Social-Emotional Expertise (SEE) and Third-party Evaluations of Social Interaction Quality

By

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CHAPTER I

Introduction

Social ability has proven to be a difficult characteristic to capture using a single construct. Attempts to quantify social ability have included both relatively broad and narrow attempts, including a focus on the overall ability requisite for high-quality interpersonal interactions and specific attributes that make high-quality social ability possible, respectively. Prior work designed to measure the overall quality of social interactions has been successful in some areas, such as achieving moderate inter-rater reliability among third-party judges (Bernieri, Gillis, Davis, & Grahe, 1996). However, social-interaction quality ratings have not been found to correlate with self-report ratings of the behavioral or cognitive characteristics of the individuals participating in the interaction. As a result, there are few constructs that integrate social-ability ratings across the range of sources expected of a conceptual nomological network in the service of construct validity (Cronbach & Meehl, 1955). This circumstance is not the result of a lack of constructs offering theoretical descriptions of social ability: Social intelligence (SI; (Sternberg & Smith, 1985)), emotional intelligence (EI; (Salovey & Mayer, 1990)), empathy (Davis, 1983), and interpersonal sensitivity (IPS; (Hall & Bernieri, 2001)) have all been shown to reliably describe key aspects of social ability. Yet, to our knowledge, no self-report measure of social ability on the part of the participants in an interaction have been successfully associated with ratings by naïve, third-party raters. As a result, constructs such as SI, EI, empathy, and IPS, while clearly shown to relate to prosocial behavior and cognitions, do not account for overall social ability as it is perceived by others (Hall &

Bernieri, 2001).

In previous work investigating the convergence between self- and other-reports of interaction skill and quality, participants and trained judges appear to differ in their perception of social ability; alternatively, the questions being asked via self-report may not mirror the constellation of characteristics that judges use to assess social ability. Social-Emotional Expertise (SEE; McBrien, Wild, & Bachorowski, 2018) is conceptualized as the behaviors and timing of those behaviors that leads to individual differences in the quality of social interactions. SEE represents a synthesis of specific cognitive abilities, such as SI and EI, and also emphasizes the timing and synchrony of behaviors that contribute to overall social-emotional ability. In this way, the SEE construct integrates individual characteristics with characteristics of interactions to understand variability in interaction quality. SEE can be reliably assessed via self-report (McBrien et al., 2018). However, one challenge in characterizing SEE is determining whether self-report ratings correlate with others' ratings of interaction quality.

Self-report is a valid means of measuring characteristics of the individual. The quality of a social interaction is furthermore dependent upon characteristics of the dyad (Kenny, Kashy, & Cook, 2006). The difficulty in capturing the characteristics of the dyad through self-report may be a root cause of the lack of consistency between self-report of pro-social characteristics and observer ratings of interaction quality. As a result, self-report measures may be more predictive of interaction quality by asking about the typical course and quality of various social situations rather than an assessment of personality or cognitive characteristics of the individual. For instance, asking whether one knows how to mediate conflict is different from asking whether one is typically involved in mediating conflicts among friends. While the first question addresses the cognitive processes required

to understand the social situation, the second addresses prosocial behavioral tendencies. In this way, a delineation can be made between the cognitive understanding of what behaviors should be involved in a high-quality interaction and the behaviors actually displayed in a high-quality interaction. As a result, circumstances may arise in which an individual could understand what behavior(s) would contribute to a positive social interaction, answering the first question above confidently in the affirmative, but simultaneously finding it difficult to successfully translate or execute that understanding into socially optimal behaviors.

CHAPTER II

Experiment 1: Expert Ratings of Social Ability and SEE

2.1 Method

Participants

Forty undergraduate students (30 female, 10 male, M_{age} = 19.1 years, $Range_{age}$: 18-22 years) were recruited from a General Psychology course and compensated with course credit. Participants were limited to college-aged, American-English speakers. Participants were tested individually. All recruitment and study methods were approved by the Vanderbilt University Institutional Review Board.

Materials and Procedure

After providing written informed consent, participants engaged in a mock interview for a prestigious student leadership position. The interviews were each conducted by the same female graduate student. Participants were asked a series of scripted questions about their motivations and qualifications for the leadership position. At the conclusion of the interview, participants completed self-report measures of SEE (Social-Emotional Expertise Scale: McBrien et al., 2018), social desirability (Marlowe-Crowne Social Desirability Scale: Reynolds, 1982), EI (Emotional Intelligence Scale: Schutte et al., 1998), interpersonal sensitivity (Interpersonal Sensitivity Measure: Hall & Bernieri, 2001), self-monitoring and social anxiety (Liebowitz Social Anxiety Scale: Heimberg et al., 1999; Self-Monitoring Scale: Mattick & Clarke, 1998).

