Assessment of Social Skills: School Psychologists and Speech-Language Pathologists Creating Partnerships

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1. Define 6 pragmatics domains for the assessment of social communication judgment and performance

2. Discuss:
   - Identification of non-instrumental, higher order pragmatics skills
   - Nonverbal language decoding
   - Nonverbal signals
   - Differential diagnosis of neurodevelopmental disorders

3. Integrate video-based assessment information into relevant intervention plans
Also, today we’ll talk about…

1. Six pragmatics assessment tasks and their validation
2. A video-based method to assess social communication
3. Research conducted to analyze and compare social communication profiles of:
   - Typically developing students
   - Students with high-functioning autism
   - Students with social (pragmatic) communication disorder
4. Review the “Contextualized Assessment of Pragmatics Checklist”
Wagner, Kutash, Duchnowski, Epstein, and Sumi (2005) suggest that in order to strengthen special education programs:

- The needs of diverse groups of individuals must be identified;
- The least restrictive environment must always be considered; and
- Collaboration must occur within the school community.

When opportunities for collaboration occur, the learning environment may be able to respond to all of an individual’s needs by teaching academic, language, and social skills.
For example...

- When considering emotional/behavioral disorders (EBD), both school psychologists and SLPs play an important role. Often, students with EBD have speech and language disorders that may go undiagnosed and untreated.

- On the flip side, children who are diagnosed with speech and language disorders may demonstrate characteristics of EBD that have gone undiagnosed or untreated.

- Studies have demonstrated that children with SLI show higher rates of behavioral problems (Conti-Ramsden & Botting, 2004).
The relationship with behavioral problems is much stronger for pragmatic competence (i.e., social language) than for structural language aspects (e.g., syntax). PLI, specifically, has been connected to autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD; Geurts et al., 2004; Bruce, Thernlund, & Nettelbladt, 2006).
When comparing children who are diagnosed with SLI to those with PLI, children with PLI are four times more likely to have behavioral issues (Ketelaars, Cuperus, Jansonius, & Verhoeven, 2010).

Children with emotional/behavioral disorders (EBD) face emotional, behavioral, social, and communicative disabilities that impact their academic and social success (Armstrong, 2011).

The National Association of School Psychologists (2005) indicates that children with EBD are under-identified within the educational system, and only a small number receive the mental health services they need. Additionally, EBD often co-occurs with ADHD, anxiety disorders, mood disorders, and language disorders (Armstrong, 2011).
A study conducted by Ketelaars, Cuperus, Jansonius, and Verhoeven (2010) investigated the relationship between PLI and behavioral problems in 1,364 children aged 4.

- The study revealed that pragmatic competence, not structural language abilities, is highly correlated with and a strong predictor of behavioral problems. The structural language scales did not show high correlations with behavioral problems, which indicates no increased risk of behavioral problems for children who have only speech and syntax problems.
The most prominent problems include hyperactivity and lack of prosocial behaviors (e.g., consideration, sharing, kindness, caring, helping out). This study reiterated the findings of Farmer and Oliver (2003), who also found that ratings of hyperactivity were significantly correlated with pragmatic language difficulties.

Furthermore, children who display problematic behavior have been found to demonstrate low language proficiency, and children with low language proficiency have been found to display problematic behavior (Benner, Nelson, & Epstein, 2002).
Moreover, research has suggested that children with behavioral profiles are at risk for communication disorders (Cohen, Davine, Horodezky, Lipsett, & Isaacson, 1993; Donahue, Cole, & Hartas, 1994).

Benner, Nelson, and Epstein (2002) completed a systematic review of research that looked at the association between language and behavior and found that 71% of students with EBD have concurrent language impairments; specifically, 64% were deficient in expressive language and 56% in receptive language skills.
Social language and friendships

- Peer relationships and friendships are critical to school and academic achievement for school-age children (Wentzel, Barry, & Caldwell, 2004; Newman Kingery, Erdley, & Marshall, 2011).

- Friendships are important in the development of social competencies, as well as influencing children’s performance on classroom-learning activities, specifically those that involve collaboration and cooperation (Faulkner & Meill, 1993).
▪ Children with specific language impairment (SLI), pragmatic language impairment (PLI), and autism spectrum disorder (ASD) have been found to have difficulties establishing peer relationships and friendships (Whitehouse, Watt, Line, & Bishop, 2009).

