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Contextual Factors in Children's Social Information Processing

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Attributions and social problem solutions of socially accepted and rejected boys and girls (*M* age = 9.33 years) were assessed by verbal responses to hypothetical vignettes embedded in a computer mathematics game involving 3 contextual factors: interpersonal context (competition or collaboration), outcome of the game (success or failure), and story type (ambiguous provocation or peer group entry). More hostile attributions of intent were provided in the failure than in the success condition and in the ambiguous provocation than in the peer group entry stories. More aggressive problem solutions were provided in ambiguous provocation than in peer group entry stories. Boys offered more aggressive solutions than girls in the cooperation condition but not the competition condition and for the provocation stories but not the peer group entry stories. Rejected children offered somewhat more aggressive solutions than accepted children.

According to the social information processing perspective on social competence, behavioral responses to problematic social situations are a function of a series of steps of cognitive processing. Dodge, Pettit, McClaskey, and Brown (1986) described the following sequence of cognitive processess: An individual encodes and interprets social cues, generates and evaluates behavioral options, and then enacts a selected response. In the present study, we focused on two steps in the social information processing model, namely, the attribution of intent and the generating of a solution to the social problem.

Dodge's social information processing model has been applied primarily to the study of individual differences in children's processing, with particular emphasis on the study of children who have been identified by their peers as socially rejected and behaviorally aggressive. Socially rejected and aggressive children have been found to demonstrate a *hostile attributional bias,* or a tendency to attribute hostile intent in ambiguous situations (e.g., Dodge & Frame, 1982; Dodge & Somberg, 1987). These children also tend to provide aggressive solutions to social problems (e.g., Richard & Dodge, 1982).

Contextual factors in social information processing have not been paid much attention. This is true despite arguments that social–cognitive styles are specific to the situation and are influenced by the context of assessment (e.g., Dodge & Feldman, 1990). However, several attempts to examine context effects may be noted. For instance, aggressive boys attributed more hostile intent than did nonaggressive boys in ambiguous situations when the objectionable action was directed at themselves but not when it was directed at others (Dodge & Frame, 1982; Sancilio, Plumert, & Hartup, 1989). A similar interaction of individual and contextual factors was observed by Dodge and Somberg (1987), who found that the attributional biases of rejected children were exacerbated in an anxiety-provoking condition (a condition involving interpersonal threat) as compared with a "relaxed" baseline condition. Other researchers have examined the effect on social information processing of providing specific information regarding the hypothetical peers in the social problem stories. For example, Hymel (1986) noted that children "vary their perceptions and explanations of the behavior of peers as a function of whether they like or dislike the individual" (p. 442). Waas and Honer (1990) also found that boys used reputational information, so that unpopular peers were ascribed more intent in conflict interactions, were rated as less justified in such interactions, were rated as less likely to play nicely, and were described in a more negative light than popular peers.

Thus, it may be argued that social information processing is a complex task that is affected not only by individual factors but also by the context for the assessment of social information processing. This study involved the development of a methodology for the examination of the effects of specific contextual factors on aspects of social information processing. The task developed for the present study was a computer mathematics game involving addition problems suitable for children in the lower elementary school grades. A computer game was chosen because it was deemed more "ecologically valid," it is within the range of children's common activities, it produces realistic personal involvement and motivation, and it may be expected to increase physiological arousal and to elicit strong affect (see, e.g., MacDowell & Mandler, 1989). Children were led to believe that both speed and accuracy were necessary for the earning of points and that winning a prize was contingent on the amount of points earned. Two contextual factors examined were the interpersonal context and the outcome of the task. The interpersonal context involved either competition against another child or cooperation with another child. The outcome involved either success or failure. Children were presented with hypothetical vignettes that involved situations of either ambiguous provocation or peer group entry, thus creating a third contextual variable, namely, story type. These two story types have been iden-

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tified as particularly problematic social situations for children (Feldman & Dodge, 1987). Two stages in Dodge et al.'s (1986) model, namely, attributions of intent and social problem solutions, were assessed.

Children's social information processing was predicted to vary with the experimental contexts. For several reasons, failure was expected to elicit more hostile attributions and aggressive solutions than was success. Failure experiences are believed to elicit negative affect, to function as a threat to self-esteem, and to produce a need to externalize blame (Burger, 1981). Moreover, success experiences sometimes lead children to exhibit more prosocial and socially competent behavior (Kazdin, Esveldt-Dawson, & Matson, 1982), suggesting that success may facilitate benign or competent social information processing. Because failure is deemed more personally threatening in competitive situations, children were expected to demonstrate the most hostile attributions and aggressive solutions in the context involving failure and competition as compared with the other three experimental contexts. Finally, children were predicted to respond differentially according to story type. Because ambiguous provocation stories involved a more distinctly negative outcome for the child than did peer group entry stories, these stories were expected to elicit more negative affect and, in turn, to yield more hostile attributions and more aggressive solutions than peer group entry stories.

