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FY2019 Program Evaluation of the Child Protection Training Academy for New DCFS Investigators

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Executive Summary

Since February 2016, a team from the University of Illinois at Springfield (UIS) has collaborated with the Illinois Department of Children and Family Services (DCFS) to implement the Child Protection Training Academy (CPTA). New DCFS child protection investigators come to the Child Protection Training Academy at UIS for a week at the end of their certificate training[1] to participate in simulations of real-life situations that DCFS investigators encounter. A house on the UIS campus was re-designed to simulate a family's home and serves as the Residential Simulation Laboratory. A TV Studio on campus is outfitted as the Courtroom Simulation Laboratory, a simulation of family court. Members of Southern Illinois University School of Medicine's Standardized Patient Program play family members, both in the mock house and the mock courtroom. In the courtroom simulation, retired and active judges and other professionals play roles matching their experience. To date, nearly 700 new DCFS investigators have been trained in this innovative model. The Children and Family Research Center (CFRC) of the University of Illinois at Urbana-Champaign has been evaluating the CPTA since FY2016. This report presents program evaluation results from FY2019.

Section 1: Description of the Updated Training Model

In July 2018, the CPTA implemented a new training model featuring a new case –the Rhodes Jones Case—and an additional training method – Problem Based Learning (PBL). The program evaluators conducted a qualitative evaluation of this change. The CPTA staff developed the new case after learning that some new investigators were entering training with prior knowledge of the case, which diminished its learning value. The new case also involved more training regarding underlying conditions such as domestic violence and training on asking parents to undress their infant child, a necessary step to check for injuries. In an effort to support the implementation of critical thinking in practice, CPTA also added the method of Problem Based Learning (PBL) to the new training model. PBL is a method in which trainees are presented with problems to solve rather than content to memorize.[2] Their learning is organized around their active efforts to gain the knowledge they need to solve the problem and justify their solution through information and reasoning. Through different simulation activities and debriefing each day, trainees learn to piece all the relevant information and factors together by the end of the week and then present the case at the court simulation. CPTA has also been expanding the number of trainers who provide simulation training and has had turnover yearly among the classroom trainers. These classroom trainers, prepare students for the simulation training and assist simulation trainers during the simulation training week.

The first author observed differences in the training with the new case. To be able to find all the bruises on the infant, trainees needed to be more thorough when asking the mother to recreate how the injuries occurred. This created a teaching opportunity for the simulation trainers to model the skills of collecting evidence and engaging parents in the process. The

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[1] Every newly hired child protection specialist is required to go through a certification training tied with the certification exam of child protection specialists. The certification training is also known as the foundation training.
[2] See, e.g., Murphy, S. Hartigan, I., Walshe, N., Flynn, A. V., & O'Brien, S. (2011). Merging Problem-Based Learning and Simulation as an Innovative Pedagogy in Nurse Education. *Clinical Simulation in Nursing, 7*(4), e141–e148.

identification of harsh punishment of the older child in the new case was challenging because the child was not present in the scenario (according to the script, the older child was staying with a family friend). The first author observed that, with the simulation trainer's help, the trainees were able to make the correct decision by combining information they had gathered throughout the week. Use of the PBL method changed simulations. Most notably, in the *Individual Interviewing* simulation: instead of watching the simulation trainer interview the parents, trainees used PBL together to develop their interview questions before the interviews.

Section 2: Daily Experience of Simulation Training (DEST)

The Daily Experience of Simulation Training **(DEST)** measure was designed to examine trainees' daily changes in confidence on thirteen child protection work skills over the course of the simulation training week. The DEST also includes a set of questions about trainees' experience of the feedback they receive.

The data through April 29, 2019 includes 497 responses from 105 respondents who filled out at least one time point of the DEST (See Table 2.1). The Cronbach's alpha reliability coefficients of the confidence scale at six time points were all larger than 0.9, which indicates excellent internal consistency of the 13 items in the scale. Both one-way analyses of variance and repeated measures analysis of variance (for respondents who provided data at each time point) were conducted. Both analyses indicated that trainees' confidence level for 13 skills significantly increased over the course of simulation training week. Confidence levels at baseline (Monday morning) ranged from an average of 4.2 (work as a DCFS investigator) to an average 5.0 (engage families). Confidence levels on the last day ranged from an average of 5.7 (work as a DCFS investigator, testify in court) and an average of 5.9 (engage families, assess safety, integrate compassion and investigative skill). Effect size statistics indicate that the increases were large for every confidence item.

Section 3: Post-Training Satisfaction Survey

DCFS administers an online post-training satisfaction survey on the certificate training experience for trainees. DCFS provided these data for the period February 2016 to April 2019 and CFRC conducted an analysis on a sample of 406 trainees. The post-training survey includes 26 questions about classroom training, 8 questions about simulation training, and 2 questions about the overall program.

Simulation Training Satisfaction. On a 5-point scale (strongly disagree =1; disagree=2; undecided=3; agree=4; strongly agree=5), the mean of the eight simulation training questions was between 4.1 (I felt prepared to participate in the SIM lab) and 4.6 (e.g., the simulation environment was a safe learning environment). The mean on "I felt prepared to participate in the SIM lab" was significantly below all the other means (Figure 3.1), though this mean still indicated that trainees agreed on average that they were prepared to participate in the SIM lab.

Although the ratings of simulation training were consistently positive in the past 4 years, the ratings gradually decreased between 4.1 and 4.5 in FY2019. The Games-Howell post hoc test revealed that the respondents in FY2016 or in FY2017 had significantly higher ratings than those in FY2018 or in FY2019 across almost all simulation training questions.

Mean satisfaction scores were calculated across the simulation training items, the classroom items, and the overall program items. The means were similar: simulation training mean=4.5, classroom mea=4.3, and overall program mean=4.4 (Table 3.3). Each of these indicated that trainees averaged between "agree" and "strongly agree" on their answers to the positively worded items on this scale, indicating considerable satisfaction on average. The mean satisfaction score for simulation training was higher than the mean for classroom training by one-fifth of a point on the 5-point scale, a difference that was small but statistically significant due to the large sample size of 383.

The classroom training score, simulation training score, and overall program score all declined significantly on average from FY2016 to FY2019. Games-Howell post-hoc tests showed that, across the Classroom, Simulation, and Overall Program scores, FY2016 and FY2017 were significantly higher than scores for FY2018 and FY2019, though all scores on average indicated satisfaction. Effect size statistics indicated that these changes were moderate to large.

Section 4: Simulation Training and Investigator Turnover

For this year's program evaluation, the program evaluation team conducted an updated analysis of the investigator survey from FY2018 to look further at questions about turnover. The team also used employment data from DCFS Division of Budget and Finance to compare sim-trained investigators to pre-sim trained investigators on the likelihood investigators actually left their job.

As before, there were differences between the sim and pre-sim groups on two questions about turnover. The odds that a respondent who did not receive a simulation training checked "yes" on "I am actively looking for a position at another department of DCFS" were 4.2 times greater than the odds that a sim-trained respondent checked "yes" ($p < .05$). The odds that a pre-sim respondent checked "yes" on the question of "As soon as I can find a better job, I will leave DCFS" were 3.5 times the odds that a sim respondent did so ($p = .06$).

What is new in this report are results for the relationship of other variables to turnover intention. Investigators 61 years old or older were more likely to intend to quit their job than investigators age 21 to 30. Investigators with 3 to 5 years of tenure in child welfare were substantially less likely to intend to leave DCFS than investigators that had less than two years of tenure in child welfare. Other results (below) were at a statistical trend level ($p=.06$) and should be interpreted more cautiously. White investigators were more likely to intend to quit their job than were non-white investigators. Investigators with caseloads of 11 to 25 cases (in the last 30 days) were more likely to intend to leave DCFS and to intend to quit their job than investigators with caseloads under 11 cases.

Job Turnover Study. On September 25, 2018, the DCFS Division of Budget and Finance sent the program evaluators a set of employment data for DCFS investigators. These included data from DCFS investigators who were hired before simulation training was offered (the pre-sim group) and those who were hired in 2016 or later and received simulation training (the sim group) The observation periods for both the sim and pre-sim group was 24 months. The sample included 98 investigators in the pre-sim group and 306 in the sim group, respectively. Additional

variables used in the analysis included position (children and family services intern vs. child protection specialist), gender, race-ethnicity, education level, and certificate training score.

Around 17% of the study sample left their investigator position during the 24-month observation period: 13.1% left DCFS and 3.7% left DCP but stayed at DCFS. A significantly higher percentage of investigators in the pre-sim group (25.5%) left DCP or DCFS than those in the sim group (13.7%).

More children and family service interns (32.9%) left DCP or DCFS than child protection specialists (12.8%). The turnover rates for Hispanics (28.3%) and for other races (33.3%) were higher than for White (14.5%) and African American investigators (13.8%). A higher percentage of male (28.0%) left DCP or DCFS than female (13.7%). The Student's t-tests results showed no statistical difference on age between those who stayed and those who left. The Certificate training score also had no relationship to turnover.

Results from the statistical method of survival analysis also indicated that investigators in the pre-sim group were significantly more likely to leave their job than those in the sim group. At Month 18, 37% of pre-sim group had left their job compared to 20% of sim group. At Month 23, the turnover rates for the two groups almost converge. The odds of leaving their job for the pre-sim group were 1.8 times greater than the odds of leaving for the sim group, after controlling for other variables (see Table 4.4). In addition, the odds that male investigators would leave their job were more than two times greater than the odds that female investigators would leave their job.

Discussion

The FY2019 program evaluation of the Child Protection Training Academy continues to show positive results for new investigators who have received simulation training. Positive results continue even while the CPTA has made substantial changes to its model in an effort to improve training. New investigators' post-training satisfaction with simulation training continues to be high, though scores have decreased somewhat over time, as we discuss below. Analysis of DCFS employment data showed a clear distinction between those who started as DCFS investigators in February 2016 or later, who received simulation training, and those who started as DCFS investigators between February 2014 and January 2016, who did not receive simulation training. Results showing decreased turnover since February 2016 suggest meaningful progress in improving retention of DCFS investigators. Note that the fact that turnover rates for the sim and pre-sim groups almost converged at Month 23 does not negate the differences in turnover between the two groups. It simply represents a comparison relevant to those who had already been 23 months on the job – at that point there was no difference between sim and pre-sim on the likelihood of leaving at that point. To reiterate, in their first two years, those trained in the sim era were significantly less likely to leave their job as child protective investigators.

One plausible explanation for the progress in retention is the effect of simulation training provided by the Child Protection Training Academy. Data from the FY2018 program evaluation suggest that investigators participating in simulation training felt more prepared, which may have reduced the stress of the job and increased their self-efficacy in their work. It is worth

exploring whether there may also be other explanations for this improvement as well, understanding that multiple explanations for these differences might all be true. Differences between these two groups may relate to differences in who was hired in these different eras, and what their working conditions were. It may be worthwhile to collect additional qualitative and quantitative data about investigators' experience of their job and how that might have changed over time and be dissimilar for different cohorts of investigators.

Every year, the average post-training score for simulation training has been at least 4.4. This is about halfway between "agree" and "strongly agree" on the positively worded questions indicating satisfaction with simulation training. Scores were significantly lower in FY2018 and FY2019 than in FY2016 and FY2017 and the effect sizes were moderate to large. Because scores were nevertheless high in these latter years, this finding should not provoke alarm, but instead offer an opportunity to explore further the impact of the program on trainees.

The CPTA and DCFS should explore what factors might explain the decrease in satisfaction scores. One possible factor to consider is regression to the mean – the FY2016 satisfaction scores for simulation training are so high that some decrease would be expected just on statistical grounds. Another possibility is that simulation training generated extra excitement in its first years because it was an engaging innovation. The possible effects of changes in simulation trainers and classroom trainers over the four years need to be explored. Note that the ratings for classroom training have decreased in parallel to ratings for simulation training, suggesting that factors related to certification training as a whole need to be explored. Ratings differed little between FY2018 and FY2019, suggesting that implementation of the new case and the addition of PBL has had neither a negative effect nor a positive effect on trainees' appraisal of simulation training.

This report presents more complete results from the investigator survey on turnover intention than was reported in the FY2018 program evaluation. Several other variables in addition to simulation training were related to investigators' intention to leave their job. We recommend that DCFS conduct a thorough study with a larger sample size of factors related to investigator turnover and turnover intentions.

Conclusion

Positive results over three years of program evaluation support the value of CPTA and suggest the potential of its current expansion. It is encouraging that investigators hired since February 2016 are staying on the job longer than investigators hired prior to that date. Data can be used both to advocate for the value of CPTA and to inform efforts at program improvement.

Introduction

Since February 2016, a team from the University of Illinois at Springfield (UIS) has collaborated with the Illinois Department of Children and Family Services (DCFS) to implement the Child Protection Training Academy (CPTA), which adds an innovative experiential component to the training of new DCFS investigators. New DCFS child protection investigators come to the Child Protection Training Academy at UIS for a week at the end of their certificate training[3] to participate in simulations of real-life situations that DCFS investigators encounter. A house on the UIS campus was re-designed to simulate a family's home and serves as the Residential Simulation Laboratory. A TV Studio on campus is outfitted as the Courtroom Simulation Laboratory, a simulation of family court. Members of Southern Illinois University School of Medicine's Standardized Patient Program play family members, both in the mock house and the mock courtroom. In the courtroom simulation, retired and active judges and other professionals play roles matching their experience. To date, over 600 new DCFS investigators have been trained in this innovative model.

The Children and Family Research Center (CFRC) of the University of Illinois at Urbana-Champaign is evaluating the CPTA. Program evaluation over three years has examined the implementation and outcomes of the CPTA program. This report presents program evaluation results from FY2019.