▪ Additionally, children with language impairments tend to engage less in active interactions and exhibit poorer discourse skills than typically developing peers, and are less likely to offer socially appropriate verbal and nonverbal responses in conversations (Brinton, Fujiki, & McKee, 1998; Landa, 2005).
Social language and friendships (cont.)

- Durkin and Conti-Ramsden (2007) compared friendship quality in 120 adolescents aged 16 years, with and without SLI.
  - Adolescents with SLI were found to exhibit poorer quality friendships.
  - This study suggests that language difficulties (including social language deficits) may be predictive of poorer quality friendships, which in turn may impact academic success.
Social language and friendships (cont.)

- La Greca and Moore Harrison (2005) examined multiple levels of high school adolescents’ interpersonal functioning, including peer relations (peer crowd affiliations, peer victimization), and qualities of best friendships and romantic relationships as predictors of symptoms of depression and social anxiety.

- Peer crowd affiliations (high and low status), positive qualities in best friendships, and the presence of a dating relationship shielded against feelings of social anxiety, whereas relational victimization and negative interactions in best friendships predicted high social anxiety.
Social language and friendships (cont.)

- Since social language skills are such an integral part of an individual’s ability to create and maintain friendships, and friendships are a strong predictor of mental health disorders such as anxiety and depression, it is crucial that students be assessed and treated for possible pragmatic language disorders.

- The potential for students to make meaningful, long-lasting friendships relies on their social language abilities.
What is pragmatics?

“Knowing when to say what to whom and how much”

(Hymes, 1971)

“The range of communicative functions (reasons for talking), the frequency of communication, discourse skills (turn-taking, topic maintenance and change, requests for clarification), the flexibility to modify language for different listeners and social situations, and the ability to convey a coherent and informative narrative”

(Paul, Norbury, & Gosse, 2017)
Final ingredient needed for appropriate and effective communication

What is pragmatics?
Social communication disorder (SCD) has been characterized as the difficulty with verbal and nonverbal communication that negatively impacts an individual’s:

- Social relationships
- Academic achievements
- Occupational performance

*(Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition [DSM-5]; American Psychiatric Association, 2013)*
A child with SCD may have difficulty:

- Taking turns during conversation
- Maintaining a conversational topic
- Introducing new/appropriate topics
- Understanding presuppositions
- Comprehending nonliteral language
- Interpreting verbal and nonverbal cues

(Brinton, Fujiki, Spencer, & Robinson, 1997; Bishop, 2000; Adams, 2013)
When social language skills are left untreated in individuals with HFA and Asperger’s syndrome, students may begin to exhibit problematic social behavior and/or can become socially withdrawn (Bauminger, Shulman, & Agam, 2003).
ASD social communication characteristics (Vicker, 2009)

- Difficulties understanding someone else’s perspective.
  - Other people have their own thoughts, ideas, and motivations. This social language deficit impacts social interaction and relationships, as well as the understanding of narratives (e.g., books, movies, etc.).

- Limited eye contact during a social interaction.
  - This may be because eye contact is distracting or provides too much sensory information for the child with ASD.

- Speaks too loudly, speaks too fast.
ASD social communication characteristics (Vicker, 2009) (cont.)

- Topic maintenance – The child with ASD may be distracted by associations cued by his/her own words or another person’s words.

- Talking aloud to oneself in public places, unaware that others can hear and make judgments about them.

- Making statements, comments, or questions that may be inappropriate or not relevant to a conversation.

- Difficulty initiating (e.g., greetings), continuing (e.g., add-on comments, questions), or ending (e.g., farewells) a conversation.
ASD social communication characteristics (Vicker, 2009) (cont.)

- Missing or not understanding “nonverbal cues” (e.g., disinterest in a topic, confusion, etc.) or other subtle differences in social situations.

- Recognizing and identifying subtle expressions of feelings and emotions.
  - Students with ASD can interpret basic emotions (e.g., happy, sad, mad) but have most difficulty recognizing more specific emotions (e.g., disappointed, excited, uninterested).

- Difficulty recognizing, identifying, and understanding various emotions/feelings and not knowing what to say in response to these nonverbal forms of language.
Commonly assessed pragmatic skills

- Body language
- Eye contact
- Conversation initiation, maintenance, ending
- Making the sequence of statements coherent and logical
- Taking turns with other speakers
- Maintaining a topic
Informal methods of assessing social communication

1. Narrative sample
   - Story retelling task
   - Comprehension task
2. Theory of mind (ToM) tasks
   - Consider perspective of another person
3. Emotional understanding task
   - Understanding of emotions based on facial expression
4. Social problem-solving task
   - Reasonable solutions to presented social difficulties
Informal methods of assessing social communication (cont.)

