Center for Technology in Government

Assessing Mobile Technologies in Child Protective Services

Seneca County
Division of Human 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 Seneca County Division of Human Services (DHS). Findings are based on data collected through online surveys, district questionnaires, and analysis of CONNECTIONS data (data collection methodology and timeframe can be found in Appendix A). The field test lasted for 44 days from 11/26/07-1/9/08

District Deployment

Seneca County DHS has eight CPS staff responsible for child protective services. Seneca County is a rural area located in Central New York and has a population of 34,000 residents. The Seneca County DSS participated in the demonstration project to learn if mobile technologies maximize the use of wait time in court and the field.

The Seneca County DHS deployed eight HP Compaq tc4400 tablets to seven caseworkers and one supervisor on 11/26/07 (see Appendix B for device specifications). Each caseworker received their own device, except one laptop that was shared between a supervisor and one caseworker. All devices were deployed with district-provided external broadband cards.

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.

Caseworkers were given a brief overview of the device, shown how to sign-on to CONNECTIONS, and how each feature of the device could be used in the field. Each was given an orientation manual.

Finally, no policies were changed to support the introduction of mobile technologies before or during the pilot period.

Characteristics of Respondents

A total of seven CPS caseworkers participated in this study: six took the baseline survey (response rate 86%); four took the post-pilot survey (response rate 57%); and four took both the baseline and post-pilot surveys (response rate 57%).

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 Seneca County DSS respondents[1] were very new to CPS field work, with an average of 1.3 years of experience; all six respondents reported CPS experience of three years or less. Respondents were working slightly more overtime during the pilot period. The percentage of respondents reporting overtime of three hours or less in a week did not change (staying around 75% for both the pre- and pilot periods). However, the average overtime hours increased from 2.8 hours a week in the pre-pilot period to 3.9 hours in the pilot period. All respondents reported a typical court waiting time of forty-five minutes or less and 80% reported spending on average one 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.

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[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

Seneca County DSS respondents reported using the laptop during normal work hours, after work hours, on-call, and when working overtime. 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, reading and reviewing case histories, completing safety assessments, checking client histories, and email. Overall, three respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Similarly, four respondents accessed email once a day or more, while four respondents reported using their 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. Very few of Seneca County DSS participants responded to the questions regarding changes in accessing information. However, for those that did, laptop use decreased the frequency of respondents returning to the office while out in the field to access information. Three respondents reported never returning to the office to access case information during the pilot period, compared to only one respondent in the pre-pilot period. Respondents were in the field approximately the same number of days per week (average 3.5 days) in the pre- and pilot periods.

Seneca County DHS had district-provided external broadband cards during the pilot period. While many respondents reported encountering few obstacles, some respondents reported obstacles to mobile use including an inability to establish a connection, slow speed problems, and unreliable connections in all locations. Slow speed seemed to be the most frustrating problem, as well as not being able to establish a connection. Lack of privacy was not a problem for most; however, small blocks of time to do work in court were also perceived as problematic. There were no open-ended survey comments that explained the privacy problems.

Participants were also asked about ease of logging-on in to the device. Overall, 50% of survey respondents rated the log-on process as "Extremely Difficult," 25% rated it as "Neither difficult nor Easy" and another 25% said it was "Easy."

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. Two respondents reported using the laptop at home for an average of just over two hours per week and one reported using it in the field for less than one-half hour per week. None of the respondents reported using the laptop in the court house.

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	Average length of use per week
Field	25% (1)	0.25 Hours
Court	0% (0)	0.00 Hours
Home	50% (2)	2.25 Hours
Do not use at all	0% (0)	--

* Based on survey respondents who took the post survey n=4. Total number of testers n=7.

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work. Respondents reported that they do have a waiting room at the court house that they can use and that the court house has wireless connection. However, respondents spend on average one day a month at court and approximately 70% of respondents reported waiting in court two hours or less during a court visit. Therefore, 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. Also, a few suggested they just have not had an opportunity to use it in court at this point in time.

There was not sufficient information from the survey data or district questionnaire to describe what the current policies are with respect to working from home, overtime compensation, or testers' perceptions and opinions about these issues.

Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Seneca County DHS: (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 dramatically from the pre-pilot (21) to the pilot period (66). The number of cases closed in over 60 days increased substantially as well, from 13 in the pre-pilot period to 36 in the pilot period. This is a marked increase in productivity; the total number of cases closed increased from 34 in the pre-pilot period to 102 in the pilot period – three times the pre-pilot amount. It is important to note that in this county the total number of cases available to be worked on[2] increased from 147 in the pre-pilot period to 168 in the pilot period – a 14.3% increase.

Figure 1 - Number of Seneca County DHS Cases Closed Pre-Pilot and During Pilot
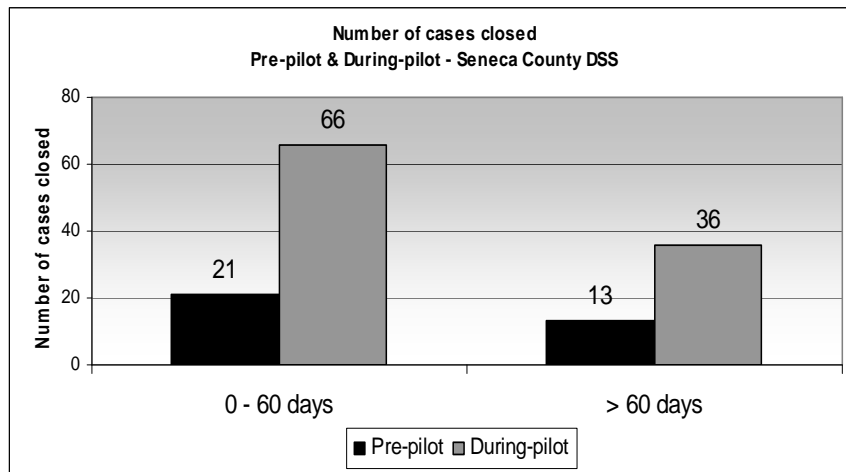

Another indicator of timeliness is elapsed time – or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below

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[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.

shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the first day following the event, but only 40% during the pilot period. Contrary to expectations, the proportion of progress notes entered in each time period during the pilot is consistently below that of the pre-pilot period. By the fifth day, over 70% of all notes were entered for the pre-pilot period, compared to just over 52% for the pilot. By this measure, timeliness decreased slightly during the test, but is high overall.

Figure 2 - Proportion of Progress Notes Entered by Days Following Event
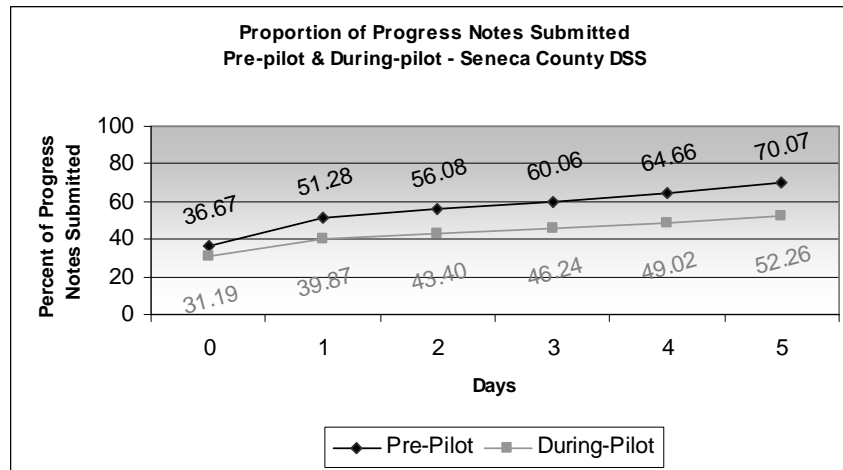
There may be multiple reasons for the decrease in the timeliness of note entry. The overall increase in case closings during the pilot may have changed the usual pattern of progress note entry. There was clearly an effort put into closing cases during the pilot period that could have had this effect.

The use of new technology also requires a period of adjustment. In Seneca County DHS, a total of eight tablet PC's with wireless access cards were deployed. This kind of equipment change can require extra effort in the short-run and a period of adjustment. But, in this case, a few of the respondents reported slow sign-on processes, difficulties in maintaining a connection away from the office or slow response while connected. One respondent did remark: "While logging in at home I experienced extremely long wait times. It was more time efficient to contact the State Central Registry (SCR) and take the report verbally." Another reported lack of connectivity in the southern area of the county. It is not clear, however, how common these problems were.