We have completed this report at a critical time in the development of the CPTA. In the spring of 2019, a new site was opened in Chicago, and some new investigators are receiving simulation training there while others still go to the Springfield site. In addition, the CPTA has developed a training for seasoned investigators and supervisors of investigators to supplement the new investigator training it has provided for over three years. The University of Illinois at Springfield is planning to build an additional mock house on campus to expand the CPTA's capacity. These expansions of simulation training took place too late in the fiscal year to organize any program evaluation activities to study them, though they will be explored in the program evaluation in FY2020. Nevertheless, findings in the current report will inform further decisions about the development of CPTA and will help shape program evaluation of these new training developments.

An Overview of Previous Program Evaluation Results

The FY2017 evaluation used qualitative methods (observation and interviews) to describe the development of the CPTA and develop a logic model for the program. It also analyzed data from a post-training satisfaction survey (N=154) of program graduates. The ratings were very high, the mean verging on "strongly agree" across most questions related to simulation training. On every item except "feeling prepared for simulation training," 76% to 84% of respondents strongly agreed. Across seven evaluative questions on simulation training, there were 1,052 positive ratings (99.3%) and only 7 negative ratings (0.7%). Content analysis of open-ended survey items showed that trainees frequently volunteered positive comments on the value of

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[3] Every newly hired child protection specialist is required to go through a certification training tied with the certification exam of child protection specialists. The certification training is also known as the foundation training.

simulation training. Survey respondents recommended extending simulation training to a wider range of topics, professionals, and locations.

The FY2018 evaluation included a qualitative component that examined in greater depth the process of developing the training. Interviews and focus groups with 32 stakeholders pointed to how the abilities of the CPTA team drive simulation training. The original simulation trainer's blend of skills were central. She was lauded for her passion for the mission of training investigators, her relationship with the trainees, her ability to provide feedback that is both instructive and supportive, her skill in directing simulations to maximize their educational value, her experience as an investigator, and her knowledge of DCFS procedures. The standardized patients' ability to lose themselves in their characters like Method actors while coordinating with the trainer and following up with feedback was striking. The professionals enacting the courtroom simulation brought family court knowledge, realism and gravitas to their roles while providing instruction in a way that lawyers and judges in real court cases could never do. The value of the leader, the standardized patients, and the professionals lie not only in what they brought to CPTA from their prior experience, but the abilities and experiences they have developed together as a team in the course of delivering simulation training to new DCFS investigators.

In addition, the FY2018 evaluation surveyed 259 current DCFS investigators, about half of those had received simulation training (sim group) and half had not because they were hired before simulation training was offered (pre-sim group). The sim group gave higher scores to their training than the pre-sim group on preparing them for engaging families, investigating abuse and neglect allegations, collecting information from collateral contacts, creating evidence-based documentation, collaborating with professionals from other disciplines, testifying in court, and integrating compassion and investigative skill in their work. Once confounding variables were statistically controlled, the sim group reported greater ease in acquiring the skills of evidence-based documentation and testifying in court. Sim-trained investigators also valued the contribution of different simulations to preparing them for their job. The survey also found differences between sim-trained and pre-sim trained investigators on their thoughts about leaving their job. Once we controlled for age and experience using logistic regression, pre-sim investigators had four times greater odds of reporting that they were actively looking for a position at another department of DCFS. Pre-sim investigators also had more than three times greater odds of reporting that they would leave DCFS as soon as they found another job, once age and experience were controlled (though the p value on this result was .06, which just missed meeting the convention threshold of .05 for statistical significance).

Caution is needed in interpreting these results. Because sim-trained and pre-sim-trained investigators were hired in different years, they may differ in several ways – not just on simulation training. Different types of people may have been hired in different years, and their working conditions may differ as well. Moreover, the use of statistical controls introduces some uncertainty. It is also puzzling why the sim and pre-sim groups differed on turnover intentions items when they did not differ on job satisfaction. Nevertheless, the finding that sim-trained investigators rated their training more highly than pre-sim-trained investigators after months on the job suggest the enduring value of the CPTA to investigators, as does the high ratings sim-trained investigators gave to the individual simulations.

Program Evaluation Activities in FY2019

The CFRC evaluation team used multiple substudies to examine the implementation and outcomes of simulation training in FY2019. The CPTA made significant changes to their training model and implemented it in August 20 2018, and the program evaluation team conducted a qualitative study of the new training model. The evaluation team also implemented a method to examine trainees' experience of change over the course of the simulation training week. This employed a measured called the *Daily Experience of Simulation Training* or DEST. During the week of simulation training, trainees rated their confidence daily on a range of different child protection work skills.

The program evaluation team also conducted an updated analysis of the post-training satisfaction data. DCFS provided the evaluation team with data from the post training survey between February 2016 and April 2019. The program evaluation analyzed satisfaction with simulation and also satisfaction with classroom training and with the overall program.

Employee turnover has historically been a problem in child welfare and the quality of training may be one important way of addressing turnover. The CPTA listed "diminished investigator turnover" as a desirable outcome in their program logic model. The current report presents an updated analysis of the investigator survey data on turnover intention used for the FY2018 evaluation report. Moreover, using employment data from DCFS Division of Budget and Finance, we examined whether DCFS investigators who had received simulation training tend to remain in their jobs longer than DCFS investigators who did not receive simulation training. Simple statistical comparisons as well as a more sophisticated method called survival analysis were used to compare investigators who started the certificate training after February 2016 (this group received simulation training) to investigators who started the certificate training before February 2016 (this group did not receive simulation training).

Section 1: Description of the Updated Training Model

In July 2018, the CPTA implemented significant changes to its training model. The new training model features a new case—the Rhodes Jones Case—and an additional training method—Problem Based Learning (PBL). The Rhodes Jones case, replaced the previous case that had been used since the inception of the simulations in February of 2016. A new simulation manual based on PBL was also created to support the facilitation of the process. The program evaluation team conducted a qualitative study to examine the current training model.

Methods

Several methods were used to gather qualitative data. Both authors interviewed CPTA staff and reviewed relevant CPTA documents. The first author also conducted an observational study that involved attending a five-day simulation training in December. She took field notes regarding the new features in the training model, how PBL was applied, and how trainers and trainees interacted under the new training structure.

Results

Rhodes /Jones Case Overview.[4] The CPTA staff learned from trainees that some of them were entering simulation training with prior knowledge about the original case ("Caleb") from friends and colleagues, along with suggestions about what to do in the simulations. The staff felt that this prior knowledge diminished the learning value of the case, and resolved to create a new case. The development of a new case also allowed them to make the following enhancements to address specific training needs that needed greater emphasis: 1) they created a case in which the trainees needed to assess underlying conditions such as domestic violence that can accompany child maltreatment; 2) the needs of the case required the investigators to ask parents to undress their infant child,[5] a necessary step to check for injuries and something trainees can find difficult to implement this step.

The new case was a synthesis of two cases cited in investigations conducted by DCFS Office of the Inspector General (OIG)[6]; both cases involved common errors and one resulted in a child death. Both cases included infants and moderately verbal children and concerns of domestic violence, substance abuse and mental health as underlying conditions of the family. Box 1.1 presents verbatim the information that the trainees received about the case.

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[4] The information is from the CTPA simulation training material, "Rhodes/Jones Case Review."

[5] See the related policy of undressing alleged victims age 6 and under in Illinois Department of Children and Family Services. (June, 2019). *Procedures 300.50 Investigative Process.* Springfield, IL: Author.

[6] The OIG examines child deaths, serious injuries, misconduct, poor performance and violations of policy and laws related to the DCFS operation and submits an annual report to the Governor and the General Assembly every year. The two cases were from the most recent OIG reports: Kane, D. (2018). *Office of Inspector General Report to the Governor and the General Assembly.* Paniak, M. (2019). *Office of Inspector General Report to the Governor and the General Assembly.* Springfield, IL: Department of Children and Family Services. Retrieved from https://www2.illinois.gov/dcfs/aboutus/OIG/Pages/com_communications_inspector_prevRep.aspx

Box 1.1 Overview of Rhodes Jones Case

This new case involves Carla Rhodes and her two children, 3-month old Oliver Jones and 3-year old Sarah Rhodes. The father of 3-month-old Oliver, Mike Jones has recently moved into the family home. Mike Jones is alleged to be the father of the infant Oliver, but is not the father of 3-year old Sarah.

The reporter is a non-mandated reporter described as a long-time friend of the mother. The reporter becomes concerned after not hearing back from Carla Rhodes since the birth of Oliver. The reporter makes the hotline call after stopping by the family home unannounced and finding the environmental conditions of the home to be of concern, observing a sizable scratch to the infant's head and having a very uncomfortable interaction with the adult caregivers in the home.

The concerns listed by the reporter are as follows: home was "a bit of a mess" in that she observed garbage, broken alcohol bottles and what appears to be dog feces on the floors, exposed electrical wires, and hearing what she believed to be some type of an altercation between Mike and Carla including screaming, doors slamming, and crying. Per the reporter, she was allowed into the home by Mike Jones who possibly had alcohol on his breath and was acting anxious. Per the reporter, after several minutes, Carla Rhodes appeared with baby Oliver. Per the reporter, both Carla and Oliver appeared to have been crying. Per the reporter, she was allowed minimally to hold baby Oliver, when she inquired about the scratch to his head, Mike Jones stated, "Mother of the year needs to learn how to cut her sons nails". Per the reporter, it was at this time that Mike Jones became more anxious and advised the reporter that she needed to leave. The reporter did not hear or observe 3-year old Sarah in the home at the time of her visit. It is unknown if Sarah was home or if she observed or was involved in the altercation.

Hot-line Call Floor Worker: asked the required screening questions and completed a CANTS (Child Abuse and Neglect Tracking Systems) history check, which found no prior involvement with the family. The information above generates the report of suspected child abuse and neglect that the participants investigate for the simulation week.

The case markers/metrics are listed for trainees (see Box 1.2). Some of these markers can be directly observed during the "knocking on the door" and "scene investigation" simulations. Most of the markers would be introduced by vague statements from parents, caregivers, or collateral contacts. Some of the markers can be fleshed out because of the participant's ability of formulating and articulating direct questions that address the suspicions/concerns as well as their ability of executing specific required actions found in Procedure 300 Reports of Child Abuse and Neglect.[7] CPTA staff and trainers ensure that the specific markers are met through preparing the trainees prior to the simulations, coaching and supporting of the trainees during the simulation when necessary and during the debriefing post the simulation.

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[7] Illinois Department of Children and Family Services. (October, 2015). *Procedures 300 Reports of Child Abuse and Neglect.* Springfield, IL: Author.

Box 1.2 Case Markers/Metrics of Rhodes Jones Case
• Issues of malnutrition in the oldest child (3 years old), with some questionable forms of discipline. (Harsh Punishment: Some evidence, of the use of calisthenics, weight lifting, withholding food and possible use of tying and close confinement).
• Infant has unexplained bruising on his leg, however participants only discover the marks if they successfully engage the parents to undress the child for observation in an effort to complete the body chart.
• Domestic violence between parents.
• Suspected alcohol/drug use.
• Mental health diagnosis of mother, with her boyfriend controlling her medication dosing/distribution.
• Environmental conditions are basically the same (as the previous "Caleb" case"), however the observation of a dog kennel suggests the child has been placed in there as a form of discipline. (Children's toys and food items are observed inside of the kennel as well as numerous cut "zip-ties" in and near the kennel [zip-ties can be used to imprison the child in the kennel].)

Problem Based Learning. In 2015, the 6 Steps to Critical Thinking[8] were added to DCFS Procedures 300 to guide worker practice. Workers are taught to ask the following questions in investigations: 1) What information is available? 2) What am I being asked to believe or accept? 3) What evidence is available to support the assertion? Is it reliable and valid? What evidence is there to negate the assertion? 4) Are there alternative ways of interpreting the information? 5) What additional information would help to evaluate the alternatives? 6) What conclusions are most reasonable based on the information and the number of alternative explanations?[9] In an effort to support the implementation of critical thinking in practice, the method of Problem Based Learning (PBL) was added to the new training model of simulation and is applied daily during the simulation week.

PBL is a method in which trainees are presented with problems to solve rather than content to memorize.[10] Their learning is organized around their active efforts to gain the knowledge they need to solve the problem and justify their solution through information and reasoning. The problems that CPTA trainees are presented with are practice dilemmas based on the training case used. Trainees work in small groups in which they take initiative to seek the information and learn the skills they need in order to solve the problem. The presentation of the problem

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[8]See, Gambril, E. (2012). *Critical Thinking in Clinical Practice: Improving the Quality of Judgments and Decisions* (Third edition). Hoboken, NJ: John Wiley & Sons, Inc.

[9] Illinois Department of Children and Family Services. (June, 2019). *Procedures 300.50 Investigative Process*. Springfield, IL: Author. Retrieved from
https://www2.illinois.gov/dcfs/aboutus/notices/pages/pr_policy_procedure.aspx

[10] See, e.g., Murphy, S. Hartigan, I., Walshe, N., Flynn, A. V., & O'Brien, S. (2011). Merging Problem-Based Learning and Simulation as an Innovative Pedagogy in Nurse Education. *Clinical Simulation in Nursing, 7*(4), e141–e148.

and the need to devise a solution is thought to increase their motivation to learn and stimulate active learning strategies. Trainees first identify and analyze important facts, then develop hypotheses or hunches, and then use existing knowledge to identify specific next steps to be taken to seek new information to test their hypothesis and hunches. The process allows for both the individual participant and the class as whole to identify specific learning issues that need to be addressed in order to make accurate decisions. This contextual learning method aims to promote independent learning, critical thinking, and problem solving in real-life situations.[11] The pedagogy of both PBL and simulation focus on active learning.

The CPTA adapted the PBL model of the National Child Traumatic Stress Network (NCTSN).[12] The simulation trainer guides trainees to develop and enhance investigation skills through exploring PBL categories comprised of 1) Facts, 2) Hunches and Hypotheses, 3) Next Steps, and Learning Issues. During the week of simulation training, the trainees work their way through the Rhodes Jones case by identifying Facts, creating Hunches and Hypotheses about the case, determining Next Steps that align with the hypotheses, and identifying the Learning Issues that require more information.[13] Through different simulation activities and debriefing each day, trainees learn to piece all the relevant information and factors together by the end of the week and then present the case at the court simulation. Table 1 presents the current simulation training week schedule and learning objectives that were based on CPTA's *Simulation Manual Updated 2018*. [14] Note that the time durations of the simulation activities in the Table 1.1 are approximate averages. If a trainee is struggling or is triggered, the time can be extended.