The interviews were recorded with two digital video cameras, each positioned behind the shoulders of the interviewer and the participant and oriented towards the

interaction. Audio-video recordings of the participants were coded by study personnel in 1-s bins for each of three 30-s clips taken from the beginning (60-120 s), middle (300-360 s), and conclusion (600-660 s) of the interview. Prior work has demonstrated that reliable and valid assessments of social interactions can be made based on brief segments of an interaction (Ambady, LaPlante, & Johnson, 2001). Subjective ratings of overall interaction quality, overall quality of gestures and facial expressions, comfort/ease of the interactant, and overall animation were provided for each 30-s segment. Video coding was completed using ProcoderDV™ software (Tapp, 2003). The coding parameters were developed using several existing behavioral coding schemes (Bernieri et al., 1996; Dael, Mortillaro, & Scherer, 2012; Kring & Sloan, 2007), as well as *de novo* items regarding the quality of behaviors thought to be important to the SEE construct.[1] Coders were all conversant with the SEE construct via laboratory discussions. Coders were each trained on a minimum of three time points, with any discrepancies identified and discussed until consensus was reached. A total of four trained coders were involved in the analysis of audio-video data reported here.

Statistical analyses were conducted using SPSS Version 22 (SPSS, 2013) and R (Team, 2016). Correlations were the primary test used for this study, with Spearman's correlations used to account for the nonparametric distributions of interaction-quality ratings.

[1] Fifty-eight discrete behaviors, each rated on a binary scale, were coded. Coded behaviors included head position, head movement, mouth movement, face movement, eye gaze, trunk position and movement, arm/hand position and movement, and vocalizations. Additionally, for each 1-s bin, each behavior was rated in intensity using a 5-point Likert scale, and estimates of emotion-related valence and arousal were made. These codes were not considered here because the naïve observers did not complete the coding scheme.

2.2 Results

Reliability was determined based on the overall quality ratings made for the three time points of four different videos. The correlation between raters was high, indicating that the ratings were consistent across raters and videos ($r = .84$, $p < .001$).

Participant SEE Scale scores were moderately and positively correlated with expert ratings of overall interaction quality, as well as with ratings of the comfort of the interactant, overall animation, quality of gestures, and quality of facial expressions (Table 1). The SEE Scale itself has been shown to have two factors, a) Adaptability, which includes items related to accommodating behavior in order to suit the demands of particular social situations; and b) Expressivity, which consists of items related to emotional expression. Scores for both factors were also positively associated with judges' ratings of overall interaction quality. Furthermore, Adaptability scores were significantly correlated with ratings of participant comfort and gesture quality, whereas Expressivity scores were positively associated with ratings of participant comfort, overall animation, and quality of facial expressions.

Table 1. Associations among the SEE Scale and Key Variables in Experiment 1

Variables	1	2	3	4	5	6	7	8	9
1. SEE_{Total}	–	.97**	.86**	.46**	.35*	.41**	.32*	.34*	.35*
2. $SEE_{Adaptability}$		–	.76**	.47**	.32*	.39*	.29[a]	.36*	.31[a]
3. $SEE_{Expressivity}$			–	.34*	.33*	.40*	.34*	.30[a]	.34*
4. Emotional Intelligence				–	NS	NS	NS	NS	NS
5. Quality of interaction					–	.75**	.76**	.81**	.79**
6. Comfort of interactant						–	.56**	.62**	.53**
7. Overall animation							–	.83**	.83**
8. Quality of gestures								–	.70**
9. Quality of facial expressions									–
M	89.95	56.85	33.1	120.7	3.34	3.43	3.27	3.02	3.28
SD	9.6	6.6	3.63	8.4	.53	.63	.85	.77	.63

Note. Quality ratings were averaged over the three video clips for a single overall rating. N= 40, with 3 video clips coded for each participant. NS= not significant, [a]$p < .10$, *$p < .05$, **$p < .01$

Importantly for discriminant validity, EI scores were not significantly related to any of the quality ratings. Additionally, social desirability (non-significant correlation), interpersonal sensitivity ($r(40) = -0.34$, $p < .05$), self-monitoring (non-significant correlation), and social anxiety (fear $r(40) = -0.55$, $p < .01$; avoidance $r(40) = -0.45$, $p < .01$) were related to SEE scale total scores in the predicted directions, and consistent with prior work (McBrien et al., 2018). Of note, these constructs were not significantly related to expert ratings of interaction quality, indicating that observer ratings were not significantly influenced by primarily cognitively related, individual difference constructs.

