

# UC Riverside

## UC Riverside Electronic Theses and Dissertations

### Title

Characterizing Communication Between Transition-Aged Foster Youth and Their Social Workers: Implications for Youth and Worker Satisfaction

### Permalink

<https://escholarship.org/uc/item/73c3n7nn>

### Author

Richardson, Sabrina Marion

### Publication Date

2016

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA  
RIVERSIDE

Characterizing Communication Between Transition-Aged Foster Youth and Their Social  
Workers: Implications for Youth and Worker Satisfaction

A Dissertation submitted in partial satisfaction  
of the requirements for the degree of

Doctor of Philosophy

in

Psychology

by

Sabrina Marion Richardson

June 2016

Dissertation Committee:

Tuppett M. Yates, Chairperson

Misaki N. Natsuaki

Elizabeth L. Davis

Copyright by  
Sabrina Marion Richardson  
2016

The Dissertation of Sabrina Marion Richardson is approved:

---

---

---

Committee Chairperson

University of California, Riverside

## ACKNOWLEDGEMENTS

I would like to acknowledge first and foremost, my advisor Dr. Tuppett M. Yates. Since beginning in the AdLab, I have encountered many challenges in establishing myself as an independent researcher. I estimate that Tuppett has, since I first started, spent thousands of hours editing, reading, discussing, phone-calling, voice-to-texting, car-riding, and teaching me all of the innumerable things I did not know. Tuppett has always seen her graduate students as her colleagues, and challenged us to develop our weaknesses and use our strengths. Without her guidance, I know I would not have been anywhere close to completing graduate school, and I know I was very lucky in my graduate training to be under her tutelage.

I would also like to thank my former and current lab mates, Dr. Sara Berzenski, Dr. Tamar Khafi, Dr. Izabela Grey, Ana Blanks, Ana Marcelo, Kristen Rudd, Hollie Almeria, and Fanita Tyrell, as well as the research assistants of the AdLab who made this project possible - over 50 people directly worked on this project either in preparing data, entering surveys, preparing audio or transcription data, or rating. I would like to further acknowledge Sara Berzenki for continually giving me advice on my research, and I would like to acknowledge her lab members at Cal State University, Northridge who took part in this project through tedious audio preparation and rating assignments. Similarly, Tamar Khafi has been a source of support and was always available for a logical perspective on any matter, and has read drafts and offered perspective on many of my projects. Izabela Grey trained me to work on my current study and without her I would not have been as committed to working with former foster youth as I became throughout

graduate school. Ana Blanks has traveled through all five years of graduate school with me, and was my study partner and friend through some of the biggest challenges.

Although I started as a singleton, I'm glad I became a "twin" (again) through her joining the lab in our second year. Ana Marcelo has always had a positive word and been ready to hear an idea, I appreciate Ana always supporting me in tackling challenges. I have always felt so fortunate to have this support system through my lab colleagues, I know they were a critical part of my success in this dissertation and in my training.

Lastly, I would like to thank my family and my husband Garrett. My parents inspired in me a deep connection to education, I know that without their modeling I would not have developed the self-efficacy I have had in education and in other endeavors. I want to acknowledge my grandmother Marion, who was the only one in my family to read my entire masters publication and who has inspired me with her strong commitment to education and making the world a better place. I would also like to thank my twin sister Valerie, who was the inspiration to my research on sibling relationships and has given me endless support and listened even to my research conundrums, at times. My husband Garrett, who has been my tireless sounding board, my heart, and my motivation. My accomplishments in graduate school are in large proportion due to his day-to-day encouragement.

I know the contributions of all of these many people, both colleagues, family, and friends, allowed me to be successful in graduate school and in completing this dissertation, and I am truly grateful.

## ABSTRACT OF THE DISSERTATION

Characterizing Communication Between Transition-Aged Foster Youth and Their Social Workers: Implications for Youth and Worker Satisfaction

by

Sabrina Marion Richardson

Doctor of Philosophy, Graduate Program in Psychology  
University of California, Riverside, June 2016  
Dr. Tuppett M. Yates, Chairperson

New policy efforts to support transition-aged foster youth (TAY) were implemented through the 2008 Federal Fostering Connections to Success Act in response to studies showing a) that foster youth who exit the child welfare system at 18 struggle in multiple domains during the transition to adulthood, and b) extended foster care supports through age 21 are associated with improved adaptation. However, there remains a need to clarify factors that influence policy uptake by TAY. Youths' and workers' satisfaction with the foster care service provision process may influence youths' decision making regarding whether or not to opt out of extended care and the quality of social workers' service provision, respectively. This study examined communication characteristics between TAY and their social workers as related to youth- and worker-reported satisfaction and relationship quality. Youth-worker dyads ( $N = 51$ ; youth  $M_{\text{age}}=18.69$  years,  $SD = .44$ ; 56.9% female) were audio-recorded during a routine monthly meeting. Instrumental and affective communication features were rated in 5-minute samples across

full speech, verbal content (i.e., transcripts), and non-verbal tone (i.e., content filtered speech) channels. Principle Component Analyses identified primary communication factors of TAY and social workers. Bivariate analyses revealed significant correlations among communication factors within and across channels, as well as with youths' and workers' reported satisfaction and perceived relationship quality. Youth expressed their true feelings about their workers and foster care in their full speech, and, relatedly, workers were most attuned to features of youths' communication present in full speech. In contrast, workers expressed their true feelings about the youth in the content of their speech, and relatedly, youth were most attuned to features of workers' communication present in the transcribed content of workers' speech. At the dyadic level, planned contrasts evaluated the importance of communicative *congruence* between workers and youth. Workers were responsive to congruence in positivity, whereas youth were more responsive to congruence in negativity. When congruence was not present, workers appeared to have more influence over the communicative process than youth. These findings highlight the relevance of communication-based research and training for applied efforts to support TAY in and beyond the child welfare system.



## TABLE OF CONTENTS

Introduction.....	1
Method.....	25
Data Preparation.....	34
Results.....	38
Discussion.....	62
References.....	77

## LIST OF TABLES

Table 1. Study Descriptives and Mean Differences by Youth and Worker Gender.....	39
Table 2. Intercorrelations Among Speech Rating Composites.....	41-42
Table 3. Intercorrelations Between Satisfaction and Relationship Quality Variables.....	43
Table 4. Bivariate Relations of Worker Speech Rating Composites with Youth Satisfaction and Youth-rated Relationship Quality.....	45
Table 5. Bivariate Relations of Youth Speech Rating Composites with Youth Satisfaction and Youth-rated Relationship Quality.....	46
Table 6. Bivariate Relations of Dyadic Speech Rating Composites with Youth Satisfaction and Youth-rated Relationship Quality.....	48
Table 7. Bivariate Relations of Youth Speech Rating Composites with Worker Satisfaction and Worker-rated Relationship Quality.....	50
Table 8. Bivariate Relations of Worker Speech Rating Composites with Worker Satisfaction and Worker-rated Relationship Quality.....	52
Table 9. Bivariate Relations of Dyadic Speech Rating Composites with Worker Satisfaction and Worker-rated Relationship Quality.....	54

## LIST OF FIGURES

Figure 1. Audacity Audio Track and Label Track for Content-filtered Tone Dyad Ratings.....	31
Figure 2. Worker Satisfaction Differs by Positive Communication Congruence Level with Youth.....	58
Figure 3. Worker Reported Positive Relationship with Youth Differs by Positive Communication Congruence Level with Youth.....	59
Figure 4. Worker Reported Belief in Youth Competence Differs by Positive Communication Congruence Level with Youth.....	59
Figure 5. Youth Satisfaction Differs by Negative Communication Congruence Level with Worker.....	61
Figure 6. Youth Positive Relationship Differs by Negative Communication Congruence Level with Worker.....	61

## **Introduction**

Foster youth are among the most at-risk groups in the US, evidencing more severe and persistent vulnerabilities when compared to other risk groups, such as those characterized by low socioeconomic status or minority group membership (Barrat & Berliner, 2013). Foster youth encounter many challenges as a result of the child maltreatment and trauma experiences that typically precipitate child welfare intervention, and also because the journey through foster care is often marked by high levels of disruption and loss (Newton, Litrownik, & Landsverk, 2000; Unrau, Seita, & Putney, 2008). These multiple risks make it extraordinarily difficult for foster youth to negotiate salient developmental challenges effectively, such as making friends and succeeding in school.

### **The Plight of Older Youth in Foster Care**

While many foster youth attain permanence through adoption or restored family relationships, about 10% of foster youth remain in the child welfare system until their 18<sup>th</sup> birthday (Adoption and Foster Care Statistics [AFCARS], 2013). For the 30,000 youth who turn 18 and “age out” or “emancipate” from foster care each year nationwide, the transition to adulthood is fraught with difficulty. The state of California accounts for nearly one-quarter of the Nation’s foster youth in its county-based child welfare system; approximately 7,000 youth turn 18 in California’s foster care system annually (Webster et al., 2015). California is advancing the leading edge of policy implementation to support the uniquely vulnerable group of transition-aged foster youth (TAY) through

non-minor dependency (i.e., extended foster care). Thus, California is a unique context to elucidate factors associated with risk and resilience among TAY (Courtney, Charles, Okpych, Napolitano, & Halsted, 2014).

The plight of older foster youth is of increasing interest to policy makers in light of consistent research reports showing that TAY face challenges across multiple domains upon their emancipation from the child welfare system. Youth exiting foster care are at disproportionate risk for homelessness with estimates indicating that 40-50% of youth will be homeless at least once during the first years following their emancipation, and approximately 20% will experience chronic homelessness (Dworsky, Napolitano, & Courtney, 2013; Fowler, Toro, & Miles, 2009). Foster youth have the lowest rates of high school graduation when compared to low SES groups, with only 58% of TAY in California earning a high school diploma compared to 84% statewide (Barrat & Berliner, 2013). This education gap widens at the post-secondary level with only 3.2% of emancipated foster youth nationwide earning a four-year degree by age 26 versus 36.3% of age-matched youth in the general population (Courtney, Brown, Cary, Love, & Vorhies, 2011). Not surprisingly in the face of low educational achievement, TAY also struggle to gain and maintain employment, with only 56% of TAY reporting any kind of employment during the first three years after emancipation versus 64% in the general population of same-age youth (Courtney et al., 2011; Hook & Courtney, 2011).

Mental and physical health problems are also elevated among youth emancipating from foster care (Keller, Salazar, & Courtney, 2010). Approximately 60% of TAY have met criteria for one or more mental illnesses by the time they emancipate as compared to

30-40% of their age-matched peers (Kessler et al., 2005) and approximately 40% are eligible for special education services as compared to 13% in the general population (Powers et al., 2012; U.S. Department of Education, 2014). Physical health problems are overrepresented in this population with 86.7% showing one or more healthcare needs while in care, with particular elevations in dermatological, respiratory, dental, hematological (i.e., anemia), auditory/visual, and trauma-related problems; additionally, over half (56.7%) of foster youth qualify for additional developmental screening tests, and an estimated 60% of those who are screened are recommended for developmental support services (Chernoff, Combs-Orme, Risley-Curtiss, & Heisler, 1994; Leslie et al., 2005). Perhaps reflecting these cumulative adversities, crime perpetration rates are elevated among emancipated youth with nearly half (46%; Cusick, Havlicek, & Courtney, 2012) experiencing at least one arrest between the ages of 18 and 24 compared to an estimated 30.2% of youth in the general population (Brame, Turner, Paternoster, & Bushway, 2012).

Importantly, these developmental domains of competence are interdependent (Denham et al., 2003; Gauvain & Perez, 2007; Masten & Obradović, 2006). For example, residential instability at emancipation both predicts and follows from educational and employment difficulties, which, in turn, may reflect or precipitate mental, physical, and behavioral health vulnerabilities (Cusick et al., 2012; Fowler et al., 2009). The inability of contemporary service implementation systems to address these multifaceted and interconnected vulnerabilities is of pressing concern (Courtney, Dworsky, & Peters, 2009; Jensen & Foster, 2010).

The Independent Living Program (ILP), which is funded by congress through Title IV-E, is the primary program to support TAY with life skills training and resources. However, while youth who participate in ILP report select program-relevant benefits, such as increased abilities to set goals, find job training, and ask for help, other key domains such as homelessness, mental health, access to medical care, and criminality, do not appear to benefit from ILP services (Lemon, Hines, & Merdinger, 2005). In light of the ongoing challenges facing youth who age out of foster care, policy makers have advocated for reforms to better support TAY.

### **Fostering Connections to Success for Older Foster Youth**

Accumulating evidence of the hardships foster youth encounter upon emancipation prompted a wave of research to evaluate the potential impact of system-wide policy shifts to improve support (and adaptive outcomes) for TAY in the United States. Over the past 20 years, a few states (e.g., Illinois, New York) have offered extended care support to foster youth until age 21. These states provide “natural experiments” (Rutter, 2007) through which we can evaluate the impact of extended care on TAY outcomes. Capitalizing on this opportunity, Mark Courtney launched the Midwest Study in 2002 to examine the transition to adulthood among 732 TAY in Illinois ( $N = 474$ ), which offers extended care support, and in the neighboring states of Iowa ( $N = 63$ ) and Wisconsin ( $N = 195$ ), which do not offer extended foster care services (Courtney et al., 2007; Courtney et al., 2011; Courtney, Terao, & Bost, 2004). As compared to age-matched emancipated foster youth in Iowa and Wisconsin, TAY in Illinois benefitted from the support of extended foster care services to age 21; they were almost twice as

likely to have attended college, and more than twice as likely to have completed a year of college by age 21 (Courtney et al., 2009). Housing outcomes were similarly disparate with youth from Iowa and Wisconsin being 30% more likely to be homeless than those from Illinois before age 21 (Dworsky et al., 2013). Although data are pending, the interdependence of education and housing with other adaptive domains, such as employment and earnings, suggests these youth may have lasting benefits from extended foster care support as they transition into adult careers (Courtney et al., 2009).

Informed by the relative success of Illinois TAY and by numerous studies supporting the probable benefits of extended care, the Fostering Connections to Success and Increasing Adoptions Act was passed in 2008 to authorize federal reimbursement under the Social Security Act Title IV-E to fund extended foster care services to age 21 at each State's discretion (United States Congress 1305, 2008). Bolstered by economic analyses indicating that extended foster care would yield a two-fold gain in individual earnings (and decreased federal costs) across the lifetime of an individual TAY for every federal dollar invested in extended foster care (Courtney et al., 2009), California's Fostering Connections to Success Act (Assembly Bill 12 [AB-12]) was signed into law in 2010. Under the provisions of AB-12, eligible California TAY have been automatically enrolled in extended foster care (aka non-minor dependent care) at the time of their 18<sup>th</sup> birthday since January 1, 2012. With the support of AB-12, eligible TAY in California receive extended care supports until age 21 if they are attending school at least half time, working at least 80 hours per month, or unable to do either due to a disability. To participate in non-minor dependency, youth must agree to retain an open dependency



case, attend bi-annual court hearings, meet monthly with a social worker, and live in an approved placement. Youth who agree to follow these guidelines and remain in care benefit from a host of support services, including foster parent payments to provide ongoing residential and relational stability with a foster family, help finding and renting an apartment, case management, education and employment guidance, and monetary support for living expenses.

### **Should I Stay or Should I Go? Youths' Decisions Regarding Extended Foster Care**

Despite the wealth of resources available to youth who continue to access foster care support beyond age 18, a significant minority of foster youth opt out of extended care benefits. In Illinois, approximately 70% of youth remain in foster care until 19, and just over half stay until they turn 20 (Courtney, Dworsky, & Pollack, 2007). Yet, little is known about when and why a sizable minority of youth opt out of extended care. Based on the Illinois case, approximately 30% of California foster youth are expected to opt out of AB-12. Given the likely benefits of extended foster care, efforts to elucidate factors associated with youths' decision making regarding their ongoing relationship with the child welfare system is of pressing importance to encourage AB-12 participation and adherence.

Several factors may influence youths' decision making regarding extended foster care. First, administrative constraints on youths' freedom may prompt some youth to opt out of care. For example, although returning to live with a biological parent is among the most common living situations for emancipated youth (Courtney & Dworsky, 2006), AB-12 stipulates that youth cannot reside with a family member who has not been approved

by the child welfare system. Second, consistent with developmentally normative bids for autonomy in late adolescence (Arnett, 2000; Schwartz, Côté, & Arnett, 2005), youth may wish to get out from under the watchful eye of the system and its agents (e.g., social workers, judges; Samuels & Pryce, 2008). Third, fatigue with the system, including frustration or dislike of the system and experienced failures in accessing needed services may prompt youth to opt out of extended care (McCoy, McMillen, & Spitznagel, 2008). Fourth, some evidence suggests that youth who have more educational and employment deficits, and more behavioral problems are less likely to receive care services past age 18 (Leathers & Testa, 2006; McCoy et al., 2008). This latter finding is particularly worrisome as it suggests that youth who are the most vulnerable may be least likely to gain or mobilize TAY support services. Finally, although rarely considered, youths' relationship with child welfare system representatives, particularly social workers, may influence their decision making about whether to stay or go when faced with the option of entering non-minor dependency.

### **The Challenges of Social Work: Social Worker Job Satisfaction**

Although they play a critical role in the child welfare system and in youths' perceptions of the care that they are receiving, few studies have examined if and how social workers may influence youths' decision making about extended care. Social workers are directly responsible for the safety of youth in care and serve as gatekeepers to much needed resources, yet they are among the most taxed workers in our society. Not surprisingly, data show high rates of worker turnover (i.e., 22% leave their post within one year; American Public Human Services Administration [APHSA], 2005) and

vacancy (i.e., on average, 8% of worker positions are unfilled; APHSA, 2005). Importantly, government data indicate that as much as 50% of worker turnover is for preventable reasons, such as low job satisfaction due to inadequate supervision and reward systems (General Accounting Office, 2004), limited opportunities for career growth (Chen, Park, & Park, 2012), burnout and isolation (Barak, Nissly, & Levin, 2001; Chen et al., 2012), and large caseloads (Thomas, Kohli, & Choi, 2014). In a recent meta-analysis, Kim and Kao (2014) found that job stress and burnout were particularly predictive of turnover among child welfare workers, as were safety concerns for the children under their care, workers' perceptions of a large caseload, and role ambiguity (i.e., confusion about decision making processes and tasks attendant with one's job). In sum, many factors, both individual and organization-wide, may affect social workers' job satisfaction, and, by extension, their capacity to provide stable and high quality resources and relationships to youth in care.

