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Article

Critical thinking and simulation in child welfare: Florida department of children and family's formative evaluation

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Abstract: An evaluation of the Florida Department of Children and Families (DCF) revealed child welfare professionals required more comprehensive pre-service training. The REAL Academy™ (RA) provided training in critical reasoning, high-fidelity simulation, and administrative tethering. This article is an evaluation of the effectiveness of the redesigned training process. We collected quantitative and qualitative data from five cadres of trainees, including representatives from the DCF, sheriff's offices, the University of Southern Florida, and community-based care centers. Statistical analyses of quantitative data included correlations, linear regression, and multiple regression, and results indicated the critical thinking training was highly effective, realistic, and relevant, and the simulation exercises helped trainees gauge, manage, and recover from the anxiety and stress inherent in their work. Thematic analyses of qualitative data revealed that trainees placed importance on their roles within the organization, implying the need for a trust-centric configuration, which can be achieved by administrative tethering. Recommendations for future practice include the integration of contemporary teaching methodologies, an emphasis on trauma competency, a focus on improving the workplace culture and environment, the incorporation of virtual reality, the introduction of critical thinking strategies and tools, and the use of high-fidelity simulations.

Keywords: administrative tethering; train the trainer; trauma competency; virtual reality; mixed methods

1. Introduction

The Florida Department of Children and Families (DCF) has recently implemented changes designed to enhance their child welfare pre-service training. These changes were prompted by a Level 3 evaluation by the Florida Institute for Child Welfare (FICW), which found that child welfare professionals required more comprehensive training approaches, including experiential learning opportunities and critical thinking skills (Vargo and Menendez, 2020). In response, DCF developed a comprehensive plan to improve Florida's child welfare pre-service training, which includes updated teaching methodologies, a greater emphasis on trauma competence, improvements in organizational culture and climate, virtual reality simulations, critical thinking tools, and high-fidelity simulations.

The inherent impact of secondary stress within the profession was an integral part of the study. In a broader scope, one must consider the residual effect on the child welfare worker of consistently encountering difficult and at times unfathomable circumstances within a child's home. In addition to these circumstances, workers must navigate organizational expectations and manage excessive caseloads. As a result of these collective conditions, symptoms of secondary stress inevitably impact their

decision-making and thus their critical thinking skills, how they respond, and their organizational identity will erode, thereby impacting child safety (Cornille and Meyers, 1999; McFadden et al., 2015).

This evaluation assesses the extent to which the pre-service training redesign portends to enhance the effectiveness of Florida's Child Welfare Services as rendered by newly retained and incumbent social workers (Rossi et al., 2004). Furthermore, an assessment will be performed involving the CW employees' ability to meet child welfare service delivery standards, expectations, and performance measures. Importantly, this study, and its accompanying activities, is framed by the following definition of program evaluation:

Program evaluation is the application of social research methods to systematically investigate the effectiveness of social intervention programs in ways that are adapted to their political and organizational environments and are designed to inform social action to improve social conditions (Rossi et al., 2004, p. 6).

This evaluation engages stakeholders to realize added value to the development and implementation of the redesigned pre-service training and how it can help mitigate secondary stress conditions. Intervention in these areas establishes the foundation for a new organizational culture that reflects supervisory support, employee value, and organizational identity transition. It focuses on those assessments that furnish information to intervention implementers; this flow facilitates real-time adaptations and refinements to ineffective aspects of the intervention. Identified inefficiencies were reviewed for necessary adjustments for continuous improvement purposes.

1.1. Background of child welfare training standards

The provision of child protection and welfare services is a federally mandated responsibility, requiring each state to provide a continuum of services as directed by several acts, including the Child Abuse Prevention and Treatment Act (CAPTA), the Indian Child Welfare Act (ICWA), the Adoption and Safe Families Act (ASFA), the Multiethnic Placement Act (MEPA), and Title IV-B and Title IV-E laws. The primary focus of these laws is to safeguard children in the United States from any form of abuse or neglect. The child welfare profession plays a crucial role in protecting one of the most vulnerable populations, but it is also subject to criticism.

The child welfare profession faces persistent challenges deeply ingrained in its internal systems and structures. Workforce retention has been a longstanding issue, with varying levels of attrition ranging from 12%–50% across the nation for more than twenty years (Paul et al., 2022). The complex and emotionally taxing nature of abuse and neglect cases, along with the unique behaviors and characteristics of such cases, coupled with inadequate training and support from the agencies, expose child welfare professionals to secondary stress and trauma (Collin-Vézina et al., 2020; Griffiths et al., 2019; Lwin et al., 2018; Middleton and Potter, 2015; Vandervort et al., 2008). The factors cited here have propelled child welfare systems into a perpetual state of crisis. Moreover, efforts to make large systemic changes are quelled shortly after onset by professionals from within versus outside influences (Marino and Wright, 2022). Loss of front-line staff leads to cases that must be redistributed to the remaining team members, leading to overworked staff and long-term trauma and stress exposure. The

system cannot slow down long enough to recover the required energy for change.

In the case of Florida DCF, remaining in crisis is no longer an option. Key leadership from across the state from within DCF and external members set a historical change of events in motion. The singular goal of uniting all the tethered partners is to improve child safety and build resilient families. This goal can be realized by addressing the problem's nucleus to better equip professionals for child welfare work.

1.2. Changes in the curriculum

As stated above, the main challenge in the child welfare system appears to hinge on job readiness, which strongly correlates to retention. Vargo and Menendez's (2020) evaluation of the Florida pre-service training cited strong improvements in experiential learning, and real-life job practice is among the top priorities of front-line child welfare professionals, supervisors, and leadership. In partnership with DCF and FICW, leadership chose partners specializing in virtual reality, critical reasoning, and simulation training customized to address job readiness and retention strategically.

1.2.1. Virtual reality

DCF and FICW collaborated with an external vendor to obtain virtual reality scenarios. Virtual reality has the potential to be a valuable educational resource as long as it is integrated with evidence-based learning techniques (McDonald et al., 2021). Virtual reality technology integrates software applications that simulate realistic decision-making scenarios. It immerses child welfare professionals in a true-to-life environment with families and children. This learning tool aims to offer new child welfare professionals a secure space to experience challenging human behavior and practice their decision-making skills.

1.2.2. Critical reasoning

The REAL Academy™ (RA), also known as Realistic Environments to Aid Learning, was chosen to provide vital services such as critical reasoning, high-fidelity simulation, and administrative tethering. The academy's unique training system focuses on critical reasoning, which involves a process and two tools to help child welfare professionals gather enough relevant information to determine the safety of children. Based on forensic science and classical learning methods, Marino and Wright's research conducted from 2015 to 2022 shows that using these tools and processes can improve safety decision-making by 30% to 50%.

1.2.3. High fidelity simulation

Simulation training offers unique, customizable, safe learning environments to practice life-saving skills, and has more than forty years of evidence behind it. The experiential learning modality has become the favored evidence-based methodology in the medical field (Agha, 2019; Bradley, 2006). Learners interact with standardized patients (actors/actresses) whom they have never met or have encounters with pre- or post-simulation. Educators and trainers can create any scenario mimicking the intensity and complexity of real life. Public services such as child welfare has much to gain by adding high-fidelity simulations as it fosters deep learning environments for knowledge, skill, and ability retention.

High-fidelity simulation is a term designated for simulation education and

training that replicates the truest sense of reality. High-fidelity simulation requires the above characteristics and the intentional design to evoke moments of flight, fight, and freeze to challenge human decision-making and demonstration of skill (Barbadoro et al., 2023). The overall objective is to condition the learner to perform under stress without succumbing to their own personal stress. The RA has carefully constructed its training system with critical reasoning conditioning as the central focus. It uses high-fidelity simulation as the mechanism to safely mold the learner to perform under the pressures realistically found in today's child welfare cases.

1.3. Administrative tethering

The theory and practice of administrative tethering (AT) seeks to evaluate the nature of a professional's bonds within the context of their home agency, the clients, served outside agencies, self, and the laws/policies/procedures that govern the work. According to Marino and Wright (2022), a fit organization is one where the members of an organization sustain their commitment by experiencing strong bonds tethered by the chords of trust, value, accountability, and motivation (p. 41). The practice components of AT involve measuring the strength of individuals' bonds within the relational contexts listed above. AT provides an output of the workforce's bounded rationality, which stymies strong professional relationships. Conversely, AT examines the workforce's status of near decomposability, which indicates the fertile areas change is favored to strengthen relationships (Marino and Wright, 2022). The RA has woven the AT metrics into the training system as a means to address weaker points of relationships (bounded rationality) through mitigation strategies to prevent trauma bonding and promote resilience in the child welfare work force.