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[11] See, e.g., Murphy, S., Hartigan, I., Walshe, N., Flynn, A. V., & O'Brien, S. (2011). Merging problem-based learning and simulation as an innovative pedagogy in nurse education. *Clinical Simulation in Nursing, 7*(4), e141–e148. Wong, F. K., Cheung, S., Chung, L., Chan, K., & Chan, A. (2008). Framework for adopting a problem-based learning approach in a simulated clinical setting. *Journal of Nursing Education, 47*(11), 508-514. Problem-Based Learning. (n.d.). Retrieved from https://teachingcommons.stanford.edu/resources/learning/learning-activities/problem-based-learning

[12] The National Child Traumatic Stress Network (n.d.) *Core Curriculum on Childhood Trauma*. Durham, NC: Author. Retrieved from https://www.nctsn.org/treatments-and-practices/core-curriculum-childhood-trauma.

[13] Grossman, H. M. & Layne, C. M. (n.d.). *Using Heuristics Tools to Improve Critical Thinking in a Problem Based Learning Curriculum*. Retrieved from https://members.aect.org/pdf/Proceedings/proceedings18/2018i/18_05.pdf.

[14] Child Protection Training Academy (2018). *Simulation Manual *Updated 2018*. Springfield, IL: Author, University of Illinois Springfield.

Table 1.1 Simulation Training Week Schedule and Learning Objectives

Day	Key Simulation	Learning Objectives
Monday	*Calling the Reporter*: Trainees as a group interview the individual who called the hotline to make the report. CPTA staff play the reporter.	• Describe their role as a child protective investigator to the reporter. • Formulate questions to ask the reporter to clarify information already contained in documentation of the report. • Seek additional information from the reporter regarding four elements: child safety, allegations of concern, risk factors/needs, and strengths.[15] • Respond accurately and professionally to the reporter's questions. • Prepare documentation of relevant information.
Tuesday	*Knock on the Door*: Each trainee takes turns initiating contact with the family at the mock house. On average, each trainee has 10 minutes simulation, followed by 20 minutes of individual debriefing.	• Explain to the family their role as a child protection investigator and the purpose of their visit. • Explain the concerns contained in the report. • Explain the investigation process. • Respond accurately and professionally to questions from the family. • Build rapport with the family.
Wednesday	*Scene Investigation*: Groups of two trainees take turns conducting a scene investigation at the mock house. On average, each group has around an hour to do the simulation, followed by [length of time] of individual debriefing.	• Gather evidence and assess the credibility of various explanations for the incident or injury. • Consider other possible explanations/causes by using Procedure 300.60 Scene Investigations and Time Lines guidelines.[16] • Explain to the family the process of the scene investigation. • Explain the need to recreate how the injuries occurred and gain subjects' permission to take photographs. • Explain the purpose of the home safety checklist, identify specific hazards in the home, and discuss safety concern.

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[15] The following four elements are listed in one of the CPTA's training material for trainees: 1) What did the [collateral] contact tell you that pertains to "safety"; 2) What did they tell you about the allegation of concern that helps reach a "final finding"; 3) What did they know about "risk factors/needs" of the family; 4) What "strengths" do they identify. Child Protection Training Academy (n.d.). *Formatting Consideration*. Springfield, IL: Author, University of Illinois Springfield.

[16] Procedures 300.60 lays out DCFS methods and requirements of how to conduct scene investigation. See more details in Illinois Department of Children and Family Services. (October, 2015). *Procedures 300.60 Scene Investigations and Time Lines*. Springfield, IL: Author. Retrieved from https://www2.illinois.gov/dcfs/aboutus/notices/pages/pr_policy_procedure.aspx

		• Effectively answer subject's questions. • Complete forms or documents required for the scene investigation. • Communicate investigation results to the supervisor and ask for specific feedback.
Thursday	*Individual Interviewing*: All trainees formulate specific questions for parents together. Trainees as a group interview the father actor and the mother actor separately in the classroom. During the simulation, the trainee who takes the lead interviewing parents is allowed to pause the interview and ask for support from the trainers and their peers. Every trainee is offered the opportunity to take the lead in the interviews.	• Address concerns about information/evidence gathered during the previous simulation encounters, for example, the conflicting and changing histories about the incident or about any underlying conditions. • Address concerns regarding underlying conditions such as domestic violence, substance abuse, mental health problems, or developmental disabilities. • Identify strengths of the family. • Explain safety concerns and possible needs for a safety plan and/or protective custody. • Respond accurately and professionally to questions from the family.
Friday	*Courtroom Simulation*: Groups of two trainees prepare parent for the hearing for 5 minutes. In the mock courtroom, each trainee has at least 7 minutes to testify the case, followed by about 10 minutes debriefing provided by the judge and attorneys as well as the trainers.	• Discuss possible outcomes with the family and provide them with any necessary paperwork before the court hearing. • Practice testifying in a legal proceeding. • Professionally articulate the case information in the court hearing.

CPTA has also been expanding the number of trainers who provide simulation training. Originally, there was only one simulation trainer, who was one of the founders of the CPTA. This trainer conducted all the simulation training in FY2016 and in FY2017. The qualitative data reported in the FY2018 evaluation discuss this trainer's skills and the success various stakeholders attributed to her. CPTA hired a second trainer in FY2018 through UIS. Recently, CPTA has been preparing DCFS trainers to be simulation trainers.

The classroom trainers who provide the classroom-based component of certification training also have an important role in simulation training. They prepare trainees for simulation training by beginning instruction and discussion related to the training case in the classroom. They also come to simulation training with their class and assist the simulation trainer during the week. One factor to note is the considerable turnover in classroom trainers since FY2016 and therefore the individuals who have served as classroom trainers has changed every year.

Comparison of the Previous and Current Training Models

The first author observed simulation training with both the original case (Caleb) and the new case (Rhodes Jones). Similarities and differences were evident in her observation of both cases. While both cases focus on children under 5-years-old, the information related to the child's physical injury and harsh punishment appears to be more subtle in Rhodes-Jones. To be able to find all the bruises on the infant, trainees needed to be more thorough when asking the mother to recreate how the injuries occurred. During first author's observation, only one trainee out of six was able to see the hidden bruises on the infant. This created a teaching opportunity for the simulation trainers to model the skills of collecting evidence and engaging parents in the process.

The identification of harsh punishment of the older child in the new case was challenging because the child was not present in the scenario (according to the script, the older child was staying with a family friend). Therefore, trainees had to reexamine the information they collected from Monday through Thursday to draw conclusions about the child's abuse. The first author observed that, with the simulation trainer's help, the trainees were able to make the correct decision by combining information they had gathered throughout the week.

The first author observed that trainees all felt comfortable using the PBL quadrants before and after their simulations. The Individual Interviewing simulation on Thursday was revised to add PBL to the training. In the previous training model, trainees observed the simulation trainer interviewing the parents. In the current training model, trainees worked as a team to interview the parents. Trainees used PBL together to develop their interview questions before the interviews. This provides more hands-on experiences for trainees and the first author observed that trainees were highly engaged in the process.

Section 2: Daily Experience of Simulation Training (DEST)

Simulation training is thought to increase investigators' preparedness for and confidence in their work, which is thought to have a positive impact on both investigators' experience of their work and the quality of their work with families. *The Daily Experience of Simulation Training* (DEST) measure was designed to examine trainees' experience of change over the course of simulation training. During the week of simulation training, trainees rated their confidence daily on a scale of thirteen child protection work skills.

Methods

The CPTA director assisted the evaluators with developing the DEST and a pilot test was conducted in early FY2019. The initial DEST was revised based on the pilot study and implemented in December 2018. The DEST includes a 13-item scale measuring trainee's confidence level. Trainees rated their confidence level on each specific item from 1 (low) to 7 (high). The DEST also includes a set of questions about trainees' experience of the feedback they receive, and the following open-ended question: *What were the most meaningful concepts or skills you learned today?* (see Appendix A).

All the trainees attending the simulation training were asked to participate in this study. Trainees were given a brief amount of time to complete DEST over the Internet at the end of each day of the simulation training week. Trainees may choose not to participate or may terminate participation at any time. Trainers did not know which trainees participated and which did not. The data collected through the secure website were automatically saved on a secure server managed by CFRC.

The data through April 29, 2019, includes 497 responses from 105 respondents who filled out at least one time point of the DEST (See Table 2.1). Out of 105 respondents, 41 (39.0%) filled out all six time points of DEST. The Cronbach's alpha reliability coefficients of the confidence scale at each of the six time points were all larger than 0.9, which indicates excellent internal consistency of the 13 items in the scale. Descriptive statistics were calculated and analysis of variance was used to examine changes in trainees' confidence over the course of simulation training (one-way analysis of variance was used with all sample data and repeated measures analysis of variance was used to measure change among the 41 who completed the DEST at each time point).

Table 2.1   Response rate by each time point

Time Point	N	%
Baseline	88	17.7
Monday	74	14.9
Tuesday	86	17.3
Wednesday	77	15.5
Thursday	85	17.1
Friday	87	17.5
Total	**497**	**100.0**

Descriptive Statistics and One-way Analysis of Variance. The first analysis examined all 497 responses. Figure 2.1 shows the changes over six time points by the 13 items of the confidence scale. One-way analyses of variance indicated that trainees' confidence level for 13 skills significantly increased over the course of simulation training week. Confidence levels at baseline (Monday morning) ranged from an average of 4.2 (work as a DCFS investigator) to an average 5.0 (engage families). The average trainee's confidence level increased steadily from baseline to the last day (Friday) across almost all 13 items. Analyses of variance indicated that the average scores across days were significantly different. Confidence levels on the last day ranged from an average of 5.7 (work as a DCFS investigator, testify in court) and an average of 5.9 (engage families, assess safety, integrate compassion and investigative skill). The effect size analysis comparing the means between baseline and the last day indicates that the difference of respondents' confidence levels between baseline and the end of simulation training is large across all the items [17] (see Table 2.1). These effect sizes are unusually large in the behavioral sciences and indicate a very large change (the benchmark for a large effect size is a Cohen's d of 0.8).

Figure 2.1 Confidence Level by Time Point
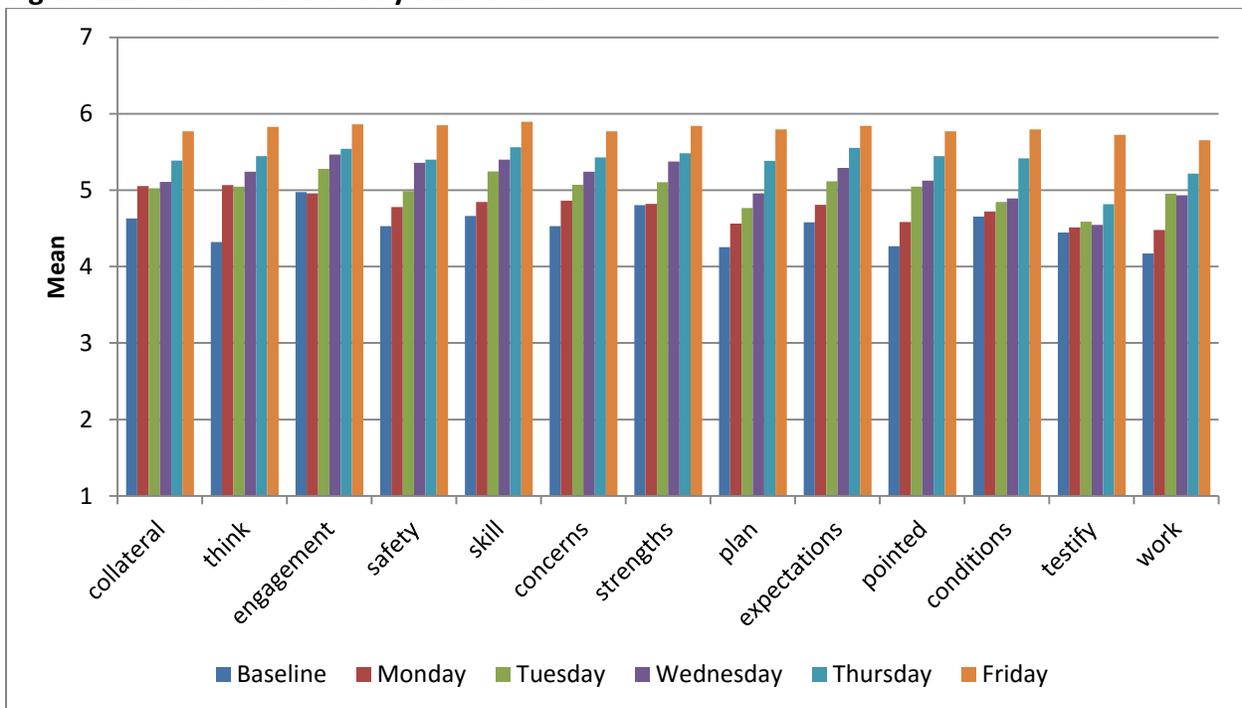
[17] See Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155-159.