Taken together, these results show that not only do self-report ratings of SEE correlate with expert judges' rating of interaction quality and ease, but that a conceptually related yet distinct construct, EI, did not show any significant correlations. These results are consistent with the claim that EI pertains to a cognitive understanding of others' emotions, but not to the type and quality of behaviors used in an interaction; EI is therefore not readily observed and cannot offer an account of social ability that includes observable behavior. Yet, the SEE and EI scales are nonetheless significantly correlated with each other, suggesting that the SEE scale captures both the cognitive understanding needed to enact the behaviors involved in interaction quality and the overt behaviors themselves.

Further work is required to determine if the behavioral manifestation of SEE in social interactions can be judged by naïve observers. Such judgments made by naïve observers would offer ecological validity for the SEE construct as a metric of social ability.

CHAPTER III

Experiment 2: Naïve Observer Ratings of Social Ability and SEE

3.1 Method

Participants

One hundred fifty-two adults (64 female, 87 male, 1 other, M_{age} = 24.6 years, $Range_{age}$: 18-59 years) were recruited using Amazon's Mechanical Turk. Written informed consent was obtained from each individual before beginning the survey, and participants were compensated $5 for their participation in the study. Participants were restricted to native American-English speakers between the ages of 18 and 23. Restriction was enforced in part by only using computers with IP addresses in the United States. These inclusion criteria were used because the stimuli involved audio-video clips of American college students. Prior work has shown substantial cultural influence in social interaction (e.g., (Farver, Kim, & Lee, 1995; Kitayama et al., 2014; Mu, Kitayama, Han, & Gelfand, 2015). Participants were therefore selected in an attempt to match the culture of the individuals being assessed. After applying these criteria, the data from132 participants (51 female, 81 male, M_{age} = 22.1 years, $Range_{age}$: 18-23 years) qualified for inclusion in statistical analysis. The Vanderbilt University Institutional Review Board approved all recruitment and study methods.

Materials and Procedures

Twelve videos of social interactions involving individual participants and an interviewer, described in Experiment 1, were selected from participants in Experiment 1 whose SEE scores were 1 SD or more below the mean (low-SEE group), within 1 SD of the mean (average-SEE group), and 1 SD or more above the mean (high-SEE group) on the

SEE scale. The 30-s clips described in Experiment 1 were used for this study, with the participant and interviewer shown in split-screen format. Videos were edited using Adobe Premier Pro software (San Jose, CA). Participants in the present study completed ratings of interaction quality, social skills of both the interviewee and interviewer, and rapport for each 30-s video clip. Participants also completed self-report measures of SEE (McBrien et al., 2018), empathy (Spreng*, McKinnon*, Mar, & Levine, 2009), EI (Schutte et al., 1998), and social anxiety (Heimberg et al., 1999; Mattick & Clarke, 1998).

Statistical analyses were conducted using SPSS, Version 22 (SPSS, 2013). Mean differences were tested using Analysis of Variance (ANOVA) with multiple planned, pairwise comparisons. Bonferroni corrections were used to account for multiple comparisons. Pearson correlation coefficients were used for continuous variables.

3.2 Results

Significant, positive correlations were found among the SEE Scale, EI, and empathy measures (Table 2). The two measures of social-interaction anxiety were found to negatively correlate with SEE scale scores. Both positive and negative correlations reflect the convergent and discriminant validity data reported previously (McBrien et al., 2018).

The overall ANOVA model was not significant, however pair-wise comparisons revealed differences between groups. Results of comparisons between the high- and low-SEE groups, shown in Table 3, indicated that naïve observers rated participants with high self-reported SEE scores as more *socially able* than participants with either average or low self-reported SEE scores. These naïve observers also rated interactions as being of *higher quality* when the individual in the interaction self-reported SEE scale total scores 1 SD or

more above the mean ($F(3,528) = 21.76$, $p < .001$). Compared to those with low SEE Scale scores, individuals with high SEE Scale scores were also rated as having higher-quality social skills ($F(3,527) = 27.40$, $p < .001$). Interestingly, ratings of the interviewer's social skills were higher when the participant self-reported a high SEE scale total score ($F(3,520) = 11.86$, $p < .001$) – even though the same person conducted each interview and was therefore judged by these raters in each video clip. In contrast, individuals were rated as having significantly lower quality interactions if they self-reported having low SEE scale total scores. Individuals with low and average self-rated SEE scale total scores were not, however, distinguishable from one another in the current study (Table 3). The gender of the individual being rated in these brief video segments did not significantly affect the relationship between SEE scale score and ratings of interaction quality. $SEE_{Adaptability}$ and $SEE_{Expressivity}$ scores of individuals shown in the video clips were positively associated with ratings of interaction quality ($SEE_{Adaptability}$ $r = 0.26$, $p < .001$; $SEE_{Expressivity}$ $r = 0.19$, $p < .001$), the individual's social skills ($SEE_{Adaptability}$ $r = 0.33$, $p < .001$; $SEE_{Expressivity}$ $r = 0.26$, $p < .001$), and interviewer social skills ($SEE_{Adaptability}$ $r = 0.19$, $p < .001$; $SEE_{Expressivity}$ $r = 0.20$, $p < .001$).