The quality of the youth-worker relationship may impact youths' satisfaction with the care they receive in the child welfare context. In turn, youths' satisfaction may influence their decision making regarding extended foster care, as it may influence aforementioned factors related to youths' trust in the safety assessments of the worker, their comfort with ongoing system monitoring, and their follow through with recommended resources that would facilitate engagement in extended care. Thus, identifying factors that influence youths' satisfaction with their social worker has the potential to inform efforts to engage youth in extended foster care support services. Moreover, to the extent that workers who are more satisfied with their jobs may perform

their jobs with greater competence (Barth, Lloyd, Christ, Chapman, & Dickinson, 2008), factors associated with worker satisfaction may also contribute to youth satisfaction with their care experience.

### **Developmental Considerations in the Youth-Worker Relationship and Implications for Non-Minor Care at the Transition to Adulthood**

Developmentally informed research can give insight into what matters most for these youth at this time of life. Jeffrey Arnett (2000) identified emerging adulthood as a distinct developmental period between adolescence and adulthood. Spanning the ages of 18 to 25, Arnett proposed that emerging adults continue to be concerned with identity exploration in the areas of love and work, but they are more focused than during the teenage years. Importantly, this prolonged period of pre-adult exploration necessitates an ongoing balancing act between autonomy and relatedness as youth seek the freedom to make their own choices, yet also retain a strong need for relationships to support their explorations (Arnett, 2000; Ryan & Deci, 2000).

Just as Arnett argues that autonomy and relatedness are complimentary, Ryan and Deci (2000) note that youth who are autonomously motivated have typically developed within a social context that supports relatedness. Although Ryan and Deci (2000) argue that striving for autonomy and relational connectedness are mainstays throughout development, it may be especially important to consider these processes at the time youth enter legal adulthood and separate from many of the supportive connections in the family home. For older foster youth, the challenges of young adulthood may be especially taxing as TAY may have had limited or distorted encounters with autonomy and relatedness in

the context of the child welfare system and/or in their families of origin. Qualitative work by Geenan and Powers (2007) highlights perceived barriers to self-determination as a common theme voiced by youth in care. This research indicates that youth commonly confront challenges to their healthy development of autonomy and connectedness, as, for example, when providers who are “in charge” of their case make plans without consulting the youth or ignore her/his input.

Developmental theory and research suggest that the youth-worker relationship may be especially important and dynamic during the transition from adolescence to adulthood. However, the fit between developmental needs and child welfare policies is imperfect. Age-appropriate development calls for a youth-social worker relationship that includes both autonomy seeking and relationship maintenance from TAY, alongside autonomy support and tolerance for exploration (and mistakes) from the social worker. An important stipulation in California’s AB-12 policy acknowledges this precarious balance such that youth can opt out of extended care but later return should they find that they are in need of additional supports. In line with this possibility, the challenge for social workers supporting TAY may be to maintain a flexible balance so as to enable youth to explore and make mistakes while retaining a sense that they can return without judgment or reproach. Indeed, it is likely that many youth will desire or actually attempt departures from care at some point during this transition period. However, it remains to be seen if youth will find it easy to return, or if an overdeveloped sense of self-reliance will cause youth to continue to struggle on their own past the point of service termination at age 21.

## **Communication Dynamics: Not Just *What You Say*, but *How You Say It***

The field of communication dynamics has provided an important lens to examine a wide array of relationships. Much of this research began with work in the 1960s by Robert Rosenthal, who began a targeted investigation of experimental bias through experimenter expectancy effects. Documenting a form of self-fulfilling prophecy, Rosenthal (1963) found that experimenters who were aware of study hypotheses were more likely to treat experimental participants differently, thereby changing the results to meet their expectations.

This finding led to further efforts to elucidate the mechanisms underlying apparent relations between experimenters' expectations and changes in participants' task performance. Key facets of communication were hypothesized to change in predictable ways as a function of experimenter knowledge (and resultant bias). For example, informed experimenters evidenced prolonged interaction times, and leaned in closer to participants; other features, such as anxious fidgeting and changes in voice tone, were also found to be influential experimenter effects on participant performance (Rosenthal, Mulry, Persinger, Vikan-Kline, & Grothe, 1964). In one of the earliest expansions of this work, Rosenthal and Jacobson (1968) extended what was known about experimenter effects to examine how teachers' expectations may influence student performance. In this study, teachers were told at random that objectively comparable students were gifted or remedial. As a result of this (mis)information, the so-called "gifted" children demonstrated observable IQ gains across the study – powerfully suggesting that teacher

bias and resulting differential student treatment could transform students into higher (or lower) performers.

Rosenthal (1973) later proposed a four factor theory of verbal and nonverbal processes thought to explain prior findings showing links between teachers' expectations and students' achievement, namely climate, feedback, input, and output. Climate refers to the verbal or nonverbal affective quality of interpersonal interaction (e.g., warmth, hostility). Feedback refers to the notion that teachers may give more differentiated verbal feedback to students for whom they have more positive expectations – i.e., teachers may provide a response that is more contingent on the correctness and specificity of what a “gifted” student has said (and may accept poor answers from “non-gifted” students). Input refers to teachers' tendencies to teach more material, as well as more difficult material, to students whom they perceive as gifted. Output refers to teachers' tendencies to provide more opportunities for students to respond to questions when they are perceived as gifted. In subsequent meta-analytic work examining over twenty years of studies on teacher expectancy effects, Harris and Rosenthal (1985) confirmed the validity of these factors, particularly climate, input, and output, for understanding relations between teachers' expectations and student outcomes. This quantitative review indicated that when teachers held positive expectations for students, teachers evidenced increased warmth and less negativity, provided more praise and less criticism, were more accepting of student ideas, were less likely to ignore students, provided more input, and allowed students to answer more questions in class. The powerful implications of this research for

efforts to support the education of *all* students are clear, and expectancy research findings have ignited interest in the field of verbal and nonverbal communication dynamics.

The study of communication can be separated in many different ways. At the most basic level, some communication is verbal and some is nonverbal. The *content* of communicative data captures *what* the speakers are saying (or the verbal component) as revealed in transcribed or audio-recorded speech. The *tone* of communicative data captures *how* the speakers say what they say (or the nonverbal component). An audio recording of speech includes both verbal content and nonverbal tone, whereas transcribed speech is “pure” verbal content that is devoid of nonverbal (tone) elements. Similarly, a method called *content filtering* can provide “pure” nonverbal tone that has been filtered out of full speech by removing the highest frequencies that needed to clarify verbal meaning (P. L. Rogers, Schererf, & Rosenthal, 1971).

Pure content ratings of transcribed speech have been employed in varied areas of research, with content-based analyses used to understand a range of processes, including family emotion climate (Magaña et al., 1986), disclosure and liking of another person (Sermat & Smyth, 1973), and motivation (Pang, 2010). Verbal content can be further parsed into primarily *instrumental* communication, which is meant to relay information and guide the management of tasks, or primarily *affective* communication, which captures the socioemotional elements in a communicative relationship (Haskard, DiMatteo, & Heritage, 2009).

Prior research on patient-provider communication suggests that instrumental and affective content features are meaningful dimensions of communication that predict



adherence and response to intervention (Ong, De Haes, Hoos, & Lammes, 1995). Content analysis is particularly useful because verbal information can relay both instrumental features, such as providing information, alongside more nuanced affective communication features, such as conveying a sense of warmth or rejection. For example, in a study by Kraus, Apple, Morency, Wenzel, and Winton (1981) sought to compare whether judges could correctly identify the emotions of women answering questions that evoked either positive or negative emotion states, comparing differing channels of communication: transcriptions (verbal content only), content-filtered audio (nonverbal tone only) and a silent behavioral visual channel (nonverbal behavior only). Results showed that verbal content in transcriptions or as compared to content-filtered and silent behavioral visual channels was the most important channel in accurately assessing another person's affective information, accounting for 51.8% of the variance in affective judgements. In other research, collaborative and inclusive communicative content (e.g., rewarding clients attempts to participate, giving information specific to each client's needs) has been shown to engender client engagement during family planning appointments in Kenya (Kim, Odallo, Thuo, & Kols, 1999) and greater patient satisfaction among individuals with diabetes in the United States (Moran, Bekker, & Latchford, 2008). Other work suggests that instrumental factors are important for promoting patient enablement (marked by better understanding and coping with illness) when present in conjunction with affective elements that confer a sense of agreement, legitimization, and support (Pawlikowska, Zhang, Griffiths, van Dalen, & van der Vleuten, 2012).

In contrast to verbal communication, which can feature both instrumental and affective elements, nonverbal communication conveys primarily affective information (Laplante & Ambady, 2003). Nonverbal communication features capture *how* speakers are communicating in the interaction, rather than *what* they are speaking about. Nonverbal communication features may include behaviors, such as gestures and body language that can be seen in video recordings, and/or nonverbal tone that can be extracted from audio-recorded speech. Prior research has shown relations between body language (e.g., leaning forward, nodding, smiling; Ambady, Koo, Rosenthal, & Winograd, 2002; Chaikin, Sigler, & Derlega, 1974; DiMatteo, Taranta, Friedman, & Prince, 1980), eye contact (Harris & Rosenthal, 1985; Mast, 2007), and microexpressions (e.g., momentary facial movements; Ekman & Friesen, 1974) and a range of outcomes, including treatment satisfaction and adherence in clinical settings. While nonverbal tone typically exists alongside verbal information, tone can be separated from verbal content through a content-filtering procedure that removes the highest frequencies of sound from speech to yield an audio track of perceptually muffled, word-free voices that nevertheless convey a range of tonal elements, including intonation, rhythm, tempo, and volume (P. L. Rogers et al., 1971). Research has shown that the quality of nonverbal communication features, including tone of speech, predict a range of outcomes in diverse areas, including the health care system (Haskard, Williams, DiMatteo, Heritage, & Rosenthal, 2007), judicial system (Blanck, Rosenthal, Hart, & Bernieri, 1989), management (Eden, 1992; Reynolds, 2007) the military (Kierein & Gold, 2000), and even as applied to animal studies (Rosenthal & Fode, 1963).

Particularly within the clinical and health care context, researchers have sought to parse nonverbal tone from verbal content to investigate whether the “how” of nonverbal communication can predict variance in important outcomes beyond the “what” of verbal content. In an early study, researchers found that the nonverbal tone of a doctor when talking with and about a patient with alcohol dependence influenced patient adherence to recommended treatment (Milmoie, Rosenthal, Biane, Chafets, & Wolf, 1967). Related work by Blanck and Rosenthal (1984) demonstrated that counselors with positive expectations of child clients conveyed lower hostility and higher warmth via nonverbal communicative tone than did counselors with negative expectations of the child’s social or physical abilities. In the healthcare field, DiMatteo, Taranta, Friedman, and Prince (1980) demonstrated that patients can pick up on their doctor’s nonverbal communication through body language and tone, and that doctors who were able to relay positive emotion through their nonverbal expressions (i.e., were seen as more sensitive) were rated as better at the “art of medical care” than other physicians. Roter, Hall and Katz (1987) also demonstrated that patients who interacted with physicians communicating with more intense/engaged intonation and less angry or bored tone endorsed more satisfaction during a role playing task. Similarly, Haskard, Williams, DiMatteo, Heritage, and Rosenthal (2007) found that observer ratings of warmth, hostility, competence, and enthusiasm in a provider’s tone influenced patients’ reported trust in the provider, perceived relationship quality, medication adherence, and sense of control. As applied to intervention, research suggests that doctors who were trained to be more attuned to nonverbal communication features had patients who were more satisfied with their care

(and these doctors were more satisfied with aspects of their jobs as well; Haskard et al., 2008). Together, these data suggest that nonverbal tone may impart important and meaningful information, including a sense of being cared for, in health settings, and that the incremental information communicated nonverbally may be obscured if researchers focus solely on verbal content.

Importantly, while verbal content and nonverbal tone may uniquely influence adjustment outcomes, some evidence suggests that verbal and nonverbal communicative features can also act synergistically, such that affective information communicated in both verbal content and nonverbal tone may be more influential than that conveyed through either content or tone alone. Likewise, a mismatch between the two (e.g., positive verbal, negative nonverbal) may be experienced as unpleasant and dissatisfying and may contribute to relationship distancing (Graves & Robinson, 1976; LaPlante & Ambady, 2002). Some work has examined the concept of leakage, or the idea that, relative to verbal content, it may be more difficult to mask nonverbal communicative tone, such that it may “leak” information to the listener despite the verbal content of what is said (Babad, Bernieri, & Rosenthal, 1991; Blanck & Rosenthal, 1982). Given robust evidence that both verbal and nonverbal communicative features contribute individually and interactively to the quality of relationships in diverse settings, this dissertation sought to evaluate the relation of worker-youth communication qualities with youths’ and workers’ satisfaction in the context of an audio-recorded monthly meeting.

## **Communication Quality and Ties with Youth and Worker Satisfaction**

Communication research in healthcare settings suggests that much of the curative power of medicine may be attributed to the communicative quality of the physician-patient relationship (Roter et al., 1987). Similar dynamics may be key to understanding how service providers generally are more or less effective in their interaction with clients. Even in the context of the relatively short visits that characterize doctor-patient interactions (i.e., ~8-15 minutes; Block et al., 2013; Tai-Seale, McGuire, & Zhang, 2007), communicative verbal content and nonverbal tone evidence strong associations with varied health and adherence outcomes (DiMatteo, Reiter, & Gambone, 1994; DiMatteo et al., 1993). In the social service setting, Godfrey and Yoshikawa (2012) found that even brief exchanges with caseworkers in the context of a Welfare-to-Work program influenced client success. Specifically, workers' satisfaction and perceived administrative support influenced the quality of workers' communications with their clients and, by extension, the client's economic status and their child's mental health over time. These studies suggest that the quality of communication between TAY and the workers who serve them may be reciprocally related to youths' and workers' satisfaction, and, ultimately, to youths' service engagement and workers' competence. Indeed, some work has demonstrated that foster youth who are more satisfied with social service provision may be more engaged with extended care services (Geenen & Powers, 2007), just as satisfied patients evidence greater adherence and physical health (DiMatteo et al., 1993; Haskard et al., 2009; Zuger, 2004).

In addition to individual speakers and discrete communicative channels, verbal and nonverbal communicative channels within the individual may convey congruent or discordant information with generally positive or negative effects, respectively (Graves & Robinson, 1976). Congruence has been emphasized in psychotherapy research, and particularly in the humanistic tradition led by Carl Rogers. For Rogers, *congruence* between therapist and client signaled a genuine, reciprocal, and authentic relationship, which, in turn, would promote the client's growth potential (Tudor & Worrall, 1994). In past work on communication examining this type of dyadic congruence, the degree of coordination (DiMatteo et al., 1994; Krupat, Bell, Kravitz, Thom, & Azari, 2001; Moran et al., 2008) and sense of familiarity (Beach, Roter, Wang, Duggan, & Cooper, 2006; Moran et al., 2008) between speakers have been shown to influence satisfaction, adherence, and wellbeing. Congruence or concordance may be evaluated within speakers (e.g., this individual says what she means) or across speakers (e.g., this is a well-balanced dyad with appropriate give and take). Whereas intraindividual congruence captures the consistency across verbal and nonverbal communicative channels, interindividual congruence captures the rhythmicity or synchrony of the communicative exchange, which generally leaves each member with a sense of having been heard, supported, and understood (Beebe, Jaffe, & Lachmann, 1992). Consistent with the tenets of the humanist tradition (Rogers, 1957), studies have shown that both individual (LaPlante & Ambady, 2002) and dyadic (Krupat et al., 2001) congruence indicators are associated with more effective and gratifying relationships.

Importantly, certain communicative elements may be more strongly related to consumers' versus providers' satisfaction. For example, professionalism, answering questions, and establishing positive rapport are factors that feature prominently in a successful healthcare relationship and evidence strong relations to patients' satisfaction and adherence (Block et al., 2013; Epstein & Hundert, 2002; Haskard et al., 2009; Milmoie et al., 1967). For providers, however, patient communications characterized by question asking, autonomy seeking (Krupat et al., 2001; Oliveira et al., 2012; Williams, 2014), and relatively low distress (DiMatteo et al., 1994) may support providers' satisfaction.

In the context of child welfare, prior research supports the hypothesis that youth and workers may be differentially sensitive to verbal versus nonverbal channels of communication. For example, relative to social workers, foster youth may be more sensitive to nonverbal affective communication. An extensive body of research shows that previously maltreated youth possess an attentional bias to nonverbal emotional cues (e.g., facial expressions), particularly cues signaling negativity, such as anger, fear, or rejection (e.g., Pollak & Sinha, 2002; Romens & Pollak, 2012). Although these attentional biases may promote adaptation in the context of hostile exchanges with caregivers, they may compromise flexible emotion regulation and social information processing in non-threatening contexts (Dodge & Frame, 1982; Lemerise & Arsenio, 2000; Maughan & Cicchetti, 2002). In a particularly illustrative study, Pollak, Cicchetti, Hornung, and Reed (2000) demonstrated how early adverse experiences may give rise to attentional bias or processing deficits in affect recognition. These researchers compared

physically abused, neglected, and non-maltreated preschoolers' emotional discrimination abilities, by showing emotional faces and asking children to match the faces to their respective emotions. Results indicated that physically abused children evidenced a negative/hostile bias by linking faces more often to angry emotions, whereas neglected children had more difficulty discriminating between facial emotions. It is particularly notable that the deficits in emotion and face processing were consistent with the actual experiences of physical abuse versus neglect – children who are physically abused develop a bias to anger cues that may signal harm, and neglected children evidence emotion processing and discrimination skill deficits that likely follow from low levels of affective interaction and support from caregivers. Therefore, while affective information is important for all persons in understanding communication, there are additional factors, such as a history of maltreatment, which may contribute to individual differences in communication understanding. Given high rates of maltreatment among foster youth (Oswald, Heil, & Goldbeck, 2010) and evidence that maltreated youth may be more or differentially sensitive to nonverbal affective cues than youth who have not been maltreated, it is likely that nonverbal factors such as affective tone may be particularly important for effective communication with TAY.

### **The Current Study:**

#### **Communication and Satisfaction among TAY and their Social Workers**

TAY are a uniquely vulnerable subset of child welfare clients, prompting increased outreach services and supports such as AB-12. Despite these efforts, TAY continue to struggle, at least in part, due to individual differences in service engagement.



Likewise, social workers are a particularly vulnerable subset of child welfare providers who may critically influence youths' decisions to stay in care. As a result, there is a pressing need for research to inform and support best practices in this unique context.