Table 2.1 Statistics for Changes between Baseline and Last Day of Simulation Training

Confidence Scale	Baseline			Friday			Cohen's d
	N	Mean	sd	N	Mean	ds	
Gather info from collateral contacts	86	4.63	1.256	87	5.77	0.911	1.04
Think critically on facts vs. hypotheses	87	4.32	1.094	87	5.83	0.905	1.50
Engage families	87	4.98	1.131	87	5.86	0.917	0.86
Assess safety	85	4.53	1.181	87	5.85	0.909	1.25
Integrate compassion and investigative skill	86	4.66	1.289	86	5.90	0.921	1.10
Address any concerns about family statements and behaviors	87	4.53	1.140	87	5.77	0.961	1.18
Identify family strengths	87	4.80	1.189	87	5.84	0.963	0.96
Explain need for safety plan and/or protective custody	86	4.26	1.248	87	5.79	0.942	1.39
Explain DCFS role and expectations for keeping children safe	86	4.58	1.203	87	5.84	0.938	1.17
Answer pointed questions from parents and caregivers	86	4.27	1.152	87	5.77	0.985	1.40
Address underlying conditions such as domestic violence, substance abuse, mental health, developmental disabilities	87	4.66	1.256	87	5.79	1.047	0.98
Testify in court	87	4.45	1.538	87	5.72	1.168	0.93
Work as a DCFS investigator	87	4.17	1.594	84	5.65	1.081	1.09

Note: Rules of thumb on magnitudes of Cohen's d are 0.2-Small; 0.5-Medium; and 0.8-Large.

The majority of respondents found the feedback during simulation training either very helpful or helpful (see Figure 2.2). There was no difference in the helpfulness of feedback across time points.

Figure 2.2 Rating of Trainer's and Actor's Feedback
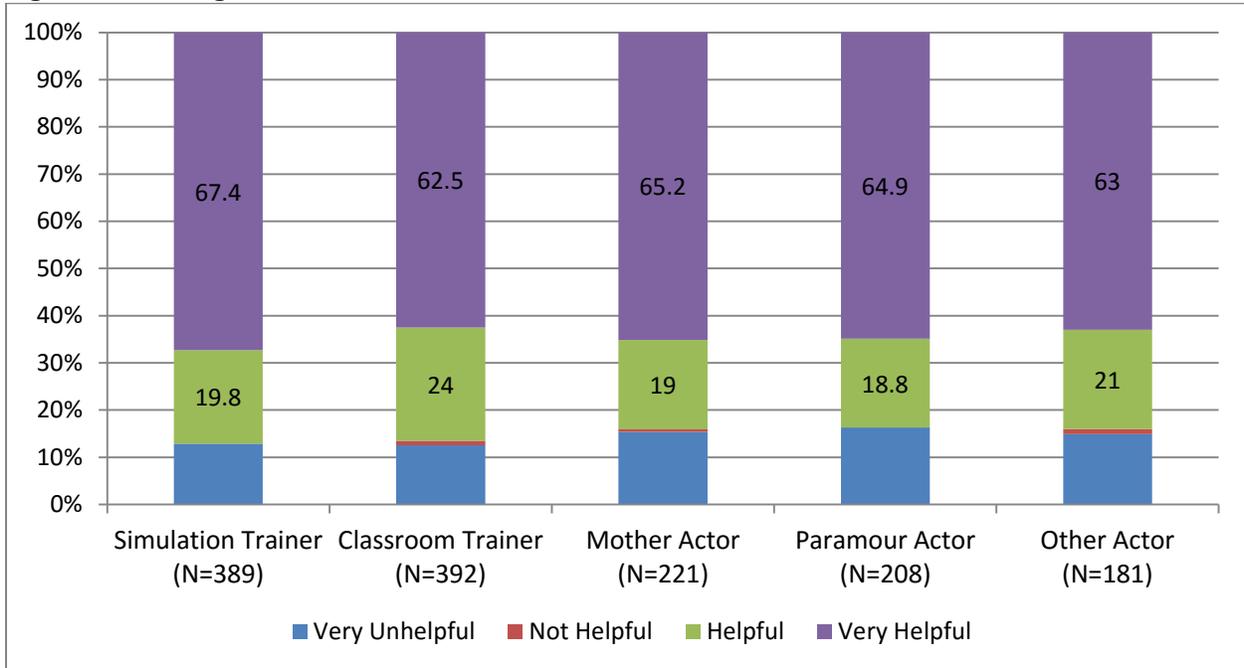
Repeated Measures Analysis of Variance. The best way to examine the change over the course of a training is to use the method called repeated measures analysis of variance. It requires respondents to fill out the survey at every time point. A repeated measures ANOVA was conducted with the 41 respondents who completed the DEST at every time point. Differences across time points were statistically significant for all 13 items (Table 2.2). The mean confidence level of all CPS work skills also differed significantly across 6 time points. The confidence level of working as a DCFS investigator increased 48% between the baseline and last day. Figures 2.3 to 2.15 display the changes in the 13 items over time.

Table 2.2 Repeated measures analysis of variance

Confidence Scale	*MS*	*df*	*F*	*P*	Greenhouse-Geisser p	Huynh-Feldt p
Gather info from collateral contacts	10.97	5	25.18	<.000	<.000	<.000
Think critically on facts vs. hypotheses	12.37	5	44.82	<.000	<.000	<.000
Engage families	8.63	5	21.22	<.000	<.000	<.000
Assess safety	13.69	5	37.82	<.000	<.000	<.000
Integrate compassion and investigative skill	13.04	5	33.86	<.000	<.000	<.000
Address any concerns about family statements and behaviors	11.99	5	33.60	<.000	<.000	<.000
Identify family strengths	12.62	5	30.88	<.000	<.000	<.000
Explain need for safety plan and/or protective custody	14.90	5	32.53	<.000	<.000	<.000
Explain DCFS role and expectations for keeping children safe	13.37	5	32.88	<.000	<.000	<.000
Answer pointed questions from parents and caregivers	17.47	5	50.76	<.000	<.000	<.000
Address underlying conditions such as domestic violence, substance abuse, mental health, developmental disabilities	13.91	5	37.77	<.000	<.000	<.000
Testify in court	11.21	5	25.16	<.000	<.000	<.000
Work as a DCFS investigator	16.24	5	25.76	<.000	<.000	<.000

