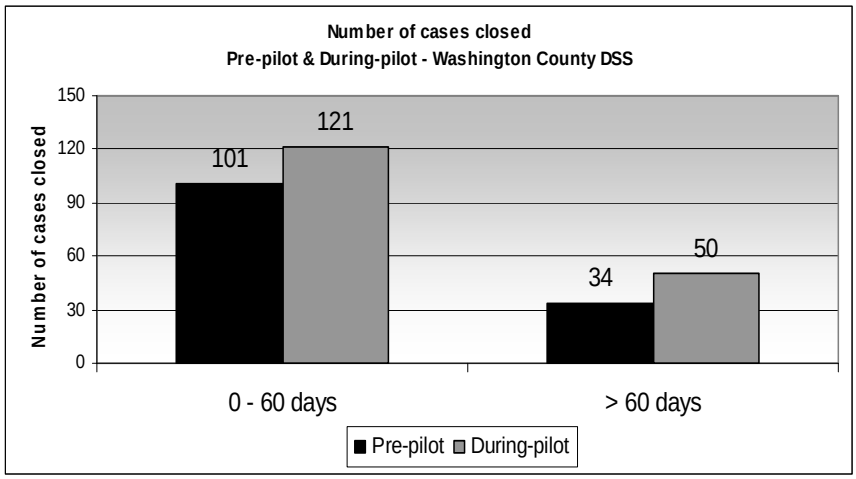
Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Washington County DSS: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess any changes in efficiency and productivity. Figure 1 below shows the rate of timely closing of cases (in 60 days or less) increased from the pre-pilot period (101) to the pilot period (121). The number of cases closed in over 60 days increased as well, from 34 in the pre-pilot period to 50 during the pilot. This is an increase in productivity during the pilot period; the total number of cases closed increased during the pilot period, from 135 in the pre-pilot to 171 during the pilot – a 26% increase. It is important to note that in this county the total number of cases available to be worked on[2] increased slightly from 316 in the pre-pilot period to 328 in the pilot period – a 3.8% increase.

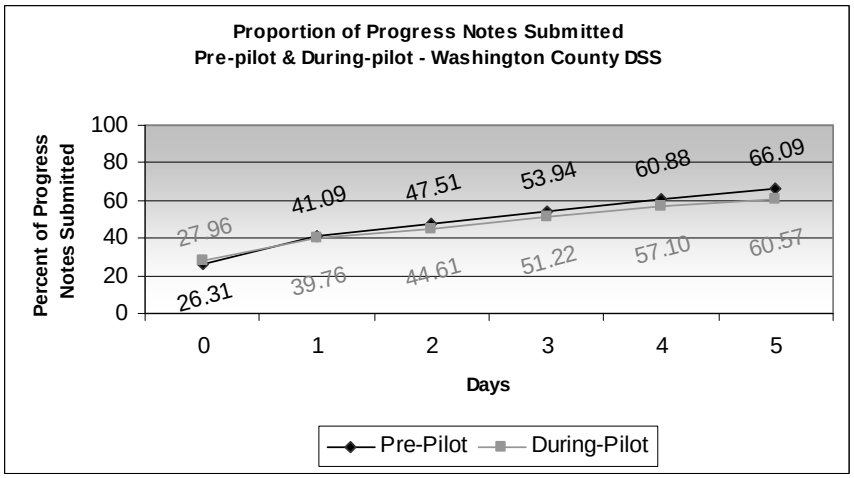
[2] The number of cases available to be worked on is the total of investigation stages that were open at any time during each of the pre-or pilot periods.

Figure 1 - Number of Washington County DSS Cases Closed Pre-Pilot and During Pilot



Another indicator of timeliness is elapsed time – or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During both the pre-pilot and pilot period, the majority of all progress notes were entered by the third day after the event. By the fifth day following the event, 66% of the notes were entered for the pre-pilot period, and 61% for the pilot period. Overall, there is very little difference between the timeliness of note entry across the two periods. By this measure, timeliness was essentially unchanged during the pilot, but remained high overall.

Figure 2 - Proportion of Progress Notes Entered by Days Following Event



The use of new technology also requires a period of adjustment. In Washington County DSS, a total of 12 laptop with docking stations were deployed as desktop replacements. No external broadband access cards were deployed. This kind of equipment change can require extra effort in the short run and require a period of adjustment. Some additional adjustments to these deployment and work processes may be necessary to take full advantage of the laptops for use in the field. Adjusting to these issues can be part of the learning process in adapting to the new technologies.

Participants were asked to what extent using a laptop made a difference in CPS work compared to not having the laptop. Five different areas were examined: (1) timeliness of documentation, (2) ability to do work in court, (3) ability to access case information, (4) communication with supervisors, and (5) service to clients. Respondents were asked to rate the difference on a five-point scale where 1 = "Much worse," 3 = "About the same," and 5 = "Much better."

The Washington County DSS respondents reported some positive impacts on their work resulting from laptop use, shown in Table 2 below. For documentation, two respondents reported improvements in timeliness. Reported ability to work in court improved for four respondents. No positive impacts were reported for ability to communicate with supervisors or service to clients. There were also no reported negative impacts indicated by respondents.

