Applying Theory of Mind Concepts When Designing Interventions Targeting Social Cognition Among Youth Offenders

Kristine K. Noel and Carol Westby

This study employed a multiple baseline, across-participants, single-subject design to investigate the feasibility of an individual, narrative-based, social problem-solving intervention on the social problem-solving, narrative, and theory of mind (ToM) abilities of 3 incarcerated adolescent youth offenders identified as having emotional disturbance (ED). Students participated in individual intervention sessions in which they were taught strategies for storytelling and social problem solving and the application of ToM. All 3 students completed the program to mastery. Visual inspection and mean score differences across conditions were used to analyze baseline and postintervention measures. All students demonstrated increased inclusion of social problem-solving steps, narrative components, and use of landscape of consciousness in their personal narratives following intervention. Although there were limitations in the study, results supported the feasibility of conducting this type of intervention with youth offenders with ED in the criminal justice system. **Key words:** *adolescent*, *narrative*, *social problem solving*, *theory of mind*, *youth offender*

APPLYING CONCEPTS OF THEORY OF MIND TO THE NEEDS OF YOUTH OFFENDERS

This article reports on a study designed to investigate the effects and feasibility of a narrative-based, social problem-solving individual intervention on the social problem solving, narrative, and theory of mind (ToM) abilities of youth offenders with emotional disturbance (ED). "Emotional disturbance" is a term used in educational settings to refer to children and adolescents who exhibit difficulty with interpersonal relationships with peers and teachers, inappropriate types of behavior (acting out against self or others) or feelings (expresses the need to harm self or others, low self-worth, etc.), or a pervasive mood of unhappiness or depression (Individuals With Disabilities Education Act [IDEA], 2004). "Emotional and behavioral disorders" (EBD) is a term that is often used synonymously with ED. It is widely accepted and frequently seen in educational literature and, for the most part, will be the terminology we use in this article. Emotional disturbance will be used when we are specifically referring to students who have been identified as a student with a disability specific to this eligibility category under IDEA (2004). In medical or

344

mental health contexts, the term "disruptive behavior disorders" (DBD) from the *Diagnostic and Statistical Manual*, Fifth Edition (*DSM-V*; American Psychiatric Association, 2013), refers to this pattern of behaviors. There is a large overlap between the youth with a diagnosis of EBD or DBD and those in the juvenile justice system. Two thirds of the youth with EBD have had some type of contact with the law, and 43% have been arrested once (Greenbaum et al., 1996). Fifty percent of the youth in the juvenile justice system have received a diagnosis of EBD or DBD (Quinn, Rutherford, Leone, Osher, & Poirer, 2005; Shufelt & Cocozza, 2006).

A hallmark of children and youths with EBD or DBD arguably may be poor social competence (e.g., Kauffman, 2005; Maag, 2006), which may appear as inappropriate behavior in social situations (Smith & Travis, 2001). Children and youths with EBD often exhibit significant deficits in skills and abilities that underpin social competence, including language (e.g., Hollo, Wehby, & Oliver, 2014), literacy, self-regulation (e.g., Meisel, Henderson, Cohen, & Leone, 2000), social skills (e.g., Meisel et al., 2000), and social problem solving and decision making (e.g., Gemignani, 1994). Such disorders are frequently associated with abnormalities in social cognition (Frick & Viding, 2009; McMahan & Frick, 2007). Other forms of atypical social cognition, such as impaired emotion recognition (Fairchild, Van Goozen, Calder, Stollery, & Goodyer, 2009) and poor theory of mind (ToM; Donno, Parker, Gilmour, & Skuse, 2010), also have been implicated in the development of childhood onset of DBD. In the DBD diagnostic criteria, the *DSM-V* includes specifiers for callous-unemotional traits. The description of these traits reflects ToM deficits, particularly affective ToM deficits associated with recognition and interpretation of emotions in self and others and empathy for others.

As a result of multiple difficulties in the area of social cognition, the youth with emotional and behavior issues are especially at risk for poor outcomes in school; they often struggle academically and are less likely than their peers in general education and even other students with disabilities to graduate from high school (U.S. Department of Education, 2014). They are likely to have difficulty establishing and maintaining positive relationships with adults and peers (Wagner & Davis, 2006) and to be at heightened risk for substance use (Substance Abuse and Mental Health Services Administration, 2002). The critical feature relative to this article is that students with identified EBD also are more likely to be involved in the criminal justice system (Quinn et al., 2005; Shufelt & Cocozza, 2006).

LANGUAGE, NARRATIVES, THEORY OF MIND, AND SOCIAL PROBLEM SOLVING IN YOUTH OFFENDERS

Language and behavior

Language is the medium through which social information is encoded, understood, stored, and used. Behavior is mediated by cognitive processes that are largely verbal (Bandura, 1969). Some developmental theorists have proposed that a child's behavior is regulated first by the verbal language of others, then by the child's own spoken language, and finally by the child's inner dialogue (e.g., Luria, 1961; Meichenbaum, 1977; Vygotsky, 1962). An assumption of cognitive-behavioral theory is that this inner dialogue regulates behavior and that behavior can be changed by "using language to alter cognition" (Mayer, Lochman, & Van Acker, 2005, p. 197).

Significant overlaps have been noted in populations of children and youths with EBD and those with language problems (Benner, Nelson, & Epstein, 2002; Cantwell & Baker, 1991; Gallagher, 1999). Hollo et al. (2014) recently examined the prevalence of language deficits in children with EBD. After reviewing 22 studies involving 1,171 children aged 5–13 years, they reported that 81% of children with EBD also had language deficits, ranging from mild to severe. This relationship is even more significant with youth offenders, who are

three times more likely to display language problems than their nonoffending peers (Larson & McKinley, 2003). Studies investigating language impairments have generally relied on standardized measures to assess language abilities (e.g., Benner, 2005; Hollo et al., 2014; Humber & Snow, 2001; Snow & Powell, 2005). Even though these standardized measures have identified language impairment in many youth offenders and many individuals with EBD, by nature of their design, they assess language primarily at the semantic and syntax levels rather than at the conversational or discourse level. However, when the language abilities of youth offenders were examined at the conversational and discourse levels, both of which are closely tied to social interactions, their challenges become even more evident (e.g., Snow & Powell, 2005; Sanger, Hux, & Ritzman, 1999).

Narratives and theory of mind

A few studies have explicitly investigated the narrative skills of youth offenders (Humber & Snow, 2001; Snow & Powell, 2005, 2008; Wainryb, Komolova, & Florsheim, 2010). In three separate studies, Snow and her colleagues specifically examined the completeness of, or the inclusion of story grammar elements, in the oral stories of offenders compared with those of nonoffenders (Humber & Snow, 2001; Snow & Powell, 2005, 2008). The youth were presented a six-frame black and white cartoon and asked to tell the story of what happened. The Stein and Glenn (1979) narrative framework was used to analyze the structural content of the stories. Youth offenders produced less complete stories, including fewer narrative elements, than did the nonoffenders in all three studies. Stories of the two groups differed in their descriptions of the character's plan, the character's attempt, the consequences of the attempt, and the story's resolution (Snow & Powell, 2005, 2008). In the 2008 study, adolescents' social skills also were assessed with the Adolescent Problems Inventory (Freedman et al., 1978), which required them to say what they would do in various situations.

Each item included a setting, characters, history, and goal of a given social situation. Youth offenders had significantly lower scores than nonoffenders on the inventory. Their performance on the Adolescent Problems Inventory reflected the deficits they exhibited in the narrative comprehension task.