**Figure 2.3 Gather info from collateral contacts**
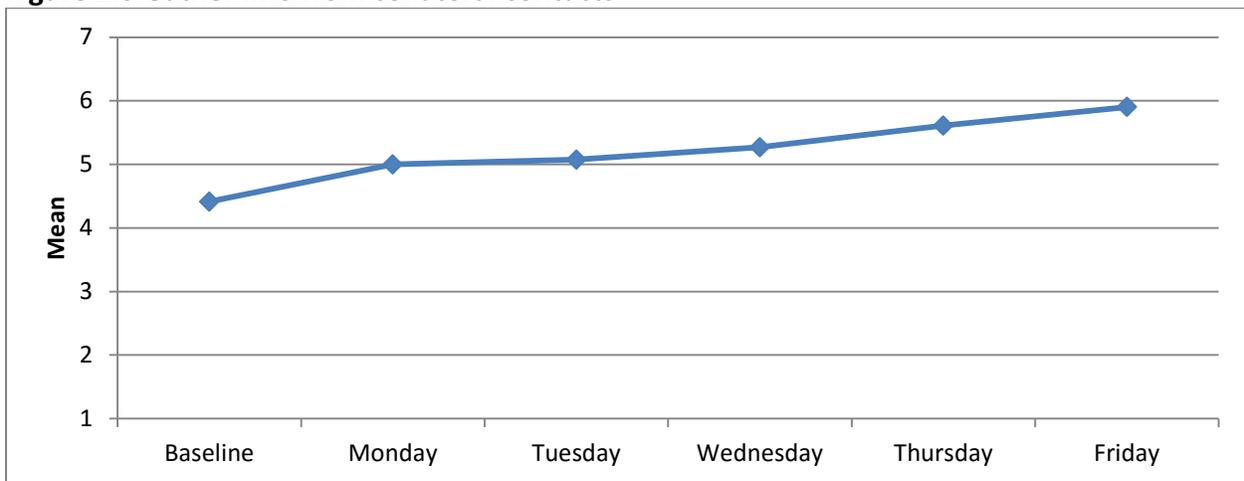
**Figure 2.4 Think critically on facts vs. hypotheses**
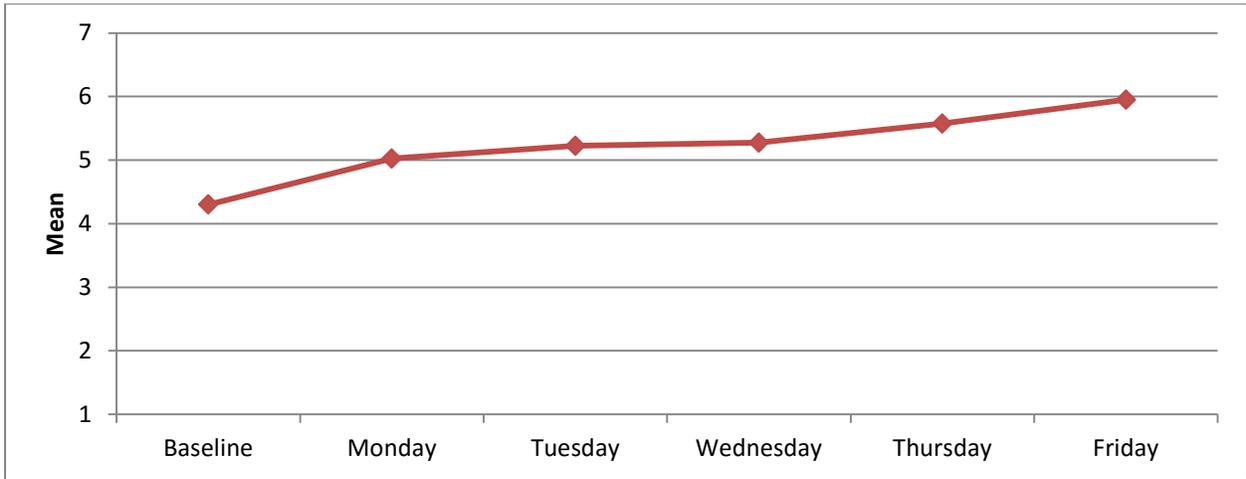
Figure 2.5 Engage families
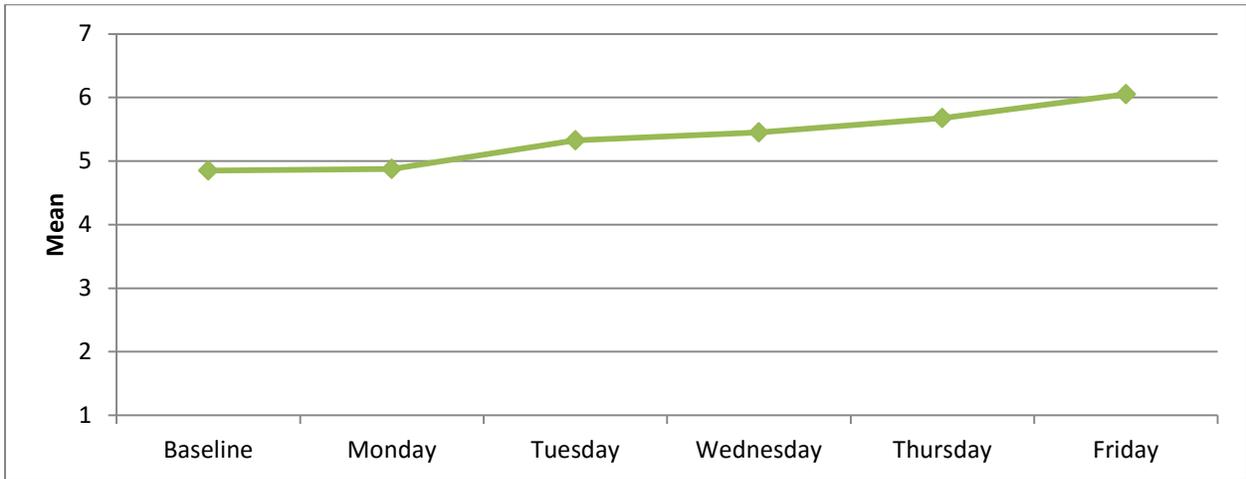
Figure 2.6 Assess safety
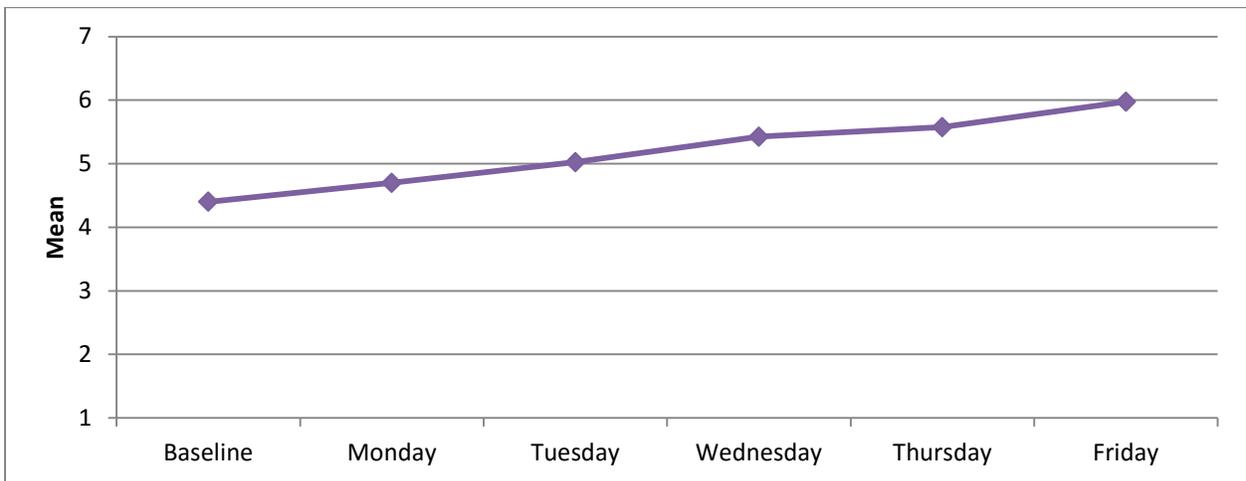
**Figure 2.7 Integrate compassion and investigative skill**
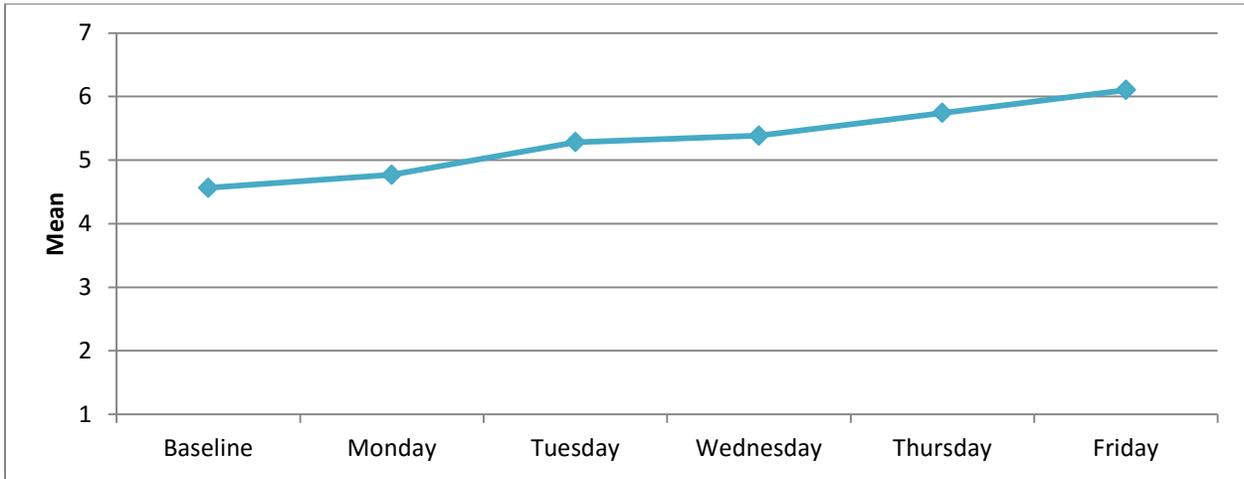
Figure 2.8 Address any concerns about family statements and behaviors
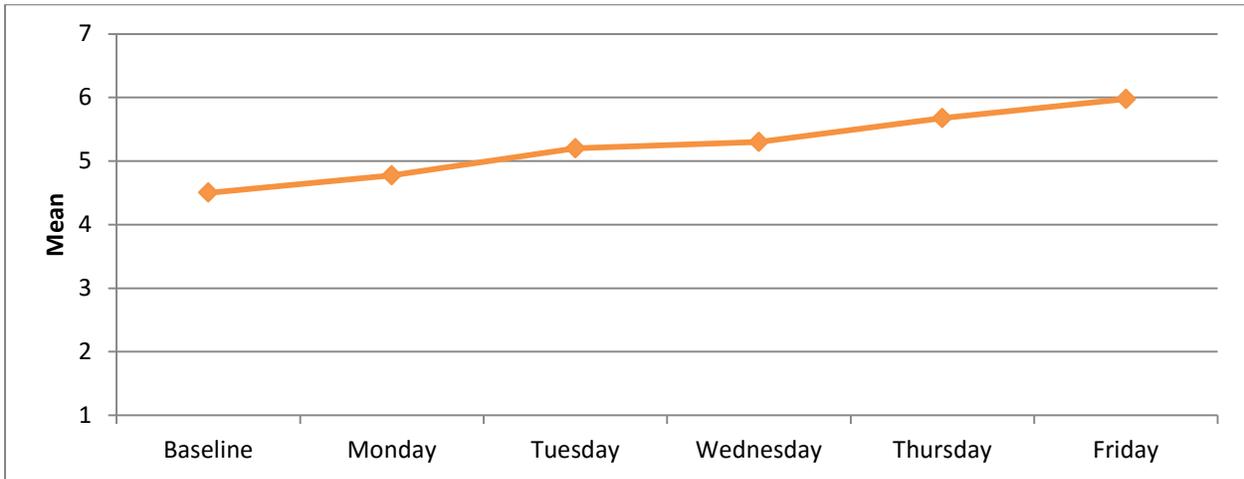
Figure 2.9 Identify family strengths
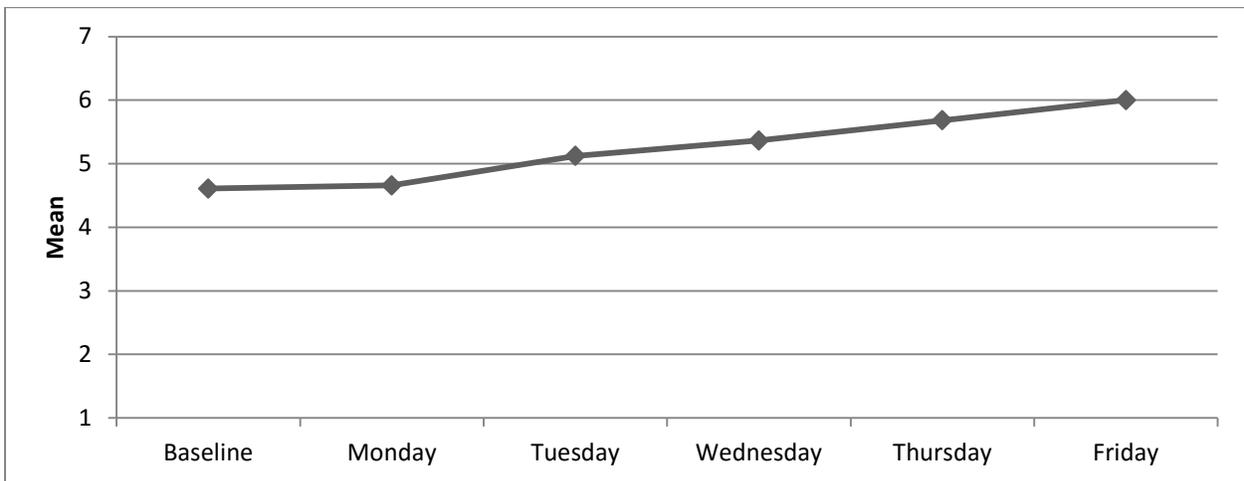
Figure 2.10 Explain need for safety plan and/or protective custody
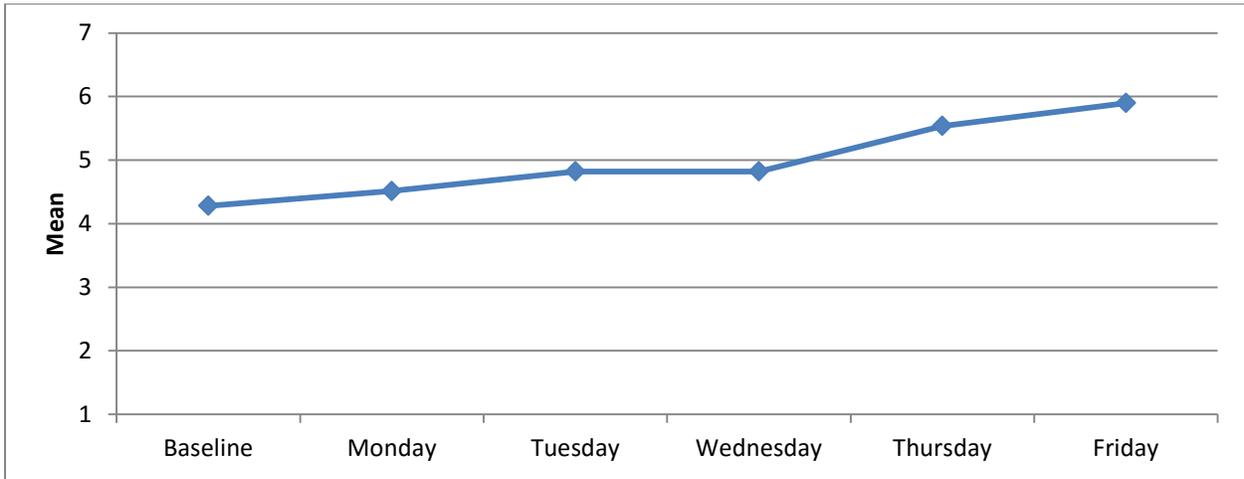
Figure 2.11 Explain DCFS role and expectations for keeping children safe
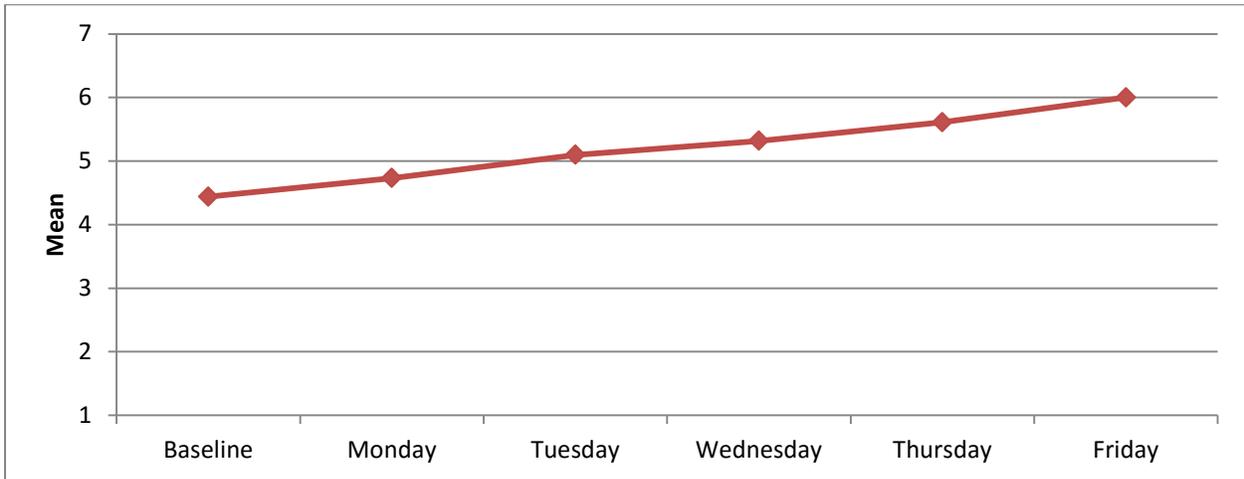
Figure 2.12 Answer pointed questions from parents and caregivers
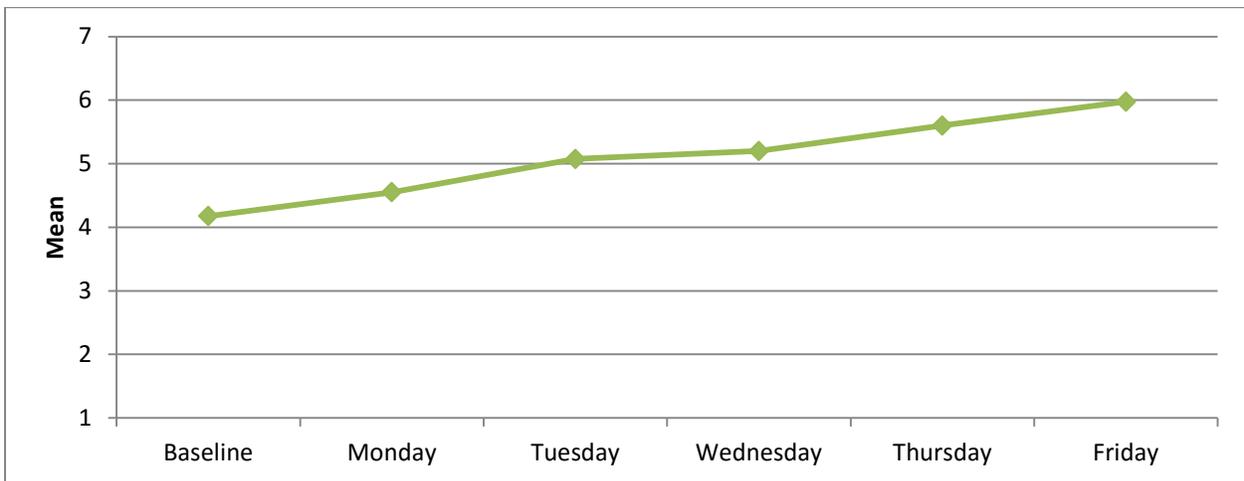
Figure 2.13 Address underlying conditions such as domestic violence, substance abuse, mental health, developmental disabilities
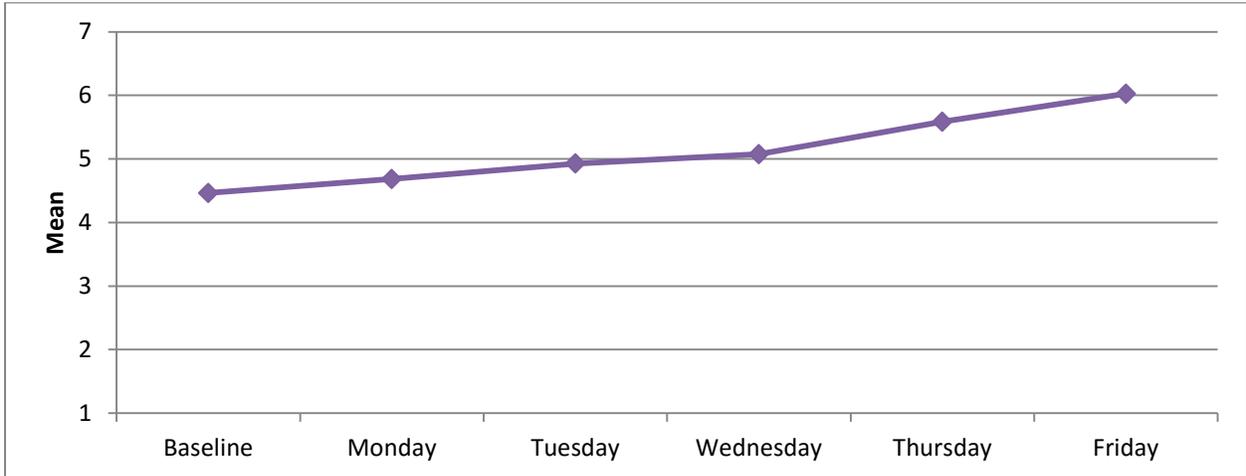
Figure 2.14 Testify in court
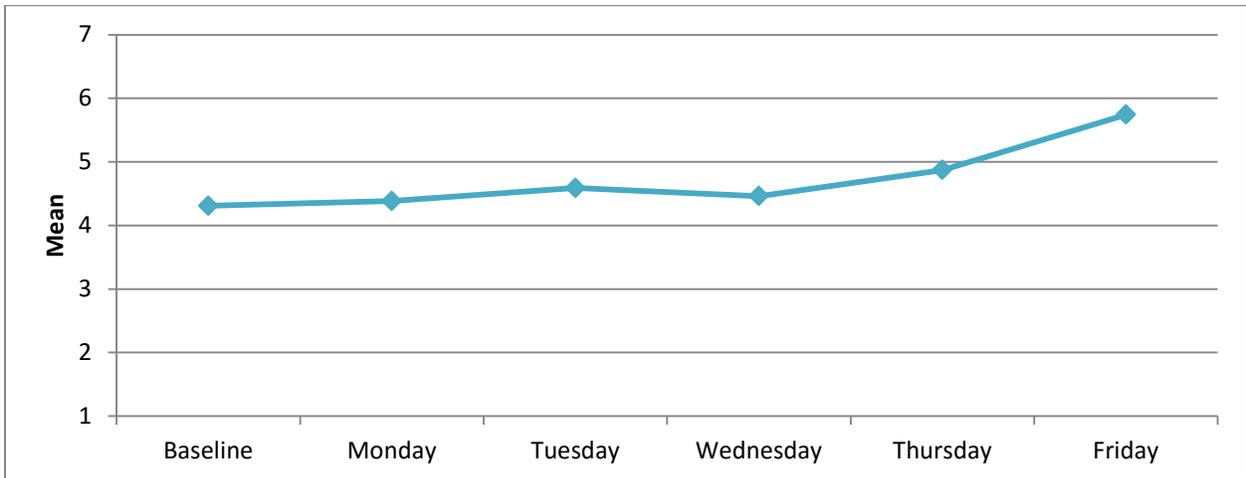
Figure 2.15 Work as a DCFS investigator
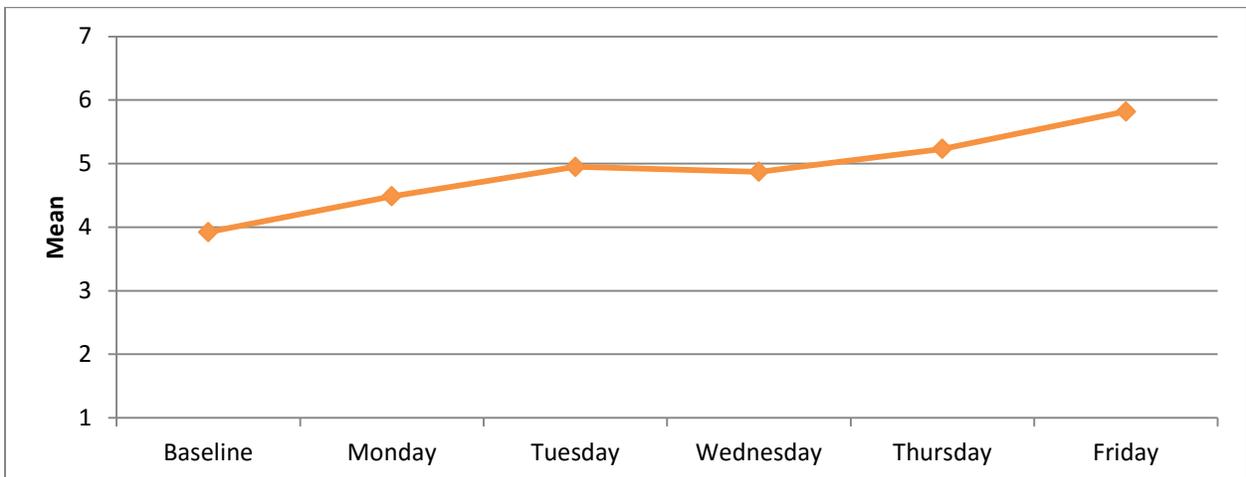
Section 3: Post-Training Satisfaction Survey

