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Measuring nonverbal cue detection and social skills : implications for adults with ADHD

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MEASURING NONVERBAL CUE DETECTION AND SOCIAL SKILLS:
IMPLICATIONS FOR ADULTS WITH ADHD

A Thesis

Presented to

the Faculty Department of Psychology

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Stephanie D. Furrer

August, 1999

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ABSTRACT

MEASURING NONVERBAL CUE DETECTION AND SOCIAL SKILLS: IMPLICATIONS FOR ADULTS WITH ADHD

by Stephanie D. Furrer

The purpose of this study is to examine a current nonverbal cue decoding procedure, as well as measures of Attention Deficit Hyperactivity Disorder (ADHD) and social skills, to provide an appropriate method of assessing the process of nonverbal cue detection and its relation to social skills in adults. Fifty-six undergraduate students viewed the Interpersonal Perception Task (IPT, Costanzo & Archer, 1991) and completed a 191-item questionnaire, which included two measures of ADHD symptomology and the Social Skills Inventory (SSI, Riggio, 1986). No significant correlations were found between symptoms of ADHD and social skills or nonverbal cue detection. However, when grouped into high/low ADHD groups, a trend emerged, indicating that adults with symptoms of ADHD may have deficits in nonverbal cue detection. This research should be extended to adults diagnosed with ADHD to determine more accurate relationships between the chosen variables. Overall, the IPT and SSI provide an adequate assessment of nonverbal cue detection abilities and social skills, and the WURS and CAARS are appropriate measures for assessing ADHD in adults. The author supports the view that the techniques used in the present study are valid methods for assessing symptoms of ADHD, nonverbal cue detection abilities, and social skills.

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**Measuring Nonverbal Cue Detection and Social Skills:
Implications for Adults with ADHD**

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Running Head: MEASURING NONVERBAL CUES AND SOCIAL SKILLS

Footnotes

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Abstract

The purpose of this study is to examine a current nonverbal cue decoding procedure, as well as measures of Attention Deficit Hyperactivity Disorder (ADHD) and social skills, to provide an appropriate method of assessing the process of nonverbal cue detection and its relation to social skills in adults. Fifty-six undergraduate students viewed the Interpersonal Perception Task (IPT, Costanzo & Archer, 1991) and completed a 191-item questionnaire, which included two measures of ADHD symptomology and the Social Skills Inventory (SSI, Riggio, 1986). No significant correlations were found between symptoms of ADHD and social skills or nonverbal cue detection. However, when grouped into high/low ADHD groups, a trend emerged, indicating that adults with symptoms of ADHD may have deficits in nonverbal cue detection. This research should be extended to adults diagnosed with ADHD to determine more accurate relationships between the chosen variables. Overall, the IPT and SSI provide an adequate assessment of nonverbal cue detection abilities and social skills, and the WURS and CAARS are appropriate measures for assessing ADHD in adults. The author supports the view that the techniques used in the present study are valid methods for assessing symptoms of ADHD, nonverbal cue detection abilities, and social skills.

Measuring Nonverbal Cue Detection and Social Skills:

Implications for Adults with ADHD

Nonverbal behaviors are an important component of humans' complex communication system that are increasingly important to social psychologists (e.g., Lippa, 1994). Nonverbal communication consists of a vast array and combination of facial expressions, hesitations, eye movements, gestures, personal space, posture, and touching behavior (e.g., Lippa, 1994). Ekman and Friesen (1969, as cited in Lippa, 1994) suggest five main categories of body communication: (a) emblems, culturally defined gestures; (b) affect displays, such as facial or other emotional expressions; (c) illustrators, physical illustrations of events or thoughts; (d) regulators, nonverbal signals that mediate the course of conversation; and (e) adaptors, actions that are self-directed, often by one's personality, which nonverbally indicate a person's inattentive "feelings" about a situation or thought.

Some researchers suggest that emotions are transmitted via nonverbal cues 93% of the time (e.g., Hickson & Stacks, 1985), and that people place more emphasis on nonverbal expressions than spoken expressions (Lippa, 1994). Nonverbal cues not only communicate information about others and how they are feeling, but they also relay important messages that cannot be said by mere words alone (e.g., Costanzo & Archer, 1991). Hickson and Stacks (1985) define nonverbal communication as:

...a process whereby people, through intentional or unintentional manipulation of normative actions and expectations[,] express experiences, feelings, and attitudes in order to relate to and control themselves, others, and their environments (p. 15).

Nonverbal communication involves both an “expressor” and a “perceiver” (Cuceloglu, 1972). Since facial expressions alone represent very complicated, and often misleading, nonverbal information (Cline, Atzet, & Holmes, 1972), accurate nonverbal interpretation is not only important to social interactions, but it is key to how the perceiver determines the unexpressed intentions of the expressor. A person’s “receiving skills,” according to Riggio, Widaman, and Friedman (1985), are fundamental to the process of “face-to-face” communication. Hodgins and Zuckerman (1990) maintain the view that, “higher ability to decode nonverbal cues is related to more positive social interaction” (p. 155). Differences in how people encode and decipher nonverbal or social cues to make interpretations about others has major implications for their ability to interact with others, as well as how one’s social adeptness is judged (Erwin, 1993).

Social Skills

Social skills are the specific components that enable an individual to behave in an appropriate manner in social situations. Rosenthal and colleagues (1979) suggested that social skills are comprised of at least two basic components: (a) one’s ability to judge another person, and (b) one’s appropriate and conducive behavior toward another person. Riggio (1986) suggested that social abilities are comprised of a balance of the many different dimensions of social skills. Although the definition of social skills is a challenge due to the many components that comprise this concept, Gresham and Elliot (1984, cited in Hughes, 1990) stated that:

Social skills are those behaviors which, within a given situation, predict important social outcomes such as (a) peer acceptance or popularity, (b) significant others’

judgments of behavior, or (c) other social behaviors known to correlate consistently with peer acceptance or significant others' judgments (pp. 292-293).

As with nonverbal communication, the utilization of social skills is the criterion by which one judges another's social competence—that is, evaluation of the overall effectiveness of an individual's social behaviors and adequacy on certain social tasks. Therefore, deficits in social skills can be harmful to social interactions and interpersonal relationships (e.g., Schulndt & McFall, 1985).

Measurement Techniques

Many measurement techniques that assess one's ability to decode nonverbal cues have been designed over the years (Buck, 1983). Examples of standardized techniques include: (a) the Brief Affective Recognition Test (BART, Eckman & Friesen, 1974, as cited in Buck, 1983), (b) the Communication of Affect Receiving Ability Test (CARAT, Buck, 1976, as cited in Buck, 1983), (c) the Affective Sensitivity Scale (the AS test, Kagan, 1977, as cited in Buck, 1983), (d) the Profile of Nonverbal Sensitivity (PONS, Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979), (e) the Simulated Social Interaction Test (SSIT, Curran, 1982), (f) the Social Interpretations Task (SIT, Archer & Akert, 1977, as cited in Costanzo & Archer, 1989), and (g) the Interpersonal Perception Task (IPT, Costanzo & Archer, 1991).

Most of these techniques are based on the assumption that participants will accurately describe their assessment of nonverbal behaviors after viewing still photographs or slides of behaviors or facial expressions (Buck, 1983). For example, the BART consists of 70 black and white slides that depict six facial expressions (happiness,

sadness, anger, fear, surprise, disgust) and a neutral expression. To accurately depict the brevity of naturally occurring facial expressions, the slides are presented via tachistoscope for 1/30 second. Similarly, the PONS includes 220 brief segments of nonverbal behaviors that are represented through different nonverbal channels (i.e., face alone, body alone). Participants choose the label that correctly explains each segment (see Rosenthal et al., 1979, for full description).

Unfortunately, techniques based on this notion do not capture real-life complexities of nonverbal communication. In addition, using a tachistoscope can reduce response accuracy, especially when administered to a large group (Buck, 1983). Therefore, researchers developed more naturally occurring situations in which nonverbal cues, both aural and physical, are included. For example, the SIT consists of 20 video scenes in which actors present a “full-channel, continuous sequence of behavior” (Costanzo & Archer, 1989, p. 227). In addition, the IPT consists of 30 video scenes in which actors interact naturally with one another. Nonverbal behaviors are presented in real settings (i.e., tennis court, office, living room), which allow viewers to appropriately apply their nonverbal cue detection abilities. In addition to the “realness” of these methods, they are also much easier to administer to a large group via video or television screen (Costanzo & Archer, 1989).

Special Populations

Identifying populations who are better social communicators enable social psychologists to investigate different populations who may have deficits in these areas. Although only a small amount of research has investigated social perception skills in

adults, this research supports the view that certain populations have deficits in decoding nonverbal cues (e.g., psychotic inpatients; Morrison & Bellack, 1981). One population that is likely to have deficits in both receiving and decoding nonverbal cues are adults with Attention Deficit Hyperactivity Disorder (ADHD).