5. Shared attention
   ▪ Guess your thinking based on what/where you are looking

6. Double interview
   ▪ You interview student/student interviews you

7. Maintaining a topic
   ▪ Appropriate responses to conversation starters
   ▪ Maintain topic for several turns (not introduced by self)

8. Conversation with a peer
   ▪ Conversational flow
   ▪ Maintain topic introduced by another
Rarely assessed

- Nonverbal language
- Detecting sarcasm
- Detecting deceit
- Repairing communication breakdowns
Problem

- Plethora of treatments for social-pragmatic communication
- Fewer tools available for assessment
- Fewer standardized measures of social-pragmatic communication
Pragmatics typically assessed as:
- Isolated units
- Do not target specific components/domains
- Assessment not a comprehensive profile
- Intervention more effective if specific deficit components are identified
Social pragmatic communication impairments

- Becoming academic and social reality for increasing numbers of children
Six new proposed assessment constructs

- Pragmatic Judgment
- Pragmatic Performance
- Instrumental Performance
- Instrumental Performance Appraisal
- Social Context Appraisal
- Affective Expression
- Affective Intent
- Paralinguistic Decoding
- Paralinguistic Signals
- Paralinguistic Cohesion

(Lavi, Mainess, and Daher 2016)
Domains: Pragmatic Judgment vs. Pragmatic Performance

- **Pragmatic Judgment**
  - Instrumental Intent
  - Affective Intent
  - Paralinguistic Cohesion

- **Pragmatic Performance**
  - Instrumental Performance Appraisal
  - Social Context Appraisal
  - Paralinguistic Decoding
  - Instrumental Performance
  - Affective Expression
  - Paralinguistic Signals
Pragmatic Judgment defined

- Ability to appropriately understand and use language
- Requires appropriate response at appropriate time in social context

(Ryder & Leinonen, 2014; Simmons, Paul, & Volkmar, 2014)
Receptive vs. expressive Pragmatic Judgment

Receptively: identifying correct and incorrect responses in a social context

Expressively: verbally providing appropriate responses in a given situation
Pragmatic Judgment

- Pragmatic Judgment = receptive pragmatic skills
- Allows more detailed grasp of child’s comprehension of social situations
- Distinguishes from broad definition of pragmatic language skills
Pragmatic Performance defined

- Pragmatic Performance = expressive pragmatics
- Measured via responses given in social situations
- Responses vary, e.g.:
  - Answers to questions/statements
  - Responses to expressed emotions
Pragmatic Judgment vs. Pragmatic Performance

- Assessment of both important
- HFA or SCD may have different profiles
- One may have stronger judgment skills vs. performance skills (or vice versa)
- Assessing both skills can:
  - Provide more details to understanding pragmatic profiles
  - Result in a more individualized plan
  - Produce a more effective plan
Domains: Instrumental vs. Affective Intent

- **Instrumental Intent**
  - Pragmatic Judgment
  - Instrumental Performance Appraisal
- **Affective Intent**
  - Social Context Appraisal
  - Affective Expression
- **Paralinguistic Cohesion**
  - Paralinguistic Decoding
  - Paralinguistic Signals
Primary goal:

- Effective relay of information
- Communication used as means to an end
- Heavy focus on message
- Little focus on affective or emotional functions
- Often used in individuals with ASD
Non-instrumental communication

- “Affective communication” → higher level communication skills
  - Expressing emotions to another person
  - Key component of nonverbal communication
  - Requires higher level thought processing
- Differs from instrumental intent
  - Not used as means to an end
Domain: Paralinguistic Cohesion

Represents integrative interaction between ability to:

- Detect speaker’s intent by
  - Recognizing meanings of nonverbal cues
- Express various types of intent with help of nonverbal signals, such as:
  - Facial expressions
  - Tone of voice
  - Inflections in prosody
  - Gestures
  - Overall body language
Use of produced video narrative for eliciting pragmatic language responses from individuals (ages 3:0 years to adulthood)

**Purpose:** To analyze and measure individual’s ability to:

- Understand real-life social situations
- Respond to real-life social situations

Presented in a video-based format
Video-based assessment (cont.)