Table 2 - Perceived Change Timeliness and Work Impacts – Washington County DSS

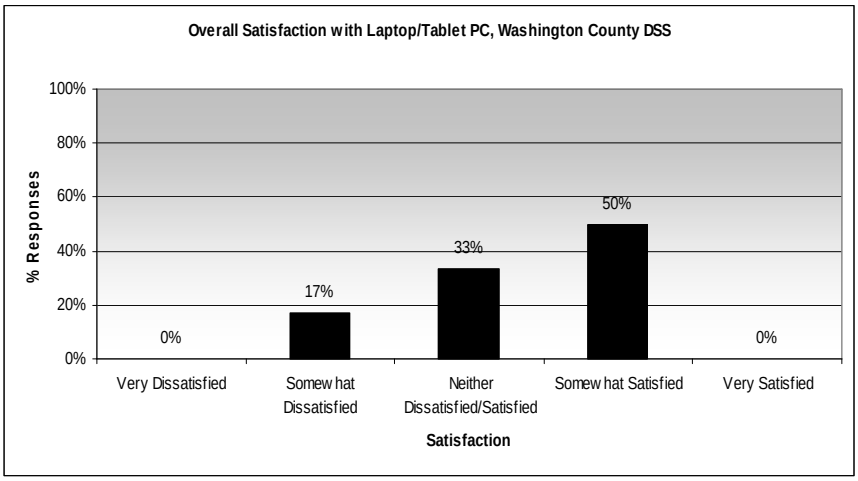
	Much worse (n)	Somewhat worse (n)	About the same (n)	Somewhat better (n)	Much better (n)
Timeliness of documentation	0%(0)	0%(0)	67%(4)	33%(2)	0%(0)
Ability to do work in court	0%(0)	0%(0)	33%(2)	50%(3)	17%(1)
Ability to access case information	0%(0)	0%(0)	100%(6)	0%(0)	0%(0)
Communication with supervisors	0%(0)	0%(0)	100%(6)	0%(0)	0%(0)
Service to clients	0%(0)	0%(0)	100%(6)	0%(0)	0%(0)

The reported positive impacts on timeliness and other work activities is somewhat consistent with the timeliness of documentation results obtained from the central database. Respondents may be noticing the positive impacts related more to the increased rate of case closings and the ability to keep up with progress note entry.

Satisfaction

The overall level of satisfaction with the laptops was moderate. Figure 3 below shows that 50% of respondents expressed being "Somewhat satisfied," compared to 17% being "Somewhat dissatisfied." Additionally, 33% indicated that they were "Neither dissatisfied/Satisfied."

Figure 3 - Overall User Satisfaction with the Laptops



** Based on survey respondents who took the post survey n = 6. Total number of testers n = 12.*

The lack of a district-provided external broadband cards was the most frequently issue, as well as the learning curve associated with using the new laptops in the field. It could also be the case that having a laptop produced higher expectations for use at court, at home, and in the field; expectations that were not wholly met. One respondent reported,

> We do not have access to Connection with our laptops yet. We are still waiting for our cards. Until that happens, the effectiveness of having a laptop is very limited. I do believe it will be extremely beneficial once we get the cards and can use the laptops in the field.

The role of laptop use in reducing job-related stress received mixed results from respondents. Fifty-percent indicated that it did reduce stress, while the other half felt as though laptops did not contribute to lower job-related stress. Those who reported a reduction in stress attributed this to increased flexibility in the ability to work outside of the office and increased access to information. Again, the lack of a district-provided external broadband cards was the main reason respondents felt that having a laptop did not contribute to lower job-related stress.

Overall, 83% of respondents would recommend the use of laptops to colleagues, however, most said this was contingent upon receiving wireless connectivity.

APPENDIX A – Methodology, Data Collection, and Timeline

There were three streams of data collection throughout the project. Two online surveys, as well as data from the central OCFS CONNECTIONS database, provided quantitative data to assess various productivity, satisfaction, and timeliness measures. In addition, the different uses and locations of use were documented. This data was supplemented by qualitative data gathered from ten district teleconferences. Each method is described in greater detail below.

Online Surveys

Two separate surveys, a baseline and post-pilot survey, were administered. The surveys collected data about respondents' perceptions and attitudes using the laptop or tablet PC within several areas of CPS work – work practice, work time, demographic information, mobility/location, skill and stress levels, technology acceptance, training, and use of technology. The surveys were developed over a period of a several months and a pre-survey was tested. The surveys were modified based on the pilot survey results and the project team's knowledge and understanding of CPS work. The online surveys were developed and administered through commercial software (Survey Monkey).

The names, email addresses, and titles of participating CPS caseworkers were collected from each of the participating County DSS. Personalized survey invitations were emailed to participants. The baseline survey was administered prior the deployment of laptops or tablet PCs to participating caseworkers. The baseline survey was open for three weeks starting on 9/21/07 and ending on 10/5/07.

The post-pilot survey was administered three months following the deployment of laptops. The survey was open for one week; starting on 1/3/08 and ending on 1/10/08. Data was collected from three new thematic categories: the impact of laptops on caseworkers' daily activities, mobility-related issues, and technical difficulties experienced during the pilot. Data quality checks were performed and the data was recoded as needed.