Attention Deficit Hyperactivity Disorder is a developmental disorder that is marked by symptoms of overactivity and impulsivity, as well as severe problems in sustained attention and response inhibition (e.g., Barkley, 1990). A critical concern for people with ADHD is their difficulty with social interactions and interpersonal relationships. Although there is some debate in the field as to whether symptoms of ADHD persist into adulthood, Biederman and colleagues (1993) concluded that diagnosis of ADHD in adulthood is valid. Barkley (1990) states that 30% to 70% of people diagnosed with ADHD as children continue to have problems with the same symptoms in adulthood. Therefore, poor social interactions during childhood are likely to negatively influence social interactions during adulthood for this population.

Current psychological research adequately supports the view that children with ADHD have deficits in social skills. These deficits interfere with social interactions with peers, teachers, and parents, which often lead to poor interpersonal relationships, poor ratings from teachers and parents, and peer rejection (Frederick & Olmi, 1994; Grenell, Glass, & Katz, 1987; Klein & Mannuzza, 1991; Landau & Moore, 1991; Saunders & Chambers, 1996). The ability to appropriately decode nonverbal or social cues is essential for positive and effective social interaction and performance (e.g., Hodgins & Zuckerman, 1990; Riggio et al., 1985). The process by which one attends to and

interprets nonverbal behavior is critical to the information that one extracts from a social situation. Singh et al. (1998) suggested that two main characteristics of ADHD, inattention and impulsivity, may predispose children with ADHD to make increased errors in recognition of relevant facial and social cues during social interactions. In adults, those who are not diagnosed with ADHD may recognize one looking at his/her watch and avoiding eye contact as signals to end a conversation. However, adults with symptoms of ADHD (i.e., attention deficits) may overlook these gestures and continue talking. Therefore, a possible underlying mechanism for social deficits in adults with ADHD may be an inability to attend to and accurately decode nonverbal and social cues.

Social Skills Deficits in Children with ADHD

Investigation of the literature regarding social skills deficits in children with ADHD provides justification for the present study. Because the presentation of symptoms of ADHD is typically acknowledged once children enter school, ADHD has primarily been viewed as a disorder only occurring in children. Problems that co-occur with symptoms of ADHD, such as aggressiveness, hyperactivity, dominance, and impulsiveness (e.g., Landau & Milich, 1988), lead to social and learning problems for children with ADHD. Research that examines social interactions and interpersonal peer relations in children with ADHD is a foundation for understanding possible social maladjustment of these children later in life (e.g., Schulndt & McFall, 1985). In addition, this research may provide possible explanations as to the mechanisms that underlie the development and maintenance of these deficits in adulthood.

In 1987, Grenell and colleagues assessed the social knowledge of hyperactive boys. The researchers' study stemmed from the view that children with ADHD do not differ from normal children in their ability to interact with other children or in their knowledge of socially appropriate behavior. However, the authors hypothesized that children with ADHD would show deficits in social behaviors during peer interaction. The authors used the Social Knowledge Interview (SKI; Geraci & Asher, 1980, as cited in Grenell et al., 1987) and peer interaction methods (i.e., Free Play, Puzzle Tasks, Persuasion Tasks) to determine effects of ADHD states on friendliness, impulse control, assertiveness, effectiveness, relationship enhancement, and number of unusual solutions in 15 hyperactive boys (experimental group) and 15 normal boys (control group). Results indicated that hyperactive boys differed significantly from normal boys on five of the six dependent variables. Hyperactive boys were less friendly, more assertive, less effective, less likely to have enhancing relationships, and had less impulse control. On the SKI, results suggested that hyperactive boys did not differ from controls when initiating interactions; however, hyperactive boys had much more difficulty in maintaining those relationships than normal boys.

Grenell et al. (1987) concluded that children with ADHD may utilize less complicated skills for initiating contact with other children, but that they do not have the ability to maintain those interactions due to the complexity of higher social skills knowledge. In addition, children with ADHD do not have the ability to apply those behaviors during long interactions. The authors concluded that the inability to exhibit appropriate social behavior is likely a function of impulsivity and difficulty in

considering consequences of their actions. Hyperactive boys were able to suggest appropriate social strategies, but displayed social skills deficits in their behavior and interactions with normal boys.

Research of social interactions of children with ADHD also focuses on social communication of these children. Whalen, Henker, Collins, McAuliffe, and Vaux (1979) employed a "Space Flight Game" to assess the social communication of boys with ADHD. They concluded that boys with ADHD were less able than control boys to regulate or adjust their behaviors as they moved from the role of Astronaut to Mission Control. The boys with ADHD seemed to adhere to a certain behavioral style and were unable to move from that mode of communicating, whereas control boys were able to adapt to the changing situation. Furthermore, results indicated that boys with ADHD were less able to respond to social cues of others. However, the authors suggested that boys with ADHD may have social communication problems due to deficits in control or performance rather than deficits in skills.

In 1988, Landau and Milich utilized a similar task, a "TV Talk Show," with 15 hyperactive boys and 15 control boys to test the idea that social communication problems result from control and performance deficits rather than skill deficits. The children were assigned to the role of "Host" or "Guest" and aspects of social communication (e.g., assertion, question, support utterances, extension, answer, initiate/terminate) were recorded by trained judges who viewed the videotapes. Results indicated that the boys with ADHD were significantly less able to adapt their social communication behaviors in the different situations. Despite the changing task demands, the boys with ADHD were

unable to change the strategies employed in a different situation where their behavior may have been more appropriate. Supporting past propositions, the authors concluded that this may demonstrate a performance deficit rather than a skill deficit. Furthermore, the authors suggested that boys with ADHD have difficulty attending to social and environmental cues, suggesting that children with ADHD may be insensitive to changing situational demands.

In support of these findings, Milich and Dodge (1982) suggested that children with ADHD have cue-utilization deficiencies that lead to deficits in attending to and encoding social cues from the environment. The researchers compared 75 boys with ADHD with 60 normal boys on ability to detect social cues and found that Hyperactive/Aggressive (H/A) boys had deficiencies in their attention to salient social cues.

Although it is debatable whether children with ADHD have deficits in social skills or deficits in social performance, difficulties in social situations and interactions with peers, as well as difficulties applying socially appropriate behaviors, are apparent in children with ADHD. In addition, poor attention to social or nonverbal cues seems to be elemental to social skills deficits in these children. Therefore, investigating the social skills and ability to detect nonverbal cues in adults with symptoms of ADHD is an important endeavor to aid our understanding of the mechanisms that may underlie deficits in social skills. In addition, establishing a reliable and valid technique for assessing social skills, as well as nonverbal cue detection abilities, is an integral component for future research in this area.

The purpose of this study is to examine the relationship between symptoms of ADHD, nonverbal cue detection, and social skills. In addition, this study is designed to examine a current nonverbal cue decoding procedure, as well as measures of ADHD and social skills, to provide an appropriate method of assessing the process of nonverbal cue detection and its relation to social skills in adults, particularly those with symptoms of ADHD. Due to the use of naturally occurring social interactions, the IPT is expected to accurately assess nonverbal cue detection abilities. In addition, the Social Skills Inventory (SSI, Riggio, 1986) is expected to accurately assess global social skills. It is hypothesized that the two measures of ADHD - Wender Utah Rating Scale (WURS, Ward, Wender, & Reimherr, 1993) and Conner's Adult ADHD Scale (CAARS, Conners, Erhardt, & Sparrow, 1998) - will significantly correlate and provide adequate assessment of symptoms of ADHD in adulthood. In addition, the WURS and CAARS are expected to significantly negatively correlate with the IPT and SSI. Finally, participants who score high on the measures of ADHD are expected to score lower on the nonverbal cue detection and social skills measures.

Method

Participants

Fifty-six undergraduate psychology students at San Jose State University participated in the study (38 women and 18 men). Mean age of the participants was 20.18 years ($SD = 2.86$). Self-report revealed that the ethnic breakdown was Asian (55.4%), Mexican (19.6%), White (14.3%), Other (7.1%), and Black (3.6%). See Table 1 for the frequencies and percentages of demographic items.

Table 1

Frequencies and Percents for Demographic Variables (N = 56)

Variable	Frequency	Percent
Gender		
Male	18	32.1
Female	38	67.9
Ethnicity		
Asian	31	55.4
Mexican	11	19.6
White	8	14.3
Other	4	7.1
Black	2	3.6
Education		
First-year College	27	48.2
Second-year College	14	25.0
Fourth-year College	8	14.3
Third-year College	4	7.1
Junior College	2	3.6
Graduate School	1	1.8

Note: Some education items were eliminated as participants were all college students.

Instruments

A 191-item questionnaire consisting of items from the Wender Utah Rating Scale (WURS; Ward et al., 1993), the Conner's Adult ADHD Rating Scale (CAARS; Conners et al., 1998), and the Social Skills Inventory (SSI; Riggio, 1986) was used (see Appendix B for complete measures). Demographic information was also included in the questionnaire.

The WURS is sensitive to identifying childhood ADHD and has demonstrated internal consistency as well as temporal consistency and stability (Rossini & O'Connor, 1995). Due to high sensitivity and reliability, the short, 25-item form of the WURS was used in this study. Possible total scores range from 25 to 125. Participants indicated the degree to which item descriptions matched their behaviors as children (e.g., concentration problems, easily distracted; anxious, worrying; nervous, fidgety).