Subjects were peer-rejected and -accepted boys and girls. It was expected that rejected children would evidence more hostile attributions and aggressive solutions than would accepted children. This is because the rejected group contains many aggressive children—a subject group previously demonstrated to possess deficits and biases in social information processing. An additional hypothesis was based on the idea that children with social skills deficits are most likely to display problem behavior when experiencing a negative emotion (Masters, Felleman, & Barden, 1981). Specifically, because competition has been identified as a goal of rejected children in social situations (Dodge, Asher, & Parkhurst, 1989), the social–cognitive deficits of rejected children were expected to be most pronounced in the competition plus failure condition. Both boys and girls were included as subjects. This is in contrast to most prior studies that have tended to be limited to boys. In keeping with the few studies that have included both genders (Feldman & Dodge, 1987; Waas, 1991), it was expected that boys would exhibit more hostile attributions and offer more aggressive solutions than would girls.

Method

Subjects

Subjects were 48 third graders who were selected on the basis of sociometric screening in racially integrated urban elementary schools. On receiving parental consent, we conducted group sociometric screenings in the schools. Children were classified as popular, average, and rejected according to the procedure outlined by Coie, Dodge, and Coppotelli (1982). Consistent with previous studies, popular and average children were combined into one group of accepted children and were compared with rejected children. The sample consisted of 10 African American girls, 11 African American boys, 14 European American girls, and 13 European American boys. Children from different racial groups were approximately equally distributed across sociometric status groups.

Procedure

Subjects were recruited by phone following the sociometric screening and were interviewed individually in the laboratory by one of the experimenters (who was unaware of subjects' sociometric status). After being informed of their participant rights, the subjects were asked to play four computer mathematics games. The games were presented in two different interpersonal contexts (competition and collaboration) and with two different outcomes (success and failure). Each child participated in all four conditions (2 interpersonal contexts × 2 outcomes). The following instructions were provided for each child.

> Now I would like you to play a computer math game. Some addition problems are going to flash on the screen, and I would like you to type in the answers. (Some practice problems were provided.) Now and then during the addition problems, some stories will flash on the screen just to add some variety. When the stories appear, I will read them to you and ask you some questions about the stories. There are no right or wrong answers to the questions about the stories. I just want to know what you honestly think.

To create the interpersonal context, we informed each subject that his or her computer was yoked to another computer on which another child would be playing with or against him or her. The other child was described as of the same gender and from the same grade and school as the subject. To increase motivation, we informed each subject that he or she would receive prizes for successful completion of the games, which involved "doing your very best" (i.e., playing as quickly as possible and making as few errors as possible). All of the subjects appeared to be motivated to achieve on the computer games, as indicated by observations of sustained attention and concentration on the task and monitoring of the points earned.

The outcome of the game was manipulated by ensuring success on one game per interpersonal context and failure on one game per interpersonal context. *Success* entailed beating the "opponent" in the competitive condition and achieving a sufficient number of points as a "team" in the collaborative condition, whereas *failure* entailed losing to the opponent in the competitive condition and achieving an insufficient number of points as a team in the collaborative condition. The experimental manipulations appeared to be effective in that all of the children seemed involved in the games and responded to the outcomes with affective arousal and behavioral reactions. In the success conditions, typical responses included smiling, laughing, yelling, self-praising statements, singing, jumping out of the chair, glancing at the experimenter, or asking directly for approval. In the failure conditions, typical reactions included frowning, sighing, making derogatory remarks about self or the other child, hitting the desk, banging on the computer, yelling at the computer, and looking away from the experimenter.

Each of the four games involved a total of 20 simple addition problems suitable for first through third graders. For each game, 10 problems were presented followed by two stories from the Home Interview With Child (Brown, 1988), then 10 more problems, then the final results of the game, and finally two more stories. After each problem, the subject's and opponent's or the team's scores flashed on the screen, along with feedback regarding performance. The computer program ensured that a clear pattern of winning or losing had been established by the time the first set of stories was presented. The success condition involved the following pattern of results: three hits, one miss, three hits, one miss, two hits. The failure condition involved the inverse pattern. The pattern was repeated in the second set of 10 problems.

