Expressivity and Empathic Accuracy in an Intergroup Context

Master’s Thesis

Presented to

The Faculty of the Graduate School of Arts and Sciences
Brandeis University
Department of Psychology
Dr. Jennifer Gutsell, Advisor

In Partial Fulfillment
of the Requirements for the Degree

Master of Arts
in
Psychology

by
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February 2018
ABSTRACT

Expressivity and Empathic Accuracy in Intergroup Contexts

A thesis presented to the Department of Psychology

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Previous studies have indicated the importance of empathy in real-world social behavior, the multiple ways that empathy is affected by group condition, and the important role that expressivity plays in determining the empathy of a perceiver. This study seeks to bridge the relationship between expressivity and empathic accuracy while accounting for the effects that group condition may have by having the expressivity of individuals assessed while they believe they either are addressing a social ingroup or an outgroup member. Potentially due to a limited sample size, this study produced no significant findings regarding a change in expressivity or empathic accuracy. However, a non-significant trend of empathic accuracy was observed across the two group conditions. Further research using a larger set of participants may be required, as the study was notably underpowered. In addition, it is of interest for further research to develop a more precise measure of expressivity.
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INTRODUCTION

There is well-established diminishment of empathy toward outgroup members compared to ingroup members, but when researchers study this divide they focus mainly on the observer and ignore to consider the target’s perspective (Cikara, Bruneau, & Saxe 2011). This gap in empathy between groups of people, as we can easily intuit and actually observe in prior research presented here, is a source and consequence of real and pressing iniquities. Focus on the observer’s empathy provides only a partial picture, as both the speaker and the observer play a role in any communication. The current research examines the role an intergroup scenario may play in affecting expressivity.

Effects of emotional expressivity on empathic accuracy

Empathy, defined for our purposes as the capacity to experience, feel, and understand the emotions of another, has been a popular subject for research in both academic and popular domains (Duan & Hill 1996). Part of the interest stems from the variety of positive outcomes associated with experiments studying empathy, notably various measure of prosocial behavior, from helping strangers pick up dropped parcels to amount of money donated to UNICEF (Eisenberg & Miller 1987). High degrees of empathy promote prosocial actions, strengthen interpersonal relationships, and increase reports of individual well-being on the part of the empathizer (Ponz 1997). Moreover, simply feeling that another has successfully taken one’s own perspective promotes prosocial behavior (Goldstein, Vezich, & Shapiro, 2014). Although empathy is referred to generally as a capacity to understand the emotions of another, empathic accuracy is a behavioral measure of how precisely one can assess the emotional state of
another person. Work attempting to tie trait measures of empathy to empathic accuracy have not shown a consistent relationship in dyadic studies (Ickes et al. 1990).

Measures of expressivity, however, seem to clarify the relationship (Zaki, Bolger, & Ochsner 2008). Expressivity is defined for our purposes as behavior that appears in accordance with experienced emotion. In a prior experiment, it was shown that those with high self-reported trait measures of empathy were in fact more accurate, but, importantly, only when observing people with higher levels of self-reported expressivity. In fact, they were slightly less accurate than those with low self-reported trait empathy when viewing those with low expressivity (Zaki, Bolger, & Ochsner 2008).

This study sought to provide a possible reasoning for the relationship between intergroup relations and empathy by looking at expressivity. It is possible that people use a strategy known as expressive suppression when they are in an intergroup situation. Expressive suppression is the act of masking facial expressions and body language in order to hide a current emotional state. This behavior has measurable social and physiological consequences, such as increased blood pressure and reduced rapport (Butler, Egloff, Wlhelm, Smith, Erickson, & Gross, 2003). For members of a majority group in intergroup scenarios, apprehensions over appearing prejudiced can give rise to anxiety which many would be motivated to conceal (Goff, Steele, & Davies, 2008; Plant & Devine, 1998; Plaut, 2010; Trawalter, Richeson, Shelton, 2009). This anxiety in turn can contribute to negativity in intergroup interactions; that anxiety in intergroup interactions leads people to regulate their behavior, taking away from natural communication of their emotions (Vorauer, 2006). It is possible that this anxiety also is affecting emotional expression, as intergroup situations tend to generate higher levels of self-regulation (Dovidio & Gaertner, 1998; Fazio, Jackson, Dunton, & Williams, 1995). In an older experiment, it was shown that black interviewees were given
less immediacy (defined as quality and speed of involvement), lower interview time, and were talked to with a higher degree of speech errors (Word, Zanna, & Cooper 1974). These are all factors that we may associate with lowered expressivity, and it is pertinent to establish a relationship using a contemporary measure of expressivity.