- Combines storytelling power of television
- Authenticity of real-life social situations
  - To obtain as naturalistic responses as possible
  - Powerful and prolific testing tool
  - Both effective and time-efficient
Video-based assessment (cont.)

▪ A means for teaching persons with ASD or pragmatic communication disorders a “range of socially significant behaviors.” (Rayner et al., 2009)

▪ Provides efficient & effective means of imitation models for children with ASD and training for normative behaviors. (Lindsay et al., 2013)

▪ A need to explore use of video-based techniques for pragmatic language assessment.
Exercise

Before we discuss each of the six pragmatic language constructs and watch sample video-based scenarios, let’s preview 3 of our study participants’ conversational exchanges/interviews/test responses.
Which of the following participant study groups do the 3 participants represent:

a. Typically developing
b. High-functioning autism
c. Social communicative disorder

Participant 1?
Participant 2?
Participant 3?
Tasks

The responses seen in the videos are based on tasks designed to elicit comprehension/expression of instrumental intent.

Let’s analyze participants’ responses based on tasks designed to elicit comprehension/expression of affective intent.
Discussion
Construct: **Instrumental Performance Appraisal**
(Awareness of Basic Social Routines)
Construct:
Awareness of Basic Social Routines (IPA)

Ability to judge appropriateness of:
- Introductions
- Farewells
- Politeness
- Making requests
- Responding to gratitude
- Requesting help
- Answering phone calls
- Requesting info (e.g., directions)
- Asking permission

Pragmatic Judgment

Instrumental Intent

Instrumental Performance Appraisal
Ability to discern difference between:

- Appropriate and inappropriate language
- When used in means-end or basic communication processes
- Includes (but is not limited to):
  - Introductions, farewells, politeness, making requests, responding to gratitude, and requesting information
These skills necessary to:

- Satisfy individual’s basic needs
- Behave appropriately in social situations
- Can be measured via ability to choose correct responses to basic/functional communication processes
Construct: Social Context Appraisal (Reading Context Cues)
Construct: Reading Context Cues (SCA)

- Ability to understand dynamic nature of social context
- Adequately process interactions between:
  - Contextual variables
  - Physical setting and environment
  - Communication partners
  - Communicative intent
  - Conflict/solution, etc.
- Requires ability to demonstrate perspective taking
Ability to understand intent of others

Infer what others are thinking

Includes interpreting irony, sarcasm, idioms, humor

Ability to understand social context

Settings

Changes in settings

Disruption in routines

Flexibility in disruption of routines
Construct: **Instrumental Performance (Using Social Routine Language)**

- **Pragmatic Judgment**
  - Instrumental Intent
  - Affective Intent
  - Paralinguistic Cohesion

- **Instrumental Performance Appraisal**
  - Social Context Appraisal
  - Paralinguistic Decoding

- **Pragmatic Performance**
  - Instrumental Performance
  - Affective Expression
  - Paralinguistic Signals
Construct: Using Social Routine Language (IP)

Ability to express:
- Introductions
- Farewells
- Politeness
- Making requests
- Responding to gratitude
- Requesting help
- Answering phone calls
- Requesting info (e.g., directions)
- Asking permission
Construct: Using Social Routine Language (IP)

(cont.)

- Defined in the same manner as Instrumental Performance Appraisal
- But instead of comprehension, assesses ability to adequately and appropriately express or use verbal means-end processes
Construct: Affective Expression (Expressing Emotions)

- Pragmatic Judgment
- Pragmatic Performance
- Instrumental Performance
- Instrumental Performance Appraisal
- Instrumental Intent
- Social Context Appraisal
- Affective Intent
- Paralinguistic Decoding
- Paralinguistic Cohesion
- Affective Expression
- Paralinguistic Signals
Construct: Expressing Emotions (AE)

Ability to appropriately express:
- Polite refusal
- Regret
- Support peers
- Express empathy
- Gratitude
- Make a compliment
- Encourage a buddy
- Use humor
Construct: Expressing Emotions (AE)

(cont.)

- Is a non-instrumental pragmatic performance form of communication
- Examines ability to appropriately express emotions or higher order language
  - Polite refusal
  - Regret
  - Support peers
  - Give compliments
  - Use humor
  - Express empathy
  - Gratitude
  - Encouragement
Construct: Expressing Emotions (AE) (cont.)