The CAARS is a 66-item measure that assesses symptoms of ADHD in adults. A 4-point response format scale ("Not at all, Never" to "Very much, Frequently") produces a range of 66 to 264 on this measure. Descriptions of adult behaviors include: (a) I like to be doing active things, (b) I don't finish things I start, and (c) I leave my seat when I am not supposed to. A high score on this scale, as well as the WURS, indicates more symptoms of ADHD. This recently developed scale does not have psychometric information available. The SSI is a multidimensional, 90-item measure of six basic dimensions of social skills, including Emotional Expressivity (EE), Emotional Sensitivity (ES), Social Expressivity (SE), Social Sensitivity (SS), Emotional Control (EC), and Social Control (SC). Most important to the present study, the ES and SS subscales

concern one's ability to encode and decode another's nonverbal behaviors and one's ability to decode the nonverbal expressions of others, respectively.

Statements from the scale, which participants rated on a 5-point Likert scale from "Not at all like me" to "Exactly like me," include, (a) I enjoy giving parties, (b) I always seem to know what people's true feelings are no matter how hard they try to conceal them, (c) When telling a story, I usually use a lot of gestures to help get the point across, and (d) I am able to conceal my true feelings from just about anyone. Possible scores range from 90 to 450. A high score on this measure indicates a higher global level of social skills or competence. In a series of studies, the SSI has demonstrated convergent and discriminant validity when compared to other measures of social skills (e.g., Riggio, 1986).

The Interpersonal Perception Task (IPT), developed by Costanzo and Archer (1991), was used to assess decoding of nonverbal cues. The IPT consists of 30 brief (20 to 60 seconds each) videotaped scenes, which display actors in five types of social interactions: (a) status, (b) kinship, (c) intimacy, (d) competition, and (e) deception. A question about the upcoming scene appears on the screen before each display of social interaction. After viewing each display, participants then answer a multiple-choice question about the scene. An example of one of the non-scripted scenes is as follows: A woman and a man are having a conversation with two 7-year-old children. The question corresponding to the scene is, "Who is the child of the two adults?" A second example is a scene where a man first tells his true-life story and then tells a lie about his life story. The corresponding question is, "Which is the lie, and which is the truth?"

A high overall score on the IPT indicates more accurate detection of nonverbal cues. Possible total scores range from 0 to 30. In a series of studies, the IPT has shown to have stability and retest reliability, convergent validity, and content validity (Costanzo & Archer, 1991).

Results

The means, standard deviations, ranges, and intercorrelations of the measures are listed in Table 2. Participant's maximum scores indicated that they did not score considerably high on either measures of ADHD (CAARS, max = 190; WURS, max = 85), the SSI (max = 344), nor the IPT (max = 23). A likely explanation for the low IPT scores is the view that people tend to decode nonverbal expressions of people they know better than the nonverbal expressions of strangers (Buck, 1983).

Frequency analysis revealed random (and few) missing values on various questionnaire items; therefore, missing values were replaced with the mean score of the particular scale item. Although correlations with other variables may be reduced, the small sample size of this study likely limited the reduction of variance that is associated with this technique (Tabachnick & Fidell, 1996). As this study was exploratory in nature, assumption of homogeneity of means, variances, and error variances of the item scores was not assumed. However, all scales were normally distributed about the mean, which supports the assumption of normality. That is, the scores distributed normally across this population.

Item-total correlations and coefficient alpha were computed to examine internal

Table 2

Descriptive Statistics and Correlations Among Variables of Interest (N = 56)

Variable	M	SD	Range	1	2	3	4	5	6	7	8	9	10
1. Total WURS	52.18	15.61	25-125	----									
2. Total CAARS	134.05	26.59	66-264	.59†	----								
3. Total IPT	15.05	3.00	0-30	-.13	-.16	----							
4. Total SSI	270.36	29.17	90-450	.07	.21	-.06	----						
<u>SSI Subscales</u>													
5. Emotional Expressivity	43.88	7.60	15-75	-.02	.13	-.01	.48†	----					
6. Emotional Sensitivity	45.05	8.61	15-75	.17	.27*	-.10	.72†	.16	----				
7. Emotional Control	43.80	7.12	15-75	-.02	.06	-.12	.22	-.39**	.16	----			
8. Social Expressivity	42.55	11.22	15-75	.01	.08	-.05	.85†	.52†	.46†	.02	----		
9. Social Sensitivity	47.46	9.86	15-75	.34*	.36**	-.01	.31*	-.20	.44**	-.01	.04	----	
10. Social Control	47.61	9.26	15-75	-.29*	-.21	.08	.56†	.42**	.06	.10	.56†	-.37**	----

Note: †p < .001, two-tailed. **p < .01, two-tailed. *p < .05, two-tailed.

Note: Range indicates highest and lowest possible scores on each measure.

consistency of the scales. Cronbach's alpha for the WURS and CAARS were quite high, .92 and .93, respectively. Cronbach's alpha for the IPT was moderate, .31. High internal consistency was found for the entire SSI scale ($\alpha = .87$), as well as most of the subscales (ranging from $\alpha = .67$ to .87).

To describe the accuracy of the tests, standard error of measurement (SEM) for each of the scales was calculated. The SEM for the WURS was 4.42, resulting in a 95% confidence interval (CI) of 43.52 - 60.84; SEM for the CAARS was 7.03, resulting in a 95% CI of 120.27 - 147.83. The SEM for the SSI was 10.52, resulting in a 95% CI of 249.75 - 290.97. Finally, the SEM for each of the SSI subscales (EE, ES, EC, SE, SS, and SC) were 4.37, 4.04, 3.90, 3.72, 3.94, and 4.04, respectively. Ninety-five percent CI ranged from 35.26 to 55.52. That is, with 95% certainty, scores within these intervals for each of the measures should include the mean of the population. These estimates provide some confidence in the generalizability of these measures to the general population (Keppel, Saufley, & Tokunaga, 1992).

Pearson correlation coefficients indicated that the WURS and CAARS were significantly correlated ($r = .59$, $p < .001$), which supports the convergent validity of these two measures in relation to symptoms of ADHD. Results indicated no significant correlations ($ps > .05$) between the measures of ADHD and social skills or nonverbal cue detection. Unexpectedly, the WURS and CAARS were not significantly negatively correlated with the SSI or total scores on the IPT ($r = .07$, $-.13$, $.21$, $-.16$, $ps > .05$, respectively), showing no relationship between scores on measures of ADHD and

measures of social skills or nonverbal cue detection. Conceivably, the small sample size in this study limited correlations between variables. In addition, measure scores were based on sum totals, which may have reduced variability of correlations among the scale items.

The SSI and IPT did not significantly correlate ($r = -.06$, $p > .05$), which is most likely due to the different modes of administration associated with these measures. The IPT, for instance, involves visual detection of expressive behavior, whereas the SSI is a pencil-and-paper, self-report measure (e.g., Costanzo & Archer, 1989; Riggio, 1986). Five of the SSI subscales (EE, ES, SE, SS, and SC) significantly correlated with the total SSI scale ($r_s = .48, .72, .85, .31, .56$, $ps < .05$, respectively). Only one subscale (EC) did not correlate with the total SSI scale ($r = .22$, $p > .05$). Inter-item correlations suggested that certain items of this subscale were misleading and limited correlations with the overall scale (e.g., I don't plan ahead, I am easily frustrated, It's hard for me to keep track of several things at once). Correlational analysis among the subscales revealed a significantly negative correlation between the EC and EE subscales ($r = -.39$, $p < .05$), indicating that as people control their emotions, they may not express their emotions as openly, and between the SC and SS subscales ($r = .37$, $p < .01$), indicating that people with more social control over their emotions may not attend to the emotions of others in a social setting.

The Kin, Intimacy, Lie, and Competition content areas of the IPT significantly correlated with the IPT ($r_s = .66, .55, .66, .47$, $ps < .001$). The Status content area did not significantly correlate with the IPT ($r = .18$, $p > .05$). One possible explanation for the

lack of correlation with the status content area of the IPT with the total IPT score is that cues in these scenes may have “systematically mislead” participants in the study to choose the incorrect answer (Costanzo & Archer, 1989). As consistent patterns of behavior are related to status, behaviors follow typical patterns between people who are not of the same status. For example, lower status persons have more rigid posture, restrict their range of movement, and use more eye contact when interacting with people of higher status (e.g., Harper, 1985, as cited in Costanzo & Archer, 1989). If these patterns were misleading in the IPT video scenes, participants may have answered incorrectly, limiting the correlation of these items with the total IPT score.

Congruent with the design of the study, exploratory factor analysis was performed on the items of each of the scales, as well as the questions of the IPT. Principle components (PC) analysis with varimax rotation of the 25 WURS items revealed seven factors, which accounted for 74% of the total variance. However, most items loaded on the first three factors, which accounted for 45% of the total variance, and were interpretable. Factor 1 was Behavior/Emotional Problems, Factor 2 was Impulsivity, and Factor 3 was Academic Problems. The factors accounted for 17.5%, 15.3%, and 12.0% of the total variance, respectively.