**Intergroup Empathy**

Despite its apparent benefits, empathic responses are anything but universal—ingroup bias more generally has been observed in every documented culture on Earth (Brown 1991). Of specific concern, empathy is diminished during encounters across racial and cultural boundaries (Cikara, Bruneau, & Saxe 2011). This weakening of empathy is observed across several measures of the construct—behavioral, neural, and physiological. Prior research has indicated that intergroup contexts have a strong effect on many aspects of empathy (Chiao & Mathur 2010). People are less likely to detect and attend to another person’s suffering when the victim belongs to a different racial, political, or social group (Batson & Ahmad 2009). It has been found that both black and white participants show muscle-specific corticospinal inhibition—more empathy with the pain of the other—while watching a needle penetrate a hand, but only if the hand is of a person of the same race (Avenanti, Sirigu, & Aglioti 2010). Moreover, subjects that showed less empathy to those of a different group were less likely to provide relief to disaster victims (Cuddy, Rock, & Norton 2007).

In most of cases, measures of empathy only provide information on whether an observer has the capacity to engage in empathy (Geher, Warner, & Brown 2001). While these measures have been useful in many domains, they have not generally been found to predict actual performance in more realistic emotional detection tasks (Levenson & Ruef, 1992). Reporting that one has the capacity to accurately know another’s emotional state is not
necessarily indicative of an ability do so. This is contrasted with the behavioral measure proposed in these studies, empathic accuracy, a criterion that actually quantifies accurate empathy. The empathic accuracy paradigm is a method of addressing this weakness in empathy research by having a continuous behavioral measure of a perceiver's cognitive and emotional empathy.

However, a factor that is important in predicting empathic accuracy is the emotional expressivity of those being observed (Zaki, Bolger, & Ochsner 2008). While it has been previously established that there is diminished empathy on the part of the observer in intergroup contexts, to my knowledge there has yet to be research establishing an intergroup effect on expressivity.

Since empathy is necessarily an interpersonal process, it is relevant to examine both the empathizing perceiver and the expressing target. To this effect, the study here will seek to establish a group bias in expressivity with the explicit hope to find an effect on empathic accuracy using the same set of stimuli.

**Current Research**

To build upon prior research, this study examined how the awareness that one is communicating with an outgroup member affects both the expressivity of the communicator and the empathic accuracy of those who observe him or her. The study here addresses this potential difficulty in intergroup communications by addressing two questions. First, could it be that people are less expressive when sharing with outgroup members, and second, could a bias in expressivity contribute to the usually observed group bias in empathy? To test these notions, we used a one-sided video message to an outgroup and ingroup member and had raters assess their expressivity based on these videos in addition to completing an empathic accuracy measure. We hypothesized first that those who believe they are expressing to an outgroup
member will be judged as less expressive, and second that those who observe those who were trying to express to an outgroup member will be less empathically accurate.
RESEARCH DESIGN