- Requires higher level thinking as the purpose is not designed to fulfill basic needs
- References to emotional states indicate deeper understanding of mind & emotion
- Crucially affects:
  - Flow of conversation
  - Ability to understand others’ point of view
- Is essential in relationship building
Construct: Expressing Emotions (AE)
(cont.)

- Can affect conversational techniques such as:
  - Topic selection
  - Maintenance
  - Introduction
  - Transition
  - Closure
  - Responsiveness to conversational partner

- Expressed through verbal feedback or affective expression
▪ Selection of either or both (verbal feedback or affective expression) changes pending the conversational partner’s message.

▪ Reflect positive and negative reactions that may result in change of topic and conversation contingency and repair.
Construct: Paralinguistic Decoding (Reading Nonverbal Cues)
Construct: Reading Nonverbal Cues (PD)

- Ability to read and understand facial expressions and nonverbal language

- Paralinguistic Cohesion

- Pragmatic Judgment

- Paralinguistic Decoding
Construct: Reading Nonverbal Cues (PD) (cont.)

- A form of Pragmatic Judgment
- Measures ability to read facial expressions and nonverbal language
- Can suggest what a person is feeling and thinking without use of words
- Can reveal how person feels despite contradictory verbal message
- Appropriate reading of nonverbal language is critical in understanding another person
  - Leads to an appropriate verbal response
Utterance

Cindy got a new pair of sandals
Cindy got a new pair of sandals
Cindy got a new pair of sandals

Interpretation

She usually buys running shoes
Affirmative statement
Question
Oh no! My laptop broke down.
Oh no! My laptop broke down.
Oh no! My laptop broke down.
Oh no! My laptop broke down.
Nonverbal communication
Nonverbal communication (cont.)

- An individual’s ability to decode emotion from someone else’s facial expressions has been associated with higher social competence (Egan, Brown, Goonan, Goonan, & Celano, 1998).

- Children are continually developing their ability to decode facial expressions and emotions until the age of ten, at which point their decoding skills match those of adults (Custrini & Feldman, 1989).
Nonverbal communication (cont.)

- When trying to interpret an emotional facial expression, typically we focus our gaze on the other person’s eyes and eyebrows.

- Previous studies have found that children with ASD tend to focus on the lower half of the face (i.e., mouth) in many social/emotional situations (Joseph & Tanaka, 2003; Dawson, Webb, Carver, Panagiotide, 2004).
Gepner et al. (2001) discovered that children with ASD were able to identify facial emotions when they were shown “strobe-like dynamic presentations” but demonstrated deficits in the processing of “normal-paced dynamic expressions.”
Mazefsky and Oswald (2007) investigated emotional facial and prosodic stimuli with students between the ages of 8 and 15 who presented with AS or HFA.

The results of their study revealed that students with HFA were significantly impaired in identifying prosodic emotion expressions.
Construct: Paralinguistic Signals (Using Nonverbal Cues)
Construct: Using Nonverbal Cues (PS)

- Ability to use facial expressions, nonverbal language, prosody and intonation appropriately
Construct: Using Nonverbal Cues (PS) (cont.)

- A non-instrumental form of communication:
  - Assesses ability to appropriately use facial expressions
  - Gestures
  - Prosody
- In contrast to Paralinguistic Decoding, this is the *acting out* of the facial expressions and gestures.
Construct: Using Nonverbal Cues (PS) (cont.)

Impacts speaker’s:
- Choice of language
- Flow of the conversation

Often noted in:
- Facial expressions
- Body posture
- Tone of voice
- Eye contact
Questions to ask when using video-based social scenes to assess Pragmatic Judgment

Pragmatic Judgment (PJ)

1. Use social scenes showing either correct or incorrect social behaviors

2. Present these questions at the end of each scene:
   A. “Did anything go wrong in this video?”
   B. “What went wrong?” Or
   C. “Why did it go well?”

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Questions to ask when using video-based social scenes to assess Pragmatic Performance

Pragmatic Performance (PP)

1. Present a scene/conversation that is unfinished

2. Add this question at the end of each script:

“Show me, what would you say and how would you say it?”
And now, presentation of the research study we conducted
We conducted a series of studies:

- To validate six new constructs
- To analyze pragmatic language profiles of 3 participant groups
Methodology

- Videos of numerous social situations created
  - Representing each of 6 proposed constructs
- A series of validity & reliability measures employed
  - To validate new constructs & tests
3 groups of participants watched video

Answered 2 types of questions

Participants’ responses analyzed & compared

Pragmatic Judgment question:

“Did anything go wrong in this situation? If yes, what went wrong? If no, why do you think it went well?”