The overarching goal of this dissertation was to evaluate the quality of communication between TAY and their social workers as related to youths' and workers' satisfaction with the interaction. Multiple channels of communication were examined at the level of both individual speakers and TAY-worker dyads, including full audio recorded speech (i.e., verbal and nonverbal features together), verbal content (i.e., transcripts), and nonverbal tone (i.e., content-filtered speech) at the level of the youth, worker, and the dyad itself as related to indices of youth and worker satisfaction with the quality of a routine monthly meeting.

### **Research Questions**

**Q1: Youth Satisfaction:** How do communication features of the social worker, TAY, and the dyad influence youths' satisfaction with the care they are receiving, and does this vary across full audio-recorded speech, the content of verbal transcripts, and nonverbal content-filtered tone from the worker, the youth, and the dyad?

**RQ1a.** What is the relative magnitude of associations between youths' satisfaction with their care and *workers'* full audio-recorded speech, transcribed verbal content, and content-filtered nonverbal tone?

**RQ1b.** What is the relative magnitude of associations between youths' satisfaction with their care and *youths'* full audio-recorded speech, transcribed verbal content, and content-filtered nonverbal tone?

**RQ1c** . What is the relative magnitude of associations between youths' satisfaction with their care and *dyadic* full audio-recorded speech, transcribed verbal content, and content-filtered nonverbal tone?

**RQ1d**. What is the relation between youths' level of satisfaction and empirical/statistical congruence in the dyad's communication (i.e., the numerical difference between ratings of the youth and worker)?

**Q2: Worker Satisfaction:** How do communication features of TAY, the social worker, and the dyad related to workers' satisfaction with their jobs in the child welfare system and does this vary across full audio-recorded speech, the content of verbal transcripts, and nonverbal content-filtered tone from the worker, the youth, and the dyad?

**RQ2a**. What is the relative magnitude of associations of workers' satisfaction with their jobs and *youths'* full audio-recorded speech, transcribed verbal content, and content-filtered nonverbal tone?

**RQ2b**. What is the relative magnitude of associations of workers' satisfaction with their jobs and *workers'* full audio-recorded speech, transcribed verbal content, and content-filtered nonverbal tone?

**RQ2c**. What is the relative magnitude of associations of workers' satisfaction with their jobs and *dyadic* full audio-recorded speech, transcribed verbal content, and content-filtered nonverbal tone?

**RQ2d**. What is the relation between workers' level of satisfaction and empirical/statistical congruence in the dyad's communication (i.e., the numerical difference between ratings of the youth and worker)?

## Hypotheses

First, I hypothesized that communication ratings would yield meaningful components tapping positive affect/warmth, negative affect/anger, anxiety, dominance, and professionalism (Haskard et al., 2009; Milmoie et al., 1967; Ong et al., 1995). Despite the limited power to test if these are non-chance factors via a confirmatory factor analysis (CFA), these components have been extracted consistently in prior communication studies (Ambady et al., 2002; Haskard et al., 2009; Milmoie et al., 1967). Prior research did not support a-priori hypotheses regarding dyadic communication factors. Indeed, to my knowledge, this was the first study to examine nonverbal tone at the dyadic level.

Second, I hypothesized that both youth and workers will express their satisfaction in their full speech, content-only, and tone-only communications, such that workers and youth who are more satisfied with their care and jobs are better able to have positive exchanges within the worker-youth relationship.

Third, I hypothesized that both the content of *what* each member of the dyad said and the tone of *how* they said it would influence TAY and worker satisfaction. Although I predicted that *full speech*, which consists of both verbal and nonverbal channels and is most similar to “real life” communication, would evidence the strongest relations with youth and worker satisfaction, I further expected that both verbal content and nonverbal tone would evidence unique associations with satisfaction. Moreover, I hypothesized that the magnitude of these associations would vary between workers and youth. For example, consistent with the findings of Pollak and colleagues regarding the special significance of nonverbal communication for maltreated youth, I hypothesized that TAY would be more

sensitive to workers' nonverbal communications in tone relative to the influence of youths' tone on workers' satisfaction. Likewise, I predicted that youths' satisfaction would be more strongly associated with workers' negativity, relative to workers' positivity, given consistent evidence of negative attentional biases among maltreated and traumatized youth (Pollak et al., 2000; Pollak & Sinha, 2002).

Fourth, I hypothesized that dyadic organizational features pertaining to collaboration, reciprocity, congruence, and rapport would be related to both youths' and workers' satisfaction. Moreover, I predicted that dyadic factors tapping elements of organization such as collaboration and hostility would be related to youths' and workers' satisfaction. I also predicted that empirical/statistical congruence (i.e., the mathematical balance between ratings of individual worker and youth communication features) would be related to both youths' and workers' satisfaction. A priori contrasts related to the theoretical hypotheses about empirical congruence were: 1) congruence between workers and youth in positive and negative communication features would be most strongly related to satisfaction among both parties, and 2) when communication is unbalanced, worker dominance reflected in greater positivity or negativity on the part of the worker relative to the youth would be more strongly associated with youths' and workers' satisfaction.

## **Method**

### **Participants**

Participants were 51 dyads composed of 51 workers ( $M_{\text{age}} = 41.80$ ,  $SD = 10.52$ ; 82.4% female) and 51 TAY ( $M_{\text{age}} = 18.69$ ,  $SD = .44$ ; 56.9% female) who participated in a

study of communication between TAY and their social workers during 2014-2015. Youth were drawn from a larger random sample of participants in the California evaluation of AB-12. Led by Mark Courtney, the CalYouth study is following 727 youth across the transition from foster care into (and out of) extended care (Courtney et al., 2014). A subset of the CalYouth sample was selected for the current study based on the PI's collaborations with three participating counties in Southern California. At the time of data collection, CalYouth had completed the first wave of assessments and each county was able to request participating youths' information to match them with assigned social workers, yielding a total of 166 potential dyads for the current study.

Social workers served as the primary point of contact for this investigation. Workers were invited to participate in a study of "how youth and workers talk to one another." The worker was asked to call in to a secure phone line at the time of her/his next meeting with the identified youth to provide a naturalistic recording of their conversation. Following verbal administration of informed consent to the youth and the worker, the conversation was audio-recorded via the phone. Following the recording, each member of the dyad was asked to complete a survey packet, which had been sent to the worker prior to the meeting, and return the completed packet using pre-paid postage. Workers were encouraged to participate via the counties' administrative offices and youth were compensated with 30 dollars for their participation; they received a 10 dollar bill, which had been sent to the worker prior to the meeting, at the time of the conversation recording, and they received the remaining 20 dollars by mail upon receipt of their completed survey packet. To minimize worker burden, each worker was eligible

to participate for up to two youth. Two workers oversaw the cases of three youth in the CalYouth subsample; thus, one youth was dropped from each worker, yielding 164 eligible dyads.

Of the 164 remaining dyads, several youth had left the child welfare system before data collection as a function of case closure prior to emancipation ( $n = 6$ ), running away or noncompliance with extended care ( $n = 16$ ), or opting out of extended care ( $n = 27$ ). Two cases were not eligible due to hearing impairments that precluded verbal communication. Twelve cases could not be located due to worker nonresponse, which may have reflected reluctance to participate or failure to receive our messages. Of the 101 remaining cases in which the worker was contacted on at least one occasion, dyads did not participate due to worker refusal ( $n = 5$ ), youth refusal ( $n = 14$ ; Of note, only one youth declined to participate after being informed of the study by the research team, but 13 refusals were reported by workers), or repeated failed appointments ( $n = 21$ ). Audio-recorded conversations of 52 workers with 61 youth were collected, yielding an effective response rate of 60.3% (61 dyads out of the 101 eligible dyads that could be contacted).

The current analyses were based on 51 unique worker-youth dyads. Ten dyads were excluded from the current analyses because the limited sample could not account for nesting within the 8 workers who completed the study two times with different youth, one conversation was recorded in Spanish and was excluded because not all judges were bilingual in Spanish, and one conversation lasted just 3 minutes and 5 seconds, and thus did not meet the time minimum of five minutes of ratable conversation.

## Measures

**Communication ratings.** Naïve judges rated the quality of youth-worker communications based on their subjective impressions of the conversation (Martin & DiMatteo, 2013). Judges impressionistically rated whether each communication feature (e.g., warmth, interest, hostility) was evident in the communication using a 10-point global scale from *not at all* (1) to *a great deal* (10; Rosenthal, 2008). Consistent with previously published communication rating procedures (Martin & DiMatteo, 2013), item ratings were standardized within each judge and then averaged across judges to account for individual differences in response tendencies.

Rating procedures are distinct from coding practices because there is less emphasis on frequencies or counts of relatively objective criteria (e.g., number of positive statements) and greater emphasis on the overall tenor of an interaction (e.g., comfort, tension). Although rating methods typically yield lower reliability estimates than coding approaches, evidence supports their superior validity, particularly with regard to predictive validity (Martin & DiMatteo, 2013). Importantly, low reliability may follow from different judges picking up on distinct elements of a construct, rather than poor measurement (Haskard et al., 2009). Prior studies have demonstrated that judges can perceive meaningful and often subtle communication features within very short periods (30 seconds or less) of recorded speech (Blanck et al., 1989; Rosenthal, 2003).

As in prior studies (Haskard et al., 2007, 2008, 2009), we employed exclusively female judges given evidence that female judges are better than males at picking up nonverbal cues in ambiguous stimuli (Ambady, Hallahan, & Rosenthal, 1995; Hall,

Harrigan, & Rosenthal, 1995; Heinberg, 1961; Rosenthal, 2008). Moreover, we relied on females who were college-aged and attending school given evidence that cognitive complexity is positively related to judge quality (Rosenthal, 2008).

Judges were trained to ensure a shared understanding of each item and proper rating procedures. Ratings were made in a private room with no other individuals present and were based on audio or transcribed communication data. Judges reviewed audio files using noise canceling headphones and were not permitted to have phones or iPods when rating. Judges retained access to a manual that provided a summary of the intended meaning of each rating item. Items were adapted from past health communication research in the Collaborative Research Outcomes Study of doctor-patient communication (Blanck & Rosenthal, 1984; Haskard et al., 2007) to capture both instrumental communication features (e.g., competent, helpful, efficient) and affective communication features (e.g., warm, likable, or hostile).

Each of the three communicative channels (full speech, transcribed verbal content, content-filtered nonverbal tone) was rated by a separate group of 14 judges who were blind to all other information about the dyad. Within each channel, all 14 judges began by completing ratings at the level of the dyad (e.g., This dyad was cooperative/collaborative with a two-way conversation). Following these dyadic ratings, judges were randomly assigned to complete a second “batch” of ratings for either the worker (e.g., this worker was hostile) or the youth (e.g., this youth was happy). Thus, each judge completed two batches of ratings beginning with the dyad and followed by either the worker or youth. To ensure comparability across rating channels, 7 of the 14



judges were randomly selected to provide ratings for each dyad. In all rating passes, the order of cases was randomized for each judge to ensure a consistent level of rating experience across cases.

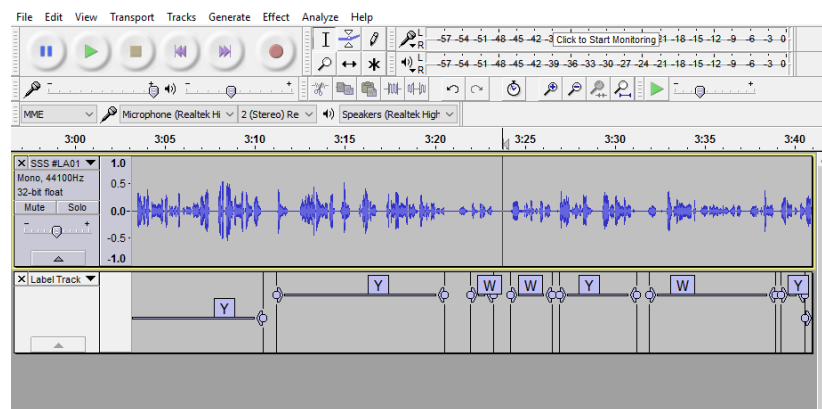
Ratings were based on the final five minutes of recorded conversation for each dyad (in the full and content-filtered speech channels) or of transcribed speech (in the verbal content channel). The final five minutes of speech were selected to minimize reactivity effects, which were expected to be more pronounced during the early portion of the recordings. Each judge completed 60 dyadic item ratings, followed by 50 individual item ratings of either the worker or the youth. Rating items were randomized within each survey to minimize fatigue effects (Haskard et al., 2009).

*Full speech ratings* were based on the original audio-recordings of the youth and worker in communication. Following dyadic full speech ratings, judges were instructed to pay attention to either the youth or the worker and to ignore the other speaker's voice, beyond informing the conversational context.

*Verbal content ratings* were based on transcribed speech samples. Following dyadic content ratings, judges were instructed to pay attention to either the youth or the worker and to ignore the other speakers content, beyond informing the conversational context.

*Nonverbal tone ratings* were based on content-filtered speech samples that were prepared in accordance with prior studies (Haskard et al., 2009, 2007; Milmoie et al., 1967; P. L. Rogers et al., 1971). Nonverbal tone was extracted from full speech using a low pass filter in Audacity version 2.1.0 to filter out the highest frequencies of speech

(above a set range of 400-500 hertz) with a 48 decibel rolloff to obtain a “muffled” voice that was free of verbal content. All content-filtered audios were screened to confirm that no verbal information was discernible, and audio segments were re-filtered at a lower range (i.e., 200-350 hertz) to extract any residual verbal content as a function of individual differences across speakers’ voices. As in the full speech and verbal content (transcript) channels, 14 independent female judges first rated the dyadic items for the content-filtered audio, and were then randomly assigned to rate either the youth or the worker content-filtered speech. However, given the similarity across content-filtered voices, labels were created in Audacity to provide a visual track indicating which member of the dyad was speaking as judges listened to the five minute audio (see Figure 1). As suggested by prior studies (e.g., Haskard et al., 2007), individual-level ratings were based on parsing the content-filtered speech of the youth or the worker into continuous speech tracks of youth-only or worker-only nonverbal tone. Thus, continuous content-filtered speech tracks of the individual worker or youth varied in length as some workers or youth tended to speak more or less during the conversation.



*Figure 1.* Audacity Audio Track and Label Track for Content-filtered Tone Dyad Ratings. Visual representation of sound data is concurrently marked during playback with a label track indicating the speech of the social worker (W) and the youth (Y).

**Relationship quality.** Youth and workers self-reported on their perceptions of the youth-worker relationship across 25 items tapping warmth, support, negativity, and contact between the two members. All items began with the phrase, “In general, how much you agree with each of the following statements about your client/worker and your relationship.” Sample items for the worker include “is someone I care about, demands too much personal attention, is someone I know well,” examples phrased for the youth include “cares about me, responds to my phone calls within 1-2 days, knows me well”. Items were endorsed on four-point Likert scale, ranging from *strongly disagree* (1) to *strongly agree* (4).

The youths’ self-report of their relationship with the worker yielded two rationally derived subscales that captured 1) *positive relationship* features ( $n = 18$  items,  $\alpha = .97$ ), including is someone I would recommend to a friend, includes me in making decisions, does her/his job well, follows through with promises s/he makes, is someone I want to work with, wants to help me, knows me well, is available in person if I need her/him, is someone I trust, knows how to help older foster youth, spends enough time with me, respects who I am, tells me what I need to know about turning 18, responds to my phone calls within two days, cares about me, enjoys working with me, is better than other workers I have known, expects me to succeed in life; and 2) *negative relationship* features ( $n = 7$  items;  $\alpha = .94$ ), including would rather not work with me, dislikes me, seems irritable/frustrated, appears stressed/overworked, is bad at her/his job, seems hurried or rushed, and thinks I am a bad person.

The workers' self-report of their relationship with the youth yielded three rationally derived subscales that captured 1) *positive relationship* features ( $n = 11$  items;  $\alpha = .90$ ), including believes in my ability to help her/him, is someone I want to help, is someone I enjoy working with, is honest with me, wants to work with me, trusts me, respects me, someone I know well, has a good relationship with me, is someone I respect, is someone I care about; 2) *negative relationship* features ( $n = 7$ ;  $\alpha = .82$ ), including complains a lot, is a bad person, someone I dislike, someone I would rather NOT work with, demands too much personal attention, dislikes me, is difficult to work with; and 3) *positive expectations of youth competence* ( $n = 7$ ;  $\alpha = .92$ ), including has the motivation to be successful, can make good decisions about her/his future, has the ability to be successful, will follow through with my recommendations, will succeed in life, seeks me out for support/assistance, and does NOT want to help her/himself (reverse scored).

**Satisfaction.** Youths' and workers' satisfaction was assessed using a general self-report measure drawn from prior healthcare studies (Haskard et al., 2007; McGlynn, 1988) that was adapted for use in the child welfare setting. Youths' satisfaction was based on their reports of feeling "satisfied" with the support they received across nine transition-relevant domains during the recorded conversation (e.g., I am satisfied with the support I received in the area of education... in the area of finances... in the area of emotional health). Youth evaluated each on a four-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (4). The mean of all items was used to make a composite score of youths' satisfaction ( $\alpha = .70$ ). In addition, a single item assessing youths' self-reported desire to stay in extended foster care was included as a

supplementary measure of youth satisfaction. The item asked, “Do you think you will choose to stay in extended foster care?” and was rated on a four-point Likert scale, ranging from *definitely no* (1) to *definitely yes* (4).

Workers’ satisfaction was measured across eight self-report items that asked about workers’ agreement with job descriptors on a four-point Likert scale, ranging from *strongly disagree* (1) to *strongly agree* (4) (e.g., I am satisfied with my overall work situation, my job exhausts me). The mean of all items was used to make a composite score of youth satisfaction ( $\alpha = .70$ ).

## **Data Preparation**

### **Missing Data**

Missing data resulted from incomplete surveys on the part of social workers (11.80%) and/or youth (21.60%). In addition, one case could not be rated due to an audio error, but both the worker and youth returned complete surveys. This case was retained for analyses but resulted in missing data (1.97%) on the communication rating variables. Missing data were handled using the expectation maximization method in SPSS 21 as supported by Little’s MCAR  $\chi^2(165) = 182.641, p = .17$ , which indicated the data were missing non-systematically.