Table 2. Associations among the SEE Scale and related measures in Experiment 2.

Measure	SEE Scale	EI	TES	LSAS: Fear	LSAS: Avoid	SIAS	*M*	*SD*
SEE Scale	1	.75**	.23**	-.58**	-.57**	-.66**	93.49	18.22
EI			.50**	-.56**	-.58**	-.54**	119.64	18.50
TES				NS	NS	-.18*	42.59	9.94
LSAS: Fear					.95**	.83**	24.56	15.80
LSAS: Avoidance						.80**	22.87	16.14
SIAS						1	30.50	19.20

Note. EI = Emotional Intelligence self-report measure; TES = Toronto Empathy Scale; LSAS = Liebowitz Social Anxiety Scale; SIAS = Social Interaction Anxiety Scale. N = 132. NS= not significant, * $p < .05$, ** $p < .01$.

Table 3. Pair-wise comparisons of interaction quality ratings of videos by naïve observers in Experiment 2.

Video	Mean Difference from Low SEE	Mean Difference from Average SEE (female)	Mean Difference from Average SEE (male)	Mean Difference from High SEE	*M*	*SD*
Low SEE	0	.075	.150	-.67*	3.05	.86
Average SEE (female)		0	.075	-.74*	2.97	1.08
Average SEE (male)			0	-.82*	2.89	.83
High SEE				0	3.71	.94

Note. Quality ratings are on a 5-point Likert scale (range 1-5), with lower scores indicating lower interaction quality. Bonferroni corrections made for multiple comparisons. $N = 130$; 531 total ratings * $p < .05$

Ratings of the social skills of the interviewees and interviewer did not significantly differ from one another across any of the conditions, despite the fact that the interviewer remained constant across interactions and was reading from scripted questions (Figure 1). This null result suggests that naïve judges could be making ratings of interaction quality based on the interaction as a whole and not based purely on the characteristics of each individual participant. However, the interaction quality ratings did differ significantly based on the self-reported SEE of the participant. Given that the interviewer was the same for each interaction, this overall pattern of results indicates that the social ability of any one individual is important for the assessment of interaction quality, but the quality of the interaction is not ascribed to that individual alone. In other words, the perceived quality of the interaction is not being ascribed to one individual or the other, but rather to the interaction in general, with one participant's social ability affecting the rating of the quality of interaction for all participants in the interaction.

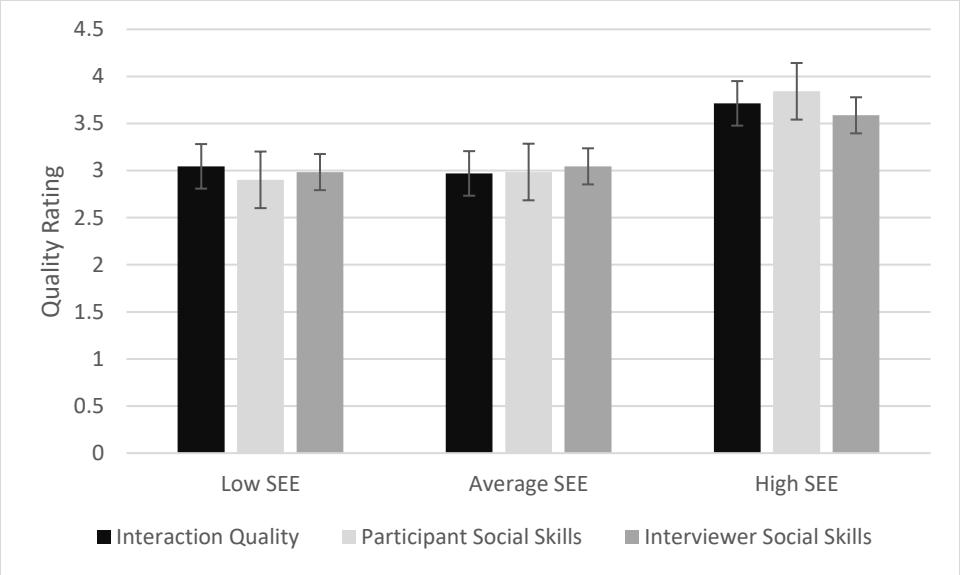

Figure 1. Comparisons of the ratings of the Low, Average, and High SEE groups on overall interaction quality, the social skills of the participant, and the social skills of the interviewer by naïve observers in Experiment 2. N=132 for each category.