Narrative landscapes in the personal narratives of typical adolescents and those of incarcerated violent youth offenders were the focus of research conducted by Wainryb et al. (2010). The concept of narrative landscapes was introduced by Bruner (1986). Landscape of action is objective and illustrates the actual or observable actions of the story's character—the what, where, when, and how of the story. Landscape of consciousness is the characters' awareness and understanding of the actions and events in their lives; it is the linguistic coding of characters' mental states and emotions or the why or "how come" of the story. Use and comprehension of a landscape of consciousness require ToM. Baron-Cohen defined ToM as being able to "reflect on the contents of one's own and other's minds" (2001, p. 3). In personal narratives, one must reflect on one's own thoughts and emotions; in narratives about others, one must be able to recognize or infer their thoughts and emotions. This double landscape of narratives is foundational to understanding and generating stories; it is critical when children and youths are telling stories that they not only describe the actions of themselves and others but also go further and share the thoughts, beliefs, feelings, and intentions of themselves (intrapersonal ToM) and others (interpersonal ToM).

In the study by Wainryb et al. (2010), both groups of students (typical nonviolent high school students and violent youth offenders) included elements of landscape of action in their narratives; most common was expression of attempts and consequences. The violent offenders group, however, did not provide resolutions or endings to their stories with the frequency and/or clarity of the nonoffenders group. The typical nonviolent adolescents made significantly greater use of

landscape of consciousness than violent offenders. In fact, nearly all of the typical non-violent adolescents referred to their own intentions and mental states (intrapersonal cognitive ToM) and half included references to their own emotions (intrapersonal affective ToM). In contrast, less than two thirds of violent offenders mentioned their intentions and mental states and about one third mentioned their emotions. The lack of landscape of consciousness references was even more marked when talking about others and not themselves—89% of the typical nonviolent youth, but only 10% of the violent youth included in their accounts at least one reference to their victim's emotions (interpersonal affective ToM). Similarly, 54% of the typical nonviolent youth but only 20% of the violent youth speculated about their victim's mental states (interpersonal cognitive ToM). This indicates that the violent offenders made significantly less use of all types of ToM.

Social problem solving as a narrative process

Social problem solving can be understood as a narrative process (Black & Bower, 1980; Elias, 2004b; Southam-Gerow, 2013). The steps of social problem solving are similar to the components of a narrative in that a character in a social context, as in a narrative, often faces problems he or she must make sense of, respond to, reflect on, and interpret. Also important, the dimensions of landscape of action and landscape of consciousness are imperative not only for understanding and telling stories but also for solving social challenges. What unfolds upon close reading of the classic research (e.g., Crick & Dodge, 1994) and more recent literature (Elias, 2004b; Southam-Gerow, 2013) is that social problem solving is more complex than originally thought. In social problem solving, persons draw from their cognitive, social-emotional, linguistic and ToM skills. Engaging in effective social problem solving requires linguistic skills to code complex temporal and causal relationships among people, objects, and events; discourse skills to organize the information

logically; and ToM skills to reflect on and evaluate the effects of the problems and solutions on one's own desires, intentions, and emotions and on the desires, intentions, and emotions of others (Noel, 2011; Westby, in press).

Concern for the needs of children and youths with EBD and their risk for poor outcomes has historically been addressed through interventions aimed at teaching prosocial skills. Social problem-solving interventions have been examined extensively and for more than 40 years presented as a promising practice for either improving social competence (e.g., Cook et al., 2008; D'Zurilla & Goldfried, 1971) or decreasing antisocial behavior (Kazdin, 1987). Yet, overall, the literature examining the effectiveness of these interventions for students with EBD shows only minimal to moderate gains in social problem-solving skills and limited to no gains in generalization to behavior in everyday contexts (Maag, 2006; Noel, 2011; Smith & Travis, 2001; Urbain & Kendall, 1980). The limited effectiveness of these interventions may be related to the failure of programs to address the range of factors underlying social problem solving, such as language and social-emotional/ToM abilities (e.g., Noel, 2011; Smith & Travis, 2001; Southam-Gerow; 2013). Current approaches generally intervene at an objective, landscape of action level (e.g., Noel, 2011; Southam-Gerow; 2013).

These interventions share a number of features. That is, they tend to operationalize social problem solving with a similar set of discrete cognitive and behavioral steps, such as the following: (1) recognize that a problem exists; (2) define the problem; (3) identify the goal; (4) generate multiple ways of responding to and attempting to solve the problem and weigh the possible consequences of each; (5) decide on a response; and (6) act on the selected response (e.g., Elias 2004a; Robinson, 2007; Stark, Herren, & Fisher, 2009). Interventions address the components and processes involved in social problem solving too simplistically. Attention to the social context, linguistic skills, and the cognitive and affective

intrapersonal and interpersonal ToM skills is missing.

Purpose of the current study

In this article, we take the position that narrative is a more complete framework for "understanding, assessing, and teaching the components and process of social problem solving" (Noel, 2011, p. 42) and that ToM is an essential part of understanding and producing narratives. Embedded naturally and meaningfully in a narrative framework are the traditional components of social problem solving. Narratives also incorporate linguistic and discourse components, elements that are sometimes overlooked. In addition, we propose that ToM skills are essential for comprehending and expressing all the variables critical for effective social problem solving and that ToM can be enhanced through narratives. The purpose of the present study was to investigate the feasibility of a narrative-based, social problem-solving individual intervention on the social problem solving, narrative, and ToM abilities of youth offenders with EBD.

Participants

Three adolescent boys who were attending a state-supported school in a juvenile correctional facility participated in this study. The participants met the following eligibility criteria: (1) chronological age between 17.0 and 19.11 years and not older than 18.11 years at the beginning of participation in the study; (2) IQ in the average range; (3) English dominant; and (4) eligible for and receiving special education and related services as a student with ED based on federal guidelines (IDEA, 2004). Demographic data were collected by facility education staff from confidential student educational records and reported to the primary investigator.

This study was reviewed and approved by a university Human Subjects Institutional Review Board and a state department research review advisory committee in charge of children's services. As per the approved study protocol, parental consent and student assent, or student consent, were obtained prior to the initiation of the study. Parents and/or students were informed of the purpose of the study, expectations of participants, and potential benefits and risks of the study. Participants were also told that they could withdraw from the study at any time without penalty.

Setting and instructor

This study was conducted in a state juvenile correctional facility located in the southwestern section of the United States. The participants were seen for intervention at times outside of the students' school day, during unstructured facility time that had been identified as convenient by security staff. A variety of rooms in the living units on facility grounds were used for these individual sessions. The intervention was implemented by the first author, a certified and licensed speech–language pathologist.

Design

A single-subject design with multiple baselines across participants (Baer, Wolf, & Risley, 1968) was used to evaluate the effects of the intervention. The design consisted of three phases: baseline, intervention, and postintervention. The independent variable was the BEST PLANS social problem-solving curriculum, which was developed by the first author for her doctoral dissertation research (Noel, 2011). This curriculum was introduced sequentially to each participant at staggered intervals to make it possible to detect whether changes in the baseline behaviors could be attributed to the onset of the intervention. Student data were measured and graphed for three dependent variables: (1) social problem solving (i.e., the number of social problem-solving skill steps in a student's personal narrative); (2) narrative (i.e., the number of and quality of story grammar elements in a student's personal narrative); and (3) landscape of consciousness (i.e., the number of words indicating the student's mental states or emotions in a student's personal narrative) abilities. Each of these variables is described in further detail later. The order in which students participated in the intervention

was determined through analysis of baseline data for social problem-solving abilities, with the student showing the most stable baseline receiving intervention first and initiation of intervention was staggered for the other two participants. Level, trend, and variability changes within and between study phases were analyzed through visual inspection (Kazdin, 1982; Kennedy, 2005). Mean score differences across conditions were compared.