1.4. Train-the-trainer process

The RA carefully constructed and validated a train-the-trainer process during 2017–2019. The process incorporates AT, a critical reasoning process and tools, and the classical experiential model from Johns Hopkins medical school, See One, Do One, Teach One (SODOTO; Kahn and Rubin, 2015; Marino and Wright, 2022; Rodriguez-Paz et al., 2009; Stagno and Cappabianca, 2013). The certification training spans 17 total days. The first 2 days are focused on the critical reasoning process and tools. The first full week is "See One." RA trainers lead the agency's trainers in simulation events designed for Florida Practice. The second week is "Do One." RA slows the training process down to explain each step. This involves taking trainers into what AT is and how it is used in the training, the critical reasoning, all the mechanics of the simulation, providing reflective feedback, and how to evaluate trainees. Week 3 is the trainers' opportunity to demonstrate their new skills under the strict observation of RA's trainers. The newly prepared trainers "Teach One" by teaching the next group of trainers for their "See One" week.

2. Materials and methods

2.1. Scope of the evaluation

Implementing complex interventions, such as the pre-service training redesign,

is arduous (Rossi et al., 2004). It requires managers to clearly understand what should be implemented, how to best implement a suggested strategy, which elements may hinder or facilitate the implementation process, and why an approach did or did not work once implemented. The proposed review will involve the following analytical components: (a) an implementation-focused analysis, (b) a progress-focused analysis, and (c) an analysis of interpretive data. This analysis will provide key impact information concerning the overall implementation of the re-training program and identify any adjustments (as needed) pertaining to the delivery of the intervention itself.

The purpose of arraying the implementation analysis in this manner is to fashion a comprehensive assessment of the intervention (Rossi et al., 2004). The progress-focused, analytical attribute of this review will also provide key monitoring as to the nature of the granular facets of the redesigned pre-service training that contribute to and/or confound the progress toward its implementation. Specifically, this analysis will describe the training redesign involving Cadres 1 to 5.

After the implementation of this phase of the re-design intervention, interpretive data (collected before, during, and after implementation) will be analyzed to help determine why the intervention did or did not work. This evaluation will employ quantitative methodologies to review implementation performance data pertaining to select outcome indicators. Stakeholders' views will also be gathered via qualitative data collection methods. It is intended that various inferential statistical techniques, including regression and correlation, will be employed to support these analytical insights. Data sources include semi-structured interviews with stakeholders, structured surveys, direct observations through site visits, and document reviews. Sources of data and data collection methods will be reviewed and adjusted as necessary to ensure the best evaluation needed for continuous quality improvement purposes.

2.2. Sample

The sample was a blend of representatives from the Department of Children and Families (DCF), sheriff's offices, and community-based care (CBC) centers; these trainers were experienced in training Florida's child welfare workers pre-service. Participants in the Sun Coast demonstration represented all six regions of the state. Five training events started in November 2022 and were completed on 30 June 2023. The total sample size of trainers from each of the five cadres equaled 53. Of that number, only 46 completed the entire 17-day certification process. Thirty-three were from DCF, five from the sheriff's offices, three from University of Southern Florida, and five were from CBCs. The DCF and sheriff's office trainers all completed investigative track pre-service training, whereas the CBC trainers provided case management specialty track. As such, the CBC trainers had not trained alongside the investigative trainers previously, and their area of focus in child welfare was post investigation. All trainers in this sample completed the investigative specialty track. Nine of the 62 did not complete the full certification process. These nine decided to wait for case management training or had competing priorities in other job duties that interfered with completion.

A sub-sample was requested by DCF to test the acceptance of the CR process and

tools with child protection investigative supervisors (CPIS). A two-day CR training was provided for 15 CPIS professionals. The focus of including this sub-sample was to test how the process and tools would align with the Florida Practice Model and utility to improve decision-making in the field.

2.3. Data collection

2.3.1. Instruments

The RA collected data on four previously validated tools. Each of the data collection tools contains survey items formulated into Likert scales, and responses included strongly agree, agree, neutral, disagree, or strongly disagree. The survey instruments also provided opportunities to type in feedback based on their experiences, knowledge acquisition, skill acquisition, and perceptions of how the trainers and CPIS believed the CR process, tools, and simulation training would fit Florida's needs and align with the current practice model. Lastly, the trainers were asked to complete a perception of skills survey, which provided RA trainers with a baseline of how a trainer may demonstrate engagement, partnership, information gathering, assessment and understanding of information, situational awareness, de-escalation, and motivational interviewing.

In the four survey items above, the AT assessment survey was provided to participants before they began training. RA trainers and research staff sought to discover specific bonding strengths and challenges. Identified challenges helped to inform a training intervention called an enactment, used to improve bonding between members of the training cadre and also strengthen the bond to the child welfare professional.

A fifth data collection tool was the simulation assessment. The simulation assessment (SA) demonstrated various outputs of the experiential training. It measured anxiety levels of the trainee before and after simulation. Perception of reality is measured post simulation. Finally, each participant is measured on their actual demonstration of these skills listed above from the perception survey to detect discrepancies between perception and ability.

Last, the RA acquired the ability to measure physiological characteristics of autonomic nervous system function to analyze skill acquisition, safety, and the potential gap in perception of reality in RA's simulation versus the body's stress and recovery response to the simulation. The measures, using a nonmedical device, assist in triangulating perception of reality versus the body's response to stress in the simulation. The RA's training team sent the surveys developed and tested by the research team. Participants used computers, tablets, or smartphones to provide responses anonymously. Data was stored in a secure cloud server, which required duo-authentication for access. The bio-feedback data was collected and analyzed by a third researcher. That researcher sent the analysis to the two primary investigators anonymously. Then all three researchers provided joint analysis of the participants' perception of reality versus the bio-feedback data. All participants deciding to participate in this portion of the evaluation were required to complete a separate consent form.

2.3.2. Response rate

In the five cadres, the participation in data collection varied from group to group. Variations are expected based on the sample size and the amount of data the evaluation is attempting to collect (Sammut et al., 2021). Moreover, smaller sample sizes present challenges to validating *P* values and the ability to generalize and/or predict outcomes over a population under study. Smaller sample sizes and response rates are highly useful, despite known challenges, in evaluations and implementation studies (Bryson, 2018; Bryson et al., 2010; Frankfort-Nachmias and Leon-Guerro, 2018). The potential maximum sample, based on the number of trainers training Florida child welfare pre-service, equaled 200. Fifty-three represents slightly more than 25% of the state's trainer population. The participation and nature of responses demonstrated a positive acceptance of the new curriculum and a willingness to advocate and work towards sustainability.

The five cadres totaled $N = 53$, whereas 46 completed the full certification, and from those 46 participants, the survey data collection yielded the average rate of 80.1%. A response rate over 50% is to be valued as statistically significant (Arrigoni et al., 2020; Dillman et al., 2014). According to Dillman et al. (2014), a 40% response rate is the threshold for scientific significance. As such, an 80.1% response rate establishes trustworthiness to the data collected with little concern of respondent bias. Therefore, the Sun Coast outcomes forecast a positive implementation pathway as evidenced the high response rate and the data analysis below.

Last, 15 child protection supervisors were invited to participate in RA's two-day critical reasoning training. All 15 (100%) participated in the critical reasoning survey. The smaller sample size, again, provided key indicators of whether RA's critical reasoning process and tools would align with the Florida practice model and be welcomed as an addition to focus and improve making safe decisions for children and families.

2.4. Methodological approach

The descriptive data, as outlined above, provided a general framework to guide the application of various inferential statistical methods and techniques. Analysis will be advanced, for instance, with the application of linear regression. The first step relative to the application of linear regression involved the utilization of the correlation matrix; this device helped to identify and confirm those key variables which should be included in the regression analysis, as well as those which may need to be disregarded due to lack of fit and/or presence of spurious relationships (i.e., multicollinearity). This condition can onset when one independent variable is a linear function of other independent variables. Quantitative data was analyzed via correlation and multiple regression using SPSS (version 27) software.