Six items had factor loadings greater than .40 for Factor 1 and reflected behavioral and emotional problems in childhood, such as anxiety, sadness, daydreaming, and worrying. Eight items had factor loadings greater than .40 on Factor 2 and reflected impulsivity, which is characteristic of ADHD, such as disobedient, regretful, tendency to lie or act irrational. Four items had factor loadings greater than .40 on Factor 3 and

clearly reflected common academic problems for children with ADHD, such as overall poor student, slow learner, unpopular with other children, trouble with math, and trouble with authorities (see Table 3). Each of these factors, which represent behavioral, emotional, and academic problems, are characteristic of symptoms of ADHD. Therefore, these factors support the underlying structure of ADHD, such as impulsivity and behavioral problems, and provide support for the utilization of the WURS as an appropriate measuring device for ADHD.

On the other hand, PC analysis with varimax rotation of the 66 CAARS items revealed no discernible factors. Consistent with the WURS, three factors were requested for extraction to examine the underlying structure of the scale. However, these three factors only accounted for 40.0% of the total variance and factor loadings were uninterpretable. Further analysis was not rendered. However, as previously mentioned, Cronbach's alpha supports the reliability of this measure ($\alpha = .93$). Again, the small sample size of this study most likely limited accurate analysis of the measure.

A PC analysis with varimax rotation was completed on all 90 SSI items. Based on the conceptual foundation of the scale, six factors were requested for analysis. However, results indicated that the items loaded on uninterpretable factors, which could not be explained by the conceptual basis for six subscales. Only the EC and SS subscales resulted in interpretable loadings consistent with the literature. An analysis of oblique rotation was conducted to detect whether a correlated factor structure would affect the factor loadings. This analysis resulted in unexplainable factors as well. The small sample size is likely the main contributor to this limitation.

Table 3

Rotated Factor Matrix (WURS)

Item no. Stem	1	2	3	h ²
<u>Behavior/Emotional Problems</u>				
2. Anxious, worrying	.82	.00	.00	.68
3. Nervous, fidgety	.76	.31	.16	.76
9. Sad or blue, depressed, unhappy	.69	.18	.20	.78
11. Low opinion of myself	.69	.29	.13	.71
1. Concentration problems, easily distracted	.59	.00	.29	.73
4. Inattentive, daydreaming	.59	-.18	.24	.81
<u>Impulsivity</u>				
14. Angry	.34	.70	.13	.78
19. Losing control of myself	.00	.69	.46	.81
13. Moody, ups and downs	.51	.65	.13	.78
10. Disobedient, rebellious, sassy	.12	.64	.00	.56
6. Temper outbursts, tantrums	.00	.53	.00	.79
5. Hot- or short-tempered	.00	.51	.29	.63
18. Guilty feelings, regretful	.46	.49	.35	.70
20. Tendency to be or act irrational	.15	.49	.40	.76
<u>Academic Problems</u>				
23. Overall poor student, slow learner	.19	.00	.80	.78
21. Unpopular with other children	.20	.39	.67	.71
24. Trouble with math, or numbers	.33	-.12	.65	.75
22. Trouble with authorities, trouble with school, visits to principal's office	.00	.35	.65	.61
<hr/>				
N = 56	Eigenvalue	4.37	3.83	2.33
Total % of Variance = 44.8	% of Variance	17.49	15.31	12.00

Principle components analysis with varimax rotation on the 30 IPT items revealed that content items did not load on interpretable factors. In addition, the five factors accounted for only 37% of the total variance. Both of these findings support the suggestion of the scale's developers that the five content areas of the IPT should not be evaluated as "subscales." Additionally, Costanzo and Archer (1989) support the view that the "effective reliability" of the IPT is influenced by the length of the instrument.

Men and women's scores on detection of nonverbal cues were moderately different ($M = 15.37, 14.39$, respectively), but these differences were not statistically significant, $t(54) = -1.15, p > .05$. However, women's mean scores on the EE and ES subscales of the SSI ($M = 45.45, SD = 7.30; M = 46.79, SD = 8.15$, respectively) were statistically significantly higher than men's mean scores on these two subscales ($M = 40.56, SD = 7.33; M = 41.39, SD = 8.62, p < .05$, respectively). The latter finding supports research indicating that women are somewhat better at detecting nonverbal cues than men (e.g., Hall, 1985).

Participants were grouped into pseudo High ADHD (HADHD) and Low ADHD (LADHD) groups on the WURS and CAARS by using the median score of each scale as a cutoff score. See Table 4 for a summary of the HADHD group's ($n = 22$) demographic characteristics and Table 5 for a summary of the LADHD group's ($n = 20$) demographic information. Sample size totals of these two groups versus the overall sample size indicate that some participants scored high (or low) on one measure of ADHD but not the other. The means, standard deviations, ranges, and intercorrelations of the measures are listed in Table 6 for the HADHD group (see Table 7 for the LADHD group).

Table 4

Frequencies and Percents for Demographic Variables for High ADHD Group (n = 22)

Variable	Frequency	Percent
Gender		
Male	7	31.8
Female	15	68.2
Ethnicity		
Asian	12	54.5
Mexican	6	27.3
White	2	9.1
Black	1	4.5
Other	1	4.5
Education		
First-year College	11	50.0
Second-year College	6	27.3
Fourth-year College	3	13.6
Third-year College	1	4.5
Junior College	1	4.5

Note. Values represent participants who scored high on both measures of ADHD.

Note. Some education items were eliminated, as participants were all college students.

Table 5

Frequencies and Percents for Demographic Variables for Low ADHD Group (n = 20)

Variable	Frequency	Percent
Gender		
Male	6	30.0
Female	14	70.0
Ethnicity		
Asian	10	50.0
Mexican	4	20.0
White	4	20.0
Other	2	10.0
Education		
First-year College	9	45.0
Second-year College	4	20.0
Third-year College	3	15.0
Fourth-year College	3	15.0
Junior College	1	5.0

Note. Values represent participants who scored low on both measures of ADHD.

Note. Some education items were eliminated, as participants were all college students.

Table 6

Descriptive Statistics and Correlations Among Variables of Interest for High ADHD Group (n = 22)

Variable	M	SD	Range	1	2	3	4	5	6	7	8	9	10
1. Total WURS	65.31	8.52	25-125	----									
2. Total CAARS	155.14	15.63	66-264	.11	----								
3. Total IPT	14.36	3.20	0-30	-.25	-.40	----							
4. Total SSI	273.86	27.30	90-450	.07	.13	-.07	----						
<u>SSI Subscales</u>													
5. Emotional Expressivity	43.72	7.54	15-75	-.10	-.01	-.22	.51**	----					
6. Emotional Sensitivity	45.91	7.42	15-75	.06	.35	-.07	.73†	.06	----				
7. Emotional Control	44.77	7.17	15-75	-.15	-.13	-.01	.04	-.37	.18	----			
8. Social Expressivity	43.86	11.42	15-75	.05	.08	.06	.83†	.49*	.48*	-.16	----		
9. Social Sensitivity	49.36	10.33	15-75	.43*	.44*	-.08	.09	-.20	.24	-.44*	-.11	----	
10. Social Control	46.23	9.97	15-75	-.18	-.35	.04	.74†	.51*	.27	.19	.62**	-.38	----

Note. †p < .001, two-tailed. **p < .01, two-tailed. *p < .05, two-tailed.

Note. Range indicates highest and lowest possible scores on each measure.

Table 7

Descriptive Statistics and Correlations Among Variables of Interest for Low ADHD Group (n = 20)

Variable	M	SD	Range	1	2	3	4	5	6	7	8	9	10
1. Total WURS	36.65	8.79	25-125	----									
2. Total CAARS	108.55	18.64	66-264	.24	----								
3. Total IPT	15.35	2.98	0-30	.02	.21	----							
4. Total SSI	263.85	30.81	90-450	.08	.11	-.09	----						
<u>SSI Subscales</u>													
5. Emotional Expressivity	42.35	5.95	15-75	.24	-.11	.01	.23	----					
6. Emotional Sensitivity	42.00	8.73	15-75	-.04	.15	-.19	.80†	.03	----				
7. Emotional Control	43.85	7.80	15-75	-.16	.35	-.23	.59**	-.25	.48*	----			
8. Social Expressivity	41.45	11.71	15-75	.19	-.21	-.15	.84†	.40	.58**	.22	----		
9. Social Sensitivity	44.90	9.89	15-75	.06	.47*	.05	.62**	-.28	.51*	.51*	.32	----	
10. Social Control	49.30	6.93	15-75	-.02	-.31	.28	.28	.13	.00	-.03	.27	-.20	----

Note. †p < .001, two-tailed. **p < .01, two-tailed. *p < .05, two-tailed.

Note. Range indicates highest and lowest possible scores on each measure.

Interestingly, the WURS and CAARS did not significantly correlate with this group ($r = .11$, $p > .05$). In addition, the total WURS and CAARS did not significantly negatively correlate with the total IPT ($r_s = -.25, -.40$, $p_s > .05$, respectively). However, correlational analysis of the WURS, CAARS, and IPT with the HADHD group revealed an increase in the negative relationship between the two measures of ADHD and total IPT score. Concurrently, correlational analysis of these measures with the LADHD group revealed no statistically significant negative relationship between the two measures of ADHD and total IPT ($r_s = .05, .21$, $p_s > .05$, respectively). These findings support the validity of using the IPT to assess nonverbal cue detection abilities with adults with more symptoms of ADHD.