Measures

The three dependent variables were measured at baseline and postintervention for each student. Measures of students' inclusion of social problem-solving strategy steps, elements of story grammar, and the quality of each element, and words expressing landscape of consciousness were collected from personal narratives that students constructed in response to multiple prompts. Each prompt followed a consistent format in which students were asked to tell a personal story about a time they experienced specific social dilemmas. They were specifically prompted to detail what they were thinking and how they attempted to resolve or resolved the given problem. Each personal narrative was one probe, with three taken at baseline and one after each student showed mastery in intervention.

Social problem solving

Students' inclusion of social problem-solving strategy steps in personal narratives was judged using a rubric adapted from the problem-solving steps outlined in the ASSET program (Hazel, Schumaker, Sherman, & Sheldon-Wildgen, 1981). The rubric comprised 12 cognitive and behavioral steps individuals are thought to engage in when attempting to solve social dilemmas (Hazel et al., 1981). Some of the major steps included deciding exactly what the problem was, naming possible solutions, naming the positive and negative results for each possible solution, choosing the solution that leads to the most positive and least negative results, and

formulating the steps necessary to accomplish this solution. Each step was quantified on a 2, 1, 0 scale, with 2 indicating evidence in the student's narrative that a given step was executed correctly, 1 indicating that the step was approximated or that the rater was able to infer that the step was completed, and 0 indicating that the step was not mentioned or the student's story reflected the step had been performed inappropriately. Each step was scored. The percentage of each student's overall performance was calculated by dividing the total number of points earned by total number of possible points on the rubric and then multiplying by 100.

For example, the step of "Name a possible solution" would be scored as follows: If a student within the context of his story shared a solution that was appropriate and plausible, he earned a score of 2 for that step. If the student named a solution but it did not seem plausible, he earned a score of 1. If the student stated a solution that was illegal or inappropriate, or offered no solution at all, he earned a score of 0.

Story grammar

Narratives were rated across four components, setting, character, plot, and ending, using sections of a rubric developed by, Fey, Catts, Proctor-Williams, Tomblin, & Zhang (2004). This rubric was selected, as it supported the analysis of both the presence and quality of each of these elements. Setting, character, and ending elements were quantified on a 0–3 scale. Plot complexity was quantified on a 0–6 scale. The percentage reflecting the presence and quality of narrative elements was calculated by dividing the total score earned by the total number of possible points on the rubric and then multiplying by 100.

To illustrate this, when examining and rating a student narrative for the element of "Character," a student would earn a "0" if he did not identify any characters. He would receive a score of 1 if he plainly labeled a character by name or by relationship such as "mom" or "friend." A score of 2 would be

assigned if a character in the student's story was referenced in ways that described his or her personality, attributes, or mental or emotional states. A score of 3 would be given if in his narrative the student illustrated a clear relationship between a characteristic of a character and the story's problem, resolution, or another element of the story (Fey et al., 2004).

Landscape of consciousness

Transcripts of narratives were also analyzed for description of landscape of consciousness. Use of landscape of consciousness was measured by counting the number of words in student narratives that reflected emotion, mental states, and judgment such as follows: emotions (e.g., *happy*, *jealous*, *surprised*); emotional verbs (e.g., *felt*, *liked*, *hated*) and cognitive verbs (*think*, *guess*, *forget*); intention (e.g., *want*, *tried*); compulsion or need (e.g., *must*, *have to*, *made*); quality (e.g., *just*, *really*, *probably*); and evaluation of a situation (e.g., *easy*, *difficult*) as recommended by Westby and Clauser (2005). Words meeting established criteria were coded in the Computerized Language Analysis program (CLAN; MacWhinney, 2000) using a coding system specific to this study (Noel, 2011). A frequency measure of these words was calculated using the CLAN software, and this was used as a measure of landscape of consciousness.

Study procedures

Baseline

During this phase, baseline data were collected from each participant. The first author met individually with each participant. In that session, students were presented scripted directions, written by the first author, in which they were oriented to the task and the task was described. Clarification questions were elicited and responded to. Each student was then asked to generate three different personal oral narratives in response to three orally presented prompts:

Prompt 1. "Tell me a story about a time with your family or friends that you wanted something and they wanted something else. Tell me what you were thinking and how you solved the problem."

Prompt 2. "Tell me a story about a time someone asked you to do something you knew you weren't supposed to do. Tell me what you were thinking and how you solved the problem."

Prompt 3. "Tell me a story about a time an adult (teacher, parent, police officer) told you something about yourself you did not like. Tell me what you were thinking and how you solved the problem."

Intervention

The BEST PLANS curriculum (Noel, 2013; described later) was used to guide intervention sessions. Students were taught in individual sessions. Intervention continued with each student until he met the criterion level with the last stage of the curriculum. This was defined as a score of 80% on the social problem-solving rubric measuring the inclusion of social problem-solving steps in personal narratives about recent social challenges. Every session was audio recorded to monitor fidelity of the delivered intervention.

Postintervention

After completing the intervention phase, each student was asked to tell one personal narrative in response to a new prompt, yet under conditions consistent with those at baseline. Students also completed a consumer satisfaction survey, developed by the first author, assessing their perceptions of the intervention. Maintenance and generalization probes were not administered because students were released from the facility before these measures could be made.

Transcription

Student narrative samples were digitally recorded and transcribed by the first author. Narrative samples were entered into CLAN (MacWhinney, 2000). These transcripts were used by the first author and one of two other reliability raters for scoring the social problem-solving rubric, the narrative rubric, and for coding landscape of consciousness.

Intervention curriculum

The BEST PLANS curriculum (Noel, 2013) is designed to teach youth offenders with ED the narrative and social problem-solving skills needed to engage in effective social problem solving. The curriculum is divided into two major parts—Part 1: Storytelling Strategy instruction and Part 2: Social Problem-Solving Strategy instruction. Each part is divided into instructional stages aligned with Ellis, Deshler, Lenz, Schumaker, and Clark's (1991) instructional model for teaching learning strategies. These stages include "describing" the strategy and the strategy steps explicitly to the student; "modeling" the strategy steps in the context of a meaningful and authentic task for the student; engaging the student in "verbal rehearsal" of the strategy steps; and then requiring the student to use the strategy in "guided practice" and "advanced practice" tasks.

The curriculum manual outlines in detail the purpose of each lesson, materials needed, specific instructional activities, and mastery criteria for each stage. A detailed instructional script is provided with Learning Cards that highlight critical information for students, worksheets, sample narratives, sample social dilemmas, graphic organizers, samples of completed graphic organizers, and a progress chart. The instructional approach merges cognitive-behavioral strategy instruction and direct instruction methods (e.g., Jolivette et al., 2008) as evidenced by self-talk practices (e.g., Maag, 2006); modeling and reinforcement techniques (e.g., Maag, 2006; Mathur, Kavale, Quinn, Forness, & Rutherford, 1998; Mathur & Schoenfled, 2010); explicit instruction of both the cognitive and behavior steps of the strategies; scaffolding and mediation of instruction; repeated and specific practice; and frequent review and feedback (Jolivette et al., 2008; Mathur et al., 1998). Students progress through the intervention at their own pace. Instruction is continued at each stage until students have met mastery criteria. The number of sessions each student participates in varies with the student's response to the intervention.