Teleconferences

During the week of December 10 – 14, 2007, CTG held separate teleconferences with project participants in 10 County DSS in NYS to learn more about how they were using the laptops and tablets deployed for CPS work. Participating County DSS were chosen by CTG and the NYS OCFS liaisons. Criteria for choosing the districts included (1) how long they had the technologies in use, and (2) districts that provided a full range of geographical representation across the state, in terms of rural and urban settings and overall size.

Each district participated in one teleconference with CTG interviewers. All participants were given sample questions before the teleconferences that dealt with deployment, connectivity, use and location, changes in work, issues/concerns, policy implications, and overall benefits of laptop use. The following table shows the districts interviewed and the number of participants in each call.

Table 3 – Teleconference time and participant information

County DSS	Date of Teleconference Interview	# of Caseworkers	#of Supervisors	Other(s) Participating
Albany	12/10/07	6	0	LAN Administrator
Chemung	12/1107	6	1	-
Clinton	12/10/07	7	1	-
Nassau	12/13/07	13	0	Assistant Director
Niagara	12/10/07	2	2	Staff Development Coordinator; IT Representative
Onondaga	12/11/07	8	0	IT Representative
Orleans	12/11/07	3	0	LAN Administrator
Putnam	12/13/07	3	1	-
Ulster	12/15/07	4	3	-
Washington	12/12/07	4	0	-

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using data from the central database. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. The information contained within each of these records included: Stage ID, Person ID, time-related information about the *investigation stage* (Intake Start Date, Investigation Stage Start Date, Investigation Stage End Date); *progress notes information* (Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, Progress Notes Purposes); *safety assessments* (Safety Submit Date, Safety Approval Date) logged by caseworkers in each County DSS. The CONNECTIONS data was pulled by the date a progress note was entered by participants during two timeframes, the pre- and during-pilot phases (09/20/07 – 11/14/07 and 11/15/07 – 01/09/08 respectively). A total of 4,582 progress note entries and 463 unique investigation stages made up the dataset from 14 caseworkers.

Appendix B – Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS.

Laptop

Latitude D620, Intel Core 2 Duo T5500, 1.66GHz, 667Mhz, 2ML2 Cache, Dual Core, 14.1 inch Wide Screen WXGA LCD for Latitude D620, 1.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, Intel Integrated Graphics Media Accelerator 950 Latitude D620, 60GB Hard Drive 9.5MM, 5400RPMfor Dell Latitude DX20, Standard Touchpad for LatitudeD620, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Professional, SP2 with media, for Latitude English, Factory Installed, Dell Black USB 2 Button Optical Mouse with Scroll for Latitude.

Tablet

HP Compaq tc4400 Tablet PC 26 EN376AV Product - HP Compaq tc4400 Tablet PC, Operating system - Genuine Windows® Vista Business, VISTA label - Microsoft® Vista Ready Label, Form Ultramobile form factor, Intel® Core™2 Duo Processor T5600, (1.83GHz, 2MB cache, 667MHz FSB), Intel® Centrino® Duo Label, 1024MB (667MHz, DDRII memory, 1 DIMM), 80GB Hard drive (5400 rpm), 12.1-inch TFT XGA WVA Display with Fingerprint Reader, 56K Modem, 10/100/1000 NIC, 6-cell high capacity Lithium Ion internal battery, Digital Eraser Pen with tether and clip, Keyboard with Enhanced Dual Pointing, Intel® Pro Wireless 3945ABG, security - Embedded TPM 1.2 security chip, and three year worldwide limited warranty.

Appendix C – The Center for Technology in Government (CTG)

The Center for Technology in Government (CTG) is an applied research center committed to improving government and public services through policy, management, and technology innovation. Through its program of partnership, research, and innovation, the Center provides government organizations and individuals with an array of tools and resources designed to support the development of a digital government. The goal of every CTG partnership project is to build knowledge that improves the way government works. CTG projects have helped state, local, and federal agencies increase productivity and coordination, reduce costs, enhance quality, and deliver better services to citizens and businesses. The results generated by each project add to a growing knowledge base designed to support the work of both government professionals and academic researchers. CTG receives funding through the University at Albany's state allocation, as well through grants and awards from foundations and federal agencies such as the National Science Foundation.

Since its creation in 1993, the Center has:

- conducted almost 50 partnership projects, which produced outcomes that have helped state, local, and federal government agencies improve services and operations;
- collaborated with nearly 100 government agencies, 42 private companies, and 14 academic institutions and research organizations;
- issued over 100 guides, reports, and online resources designed to support the work of government professionals, and over 300 scholarly articles that have contributed to the field of research on IT innovation in government organizations;
- developed and evaluated 12 prototype systems that answered critical policy, management, organizational, and technology questions;
- obtained 37 research grants and fee-for-service contracts for over $10 million;
- been honored with 16 state and national awards such as the Ford Foundation's Innovations in American Government award;
- given over 250 trainings, workshops, and conference presentations provided data; and
- support to more than 20 doctoral dissertations and masters projects.

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