Pragmatic Performance question:

“What and how would you respond in this situation? What would you say and how would you say it?”
Group profiles

1. High-Functioning Autism
2. Social (Pragmatic) Communication Disorder
3. Typically Developing – Control Group
Age range

7:0 – 8:11
9:0 – 10:11
11:0 – 12:11
13:0 – 16:0
Methodology

- Tests administered to 141 students
- Ages 7–16 years old

<table>
<thead>
<tr>
<th>Age range</th>
<th>TD group (n)</th>
<th>HFA group (n)</th>
<th>SCD group (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:0–8:11</td>
<td>12</td>
<td>10</td>
<td>8</td>
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<td>9:0–10:11</td>
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<td>13:0–16:0</td>
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</table>
Video-based test

- 3 Pragmatic Judgment subtests
- 3 Pragmatic Performance subtests
- 8 items per subtest
- Total of 48 items
**Inclusion criteria:**

**Control group**

<table>
<thead>
<tr>
<th>Hearing sensitivity within normal limits</th>
<th>Age-appropriate speech and language skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successfully completed each school year with no academic failures</td>
<td>Attending public school: general education classroom</td>
</tr>
</tbody>
</table>
Students with High-Functioning Autism (HFA)

Inclusion:
- Having a current diagnosis within the high-functioning autism spectrum (based on special education eligibility criteria or medical records)
- Attend public school
- General education classroom (min. 4 hrs)

Exclusion:
- Comorbid conditions
  - E.g., mental health issues, personality disorders, general medical conditions
Students with Social Communication Disorder (SCD)

Inclusion:

- Having a current diagnosis within the social communication disorder (based on special education eligibility criteria or medical records)
- Attend public school
- Full-time general education classroom
Students with Social Communication Disorder (SCD) (cont.)

Exclusion:

- Autism, intellectual disability, learning disability, emotional disturbance
- Comorbid conditions
  - E.g., mental health issues, personality disorders, general medical conditions
Study design

Students tested:
- Individually
- Quiet room (no distractions)
- At home

Tested by:
- CA-licensed SLP
- Trained in standardized administration of protocol

Before testing:
- Each student presented with 2 practice videos
Validation study

To examine validity & reliability of tasks:

a. Interrater reliability
b. Test–retest reliability
c. Content validity
Participants

- 56 typically developing students
- 46 students with HFA
- 39 students with SCD
Reliability

**Interrater reliability:**
- Data examined by 2 California-licensed SLPs
- Independently evaluated 15 randomly selected test administrations

**Test-retest reliability:**
- All retesting performed by same examiner who initially administered test
### Content & criterion validity

- **Content validity:** Expert opinion was solicited
- **Criterion validity:**

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Performance Appraisal (IPA)</th>
<th>Social Context Appraisal (SCA)</th>
<th>Paralinguistic Decoding (PD)</th>
<th>Instrumental Performance (IP)</th>
<th>Affective Expression (AE)</th>
<th>Paralinguistic Codes (PC)</th>
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<tbody>
<tr>
<td>CASL TOPL</td>
<td>Social Language Development Test</td>
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<td>CASL TOPL</td>
<td>none</td>
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**CASL TOPL**

**TOPL**

**Social Language Development Test**
Data analysis

Statistical Package for the Social Sciences (SPSS) version 23.0

Variable normality:
- Kolmogorov-Smirnov
- Shapiro-Wilk tests

- Test-retest reliability
- Interrater reliability
- Intra-class correlation coefficients (ICCs)
- 95% confidence intervals (CIs)

Concurrent validity (Pearson’s correlation)
- CASL
- TOPL
- Social Language Development
## Results

Test-retest reliability of the study tests \((n = 52)\)

<table>
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<th></th>
<th>ICC</th>
<th>Lower 95% CI</th>
<th>Upper 95% CI</th>
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<tr>
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<tr>
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<tr>
<td>PD</td>
<td>0.84</td>
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<tr>
<td>AE</td>
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<tr>
<td>PC</td>
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Interrater reliability of the CAPs subtests ($n = 30$)

<table>
<thead>
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<th>Subtest</th>
<th>ICC</th>
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<td>SCA</td>
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<tr>
<td>PC</td>
<td>0.82</td>
<td>0.75</td>
<td>0.91</td>
</tr>
</tbody>
</table>
Pearson’s correlations between our tasks
CASL, TOPL, & SLDT ($n = 46$)