CHAPTER IV

Discussion

The results of the two studies reported here indicate that individuals' perception of their high social-interaction ability is reflected in the ratings of their interaction ability by observers. Specifically, self-reported social ability, as measured by the SEE scale, corresponded with interaction quality ratings made by both expert and naïve raters. These results are an important step toward our understanding of the cognitions and behaviors that influence the quality of social interactions. That quality ratings of observable behavior in an interaction and the self-reported social ability of the interactants can converge in the identification of individual differences in social ability is significant. Such a finding offers confidence for use of these methods in future work aimed at identifying the specific behaviors that affect social interaction quality. For instance, while considerable work has shown that behavioral "mimicry" (which we hypothesize to be a component of SEE) happens regularly (Bargh, Schwader, Hailey, Dyer, & Boothby, 2012; Lakin, Jefferis, Cheng, & Chartrand, 2003), automatically (Bargh et al., 2012; Dimberg, Andréasson, & Thunberg, 2011; Dimberg, Thunberg, & Elmehed, 2000), and is associated with positive evaluations of the mimicker (Lakin et al., 2003), the timing and coordination of that mimicry has not been closely investigated. Future experiments investigating the link between behavioral mimicry and social interaction quality may benefit from use of the SEE scale and observer ratings of interaction quality.

Further, the results support validation of the SEE construct, as the convergent ratings of interaction quality by multiple raters is a somewhat uncommon occurrence in the

social-interaction literature. Often individuals have a positively or negatively skewed perception of their ability in social interactions when asked outright, however the SEE scale was successful in differentiating between individuals who were rated by observers as high in social ability or and those who were not.

The results indicating that the SEE scale self-rating of a single individual in an interaction can have an effect on the quality rating of the overall interaction reinforces the point that the behaviors of each individual in an interaction are vital to the success of the interaction overall. This finding requires a framework that accommodates both individual behavioral characteristics and the interaction itself. A fluency framework, in which each individual interaction is treated as an instance (Logan, 1995) from which more automatic and accurate processing can be derived, allows for social ability to be approached as an expertise. Such an approach would also have the benefit of rendering debates over whether SEE is a trait or ability, which have hounded the SI and EI literatures (Brannick et al., 2009; Mayer, Salovey, & Caruso, 2008; Tett, Fox, & Wang, 2005), less critical to the validity of the construct. Just as learning music or language may involve some baseline level of talent (trait) but through repeated practice and experience yield expertise, so too may SEE involve a certain level of social "talent" that is only truly expressed after extensive practice and experience. The important outcome is the level of expertise attained, with traits and abilities simply contributing variables. In social interactions, the important outcome is a high-quality interaction, not whether it was accurately perceived from the outset by one of the individuals involved, or if the other had more experience in social situations. It has also been shown that the static trait conceptualizations of personality characteristics can be changed by levels of self-efficacy and other emotional factors (Dweck, 1986; Hong, Chiu, & Dweck, 1995), leading to motivational analysis of

personality (Dweck, 1996; Kamins & Dweck, 1999), with which conceptualization of SEF as an expertise would dovetail well. Expertise also has the potential to be trained, offering promise for potential improvement if SEF is found to have properties of an expertise.

Additionally, baseline differences in social interaction quality with strangers is related to self-reported SEE. This is evidence that individuals come in to novel social interactions with varying levels of ability, which is consistent with an expertise framework in which varying levels of prior experience in social situations leads to individual differences. Further work examining the extent to which the quality of interactions improves over future interactions with the same person could provide insight into whether fluency develops in individual interactions.

There were several limitations to the studies presented here. First, the interview paradigm may have constrained variability in observed behavior – individuals may have been exhibiting their best behavior due to the evaluative element to the paradigm. Second, the cultural variation of the participants in these studies was limited to American-English-speaking, college-aged adults in the United States, significantly limiting the generalizability of these findings. Future work replicating these results in more diverse samples is necessary. Finally, the number of video samples available was limited to the 40 participants from the first study. As a result, analyses investigating gender differences were not feasible. Future work may benefit from using a large, diverse set of video clips in order to elucidate any potential effects of demographic factors such as gender and race.

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