The hypotheses were tested with a relatively simple within-subject design and the use of trained raters. The initial experimental task was to produce the stimulus videos in which our targets shared four emotional experiences. Before recording, targets were given specific information about who they would be sharing their recording with, the person’s name, role as a student, and a photograph, the manipulated variable. This fictional observer was either an ingroup (white) or outgroup (black) member. The photographs used were taken from the Chicago Face Database and normalized for aggression and attractiveness, and the individual in each photograph was agreed upon by all raters as being unambiguously black or white. The participants were told that their recording would be seen by this fictional observer. After recording their experiences, targets watched their own recordings and continuously rate them for affect. These videos were then viewed by research assistants in the laboratory, who rated each for expressivity using the peer version of the Berkley Expressivity Questionnaire (Gross & John 1995) and performed an empathic accuracy task, using the same continuous affect measure as the participants while watching the videos to try and predict what the participants were feeling at any given moment of the experience sharing. The empathic accuracy measure is the correlation between perceivers’ ratings of targets’ affect and targets’ ratings of their own affect. The main research hypothesis was that the rated expressivity of those in the outgroup condition will be significantly lower than those in the ingroup condition. The secondary research hypothesis was that the empathic accuracy of those viewing targets who were in the outgroup condition would be significantly lower than those viewing targets who were in the
ingroup condition.

**Participants**

Participants were 22 men or women of 18 years or older. The tasks required reading, speaking, and listening in English, therefore participants had normal or corrected vision and be able to read, speak, and write fluently in English. The participants were limited to non-Hispanic whites. The participants were recruited through the psychology participant pool at Brandeis University using the electronic participant system, Experimetrix, as well as in-class recruitment during the summer session. They received course credit, or $5/1/2 hour monetary compensation for their participation in this study. A power analysis using a medium effect size and a power of .8 indicated that ideally we would have recruited thirty-four participants to get significant results. We had to stop gathering participants to accommodate the due date of thesis deposit. The raters were four undergraduate research assistants who were aware of the hypothesis but not of the condition that the participants were in. Though twenty-two total videos were gathered, only fifteen videos were completed for both expressivity and empathic accuracy ratings by our raters, and one of these was dropped due to being extremely short (>15 seconds) leaving us with a total of fourteen targets providing four videos each (seven female, mean age M=20.18, SD=1.72).

**Methods**

Targets were given two partners in a pseudo-randomized order, balanced so that an even number of participants would receive the outgroup partner first. The order was randomized to account for the possibility that targets may be more or less expressive after they have already talked in front of the camera. They were shown a photograph of their partner, who was white in the ingroup condition and black in the out-group condition. They were told that they will be sharing their two stories with this partner. They then completed a short
manipulation check to be sure that they know who their partner is by picking their partner’s face from a series of photographs. This process was repeated twice, with the participants being assigned a new partner from whichever group he or she was not assigned in the first run. The photographs used for the partners were from the Chicago Face Database that have been matched for a variety of metrics, such as attractiveness and perceived aggression. Importantly, the faces were rated as being completely racially non-ambiguous. Targets were then videotaped while discussing the most positive and most negative personal events they were comfortable describing to their assigned partner. Specifically, the wording will be "the personal experiences you are comfortable sharing with your assigned partner or other strangers." After sharing with the first partner, the target was assigned a partner from the remaining group condition and repeated the same process. After sharing all four experiences, the participants watched the videotapes of themselves talking and used a sliding 9-point Likert scale manipulated with the arrow keys on a keyboard to continuously rate the level of positive or negative affect they had felt at each moment during the recording. After finishing rating their videos, they complete the self-report version of the Berkley Expressivity Questionnaire (Gross, John, Richards 1995), the Interpersonal Reactivity Index (Davis 1983), and the Symbolic Racism Scale (Henry & Sears 2002). These were included in order to assess individual differences that may moderate the effects of either expressivity or empathic accuracy. Given the non-significant effects of the main analysis we do not report moderator analysis here. At the end of the session, targets were asked for their permission to use their recordings in a planned future study using online raters. These recordings were viewed by research assistants at the laboratory, who scored each video on expressivity using a peer-rating version of the Berkley Expressivity Questionnaire and used the same sliding scale to try and give their best estimation of what they thought the target’s affect was at any moment of the
recording.