### **Interrater Reliabilities**

Interrater reliabilities were computed across 7 raters for each item within each channel using an intra class correlation (*ICC*) across all of the 50 rated cases. Four items with a negative *ICC* coefficient were dropped from all analyses, including one youth item and three worker items. The remaining *ICCs* across youth, worker, and dyad ratings

ranged from .03 to .89 ( $M=.64$ ,  $SD=.16$ ) in the full audio-recorded speech channel, from .02 to .87 ( $M=.59$ ,  $SD=.20$ ) in the transcribed verbal content channel, and from .08 to .89 ( $M=.61$ ,  $SD=.21$ ) in the content-filtered nonverbal tone channel.

### **Principle Components Analysis of Speech Ratings**

A principle components analysis (PCA) with varimax rotation informed the creation of “super variables” to capture common components in the youth and worker communication data (Blanck & Rosenthal, 1984). Comparability across communication channels was preserved by using the PCA results from the full speech ratings for the youth, worker, and dyad to create component composites for the transcribed content and content-filtered tone ratings. Items that did not load on any component greater than an absolute value of .30 (Zwick & Velicer, 1982), or that evidenced complex loadings across multiple PCA components were excluded from communication composite scores for the youth ( $n = 9$  items), the worker ( $n = 11$  items), and the dyad ( $n = 17$  items).

**Youth rating components.** The PCA of the youth ratings from the full speech channel yielded two components as informed by the scree method (Cattell, 1966), which accounted for 66.59% of the variance of the 49 items that evidenced a positive ICC. The components, constituent items, and scale reliabilities were 1) *warm/engaged* features of youth communication, which included the following 29 items: interested, good communicator, engaged, competent, cooperative/collaborative, someone I would want as a client if I were a worker, authentic/genuine, bored (reverse scored), assertive, dominant, false/fake (reverse scored), confident, optimistic/positive, likeable, rigid/closed (reverse scored), supportive, not fond of worker (reverse scored), happy, really cares about worker

and his/her wellbeing, warm, really understands where the worker is coming from, really listening to the worker, inefficient (reverse scored), flexible/open, respectful of the worker's preferences/wishes, autonomy seeking, awkward/uncomfortable (reverse scored), insecure (reverse scored), help seeking (full speech  $\alpha = .99$ , content  $\alpha = .99$ , tone  $\alpha = .98$ ); and 2) *angry/anxious* features of youth communication, which included the following 11 items: aggressive/combatative, critical, patient (reverse scored), irritable/frustrated, overreactive/dramatic, relaxed/calm (reverse scored), pessimistic/negative, draining/needy, manipulative, likely to interrupt the worker, and anxious/stressed (full speech  $\alpha = .90$ , content  $\alpha = .85$ , tone  $\alpha = .96$ ).

**Worker rating components.** The PCA of the worker ratings from the full speech channel yielded two components, which accounted for 59.79% of the variance of the 47 original items that evidenced a positive ICC. The components, constituent items, and scale reliabilities were 1) *caring/competent* features of worker communication, which include the following 22 items: engaged, really cares about the youth and her/his wellbeing, a good communicator, helpful, competent, supportive of the youths autonomy, really understanding where the youth is coming from, interested, awkward/uncomfortable (reverse scored), bored (reverse scored), someone I would want to have as my worker if I were a foster youth, inefficient (reverse scored), authentic/genuine, cooperative/collaborative, confident, really listening to the youth, focused on the youths strengths/assets, supportive, draining/needy (reverse scored), manipulative (reverse scored), overreactive/dramatic (reverse scored), and insecure (reverse scored) (full speech  $\alpha = .97$ , transcript  $\alpha = .96$ , tone  $\alpha = .95$ ); and 2) *critical/negative* features of worker

communication, which included the following 14 items: critical, dominant, condescending/patronizing, likely to interrupt the youth, aggressive/combatative, patient (reverse scored), oppositional/difficult, relaxed/calm (reverse scored), disrespectful, pessimistic/negative, irritable/frustrated, inappropriate/unprofessional, formal/businesslike and anxious/stressed (full speech  $\alpha = .90$ , content  $\alpha = .94$  tone  $\alpha = .93$ ).

**Dyad rating components.** The PCA of the dyad ratings from the full speech channel yielded two components, which accounted for 70.40% of the variance of the 60 original items, all of which evidenced a positive ICC. The components, constituent items, and scale reliabilities were 1) *collaborative/positive* features of the dyad's communication, which included the following 30 items: passive and disengaged with one another (reverse scored), two strangers talking with one another (reverse scored), good at communicating, characterized by a high quality conversation, active and engaged with one another, bored with one another (reverse scored), rigid/closed, two people who know one another well, authentic/genuine, one that the worker would rate as a high quality conversation, effective and efficient/synergistic, one that the youth would rate as a high quality conversation, inefficient (reverse scored), really listening to one another, cooperative/collaborative with a two way conversation, supportive of one another, awkward/uncomfortable (reverse scored), focused on strengths/assets, not coordinated in the tempo/pacing of their communication (reverse scored), flexible/open, really understanding where one another is coming from, not coordinated in the content of their communication (reverse scored), optimistic/positive, two people who like each other, a mentor and mentee talking with one another, not coordinated in the affect of their



communication (reverse scored), false/fake (reverse scored), characterized by similar levels of negativity from the worker and youth (reverse scored), a parent and child talking with one another, and characterized by more positivity from the worker than the youth (full speech  $\alpha = .98$  content  $\alpha = .97$  tone  $\alpha = .98$ ); and 2) *hostile/negative* features of the dyad's communication, which included the following 13 items: irritable/frustrated with one another, pessimistic/negative, hostile with one another, focused on deficits/vulnerabilities, disrespectful of one another, critical of one another, aggressive/combative with one another, oppositional/difficult with one another, anxious/stressed/worried, characterized by more negativity from the worker than the youth, engaged in a power struggle, characterized by more negativity from the youth than the worker, and hurried/rushed (full speech  $\alpha = .96$  content  $\alpha = .94$  tone  $\alpha = .95$ ).

## **Results**

### **Descriptive Findings**

Means and standard deviations for all study variables are shown in Table 1. Independent samples *t*-tests revealed few significant differences in communication ratings and survey variables by youth or worker gender. Male youth were rated as expressing lower levels of anger/anxiety than females in both full and content-filtered speech. As compared to dyads containing a female worker, dyads containing a male worker were rated as more hostile/negative in the full speech channel, and less collaborative/positive in the transcribed content channel. Male workers also endorsed lower levels of belief in the youth's competence than female workers.

Table 1.  
*Study Descriptives and Mean Differences by Youth and Worker Gender*

Full speech channel composites	<i>M</i>	<i>SD</i>
Warm/Engaged (youth)	.004	.54
Angry/Anxious (youth)	-.007 <sup>a</sup>	.37
Caring/Competent (worker)	.006	.43
Critical/Negative (worker)	-.003	.31
Collaborative/Positive (dyad)	.024	.52
Hostile/Negative (dyad)	-.017 <sup>b</sup>	.47
Content-only channel composites		
Warm/Engaged (youth)	-.002	.55
Angry/Anxious (youth)	.002	.29
Caring/Competent (worker)	-.001	.38
Critical/Negative (worker)	.001	.38
Collaborative/Positive (dyad)	-.010 <sup>c</sup>	.39
Hostile/Negative (dyad)	.020	.39
Tone-only channel composites		
Warm/Engaged (youth)	-.002	.53
Angry/Anxious (youth)	-.003 <sup>d</sup>	.51
Caring/Competent (worker)	.001	.31
Critical/Negative (worker)	-.003	.33
Collaborative/Positive (dyad)	.019	.52
Hostile/Negative (dyad)	-.014	.41
Relationship Quality		
Youth-rated positive relationship	3.19	.97
Youth-rated negative relationship	1.63	.77
Worker-rated positive relationship	3.28	.45
Worker-rated negative relationship	1.28	.38
Worker-rated belief in the youth's competence	3.24 <sup>e</sup>	.65
Satisfaction		
Youth satisfaction with care	3.44	.77
Youth desire to stay in care	3.64	.72
Worker satisfaction with job	2.45	.55

*Note:* Youth included 29 females and 22 males. Workers included 42 females and 9 males.

<sup>a</sup>youth gender difference.  $M_{females} = .08$   $M_{males} = -.13$ .  $t(49) = 2.05$ ,  $p = .046$

<sup>b</sup>worker gender difference.  $M_{females} = -.08$   $M_{males} = .31$ .  $t(49) = 2.37$ ,  $p = .022$

<sup>c</sup>worker gender difference.  $M_{females} = .05$   $M_{males} = -.29$ .  $t(49) = 2.53$ ,  $p = .015$

<sup>d</sup>youth gender difference.  $M_{females} = .18$   $M_{males} = -.24$ .  $t(49) = 3.19$ ,  $p = .002$

<sup>e</sup>worker gender difference.  $M_{females} = 3.33$   $M_{males} = 2.81$ .  $t(49) = 2.26$ ,  $p = .028$

## Bivariate Relations

### Intercorrelations among communication components. Communication

components were correlated in expected directions across the full speech, transcribed

content, and content-filtered channels (see Table 2). In regard to youth ratings, the warm/engaged component was significantly correlated across all three channels ( $.54 < r < .71$ ). The angry/anxious component was significantly correlated across channels, except for the intercorrelation between the tone and content channels ( $.13 < r < .44$ ).

In regard to the worker ratings, the caring/competent component was significantly correlated across all channels, except the content and tone channels were only marginally correlated at .24 ( $.24 < r < .52$ ). The critical/negative component was significantly correlated between the full speech and content-only channel, but not between content and tone-only channels, nor between full speech and tone-only channels ( $.12 < r < .56$ ).

In regard to the dyadic ratings, the collaborative/positive component was significantly correlated across all channels ( $.59 < r < .68$ ). The hostile/negative component was significantly correlated between all channels, with the exception of the content and tone-only channels which were marginally correlated but not significant ( $.27 < r < .64$ ).

**Satisfaction and relationship quality.** Youth reports of their satisfaction and perceived quality of their relationship with the worker were correlated with one another and also with worker reports of their satisfaction and perceived quality of their relationship with the youth, which were also correlated (see Table 3). Specifically, youth satisfaction correlated positively with the desire to stay in care, and with perceptions of a positive relationship with the worker, but it was related to lower perceptions of a negative relationship with the worker. As expected, youths' positive relationship perceptions correlated negatively with their negative relationship perceptions. Youths' desire to stay

Table 2.  
*Intercorrelations Among Speech Rating Composites*

		<i>Youth Communication</i>						<i>Worker Communication</i>					
		Warm/Engaged (W/E)			Angry/Anxious (A/A)			Caring/Competent (C/C)			Critical/Negative (C/N)		
		1. F	2. C	3. T	4. F	5. C	6. T	7. F	8. C	9. T	10. F	11. C	12. T
W/E (Y)	1. Full Speech	--	.706**	.541**	-.151	-.099	.166	.595**	.490**	.293*	-.598**	-.524**	.033
	2. Content		--	.681**	.043	-.321*	.148	.141	.305*	.317*	-.392**	-.522**	-.098
	3. Tone			--	.045	-.098	-.254	.181	.242	.320*	-.339*	-.325*	-.144
A/A (Y)	4. Full Speech				--	.343*	.436**	-.259	-.228	-.147	.293*	.212	.209
	5. Content					--	.137	-.153	-.384**	-.182	.059	.269	-.007
	6. Tone						--	-.070	-.007	-.190	.168	.000	.280*
C/C (W)	7. Full Speech							--	.523**	.319*	-.533**	-.231	.009
	8. Content								--	.235	-.402**	-.745**	-.034
	9. Tone									--	-.304*	-.221	-.627**
C/N (W)	10. Full Speech										--	.556**	.194
	11. Content											--	.121
	12. Tone												--
C/P (D)	13. Full Speech												
	14. Content												
	15. Tone												
H/N (D)	16. Full Speech												
	17. Content												
	18. Tone												

Note: Y = Youth, W = Worker, D = Dyad.

F=Full speech, C= Content, T= Tone.

\*  $p < .05$ . \*\*  $p < .01$ .

Table 2  
Continued

		<i>Dyadic Communication</i>					
		Collaborative/Positive (C/P)			Hostile/Negative (H/N)		
		13. F	14. C	15. T	16. F	17. C	18. T
W/E (Y)	1 Full Speech	.805**	.657**	.798**	-.524**	-.443**	-.419**
	2. Content	.425**	.740**	.733**	-.412**	-.562**	-.423**
	3. Tone	.327*	.480**	.592**	-.127	-.228	-.382**
A/A (Y)	4. Full Speech	-.102	-.066	-.092	.428**	.193	.539**
	5. Content	-.134	-.479**	-.197	.301*	.397**	.252
	6. Tone	.200	.086	.046	-.041	.007	.341*
C/C (W)	7. Full Speech	.791**	.358**	.532**	-.317*	-.097	-.375**
	8. Content	.581**	.648**	.400**	-.406**	-.516**	-.344*
	9. Tone	.219	.249	.447**	-.080	-.044	-.360**
C/N (W)	10. Full Speech	-.509**	-.516**	-.539**	.491**	.494**	.454**
	11. Content	-.408**	-.734**	-.481**	.606**	.801**	.435**
	12. Tone	.018	.033	-.164	.082	-.080	.409**
C/P (D)	13. Full Speech	--	.591**	.686**	-.546**	-.287*	-.385**
	14. Content		--	.642**	-.540**	-.792**	-.378**
	15. Tone			--	-.410**	-.362**	-.635**
H/N (D)	16. Full Speech				--	.640**	.511**
	17. Content					--	.270
	18. Tone						--

Note: Y = Youth, W = Worker, D = Dyad.

F=Full speech, C= Content, T= Tone.

\*  $p < .05$ . \*\*  $p < .01$ .

in care was also negatively related to perceptions of a negative relationship with the worker. Likewise, the worker-reported relationship quality variables (i.e., positive relationship, negative relationship, belief in the youth’s competence) were intercorrelated in expected directions. Workers who were more satisfied with their jobs also endorsed higher levels of believing in the youth’s competence.

Correlations between the worker and youth variables revealed a number of significant findings. Youth satisfaction was positively related to the workers’ perception of a positive relationship with the youth, negatively related to the workers’ negative perception of the relationship, and positively related to the workers’ belief in the youth’s competence. The correlation between youths’ satisfaction with care and workers’ satisfaction with their jobs was not significant. Workers’ job satisfaction was related to youth-reported relationship quality, such that youth who endorsed a more positive and less negative relationship with the worker had workers who reported more satisfaction with their jobs.

Table 3.  
*Intercorrelations Between Satisfaction and Relationship Quality Variables.*

		1.	2.	3.	4.	5.	6.	7.	8.
Youth Report	1. Satisfaction with Care	--	.292*	.843**	-.450**	.195	.363**	-.192	.348*
	2. Desire to Stay in Care		--	.208	-.318*	-.068	.217	-.175	.244
	3. Positive Relationship			--	-.613**	.339*	.538**	-.327*	.399**
	4. Negative Relationship				--	-.440**	-.310*	.184	-.672**
Worker Report	5. Satisfaction with Job					--	.112	.087	.326*
	6. Positive Relationship						--	-.587**	.545**
	7. Negative Relationship							--	-.337*
	8. Belief in the Youth’s Competence								--

Note: \*  $p < .05$ . \*\*  $p < .01$

**Youths' reports and communication features.** Youth reported satisfaction and perceived relationship quality with the worker were correlated with some elements of the youths', workers', and dyads' communication (see Tables 4-6). As shown in Table 4, relations with positive communication features captured in the caring/competent component of worker communication were limited across full speech, content, and tone channels. However, workers who were rated as more caring/competent in their transcripts (content-only channel) were more likely to have the youth report that they would stay in care. Furthermore, workers who expressed high levels of the caring/competent component in their tone were more likely to be paired with youth who reported higher levels of satisfaction with their care.

Overall, negative communication features captured in the critical/negative component of worker speech were more consistently related to youth satisfaction and perceived relationship quality than the aforementioned relations with positive communication features. Youth reported being less satisfied with their experiences in foster care when workers were more critical/negative in the full speech and content-only communication channels, but relations with the critical/negative component in the tone channel were not significant. Furthermore, workers who expressed higher levels of the critical/negative component in the content of their transcripts were more likely to have youth who reported a lower desire to stay in care, and a less positive and more negative relationship with their worker. Finally, youth expressed a less positive and more negative relationship with the worker when tone-based ratings of the critical/negative worker component were high.

Table 4.

*Bivariate Relations of Worker Speech Rating Composites with Youth Satisfaction and Youth-rated Relationship Quality.*

	<i>Composite Ratings of Worker Communication</i>					
	<i>Caring/Competent</i>			<i>Critical/Negative</i>		
	Full	Content	Tone	Full	Content	Tone
Youth Satisfaction with Care	.119	.152	.296*	-.312*	-.369**	-.253
Youth Desire to Stay in Care	-.120	.331*	-.014	-.053	-.520**	.122
Positive Relationship	-.046	.041	.277*	-.230	-.332*	-.294*
Negative Relationship	-.028	-.239	-.218	.163	.462**	.335*

*Note:* \*  $p < .05$ . \*\*  $p < .01$ .

Fisher *r-to-z* comparisons evaluated whether worker communication features were associated with youth satisfaction and relationship quality variables differently across the full speech, content, or tone channels (see Table 4). For caring/supportive worker communication, only one significant finding emerged; caring/supportive content from the worker was more strongly related to youth desire to stay in care ( $r = .331$ ) as compared to full speech ( $r = -.120$ ;  $z=2.28$ ,  $p=.022$ ) and marginally stronger than tone ( $r = -.014$ ,  $z=1.75$ ,  $p=.080$ ).

For critical/negative worker communication, results Fisher *r-to-z* comparisons showed that critical/negative content was more strongly and negatively related to youth desire to stay in care ( $r = -.520$ ) when compared to full speech ( $r = -.053$ ;  $z=2.56$ ,  $p=.011$ ), and tone ( $r = .122$ ;  $z=2.22$ ,  $p= .026$ ). Worker critical/negative content was marginally stronger ( $r = .462$ ) than full speech in its relation with youth-reported negative relationship features ( $r = .163$ ;  $z=1.64$ ,  $p=.101$ ), but content was not significantly stronger



than tone ( $r = .335$ ). Generally, these comparisons indicated that, when there were significant differences between correlations, it was between content and either full speech or tone, such that content of the worker speech was often, but not always, more strongly related to youth satisfaction and reported relationship quality than either full speech or tone.