Thus, each child played a game in four different experimental contexts: (a) competition and success; (b) competition and failure; (c) collaboration and success; (d) collaboration and failure. No effect for order of presentation was expected, but conditions were counterbalanced to control for the effect of order.

After the completion of the experimental task, each subject was in-

formed that the other child was just an imaginary person made up so that the subject would do his or her very best at the game. Subjects received a bag of prizes and were allowed to ask any questions or express any concerns. No child appeared to be troubled or uncomfortable as a result of the experimental manipulation.

Measures

The measure used to assess attributions and social problem solutions was an extension of a measure called the Home Interview With Child (Brown, 1988), which was developed by researchers in the Child Development Project at Vanderbilt University and consists of eight short vignettes describing an interpersonal problem. Because of the experimental design, which involved four experimental conditions, 8 stories were added to the original 8 vignettes, yielding a total of 16 stories (i.e., 4 stories per condition). Eight of the stories involved situations in which the actions of one child resulted in a negative outcome for a second child (the protagonist), although the intent of the first child was unclear (ambiguous provocation; e.g., being hit in the back by the ball or having Coke spilled on one's shirt). The other 8 stories involved initiating peer group entry (e.g., the protagonist desires to join a group of children in a game that is already in progress). Within each experimental condition, the first and third stories involved ambiguous provocation, whereas the second and fourth stories involved peer group entry. The names of the characters varied across stories, but the gender of each character was consistent with that of the subject. Each subject was asked to listen to the story and to imagine himself or herself as the protagonist in the story. This was followed by two sets of questions. The child was first asked why the other child in the story did what he or she did, and then how he or she would respond if he or she were in the same situation. All responses were recorded verbatim. Examples of the two story types follow.

> *Ambiguous provocation:* Pretend that you are standing on the playground playing catch with a kid named Todd/Jessica. You throw the ball to Todd/Jessica, and he/she catches it. You turn around, and the next thing that you realize is that Todd/Jessica has thrown the ball and hit you in the middle of your back. The ball hits you hard, and it hurts a lot. (a) Why do you think that Todd/Jessica hit you in the back? (b) What would you do about Todd/Jessica after he/she hit you?

> *Peer group entry:* Pretend that you see some kids playing on the playground. You would really like to play with them, so you go over and ask one of them, a kid named Alan/Leah, if you can play. Alan/Leah says no. (a) Why do you think that Alan/Leah said no? (b) What would you do about Alan/Leah after he/she said no?

Response Coding

The scoring of responses followed the procedure outlined by Brown (1988). Responses to the first question on the Home Interview With Child provide an indication of attribution of intent. Attributions were rated as 1 or 2, with 1 representing the absence of hostile intent (i.e., completely accidental occurrence or nonhostile intent) and 2 representing the presence of hostile intent (i.e., intent to harm). The responses to the second question are considered social problem solutions. Solutions to social problems were rated on a scale of 1 to 5 of increasing aggression, with 1 representing the absence of aggression and 5 representing physical or verbal aggression. Short descriptions of the types of responses representing the individual scores along the continuum are provided by Brown (1988). Within each experimental context, responses were summed across the two stories of the same type, resulting in a range of scores from 2 to 4 for attributions and from 2 to 10 for solutions.

Results

Interrater Agreement

Interrater agreement for the coding of hostility of attributions and aggressiveness of solutions was determined by calculating Cohen's kappa, which corrects for chance agreement among raters, and by overall percentage agreement. For attributions, the kappa statistic was .98, and the percentage agreement was 99%. For social problem solutions, the overall kappa statistic was .95, with kappas ranging from .85 to 1.00, and the overall percentage agreement was 99.2%, with percentages ranging from 97.4% to 100%.

Internal Consistency

Internal consistency for responses to the four stories within the four experimental contexts was determined by calculating Cronbach coefficient alphas. Estimates of internal consistency were acceptable, ranging from .49 to .68 for attributions and from .69 to .77 for solutions.

Order Effects for Story Presentation

To determine whether order of story presentation (after 10 addition problems vs. after 20 addition problems) affected responses, we entered order as a repeated measure within the analysis of variance (ANOVA). Because no order effect was found for either attributions of intent, $F(1, 44) = 0.71$, *ns*, or social problem solutions, $F(1, 44) = 0.51$, *ns*, order was not considered further.