**Measures**

The primary dependent variable was perceived expressivity, which was operationalized using the peer-version of the Berkley Expressivity Questionnaire (Gross & John 1997). Participants also filled out several self-report questionnaires after their recordings, including a personality inventory, a demographic questionnaire, and measures of symbolic racism, interpersonal reactivity, and subjective socioeconomic status. These measures may be interesting to explore in future research using the gathered stimulus videos. Since they occurred after all other measures were taken, there is no reason to assume that they influenced the expressivity or empathic accuracy scores.

*Berkley Expressivity Questionnaire*: The Berkeley Expressivity Questionnaire is a sixteen item scale that uses a seven point Likert system intended to assess three facets of emotional expressivity: the degree to which negative emotional response tendencies are expressed behaviorally, (negative expressivity), the degree to which negative emotional response tendencies are expressed behaviorally (positive expressivity), and the general strength of emotion response tendencies (impulse strength). Statements include: “Whenever I feel positive emotions, people can easily see exactly what I am feeling;” I sometimes cry during sad movies;” and “People often do not know what I am feeling” for negative expressivity, positive expressivity, and impulse strength respectively.

*Big Five Personality Inventory*: We used the Big Five Inventory as our personality inventory, a 44-item inventory that measures an individual on the Big Five Factors (dimensions) of personality (Goldberg, 1993). Each of the factors is then further divided into personality facets (John, & Srivastava, S. 1999).

*MacArthur SES*: Targets also completed the MacArthur scale of subjective social status
to measure the subjective social status using a numbered stepladder image.

*Symbolic Racism Scale 2000*: The symbolic racism scale is an eight item measure using four-point Likert scales and measures a unidimensional prejudice towards African Americans not linked directly to race but indirectly through social and political issues. For example, one question is “It’s really a matter of some people not trying hard enough; if blacks would only try harder they could be just as well off as whites” (Henry & Sears 2000).

*Interpersonal Reactivity Index*: To assess self-reported empathy we used the Interpersonal Reactivity index. The interpersonal reactivity index is a twenty-eight item measure using a five point Likert scales that measures reactions of the individual to the observed experiences of another (Davis 1980).
RESULTS

Analysis

To examine the primary research question, a simple paired t-test was conducted to assess if differences exist in rated expressivity (the dependent variable) by group condition (the dichotomous independent variable). The assumptions of normality and homogeneity of variance were assessed, as well as inter-rater reliability. Homogeneity of variance was assessed using Levene’s Test for the Equality of Error Variances. The Levene Statistic= was .489 for outgroup expressivity and .085 for ingroup expressivity with neither result significant (p=.617, .919). The t-test is two-tailed with the probability of rejecting the null hypothesis when true set at p < 0.05.

Empathic accuracy was quantified as time-series correlations of observer and target ratings. Targets’ affect ratings were correlated with perceivers’ affect ratings of the targets, yielding the coefficient accuracy for each perceiver-clip combination. All correlation coefficients were r-to-Z transformed to be normally distributed for analysis. Six videos were judged by only one rater and the remaining videos were viewed by two different raters. To examine the research question, linear regression was conducted to investigate whether or not rated expressivity predicts the coefficient accuracy. Pearson’s correlation coefficient was reported and used to determine how much variance in the empathic accuracy can be accounted for by expressivity. The test was two-tailed with the probability of rejecting the null hypothesis when true set at p < 0.05. Linearity and homoscedasticity was assessed by examination of scatter plot.
Expressivity

There were no significant effects between conditions in terms of rated expressivity ($t=0.771$, $SD=9.12$, $d=0.06129$, $p=0.445$, $df=40$). The mean expressivity of those in the outgroup condition was $65.341$ with a standard deviation of $17.28$. The mean for the ingroup condition was $66.439$ with a standard deviation of $18.512$. The interrater reliability for the expressivity study was good, ($\alpha=0.872$), as well as the reliability of the peer-version of the BEQ itself ($\alpha=0.952$). Consult Table 1 for descriptive statistics and Table 2 for a summary of the t-tests. Based on these results the stated hypothesis for expressivity remains unconfirmed. Ideally these stimulus videos would be used with a much larger set of raters to gather more powerful and precise data.