2.4.1. Correlational analysis

The rationale for selecting specific statistical (e.g., linear regression, multiple regression) are important to note. A correlation is a statistical measure that expresses the extent to which two variables are linearly related (meaning they change together at a constant rate; Roberts and Ilardi, 2003; McNabb, 2017). Correlation analysis is useful as it provides measures involving the strength and direction between two

variables of interest. A correlation analytical capacity remains with the two variables being explored (Bewick et al., 2003; McNabb, 2017; Roberts and Ilardi, 2003; Senthilnathan, 2019). Importantly, a correlation doesn't inform the area relative to cause and effect (Bewick et al., 2003; McNabb, 2017; Roberts and Ilardi, 2003; Senthilnathan, 2019).

Correlations are useful for describing simple relationships among data (Roberts and Ilardi, 2003). Correlations are defined via a unit-free measure called the correlation coefficient; this measure ranges from −1 to +1 and is denoted by *r* (Roberts and Ilardi, 2003; McNabb, 2017). The closer *r* is to zero, the weaker the linear relationship (McNabb, 2017; Roberts and Ilardi, 2003). Positive *r* values indicate a positive correlation, wherein the values of both variables tend to increase together. Negative *r* values indicate a negative correlation, wherein the values of one variable tend to increase when the values of the other variable decrease (McNabb, 2017; Roberts and Ilardi, 2003).

2.4.2. Linear regression analysis

Multiple linear regression analysis is used to model the relationship between a continuous response variable and continuous variables (McNabb, 2017; Roberts and Ilardi, 2003). Simple linear regression can be used to predict the value of a response based on the value of one continuous predictor variable (McNabb, 2017; Roberts and Ilardi, 2003). Multiple linear regression generates an equation that describes how the mean of Y changes for given, multiple values of X (McNabb, 2017; Roberts and Ilardi, 2003). Because the individual data values for any given value of X vary randomly about the mean, there is need to account for this random variation, or error, in the regression equation (McNabb, 2017; Roberts and Ilardi, 2003).

A multiple linear regression model provides a slope coefficient for each predictor (McNabb, 2017; Roberts and Ilardi, 2003). Each coefficient represents a measure concerning its change/impact upon a predictor, while holding the other predictor(s) constant (McNabb, 2017; Roberts and Ilardi, 2003). With more than two predictors, the techniques germane to multiple linear regression modeling can be applied to include all *p* predictors (McNabb, 2017; Roberts and Ilardi, 2003).

3. Results

3.1. Key correlation findings

The correlation matrices detailed in **Tables 1–3** are constructed such that measures of association are paired with an independent variable vis a vis its measured impact upon the corresponding dependent variable. Findings from this analysis provided further meaningful insights pertaining to the construct of a multi-regression model. The correlation matrices detailed in **Tables 1–3** highlight several key relationships and measures of association pertaining to the critical thinking training as manifested in the RA's pedagogy. These correlations were examined, for instance, to the extent to which the CT trainee "felt heard in CT training room" (see **Table 1**) and its association with CW functional areas involving the way the (a) CT training improved the family service capacity of trainee staff, (b) CT training will enhance my (the trainee's) rapport with trainee-staff, and (c) CT training will enhance my trainee-

staff bond.

The resulting measures of association (see **Table 1**) revealed that there was a strong, positive association (Pearson correlation of 0.636, significant at the 0.01 level) concerning how the CT training will enhance the extant trainee-staff (administrative-orientated) bond. From another vantage, the CT training was examined in terms of its impact upon the trainee staff's ability to effectively deliver family-level CW services; this area of interest reported a relatively strong, positive association (Pearson correlation of 0.664, significant at the 0.01 level). The resulting association measure involved the impact of CT training upon the trainee's rapport with staff. This area of attention reported a positive, moderate measure of association (Pearson correlation of 0.498, significant at the 0.01 level).

Table 1. Trainee perception of learning session conducted in the critical thinking training venue.

I felt heard in the CT training room	
CT training will improve the family service capacity of my trainee-staff	0.664*
CT training will enhance my rapport with trainee-staff	0.498**
CT training will enhance my trainee-staff bond.	0.636**

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Moreover, results stemming from the correlation analysis offered an additional set of considerations to explore (see **Tables 2** and **3**). In this regard, the extent to which the content of CT training was discerned as relevant to the actual CW practice emerged as highly salient. Trainees registered positive feedback surrounding the content of the CT training that conveyed a highly practical learning orientation (see **Table 2**) as it was replete with real-world exemplars from a didactic vantage (see **Table 3**).

Table 2. Alignment of practical dimensions of the child welfare function with the critical thinking training design.

Alignment of practical dimensions of the CW function with the CT training design	
CT training will enhance my trainee-staff PNP bond.	0.345*
CT training will enhance my rapport with trainee staff.	0.375*
CT training will improve family service capacity of my trainee-staff.	0.521**

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

At first blush, these areas seem to emphasize similar learning themes; however, a close review of the respective measures of association highlights a difference. In **Table 2**, the associations are positive, moderate CT training will enhance my trainee-staff PNP bond (Pearson correlation of 0.345, significant at the 0.05 level); 2. CT training will enhance my rapport with trainee-staff (Pearson correlation of 0.375, significant at the 0.05 level); and 3. CT training will improve family service capacity of my trainee staff (Pearson correlation of 0.521, significant at the 0.01 level). When the emphasis of the CT training content provides real-world examples, the measures of association are strong, and positive in nature.

Table 3. Child welfare practice exemplars and the critical thinking training design.

CT session involved real world exemplars	
CT training will enhance my trainee-staff PNP bond	0.787**
CT training will enhance my rapport with trainee-staff	0.609**
CT training imp family service capacity of my trainee-staff	0.495**

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Table 3 reflects correlations echoing such a set of strong, positive metrics as reflected to the extent to which the (a) CT training will enhance my trainee-staff PNP bond (Pearson correlation of 0.787, significant at the 0.01 level) and (b) CT training will enhance my rapport with trainee-staff (Pearson correlation of 0.609, significant at the 0.01 level). An implication to consider from this finding is that it highlights both the conceptual as well as the practical dimensions intrinsic to the critical thinking realm. This notion can also be construed as meaningful in that it provides important insights concerning the strategic design of the CT training for ongoing betterment purposes.

3.2. Assumptions of linear regression

Linear regression is a statistical analysis that assesses whether one or more predictor variables explain the dependent (criterion) variable. The regression has five key assumptions concerning the areas of (a) linear relationship, (b) multivariate normality, (c) no or little multicollinearity, (d) no auto-correlation, and (e) homoscedasticity. The five assumptions of linear regression were examined (and confirmed), in a stepwise manner, for their alignment in terms of the linear regression analysis employed in the various, related facets of this evaluation.

First, a linear relationship must exist between the independent and dependent variables associated with the linear regression model employed in this evaluation. This assumption was confirmed via a set of scatter plots. Second, the linear regression analysis requires all variables to be multivariate normal. This assumption can best be checked with a histogram and a Q-Q plot. Third, linear regression assumes that there is little or no multicollinearity in the data. Multicollinearity occurs when the independent variables are too highly correlated with each other. Absence of multicollinearity was confirmed via the criteria of variance inflation factor (VIF). The VIF value was recorded within prescribed limits of <5. Fourth, linear regression analysis requires that there be little or no autocorrelation in the data. Autocorrelation occurs when the residuals are not independent of each other. The Durbin-Watson's d test was employed to confirm that there was no autocorrelation in the data of the associated linear regression model. In this regard, the Durbin-Watson test d value was within prescribed limits ($1.5 < d < 2.5$). Fifth, homoscedasticity assumes that the residuals of the linear regression (data plots) are equal across the regression line; scatter plots were examined such that it was confirmed that data were homoscedastic in nature.

3.3. Inferential findings: Linear, multi-regression analysis

The inferential statistical technique involving linear, multi-regression analysis

was employed to examine the sets of independent variables that have an impact upon the dependent variables concerning the CT training design. This examination was driven by the inferential findings attributed to the correlation analysis as highlighted above.

The information contained in **Tables 4** and **5** relates to an important set of implications surrounding the impact of the CT training sessions that were administered to Cadres 1 through 5. These tables provide key insights associated with the nature of the standardized coefficients generated from the regression analysis. The beta (standardized) coefficient β in linear regression implies that the corresponding independent variable is correlated with the dependent variable. A positive value for the beta coefficient connotes that with the other independent variables held constant, the dependent variable will increase by an amount equivalent to this (positive) beta value as it equilibrates with a unit change in the independent variable. Likewise, a negative value for the beta coefficient provides that the dependent variable will increase by an amount equivalent to this (negative) beta value in response to a unit change in the independent variable.