All newly hired child protection investigators participate in Certification Training for Child Protection, which includes five weeks of classroom training and a week of simulation training. DCFS administers an online post-training satisfaction survey on the Certificate Training experience to trainees, administered by the Center for Applied Information Technology (CAIT) at Western Illinois University. As discussed above, the initial evaluation report in FY2017 analyzed the results for 154 trainees in FY2016 and FY2017. For this year's evaluation, DCFS provided an updated data set including survey responses from February 2016 to April 2019. This year's analysis reports trainees' satisfaction ratings over this time period and also compares results for simulation training, classroom training and for the program.

Methods

The post-training survey includes 26 questions about classroom training, 8 questions about simulation training, and 2 questions about the overall program. Each item uses a 5-point Likert scale that ranged from "strongly disagree" to "strongly agree"(see Table 3.1).

The sample included 406 trainees. Descriptive statistics were calculated and one-way analysis of variance (ANOVA) was used to examine differences and across fiscal years. Table 3.1 displays the corresponding variables names that the evaluators created for these analyses.

Table 3.1 Simulation training satisfaction questions in the survey

Variable name	Question in the survey
Sim_Prepared	I felt prepared to participate in the SIM lab.
Sim_Environment	The simulation environment was a safe learning environment.
Sim_Learning	I felt the training was conducted in an environment conducive to learning.
Sim_RealisticScenario	The scenario environment was realistic. I was able to incorporate my training into practice.
Sim_RealisticExperience	The SIM lab provided a realistic experience of the challenges I will face when working in the field.
Sim_Confidence	Participating in the scenarios helped to increase my confidence in my role.
Sim_Debriefing	I felt respected during my debriefing.
Sim_Feedback	The debriefing sessions provided valuable feedback.

Results

Simulation Training Satisfaction. On a 5-point scale (strongly disagree =1; disagree=2; undecided=3; agree=4; strongly agree=5), the mean of the eight questions was between 4.1 (e.g. I felt prepared to participate in the SIM lab) and 4.6 (e.g., The simulation environment was a safe learning environment). The mean on "I felt prepared to participate in the SIM lab" was significantly below all the other means (Figure 3.1), though this mean still indicated that trainees agreed on average that they were prepared to participate in the SIM lab.

Figure 3.1 Simulation Training Satisfaction Rating
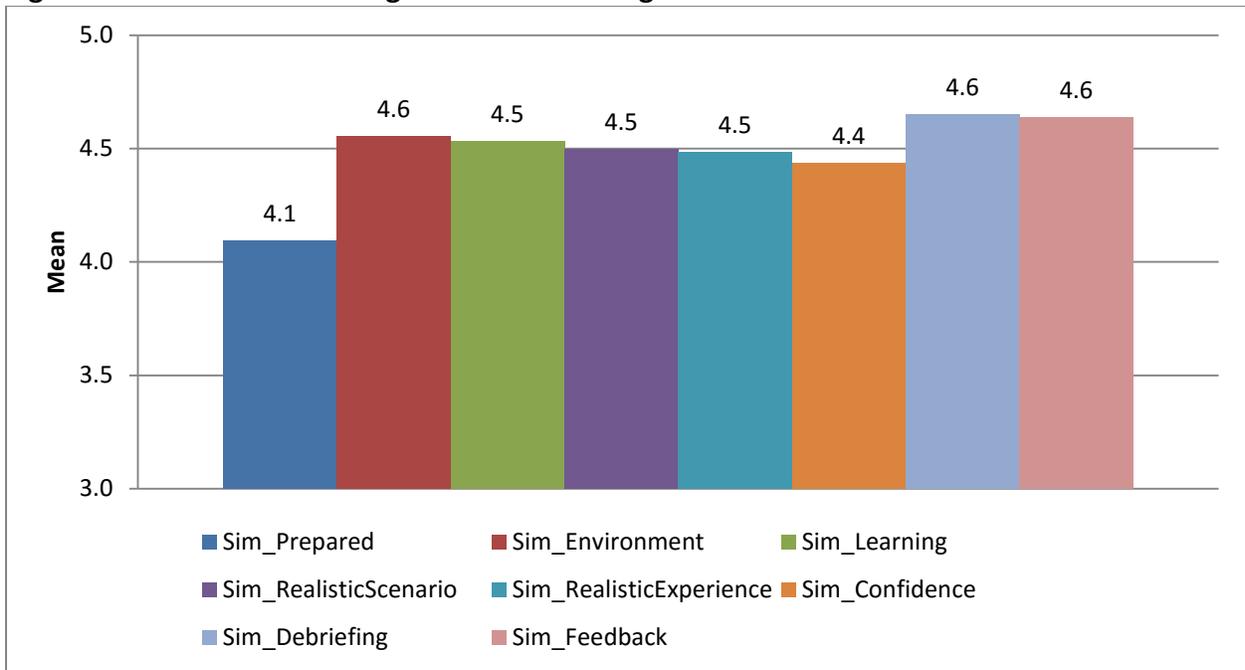
The one-way analysis of variance by fiscal year shows a statistically significant difference on all eight questions. Table 3.2 provides a summary of the oneway ANOVA results. The means for all the questions, besides Sim_Prepared, were between 4.8 and 4.9 in FY2016. Although the ratings of simulation training were consistently positive in the past 4 years, the ratings gradually decreased between 4.1 and 4.5 in FY2019 (Figure 3.2). The Games-Howell post hoc test revealed that the respondents in FY2016 or in FY2017 had significantly higher ratings than those in FY2018 or in FY2019 across almost all simulation training questions (Table 3.2).

Table 3.2 One-way Anova Comparison of Simulation Training Satisfaction Rating by Fiscal Year

	Oneway Anova	Games-Howell Post Hoc Test	
Sim_Prepared	$F(3,380) = 7.225$ $p = .000$	FY2016>FY2018	FY2017>FY2018
Sim_Environment	$F(3,378) = 11.351$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2019
Sim_Learning	$F(3,378) = 11.176$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2018 FY2017>FY2019
Sim_RealisticScenario	$F(3,380) = 8.331$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2018 FY2017>FY2019
Sim_RealisticExperience	$F(3,380) = 8.662$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2018 FY2017>FY2019
Sim_Confidence	$F(3,379) = 7.734$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2019
Sim_Debriefing	$F(3,380) = 7.564$ $p = .000$	FY2016>FY2017 FY2016>FY2018 FY2016>FY2019	FY2017>FY2019
Sim_Feedback	$F(4,379) = 6.749$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2019

Figure 3.2 Simulation Training Satisfaction Rating by Fiscal Year
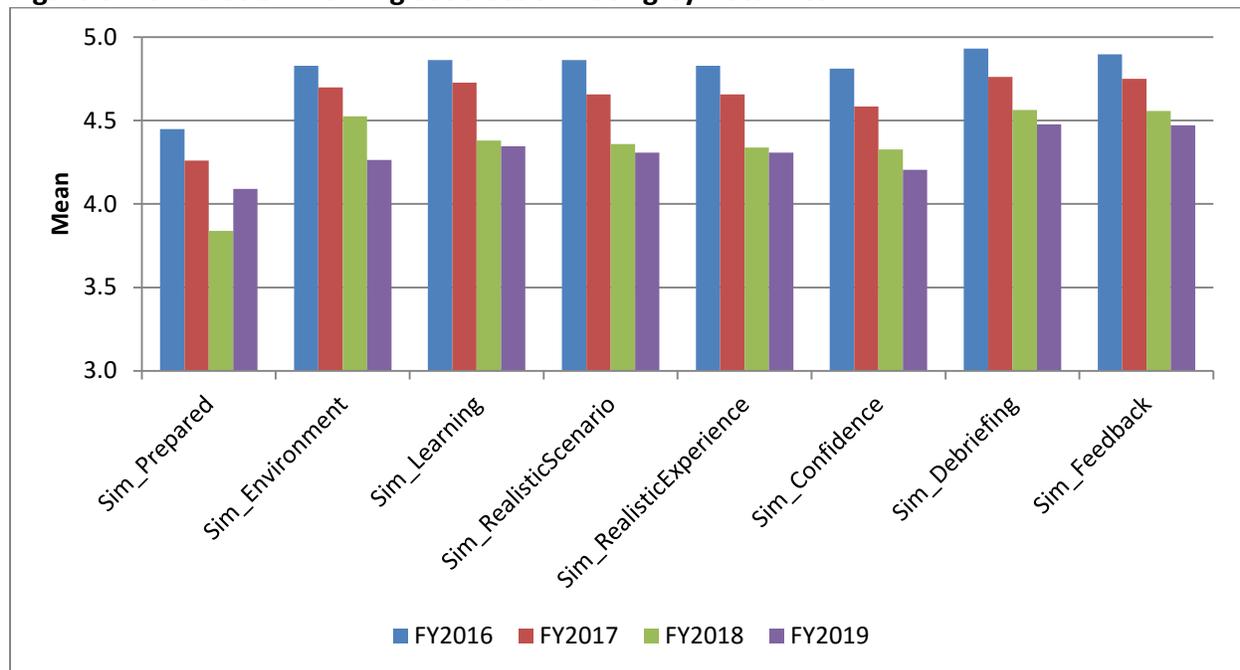
Analysis of Classroom, Simulation, and Overall Program Ratings. Mean satisfaction scores were calculated across the simulation training items, the classroom items, and the overall program items. The means were similar: simulation training mean=4.5, classroom mean = 4.3, and overall program mean=4.4 (Table 3.3). Each of these indicated that trainees averaged

between "agree" and "strongly agree" on their answers to the positively worded items on these scale, indicating considerable satisfaction on average. As can be seen above, the mean satisfaction score for simulation training was higher than the mean for classroom training by one-fifth of a point on the 5-point scale. This small difference was statistically significant given the large sample size of 383 . Thus we can treat it as a difference that is likely to be true across a population of trainees even though it is small

Table 3.3 Descriptive Statistics for Classroom, Simulation, and Overall Program Ratings

Variable name	Total questions in the survey	N	Mean	SD
Classroom Satisfaction	26	406	4.3	.53
Simulation Satisfaction	8	385[18]	4.5	.63
Overall Program Satisfaction	2	403	4.4	.70

Figure 3.3 shows the average ratings for the classroom training, simulation training, and overall program by fiscal year. All three scores declined on average from FY2016 to FY2019. Oneway analyses of variance with Games-Howell post-hoc tests showed that, across the Classroom, Simulation, and Overall Program scores, FY2016 and FY2017 were significantly higher than scores for FY2018 and FY2019, though all scores on average indicated satisfaction (see Table 3.4).