Storytelling Strategy instruction

Instruction in the Storytelling Strategy (Noel, 2011) is presented first to teach students how to tell stories, as we are hypothesizing this to be a critical prerequisite skill to learning and using social problem-solving and decision-making skills. In the "describe" stage of instruction students are taught narrative components and how to organize these components using the mnemonic SPACE: Setting, Problem, Action, Consequence, and End/Evaluation. Students also learn the details associated with each component that must be included in their narratives to make each component complete. Along with the mnemonic, a visual graphic organizer assists students in learning the strategy and planning and organizing their stories (Figure 1). Narrative component labels and associated guiding questions that prompt students to include the associated details are noted on the graphic organizer. The Problem, Consequence, and End/Evaluation components require use of landscape of consciousness and hence necessitate instruction in the application of cognitive and affective ToM abilities. Students engage in verbal rehearsal activities, such as naming and explaining the steps, until they demonstrate knowledge of the strategy steps.

Students then participate in guided practice in using the strategy to retell stories they have heard, read, or viewed (which requires interpersonal ToM). At this stage of instruction, short narratives are presented to students in digital, auditory, and print formats. Students are then asked to note the critical components of the narrative on their graphic organizers and use this completed graphic organizer to retell the story. Narratives are scored for inclusion of critical elements and the quality of these elements or to what degree the criteria for each element are met. Feedback is given to students regarding the strengths of their narratives, as well as areas of need. Additional instruction is provided as appropriate. Guided practice activities continue until students show mastery. This is defined as a score of 80% on the narrative rubric

Setting Who is involved? When does it happen? Where does it happen? What's going on?	Problem What is the problem? How do the characters feel? What do the characters need or want?
Action What did the character do?	Consequence What was the result of the character's action?

End / Evaluation How did the story end? What was the lesson learned? How do you feel in response to the story?

Figure 1. SPACE storytelling outline. From *Social Problem Solving: Making Best Plans*, by K. Noel, 2013, Chippewa Falls, WI: The Cognitive Press. Copyright 2013 by The Cognitive Press. Reprinted with permission. Retrieved from www.cognitivepress.com

(Fey et al., 2004). Following demonstration of mastery of that stage, students participate in guided practice using the strategy to retell their own stories (which requires intrapersonal ToM). Personal narratives of social challenges are elicited from students and are the context of the guided strategy practice. After students achieve mastery of this stage, again defined as a score of 80% on the narrative rubric, the Social Problem-Solving Strategy is introduced.

Social Problem-Solving Strategy instruction

Instruction in the Social-Problem Solving Strategy aims to teach students the cognitive, affective, and behavioral steps involved in social problem solving and social decision making. This strategy has nine steps that spell out BEST PLANS: (1) Be aware of the setting; (2) Examine the problem; (3) Set an end goal; (4) Think about what you could do; (5) Predict the possible consequences; (6) Label your

decision; (7) Arrange a plan and take action; (8) Notice the consequences; and (9) Study the end. Built on the Storytelling Strategy, the strategy steps are taught in a modified SPACE or narrative framework. Although many of the steps are consistent with those in the Storytelling Strategy, additional steps are included to form a comprehensive framework that explicitly guides students through the Social Problem-Solving Strategy. Figure 2 shows the visual graphic organizer illustrating the Social Problem-Solving Strategy. Early stages of instruction, describing, modeling, and ver-

bal rehearsal, mirror those outlined for the aforementioned Storytelling Strategy. During the stages of guided and advanced practice, students apply the strategy to everyday social challenges and recent social challenges. In this latter stage, students tell their own stories. Although the task at this stage is similar to the probe task, the conditions of the task are different; students are provided with instruction, prompts, and feedback. Intrapersonal cognitive and affective ToM skills are essential for students to evaluate problems and make decisions regarding what they should

Setting	**P**roblem
(1) Be aware of the setting *Who is involved?* *When does it happen?* *Where does it happen?* *What's going on?*	(2) Examine the problem *What is the problem?* *How do the characters feel?* *What do the characters need or want?*
Action-mind	**C**onsequence-predicted
(4) Think about what you could do *What are my choices?* (6) Label your decision *What is the best choice?*	(5) Predict the possible consequences *What might happen if…?*
Action-behavior/body	**C**onsequence-actual
(7) Arrange a plan and take action *What will the character do?*	(8) Notice the consequences *What was the result of the character's action for each of the characters?*
End goal (3) Set an end goal *What is the goal?*	
End evaluation (9) Study the end *Did the plan work? Yes, move on. No, problem solve again.*	

Figure 2. BEST PLANS Social Problem-Solving Strategy SPACE outline. From *Social Problem Solving: Making Best Plans*, by K. Noel, 2013, Chippewa Falls, WI: The Cognitive Press. Copyright 2013 by The Cognitive Press. Reprinted with permission. Retrieved from www.cognitivepress.com

do. Students are explicitly taught to address needs and emotions and evaluate their own decisions and actions. Instruction was concluded when students reached the criteria for mastery with this intervention stage, defined as a score of 80% on the social problem-solving rubric described earlier. In the session following demonstration of mastery, a postintervention probe was taken.

Materials

Intervention materials consisted of the intervention manual for the BEST PLANS curriculum (Noel, 2013) and related materials, as described earlier. In addition, materials included short video clips illustrating narratives and short narratives in print gathered by the first author from a variety of sources, a laptop to display videos illustrating narratives, pens and pencils, blank graphic organizers to model strategies, and rubrics to score student work and record data and observations. Each student maintained a binder in which he organized his intervention materials, including a zippered pouch with a pen, pencil, and highlighter. Students used these to take notes, highlight text in printed narratives and on their Learning Cards, and to chart their progress. Students' binders also included blank and completed graphic organizers, rubrics with scoring and feedback from the instructor; and their progress charts.

Reliability

One hundred percent of the baseline and postintervention narrative samples were scored for each measure by one of two reliability raters in addition to the first author from typed transcripts. Reliability of social problem-solving and narrative coding was evaluated using a percent agreement and Scott's pi (Scott, 1955). Percent agreement for social problem-solving scoring was 96.12%. Overall agreement according to Scott's pi statistic was 0.97. Percent agreement for story grammar was 99.3%. Interrater agreement using Scott's pi was .80 for ratings of setting, ending, and character and .93 for ratings of plot. Agreements indicate a high level of relia-

bility. Raters reviewed each disagreement and came to consensus about its resolution.

Coding of landscapes of consciousness was initially completed independently by the first author and one reliability coder and then compared word by word. Disagreements were discussed and consensus regarding coding was reached.

Treatment integrity

The first author developed a checklist outlining essential intervention components for each stage of the intervention curriculum to guide the assessment of treatment adherence (Schulte, Easton, & Parker, 2009). Twenty percent of sessions for each phase of the study for each student were randomly selected for integrity assessment (Schlosser, 2002) and independently scored by the first author and another person. Mean of fidelity calculated from the first author's scores was 97% (range = 82%–100%). Scores from the other rater resulted in a mean level of fidelity of 96% (range = 40%–100%).

RESULTS

Effects of intervention on social-problem solving abilities

All three students completed the intervention to mastery demonstrating increased inclusion of social problem-solving strategy steps in personal narratives from baseline to postintervention (Figure 3). The number of sessions each student required to meet mastery criteria ranged from 12 to 24 intervention sessions ($X = 17.66$, $SD = 6.03$). Each session was approximately 1 hr in length.