Relations of youth satisfaction and perceived relationship quality with youth communication were largely consistent across the full speech, content-only, and content-filtered channels of youth communication (see Table 5). However, there was a tendency for relations with the full speech channel to be stronger than those with either the content-only transcriptions or the tone-based content-filtered speech samples. Specifically, youth who expressed greater levels of warm/engaged communication in their full speech also reported greater satisfaction with care, whereas youth who expressed greater levels of angry/anxious communication in their full speech reported lower levels of satisfaction with their care and lower perceptions of a positive relationship with the worker.

Table 5.  
*Bivariate Relations of Youth Speech Rating Composites with Youth Satisfaction and Youth-rated Relationship Quality.*

	<i>Composite Ratings of Youth Communication</i>					
	<i>Warm/Engaged</i>			<i>Angry/Anxious</i>		
	Full	Content	Tone	Full	Content	Tone
Youth Satisfaction with Care	.290*	.165	.141	-.652**	-.157	-.207
Youth Desire to Stay in Care	-.002	-.049	-.179	-.076	-.064	.119
Positive Relationship	.241	.177	-.013	-.585**	-.031	-.086
Negative Relationship	-.273	-.191	.097	.190	.008	-.194

*Note:* \*  $p < .05$ . \*\*  $p < .01$ .

Fisher *r-to-z* comparisons evaluated whether youth communication features were associated with youth satisfaction and relationship quality variables differently across the full speech, content, or tone channels (see Table 5). Youth warm/engaged communication correlations showed no significant differences in magnitude, with the exception of a marginal difference between full speech ( $r=-.273$ ) and tone ( $r=.097$ ) as related to negative relationship features ( $z=1.85, p=.064$ ).

For youth angry/anxious communication, results indicated that full speech ( $r=-.652$ ) was significantly stronger than content ( $r=-.157; z=3.04, p=.002$ ) and tone ( $r=-.207; z=2.79, p=.005$ ) in the relation with youth satisfaction. Angry/anxious full speech ( $r=-.585$ ) was significantly stronger than content ( $r=-.031; z=3.13, p=.002$ ) and tone ( $r=-.086; z=2.86, p=.004$ ) in relating to positive relationship features. Youth angry/anxious full speech ( $r=.190$ ) was marginally different from tone ( $r=-.194; z=1.9, p=.057$ ) in relating to negative relationship features, suggesting that angry/anxious tone was related to less negative relationship features, but angry/anxious was related to more negative relationship features. Overall, youth tended to express their feelings most accurately in full speech, and this was particularly true in their negative angry/anxious full speech which may have reflected youths' "true" feelings more accurately than youth content or tone.

With regard to dyadic communication ratings across channels, none of the collaborative/positive components across full, content, and tone speech channels were significantly related to youth satisfaction or relationship variables (see Table 6). The

hostile/negative component of the dyadic ratings, however, evidenced consistently negative patterns of association with youth satisfaction and reported relationship quality. Specifically, hostile/negative dyadic communication in the full speech channel was related to lower levels of youth satisfaction with care and a less positive and more negative relationship with the worker. Hostile/negative dyadic communication in the content channel was negatively related to youth reporting a desire to stay in care and positively related to youth perceptions of a more negative relationship with the worker. Finally, hostile/negative dyadic communication in the nonverbal tone channel was negatively related to youth satisfaction and perceptions of a positive relationship with the worker.

Table 6.  
*Bivariate Relations of Dyadic Speech Rating Composites with Youth Satisfaction and Youth-rated Relationship Quality.*

	<i>Composite Ratings of Dyadic Communication</i>					
	<i>Collaborative/Positive</i>			<i>Hostile/Negative</i>		
	Full	Content	Tone	Full	Content	Tone
Youth Satisfaction with Care	.215	.151	.263	-.605**	-.205	-.525**
Youth Desire to Stay in Care	-.084	.125	-.050	-.201	-.369**	-.023
Positive Relationship	.084	.075	.182	-.485**	-.202	-.437**
Negative Relationship	-.216	-.261	-.233	.413**	.285*	.203

*Note:* \*  $p < .05$ . \*\*  $p < .01$ .

Fisher *r-to-z* comparisons evaluated whether dyadic communication features were associated with youth satisfaction and relationship quality variables differently across the full speech, content, or tone channels (see Table 6). Pairwise comparisons across

correlation coefficients revealed no significant differences among the collaborative/positive dyadic communication channels. However, with regard to hostile/negative communication, dyadic full speech ( $r=-.605$ ) showed a stronger relation with youth satisfaction than did dyadic content ( $r=-.205$ ;  $z=2.42$ ,  $p=.015$ ), but not than dyadic tone ( $r=-.525$ ). Tone reflecting a hostile/negative dyad showed a marginally stronger relation with youth satisfaction ( $r=-.525$ ) than did hostile/negative dyadic content ( $r=-.205$ ;  $z=1.84$ ,  $p=.066$ ). Desire to stay in care showed marginally stronger relations with hostile/negative dyadic content ( $r=-.369$ ) as compared to full speech ( $r=-.201$ ;  $z=1.78$ ,  $p=.075$ ), but full speech did not differ significantly from relations with tone ( $r=-.023$ ), and tone did not differ significantly from relations with content ( $r=-.369$ ). Hostile/negative dyadic communication did not show significantly different relations with full speech, content, and tone across the remaining positive and negative relationship variables.

**Worker reports and communication features.** Workers' reported satisfaction and perceived relationship quality with the youth were correlated with some elements of youth, worker, and dyadic communication (see Tables 7-9). Youth communication components were expected to correlate with worker report of satisfaction and relationship quality with the youth (see Table 7). Findings demonstrated that youth who expressed higher levels of warm/engaged communication in the full speech channel had workers who reported stronger belief in the youth's competence. Furthermore, youth who expressed more warm/engaged communication in the content-only channel had workers who endorsed a more positive relationship and greater belief in the youth's competence.

Youth angry/anxious communication was also related to worker satisfaction and relationship variables. In particular, youth who were more angry/anxious in the full speech channel had workers who reported lower levels of job satisfaction, lower levels of positive relationship quality, greater negative relationship quality, and less belief in the youth's competence. Youth who expressed more angry/anxious communication in the content channel also had workers who endorsed a less positive relationship and less belief in the youth's competence.

Table 7.  
*Bivariate Relations of Youth Speech Rating Composites with Worker Satisfaction and Worker-rated Relationship Quality.*

	<i>Composite Ratings of Youth Communication</i>					
	<i>Warm/Engaged</i>			<i>Angry/Anxious</i>		
	Full	Content	Tone	Full	Content	Tone
Worker Satisfaction with Job	-.177	-.243	-.212	-.278*	-.247	.028
Positive Relationship	.274	.454**	.052	-.284*	-.432**	.050
Negative Relationship	-.157	-.131	.243	.417**	.218	.003
Belief in the Youth's Competence	.366**	.374**	.036	-.284*	-.378**	.202

*Note:* \*  $p < .05$ . \*\*  $p < .01$ .

Fisher *r-to-z* comparisons evaluated whether youth communication features were associated with worker satisfaction and relationship quality variables differently across the full speech, content, or tone channels (see Table 7). Warm/engaged youth content ( $r = .454$ ) evidenced a significantly stronger relation with worker report of a positive relationship than did tone ( $r = .052$ ;  $z = 2.14$ ,  $p = .030$ ). In regards to negative relationship features as reported by the worker, youth warm/engaged communication in tone ( $r = .243$ )

demonstrated a stronger relation than did full speech ( $r=-.157$ ;  $z=1.99$ ,  $p=.047$ ) and a marginally stronger relation than content ( $r=-.133$ ;  $z=1.86$ ,  $p=.063$ ). However, although none of these communication channels (full speech, content, tone) were significantly related to the negative relationship variable – z-tests revealed that youth tone was more strongly related to worker reports of a negative relationship than the other two channels. Furthermore, belief in the youth's competence showed marginally stronger relations with warm/engaged communication in youth full speech ( $r=.366$ ) than tone ( $r=.036$ ;  $z=1.70$ ,  $p=.090$ ) and in content ( $r=.374$ ) as compared to tone ( $r=.036$ ;  $z=1.76$ ,  $p=.078$ ). However, full speech and content were not significantly different from each other in relations with worker belief in the youth's competence.

In examining youth negative angry/anxious communication, Fisher *r-to-z* indicated that youth full speech ( $r=-.284$ ) evidenced a marginally stronger relation with worker report of a positive relationship than youth tone ( $r=.050$ ;  $z=1.68$ ,  $p=.093$ ) and content ( $r=-.432$ ) was also stronger than youth tone ( $z=2.51$ ,  $p=.012$ ), but relations of youth angry/anxious full speech and content with worker report of a positive relationship were not statistically different from each other. Worker reported negative relationship features showed stronger relations with youth angry/anxious communication in full speech ( $r=.417$ ) as compared to tone ( $r=.003$ ;  $z=2.16$ ,  $p=.031$ ). Similarly, belief in the youth's competence was related more strongly to youth angry/anxious communication in full speech ( $r=-.284$ ) as compared to tone ( $r=.202$ ;  $z=2.42$ ,  $p=.016$ ), and content ( $r=-.384$ ) was also stronger than tone ( $r=.202$ ;  $z=2.94$ ,  $p=.003$ ). Again, full speech and content reflecting angry/anxious youth communication did not statistically differ in their

relation to worker belief in the youth's competence. Overall, these findings indicated that youth full speech and content were not significantly different from one another in relations to the worker variables, though both tended to be stronger than tone.

Workers conveyed their own levels of satisfaction and perceived relationship quality with the youth in some of their communication components (see Table 8). Specifically, workers who expressed greater levels of caring/competent communication in the content-only channel also reported a greater belief in the youth's competence. Workers who expressed higher levels of critical/negative communication in their speech content reported significantly lower levels of positive relationship quality with the youth, lower belief in the youth's competence, and greater levels of negative relationship quality with the youth.

Table 8.  
*Bivariate Relations of Worker Speech Rating Composites with Worker Satisfaction and Worker-rated Relationship Quality.*

	<i>Composite Ratings of Worker Communication</i>					
	<i>Caring/Competent</i>			<i>Critical/Negative</i>		
	Full	Content	Tone	Full	Content	Tone
Worker Satisfaction with Job	.023	.098	.194	.109	.072	-.218
Positive Relationship	-.006	.235	.196	-.258	-.434**	-.021
Negative Relationship	-.132	-.155	.032	.264	.292*	-.111
Belief in the Youth's Competence	.147	.323*	.088	-.135	-.404**	.023

*Note:* \*  $p < .05$ . \*\*  $p < .01$ .

Fisher *r-to-z* comparisons evaluated whether worker communication features were associated with worker satisfaction and relationship quality variables differently across the full speech, content, or tone channels (see Table 8). None of the caring/supportive channels differed significantly in their relations with worker reported satisfaction, relationship quality, and belief in the youth's competence. However, worker reported positive relationship with the youth did show stronger relations with worker critical/negative content ( $r=-.434$ ) as compared to tone ( $r=-.021$ ;  $z=2.17$ ,  $p=.030$ ). Worker report of a negative relationship with the youth showed marginally stronger relations with worker critical/negative full speech ( $r=.264$ ) as compared to tone ( $r=-.111$ ;  $z=1.84$ ,  $p=.062$ ). Critical/negative content was significantly stronger ( $r=.292$ ) in its relation with negative relationship features as compared to tone ( $r=-.111$ ;  $z=1.97$ ,  $p=.049$ ). Worker reported belief in the youth's competence showed stronger relations with critical/negative content ( $r=-.404$ ) than tone ( $r=.023$ ;  $z=2.21$ ,  $p=.027$ ). Overall, these findings indicated that workers did not show differences in their expression of satisfaction and relationship features across their full speech and content, but both full speech and content tended to be more strongly related to worker reports than tone.

Dyadic communication features were also examined with regard to the worker satisfaction and relationship quality variables (see Table 9). The collaborative/positive components across the full, content, and content-filtered tone channels were not significantly related to worker satisfaction. However, the collaborative/positive components in the full speech channel were positively related to worker belief in the youth's competence. Dyadic collaborative/positive content was positively related to



worker perception of the relationship with the youth as positive, negatively related to worker perception of negative relationship quality, and positively related to worker belief in the youth's competence. Lastly, greater collaborative/positive dyadic communication in the tone channel was positively related to worker belief in the youth's competence.

The hostile/negative component of dyadic communication also showed relations with worker satisfaction and relationship variables. Specifically, hostile/negative dyadic communication in full speech was related to worker reports of a less positive and more negative relationship with the youth, and less belief in the youth's competence. Hostile/negative communication in the dyadic content channel was related to a less positive and more negative relationship with the youth, and less belief in the youth's competence. Finally, hostile/negative communication in the dyadic tone channel was negatively related to worker perceptions of a positive relationship with the youth and positively related to worker reports of negative relationship with the youth.

Table 9.  
*Bivariate Relations of Dyadic Speech Rating Composites with Worker Satisfaction and Worker-rated Relationship Quality.*

	<i>Composite Ratings of Dyadic Communication</i>					
	<i>Collaborative/Positive</i>			<i>Hostile/Negative</i>		
	Full	Content	Tone	Full	Content	Tone
Worker Satisfaction with Job	-.110	-.108	-.201	.110	.155	.192
Positive Relationship	.121	.394**	.253	-.483**	-.540**	-.294*
Negative Relationship	-.182	-.317*	-.141	.508**	.489**	.348*
Belief in the Youth's Competence	.287*	.514**	.317*	-.426**	-.439**	-.226

*Note:* \*  $p < .05$ . \*\*  $p < .01$ .

Fisher *r-to-z* comparisons evaluated whether dyadic communication features were associated with worker satisfaction and relationship quality variables differently across the full speech, content, or tone channels (see Table 9). None of the collaborative/positive dyadic communication differed significantly by channel in the relation with worker satisfaction or relationship variables. Despite stronger relations between hostile/negative dyadic communication and worker reports of satisfaction and relationship quality, there were no significant differences in the magnitude of the relations across channels.

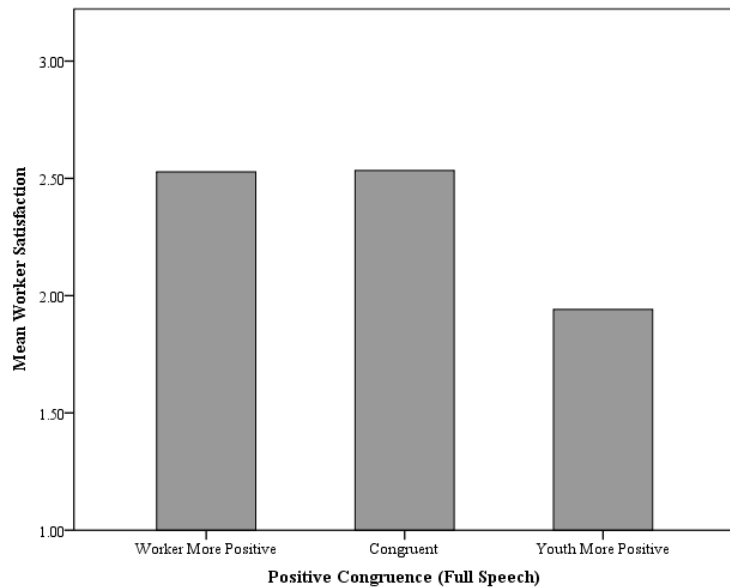
**Comparing the salience of tone across worker and youth.** Given the variability across constructs used to operationalize worker and youth satisfaction and relationship quality constructs, as well as the differing compositions of the principle components across worker and youth tone, Fisher *r-to-z* comparisons could not test for statistically significant differences in the strength of relations between communicative tone and youth versus worker reported constructs. However, as shown in Table 4, worker caring/competent tone was positively related to youth reports of satisfaction with care ( $r=.296$ ), and a positive relationship with the worker ( $r=.277$ ; see Table 4). Youth also reported a less positive relationship ( $r=-.294$ ) and a more negative relationship ( $r=.335$ ) when workers expressed more critical/negative tone. In contrast, worker variables were not significantly related to any youth tone communication (see Table 7). Thus, the data suggest that youth were more responsive to worker tone relative to worker being responsive to youth communicative tone.

**Communication congruence.** Empirical congruence was estimated by standardizing the ratings of youth and worker positive and negative components in the full speech channel, and calculating a difference score (youth – worker positivity/negativity). A categorical index of full speech congruence was calculated for both the positive and negative features of communication by separating the dyads into three groups to capture congruent affect, worker communicative dominance, and youth communicative dominance. Dyadic congruence was indicated by a difference score between  $-1$  and  $+1$  *SD* around the mean (positive congruence = 68.6%,  $n = 35$ ; negative congruence = 64.7%,  $n = 33$ ), worker dominance was indicated by a difference score that was  $< 1$  *SD* below the mean (worker positive dominance = 17.6%,  $n = 9$ ; worker negative dominance = 19.6%,  $n = 10$ ), and youth dominance was indicated by a difference score that was  $> 1$  *SD* above the mean (youth positive dominance = 13.7%,  $n = 7$ ; youth negative dominance = 15.7%,  $n = 8$ ). Congruence groups were evaluated using a-priori contrasts to evaluate two theories. To evaluate the primary theory that dyadic congruence would be most strongly related to satisfaction and relationship quality for both respondents, contrast weights of  $-.5$ ,  $1$ , and  $-.5$  were assigned to the worker dominance group, the dyadic congruence group, and the youth dominance group, respectively. To evaluate the secondary theory that, in instances of incongruence, workers' dominance would be more strongly associated with satisfaction and relationship quality than youths' dominance, contrast weights of  $1$ ,  $0$ , and  $-1$  were assigned to the worker dominance group, the dyadic congruence group, and the youth dominance group, respectively.