For the simulation training score, the difference between FY2016 and FY2019 yielded a Cohen's d of 0.87, which represents a large difference[19] and the difference between FY2017 and FY2019 yielded a Cohen's d of 0.51, a moderate difference. For the classroom training score, the difference between FY2016 and FY2019 yielded a Cohen's d of 0.72, a moderate to large difference, and the difference between FY2017 and FY2019 yielded a Cohen's d of 0.61, a moderate difference.

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[18] Ten respondents who had the classroom training between Feb and Mar 2019 did not receive sim training when they responded to the survey. Their responses on sim questions were excluded from analysis. That is why the sample size of sim (N=385) is smaller than those of classroom and overall program.
[19] See Cohen, J. (1992), ibid.

Figure 3.3 Certificate Training Satisfaction by Fiscal Year
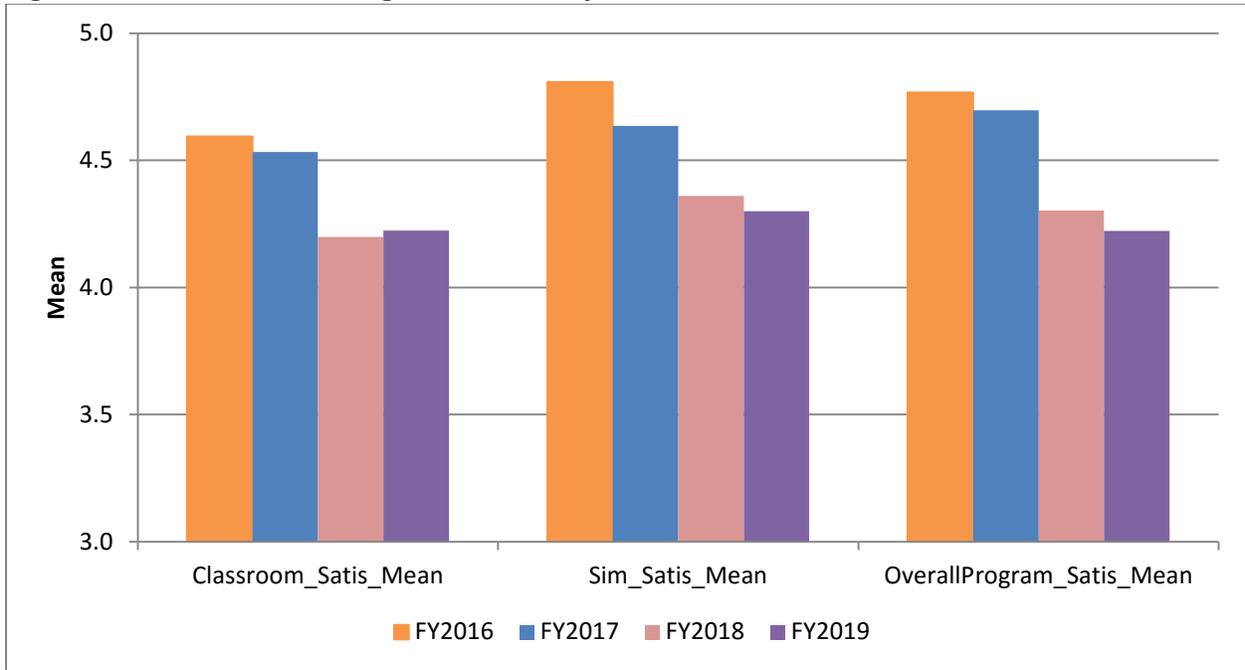
Table 3.4 One-way Anova Comparison of Certificate Training Satisfaction Rating by Fiscal Year

	Oneway Anova	Games-Howell Post Hoc Test	
Classroom Satisfaction	$F_{(3,401)} = 15.196$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2018 FY2017>FY2019
Simulation Satisfaction	$F_{(3,380)} = 11.890$ $p = .000$	FY2016>FY2017 FY2016>FY2018 FY2016>FY2019	FY2017>FY2018 FY2017>FY2019
Overall Program Satisfaction	$F_{(3,398)} = 15.417$ $p = .000$	FY2016>FY2018 FY2016>FY2019	FY2017>FY2018 FY2017>FY2019

Section 4: Simulation Training and Investigator Turnover

Turnover has historically been a problem in child welfare.[20] The quality of training may be an important way to address the turnover issue. The CPTA listed "diminished investigator turnover" as a desirable outcome in their program logic model. One important question is whether investigators who have received simulation training stay in their jobs longer than investigators who lack this training. The investigator survey conducted for the FY2018 evaluation included questions about investigators' intentions to leave their job. Below we report an updated analysis of these questions. This year's program evaluation used employment data from DCFS Division of Budget and Finance to compare sim-trained investigators to pre-sim trained investigators on the likelihood investigators actually left their job.

Updated Analysis of Turnover Intention

All DCFS investigators were eligible for the investigator survey, including those who had received simulation training and those who had not. Included in the survey were six questions concerning investigators' turnover intentions:

1. I am starting to ask my friends/contacts about other job possibilities.
2. I am actively looking for a position at another department of DCFS.
3. I am actively looking for a job outside of DCFS.
4. I am actively looking for a job outside of DCFS because I'm having a concern of my physical safety.
5. As soon as I can find a better job, I will leave DCFS.
6. I am seriously thinking about quitting my job.

CPTA asked for an updated report on the turnover intention analysis to see whether other variables as well as simulation training had a statistical effect on simulation training. Program evaluators conducted additional logistic regression analyses that showed results for simulation training and also looked at the relationship of other variables to turnover intervention (see Table 4.1).

As before, there were differences between the sim and pre-sim groups on two questions, "I am actively looking for a position at another department of DCFS" and "As soon as I can find a better job, I will leave DCFS". The respondents who did not receive a simulation training were 4.2 times more likely than those who received a simulation training to check "yes" on "I am actively looking for a position at another department of DCFS" ($p < .05$). The odds that a pre-sim respondent checked "yes" on the question of "As soon as I can find a better job, I will leave DCFS" were 3.5 times the odds that a sim respondent did so ($p = .06$).

What is new in this report are results for the relationship of other variables to turnover intention. Investigators 61 years old or older were more likely to intend to quit their job than investigators age 21 to 30. Investigators with 3 to 5 years of tenure in child welfare were substantially less likely to intend to leave DCFS than investigators that had less than two years of tenure in child welfare. Other results (below) were at a statistical trend level ($p=.06$) and

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[20] U.S. General Accounting Office (2003). *Child welfare: HHS could play a greater role in helping child welfare agencies to recruit and retain staff.* Washington, DC: Author

should be interpreted more cautiously. White investigators were more likely to intend to quit their job than were non-white investigators. Investigators with caseloads of 11 to 25 cases (in the last 30 days) were more likely to intend to leave DCFS and to intend to quit their job than investigators with caseloads under 11 cases.

Table 4.1 Logistic Regression of Turnover Items on the Investigator Survey

Turnover Intention	Ask Friend (n=192)	Inside DCFS (n=190)	Outside DCFS (n=191)	Safety Concern (n=188)	Leave DCFS (n=183)	Quit My Job (n=185)
	Exp(b)	Exp(b)	Exp(b)	Exp(b)	Exp(b)	Exp(b)
Simulation Training						
No	2.272	4.192*	1.376	1.334	3.546[+]	0.673
Job satisfaction	1.321	1.182	1.222	1.448	1.706	1.311
Age						
21-30 years old	-	-	-	-	-	-
31-40 years old	1.265	0.750	1.110	0.479	0.773	2.890
41-50 years old	0.722	0.546	0.415	0.248	0.475	1.782
51-60 years old	1.568	0.904	1.093	1.667	1.01	1.247
61 years and older	1.309	1.208	1.441	1.487	1.250	2.231*
Race						
Non-White	-	-	-	-	-	-
White	0.532	0.608	1.215	0.944	1.078	2.635[+]
Education						
Bachelor's Degree	-	-	-	-	-	-
Master's or Doctoral Degree	0.996	1.815	1.739	1.805	1.340	1.868
Social Work Degree						
No	-	-	-	-	-	-
Yes	1.223	1.166	1.006	1.698	1.498	1.214
Caseload in the Past 30 Days						
0 to 10 cases	-	-	-	-	-	-
11 to 25 cases	1.564	1.559	1.728	1.146	2.434[+]	3.190[+]
More than 25 cases	1.365	0.886	0.735	1.421	0.921	0.888
Tenure in Child Welfare						
Less than 2 years	-	-	-	-	-	-
3 to 5 years	0.666	0.451	0.450	1.092	0.287**	0.581
6 to 10 years	0.771	0.561	0.679	0.419	1.473	0.746
More than 10 years	0.734	1.079	1.127	0.889	1.326	1.322
Tenure as a DCFS Investigator						
Less than 6 months	-	-	-	-	-	-
6 to 12 months	2.406	1.793	3.625	4.281	1.796	5.133
1 to 2 years	0.632	0.611	1.191	0.727	0.813	0.762
3 to 5 years	0.601	1.178	0.741	1.730	0.686	1.194

More than 5 years	1.198	1.078	1.174	0.741	2.045	1.526
−2 log Likelihood	235.662	223.040	207.279	177.160	199.250	165.235
X^2	28.235	31.679	19.538	26.893	31.506	24.851
df	18	18	18	18	18	18
Sig.	$p=.059$	$p=.024$	$p=.359$	$p=.081$	$p=.025$	$p=.129$

[+] $p<.06$ * $p<.05$ ** $p<.01$

Job Turnover Study

Methods

On September 25, 2018, the DCFS Division of Budget and Finance sent the program evaluators a set of employment data for DCFS investigators. The evaluation team utilized a quasi-experimental design utilizing group comparisons. The "sim group" included all DCFS investigators who started to work at the Division of Child Protection (DCP) of DCFS between February 2016 and January 2018. All newly hired investigators after February 2016 have been required to participate in simulation training. The "pre-sim group" included DCFS investigators who started to work at DCP between February 2014 and January 2016. Simulation training was not available for this group and therefore they did not receive it.

Student's t-test and Pearson chi-square test were used to assess whether differences between the groups are statistically significant. A more sophisticated method, survival analysis (also known as event history analysis) were also used to compare the two groups on retention as investigators at DCFS. Survival analysis techniques are particularly suited to the study of staff turnover because they generate conditional probabilities that staff will leave the investigator positions during a given time interval. Both "life table" and subgroup comparisons can be generated as well. A "life table" figuratively shows the probability of "survival", that is, the probability that they will remain in their job. A statistical model that controls for time variance along with predictor variables on the turnover rate can be generated in the Cox regression procedure. Survival analysis helps to control for the possibility that differences between the groups on other variables such as age and previous experience might confound the comparison between the sim and pre-sim groups. The observation periods for both the sim and pre-sim group are 24 months (See Appendix B). This may seem like a short observation period, but it was chosen based on the reality that sim training did not begin until 2016, so even the longest-tenured sim-trained investigator has not been on the job very long. The sample includes 404 investigators, 98 in the pre-sim group and 306 in the sim group, respectively.

Two conditions defined investigator turnover:

- When the variable "left DCFS" was coded as "yes" and the variable "left DCFS date" was before the end of observation periods (January 31, 2016, for the pre-sim group and January 31, 2018, for the sim group); or
- When the variable of "post cps position" was coded as "yes" and the variable of "post cps position date" was before the end of observation periods, this means the person transferred from DCP to a different division within DCFS.

In addition, we define survival time (the length of time until turnover) using the following criteria:

- From "DCP start date" to the end of observation periods (January 31 2016 for the pre-sim group and January 31 2018 for the sim group) if the person was still in child protection service division; or
- From "DCP start date" to "left DCFS date" during the 24-month observation period if the person left DCFS; or
- From "DCP start date" to "post cps position date" during the 24-month observation period if the person left DCP.

Controlling for other variables in the survival analysis provides us with a more rigorous comparison of the sim and pre-sim groups by ruling out the potential confounding effect of any differences between the groups that pre-dated training. The available variables from the DCFS data were as follows:

- Cohort: Pre-sim and sim groups.
- Position: children and family services intern and child protection specialist.
- Gender: male and female.
- Race: White, African American, Hispanics, and other.
- Social work degree: Has a social work degree.
- Education level: some college or other degree, a bachelor's degree, and a master's degree.
- Age.
- Certificate training score: 0-100. For some investigators, the certificate training score was not necessarily tied to DCP training. It was the score from the first training whenever they started to work at DCFS. If someone came into DCFS in other division before transferring to DCP, their Certificate training might be tied to the other division.

Results

Descriptive statistics. The study sample includes 404 investigators. The majority was female (79.7%), and White (42.6%) or African American (41.3%). Most had a bachelor's degree (89.9%) that was in a field other than social work (86.1%). The average age was 41-years-old (SD=9.12). About 19% of sample was hired as children and family service interns. The average score for certificate training was 85 (SD=6.05). Around 17% of the study sample left their investigator position during the 24-month observation period: 13.1% left DCFS and 3.7% left DCP but stayed at DCFS (Table 4.2).