Empathic Accuracy

There were no significant effects between conditions in terms of empathic accuracy ($t=1.681$, $SD=0.49$, $d=0.499$, $p=0.117$, $df=13$) failing to support the research hypothesis. In addition, empathic accuracy did not correlate with any other variables (see Table 3). There did appear to be an emerging trend that outgroup empathic accuracy was indeed lower than ingroup expressivity, but the data proved insufficient to adequately support the hypothesis at this time. In addition, there was another interesting marginal finding between outgroup expressivity and outgroup empathic accuracy ($r=0.503$, $r^2=0.253$, $p=0.067$, $df=13$). Whether this is due to inadequate power or that simply the null hypothesis is true is not known, and further research is still be warranted. In addition, rated expressivity did not correlate with empathic accuracy in either condition (see Table 3), failing to replicate prior studies, though it should be noted that this is based on a very small sample size of targets and especially raters.
DISCUSSION

The observed trends within the underpowered study are promising and suggest that this area remains of interest for future research. Though we cannot add much new knowledge on the topic of cross-group empathy our results are able to inform and guide future research in the area.

This study does not call into question prior claims on the importance of expressivity on empathic accuracy as the design was different, the raters were not subjects themselves, and the targets were subject to an experimental manipulation. In fact, our marginal finding on expressivity and empathic accuracy among those in the outgroup condition trend toward supporting the prior literature. To our knowledge this study was the first to address these questions that consider the target when looking at cross-group empathy. This is an important direction considering the present literature on empathy and expressivity more generally and we hope future researchers continue along the same vein. It might be of interest for future researchers in the area to be aware that there is need to develop a better measure for peer rating of expressivity that can be compared easily to a self-report measure, as the Berkley Expressivity Questionnaire proved clunky for the raters, being originally intended as a self-report measure. Some raters reported that the wording of the questionnaire felt awkward and was difficult to answer. However, tests did show that the BEQ and our raters were ultimately still reliable.

The first identified trend, the difference between ingroup and outgroup empathic accuracy despite no similar trend in expressivity, may develop with a larger sample size to reveal that people indeed communicate emotional content more poorly in intergroup contexts. If there remains no significant difference in expressivity between the conditions even after revising our...
measures of expressivity this would be particularly interesting result—that the deficit in capacity to communicate emotional content cannot be perceived as similar deficit in general expressivity. This could be, however, because the BEQ asks questions about the target’s *trait* of expressivity, *and* not current *state*. To parse out this result accurately it would be necessary to develop a measure that gets at the current state of expressivity. The second non-significant trend, that of a correlation between peer-rated outgroup expressivity and empathic accuracy for those in the outgroup condition is particularly odd, especially considering no such pattern emerged among the ingroup condition. It could be that those in the outgroup condition telegraphed their expressivity in ways that were more clear due to the experimental condition, though it is difficult to make arguments at this juncture without clearer evidence.

Our paradigm, done via video and time-delayed communications, might not have been able to elicit expressive suppression because this kind of interaction is not threatening enough to the targets. Expressive suppression may require some type of concern of identity threat which is absent outside of more immediate forms of communication. Future studies may want the targets to believe that they will be having a future interaction with their fictional partners in order to increase the stress of the communication or simply use real interactions to get the most stress and ecological validity.