<table>
<thead>
<tr>
<th></th>
<th>CASL (PJ)</th>
<th>TOPL</th>
<th>SLDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPA†</td>
<td>0.72</td>
<td>0.68</td>
<td>0.73</td>
</tr>
<tr>
<td>IP†</td>
<td>0.68</td>
<td>0.75</td>
<td>0.79</td>
</tr>
</tbody>
</table>

† $\alpha = 0.001$ (sig)
Content validity

- 17 reviewers rated each subtest
- A decimal rating scale
  - 5 questions per subtest
  - Total possible score: 50
Mean rating of subtests

IPA: 47.7 ± 0.9
SCA: 47.1 ± 0.8
PD: 47.0 ± 1.0
IP: 48.4 ± 0.7
AE: 47.2 ± 0.6
PC: 47.9 ± 1.3
Results (cont.)

- Normality of quantitative variables:
  - Kolmogorov-Smirnov test
  - Shapiro-Wilk test
- Distribution of scores:
  - Box and whisker plots
- Comparison of means across groups
  - Kruskal-Wallis analysis of variance (ANOVA)
- Further comparison of means
  - Mann-Whitney U test
Awareness of Basic Social Routines (IPA)

![Graph showing the number of test items correct by age group and group (TD, ASD, SCD).](image-url)
Reading Context Cues (SCA)

The bar chart shows the number of test items correct for different time periods (7:0 to 8:11, 9:0 to 10:11, 11:0 to 12:11, 13:0 to 15:11) across three groups: TD group (green), ASD group (blue), and SCD group (red).

- **TD group** (green) has the highest number of correct test items in the 13:0 to 15:11 time period.
- **ASD group** (blue) shows a lower number of correct test items compared to the TD group.
- **SCD group** (red) also has a lower number of correct test items compared to the TD group.

The chart indicates that the TD group generally performs better in terms of the number of correct test items compared to the ASD and SCD groups.
Reading Nonverbal Cues (PD)

![Bar chart showing number of test items correct across age groups for TD, ASD, and SCD groups.](chart_image)
Using Social Routine Language (IP)

The bar chart shows the number of test items correct across different age groups (7:0 to 8:11 years, 9:0 to 10:11, 11:0 to 12:11, 13:0 to 15:11) for three groups: TD group (green bars), ASD group (blue bars), and SCD group (red bars). The TD group consistently shows the highest number of correct responses, followed by the ASD group, with the SCD group having the lowest number of correct responses.
Expressing Emotions (AE)

The bar chart illustrates the number of test items correct for different age groups (7:0 to 8:11 years, 9:0 to 10:11, 11:0 to 12:11, and 13:0 to 15:11) across three groups: TD group, ASD group, and SCD group.
Using Nonverbal Cues (PS)

The bar chart shows the number of test items correct across different age groups (7:0 to 8:11 years, 9:0 to 10:11, 11:0 to 12:11, 13:0 to 15:11) for three groups: TD group (in green), ASD group (in blue), and SCD group (in red). The chart indicates that the number of correct items generally increases with age, with the TD group consistently scoring the highest among the three groups.
DISCUSSION

Significant differences observed between all groups

- Receptive pragmatic tasks
- Expressive pragmatic tasks
Differences

- HFA and SCD groups performed adequately on instrumental tasks
  - However, significant difficulties on higher order pragmatics
- HFA group showed profound deficits in recognition and appropriate use of facial expressions
- SCD group performed better on using paralinguistic signals
Clinical implications

**Important findings:**
Both HFA and SCD students able to comprehend and use instrumental pragmatic skills effectively.

**Therefore:**
Therapeutic interventions must move beyond instrumental tasks and focus on higher order pragmatic skills.
Clinical implications (cont.)

For both groups:

Understanding and responding to subtle social cues...

(e.g., inferences, irony, sarcasm)

...forms an effective therapeutic starting point.

Therapy goals for students with HFA should focus on:

Students’ ability to recognize meanings of various facial expressions.

Appropriate use of paralinguistic codes.
Contextualized Assessment of Pragmatics Checklist

An informal and dynamic assessment protocol

To access further videos needed for completion of this protocol, please go to www.laviinstitute.com
Questions?
References

References
(cont.)

References (cont.)