The total SSI scale significantly correlated with the EE, ES, SE, and SC subscales ($r_s = .51, .73, .83, .74$, $p < .05$, respectively). However, both the EC and SS subscales did not significantly correlate ($r_s = .04, .09$, $p > .05$, respectively). Lack of correlation among these variables is most likely a result of the small sample size and the use of sum total scale scores rather than individual item scores. The total SSI score and total IPT score did not significantly correlate ($r = -.07$, $p > .05$), which, once again, is probably due to the different types of measurement techniques that these two measures represent.

Although independent samples t-tests did not reveal statistically significant differences between the groups ($p_s > .05$), a trend emerged as mean scores on the WURS and CAARS for the HADHD group were moderately higher than the regular sample, ($M = 65.31, 52.18$; $M = 155.14, 134.05$, respectively) and mean scores on the IPT were moderately lower for the HADHD group than the regular sample ($M = 14.36, 15.05$,

respectively). Further investigation of extreme scores in this group (i.e., 5% - 15% at high ends) revealed that 6 participants represented extreme scores on the WURS and CAARS. Of this group, 4 participants (67%) scored below the overall sample's average on the IPT and SSI ($M_s = 11.25, 259.5$, respectively). In addition, all 6 participants scored above the mean on both the WURS and the CAARS ($M_s = 74.3, 166.3$, respectively). This suggests that adults with symptoms of ADHD may have lower nonverbal cue detection abilities. However, no statistical analysis supports this trend. In addition, the cutoff scores determining group membership (i.e., high ADHD vs. low ADHD) were arbitrarily chosen by the researcher and may have resulted in a high false positive attribution rate among the sample.

Discussion

As expected, the IPT provides valid and reliable assessment of nonverbal cue detection abilities. Unlike older methods of evaluating nonverbal communication abilities (e.g., BART, CARAT, PONS), the IPT provides more accurate and reliable criteria by which one's nonverbal abilities are displayed. Archer and Akert (1984) suggest that most nonverbal measuring techniques fail to provide the "natural, real time" context that is necessary for viewing nonverbal behavior. The non-scripted video scenes of the IPT, on the other hand, reduce reactivity by the "actor" and provide more believable and realistic social interactions (Costanzo & Archer, 1989). Therefore, the use of the IPT is likely to be more generalizable than other modes of assessing nonverbal cue detection.

Important considerations about the validity of the IPT are that it does not assess one's ability to judge another person's personality characteristics (e.g., Cline, et al., 1972; Riggio et al., 1985), nor does the IPT capture intimate knowledge that people hold about others (i.e., spouse, friend, parent). In addition, the IPT does not extract the complexities of the real world, or individual differences in nonverbal cue detection abilities (Riggio & Friedman, 1982). Rather, the IPT is designed to assess one's ability to interpret expressive behavior through nonverbal cues. Buck (1983) argues that proper measuring techniques must consider more than one's ability to decode nonverbal information. He posits that measuring devices must also consider the process that underlies one's attention to, as well as personal skills and experience at decoding, nonverbal cues. He states, "The ability to direct one's attention in the face of complex cues in a real-life situation is an extremely important basis for individual differences in receiving ability" (p. 221).

Although appropriate for the objectives of the present research, these considerations may be confounding factors in one's overall social skills. Thus, one's ability to decode or attend to nonverbal cues, based on personal experiences or skills, may not entirely be assessed when viewing the IPT video scenes. However, when compared to other measures of nonverbal cue decoding methods, the IPT is both valid and reliable, and accurately captures subtle nonverbal behavior that is vital to social perception and interaction. Due to the multidimensional nature of nonverbal cue detection (Buck, 1983), the IPT is beneficial to nonverbal communication and social skill research.

Worth noting here is that cultural norms often direct interpersonal and social communication (e.g., Riggio, 1986; Rosenthal et al., 1979). Although some theorists (e.g., nativists) propose that expressions of emotions are innate and universal (Ekman & Friesen, 1975), emotional and social expression, as well as recognition and interpretation of emotion, are influenced by one's culture. Cultural expectations of emotional expression are apparent at a very early age. Children as young as 3 and 4 years of age learn what is and is not desirable in social situations (e.g., Dunn, Bretherton, & Munn, 1987, as cited in Saarni, 1993). Social constructivists suggest that emotional expression, including facial and body communication, are due to social learning (Gordon, 1989). Additionally, display rules mandate appropriate facial expression.

Due to the large representation of minority groups in the present study, many of the conclusions of past research, which is based largely on Caucasian samples, may not represent social interactions or common social cues of all cultural groups. Particular social cues and proper interpretation of those cues between different cultures make assessment of nonverbal cue detection abilities and social skills with the chosen measures more difficult. Buck (1983) suggests that proper measuring techniques for nonverbal receiving and decoding abilities involve understanding "decoding rules" established by one's culture. Therefore, the measures used in the current study should be established among different cultures to ensure their generalizability.

As hypothesized, the SSI is a reliable and valid measure of global social skills. The SSI taps the multidimensional nature of social skills rather than merely social acuity - that is, one's ability to simply understand social situations. Particularly, the SSI

attempts to provide the necessary tools for investigating both nonverbal communication abilities and social skills (Riggio, 1986). Although the factor analysis in this study did not reveal interpretable factors to support the conceptual basis of the six SSI subscales, the SSI is considered a fine instrument for measuring global social skills (Riggio, 1986). Again, the small sample size of the present study limited the reliability of the analysis. Comrey and Lee (1992, as cited in Tabachnick & Fidell, 1996) state that sample sizes of at least 300 cases are necessary for a good factor analysis. Therefore, the analysis of the present study is not warranted due to support for the underlying constructs of the SSI in previous literature.

The WURS and CAARS significantly correlated in the overall sample, indicating a strong relationship between the two measures. Diagnostic tools for evaluating adults with symptoms of ADHD are rare. The developers of the WURS attempted to alleviate the problem of retrospective diagnosis of childhood ADHD and urged the use of the WURS with different populations, such as psychiatric outpatients (Ward, et al., 1993). Therefore, the WURS is an appropriate tool for measuring symptoms of ADHD in adults and is also suited for the objectives presented in this study. In addition, factor analysis supported the reliability of this measure in accurately describing underlying constructs of ADHD, such as behavioral/emotional and academic problems, and impulsivity. Although little psychometric information is available on the CAARS at this time, researchers should attempt to validate the measure.

No significant correlations were found between symptoms of ADHD and social skills in this sample. One likely explanation for these findings in this particular study is

that the small sample size was not adequate to detect significant correlations between the variables. Also, because the correlations were based on the sum totals of the scores on the measures, variability among individual items of the scales may have been dismissed. Furthermore, the sample in this study did not rate high on either measures of ADHD, the measure of social skills, or the measure of nonverbal cues. The low scores on the measures of ADHD of this sample are not surprising considering that the prevalence of adults with ADHD in the normal population is only 1% to 3% (Roy-Byrne et al., 1997). This study was exploratory in nature and merely conducted to look at the relationship between the variables of interest; therefore, no inferences can be made about the relationship between these variables based on the results.

Since normal college students participated in the present study rather than those diagnosed with ADHD, differences between groups with ADHD and without ADHD were analyzed with caution. An important caveat here is that accurate diagnosis of ADHD is based on official diagnostic criteria listed in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV, American Psychiatric Association, 1994). These criteria, which have persisted for at least 6 months and have created impaired functioning in social, academic and occupational settings, include: (a) six symptoms of impulsivity (e.g., careless mistakes, difficulty with sustained attention, easily distracted), and (b) six symptoms of hyperactivity-impulsivity (e.g., fidgets, squirms, talks excessively, blurts out answers, interrupts; DSM-IV, 1994). Therefore, proper diagnosis of ADHD, using a battery of tests such as self-report, teacher and spouse

reports, and neurological examinations, is crucial to the investigation of nonverbal cue detection abilities in adults with ADHD (Barkley, 1990).

Although the trend that emerged when participants were grouped into High and Low ADHD groups on the WURS and CAARS suggests that adults with ADHD are likely to possess fewer nonverbal cue detection abilities, this trend is not warranted based on the lack of participants diagnosed with ADHD in the present study. This research should be extended to those adults diagnosed with ADHD to more accurately assess the relationships between symptoms of ADHD, social skills, and nonverbal cue detection.

Although no significant relationships were found between symptoms of ADHD, nonverbal cue detection, and social skills, future research, using a sample of adults properly diagnosed with ADHD, is likely to present more generalizable and statistically significant results. Overall, the IPT and SSI provide an adequate assessment of nonverbal cue detection abilities and social skills, and the WURS and CAARS are appropriate measures for assessing ADHD in adults.

Implications and Future Research

Investigation of the relationship between nonverbal cue detection and social skills deficits, as well as the process that underlies this relationship, is an important step to relieve the possible social maladjustment of adults with ADHD. As discussed in the literature of social skills deficits in children with ADHD, peer rejection is one of the main outcomes in the relationships of these children. Disturbed peer relations have shown to lead to difficulties later in life in areas such as juvenile delinquency or contacts with police, employment, and psychiatric hospitalization (Landau & Milich, 1988).