It is still of interest to see if the simple difference in group conditions in empathic accuracy would emerge with a larger sample size of both those perceived and raters, as even if the expressivity ratings remain insignificantly different it proves to be an interesting result—that people may still fail to successfully predict affect even while not recognizing the diminished capacity to emote. Current plans are to use these stimuli using internet participants to vastly increase the number of raters may still yield these kind of results, as it would be relatively simple to attain hundreds of raters. Since the empathic accuracy measure requires constant attention and
extreme values are easy to spot. Our setup does help ameliorate a usual worry that online test-takers may be clicking through as fast as possible to collect the financial incentive. The videos cannot be made any shorter, and rating them requires constant attention or the values will be static in the output and easy to discern from attentive raters. In addition, these raters would be participants themselves rather than research assistants, allowing us to gather data from the perceivers in addition to the targets to analyze what variables feed into assessments of expressivity and capacity for empathic accuracy. We also plan to use the collected individual difference data, especially to examine the marginal results we have collected to see if the Symbolic Racism Scale or other self-report measures have something to add to our discussion of the results.

Future studies may want to vary the levels of ingroup and outgroup conditions in order to generalize the findings to simply group rather than a particular pair of races, ideally at some point using minimal groups or a similar setup to verify the effect as being unique to the psychology of group dynamics distinct from the social and cultural vagaries of real-world divisions.
CONCLUSION

This study fails to support the research hypotheses that a subject’s belief that he or she is speaking to a member of a racial outgroup diminishes expressivity and subsequent capacity of a perceiver to empathize accurately with the subject. It does not call into question prior research, nor does it preclude others from exploring the same topic as there is much room to improve upon this study, notably sample size and measurement of expressivity.


Table 1.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
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<tr>
<td>In group expressivity</td>
<td>41</td>
<td>36</td>
<td>96</td>
<td>66.4390243900</td>
<td>18.5122240400</td>
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<tr>
<td>Out group expressivity</td>
<td>41</td>
<td>36</td>
<td>96</td>
<td>65.3414634100</td>
<td>17.2794817000</td>
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<tr>
<td>In group empathic accuracy</td>
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<td>.09</td>
<td>1.62</td>
<td>.9269</td>
<td>.39772</td>
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<tr>
<td>Out group empathic accuracy</td>
<td>14</td>
<td>-.75</td>
<td>1.29</td>
<td>.7025</td>
<td>.49502</td>
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Table 2.

<table>
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<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
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<td>igx - ogx</td>
<td>1.10</td>
<td>9.12</td>
<td>1.42</td>
<td>-1.78</td>
<td>3.97</td>
<td>.771</td>
<td>.445</td>
</tr>
<tr>
<td>igea-oga</td>
<td>.22</td>
<td>.49</td>
<td>.13</td>
<td>-.06</td>
<td>.51</td>
<td>1.681</td>
<td>.117</td>
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</table>
### Table 3.

**Correlations between Variables**

<table>
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<tr>
<th></th>
<th>Ingroup expressive</th>
<th>Outgroup expressive</th>
<th>Ingroup empathic accuracy</th>
<th>Outgroup empathic accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ingroup expressivity</strong></td>
<td>Pearson Correlation</td>
<td>1</td>
<td>.872**</td>
<td>-.211</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.469</td>
<td>.423</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>41</td>
<td>41</td>
<td>14</td>
</tr>
<tr>
<td><strong>Outgroup expressivity</strong></td>
<td>Pearson Correlation</td>
<td>.872**</td>
<td>1</td>
<td>-.108</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.712</td>
<td>.067</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>41</td>
<td>41</td>
<td>14</td>
</tr>
<tr>
<td><strong>Ingroup empathic accuracy</strong></td>
<td>Pearson Correlation</td>
<td>-.211</td>
<td>-.108</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.469</td>
<td>.712</td>
<td>.168</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td><strong>Outgroup empathic accuracy</strong></td>
<td>Pearson Correlation</td>
<td>.233</td>
<td>.503</td>
<td>.390</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.423</td>
<td>.067</td>
<td>.168</td>
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<td></td>
<td>N</td>
<td>14</td>
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</table>

**. Correlation is significant at the 0.01 level (2-tailed).**
Figure 1. Outgroup Expressivity by Outgroup Empathic Accuracy
Figure 2. Ingroup Expressivity by Ingroup Empathic Accuracy