Importantly, the associated *p*-value for either beta coefficients need to be reported as statistically significant (i.e., $p < 0.01$ and/or $p < 0.001$); this characterization will then enable inferential statistical analysis to proceed surrounding the considered dependent variable-independent variable relationship. The *p*-value also indicates the extent to which the R^2 value is statistically significant. The R^2 value denotes the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model. **Table 4** presents a statistically significant R^2 value wherein this R^2 value provides that collectively the independent variables explain 41% of the variance for the dependent variable.

Table 4. Practical learning fostered via CT session.

	B	**SE**	**ß**
(Constant)	1.132	0.056	
Neutral disposition concerning the extent to which the CT training will improve family service capacity of their staff (NIMPRELMESTFFCandamp; FM)	−2.00	0.484	−0.708**
Expressed neutrality as to the extent to which the CT training will improve their rapport with their staff. (NIMPRELMESTFF)	1.868	0.347	0.924**

Note: **$p < 0.001$; Adjusted R Square: 0.411; Sig: 0.00.

The linear regression analysis, as reflected in **Table 4**, identifies the dependent variable as the notion that practical learning was fostered via the CT session. The regression model (see **Table 4**) is significant ($p < 0.001$) and can explain 41% of the variance, and is predicted by (the predictor/independent variables) NIMPRELMESTFFCandamp; FM, and NIMPRELMESTFF. In this regard, the training participants' responses emerged as neutral regarding (a) the extent to which the CT training will improve family service capacity of their staff (see: NIMPRELMESTFFCandamp; FM) and (b) the extent to which the CT training will improve their rapport with their staff (see: NIMPRELMESTFF). The predicator variables, NIMPRELMESTFF and NIMPRELMESTFFCandamp; FM, as reflected in their respective β measures of .924 and −0.708, had substantial impact upon the

dependent variables (these predicator variables reflected statistically significant β measures ($p < 0.001$).

Table 5 identifies the dependent variable as the notion that CT training will enhance my trainee-staff PNP bond. The regression model (see **Table 5**) is significant ($p < 0.001$), can explain 64.3% of the variance for the dependent variable, and is predicted by the action area concerning the extent to which the CT session involved real-world exemplars. The second predicator, YESVT2YRS, was not statistically significant as assessed from its β measure. In this regard, the significant predicator variable, as reflected in a β measure of .785, will induce the dependent variable to increase by an amount equivalent to this (positive) beta value.

Table 5. Critical thinking training will enhance my trainee-staff PNP bond.

	B	**SE**	**ß**
(Constant)	−0.660	0.260	
*CT Session involved real-world exemplars	1.360	0.173	0.758**
YESVT2YRS	0.264	0.124	0.206

Note: **$p < 0.001$; Adjusted R square: 0.643; Sig: 0.000.

The regression analysis results, coupled with the correlation analysis findings, suggests that CT training session can be discerned as highly effective, realistic, and relevant as it attends to both the conceptual as well as the practical dimensions intrinsic to the critical thinking realm. Inferential findings (see standardized coefficient β values above) predicts that the training participant, nevertheless, will remain pensive concerning the extent to which the particular trainee discerns that the CT training will improve the (family) service capacity of their staff (see NIMPRELMESTFFCandamp; FM). Likewise, those trainees who express neutrality as to the extent to which the CT training will improve their rapport with their staff (see NIMPRELMESTFF), will nonetheless discern that the RA-sponsored CT training is of pedagogical value in that it fosters practical learning.

3.4. CT qualitative findings

A content and thematic analysis was conducted on the 67 (52 trainers and 15 investigative supervisors) total responses from the CT 2-day training survey. Respondents were asked to provide feedback regarding their overall experience with the CT 2-day training, perception of the Behavior Branch process, Good Call and Nexus tools in practice, and whether they would recommend others to take the training. MaxQDA qualitative software was used to analyze the data. The analysis of the respondents' comments. **Table 6** demonstrates the five themes and **Table 7** represents who the trainers and supervisors would benefit from the CT training and use of process and tools.

Table 6. Thematic responses from critical thinking 2-day training.

T1	T2	T3	T4	T5
Slow down and improve CT	Improve information gathering	Improve knowledge and application of CFOP	Constantly keeps focus on relevant and sufficient information	Normalizes professional development regarding bias

Note: The content analysis of all 67 responses yielded the above five themes. **CFOP stands for Department of Children and Family Operating Procedure (child welfare policy of Florida).

Table 7. Who would benefit from the critical thinking training.

R1	R2	R3	R4	R5	R6
Font-line staff	Supervisors	Seniors**	OPAS***	All CW*	Leadership*****
Rp1	Rp2	Rp3	Rp4	Rp5	Rp6
100%	100%	100%	33%	100%	33%

Note. The content analysis of all 67 responses yielded the six categories. *CW means child welfare. **Seniors are professionals and an investigative team that may act as a supervisor in their absence. ***OPAS are operational program administrators. ****Leadership is designated for all leadership higher than OPA and includes DCF leadership.

The qualitative findings of the CT training reinforce what was discovered through the quantitative analysis. Saturation was evidenced by both the thematic association and percentages of respondents from the contextual analysis (Saldana, 2016). The CT training presented a clearly oriented process and practitioner-friendly tools designed to improve information management from a forensic perspective and render a focused decision regarding child safety (Marino and Wright, 2022). The positive responses indicated three critical lessons for implementation: (a) the participants were highly engaged and accepting of the process and tools, (b) the engagement and acceptance communicated the alignment with Florida's practice model on safety methodology, and (c) the participants' practice with the tools produced a tangible environment where the process and tools can be used to improve decision-making. As such, the effective nature in which the CT process and tools were applied and accepted by the participants showed favor in addressing DCF's requirement to strengthen CT in the field.

3.4. Simulation training

3.4.1. Trainer inter-rater reliability

The Skills Assessment session, as conducted in relation to RA's simulation training programming, was examined to ascertain the nature of its inter-rater reliability. In turn, data was collected in the "See One" phase wherein the trainers were trained as trainees in the simulations of 12/8, 12/9, 12/13, 12/14, and 12/15. Accordingly, three trainers from RA utilized the simulation scoring rubric to grade observed skills encountered at the trainee level of analysis.

As three RA trainers functioned as Raters A, B, and C reviewed and assessed the skills of the trainee and given that the examined dataset examined was comprised of ordinal data, the Kendall's W statistic (sometimes called the Coefficient of Concordance) was employed for overall analytical purposes. Kendall's W is a non-parametric statistic used to assess agreement between different raters, and ranges from 0 to 1. Zero is no agreement at all between raters, while 1 is perfect agreement. The

application of the Kendall's W statistic produced key findings as detailed below (see **Table 8** and **Table 9**). The information reflected in these tables aligns with the need to determine the extent of agreement (or disagreement) in terms of the points of view among Raters A, B, and C. Kendall's coefficient of concordance (W) revealed strong agreement between the Raters A, B, and C as designated by RA leadership.

Table 8. Hypothesis test summary.

	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The distributions of RS00, RS01, RS02, RS03, RS04 and RS05 are the same.	Related-Samples Kendall's Coefficient of Concordance	0.000	Reject the null hypothesis.

Note: a. the significance level is .050; b. asymptotic significance is displayed.

Table 9. Related-samples Kendall's coefficient of concordance summary.

Total *N*	**11**
Kendall's W	0.699
Test statistic	38.441
Degree of Freedom	5
Asymptotic Sig. (2-sided test)	0.000

3.4.2. Self-perception versus trainer assessed skill

Trainers were asked to complete a self-assessment survey of the skills used in everyday child welfare practice. Trainers teach them to new hires and support ongoing learning in the field. Testing skills in a simulation environment involves gathering an understanding of current skill level before allowing a learner to engage with simulation (Agha, 2019; Bradley, 2006). Child protective investigators working in Florida must possess skills in situational awareness, CT, motivational interviewing, engaging and partnering with families, de-escalation through motivational interviewing, and recognition of maltreatment and danger.

Often learners under-report or over-report their knowledge, ability, and skill in the field (Shankar et al., 2013). Moreover, research suggests measuring self-perception characteristics such as confidence should be partnered or at a minimum followed up with a rigorous evaluation by the child welfare learners demonstrating what they have learned (Auerbach et al., 2008; Jacquet and Hermon, 2018). As such, differentiating self-professed skill levels versus actual demonstration of skills under the most realistic circumstances found in child welfare cases provides insight into where more skills training is required.