If the issues that bring about poor peer relations are not addressed during childhood, adults with ADHD will have later emotional and behavioral disturbances. Weiss and Hechtman (1986) state that hyperactive children report more loneliness and sadness as adults and have few friends. Barkley (1990) proposes that 75% of adults with ADHD show depression, 23% to 45% acquire juvenile convictions, and 27% may be alcoholic. Research investigating outcomes of adults with ADHD is warranted by these percentages and critical to the futures of the 3% to 5% of children who are currently diagnosed with this disorder (Barkley, 1990). Implications of confirming the hypotheses of the current study include the need to develop programs to train individuals with ADHD to learn how to attend to and recognize the nonverbal cues of others, as well as their own levels of social skills, to facilitate healthier and more productive interpersonal exchanges.

References

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Archer, D., & Akert, R. M. (1984). Problems of context and criterion in nonverbal communication: A new look at the accuracy issue. In M. Cook (Ed.), Issues in person perception (pp. 114-127). London: Methuen.

Barkley, R. A. (1990). Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment. New York: Guilford Press.

Biederman, J., Faraone, S. V., Spencer, T., Wilens, T., Norman, D., Lapey, K. A., Mick, E., Krifcher-Lehman, B., & Doyle, A. (1993). Patterns of psychiatric comorbidity, cognition, and psychosocial functioning of adults with attention deficit hyperactivity disorder. American Journal of Psychiatry, 150(12), 1792-1798.

Buck, R. (1983). Nonverbal receiving ability. In J. M. Weimann & R. P. Harrison (Eds.), Nonverbal interaction (pp. 210 - 238). Beverly Hills, CA: Sage Publications.

Cline, V. B., Atzet, J., & Holmes, E. (1972). Assessing the validity of verbal and nonverbal cues in accurately judging others. In D. Speer (Ed.) Nonverbal communication (pp. 7-18). Beverly Hills, CA: Sage Publications.

Conners, C. K., Erhardt, D., & Sparrow, E. (1998). Conner's adult ADHD rating scale. New York: MHS.

Costanzo, M., & Archer, D. (1989). Interpreting the expressive behavior of others: The interpersonal perception task. Journal of Nonverbal Behavior, 13(4), 225 - 245.

Costanzo, M., & Archer, D. (1991). A method for teaching about verbal and nonverbal communication. Teaching of Psychology, 18(4), 223-226.

Cuceloglu, D. (1972). Facial code in affective communication. In D. Speer (Ed.) Nonverbal communication (pp.19-32). Beverly Hills, CA: Sage Publications.

Curran, J. P. (1982). A procedure for the assessment of social skills: The simulated social interaction test. In J. P. Curran & P. M. Monti (Eds.), Social skills training: A practical handbook for assessment and treatment (pp. 348-369). New York: Guilford Press.

Ekman, P., & Friesen, W. (1975). Unmasking the face: A guide to recognizing emotions from facial cues. Englewood Cliffs, NJ: Prentice Hall.

Erwin, P. (1993). Friendship and peer relations in children. New York: John Wiley and Sons.

Frederick, B. P., & Olmi, J. (1994). Children with attention-deficit/hyperactivity disorder: A review of the literature on social skills deficits. Psychology in the Schools, 31, 288-296.

Gordon, S. (1989). The socialization of children's emotions: Emotional culture, competence, and exposure. In C. Saarni & P. Harris (Eds.), Children's understanding of emotions (pp. 319-349). New York: Cambridge University Press.

Grenell, M. M., Glass, C. R., & Katz, K. S. (1987). Hyperactive children and peer interaction: Knowledge and performance of social skills. Journal of Abnormal Child Psychology, 15(1), 1-13.

Hall, J. A. (1985). Nonverbal sex differences: Communication accuracy and expressive style. Baltimore: Johns Hopkins University Press.

Hickson, M., & Stacks, D. W. (1985). NVC, Nonverbal communication: Studies and applications. Dubuque, Iowa: W. C. Brown Publishers.

Hodgins, H. S., & Zuckerman, M. (1990). The effect of nonverbal sensitivity on social interaction. Journal of Nonverbal Behavior, 14(3), 155-170.

Hughes, J. N. (1990). Assessment of social skills: Sociometric and behavioral approaches. In C. R. Reynolds & R. W. Kamphaus (Eds.), Handbook of psychological and educational assessment of children (pp. 423-444). New York: Guild.

Keppel, G., Saufley, W. H., Jr., & Tokunaga, H. (1992). Introduction to design and analysis: A student's handbook (2nd ed.). New York: W. H. Freeman and Company.

Klein, R. G., & Mannuzza, S. (1991). Long-term outcome of hyperactive children: A review. Journal of the American Academy of Child Adolescent Psychiatry, 30, 383-387.

Landau, S., & Moore, L. A. (1991). Social skills deficits in children with attention-deficit hyperactivity disorder. School Psychology Review, 20(2), 235-251.

Landau, S., & Milich, R. (1988). Social communication patterns of attention deficit-disordered boys. Journal of Abnormal Child Psychology, 16, 69-81.

Lippa, R. A. (1994). Introduction to social psychology. Belmont, CA: Brooks/Cole Publishing.

Milich, R., & Dodge, K. A. (1982). Social information processing in child psychiatric populations. Journal of Abnormal Child Psychology, 12, 471-490.

Morrison, R. L., & Bellack, A. S. (1981). The role of social perception in social skill. Behavior Therapy, 12, 69-79.

Riggio, R. E. (1986). Assessment of basic social skills. Journal of Personality and Social Psychology, 51(3), 649-660.

Riggio, R. E., & Friedman, H. S. (1982). The interrelationships of self-monitoring factors, personality traits, and nonverbal social skills. Journal of Nonverbal Behavior, 7 (1), 33-45.

Riggio, R. E., Widaman, K. F., & Friedman, H. S. (1985). Actual and perceived emotional sending and personality correlates. Journal of Nonverbal Behavior, 9(2), 69-83.

Rosenthal, R., Hall, J. A., DiMatteo, M. R., Rogers, P. L., & Archer, D. (1979). Sensitivity to nonverbal communication: The PONS test. Baltimore: Johns Hopkins University Press.

Rossini, E. D., & O'Connor, M. A. (1995). Retrospective self-reported symptoms of attention-deficit hyperactivity disorder: Reliability of the Wender Utah rating scale. Psychological Reports, 77, 751-754.

Roy-Byrne, P., Scheele, L., Brinkley, J., Ward, N., Wiatrak, C., Russo, J., Townes, B., & Varley, C. (1997). Adult attention-deficit hyperactivity disorder: Assessment guidelines based on clinical presentation to specialty clinic. Comprehensive Psychiatry, 38(3), 133-140.

Saarni, C. (1993). Socialization of emotion. In M. Lewis & J. M. Haviland (Eds.), Handbook of emotions (pp. 435-446). New York: Guilford Press.

Saunders, B., & Chambers, S. M. (1996). A review of the literature on attention-deficit hyperactivity disorder in children: Peer interactions and collaborative learning. Psychology in the Schools, 33, 333-340.

Schulndt, D. G., & McFall, R. M. (1985). New directions in the assessment of social competence and social skills. In L. L'Abate & M. Milan (Eds.), Handbook of Social Skills Training and Research (pp. 22-49). New York: John Wiley and Sons.

Singh, S. D., Ellis, C. R., Winton, A. S., Singh, N. N., Leung, J. P., & Oswald, D. P. (1998). Recognition of facial expressions of emotion by children with attention-deficit hyperactivity disorder. Behavior Modification, 22(2), 128-142.

Tabachnick, B. G., & Fidell, L. S. (1996). Using multivariate statistics (3rd ed.). New York: Harper Collins.

Ward, M. F., Wender, P. H., & Reimherr, F. W. (1993). The Wender Utah rating scale: An aid in the retrospective diagnosis of childhood attention deficit hyperactivity disorder. American Journal of Psychiatry, 150(6), 885-890.

Weiss, G., & Hechtman, L. T. (1986). Hyperactive children grown up. New York: Guilford Press.

Whalen, C. K., Henker, B., Collins, B. E., McAuliffe, S., & Vaux, A. (1979). Peer interactions in a structured communication task. Comparisons of normal and hyperactive boys and methylphenidate (Ritalin) and placebo effects. Child Development, 50, 338-401.

APPROVED BY THE MASTER'S THESIS COMMITTEE

Robert Cooper, Professor and Chair

Alicia J. Knoedler, Lecturer

Arlene Asuncion, Associate Professor

San José State
UNIVERSITY

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Graduate Studies and Research
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TO: Stephanie Furrer
361 Roosevelt Ave.
Sunnyvale, CA 94086

FROM: Serena W. Stanford *Serena W. Stanford*
AVP, Graduate Studies & Research

DATE: April 28, 1998

The Human Subjects-Institutional Review Board has approved
your request to use human subjects in the study entitled:

"Social Skills Deficits and ADHD in College
Students"

This approval is contingent upon the subjects participating in
your research project being appropriately protected from risk.
This includes the protection of the anonymity of the subjects'
identity when they participate in your research project, and
with regard to any and all data that may be collected from the
subjects. The Board's approval includes continued monitoring
of your research by the Board to assure that the subjects are
being adequately and properly protected from such risks. If at
any time a subject becomes injured or complains of injury, you
must notify Serena Stanford, Ph.D., immediately. Injury
includes but is not limited to bodily harm, psychological
trauma and release of potentially damaging personal
information.