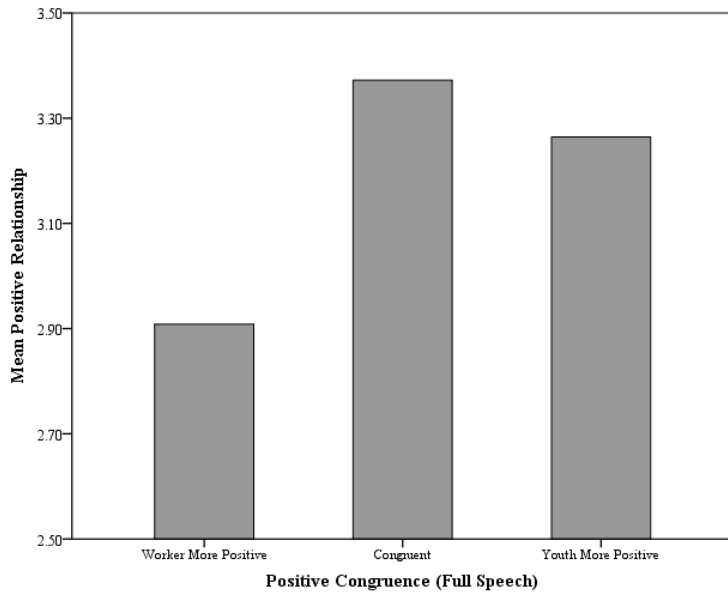
***Worker-youth positive communication congruence.*** A one-way ANOVA across the 3 congruence groups demonstrated no significant differences on satisfaction of the youth and their reported relationship quality with the worker. Likewise, mean levels of workers' perceptions of a negative relationship with the youth did not vary significantly across positive congruence groups. However, there were significant differences across the congruence groups with regard to the workers' job satisfaction [ $F(2,48) = 3.91, p=.027$ ], reports of a positive relationship with the youth [ $F(2,48) = 4.38, p=.018$ ], and belief in the youth's competence [ $F(2,48) = 6.75, p=.003$ ].

Planned comparison analyses indicated the pattern of means in worker job satisfaction supported the secondary theory reflecting that, in the absence of congruence, worker positivity would be more strongly related to workers' job satisfaction than youths' positivity would be related to workers' job satisfaction, [ $t_{contrast}(48) = 2.24, p=.030$ ]. This theory explained the pattern of means somewhat better than the primary theory that dyadic congruence would be most strongly related to workers' job satisfaction [ $t_{contrast}(48) = 1.90, p=.064$ ; see Figure 2]. In contrast, the pattern of means in workers' reports of a positive relationship with the youth supported the primary theory [ $t_{contrast}(48) = 2.25, p=.029$ ], which held that congruence between the worker and youth in expression of positive communication would be most related to satisfaction. In this case, the secondary theory was not supported [ $t_{contrast}(48) = 1.69, p=.099$ ; see Figure 3]. Likewise, the pattern of means in workers' report of believing in the youth's competence supported the primary theory [ $t_{contrast}(48) = 3.59, p=.001$ ], but not the secondary theory [ $t_{contrast}(48) = .402, p=.690$ ; See Figure 4]. In sum, when positive communication features were

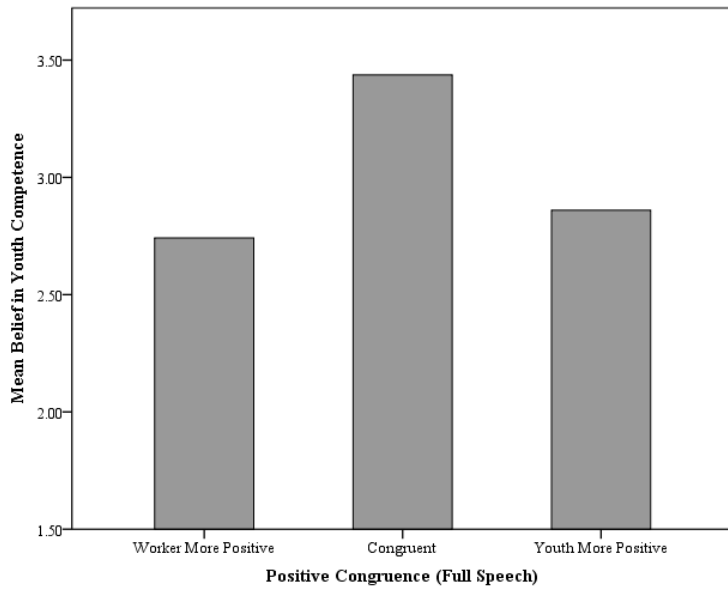
imbalanced/incongruent between youth and workers, workers who reported more positive communication than the youth endorsed greater satisfaction than workers in dyads where the youth was more positive than the worker. However, workers' reported the most positive relationship with the youth and the strongest belief in the youth's competence when the degree of positivity between the worker and youth were congruent.



*Figure 2.* Worker Satisfaction Differs by Positive Communication Congruence Level with Youth. Theory 2 supported indicating that worker positive dominance is related to higher worker satisfaction than you positive dominance.



*Figure 3.* Worker Reported Positive Relationship with Youth Differs by Positive Communication Congruence Level with Youth. Theory 1 supported indicating that congruence in positive communication is related to reporting a more positive relationship with youth as compared to incongruence in positive communication.



*Figure 4.* Worker Reported Belief in the Youth's Competence Differs by Positive Communication Congruence Level with Youth. Theory 1 supported indicating that congruence in positive communication is related to higher levels of belief in the youth's competence as compared to incongruence in positive communication.

***Worker-youth negative communication congruence.*** One-way ANOVAs across the three congruence groups in full speech demonstrated no significant differences by negative congruence grouping variable on youth reporting that they wanted to stay in care, as well as youth reporting of negative relationship quality. Similarly, the means of worker satisfaction, reported positive relationship with the youth, belief in the youth's competence, and reported negative relationship with the youth did not differ by the congruence in negative communication. However, there were significant differences across the congruence groups with regard to the youths' satisfaction with care [ $F(2,48) = 3.48, p=.039$ ], and reports of a positive relationship with the worker [ $F(2,48) = 3.34, p=.044$ ].

Planned comparison analyses indicated that the pattern of means in youth satisfaction [ $t_{contrast}(48) = 2.217, p=.031$ ] supported the primary theory that congruence in negative communication would be most related to satisfaction, but not the secondary theory that, when incongruence was present, workers' negative dominance would show the lowest levels of satisfaction [ $t_{contrast}(48) = 1.16, p=.111$ , see Figure 5]. Similarly, findings indicated that the primary theory best described the pattern of means in youths' reports of a positive relationship with their worker [ $t_{contrast}(48) = 2.10, p=.041$ ], but the secondary theory was not supported [ $t_{contrast}(48) = 1.10, p=.096$ , see Figure 6]. Thus, youth reported more satisfaction with care and the most positive relationships with their workers when their communication of negativity in full speech was congruent with the workers' expression.

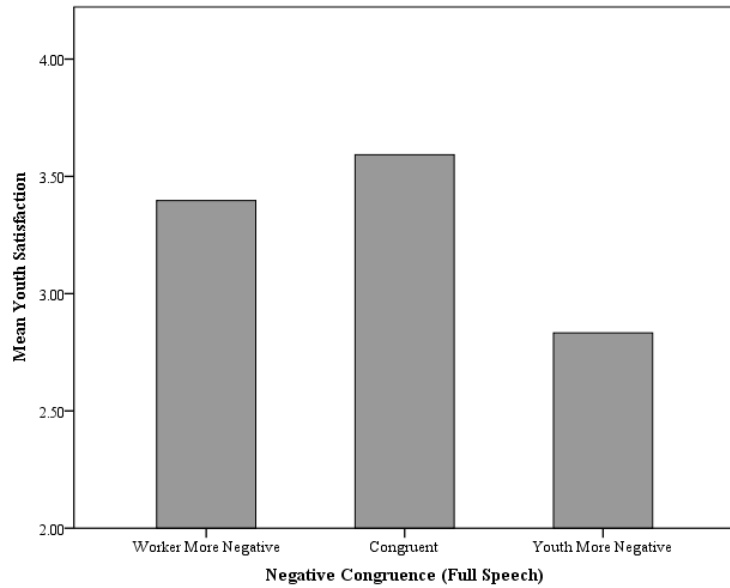


Figure 5. Youth Satisfaction Differs by Negative Communication Congruence Level with Worker. Theory 1 supported indicating that congruence in negative communication is related to higher levels of satisfaction as compared to incongruence in negative communication.

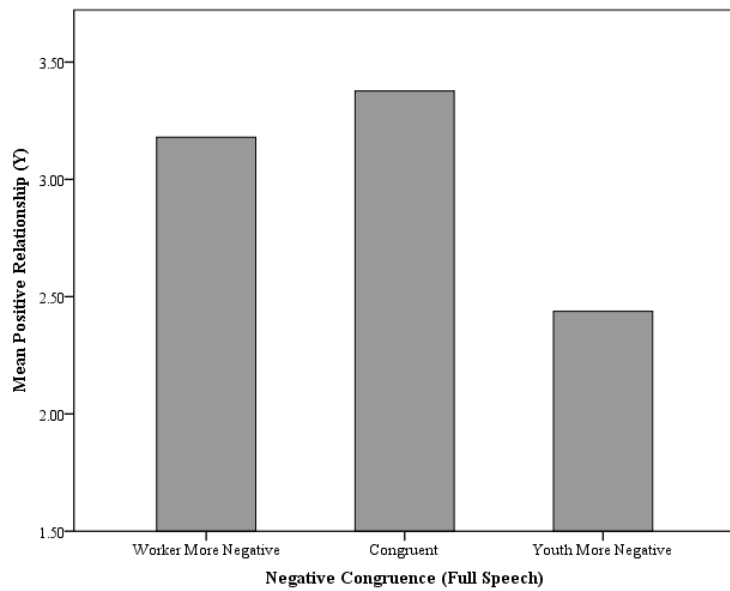


Figure 6. Youth Positive Relationship Differs by Negative Communication Congruence Level with Worker. Theory 1 supported indicating that congruence in negative communication is related to a more positive relationship with the worker as compared to incongruence in negative communication.



## Discussion

This study is the first to analyze communication patterns between social service providers and youth within the child welfare system. The findings demonstrate that communication is important to both youth and workers, and likely influences and reflects both youths' and workers' current relationship quality and satisfaction. Moreover, multiple facets of the communicative system, including content, tone, and congruence, emerged as meaningful sources of information and promising sites for interventions to enhance social service provision and engagement on the part of both workers and TAY with regard to extended foster care services.

In contrast to some prior studies (e.g., Haskard et al., 2008; Ong, 1957), the current PCA of communication ratings yielded "super variables" that distinguished between primarily positive and primarily negative communication components, rather than differentiating between affective and instrumental features. Some theorists have argued that it may not be valid to assume that affective and instrumental communication components are experienced as distinct dimensions (Ong, 1995). For example, a competent, efficient, helpful worker may also be a worker who is seen as caring, supportive, and warm. Indeed, the current PCA indicated that these types of positive instrumental features tended to co-occur with positive affective features yielding a global positivity component for both the worker and the youth. Likewise, a global negativity component, rather than distinct instrumental and affective dimensions of negativity, was supported by these data.

In addition to positive and negative communication components, workers and youth were also differentially responsive to full speech versus transcribed content and content-filtered tone channels of communication. Overall, youth appeared most responsive to the content of workers' speech, particularly negative content. Despite the strength of the relations with the content channel for youth, our original hypothesis that communicative tone would be particularly important for TAY satisfaction was at least partially supported. Youth seemed to be influenced by positive and negative communicative tone coming from workers, in that they reported higher levels of satisfaction and more positive relationships when they expressed more positive communication in tone, and reported less positive and more negative relationships when the workers were more negative in their tone. In contrast, workers were not responsive to any communicative tone features as expressed by the youth. Thus, mainly the content of speech, with some contribution from nonverbal tone, seemed important for understanding the effects of workers' communication with youth

Relative to youth, workers appeared to be most responsive to negative communication components from the youth in the full speech channel, as compared to the channels reflecting only communicative content or tone. This disparity between workers and youth with regard to the association between different speech channels and their satisfaction and relationship quality could indicate that workers, having received direct training in communication, are more practiced at picking up on nonverbal communication, and can use cues from both content and tone in a synergistic manner to best understand if a youth is angry or anxious. However, like youth, workers also seem to

be attuned to transcription-based content, albeit less so, and this was particularly in correlations with their perceptions of positive aspects of their relationship with the youth and in their report of believing more in the youth's competence.

The fact that youths' satisfaction and reports of relationship quality were more strongly related to workers' content, whereas workers were more attuned to youths' full speech, was puzzling until considering which of these channels may best reflect the true feelings of the youth or worker. Findings illustrated that youth expressed more positive communication in full speech if their level of satisfaction with care was high. In terms of youths' negativity in their full speech, youth tended to be more negative if they were less satisfied with care and if they reported a less positive relationship with their worker. Interestingly, in this context, youth seemed to be primarily expressing their satisfaction and relationship quality in the full speech channel as opposed to the content and tone channels, which showed no significant relations with youths' self-reported feelings about foster care and their workers. It seems fitting, then, that workers may have been particularly attuned to negative youth communication features in full speech, since this is also the channel that was most strongly related to youths' reports of their actual feelings about their workers and foster care.

When examining communication channels that may be most strongly associated with workers' expressed perceptions of relationship quality with the youth, the content-only channel emerged as most strongly related to workers' satisfaction and perceptions. Workers tended to express their belief in the youth's competence, along with their positive and negative feelings about the youth, more strongly in the content channel (in

their words alone) as opposed to in their full speech or tone channels. In fact, the content channel was the only channel in which workers' self-report was significantly related to their communication components. Evidence that there is a strong tie between the worker's communicative content and her/his perceived relationship features could explain why the youth appeared substantially more attuned to workers' expressions of negativity in the content of their communicative content, since this seems to be the channel that was most closely related to the workers' true feelings about the youth. In cases where workers feel negatively about a youth under their care, it could be that they try to soften negative content with more neutral or positive tone. However, this result suggests that youth are indeed picking up on (and perhaps, focusing on) the negativity that workers are communicating through the content of the messages they relay to youth.

In addition to relations between individuals' expressed speech and perceived satisfaction, this investigation was, to my knowledge, the first effort to examine dyadic communication using content-filtered speech. Findings demonstrated that dyadic communication features were generally related more strongly by the workers' feelings about the youth than vice-versa. Workers' reported feelings about their relationship with the youth were related to all three channels of dyadic communication in the hostile/negative composite, as well as consistently within the collaborative/positive component, whereas youths' experiences were related somewhat inconsistently with the hostile/negative dyadic communication component.

Because workers tend to be "in control" and lead conversations with youth, it could be that these conversations more closely reflect workers' feelings. However, this is

not to say that youth did not influence the dyadic communication – in particular, less satisfied youth were part of dyads that were rated as more hostile/negative in both the full speech and transcript channels. Youth who reported being less likely to desire staying in extended foster care were also more likely to contribute to hostile/negative content within the dyad. Therefore, it seems that workers and youth both contribute to the dyadic dynamic, with workers demonstrating a slightly stronger impact on the quality of worker-youth dyadic communication.

I had hypothesized that dyadic organizational features pertaining to collaboration, reciprocity, congruence, and rapport would be related to both youth and worker satisfaction. A priori contrasts evaluated two theoretical models that could account for findings from the evaluation of empirical congruence associations. First, a planned contrast evaluated the primary theory that congruence between workers and youth in positive and negative features would be most strongly related to satisfaction among both parties. Moreover, a secondary theory held that, when unbalanced, worker dominance would be more strongly associated with satisfaction of both the youth and worker. Importantly, although this analysis was confined to the full speech channel, the findings suggested that congruence may be important for understanding positive relationships between workers and youth.

Specifically, congruence analyses showed that workers were more satisfied with their jobs when they expressed positive dominance over the youth's communicative contributions (i.e., the worker expressed more positive speech features than the youth). This first finding further supports the secondary theory that, in the event of dyadic

incongruence, workers' expressions would dominate and be more deterministic of satisfaction or relationship correlates. This may reflect that, in cases where the worker is able to "carry" the conversation when a youth is not reciprocating the same level of positivity, these workers may be more satisfied with their jobs and thus better able to express the positivity that is needed by the youth.

Additional findings pertaining to communicative congruence supported the primary theory, which held that congruence in communication would be most strongly related to both youths' and workers' satisfaction and relationship quality. This idea coincides with past thinking about therapeutic relationships generally, and particularly in humanistic therapies, which hold that empathy and genuineness are reflected in communicative congruence (Rogers, 1957; Tudor & Worrall, 1994). Importantly, congruence in positive communication features seemed most strongly related to the worker correlates, such that workers who were in a congruent dyad with regard to positive communication ratings reported higher levels of perceived positive relationship features and a higher belief in the youth's competence. It could be that workers who have a good relationship with a particular youth are better able to show synchrony and concordance in positivity and "mirror" youths' communication. However, it may also be that mirroring the youth during their meeting could make workers feel more positively toward the youth and report a more positive relationship.

In contrast to workers, TAY seemed to be more sensitive to dyadic congruence in the expression of *negative* communication features. In these analyses, the primary theory was supported for both youth satisfaction and youth perceptions of a positive relationship

with their worker. This is a very interesting finding, because it indicates that it may be more impactful to empathize and show congruent emotion when discussing negativity with the youth, as compared to if the worker expresses incongruent positivity (or even greater levels of negativity). Furthermore, this is consistent with Pollak and colleagues (2000) studies of bias in the processing of *negative* stimuli. It's possible that, in the face of negatively biased social information processing algorithms, youth are in need of workers who can listen to the struggles they are going through and truly understand these experiences at a deeper level, instead of either trying to shift to neutral or more positive topics, or emphasizing the negative features of the youths' situation. While this may seem to go against classical notions of unconditional positive regard, Rogers' intent was not to say "be positive in any circumstance," but that acceptance of one's client and congruence with both their negative and positive experiences is necessary for therapeutic growth (Tudor & Worrall, 1994). Alternatively, it may also be true that experiencing a meeting with one's worker that featured a high level of congruence may have influenced youth to fill out their surveys in a more positive way. However, the idea that congruence in and of itself is important to youth and worker communication could have fruitful applications in future research and practice. For example, workers could be trained to be more sensitive to, and reflective of, youths' experiences, regardless of whether these experiences are about successes and triumphs or struggles and pitfalls.

Lastly, it is interesting to note that these findings suggest that youths' satisfaction was closely tied to youths' reported perceptions of relationship quality with the worker, their worker's report about their relationship with the youth, as well as the

communicative features of both the worker and youth. Although workers' satisfaction was related to some features of youths' reports about their relationship with their worker and, in particular, to workers' reports of believing in the youth's competence, it did not show many associations with the communicative components drawn from the channels examined in this study. One explanation for this pattern is that workers may be better able to separate their satisfaction (or dissatisfaction) with their job from their interactions and communications with the youth. In contrast, relative to workers' interactions with youth, youth's interactions with social workers appear to be especially influential for understanding youths' experiences in (and likely beyond) foster care.

### **Strengths and Limitations**

This investigation contributes to the broader literature on interpersonal communication, particularly in service provision settings, in multiple ways. First, this study has exceptionally high ecological validity because workers and youth were recorded in their natural real-world environment, largely without intrusion as a result of the investigative frame. Thus, these conversations offer a rare glimpse into the highly confidential communications between social workers and foster youth in the child welfare system. Moreover, the obtained findings are well-suited to generalize to actual conversational dynamics between social service providers and transitioning foster youth.