Student 1 (S1) met the criteria of a score of 80% on the social problem-solving rubric in 24 sessions, Student 2 (S2) in 12 sessions, and Student 3 (S3) in 17 sessions. Student 1 demonstrated an increase from a mean of 12.33% ($SD = 7.5$) at baseline to 87.5% ($SD = 2.12$) at postintervention. A third postintervention measure was not collected from S1, as he was released from the facility on parole prior to the final postintervention measure. This absence of a final probe
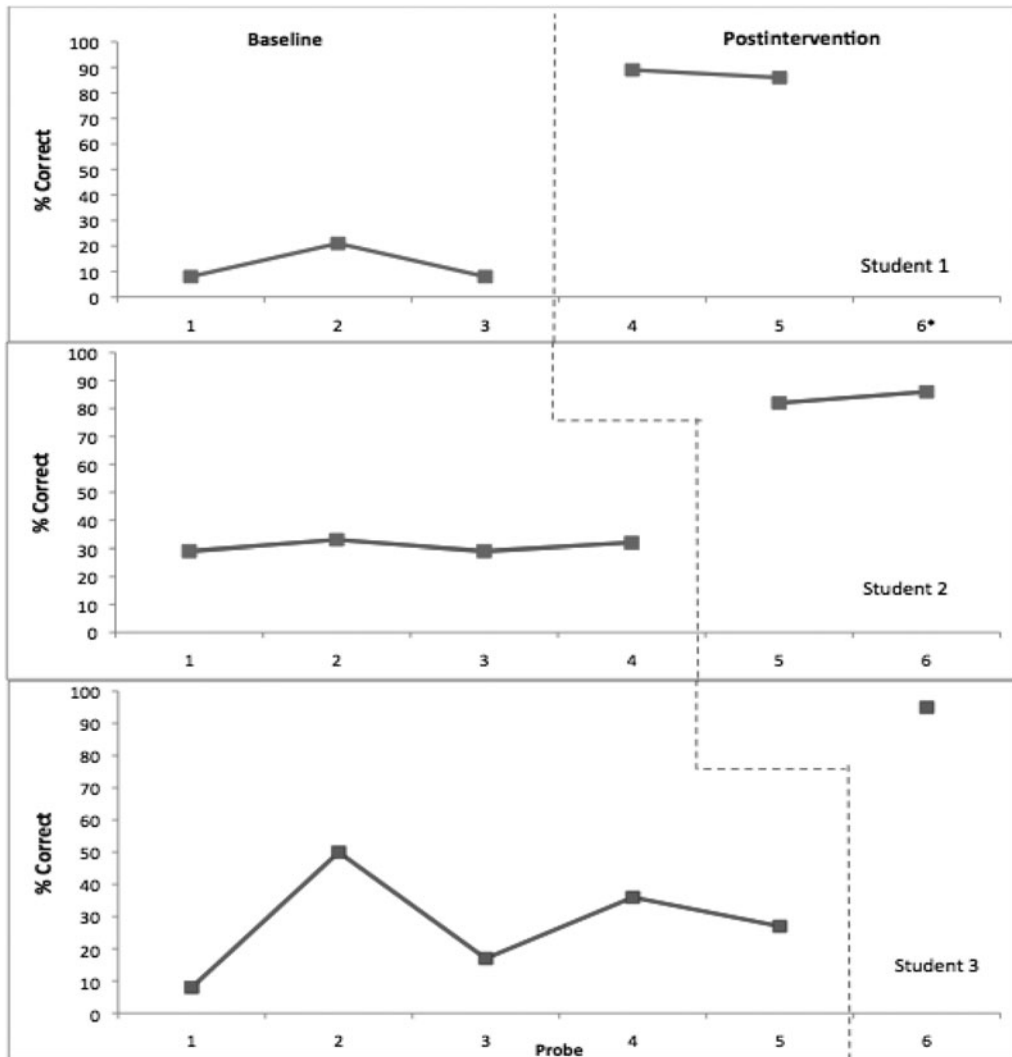
Figure 3. Percentage of Social Problem-Solving Strategy steps performed correctly in personal narratives.

measure for S1 is marked on Figures 3–5 by an asterisk. Student 2 improved from a mean of 30.75% ($SD = 2.06$) at baseline to 84.00% ($SD = 2.83$) at postintervention, and S3 increased from a baseline mean of 27.60% ($SD = 16.35$) to a postintervention score of 95.00%.

Effects of intervention on narrative abilities

Story grammar levels of all three students improved from baseline to postintervention (Figure 4). Student 1 demonstrated a story grammar level mean of 22.33% ($SD = 4.04$) at baseline and a postintervention mean of

47.00% ($SD = 0$). Student 2 showed a gain from a baseline story grammar level mean of 31.50% ($SD = 3.0$) to a postintervention mean of 50.00% ($SD = 4.24$). Student 3 improved from a baseline mean of 29.40% ($SD = 11.24$) to a postintervention score of 53.00%.

Effects of intervention on landscape of consciousness

Outcomes for the number of words reflecting landscape of consciousness used in personal narratives increased from baseline to postintervention (Figure 5). Baselines of Students 1 and 2 were generally flat, representing
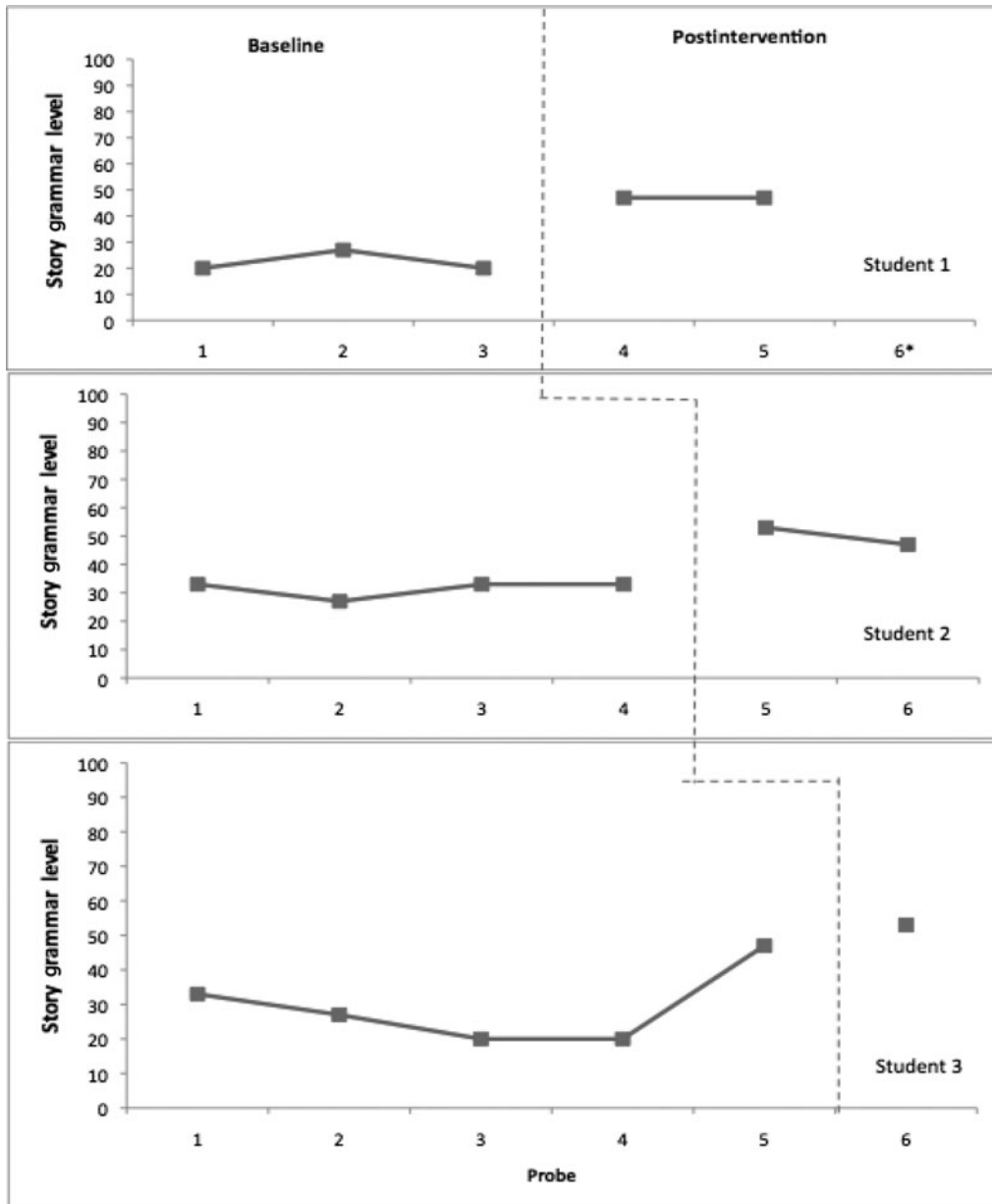
Figure 4. Percentage of inclusion and quality of story grammar elements included in personal narratives.