Please also be advised that all subjects need to be fully
informed and aware that their participation in your research
project is voluntary, and that he or she may withdraw from the
project at any time. Further, a subject's participation, refusal to
participate, or withdrawal will not affect any services the
subject is receiving or will receive at the institution in which
the research is being conducted.

If you have any questions, please contact me at
(408) 924-2480.

The California State University:
Chancellor's Office
Bakersfield, Chico, Compton, Fresno,
Fresno, Fullerton, Hayward, Humboldt,
Long Beach, Los Angeles, Maritime Academy,
Monterey Bay, Northridge, Pomona,
Sacramento, San Bernardino, San Diego,
San Francisco, San José, San Luis Obispo,
San Marcos, Sonoma, Stanislaus

NAME: STEPHANIE FURRERDATE: 4/2/98DEPARTMENT PSYCHOLOGY

Title of proposed project:

SOCIAL SKILLS DEFICITS AND ADHD IN COLLEGE STUDENTS

Human Subjects Institutional Review Board review:

	Staff Screening	IRB Reviewer
Risk minimized	<u>✓</u>	<u>✓</u>
Risk reasonable	<u>✓</u>	<u>✓</u>
Selection of subjects equitable	<u>✓</u>	<u>✓</u>
Subjects informed of research	<u>✓</u>	<u>✓</u>
Subjects informed of risk	<u>✓</u>	<u>✓</u>
Subjects informed of benefits	<u>✓</u>	<u>✓</u>
Subjects informed of rights	<u>✓</u>	<u>✓</u>
Subjects informed how to report problems	<u>✓</u>	<u>✓</u>
Subjects informed of sources of remedies	<u>✓</u>	<u>✓</u>
Consent documented	<u>✓</u>	<u>✓</u>
Confidentiality protected	<u>✓</u>	<u>✓</u>
Vulnerable subjects protected	<u>✓</u>	<u>✓</u>
Provisions for monitoring safety	<u>✓</u>	<u>✓</u>
If student, faculty form attached	<u>✓</u>	<u>✓</u>

Recommendation of First Reviewer:

- ☐ No human subjects; approved
☐ Exempt from further review; approved
☐ Expedite, "daily life" exposure to risks; approved
☒ Minimal risk; risk minimized; approved
☐ More than minimal risk; referred to meeting of the IRB

Reviewer's Signature Robert Latta, MD

ROBERT LATTA, MD

Date 4/6/98

RECEIVED

APR 13 1998

The following questions refer to your behaviors as a **child**. Please read each question carefully and indicate the level which you feel the statement relates to you *as a child* by placing an "X" in the space under the appropriate word. For example, if you feel a statement was nothing like you as a child, put an "X" under the words "Not at all or very slightly." There are no right or wrong answers.

	Not at all or Very Slightly	Mildly	Moderately	Quite a Bit	Very Much
Concentration problems, easily distracted	_____	_____	_____	_____	_____
Anxious, worrying	_____	_____	_____	_____	_____
Nervous, fidgety	_____	_____	_____	_____	_____
Inattentive, daydreaming	_____	_____	_____	_____	_____
Hot- or short- tempered, low boiling point	_____	_____	_____	_____	_____
Temper outbursts, tantrums	_____	_____	_____	_____	_____
Trouble with stick-to-it-tiveness	_____	_____	_____	_____	_____
Stubborn, strong-willed	_____	_____	_____	_____	_____
Sad or blue, depressed, unhappy	_____	_____	_____	_____	_____
Disobedient, rebellious, sassy	_____	_____	_____	_____	_____
Low opinion of myself	_____	_____	_____	_____	_____
Irritable	_____	_____	_____	_____	_____
Moody, ups and downs	_____	_____	_____	_____	_____
Angry	_____	_____	_____	_____	_____
Trouble seeing things from someone else's point of view	_____	_____	_____	_____	_____
Acting without thinking, impulsive	_____	_____	_____	_____	_____
Tendency to be immature	_____	_____	_____	_____	_____
Guilty feelings, regretful	_____	_____	_____	_____	_____
Losing control of myself	_____	_____	_____	_____	_____
Tendency to be or act irrational	_____	_____	_____	_____	_____
Unpopular with other children	_____	_____	_____	_____	_____
Trouble with authorities, trouble with school, visits to principal's office	_____	_____	_____	_____	_____
Overall a poor student, slow learner	_____	_____	_____	_____	_____
Trouble with mathematics, or numbers	_____	_____	_____	_____	_____
Not achieving up to potential	_____	_____	_____	_____	_____

Listed below are items concerning behaviors or problems sometimes experienced by adults. Read each item carefully and decide how much or how frequently each item describes you **recently**. Indicate your choice by placing an "X" beneath the answer that best fits your choice. Such as, if you feel a behavior occurs frequently with you, place an "X" beneath "Very much, very frequently."

	Not at all; Never	Just a little; or Once in a While	Pretty much; or Often	Very much; Very Frequently
I like to be doing active things.	_____	_____	_____	_____
I lose things necessary for tasks or activities. (e.g., to do lists, books, or tools)	_____	_____	_____	_____
I don't plan ahead.	_____	_____	_____	_____
I blurt out things.	_____	_____	_____	_____
I am a risk taker or daredevil.	_____	_____	_____	_____
I get down on myself.	_____	_____	_____	_____
<u>I don't finish things I start.</u>	_____	_____	_____	_____
I talk too much.	_____	_____	_____	_____
I am easily frustrated.	_____	_____	_____	_____
I am always on the go as if driven by a motor.	_____	_____	_____	_____
I'm disorganized.	_____	_____	_____	_____
I say things without thinking.	_____	_____	_____	_____
It's hard for me to stay in one place very long.	_____	_____	_____	_____
I have trouble doing leisure activities.	_____	_____	_____	_____
It's hard for me to keep track of several things at once.	_____	_____	_____	_____
I'm not sure of myself.	_____	_____	_____	_____
I'm always moving even when I should be still.	_____	_____	_____	_____
I forget to remember things.	_____	_____	_____	_____
I'm bored easily.	_____	_____	_____	_____
I have a short fuse/hot temper.	_____	_____	_____	_____
I leave my seat when I am not supposed to.	_____	_____	_____	_____
I still throw tantrums.	_____	_____	_____	_____
I have trouble waiting in line or taking turns with others.	_____	_____	_____	_____

Not at all; Never	Just a little; or Once in a While	Pretty much; or Often	Very much; Very Frequently
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I have trouble keeping my attention focused on working.	_____	_____	_____	_____
I avoid new challenges because I lack faith in my abilities.	_____	_____	_____	_____
I seek out fast paced, exciting activities.	_____	_____	_____	_____
I feel restless inside even if I am sitting still.	_____	_____	_____	_____
Things I hear or see distract me from what I'm doing.	_____	_____	_____	_____
I am forgetful in my daily activities.	_____	_____	_____	_____
Many things set me off easily.	_____	_____	_____	_____
I dislike quiet, introspective activities.	_____	_____	_____	_____
I lose things that I need.	_____	_____	_____	_____
I have trouble listening to what other people are saying.	_____	_____	_____	_____
I am an under-achiever.	_____	_____	_____	_____
I interrupt others when talking.	_____	_____	_____	_____
I act okay on the outside, but inside I'm unsure of myself.	_____	_____	_____	_____
I change plans/jobs in midstream.	_____	_____	_____	_____
I am always on the go.	_____	_____	_____	_____
I make comments/remarks that I wish I could take back.	_____	_____	_____	_____
I can't get things done unless there's an absolute deadline.	_____	_____	_____	_____
I fidget (with my hands or feet) or squirm in my seat.	_____	_____	_____	_____
I make careless mistakes or have trouble paying close attention to details.	_____	_____	_____	_____
I step on people's toes without meaning to.	_____	_____	_____	_____
I have trouble getting started on a task.	_____	_____	_____	_____
I intrude on others' activities.	_____	_____	_____	_____

	Not at all; Never	Just a little; or Once in a While	Pretty much; or Often	Very much; Very Frequently
It takes a great deal of effort for me to sit still.	_____	_____	_____	_____
My moods are unpredictable.	_____	_____	_____	_____
I don't like homework or job activities where I have to think a lot.	_____	_____	_____	_____
I'm absent-minded in daily activities.	_____	_____	_____	_____
I am restless or overactive.	_____	_____	_____	_____
I depend on others to keep my life in order to attend to the details.	_____	_____	_____	_____
I annoy other people without meaning to.	_____	_____	_____	_____
Sometimes my attention narrows so much that I'm oblivious to everything else; other times it's so broad that everything distracts me.	_____	_____	_____	_____
I tend to squirm or fidget.	_____	_____	_____	_____
I can't keep my mind on something unless it is really interesting.	_____	_____	_____	_____
I wish I had greater confidence in my abilities.	_____	_____	_____	_____
I can't sit still for very long.	_____	_____	_____	_____
I give answers to questions before the questions have been completed.	_____	_____	_____	_____
I like to be up and on the go rather than being in one place.	_____	_____	_____	_____
I have trouble finishing job tasks or school work.	_____	_____	_____	_____
I am irritable.	_____	_____	_____	_____
I interrupt others when they are working or playing.	_____	_____	_____	_____
My past failures make it hard for me to believe in myself.	_____	_____	_____	_____
I am distracted when things are going on around me.	_____	_____	_____	_____
I have problems organizing my tasks and activities.	_____	_____	_____	_____
I misjudge how long it takes to do something or go somewhere.	_____	_____	_____	_____

Below are statements that indicate an attitude or behavior that may or may not be characteristic or descriptive of you. Read each statement carefully. Then, using the scale provided, decide which response will most accurately reflect your answer and place an "X" beneath that answer. Again, respond as quickly and accurately as possible.