A self-report of skill level was sent to all participants. Of the 53 participants, 34 responded to provide a self-assessment prior to attending simulation training. The simulation training spans over 5 days and contains six simulated events. All participants have a variation of experience working in child welfare investigations ranging from 1 to more than 10 years. All participants are training Florida's child welfare pre-service currently. RA trainers assessed the participants' level of skill using a validated assessment tool. RA trainers have a minimum of 10 years of child welfare experience and span more than 20 years with the skills listed above.

The self-report and trainers' assessment are ranked on a scale of 1 (no experience or knowledge of the skill) through 5 (high proficiency). This evaluation provides the

median score of the self-report for comparison with the trainers' "live" assessment during simulation. **Table 10** illustrates the difference in self-reported skill level and demonstrated skill level in a high-fidelity simulation experience.

Table 10. Median self-report and median assessed skill level of participants.

	Number of participants	**Median self-report**	**Median trainer assessment**
Total *N*	53		
Respondent *n* Self-report	34*	4.3	
Respondent *n* trainer assessment	53		3.0

Note: *65% of the total sample elected to complete the self-report survey.

The difference in the median outputs suggests strengthening direct skills training. The overall impression is trainers currently training pre-service have a strong ability to demonstrate the skills they are teaching new hires. While 65% of the total sample responded to the self-assessment survey, the outcome remains statistically significant to generalize over the sample (Dillman et al., 2014). Incorporating experiential learning and high-fidelity simulation into the Florida Academy's pre-service will provide ongoing practice for the training staff to develop professional skills they teach in the classrooms. Frequent practice of the child welfare skills coupled with increasing the frequency of training will draw the self-perception of skills and measures of assessed skill into alignment. Adopting these training techniques to improve skill performance will also address untethered connections between the front-line and training/support professionals.

3.4.3. Perceived anxiety and reality of simulation training

Parallel to skill perceptions, child welfare professionals also have perceptions of anxiety and reality levels based on the professional's experience in child welfare. Some professionals may rarely or never encounter family dynamics that are visceral in nature. As such, when they interact with other child welfare professionals who have experienced a family threatening or committing physical harm or observed physical, sexual, or emotional abuse, their bias infers because this is not the reality, they know to be child welfare (Barbadoro et al., 2023; Collin-Vézina et al., 2020; Middleton and Potter, 2015).

To meet the requirements of high-fidelity simulation, RA created a realistic immersive experience based on the feedback of Florida child welfare practitioners and trainers (Amod and Brysiewics, 2017). To explore the nature of the reality of the simulation, RA used a scaling technique to gauge the participants' levels of anxiety pre- and post-simulation. A reality scale was offered post simulation as to gauge from the participants' experience in the field if the simulation matched their experience. The stress and reality scales must be coupled in order to understand if the level of stress induced in the simulation reflects the reality from the professionals' points of view based on the complex encounters, they have with the families with whom they work.

Participants responded verbally using a range of 1 (not anxious at all) to 10 (so anxious they require time to recover before moving on). Each participant completed

seven simulation events inside a singular case over 5 days of the "See One" week, which required the participant to go through the simulation for the first time. The anxiety scaling is used just moments before they walk into the simulation event and again immediately following. Scaling is done in a quiet location separated from the rest of the training class. The reality scale is completed post-simulation and follows the same method. A score of one on the reality scale indicates not realistic, whereas a 10 indicated most realistic. Scaling is a motivational interviewing technique. RA uses the method to reinforce the use of the skill and engage potential discrepancies between performance in the simulation and perceptions on the scaling answers. **Table 11** provides the results of the median scaling outputs from the participants.

Table 11. Self-perception of anxiety and reality of simulation.

Total in percentages *N* = 53	**Median**
R/anxiety% Pre-Simulation	8.4
R/anxiety% Post-Simulation	3.5
R/reality% Post-Simulation	9.0

Note: All training participants were required to complete the scaling exercise as it is a part of the fidelity of RA's training system.

Two factors stand out in the data set in **Table 11**. One is the difference in pre- and post-anxiety scale outputs. Pre-simulation participants expressed a high level of anxiety despite their experience level. Post-simulation, respondents noted a more than 50% decrease. A partial reason is self-reports of anxiety post stressful events are typically lower due to being removed from the stress-inducing environment. The second factor is the level of reality of the simulation environments. A median reality score over all seven simulated events for each of the training participants is significant as it represents RAs' attempts to emulate the reality of what new hires will face in child welfare work.

3.4.4. Self-reporting anxiety, confidence, and reality versus the body's stress response

To help child welfare leaders ensure the training is as real and safe as possible, RA provided a basic bio-measure test to investigate stress and recovery responses of the participants. The body often tells the score when secondary stress and trauma are active. When encountering trauma, a person may exhibit responses of flight, fight, or freeze (Guina, 2016; Middleton and Potter, 2015; Waite and Ryan, 2019). Experiential learning provides a safe place for trainers to recognize a participant exhibiting stressful or trauma responses and provide mitigation strategies to build resilience on the job. High fidelity simulation trainers allow the participant to go into fight, flight, or freeze in the simulation scenario and provide reflective coaching afterward to improve resilience (Barbadoro et al., 2023). It is not best practice to stop the simulation unless the trainee is under such duress they cannot continue (Amod and Brysiewics, 2017). The participant can have another opportunity to practice, which is incorporated in RA's simulation as "recycling." The bio measures are essential in assisting in determining the participants' self-report of anxiety and reality and how the body takes in stress. Moreover, to understand further how to build a resilient workforce, it is necessary to measure the body's response and recovery from stress.

Of the 53 participants, 31 participants consented to being monitored during the class instruction, through simulation, and after simulation. The non-medical ECG device used in monitoring is non-evasive and is similar to technology commonly found in smartwatches, smartphones, and like devices. The algorithms used in the physiological data analysis are proprietary, however they incorporate accurate and reliable Heart Rate Viability variables that are well established in research. The **Figure 1** below shows a series of stress response measures. The dip in the curve prior to the simulation at 15:00:00 h show a reduction in stress response from 12 to 8.5. The participant is employing a 1-minute diaphragmatic breathing protocol. When each training participant is scaled pre-simulation for their level of anxiety, the trainer guides them in a paced breathing exercise to provide on-demand recovery. The large spike represents the level of stress the participant's body indicated they were under during the simulation event. The drop after the spike is the conclusion of the simulation event and then another period of recovery takes place in post-simulation with the trainer.

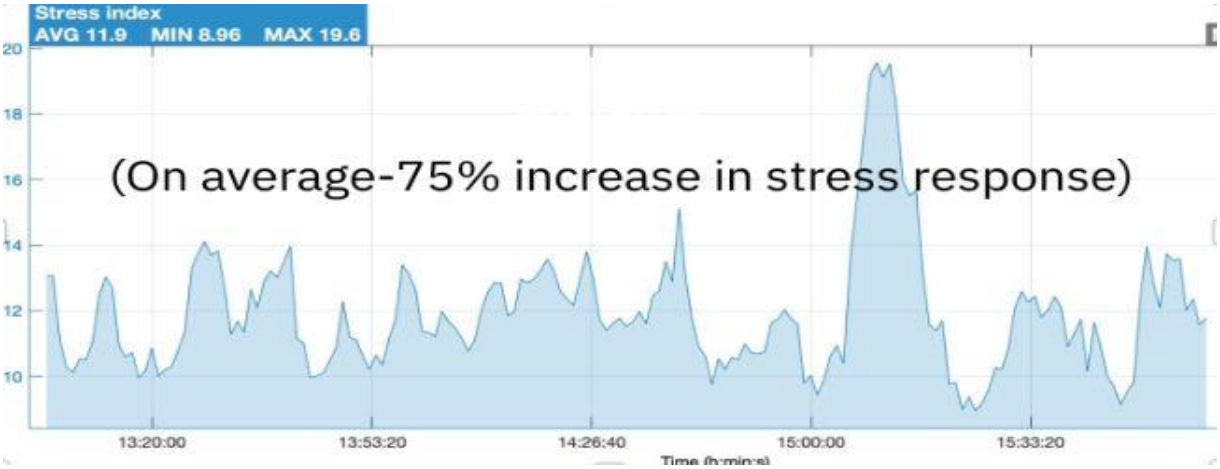

Figure 1. Stress response. Measure of a training participant in "Knock-Knock" simulation.