means of 11.00 ($SD = 6.25$) and 14.25 ($SD = 2.36$), respectively. Student 1 had a postintervention mean of 42.50 ($SD = 0.71$) and Student 2 of 71.00 ($SD = 12.73$). Student 3 had a baseline mean of 24.20 ($SD = 22.00$), reflecting a medium positive trend and much variability. His postintervention measure of 182 showed positive gain when compared with baseline data; however, note that this observation was only based on a single probe and the lack of additional probes for this measure and the other measures for Student 3 make it difficult to know whether this was a trend with any stability.
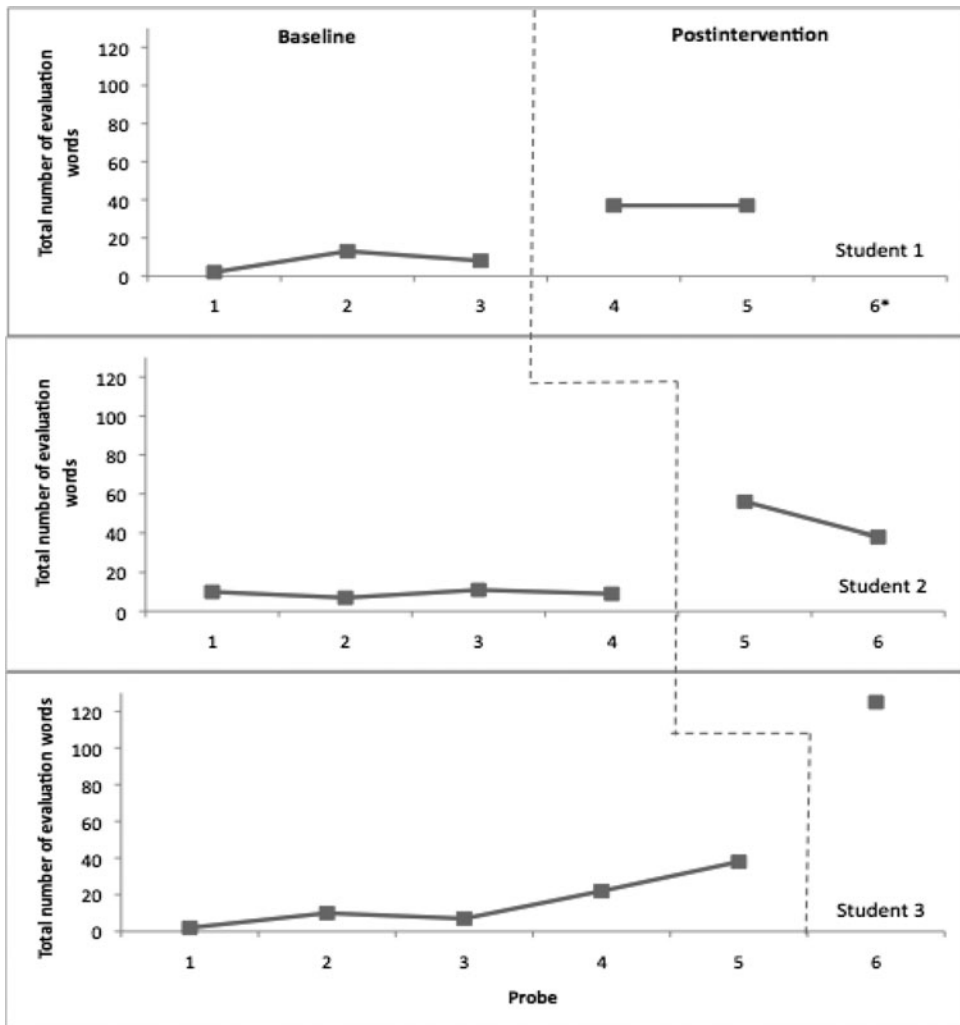
Figure 5. Total number of evaluative and metacognitive words theory of mind in personal narratives.

DISCUSSION

This study, as far as we know, is the first to examine the feasibility of an individual, narrative-based, social cognitive-behavioral intervention on the social problem-solving, narrative, and ToM abilities as reflected in their use of landscape of consciousness of youth offenders with ED. The results extend a small but increasing body of research examining relationships between social behavior and linguistic and ToM abilities.

The instructional curriculum was unique in that students were explicitly taught so-cial problem-solving skills and associated language and ToM skills within a narrative framework. Following intervention, all three students showed an increase in their inclusion of social problem-solving strategy steps in their personal narratives. They each also demonstrated the inclusion of more narrative components and/or the inclusion of more complex narrative components in their personal narratives. In addition, students used more words reflecting landscape of consciousness in their personal narratives indicating an improvement in ToM awareness.

In students' personal narratives collected before intervention, few social problem-solving steps were included. When social problem-solving strategy use was evidenced in their narratives, the steps of "identifying the problem" and "generating one solution" were most commonly included. Following intervention, students more frequently also stated a goal, generated two possible solutions, and identified the possible positive and negative consequences for themselves and others for each of these solutions. When a student generates two or more possible solutions to a given problem, he can then consider possible consequences of the different solutions, weigh the possible consequences, and then select the solution that would best support them in achieving their desired outcome. Students did not consistently share plans for executing their chosen solution. Underlying social skill deficits may have contributed to difficulties in planning how to carry out their solutions. Youth offenders with ED may require explicit instruction in target social skills to support improved social problem solving as well as successful social behavior.

Overall results were consistent with other studies of the narratives of youth offenders (Snow & Powell, 2005; Wainryb et al., 2010); baseline stories of students in this study were incomplete, altogether lacking multiple critical narrative elements, or included a few more narrative elements, yet these elements were expressed in a very simple way. All students identified at least one character by name or descriptor (i.e., family relationship or "friend"). The setting of the story and ending were included less frequently or were included, yet in less detail. Furthermore, student narratives had only a very simple plot, defined by Fey et al. (2004) as one nuclear dyad or a clearly identified problem and its resolution, or no plot at all.