Attributions of Intent

A 2 (gender) × 2 (sociometric status) × 2 (interpersonal context) × 2 (outcome) × 2 (story type) ANOVA, with the last three variables as repeated measures, was performed on the attribution scores. See Table 1 for mean attribution scores. A significant main effect for outcome was found, $F(1, 44) = 21.93$, $p < .001$, with subjects providing more hostile attributions in the failure condition ($M = 3.14$) than in the success condition ($M = 2.87$). A significant main effect was also found for story type, $F(1, 44) = 6.36$, $p < .05$, with subjects providing more hostile attributions in ambiguous provocation stories ($M = 3.12$) than in peer group entry stories ($M = 2.89$). No other main or interaction effect was significant.

Social Problem Solutions

A 2 (gender) × 2 (sociometric status) × 2 (interpersonal context) × 2 (outcome) × 2 (story type) ANOVA, with the last three variables as repeated measures, was performed on the solution scores. See Table 2 for mean problem solution scores. A significant main effect was found for story type, $F(1, 44) = 77.05$, $p < .001$, with subjects providing more aggressive solutions in ambiguous provocation stories ($M = 5.56$) than in peer group entry stories ($M = 3.46$). A significant main effect for gender was also found, $F(1, 44) = 4.58$, $p < .05$, with boys providing more aggressive solutions ($M = 4.81$) than girls ($M = 4.22$). These two main effects were qualified, however, by a sig-

Table 1
Means for Attributions by Sociometric Status, Gender, and Experimental Condition

Group	Experimental condition			
	Competition + success	Competition + failure	Collaboration + success	Collaboration + failure
	Ambiguous provocation stories			
Girls				
Accepted	2.63 (0.72)	3.06 (0.77)	2.81 (0.75)	3.06 (0.57)
Rejected	2.88 (0.99)	3.38 (0.52)	2.75 (0.89)	3.13 (0.83)
Boys				
Accepted	2.94 (0.68)	3.69 (0.48)	3.13 (0.81)	3.25 (0.86)
Rejected	3.25 (0.47)	3.13 (0.83)	3.50 (0.76)	3.63 (0.52)
	Peer group entry stories			
Girls				
Accepted	2.69 (0.70)	2.88 (0.72)	2.69 (0.79)	2.94 (0.77)
Rejected	2.75 (0.71)	2.88 (0.64)	2.88 (0.64)	3.00 (0.93)
Boys				
Accepted	2.94 (0.77)	3.00 (0.82)	2.81 (0.75)	3.13 (0.81)
Rejected	2.88 (0.99)	3.00 (0.76)	2.75 (1.04)	3.13 (0.83)

Note. Standard deviations are in parentheses.

nificant interaction between story type and gender, $F(1, 44) = 10.90$, $p < .01$. Post hoc comparisons revealed that boys provided significantly more aggressive solutions ($M = 6.29$) than girls ($M = 4.83$) only for the ambiguous provocation stories, $t(46) = 3.10$, $p < .01$ (two-tailed t test);[1] boys ($M = 3.32$) and girls ($M = 3.60$) demonstrated equivalent and lower levels of aggression for the peer group entry stories, $t(46) = 0.68$, *ns*. In addition, the interaction of gender and interpersonal context was significant, $F(1, 44) = 5.69$, $p < .05$. Post hoc comparisons indicated that boys and girls differed in terms of aggressiveness of solutions only in the collaborative context, with boys providing more aggressive solutions ($M = 4.84$) than girls ($M = 4.01$), $t(46) = 3.68$, $p < .001$; equivalent levels of aggression were demonstrated by boys ($M = 4.77$) and girls ($M = 4.42$) in the competitive context, $t(46) = 1.55$, *ns*. Furthermore, boys evidenced consistently high levels of aggression in both the competitive and collaborative contexts, whereas girls demonstrated less aggressive solutions in the collaborative context than in the competitive context. In summary, the interaction of gender with interpersonal context revealed that the lowest level of aggression was demonstrated by girls in the collaborative context.

A significant main effect was found for sociometric status, $F(1, 44) = 3.25$, $p < .05$ (one-tailed test), with socially rejected boys and girls providing more aggressive solutions ($M = 4.96$) than socially accepted boys and girls ($M = 4.29$). This main effect was qualified by the three-way interaction of interpersonal context, outcome, and sociometric status, $F(1, 44) = 5.19$, $p < .05$. Post hoc comparisons indicated that socially rejected children demonstrated significantly more aggressive solutions than socially accepted children in all but one of the four experimental contexts: $t(46) = 2.78$, $p < .01$, for competition plus success; $t(46) = 0.49$, *ns*, for competition plus failure; $t(46) = 2.29$, $p < .05$, for collaboration plus success; and $t(46) = 3.24$, $p < .01$, for collaboration plus failure.