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 Seneca County DHS respondents reported some positive impacts on their work resulting from laptop use, shown in Table 2 below (very few responded to the questions regarding work impacts). Two of the respondents reported improvements in timeliness of documentation and ability access

case information. One reported improvements in ability to work in court and one respondent reported improvements in providing service to clients. None of the respondents reported improvements in communicating with supervisors or any negative impacts on any work categories.

Table 2 - Perceived Change Timeliness and Work Impacts – Seneca County DHS

|	Much worse (n)	Somewhat worse (n)	About the same (n)	Somewhat better (n)	Much better (n)
Timeliness of documentation	0%(0)	0%(0)	75%(3)	0%(0)	25%(1)
Ability to do work in court	0%(0)	0%(0)	75%(3)	25%(1)	0%(0)
Ability to access case information	0%(0)	0%(0)	50%(2)	25%(1)	25%(1)
Communication with supervisors	0%(0)	0%(0)	100%(4)	0%(0)	0%(0)
Service to clients	0%(0)	0%(0)	75%(3)	0%(0)	25%(1)

That lack of reported negative impacts on timeliness and other work activities is somewhat inconsistent with the timeliness of documentation results obtained from the central database. It is possible that the reduction in timeliness seen in progress note entry was too small to be noticed by the caseworkers and overshadowed by the increase in rate of case closing.

Several respondents did recognize the overall potential value of the tablet. Positive comments included: "It can go with you as needed whenever needed wherever you go," and "Information is more accessible and saves time, especially on-call."

Satisfaction

The overall level of satisfaction with the laptops was low (again, very few participants responded to survey questions on satisfaction). Figure 3 below shows that three of the four respondents expressed being "Somewhat satisfied" or "Very dissatisfied," compared to only one respondent being "Very satisfied."

Figure 3 - Overall User Satisfaction with the Laptops
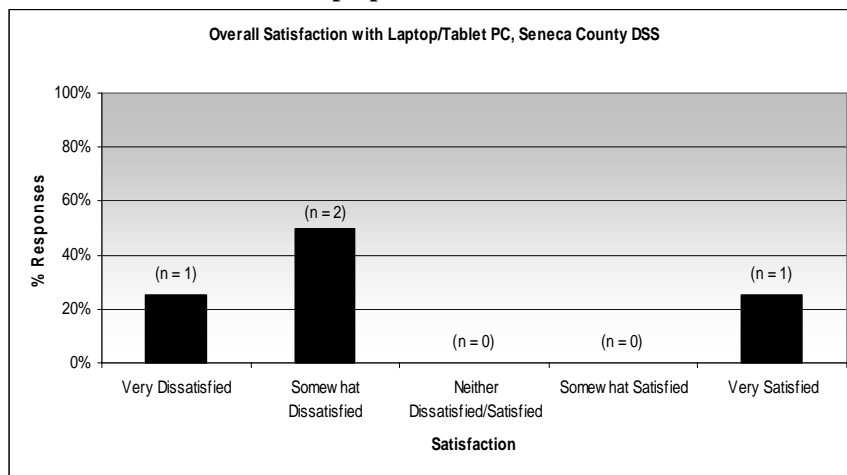
* Based on survey respondents who took the post survey n = 4. Total number of testers n = 7.

Respondents attributed low satisfaction with the laptops to technical difficulties, such as trouble establishing a connection, lengthy boot-up times, and spotty coverage–especially in the southern portions of the county.

Laptop use regarding job-related stress also received mix results from respondents. Two of the four respondents indicated that it did reduce job-related stress, while the other two felt as though laptops did not contribute to lower job-related stress. Stress reduction was attributed mostly to saving time. One respondent described their experience: "More accessible and saves time, especially on-call." Those who did not experience stress reduction attributed this to technical difficulties associated with the wireless connectivity. For example, one respondent said, "Because of the difficulty and time associated with logging-on, it [job-related stress] does not seem to have changed much."

Overall, two respondents would recommend the use of laptops to colleagues, compared to only one who would not. Additionally, one respondent was unsure whether he/she would recommend the use of the laptops to colleagues. One respondent pointed out, "If the situation [with wireless connectivity] could be rectified this could be extremely beneficial. However, at the current state of connectivity, this does not seem to make a difference while working in the field."

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 (10/12/07 – 11/25/07 and 11/26/07 – 01/09/08 respectively). A total of 2,707 progress note entries and 202 unique investigation stages made up the dataset from 7 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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