Three lessons can be taken from the bio-measure data. The first is that RA's simulation are incredibly realistic as evidenced by the level of stress induced at the "Knock-Knock" simulation. This event is the second in the sequence where training participants must knock on the family's door. The participant has not met any of the family members at this point, and they know and understand this is not a real case or family. Secondly, the paced breathing techniques provide recovery (as seen in the dip on the left spike, and the dip after the time signature 15:33:20.) necessary to mitigate potential impacts in decision-making. Last, this measurement provides either affirmation or contradiction in self-report of anxiety and reality. The specific measure above correlates with a participant who scored their anxiety pre-simulation at a 2. Post simulation, they ranked their anxiety at an 8. The discrepancy in the pre-simulation was verified in the bio-measure. As the bio data was shared with each of the participants, self-reporting of anxiety levels became more aligned with what their measurements indicated.

Cumulatively, the data gathered from the surveys and bio-measures cultivated a rich description of the Sun Coast pilot. The participants expressed positive regard for the CT and simulation training system from RA. The process and methods aligned

well with current policy and safety methodology and addressed some of the critical needs noted in the pre-service evaluation from FICW. Moreover, it presents an opportunity to foster CT development through sound experiential methodology. Professionals who can slow down, process, and manage information and emotional evocation and focus on direct application of policy and law will build resilience required to endure in the complex field of child welfare. Moreover, these benefits are directly associated with positive bonding experiences in child welfare.

Child welfare professionals are particularly vulnerable and bond through stress and trauma based on the frequency of acute cases (Collin-Vézina et al., 2020). Service providers deliver direct and indirect services to children and families who have been exposed to sexual abuse, physical abuse, emotional abuse, sex trafficking, intimate partner violence, and other forms of maltreatment; these workers build bonds around the ongoing crisis and expectation of exposure to nefarious human circumstances (Casassa et al., 2021). The bonding actions are replicated throughout the child welfare organizations and systems and require specific assessment and interventions to rectify negative culture characteristics. Administrative tethering examines the bonding areas and informs child welfare leaders, support staff, and trainers' specific points of inoculation to shift towards a positive and strengths-based culture.

3.5. Administrative tethering: Analysis of the data

Analysis of the data collection occurred in conjunction with the administrative tethering (AT) framework (Marino and Wright, 2022). AT is a decision network that forms an effective inter-agency collaborative process (Marino and Wright, 2022). Moreover, it serves as a framework that combines the collaborative process, staff training, and employee motivation toward an organizational goal. AT utilizes the theory of bounded rationality by mapping a decision network construct into a control behavior perspective (Marino and Wright, 2022). Rationality explains human behavior that results from interactions with others following one's interests (Elster, 2009). Behavior categories were crafted based upon an assessment of interests and behavior by asking what trainers would do in the other person's shoes (Arnold et al. 2000). We identified that response as the rational one; therefore, we assumed that behavior control is a sum or average decision response in a collaborative process without any measurement error.

3.5.1. Bounded rationality (BR) and decision-making

AT also relies on bounded rationality to implement a concurrency decision logic through a collaborative process (Koumakhov, 2009; Simon, 1996). This is a responsiveness that simplifies the management of decision-making failures. With AT, the best interorganizational decision-making occurs through staff actions and behaviors that streamline an organizational mandate that continues to evolve (Marino and Wright, 2020). Forty-four items represented the question's categories. These items underpinned the conceptual constructs of AT and inter-agency collaborative intervention (Marino and Wright, 2022). SPSS Version 27 was applied to reflect the descriptive statistics for every item that measured the constructs. The interval scale ranged from 1 (strongly disagree) to 5 (strongly agree); a scale was employed to provide for a wide range of indirectly observed options (Marino and Wright, 2022).

Key aspects of the AT instrument were incorporated in three other surveys as to gain deeper understandings from various perspectives pertaining to decision-making and bonding actions or inactions. Standard deviations were calculated to understand data distribution. Standard deviation defines the normal distribution of the data based on the error and variance value to identify the means (Marino and Wright, 2022).

3.5.2. The property of near-decomposability (ND)

The ability to evolve involves the extent to which the given organization strategically employs and processes coordination techniques proportionate with the problem(s) that it must address. A measure of organizational fitness manifests in the benefits that the organization accrues by conducting these coordination activities while attempting to reconcile its burdensome costs. Simon (1962, 1996, 2002) provided that the fit organization holds down these costs by implementing highly efficient inter-agency initiatives through its subunit infrastructure in an organizational property called near-decomposability (ND). Organizations convey the property of ND as related to its cachet of nearly decomposable federations of subsystems (Simon, 1996, 2002). Simon (2002) further asserted that evolutionary fitness benefits by abstracting away functions into subsystems, rather than having a single, entangled monolithic system of functions. This condition manifests in ND to improve adaptability and reduce the fragility of the organization (Simon, 2002). In sum, ND provides a realistic set of determinants, when acted upon, enables the well-honed organization to surmount those situations that could result in debilitating circumstances.

AT, as an interorganizational collaborative intervention, also contributes to the process of measuring the quality of decision-making (Marino and Wright, 2022). Computations involved four components on perception of supervisor effectiveness, which is key to the effectiveness of inter-agency collaboration. These components consist of (a) trust in senior leaders, director, and board; (b) general job satisfaction; (c) perception of teamwork with an immediate coworker; and (d) trust in a coworker (Marino and Wright, 2022).

AT, thus, involves collaborative strategies that rely on individual tasks distributed across a high-performance team (Marino and Wright, 2022). Perception of teamwork with an immediate coworker and trust with a coworker are interrelated aspects of AT; they are individual variables that predict individual performance within inter-agency decision-making (Hamburger, 2021; Marino and Wright, 2022). Task-related skills and knowledge are insufficient when it comes to accomplishing tasks in a teamwork setting (Hamburger, 2021; Marino and Wright, 2022).

4. Discussion

4.1. Examination of collected data

Data were collected in the field via a survey instrument containing 44 items, and extrapolation of AT components germane to two other points of data collection (Marino and Wright, 2022). The majority of these were Likert-like items that employed a measurement scale from a minimal extent to a very great extent. We derived our analysis from the questionnaire data. These measures allowed us to establish a factor analysis at an adequate level of statistical significance. We

determined the reliability of the factors using the alpha coefficient. Forty-four categories of questions represented the constructs as a measurement—multiple items combined the basis of factor analysis with a single-item indicator.

Multiple regression analysis allowed us to analyze the data through the causal model. We then transcribed, coded, categorized, and analyzed the surveys. The emergence of themes and patterns of response across categories and individuals served as a further basis for the analysis. We contrasted and compared direct beliefs, such as statements of belief or ideas participants utilized to understand their experience. To deal with bias, we performed extensive analytical reflection and reflexivity as we proceeded through the survey questionnaire. The survey instrument gathered information related to observed behavior to quantify and evaluate participant behavior attitude or other interest phenomena. Therefore, we quantified the ratings by attaching numbers to the labels, and such numbers provided some flexibility in assigning scores.

4.2. Key linear regression analytical findings

The linear regression analysis, as reflected in **Table 12**, identifies the considered DVs: (a) I would recommend others to become trainers for DCF, CBC, or SO organizations (DV1); (b) I enjoy doing my work (DV2); and (c) My workplace is safe (DV3). The respective regression models were reported as statistically significant ($p < 0.001$). The linear regression analysis identified the contribution of each predictor variable for each of the dependent variables. In this regard, the predicator variables in relation to DV1 [(a) this job is in alignment with my career goals and (b) my immediate supervisor cares about my development as a trainer] as reflected in their respective β measures of .525 and .451 had an equivalent, positive impact upon the dependent variable. The two predicator variables reflected statistically significant β measures ($p < 0.001$). The linear regression analysis identified the contribution of each predictor variable for each of the dependent variables. Again, a positive value for the (predictor) beta coefficient connoted that with the other independent variables held constant, the dependent variable will increase by an amount equivalent to this (positive) beta value as it equilibrates with a unit change in the independent variable.

The predicator variable, in relation to DV2 (I trust and respect my skills as a trainer) reflected a β measure of .532 and thus accounted for a positive contribution to the dependent variable. This predicator variable reflected a statistically significant β measure ($p < 0.001$). The predicators variables, in relation to DV3 [(a) the training I provide, tools, and policies all demonstrate that safety is a top priority and (b) my team collaborates well together and leverages individual strengths to ensure training is high quality] reflected respective β measures of .570 and .340. These predictors accounted for a positive contribution to the dependent variable in that with the other independent variables held constant, the dependent variable will increase by an amount equivalent to this (positive) beta value. Although both predicator variables were statistically significant, the first predicator variable reflected a statistically significant β measure with $p < 0.001$, while the second predictor variable reflected a statistically significant β measure of $p < 0.01$.