	Not at all like me	A little like me	Like me	Very much like me	Exactly like me
It is difficult for others to know when I am sad or depressed.	_____	_____	_____	_____	_____
When people are speaking, I spend as much time watching their movements as I do listening to them.	_____	_____	_____	_____	_____
People can always tell when I dislike them no matter how hard I try to hide my feelings.	_____	_____	_____	_____	_____
I enjoy giving parties.	_____	_____	_____	_____	_____
Criticism or scolding rarely makes me uncomfortable.	_____	_____	_____	_____	_____
I can be comfortable with all types of people —young and old, rich or poor.	_____	_____	_____	_____	_____
I talk faster than most people.	_____	_____	_____	_____	_____
Few people are as sensitive and understanding as I am.	_____	_____	_____	_____	_____
It is often hard for me to keep a "straight face" when telling a joke or humorous story.	_____	_____	_____	_____	_____
It takes people quite a while to get to know me well.	_____	_____	_____	_____	_____
My greatest source of pleasure and pain is other people.	_____	_____	_____	_____	_____
When I'm with a group of friends, I am often the spokesperson for the group.	_____	_____	_____	_____	_____
When depressed, I tend to make those around me depressed also.	_____	_____	_____	_____	_____
At parties, I can immediately tell when someone is interested in me.	_____	_____	_____	_____	_____
People can always tell when I am embarrassed by the expression on my face.	_____	_____	_____	_____	_____

	Not at all like me	A little like me	Like me	Very much like me	Exactly like me
I love to socialize.	_____	_____	_____	_____	_____
I would much rather take part in a political discussion than to observe and analyze what the participants are saying.	_____	_____	_____	_____	_____
Sometimes I find it difficult to look at others when I am talking about something personal.	_____	_____	_____	_____	_____
I have been told that I have expressive eyes.	_____	_____	_____	_____	_____
I am interested in knowing what makes people tick.	_____	_____	_____	_____	_____
I am not very skilled in controlling my emotions.	_____	_____	_____	_____	_____
I prefer jobs that require working with a large number of people.	_____	_____	_____	_____	_____
I am greatly influenced by the moods of those around me.	_____	_____	_____	_____	_____
I am not good at making prepared speeches.	_____	_____	_____	_____	_____
I usually feel uncomfortable touching other people.	_____	_____	_____	_____	_____
I can easily tell what a person's character is by watching his or her interactions with others.	_____	_____	_____	_____	_____
I am able to conceal my true feelings from just about anyone.	_____	_____	_____	_____	_____
I always mingle at parties.	_____	_____	_____	_____	_____
There are certain situations in which I find myself worrying about whether I am doing or saying the right things.	_____	_____	_____	_____	_____
I find it very difficult to speak in front of a large group of people.	_____	_____	_____	_____	_____
I often laugh out loud.	_____	_____	_____	_____	_____
I always seem to know what peoples' true feelings are no matter how hard they try to conceal them.	_____	_____	_____	_____	_____
I can keep a straight face even when friends try to make me laugh or smile.	_____	_____	_____	_____	_____

Not at all like me	A little like me	Like me	Very much like me	Exactly like me
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I usually take the initiative to introduce myself to strangers.	_____	_____	_____	_____	_____
Sometimes I think that I take things other people say to me too personally.	_____	_____	_____	_____	_____
When in a group of people, I have trouble thinking of the right things to talk about.	_____	_____	_____	_____	_____
Sometimes I have trouble making my friends and family realize just how angry or upset I am with them.	_____	_____	_____	_____	_____
I can accurately tell what a person's character is upon first meeting him or her.	_____	_____	_____	_____	_____
It is very hard for me to control my emotions.	_____	_____	_____	_____	_____
I am usually the one to initiate conversations.	_____	_____	_____	_____	_____
What others think about my actions is of little or no consequence to me.	_____	_____	_____	_____	_____
I am usually very good at leading group discussions.	_____	_____	_____	_____	_____
My facial expression is generally neutral.	_____	_____	_____	_____	_____
One of my greatest pleasures in life is being with other people.	_____	_____	_____	_____	_____
I am very good at maintaining a calm exterior even if I am upset.	_____	_____	_____	_____	_____
When telling a story, I usually use a lot of gestures to help get the point across.	_____	_____	_____	_____	_____
I often worry that people will misinterpret something I have said to them.	_____	_____	_____	_____	_____
I am often uncomfortable around people whose social class is different from mine.	_____	_____	_____	_____	_____
I rarely show my anger.	_____	_____	_____	_____	_____
I can instantly spot a "phony" the minute I meet him or her.	_____	_____	_____	_____	_____
I usually adapt my ideas and behavior to the group I happen to be with at the time.	_____	_____	_____	_____	_____

	Not at all like me	A little like me	Like me	Very much like me	Exactly like me
When in discussions, I find myself doing a large share of the talking.	_____	_____	_____	_____	_____
While growing up, my parents were always stressing the importance of good manners.	_____	_____	_____	_____	_____
I am not very good at mixing at parties.	_____	_____	_____	_____	_____
I often touch my friends when talking to them.	_____	_____	_____	_____	_____
I dislike it when other people tell me their problems.	_____	_____	_____	_____	_____
While I may be nervous on the inside, I can disguise it very well from others.	_____	_____	_____	_____	_____
At parties I enjoy talking to a lot of different people.	_____	_____	_____	_____	_____
I can be strongly affected by someone smiling or frowning at me.	_____	_____	_____	_____	_____
I would feel out of place at a party attended by a lot of very important people.	_____	_____	_____	_____	_____
I am able to liven up at a dull party.	_____	_____	_____	_____	_____
I sometimes cry at sad movies.	_____	_____	_____	_____	_____
I can make myself look as if I'm having a good time at a social function even if I'm not really enjoying myself at all.	_____	_____	_____	_____	_____
I consider myself a loner.	_____	_____	_____	_____	_____
I am very sensitive of criticism.	_____	_____	_____	_____	_____
Occasionally, I've noticed that people from different backgrounds seem to feel uncomfortable around me.	_____	_____	_____	_____	_____
I dislike being the center of attention.	_____	_____	_____	_____	_____
I am easily able to give a comforting hug or touch to someone who is distressed.	_____	_____	_____	_____	_____
I am rarely able to hide a strong emotion.	_____	_____	_____	_____	_____
I enjoy going to large parties and meeting new people.	_____	_____	_____	_____	_____
It is very important that other people like me.	_____	_____	_____	_____	_____
I sometimes say the wrong thing when starting a conversation with a stranger.	_____	_____	_____	_____	_____

	Not at all like me	A little like me	Like me	Very much like me	Exactly like me
I rarely show my feelings or emotions.	_____	_____	_____	_____	_____
I can spend hours just watching other people.	_____	_____	_____	_____	_____
I can easily pretend to be mad even when I am really happy.	_____	_____	_____	_____	_____
I am unlikely to speak to strangers until they speak to me.	_____	_____	_____	_____	_____
I get nervous if I think that someone is watching me.	_____	_____	_____	_____	_____
I am often chosen to be the leader of a group.	_____	_____	_____	_____	_____
Friends have sometimes told me that I talk too much.	_____	_____	_____	_____	_____
I am often told that I am a sensitive, understanding person.	_____	_____	_____	_____	_____
People can always "read" my feelings even when I'm trying to hide them.	_____	_____	_____	_____	_____
I tend to be the "life of the party".	_____	_____	_____	_____	_____
I'm generally concerned about the impression I'm making on others.	_____	_____	_____	_____	_____
I often find myself in awkward social situations.	_____	_____	_____	_____	_____
I never shout or scream when angry.	_____	_____	_____	_____	_____
When my friends are angry or upset, they seek me out to help calm them down.	_____	_____	_____	_____	_____
I am easily able to make myself look happy one minute and sad the next.	_____	_____	_____	_____	_____
I could talk for hours on just about any subject.	_____	_____	_____	_____	_____
I am often concerned with what others are thinking of me.	_____	_____	_____	_____	_____
I can easily adjust to being in just about any social situation.	_____	_____	_____	_____	_____