Postintervention, students not only included more story components but the quality of these components increased as well, with the exception of the element of character. In only one postintervention narrative did a student both label and describe a character. Inclusion of and sophistication of setting development and story closure also increased. All narratives after intervention included a very simple plot; this was the highest level of plot sophistication that was demonstrated by the students.

Results suggest that examination of the curriculum for the possibility of expanded instruction in the elements of character and plot should be considered. Instruction in the character element of narratives might be revised to include instruction for students teaching them both to provide details about their characters' traits, personalities, and states and their thoughts, feelings, needs, wants, and behavior in given social situations and to identify the relationship(s) between characters in their narratives. Elaborated instruction in plot development might include teaching students to tell stories with more complex plots involving complications, more than one problem and resolution, and multiple attempts to resolve identified problems.

Narratives prior to intervention were characterized by minimal use of words reflecting landscape of consciousness. Students rarely used words that described their own thoughts, feelings, judgments, and mental states or those of others. Postintervention narratives were characterized by increased numbers of words reflecting not only their own thoughts and feelings but also those of others. The vocabulary used by the students to label feelings, both before and after intervention, was generally limited to primary feelings (e.g., *happy*, *mad*, *sad*, *scared/afraid*). Instruction in noticing, identifying, and naming a range of feelings in one's self and in others may support youth offenders with ED to understand and respond to social situations and challenges with more success.

LIMITATIONS AND FUTURE RESEARCH

Following intervention, all three students showed increases in all three of the dependent measures. In addition, all changes were significant. Despite the overall positive data trends, several study limitations must be considered. First, consistent with single-subject design, the small number of participants is an

important limitation, as it limits the generalizability of findings (Horner et al., 2005; Kennedy, 2005). Additional research is needed to attempt to replicate these preliminary results. Second, ideally, there would have been more samples in the postintervention measures. This was not the case. The lack of additional probes postintervention makes it difficult to assess the stability of observed trends. Future research should employ designs that would not only support confidence in the stability of level and trend changes immediately postintervention but also the maintenance of these changes over time and setting. Third, the layering of direct social problem-solving and narrative strategy instruction and ToM instruction paired with the use of evidence-based core components of instruction makes it impossible to determine the effect, if any, each had on the findings. The impact of each of these elements of the intervention needs to be investigated individually and in combination to meaningfully inform intervention practices.

CONCLUSIONS

Social problem solving is complex. The challenge in intervention is to teach social problem solving within a framework that addresses this complexity yet is not too challenging for students to learn and use. If interventions are based on frameworks that do not address the complexity of and attend to the multiple abilities related to the process, including language and ToM, they may not be comprehensive and robust enough to result in increased knowledge, skills, and behavior. In this study, students participated in a narrative-based, social cognitive-behavioral intervention. The BEST PLANS curriculum embedded strategy steps from more traditional models in a narrative framework and also included instruction in additional components identified in the literature as relevant to the process but historically not explicitly included—language and ToM. All students exhibited increased narrative and ToM abilities, which underlie social problem solving; and they all exhibited increased social problem solving after intervention. Given the limitations of the research design, conclusions regarding effectiveness of the intervention cannot be made. Results of this initial study are promising with regard to the feasibility of this type of intervention in a youth justice facility. This work is a meaningful contribution to a growing conversation in the research and literature on the relationship between social behavior, language, and ToM.

REFERENCES

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, *1*(1), 91–97.

Bandura, A. (1969). *Principles of behavior modification*. New York: Holt Rinehart & Winston.

Baron-Cohen, S. (2001). Theory of mind in normal development and autism. *Prisme*, *34*, 174–183. Retrieved April 6, 2013, from http://www.autism-community .com/wp-content/uploads/2010/11/TOM-in-TD-and-ASD.pdf

Benner, G. J. (2005). The language skills of elementary aged children with emotional and behavioral disorders. *Great Plains Research*, *15*(2), 251–265.

Benner, G. J., Nelson, J. R., & Epstein, M. H. (2002). Language students of children with EBD: A literature review. *Journal of Emotional & Behavioral Disorders*, *10*, 43–57.

Black, J. B., & Bower, G. H. (1980). Story understanding as problem-solving. *Poetics*, *9*, 223–250.

Bruner, J. (1986). *Actual minds, possible words*. Cambridge, MA: Harvard University Press.

Cantwell, D. P., & Baker, L. (1991). *Psychiatric and developmental disorders in children with communication disorder*. Washington, DC: American Psychiatric Press.

Cook, C. R., Gresham, F. M., Kern, L., Barreras, R. B., Thorton, S., & Crews, S. D. (2008). Social skills training for secondary students with emotional and/or behavioral disorders: A review. *Behavioral Disorders*, *16*(3), 131–144.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin*, *115*(1), 74–101.

Donno, R., Parker, G., Gilmour, J., & Skuse, D. H. (2010). Social communication deficits in disruptive primary-school children. *British Journal of Psychiatry*, *196*, 282–289.

D'Zurilla, T. J., & Goldfried, M. R. (1971). Problem solving and behavior modification. *Journal of Abnormal Psychology*, *78*(1), 107–126.

Elias, M. J. (2004a). Strategies to infuse social and emotional learning into academics. In J. E. Zins, R. P. Weissberg, M. C. Wang, & H. J. Wallberg (Eds.), *Building academic success on social and emotional learning* (pp. 113-134). New York: Teachers College Press.

Elias, M. J. (2004b). The connection between social-emotional learning and learning disabilities: Implications for intervention. *Learning Disabilities Quarterly*, *27*, 53–63.

Ellis, E. S., Deshler, D. D., Lenz, B. K., Schumaker, J. B., & Clark, F. L. (1991). An instructional model for teaching learning strategies. *Focus on Exceptional Children*, *23*(6), 1–24.

Fairchild, G., Van Goozen, S. H. M., Calder, A. J., Stollery, S. J., & Goodyer, I. M. (2009). Deficits in facial expression recognition in male adolescents with early-onset or adolescence-onset conduct disorder. *Journal of Child Psychology and Psychiatry*, *50*, 627–636.

Fey, M. E., Catts, H. W., Proctor-Williams, K., Tomblin, J. B., & Zhang, X. (2004). Oral and written story composition skills of children with language impairment. *Journal of Speech, Language, and Hearing Research*, *47*, 1301–1318.

Freedman, B. J., Rosentahl, L., Donahoe, C. P., & McFall, R. M. (1978). A social-behavioral analysis of skill deficits in delinquent and nondelinquent adolescent boys. *Journal of Consulting and Clinical Psychology*, *46*, 1448–1462.

Frick, P. J., & Viding, E. M. (2009). Antisocial behavior from a developmental psychopathology perspective. *Developmental Psychopathology*, *21*, 1111–1131.

Gallagher, T. (1999). Interrelationships among children's language, behavior, and emotional problems. *Topics in Language Disorders*, *2*, 1–15.

Gemignani, R. J. (1994, October). Juvenile correctional education: A time for change. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Greenbaum, P. E., Dedrick, R. F., Friedman, R. M., Kutash, K., Brown, E. C., Lardieri, S. P., et al. (1996). National Adolescent and Child Treatment Study (NACTS): Outcomes for children with serious emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders*, *4*(3), 130–146.

Hazel, J. S., Schumaker, J. B., Sherman, J. A., & Sheldon-Wildgen, J. (1981). *ASSET: A social skills program for adolescents (Leader's Guide)*. Champaign, IL: Research Press.