Table 12. Administrative tethering pre-service redesign impact.

Dependent variables	B	SE	*β*
DV1: I would recommend others to become trainers for DCF, CBC, or SO organizations. ***p* < 0.001; adjusted R square: 0.721; Sig. 0.000			
This job is in alignment with my career goals.	0.704	0.149	0.525**
My immediate supervisor cares about my development as a trainer.	0.450	0.111	0.451**
DV2: I enjoy doing my work. ***p* < 0.001; adjusted R square: 0.550; Sig. 0.000	0.309	0.166	
I trust and respect my skills as a trainer.	0.377	0.099	0.532**
I find my job interesting and challenging.	0.279	0.117	0.332
DV3: My workplace is safe. **p* < 0.01; ***p* < 0.001; adjusted R square: 0.550; Sig. 0.000	0.298	0.192	
The training I provide, tools, and policies all demonstrate that safety is a top priority.	0.520	0.116	0.570**
My team collaborates well together and leverages individual strengths to ensure training is high quality.	0.308	0.115	0.340*

The application of the notion of AT proceeds along a conceptual path intrinsic to its dynamic, intervention-like framework. The conceptual construct of AT draws upon Simon's seminal perspectives of ND and BR. These perspectives help to enable a keen, analytical focus upon the effectiveness of those coordination processes underlying the inter-agency undertaking. An implication of such a review concerns the fitness of the interorganizational arrangement. The rationale underlying this implication rests upon the need to ascertain how quickly the organization (or the interorganizational undertaking) can respond and evolve given the inherent challenges that a complex problem may engender for the organization (see **Figure 2**).

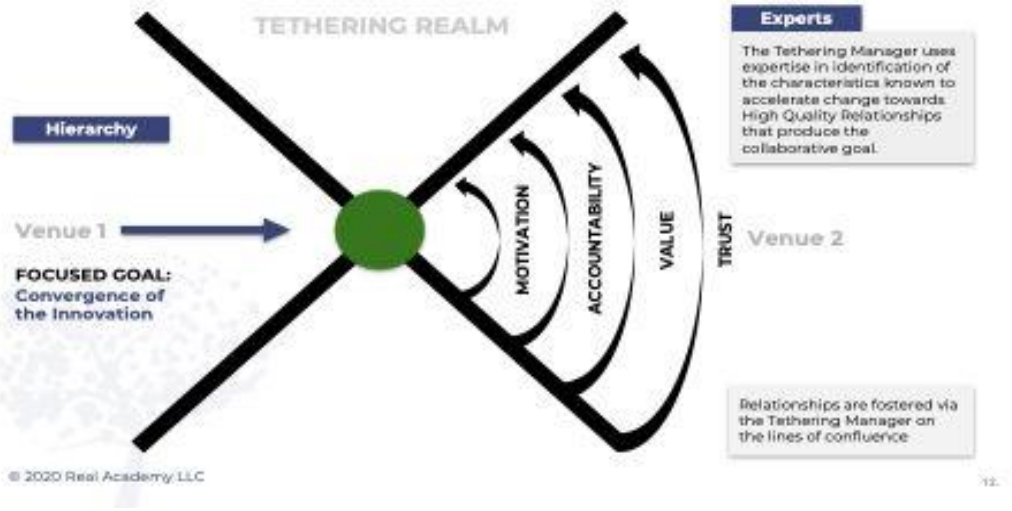

Figure 2. The tethering realm actualized.

The perspectives of ND and BR combine to illuminate a guiding path to assist the AT manager to reconcile the nature of such implementation challenges (Simon, 1962, 1972, 1996, 2002). ND-sourced insights can then be juxtaposed with the held knowledge (BR) of those managers and operators tasked with the delivery of the re-tooled, staff training (Simon, 1962, 1972, 1996, 2002). These analytical findings revealed useful insights surrounding the extent to which the training participants

exhibited a positive disposition concerning their organizational role as well as the support from their immediate supervisor. This information provides a useful framework to apply given the potential to garner further analysis concerning how these BR attributes may mediate with ND and pathway simulation training design iterations that will maximize performance from both quantitative and qualitative (i.e., individual and interorganizational trust areas) vantages.

4.3. Analytical implications

There is a direct relationship between the notion of trust as construed from its link to the conceptual areas of credibility and public value. This trust-centric configuration provides the AT manger with a ready mechanism that then enables critical inter-agency bonding to transpire at both the individual and organizational levels. Activities at these levels provide important strategic direction to the AT manager concerning those tethering actions, which once applied, will generate a foundation of trust that permeates the collaboration.

4.3.1. The AT trust-centric mechanism

How an individual perceives their collaborative role influences the decisions that they will then make within the collaborative. Individuals who see their role as one of value will reflect this in the group, which gives meaning to the collaborative atmosphere. A group made up of individuals who have a high perception of their organizational function will embody true collaboration, as described by Cowan and Arsenault (2008). When these individual views are negative, collaboration is nothing more than a coordinated effort to solve a problem.

Trust is the key that unlocks sustainable dialogues between the community and local government (Hamburger, 2021). The same can be said for the dynamics between employees and leadership within an organization. Moreover, Simon's principle of BR recognizes that individuals make decisions such that they comport to their organizational role. Trust is fundamental in how the employee determines the credibility of the organization and their role within the organization. Trusting relationships must be fostered through effective communication, which leads to collaborative forums.

These transactions thus emerge as central to a mechanism that sequences the application of public values, collaborative governance, and decision-making theories (see **Figure 3**). Before one can embark upon a collaborative development effort, value must be defined and secured; otherwise, the collaboration is no more than a coordination of possible services, as reflected by Simon (1972). This mechanism is central as to the "how" such a reservoir of trust can collect and, as tethered, induce the needed organizational transformation. The AT manager can now attend to those tethering actions that collectively secure the additional adaptations to ensure the effective public delivery of the social product on a long-term basis as anticipated.

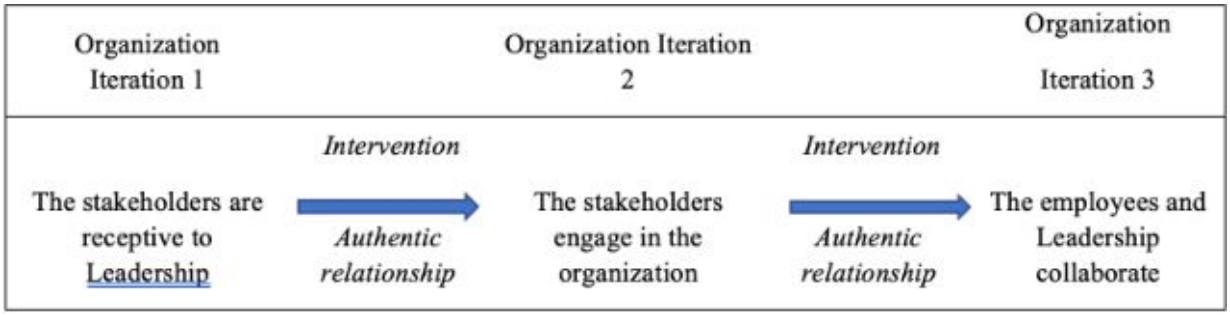

Figure 3. Administrative tethering trust mechanism.

4.3.2. How AT detects trust and value weak bonds in a collaborative

The collaborative development effort between RA and DCF centers upon the train-the-trainer services scheduled to impart a consistent critical reasoning process, a set of critical reasoning tools to protect the fidelity of the process and adopt simulation training as a means to grow professional critical thinkers. In specific application to RA's work with Florida DCF, the characteristic of trust is one of the four essential elements measured in the AT survey. Prior to the training events, surveys were deployed. The measures in the tool indicated strengths and areas requiring intervention as they relate to trust, value, accountability, and motivation. Cadre 1 and Cadre 2 shared areas of growth in trust in leadership, team members, and themselves to train to have a positive impact.

The RA training team received instruction from the research team on the potential areas of concern. The training team utilized enactments that targeted building trust (or, if indicated, enactments that targeted value, accountability, or motivation) to improve BR, producing cohesion, teamwork, and consistency. Enactments, as defined by Goleman (1995), are emotional responses that hinder or promote change. Creating enactments to promote change reorients the professionals' passion and decision to focus on the mission of child welfare work. As such, enactments break down BR in order for change and adoption to occur, as illustrated in **Figure 4**. The enactments, coupled with the nature and characteristics of BR, enhanced the property of ND. This enhancement manifested as instances of stronger allegiance in the collaboration from Iteration 1 to Iteration 3 (**Figure 4**).