Second, informed by the broader literature on patient-provider communication (Ambady et al., 2002; DiMatteo et al., 1980; Haskard et al., 2008), this study is the first to evaluate communication dynamics in the child welfare setting. Although many facets of communication may translate across medical, educational, and therapeutic settings, the



social service setting features unique elements that heighten the need and the value of investigative efforts within this specific setting. For example, while one must see a doctor intermittently in the case of illness, youth in foster care are not “required” by the demands of life to continue to see a social worker past age 18. Hence, these interactions are perhaps more volitional than the interactions between doctors and patients, or school children with their teachers. Secondly, because foster youth have often grown up in a system where they have a lack of support overall, social workers may be able to play an important role through mentoring and providing compensatory relationship connections for youth. Therefore, these findings that communication matters for youth in care, allows for useful extension of past and current work on communication in other settings to this new context, and for new investigation into when and how communication may differ for those in foster care.

Third, the present investigation is the first examine multiple speakers at the level of the social worker, the youth, and, importantly, the dyad itself, as well as across multiple communication channels, including full speech, transcribed content, and content-filtered tone. In particular, this study contributes to the literature by focusing on the organization of the conversation through congruence, instead of focusing on just the valence and content of communication, to inform better worker-youth relationships that involve empathy and reciprocity. Thus, this investigative paradigm is uniquely positioned to elucidate salient facets of communication components, and the channels through which they evidence the greatest impact, as related to both youth and worker satisfaction and perceived relationship quality. The consideration of dyadic tone by adapting traditional

content-filtering approaches to track both speakers using contemporary software constitutes a particularly novel element of this study. This approach supported the examination of communicative mutuality between worker and youth and encourages the application of this technique to communication studies in future work.

Fourth, the rating procedures accounted for practice and fatigue effects, which are all too often overlooked in communication studies. Each rater evaluated 100 cases in total, beginning with all 50 dyads, followed by either the worker or youth for the 50 cases again. This approach ensured that all raters had the same degree of familiarity with the rating process and preserved the naiveté of the judges to ensure generalizability to real world settings where workers, and especially youth, would not have extensive rating experience. Practice and fatigue effects were further reduced by randomizing the order in which cases were presented to each rater, as well as the order of the items rated within each case.

Despite multiple strengths, this study also featured limitations that necessarily qualify the interpretation and impact of the obtained findings. First, the sample size of this study was too small to support sophisticated analyses and likely undermined the statistical power to observe the predicted small effects of worker-youth communication features on satisfaction and experience in the social service setting. That said, these 51 unique dyads of workers and youth recorded in the real setting of service provision likely offered more value and insight than would a larger sample in a contrived and heavily controlled laboratory setting. Having demonstrated the feasibility of this investigative approach, future studies should expand to collect a larger, random sample of workers and

youth in communication to provide greater statistical power for detecting small effects, as well as for probing effects within and across subgroups. For example, future analyses could evaluate these patterns by gender or race/ethnicity of the worker and youth, as well as the gender or racial/ethnic congruence in the dyad. Likewise, additional characteristics of the worker (e.g., training, professional experience, and personal history) and/or youth (e.g., placement status, personal history) likely influence these communicative processes and their effects.

Second, although the reliabilities of the current ratings were substantially higher on average than those in prior publications (Haskard et al., 2009, 2007), the inter-rater reliability for some of the individual items was low, and in a few instances sufficiently poor as to warrant the exclusion of the rating item from these analyses. By definition, rating approaches maximize subjectivity and, by extension, probable validity, but they do so at the expense of reliability (Rosenthal, 2008). Although poor inter-rater reliability can compromise interpretability, it is a natural extension of the fact that different raters “pick up on” unique, perhaps distally related, elements of a construct (Haskard et al., 2009), which, in turn, may yield ratings with higher validity, despite somewhat low reliability (Martin & DiMatteo, 2013).

Third, the cross-sectional design of this investigation precluded causal or directional interpretations of the obtained findings. Consistent with transactional models of development (Smith & Thelen, 2003), it is likely that communicative features are both reflective, and evocative, of individuals’ satisfaction and experiences. Thus, it is important to interpret the obtained associations as suggestive, but not definitive, vis-à-vis

directionality of effects. Future studies would profit from a longitudinal investigative design, wherein temporal associations between communication and satisfaction could be more clearly delineated. Likewise, longitudinal work would clarify whether youth who report higher rates of satisfaction and articulate an intention to remain in care, actually do remain in care longer. This is important given prior evidence that attitudes and intentions do not necessarily predict behavior (Kraus, 1995), and satisfaction does not necessarily predict good service outcomes (Fenton, Jerant, Bertakis, & Franks, 2012).

Fourth, in addition to extended research designs, future intervention work that aims to manipulate and teach communication skills to workers and youth would provide novel opportunities to evaluate causal relations. Just as the current study sought to translate empirical research to practice, practice can inform research and theory development. For example, Haskard and colleagues (2008) conducted a study wherein doctors and/or patients were randomly assigned to receive training in doctor-patient communication practices. Results showed that the training improved patient satisfaction, increased patient involvement, increased physician counseling about key topics such as diet and exercise, increased physician sensitivity and increased effective communication. In this way, intervention research can test causal hypotheses about the relation between communication features and speakers' satisfaction.

Finally, the current sample was drawn from a randomly selected pool of youth and workers, but nevertheless it likely over-represented youth who were predisposed to stay in care, and workers who were sufficiently engaged and competent to follow through with the study, even in the absence of remuneration for their efforts. At the time of

invitation to the study, nearly 30% of the potential youth had already left the system. Thus, the remaining participants were biased toward higher service engagement. Indeed, the youth in this study had already remained in extended foster care past age 18, and many of them had done so for almost a full year at the time of the assessment. Likewise, the workers examined here were among the 60.3% who returned phone calls regarding the current study, and likely reflect an unusually attentive and responsible set of providers.

### **Implications and Extensions**

Communication between social workers and foster youth may reflect and/or contribute to their job and foster care experiences, respectively. It is important to support social workers so that they can promote positive development and service engagement among TAY because they encounter numerous challenges amidst few resources as they transition from foster care to adulthood. Importantly, the observed associations between youths' and workers' communicative components within and across channels, as well as the relations of each to youths' and workers' satisfaction in the social service setting, illustrate the fundamental reciprocity and bidirectionality of provider-consumer dynamics in the social service setting.

Youth who have workers who are less negative and report a more positive relationship are more likely to be satisfied with care, and this is reflected in both their communication features and in their self-reports of satisfaction in the social service setting. In particular, youth seem sensitive to the words that workers use to communicate (i.e., communicative content), and may show a particular sensitivity to negative content –

even when accompanying tone may be positive. Furthermore, the congruence in negative communication was most important to youth, relative to the congruence in positive communication. Overall, this indicates that youth are highly sensitive to negative cues from workers in their words, and that youth may benefit from a genuine relationship where workers will discuss and express both positive and negative issues with youth.

Workers who are satisfied with their jobs are more likely to self-report positive relationships with the youth under their care, and communicate less negativity in interactions with the youth they serve. Furthermore, workers' endorsement of believing in the youth's competence was directly influenced by workers' job satisfaction, and this positive belief in these youth was later found to be one of the strongest predictors of more positive and less negative interactions. This is consistent with past work showing that efforts to promote client autonomy and self-determination are associated with positive outcomes (Oliveira et al., 2012; Powers et al., 2012; Ryan & Deci, 2000). Therefore, providing support for autonomy and holding positive expectations for youth may be integral to good outcomes and effective communication. At the same time, workers are responsive to youths' communication and experiences in the system. Workers could also detect when youth were not satisfied with their care and when youth were likely to leave care, and this was reflected in the communication between youth and workers. Workers should trust that their communications with youth are important and may influence key outcomes and service provision goals (e.g., whether or not youth are satisfied or will engage in extended foster care).

It is important that we help to inform workers and youth, and equip with the necessary tools to forge successful relationships. The efforts will ensure that workers are able to perform well and remain committed to helping foster youth, that foster youth can realize their potential with the support of new care policies that promote positive outcomes despite the challenges of transitioning from foster care to adulthood.

## References

- Ambady, N., Hallahan, M., & Rosenthal, R. (1995). On judging and being judged accurately in zero-acquaintance situations. *Journal of Personality and Social Psychology*, *69*(3), 518–529. <http://doi.org/10.1037/0022-3514.69.3.518>
- Ambady, N., Koo, J., Rosenthal, R., & Winograd, C. H. (2002). Physical therapists' nonverbal communication predicts geriatric patients' health outcomes. *Psychology and Aging*, *17*(3), 443–452. <http://doi.org/http://dx.doi.org/10.1037/0882-7974.17.3.443>
- American Public Human Services Administration. (2005). *Report from the 2004 workforce survey*. Washington D.C.: American Public Human Services Association.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*(5), 469–480. <http://doi.org/10.1037/0003-066X.55.5.469>
- Babad, E., Bernieri, F., & Rosenthal, R. (1991). Students as judges of teachers' verbal and nonverbal behavior. *American Educational Research Journal*, *28*(1), 211–234. <http://doi.org/10.3102/00028312028001211>
- Barak, M. E. M., Nissly, J. A., & Levin, A. (2001). Antecedents to retention and turnover among child welfare, social work, and other human service employees: What can we learn from past research? A review and metanalysis. *Social Service Review*, *75*(4), 625–661. <http://doi.org/10.1086/323166>



- Barrat, V. X., & Berliner, B. (2013). *The invisible achievement gap, part 1: Education outcomes of students in foster care in California's public schools*. San Francisco, CA: WestEd.
- Barth, R. P., Lloyd, E. C., Christ, S. L., Chapman, M. V., & Dickinson, N. S. (2008). Child welfare worker characteristics and job satisfaction: A national study. *Social Work, 53*(3), 199–209. <http://doi.org/10.1093/sw/53.3.199>
- Beach, M. C., Roter, D. L., Wang, N.-Y., Duggan, P. S., & Cooper, L. A. (2006). Are physicians' attitudes of respect accurately perceived by patients and associated with more positive communication behaviors? *Patient Education and Counseling, 62*(3), 347–354. <http://doi.org/10.1016/j.pec.2006.06.004>
- Beall, & Bass. California Fostering Connections to Success Act, Assembly Bill 12, 559 (2010).
- Beebe, B., Jaffe, J., & Lachmann, F. (1992). A dyadic systems view of communication. In N. Skolnick & S. Farnfield (Eds.), *Relational Perspectives in Psychoanalysis*. Hillsdale, NJ: Analytic Press.
- Berzenski, S. R., & Yates, T. M. (2011). Classes and consequences of multiple maltreatment: A person-centered analysis. *Child Maltreatment, 16*(4), 250–261. <http://doi.org/10.1177/1077559511428353>
- Blanck, P. D., & Rosenthal, R. (1982). Developing strategies for decoding “leaky” messages: On learning how and when to decode discrepant and consistent social communications. In R. S. Feldman (Ed.), *Development of Nonverbal Behavior in*

- Children* (pp. 203–229). Springer New York. Retrieved from  
[http://link.springer.com/chapter/10.1007/978-1-4757-1761-7\\_8](http://link.springer.com/chapter/10.1007/978-1-4757-1761-7_8)
- Blanck, P. D., & Rosenthal, R. (1984). Mediation of interpersonal expectancy effects: Counselor's tone of voice. *Journal of Educational Psychology*, 76(3), 418–426.  
<http://doi.org/http://dx.doi.org/10.1037/0022-0663.76.3.418>
- Blanck, P. D., Rosenthal, R., Hart, A. J., & Bernieri, F. (1989). The measure of the judge: An empirically-based framework for exploring trial judges' behavior. *Iowa Law Review*, 75, 653.
- Block, L., Habicht, R., Wu, A. W., Desai, S. V., Wang, K., Novella Silva, K., Niessen, T., Oliver, N., Feldman, L. (2013). In the wake of the 2003 and 2011 duty hours regulations, how do internal medicine interns spend their time? *Journal of General Internal Medicine*, 28(8), 1042–1047. <http://doi.org/10.1007/s11606-013-2376-6>
- Brame, R., Turner, M. G., Paternoster, R., & Bushway, S. D. (2012). Cumulative prevalence of arrest from ages 8 to 23 in a national sample. *Pediatrics*, 129(1), 21–27. <http://doi.org/10.1542/peds.2010-3710>
- Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1(2), 245–276. [http://doi.org/10.1207/s15327906mbr0102\\_10](http://doi.org/10.1207/s15327906mbr0102_10)
- Chaikin, A. L., Sigler, E., & Derlega, V. J. (1974). Nonverbal mediators of teacher expectancy effects. *Journal of Personality and Social Psychology*, 30(1), 144–149. <http://doi.org/10.1037/h0036738>

- Chen, Y.Y., Park, J., & Park, A. (2012). Existence, relatedness, or growth? Examining turnover intention of public child welfare caseworkers from a human needs approach. *Children and Youth Services Review, 34*(10), 2088–2093.  
<http://doi.org/10.1016/j.chilyouth.2012.07.002>
- Chernoff, R., Combs-Orme, T., Risley-Curtiss, C., & Heisler, A. (1994). Assessing the health status of children entering foster care. *Pediatrics, 93*(4), 594–601.
- Courtney, M. E., Brown, A., Cary, C., Love, K., & Vorhies, V. (2011). *Midwest evaluation of the adult functioning of former foster youth: Outcomes at age 26*. Chicago, IL: Chapin Hall at the University of Chicago.
- Courtney, M. E., Charles, P., Okpych, N. J., Napolitano, L., & Halsted, K. (2014). *Findings from the California Youth Transitions to Adulthood Study (CalYOUTH): Conditions of foster youth at age 17*. Chicago, IL: Chapin Hall at the University of Chicago.
- Courtney, M. E., & Dworsky, A. (2006). Early outcomes for young adults transitioning from out-of-home care in the USA. *Child & Family Social Work, 11*(3), 209–219.  
<http://doi.org/10.1111/j.1365-2206.2006.00433.x>
- Courtney, M. E., Dworsky, A. L., Cusick, G. R., Havlicek, J., Perez, A., & Keller, T. E. (2007). *Midwest evaluation of the adult functioning of former foster youth: Outcomes at age 21*. Retrieved from [http://works.bepress.com/thomas\\_keller/7](http://works.bepress.com/thomas_keller/7)
- Courtney, M. E., Dworsky, A., & Peters, C. M. (2009). *California's Fostering Connections to Success Act and the costs and benefits of extending foster care to 21*. Seattle, WA: Partners for Our Children.

- Courtney, M. E., Dworsky, A., & Pollack, H. (2007). *When should the state cease parenting? Evidence from the midwest study*. Chicago, IL: Chapin Hall at the University of Chicago.
- Courtney, M. E., Terao, S., & Bost, N. (2004). *Midwest evaluation of the adult functioning of former foster youth: Conditions of youth preparing to leave state care*. Chicago, IL: Chapin Hall at the University of Chicago.
- Cusick, G. R., Havlicek, J. R., & Courtney, M. E. (2012). Risk for arrest: The role of social bonds in protecting foster youth making the transition to adulthood. *The American Journal of Orthopsychiatry*, 82(1), 19–31.  
<http://doi.org/10.1111/j.1939-0025.2011.01136.x>
- Denham, S. A., Blair, K. A., DeMulder, E., Levitas, J., Sawyer, K., Auerbach–Major, S., & Queenan, P. (2003). Preschool emotional competence: Pathway to social competence? *Child Development*, 74(1), 238–256. <http://doi.org/10.1111/1467-8624.00533>
- DiMatteo, M. R., Reiter, R. C., & Gambone, J. C. (1994). Enhancing medication adherence through communication and informed collaborative choice. *Health Communication*, 6(4), 253–265. [http://doi.org/10.1207/s15327027hc0604\\_2](http://doi.org/10.1207/s15327027hc0604_2)
- DiMatteo, M. R., Sherbourne, C. D., Hays, R. D., Ordway, L., Kravitz, R. L., McGlynn, E. A., Kaplan, S., Rogers, W. H. (1993). Physicians' characteristics influence patients' adherence to medical treatment: Results from the Medical Outcomes Study. *Health Psychology*, 12(2), 93–102. <http://doi.org/10.1037/0278-6133.12.2.93>

- DiMatteo, M. R., Taranta, A., Friedman, H. S., & Prince, L. M. (1980). Predicting patient satisfaction from physicians' nonverbal communication skills. *Medical Care*, *18*(4), 376–387.
- Dodge, K. A., & Frame, C. L. (1982). Social cognitive biases and deficits in aggressive boys. *Child Development*, *53*(3), 620–635. <http://doi.org/10.2307/1129373>
- Dworsky, A., Napolitano, L., & Courtney, M. (2013). Homelessness during the transition from foster care to adulthood. *American Journal of Public Health*, *103*(Suppl 2), S318–S323. <http://doi.org/10.2105/AJPH.2013.301455>
- Eden, D. (1992). Leadership and expectations: Pygmalion effects and other self-fulfilling prophecies in organizations. *The Leadership Quarterly*, *3*(4), 271–305. [http://doi.org/10.1016/1048-9843\(92\)90018-B](http://doi.org/10.1016/1048-9843(92)90018-B)
- Ekman, P., & Friesen, W. V. (1974). Detecting deception from the body or face. *Journal of Personality and Social Psychology*, *29*(3), 288–298. <http://doi.org/http://dx.doi.org/10.1037/h0036006>
- Epstein R.M., & Hundert E.M. (2002). DEfining and assessing professional competence. *JAMA*, *287*(2), 226–235. <http://doi.org/10.1001/jama.287.2.226>
- Fenton, J. J., Jerant, A. F., Bertakis, K. D., & Franks, P. (2012). The cost of satisfaction: a national study of patient satisfaction, health care utilization, expenditures, and mortality. *Archives of Internal Medicine*, *172*(5), 405–411. <http://doi.org/10.1001/archinternmed.2011.1662>
- Fowler, P. J., Toro, P. A., & Miles, B. W. (2009). Pathways to and from homelessness and associated psychosocial outcomes among adolescents leaving the foster care

system. *American Journal of Public Health*, 99(8), 1453–1458.

<http://doi.org/10.2105/AJPH.2008.142547>

Gauvain, M., & Perez, S. M. (2007). The socialization of cognition. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of Socialization: Theory and Research* (pp. 586–613). NY: Guilford.