Hollo, A., Wehby, J. H., & Oliver, R. M. (2014). Unidentified language deficits in children with emotional and behavioral disorders: A meta-analysis. *Exceptional Children*, *80*, 169–186.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, *71*(2), 165–179.

Humber, E., & Snow, P. C. (2001). The oral language skills of young offenders: A pilot investigation. *Psychiatry, Psychology and Law*, *8*(1), 1–11.

Individuals With Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Jolivette, K., Houchins, D. E., Josephs, N., Waller, K., Hall, T., & Nomvette, P. (2008). Providing educational services in secure settings. In L. M. Bullock, & R. A. Gable (Eds.), *Seventh CCBD Mini-Library Series on emotional/behavioral disorders: Ensuring a brighter future for troubled children/youth: Challenges and solutions* (pp. 1–62). Arlington, VA: Council for Exceptional Children.

Kauffman, J. M. (2005). *Characteristics of emotional and behavioral disorders of children and youth* (8th ed.). Upper Saddle River, NJ: Pearson Education Inc.

Kazdin, A. E. (1982). *Single-case research designs: Methods for clinical and applied settings*. New York: Oxford University Press.

Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin*, *102*, 187–203.

Kennedy, C. H. (2005). *Single-case designs for educational research*. Boston: Pearson Education Inc.

Larson, V. L., & McKinley, N. (2003). *Communication solutions for older students: Assessment and intervention strategies*. Eau Claire, WI: Thinking Publications.

Luria, A. (1961). *The role of speech in the regulation of normal and abnormal behavior*. New York: Liveright.

Maag, J. W. (2006). Social skills training for students with emotional and behavioral disorders: A review of reviews. *Behavior Disorders*, *32*(1), 5–17.

MacWhinney, B. (2000). *The CHILDES Project: Tools for analyzing talk* (3rd ed.). Mahwah, NJ: Erlbaum.

Mathur, S. R., Kavale, K. A., Quinn, M. M., Forness, S. R., & Rutherford, R. B. (1998). Social skills interventions with students with emotional and behavioral problems: A quantitative synthesis of single subject research. *Behavioral Disorders*, *23*(3), 193–201.

Mathur, S. R., & Schoenfled, N. (2010). Effective instructional practices in juvenile justice facilities. *Behavioral Disorders*, *36*(1), 20–27.

Mayer, M., Lochman, J. E., & Van Acker, R. (2005). Introduction to the special issue: Cognitive-behavioral interventions with students with EBD. *Behavioral Disorders*, *30*(3), 197–212.

McMahan, R. J., & Frick, P. J. (2007). Conduct and oppositional disorders. In J. M. Mash, & R. A. Barkley (Eds.), *Assessment of childhood disorders* (pp. 132–184). London: Guilford Press.

Meisel, S., Henderson, K., Cohen, M., & Leone, P. (2000). Collaborate to educate: Special education in juvenile correctional facilities. In *Building collaboration between education and treatment for at-risk and delinquent youth* (pp. 59-72). Richmond, VA: National Juvenile Detention Association, Eastern Kentucky University.

Meichenbaum, D. (1977). *Cognitive-behavioral modification: An integrated approach*. New York: Plenum.

Noel, K. (2011). *The effects of a narrative-based social problem-solving intervention with high risk adolescent males*. Unpublished doctoral dissertation, University of New Mexico, Albuquerque, NM.

Noel, K. (2013). *Social Problem Solving: Making Best Plans.* Chippewa Falls, WI: The Cognitive Press.

Quinn, M. M., Rutherford, R. B., Leone, P. E., Osher, D. M., & Poirer, J. M. (2005). Youth with disabilities in juvenile corrections: A national survey. *Exceptional Children*, *71*(3), 339-345.

Robinson, T. R. (2007). Cognitive behavioral interventions: Strategies to help students make wise behavioral choices. *Beyond Behavior*, *17*, 7-13.

Substance Abuse and Mental Health Services Administration. (2002). Report to Congress. Washington, DC: U.S. Department of Health and Human Services WashingtonD.C. Retrieved April 25, 2014, from www.samhsa.gov/reports/congress2002/CoOccurringRpt.pdf

Sanger, D., Hux, K., & Ritzman, M. (1999). Female juvenile delinquents' pragmatic awareness of conversational interactions. *Journal of Communication Disorders*, *32*, 281-295.

Schlosser, R. W. (2002). On the importance of being earnest about treatment integrity. *Augmentative and Alternative Communication*, *18*, 36-44.

Schulte, A. C., Easton, J. E., & Parker, J. (2009). Advances in treatment integrity research: Multidisciplinary perspectives on the conceptualization, measurement, and enhancement of treatment integrity. *School Psychology Review*, *38*(4), 460-475.

Scott, W. (1955). Reliability of content analysis: The case of nominal scale coding. *Public Opinion Quarterly*, *19*(3), 321-325.

Shufelt, J. L., & Cocozza, J. J. (2006). *Youth with mental health disorders in the juvenile justice system: Results from a multi-state prevalence study*. Washington, DC: National Center for Mental Health and Juvenile Justice.

Smith, S. W., & Travis, P. C. (2001). Conducting social competence research: Considering conceptual frameworks. *Behavior Disorders*, *26*(4), 360-369.

Snow, P. C., & Powell, M. B. (2005). What's the story? An exploration of narrative language abilities in male juvenile offenders. *Psychology, Crime and Law*, *11*(3), 239-253.

Snow, P. C., & Powell, M. B. (2008). Oral language competence, social skills, and high risk boys: What are juvenile offenders trying to tell us? *Children and Society* (pp. 266-294). *22*, 16-28.

Southam-Gerow, M. A. (2013). *Emotion regulation in children and adolescents*. New York: Guilford Press.

Stark, K. D., Herren, J., & Fisher, M. (2009). Cognitive-behavioral interventions for depression during childhood: Exemplary programs. In M. J. Mayer, R. Van Acker, J. E. Lochman, & F. M. Gresham (Eds.), *Cognitive-behavioral interventions for emotional and behavior disorders*. New York: The Guilford Press.

Stein, N., & Glenn, C. (1979). An analysis of story comprehension in elementary school children. In R. O. Freedle (Ed.), *New directions in discourse processing* (pp. 53-119). Norwood, NJ: Ablex.

Urbain, E. S., & Kendall, P. C. (1980). Review of social-cognitive problem-solving interventions with children. *Psychological Bulletin*, *88*(1), 109-143.

U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs. (2014). *34th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, 2012*, Washington, DC.

Vygotsky, L. (1962). *Thought and language.* New York: Wiley.

Wagner, M., & Davis, M. (2006). How are we preparing students with emotional disturbances for the transition to young adulthood? Findings from the National Longitudinal Transition Study—2. *Journal of Emotional and Behavioral Disorders*, *14*(2), 86-98.

Wainryb, C., Komolova, M., & Florsheim, P. (2010). How violent youth offenders and typically developing adolescents construct moral agency in narratives about doing harm. In K. C. McLean, & M. Pasupathi (Eds.), *Narrative development adolescence* (pp. 185-206). New York: Springer.

Westby, C. E. (in press). Disruptive behavior disorders and social communication disorders. In D. Hwa-Froelich (Ed.), *Social communication development and disorders*. New York: Psychology Press.

Westby, C. E., & Clauser, P. (2005). The right stuff for writing: Assessing and facilitating written language. In H. Catts, & A. Kamhi (Eds.), *Language and reading disabilities* (pp. 274-345) (3rd ed.). Boston: Allyn & Bacon.