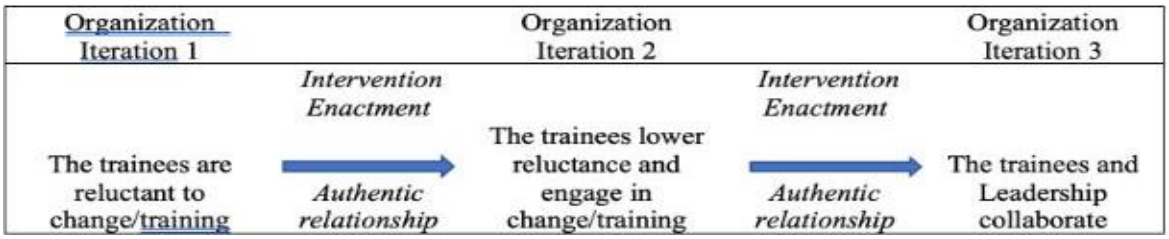

Figure 4. AT's use of enactments as the intervention as it relates to RA's training system.

4.4. Post administrative tethering intervention

A posttest survey was provided to all participants. Thirty-four of the 53 responded, yielding a 65% response rate. The survey provided post AT measures along with qualitative exploration of RA's CT and simulation training. A thematic analysis was conducted along with content analysis to garner as much understanding from the

comments left by respondents. **Table 13** below summarizes the common themes regarding feedback focused on the CT process and tools fit in Florida's practice model, the 3 weeks of simulation certification of trainers, and future application of the methods.

Table 13. Perception of full certification process provided by REAL academy.

See one week	Do one week	Train one week	Enactments	Overall
Realistically challenging	Slowing down allows deeper learning.	Training as a team is building stronger bonds.	Creates stronger bonds between us.	The training is highly intentional.
Safe place to practice skills	The simulation techniques are flexible.	Training my peers improves my attention to my skills.	Stronger and professional bonds between trainers.	I grew the most through this training.
Safe place to make decisions	This follows procedure so well it makes it easier to learn.	Seeing my peers' responses to the reality was amazing.	New hires will bond professionally versus through crisis.	This training is a game changer.
True to practice	Training the RA trainers provided a safe place to learn how to train.	I felt highly confident to train the simulation and CT.	Enactments are necessary to teach how to have difficult conversations and engage.	This will improve retention.

5. Study limitations

This study examined the perceived and actual biometric stress responses of 31 out of 53 participants. It was limited to a single region within the state, which could affect the generalizability of the findings on child welfare workers in other environments. However, foundational expectations are expected to remain consistent across states because of the national standardization of formal education. The qualitative analysis showed that saturation of findings was met with this sample size, but it would be beneficial to extend this study to other regions in and out of the state and test for generalizability (Polit and Beck, 2010).

The findings offer valuable insight into real-world conditions for a profession that is considered a helping profession and a first responder (Langenderfer-Magruder et al., 2021). They suggest there is an opportunity to extend a similar biometric study for stress responses in simulation training for other first responder professions, such as law enforcement, fire departments, and paramedics. It would be beneficial to further investigate how secondary stress manifests across these professions and the similarities in how organizational identity begins to change for public employees who work for government organizations in a longitudinal study.

6. Discussion and recommendations

A key set of qualitative perspectives arose from the findings of this evaluation. Collectively, these findings suggested that the trainees place importance on their respective role within the organization (a BR dimension). This dimension points toward the intrinsic import wherein their abilities as an operator within the CW service delivery mechanism is of public value. This notion, based upon a plethora of recent research, indicates that this value comports well with the area involving the attribute of trust. In this sense, such a trust-centric configuration can help to provide the AT manger with a ready mechanism that then enables critical inter-agency bonding to transpire at both the individual and organizational levels.

Recommendation 1: The AT manager should craft a working group that examines those (CW-trainee) activities that provide important strategic direction to the AT manager concerning those exemplar tethering actions that, once applied, will generate a foundation of trust that permeates the collaboration. Findings from this working group can be implemented on a statewide basis as aligned with the operating context of the given jurisdiction.

Likewise, a set of quantitative perspectives arise from the findings of this evaluation. The regression analysis results, coupled with the correlation analysis findings, suggested that CT training session can be discerned as highly effective, realistic, and relevant as it attends to both the conceptual as well as the practical dimensions intrinsic to the CT realm. The conceptual construct of AT drew upon Simon's seminal perspectives of ND and BR. These perspectives helped to enable a keen, empirical analytical focus upon the effectiveness of those coordination processes underlying the inter-agency undertaking.

An implication of such a review concerns the fitness of the interorganizational arrangement. The rationale underlying this implication rests upon the need to ascertain how quickly the organization (or the interorganizational undertaking) can respond and evolve given the inherent challenges that a complex problem may engender for the organization. Implicitly, the BR-ND CW entity, in the midst of a situation that diminishes its ND property, can be construed as unable to respond to a given set of debilitating circumstances as required.

Recommendation 2: The AT manager should craft a working group that examines those CW-trainee activities that provide important strategic direction to the AT manager concerning those tethering actions that, once applied, will generate a strong foundation of understanding pertaining the RD inculcation that render an organization fit in nature. Findings from this working group can be implemented on a statewide basis as aligned with the operating context of the given jurisdiction.

Linear regression analysis results, coupled with the correlation findings, suggested that CT training session can be discerned as highly effective, realistic, and relevant as it attends to both the conceptual as well as the practical dimensions intrinsic to the CT realm. This outcome relates well to the ND area. That said, findings associated with trainees who express neutrality as to the extent to which the CT training will improve their staff rapport addressed an important BR dimension. This area of analytical focus draws attention to the notion that certain facets of the CW supervisor-staff service delivery mechanism (an ND dimension) may warrant attention from the AT vantage. In this regard, ND-centric training in this functional (mechanistic) area could be of value because it equilibrates some of the BR areas that threaten to diminish the effectiveness of the complex service delivery mechanism.

Recommendation 3: The AT manager should craft a working group that examines the CW-trainee activities that provide important strategic direction to the AT manager concerning those tethering actions, which once applied, will generate a foundation to anchor ND-centric training. The aim, then, of this training design concerns the mediation of those CW functional areas that otherwise could have been diminished by misplaced trainee disposition. Findings from this working group can be implemented on a statewide basis as aligned with the operating context of the given jurisdiction.

Recommendation 4: Physiological measurements for this study supported

evaluation of skill in employing a paced breathing protocol to regulate stress response and recovery. Further research to investigate the link between body/brain resources and decision-making effectiveness, awareness, and tethering characteristics would greatly benefit participants in pre-service training. In addition, a longitudinal study utilizing multi-day ECG analysis would provide valuable understanding of the collective impact of training, organizational support, and job demands for the long-term health of social working and effectiveness to safeguard children.

At the very least, the insights attained by the AT working group may help to advance the Florida Department of Children and Families' endeavor to modernize its pre-service training programming. This initiative was prompted by the results of a Level 3 evaluation conducted by the Florida Institute for Child Welfare (FICW), which emphasized the importance of advanced learning methods in the training of child welfare professionals, including experiential learning and critical thinking. Subsequently, the DCF devised and implemented a plan to upgrade Florida's child welfare pre-service training through the integration of contemporary teaching methodologies, a heightened emphasis on trauma competency, a focus on improving the workplace culture and environment, the incorporation of virtual reality, the introduction of critical thinking strategies and tools, and the use of high-fidelity simulations.

7. Conclusion

Child welfare workers are helping professionals who will be the first to respond to consistent and frequently unfathomable scenes involving children. They will have mounting caseloads that span a spectrum of conditions that society often does not know exist. The worker will have to digest these scenarios and the expectations of the organization as part of the job. As research shows, they will experience symptoms of secondary stress that will compound and affect their organizational identity and personal lives. These professionals begin their journey with similar training and education, meeting national standards. Unfortunately, continuous, relevant, and real-life simulation training is not incorporated as pre-service or an enduring part of organizational culture; thus, workers are left to navigate complex, immediate, and multi-disciplinary decisions with little or no support. These conditions and symptoms of secondary stress cannot be eradicated, but they can be mitigated through purposeful training and via the introduction of an ombudsman-like a tethering agent to serve as an intervening voice for peer groups.

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