Table 4.2. Sample Description (N=404)

Variable	N (%)	Variable	N (%)
Gender		**Position**	
Male	82(20.3%)	Children and family service intern	76(18.8%)
Female	322(79.7%)	Child protection specialist	328(81.2%)
Race		**Cohort**	
White	172(42.6%)	Pre-sim	98(24.3%)
African American	167(41.3%)	Sim	306(75.7%)
Hispanics	53(13.1%)	**Left DCFS[21]**	
Other	12(3.0%)	Yes	53(13.1%)
Social Work Degree		No	351(86.9%)
Yes	54(13.4%)	**Left DCP[22]**	
No	348(86.1%)	Yes	15(3.7%)
Missing	2(0.5%)	No	389(96.3%)
Education level		**Turnover[23]**	
Some college or other degree	20(5.0%)	Yes	67(16.6%)
Bachelor's degree	363(89.9%)	No	337(83.4%)
Master's degree	19(4.7%)		
Missing	2(0.5%)		

Pearson chi-square (X^2) tests examined differences in turnover for different categories of investigators. More children and family service interns (32.9%) left DCP or DCFS within the 24-month observation period than child protection specialists (12.8%) (X^2 (1, N = 404) = 18.00, p <.000). The turnover rates for Hispanics (28.3%) and for other races (33.3%) were higher than for White (14.5%) and African American investigators (13.8%) (X^2 (3, N = 404) = 9.17, p <.05). A higher percentage of male (28.0%) left DCP or DCFS than female (13.7%) (X^2 (1, N = 404) = 9.78, p <.01). A higher percentage of investigators in the pre-sim group (25.5%) left DCP or DCFS than those in the sim group (13.7%) (X^2 (1, N = 404) = 7.45, p <.01) during equivalent time spans. Moreover, 3-way chi-square tests showed that the turnover rates of male in both pre-sim (X^2 (1, N = 98) = 5.03, p <.05) and sim groups (X^2 (1, N = 306) = 6.01, p <.05) were higher than those of females (Table 4.3). Student's t-tests results showed no statistical difference on age between those who stayed and those who left. The Certificate training score also showed no difference.

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[21] The statistics only include those who left DCFS within the 24-month observation period. We did not count those who left DCFS after January 2016 for the pre-sim group and who left after January 2018 for the sim group.

[22] The statistics only include those who left DCP within the 24-month observation period. We did not count those who left DCP after January 2016 for the pre-sim group and who left after January 2018 for the sim group.

[23] Turnover took both "left DCFS" and "left DCP" into account. One person left DCP first and then left DCFS soon after. That is why the number in the "Yes" group of Turnover is one short of total of "Yes" in "Left DCFS" and "Left DCP."

Table 4.3. Three-way Chi-square results: Cohort, Gender, and Turnover

| | Turnover | | X^2 | p-value |
	No	Yes		
Pre-sim			5.03	.025
Male	9(52.9%)	8(47.1%)		
Female	64(79.0%)	17(21.0%)		
Sim			6.01	.014
Male	50(76.9%)	15(23.1%)		
Female	214(88.8%)	27(11.2%)		

Survival Analysis. Results from the survival analysis indicate that investigators in the pre-sim group were significantly more likely to leave their job than those in the sim group. At Month 18, 37% of pre-sim group had left their job compared to 20% of sim group. At Month 23, the turnover rates for the two groups almost converge (Figure 4.1).

Figure 4.1. Months between DCP start date and turnover
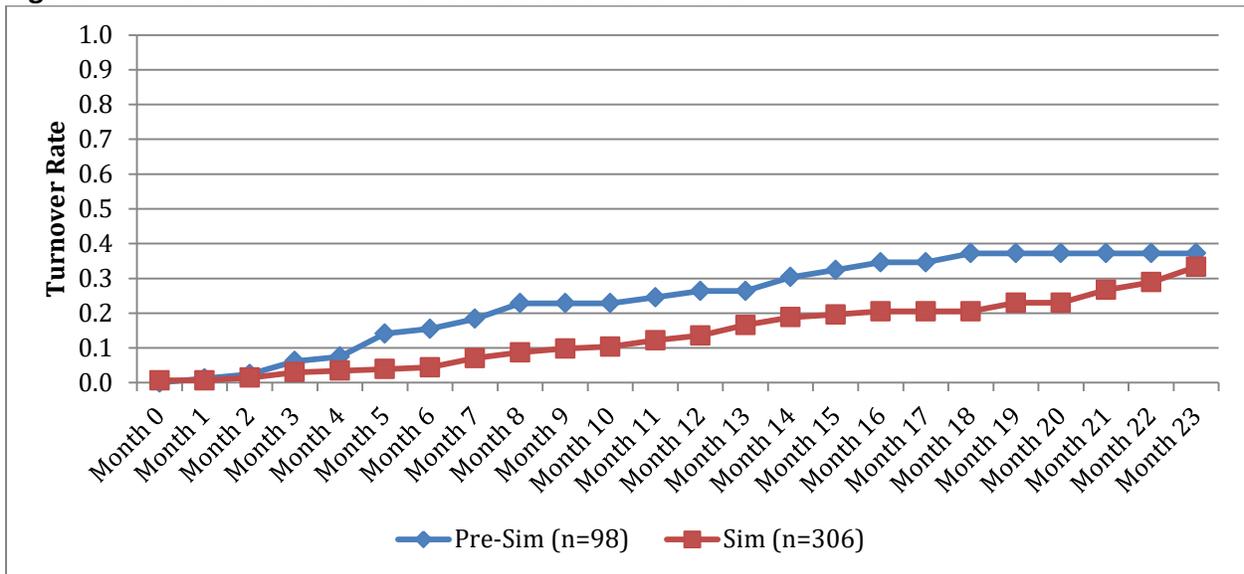
The Cox regression results show that the odds of leaving their job for the pre-sim group was 1.8 times greater than the odds of leaving for the sim group, after controlling for other variables (see Table 4.4). In addition, the odds that male investigators would leave their job were more than two times greater than the odds that female investigators would leave their job.

Table 4.4. Predicting turnover rate in a 24-month observation period (N=404)

	Coefficient	SE	Exp(b)
Gender			
Male	0.705	0.282	2.025*
Female[a]	-	-	-
Race			
White[a]	-	-	-
African American	-0.059	0.320	0.942
Hispanics	0.022	0.375	1.022
Other	0.405	0.579	1.499
Age	-0.017	0.016	0.983
Social Work Degree			
Yes	0.478	0.356	1.614
No	-	-	-
Education level			
Bachelor's degree	1.075	0.735	2.929
A degree other than Bachelor's degree[a]	-	-	-
Position			
Children and family service intern[a]	-	-	-
Child protection specialist	-0.087	0.323	0.917
Certificate training score			
Cohort			
Pre-sim	0.597	0.291	1.816*
Sim[a]	-	-	-
−2 log Likelihood	623.530		
X^2	21.197		
df	10		
Sig.	*p*=.020		

[a] Reference category for contrasts; *$p<.05$

Discussion

Investigator Turnover. The FY2019 program evaluation of the Child Protection Training Academy continues to show positive results for new investigators who have received simulation training. Positive results continue even while the CPTA has made substantial changes to its model in an effort to improve training. New investigators' post-training satisfaction with simulation training continues to be high, though scores have decreased somewhat over time, as we discuss below. Analysis of DCFS employment data showed a clear distinction between those who started as DCFS investigators in February 2016 or later, who received simulation training, and those who started as DCFS investigators between February 2014 and January 2016 and did not receive simulation training. Investigators in the pre-sim group were almost twice as likely to leave their job by 18 months than the sim group. Similarly, the risk of leaving their job was almost twice as great for the pre-sim group, even when other variables were statistically controlled. Results showing decreased turnover since February 2016 suggest meaningful progress in improving retention of DCFS investigators. Note that the fact that turnover rates for the sim and pre-sim groups almost converged at Month 23 does not negate the differences in turnover between the two groups. It simply represents a comparison relevant to those who had already been 23 months on the job – at that point there was no difference between sim and pre-sim on the likelihood of leaving at that point. To reiterate, in their first two years, those trained in the sim era were significantly less likely to leave their job as child protective investigators. The results of the job turnover study are a meaningful parallel to FY2018 results from the investigator survey that show that those had simulation training were less likely to plan a job change.

One plausible explanation for the progress in retention is the effect of simulation training provided by the Child Protection Training Academy. Data from the FY2018 program evaluation suggest that investigators participating in simulation training felt more prepared, which may have reduced the stress of the job and increased their self-efficacy in their work. It is worth exploring whether there may also be other explanations for this improvement as well, understanding that multiple explanations for these differences might all be true. Because the sim and pre-sim groups began their careers in different years, it is accurate to say that we are comparing sim-era investigators to pre-sim-era investigators. As noted above, differences between these two groups may relate to differences in who was hired in these different eras, and what their working conditions were. It is noteworthy that the initiation of simulation training coincided in time with a major DCFS initiative to hire new investigators. Many more investigators were hired in the sim era than in the same time span previous to simulation training. It may be worthwhile to collect additional qualitative and quantitative data about investigators' experience of their job and how that might have changed over time and be dissimilar for different cohorts of investigators.

Post-Training Satisfaction. The post-training satisfaction survey scores for simulation training have consistently been high over four years. Every year, the average score has been at least 4.4. This is about halfway between "agree" and "strongly agree" on the positively worded questions indicating satisfaction with simulation training. Scores were significantly lower in FY2018 and FY2019 than in FY2016 and FY2017 and the effect sizes were moderate to large. Because scores

were nevertheless high in these latter years, this finding should not provoke alarm, but instead offer an opportunity to explore further the impact of the program on trainees.

The CPTA and DCFS should explore what factors might explain the decrease in satisfaction scores. One possible factor to consider is regression to the mean – the FY2016 satisfaction scores for simulation training are so high that some decrease would be expected just on statistical grounds. This would probably not entirely explain the downward trend over the four years, however. Another possibility is that simulation training generated extra excitement in its first years because it was an engaging innovation; to some extent, the higher scores then might have reflected trainees' appreciation of something new and different. The excitement might have diminished now that simulation has become institutionalized. The possible effects of changes in simulation trainers and classroom trainers over the four years need to be explored. Note that the ratings for classroom training have decreased in parallel to ratings for simulation training, suggesting that factors related to certification training as a whole need to be explored. Ratings differed little between FY2018 and FY2019, suggesting that implementation of the new case and the addition of PBL has had neither a negative effect nor a positive effect on trainees' appraisal of simulation training.

This report presents more complete results from the investigator survey on turnover intention than was reported in the FY2018 program evaluation. Several other variables in addition to simulation training were related to investigators' intention to leave their job. Investigators over 61 were more likely to intend to quit their job than young investigators—perhaps this was related to a wish to retire. The finding that those with 3 to 5 years of tenure in child welfare were less likely to plan to leave DCFS than those with less than 2 years could be a reflection of their greater commitment to the child welfare field. Differences by race-ethnicity and by caseload on turnover intention should be interpreted cautiously because they were not quite statistically significant. However, these results lead us to recommend that DCFS conduct a thorough study with a larger sample size of these and other factors related to investigator turnover intentions. DCFS may also want to explore further the finding from the survival analysis of employment data that showed that male investigators were substantially more likely to leave their job within 24 months than female investigators.

Conclusion

Positive results over three years of program evaluation support the value of CPTA and suggest the potential of its current expansion. It is encouraging that investigators hired since February 2016 are staying on the job longer than investigators hired prior to that date. Simulation training could help explain improved retention, though other differences in hiring and working conditions between investigators hired in different eras need to be considered. The decrease in trainees' post-training satisfaction scores in recent years, which nevertheless remain high, suggests the need for more exploration of factors that explain the quality of training. Data can be used both to advocate for the value of CPTA and to inform efforts at program improvement.

Appendix A: Daily Experience of Simulation Training (DEST)

- Time point: When are you taking this survey?
  □ Monday Morning (Baseline)
  □ Monday Afternoon
  □ Tuesday
  □ Wednesday
  □ Thursday
  □ Friday

- With (1) being lowest and (7) being highest, please check the appropriate number to indicate your level of confidence in the following skill areas TODAY.

	Low			Moderate			High
1. Gather info from collateral contacts	1	2	3	4	5	6	7
2. Think critically on facts vs. hypotheses	1	2	3	4	5	6	7
3. Engage families	1	2	3	4	5	6	7
4. Assess safety	1	2	3	4	5	6	7
5. Integrate compassion and investigative skill	1	2	3	4	5	6	7
6. Address any concerns about family statements and behaviors	1	2	3	4	5	6	7
7. Identify family strengths	1	2	3	4	5	6	7
8. Explain need for safety plan and/or protective custody	1	2	3	4	5	6	7
9. Explain DCFS role and expectations for keeping children safe	1	2	3	4	5	6	7
10. Answer pointed questions from parents and caregivers	1	2	3	4	5	6	7
11. Address underlying conditions such as domestic violence, substance abuse, mental health, developmental disabilities	1	2	3	4	5	6	7
12. Testify in court	1	2	3	4	5	6	7
13. Work as a DCFS investigator	1	2	3	4	5	6	7

- Please answer the following questions regarding the feedback that you received in **today's training**:

- I found the classroom trainer's feedback to be □ very helpful □ helpful □ not helpful □ very unhelpful □ N/A
- I found the simulation trainer's feedback to be □ very helpful □ helpful □ not helpful □ very unhelpful
- I found the actor who played the "Mother Figure" feedback to be □ very helpful □ helpful □ not helpful □ very unhelpful □ N/A
- I found the "Paramour Figure (Father, boyfriend, partner) " actor's feedback to be □ very helpful □ helpful □ not helpful □ very unhelpful □ N/A
- I found the "Other Adult Caregiver in the Home" actor's feedback to be □ very helpful □ helpful □ not helpful □ very unhelpful □ N/A

- **Today's reflective log:** What were the most meaningful concepts or skills you learned today?

Appendix B: Schematic of Design for Survival Study Showing Dates of Training

Year	2014												2015												2016												2017												2018
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1
Pre-sim	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███																									
Sim																									███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███	███