Geenen, S., & Powers, L. E. (2007). “Tomorrow is another problem”: The experiences of youth in foster care during their transition into adulthood. *Children and Youth Services Review*, 29(8), 1085–1101.

<http://doi.org/10.1016/j.chilyouth.2007.04.008>

General Accounting Office. (2004). D.C. Child and Family Services Agency: More focus needed on human capital management issues for caseworkers and foster parent recruitment and retention. Retrieved August 16, 2015, from

<http://www.gao.gov/products/GAO-04-1017>

Godfrey, E. B., & Yoshikawa, H. (2012). Caseworker-recipient interaction: welfare office differences, economic trajectories, and child outcomes. *Child Development*, 83(1), 382–398. <http://doi.org/10.1111/j.1467-8624.2011.01697.x>

Graves, J. R., & Robinson, J. D. (1976). Proxemic behavior as a function of inconsistent verbal and nonverbal messages. *Journal of Counseling Psychology*, 23(4), 333–338. <http://doi.org/10.1037/0022-0167.23.4.333>

Hall, J. A., Harrigan, J. A., & Rosenthal, R. (1995). Nonverbal behavior in clinician—patient interaction. *Applied and Preventive Psychology*, 4(1), 21–37.

[http://doi.org/10.1016/S0962-1849\(05\)80049-6](http://doi.org/10.1016/S0962-1849(05)80049-6)

- Harris, M. J., & Rosenthal, R. (1985). Mediation of interpersonal expectancy effects: 31 meta-analyses. *Psychological Bulletin*, *97*(3), 363–386.  
<http://doi.org/http://dx.doi.org/10.1037/0033-2909.97.3.363>
- Haskard, K. B., DiMatteo, M. R., & Heritage, J. (2009). Affective and instrumental communication in primary care interactions: Predicting the satisfaction of nursing staff and patients. *Health Communication*, *24*(1), 21–32.  
<http://doi.org/10.1080/10410230802606968>
- Haskard, K. B., Williams, S. L., DiMatteo, M. R., Heritage, J., & Rosenthal, R. (2007). The provider's voice: Patient satisfaction and the content-filtered speech of nurses and physicians in primary medical care. *Journal of Nonverbal Behavior*, *32*(1), 1–20. <http://doi.org/10.1007/s10919-007-0038-2>
- Haskard, K. B., Williams, S. L., Robin, M., Rosenthal, R., White, M. K., & Goldstein, M. G. (2008). Physician and patient communication training in primary care: Effects on participation and satisfaction. *Health Psychology*, *27*(5), 513–522.  
<http://doi.org/10.1037/0278-6133.27.5.513>
- Heinberg, P. (1961). Factors related to an individual's ability to perceive implications of dialogues. *Speech Monographs*, *28*(4), 274–281.
- Hook, J. L., & Courtney, M. E. (2011). Employment outcomes of former foster youth as young adults: The importance of human, personal, and social capital. *Children and Youth Services Review*, *33*(10), 1855–1865.  
<http://doi.org/10.1016/j.childyouth.2011.05.004>

- Jensen, P. S., & Foster, M. (2010). Closing the research to practice gap in children's mental health: structures, solutions, and strategies. *Administration and Policy in Mental Health and Mental Health Services Research*, 37(1-2), 111–119. <http://doi.org/10.1007/s10488-010-0286-z>
- Keller, T. E., Salazar, A. M., & Courtney, M. E. (2010). Prevalence and timing of diagnosable mental health, alcohol, and substance use problems among older adolescents in the child welfare system. *Children and Youth Services Review*, 32(4), 626–634. <http://doi.org/10.1016/j.childyouth.2009.12.010>
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., KR, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of dsm-iv disorders in the national comorbidity survey replication. *Archives of General Psychiatry*, 62(6), 593–602. <http://doi.org/10.1001/archpsyc.62.6.593>
- Kierein, N. M., & Gold, M. A. (2000). Pygmalion in work organizations: A meta-analysis. *Journal of Organizational Behavior*, 21(8), 913–928.
- Kim, H., & Kao, D. (2014). A meta-analysis of turnover intention predictors among U.S. child welfare workers. *Children and Youth Services Review*, 47, Part 3, 214–223. <http://doi.org/10.1016/j.childyouth.2014.09.015>
- Kim, Y. M., Odallo, D., Thuo, M., & Kols, A. (1999). Client participation and provider communication in family planning counseling: Transcript analysis in Kenya. *Health Communication*, 11(1), 1–19. [http://doi.org/10.1207/s15327027hc1101\\_1](http://doi.org/10.1207/s15327027hc1101_1)



- Kraus, S. J. (1995). Attitudes and the prediction of behavior: A meta-analysis of the empirical literature. *Personality and Social Psychology Bulletin*, 21(1), 58–75.  
<http://doi.org/10.1177/0146167295211007>
- Krauss, R. M., Apple, W., Morency, N., Wenzel, C., & Winton, W. (1981). Verbal, vocal, and visible factors in judgments of another's affect. *Journal of Personality and Social Psychology*, 40(2), 312–320.  
<http://doi.org/http://dx.doi.org/10.1037/0022-3514.40.2.312>
- Krupat, E., Bell, R. A., Kravitz, R. L., Thom, D., & Azari, R. (2001). When physicians and patients think alike: Patient-centered beliefs and their impact on satisfaction and trust. *Journal of Family Practice*, 50(12), 1057–1062.
- LaPlante, D., & Ambady, N. (2002). Saying it like it isn't: Mixed messages from men and women in the workplace. *Journal of Applied Social Psychology*, 32(12), 2435–2457. <http://doi.org/10.1111/j.1559-1816.2002.tb02750.x>
- Laplante, D., & Ambady, N. (2003). On how things are said: Voice tone, voice intensity, verbal content, and perceptions of politeness. *Journal of Language and Social Psychology*, 22(4), 434–441. <http://doi.org/10.1177/0261927X03258084>
- Leathers, S. J., & Testa, M. F. (2006). Foster youth emancipating from care: Caseworkers' reports on needs and services. *Child Welfare*, 85(3), 463.
- Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development*, 71(1), 107–118.  
<http://doi.org/10.1111/1467-8624.00124>

- Lemon, K., Hines, A. M., & Merdinger, J. (2005). From foster care to young adulthood: The role of independent living programs in supporting successful transitions. *Children and Youth Services Review, 27*(3), 251–270.  
<http://doi.org/10.1016/j.chilyouth.2004.09.005>
- Leslie, L. K., Gordon, J. N., Meneken, L., Premji, K., Michelmore, K. I., & Ganger, W. (2005). The physical, developmental, and mental health needs of young children in child welfare by initial placement type. *Journal of Developmental and Behavioral Pediatrics : JDBP, 26*(3), 177–185.
- Magaña, A. B., Goldstein, M. J., Karno, M., Miklowitz, D. J., Jenkins, J., & Falloon, I. R. H. (1986). A brief method for assessing expressed emotion in relatives of psychiatric patients. *Psychiatry Research, 17*(3), 203–212.
- Martin, L. R., & DiMatteo, M. R. (2013). Clinical interactions. In J. Hall & M. Knapp (Eds.), *Nonverbal Communication in Human Interaction* (pp. 833–858). DeGruyter.
- Masten, A. S., & Obradović, J. (2006). Competence and resilience in development. *Annals of the New York Academy of Sciences, 1094*(1), 13–27.  
<http://doi.org/10.1196/annals.1376.003>
- Mast, M. S. (2007). On the importance of nonverbal communication in the physician–patient interaction. *Patient Education and Counseling, 67*(3), 315–318.  
<http://doi.org/10.1016/j.pec.2007.03.005>
- Maughan, A., & Cicchetti, D. (2002). Impact of child maltreatment and interadult violence on children’s emotion regulation abilities and socioemotional

adjustment. *Child Development*, 73(5), 1525–1542. <http://doi.org/10.1111/1467-8624.00488>

McCoy, H., McMillen, J. C., & Spitznagel, E. L. (2008). Older youth leaving the foster care system: Who, what, when, where, and why? *Children and Youth Services Review*, 30(7), 735–745. <http://doi.org/10.1016/j.childyouth.2007.12.003>

McGlynn, E. (1988). Physician job satisfaction: Its measurement and use as an indication of system performance. Santa Monica, CA: RAND.

Milmoe, S., Rosenthal, R., Biane, H. T., Chafets, M. E., & Wolf, I. (1967). The doctor's voice: Postdictor of successful referral of alcoholic patients. *Journal of Abnormal Psychology*, 72(1). Retrieved from <http://search.proquest.com/docview/1295924381?accountid=14521>

Moran, J., Bekker, H., & Latchford, G. (2008). Everyday use of patient-centred, motivational techniques in routine consultations between doctors and patients with diabetes. *Patient Education and Counseling*, 73(2), 224–231. <http://doi.org/10.1016/j.pec.2008.07.006>

Newton, R. R., Litrownik, A. J., & Landsverk, J. A. (2000). Children and youth in foster care: disentangling the relationship between problem behaviors and number of placements. *Child Abuse & Neglect*, 24(10), 1363–1374. [http://doi.org/10.1016/S0145-2134\(00\)00189-7](http://doi.org/10.1016/S0145-2134(00)00189-7)

Oliveira, V. C., Refshauge, K. M., Ferreira, M. L., Pinto, R. Z., Beckenkamp, P. R., Negrao Filho, R. F., & Ferreira, P. H. (2012). Communication that values patient

- autonomy is associated with satisfaction with care: a systematic review. *Journal of Physiotherapy*, 58(4), 215–229. [http://doi.org/10.1016/S1836-9553\(12\)70123-6](http://doi.org/10.1016/S1836-9553(12)70123-6)
- Ong, L. M. L., De Haes, J. C. J. M., Hoos, A. M., & Lammes, F. B. (1995). Doctor-patient communication: A review of the literature. *Social Science & Medicine*, 40(7), 903–918. [http://doi.org/10.1016/0277-9536\(94\)00155-M](http://doi.org/10.1016/0277-9536(94)00155-M)
- Oswald, S. H., Heil, K., & Goldbeck, L. (2010). History of maltreatment and mental Health problems in foster children: A review of the literature. *Journal of Pediatric Psychology*, 35(5), 462–472. <http://doi.org/10.1093/jpepsy/jsp114>
- Pang, J. S. (2010). Content coding methods in implicit motive assessment. In O. Schultheiss & J. Brunstein (Eds.), *Implicit Motives* (pp. 121–135). Oxford University Press.
- Pawlikowska, T., Zhang, W., Griffiths, F., van Dalen, J., & van der Vleuten, C. (2012). Verbal and non-verbal behavior of doctors and patients in primary care consultations – How this relates to patient enablement. *Patient Education and Counseling*, 86(1), 70–76. <http://doi.org/10.1016/j.pec.2011.04.019>
- Pollak, S. D., Cicchetti, D., Hornung, K., & Reed, A. (2000). Recognizing emotion in faces: Developmental effects of child abuse and neglect. *Developmental Psychology*, 36(5), 679–688. <http://doi.org/http://dx.doi.org/10.1037/0012-1649.36.5.679>
- Pollak, S. D., & Sinha, P. (2002). Effects of early experience on children's recognition of facial displays of emotion. *Developmental Psychology*, 38(5), 784–791. <http://doi.org/10.1037/0012-1649.38.5.784>

- Powers, L. E., Geenen, S., Powers, J., Pommier-Satya, S., Turner, A., Dalton, L. D., Drummond, D., Swank, P. (2012). My Life: Effects of a longitudinal, randomized study of self-determination enhancement on the transition outcomes of youth in foster care and special education. *Children and Youth Services Review, 34*(11), 2179–2187. <http://doi.org/10.1016/j.childyouth.2012.07.018>
- Reynolds, D. (2007). Restraining Golem and harnessing Pygmalion in the classroom: A laboratory study of managerial expectations and task design. *Academy of Management Learning & Education, 6*(4), 475–483. <http://doi.org/10.5465/AMLE.2007.27694947>
- Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology, 21*(2), 95–103. <http://doi.org/10.1037/h0045357>
- Rogers, P. L., Schererf, K. R., & Rosenthal, R. (1971). Content filtering human speech: A simple electronic system. *Behavior Research Methods & Instrumentation, 3*(1), 16–18. <http://doi.org/10.3758/BF03208115>
- Romens, S. E., & Pollak, S. D. (2012). Emotion regulation predicts attention bias in maltreated children at-risk for depression. *Journal of Child Psychology and Psychiatry, 53*(2), 120–127. <http://doi.org/10.1111/j.1469-7610.2011.02474.x>
- Rosenthal, R. (1963). On the social psychology of the psychological experiment: The Experimenter's hypothesis as unintended determinant of experimental results. *American Scientist, 51*(2), 268–283.
- Rosenthal, R. (1973). The Pygmalion Effect Lives. *Psychology Today, 7*(4), 56–63.

- Rosenthal, R. (2003). Covert communication in laboratories, classrooms, and the truly real world. *Current Directions in Psychological Science*, 12(5), 151–154.  
<http://doi.org/10.1111/1467-8721.t01-1-01250>
- Rosenthal, R. (2008). Conducting judgement studies: Some methodological issues. In J. Harrigan & R. Rosenthal (Eds.), *New Handbook of Methods in Nonverbal Behavior Research* (pp. 199–228). OUP Oxford.
- Rosenthal, R., & Fode, K. L. (1963). The effect of experimenter bias on the performance of the albino rat. *Behavioral Science*, 8(3), 183–189.  
<http://doi.org/10.1002/bs.3830080302>
- Rosenthal, R., & Jacobson, L. (1968). Pygmalion in the classroom. *The Urban Review*, 3(1), 16–20. <http://doi.org/10.1007/BF02322211>
- Rosenthal, R., Mulry, R. C., Persinger, G. W., Vikan-Kline, L., & Grothe, M. (1964). Emphasis on experimental procedure, sex of subjects and the biasing effects of experimental hypotheses. *Journal of Projective Techniques and Personality Assessment*, 28(4), 470–473. <http://doi.org/10.1080/0091651X.1964.10120164>
- Roter, D. L., Hall, J. A., & Katz, N. R. (1987). Relations between physicians' behaviors and analogue patients' satisfaction, recall, and impressions. *Medical Care*, 25(5), 437–451.
- Rutter, M. (2007). Proceeding from observed correlation to causal inference: The use of natural experiments. *Perspectives on Psychological Science*, 2(4), 377–395.  
<http://doi.org/10.1111/j.1745-6916.2007.00050.x>

- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <http://doi.org/10.1037/0003-066X.55.1.68>
- Samuels, G. M., & Pryce, J. M. (2008). “What doesn’t kill you makes you stronger”: Survivalist self-reliance as resilience and risk among young adults aging out of foster care. *Children and Youth Services Review*, 30(10), 1198–1210. <http://doi.org/10.1016/j.childyouth.2008.03.005>
- Schwartz, S. J., Côté, J. E., & Arnett, J. J. (2005). Identity and agency in emerging adulthood two developmental routes in the individualization process. *Youth & Society*, 37(2), 201–229. <http://doi.org/10.1177/0044118X05275965>
- Sermat, V., & Smyth, M. (1973). Content analysis of verbal communication in the development of relationship: Conditions influencing self-disclosure. *Journal of Personality and Social Psychology*, 26(3), 332–346. <http://doi.org/10.1037/h0034473>
- Smith, L. B., & Thelen, E. (2003). Development as a dynamic system. *Trends in Cognitive Sciences*, 7(8), 343–348. [http://doi.org/10.1016/S1364-6613\(03\)00156-6](http://doi.org/10.1016/S1364-6613(03)00156-6)
- Tai-Seale, M., McGuire, T. G., & Zhang, W. (2007). Time allocation in primary care office visits. *Health Services Research*, 42(5), 1871–1894. <http://doi.org/10.1111/j.1475-6773.2006.00689.x>

- Thomas, M., Kohli, V., & Choi, J. (2014). Correlates of job burnout among human services workers: Implications for workforce retention. *Journal of Sociology and Social Welfare, 41*, 69.
- Tudor, K., & Worrall, M. (1994). Congruence reconsidered. *British Journal of Guidance & Counselling, 22*(2), 197–206. <http://doi.org/10.1080/03069889408260314>
- Unrau, Y. A., Seita, J. R., & Putney, K. S. (2008). Former foster youth remember multiple placement moves: A journey of loss and hope. *Children and Youth Services Review, 30*(11), 1256–1266.  
<http://doi.org/10.1016/j.chilyouth.2008.03.010>
- U. S. C. 1305. (2008). Fostering Connections to Success and Increasing Adoptions Act. Pub. L. No. 110-351 (H.R. 6893).
- U.S. Department of Education, Office of Special Education Programs. (2014). Individuals with Disabilities Education Act (IDEA) database. Retrieved March 3, 2016, from <https://inventory.data.gov/dataset/8715a3e8-bf48-4eef-9deb-fd9bb76a196e/resource/a68a23f3-3981-47db-ac75-98a167b65259>.
- US Department of Health and Human Services. Administration for Children and Families, Children's Bureau. (2013). The Adoption and Foster Care Analysis and Reporting System [AFCARS] Report. Preliminary FY 2012 estimates as of July 2013, 20. Retrieved from <http://www.acf.hhs.gov/programs/cb/resource/afcars-report-20>
- Webster, D., Armijo, M., Dawson, W., Magruder, J., Exel, M., Cuccaro-Alamin, S., ... Pixton, E. (2015). *Child Welfare Services Reports for California*. University of



California at Berkeley Center for Social Services Research website. Retrieved from <[http://cssr.berkeley.edu/ucb\\_childwelfare](http://cssr.berkeley.edu/ucb_childwelfare)>

Williams, G. C. (2014). Self-determination and the patient-health practitioner relationship. In N. Weinstein (Ed.), *Human Motivation and Interpersonal Relationships* (pp. 335–360). Springer Netherlands. Retrieved from [http://link.springer.com/chapter/10.1007/978-94-017-8542-6\\_15](http://link.springer.com/chapter/10.1007/978-94-017-8542-6_15)

Zuger, A. (2004). Dissatisfaction with medical practice. *New England Journal of Medicine*, 350(1), 69–75. <http://doi.org/10.1056/NEJMSr031703>

Zwick, W. R., & Velicer, W. F. (1982). Factors influencing four rules for determining the number of components to retain. *Multivariate Behavioral Research*, 17(2), 253–269. [http://doi.org/10.1207/s15327906mbr1702\\_5](http://doi.org/10.1207/s15327906mbr1702_5)