Discussion

Results support the hypothesis that contextual factors are important in social information processing. Because the contextual effects differed across dependent variables (attributions vs. solutions), findings are discussed first for attributions and then for solutions. Findings concerning gender and sociometric status are discussed insofar as they relate to the central contextual effects.

Success and failure outcomes differentially affected attributions, with failure eliciting more hostile attributions. This effect is consistent with the assumption within the attribution literature (Burger, 1981) that failure functions as a threat to self, which predisposes one to externalize blame by ascribing more hostility to others. Moreover, the finding of more hostile attributions following failure complements and extends the finding of Dodge and Somberg (1987) of more hostile attributions in a threatening situation (anticipation of peer aggression). The present study extends the list of negative contexts that elicit hostile attributions to failure experiences in an interpersonal setting. Future research might investigate additional interpersonal contexts and experiences that affect the hostility of attributions.

In this experiment, only two levels of outcome were investigated: success and failure. Future investigations might include a no-outcome control condition. Such a control condition would permit tests of the hypotheses that (a) success is associated with more benign attributions than a no-outcome condition and (b) failure is associated with more hostile attributions than a no-outcome condition.

An additional goal of future research might be to determine whether one or more specific emotions mediate the impact of failure on attributions. Subjects could be asked to report the

[1] All t tests in this report are two-tailed.

Table 2
Means for Solutions by Sociometric Status, Gender, and Experimental Condition

Group	Experimental condition			
	Competition + success	Competition + failure	Collaboration + success	Collaboration + failure
	Ambiguous provocation stories			
Girls				
Accepted	4.63 (1.36)	5.06 (1.44)	4.69 (1.35)	4.38 (1.63)
Rejected	6.00 (1.51)	5.00 (1.07)	4.50 (1.07)	5.00 (1.51)
Boys				
Accepted	5.44 (2.03)	6.19 (2.66)	5.81 (2.04)	5.75 (2.21)
Rejected	6.75 (2.43)	6.75 (3.15)	7.50 (2.56)	8.00 (2.14)
	Peer group entry stories			
Girls				
Accepted	3.88 (1.71)	4.06 (1.73)	3.56 (1.55)	3.31 (1.25)
Rejected	3.25 (0.89)	3.50 (0.93)	3.38 (1.41)	3.38 (0.92)
Boys				
Accepted	3.06 (1.39)	3.13 (1.36)	2.75 (1.24)	2.88 (1.09)
Rejected	4.38 (2.88)	3.75 (1.67)	4.25 (2.25)	3.88 (2.23)

Note. Standard deviations are in parentheses.

emotion or emotions they experience after failure (e.g., anger or sadness or both). These reports could then be used to determine whether failure elicits hostile attributions when children experience (a) any emotion, (b) any negative emotion, or (c) only a specific negative emotion (e.g., anger but not sadness).

Although we hypothesized that attributions would vary according to whether the interpersonal context was structured as competitive or collaborative, this variable did not differentially affect the hostility of attributions. Perhaps our manipulation of this variable was not powerful enough to produce a difference. (However, the finding that girls offered fewer aggressive solutions in the collaborative condition than in the competitive condition suggests that our manipulation was not altogether ineffective.) Another possibility is that competition may be exciting but not necessarily threatening, and it may be that hostility of attributions is affected primarily by threat.

Support was obtained for the effect of story type on attributions, with children providing more hostile attributions in the ambiguous provocation stories than in the peer group entry stories. This is not surprising, because the ambiguous provocation stories involve a direct negative outcome as well as an element of provocation, whereas the peer group entry stories do not.

The predicted gender and sociometric status effects on attributions were not found. Although boys made more hostile attributions than girls, the difference was not significant. Rejected and accepted children also did not differ in the levels of hostility of attributions. Furthermore, rejected and accepted children did not differ in levels of hostility within the failure condition, thus failing to support the hypothesis that rejected children demonstrate more pronounced deficits in social information processing following failure.

One explanation for the lack of a significant sociometric status effect relates to the meaning of the status of peer rejection. Rejected children are defined as children who receive few positive and many negative nominations from their peers. Thus, rejected children share the characteristic of being disliked by their peers, but they do not necessarily share any behavioral characteristics. Much of the early research on peer rejection involved comparing children who were both rejected and aggressive with children who were neither rejected nor aggressive. Thus, certain qualities that have been attributed to rejected children may actually be characteristics of only aggressive rejected children rather than of all rejected children. Researchers have argued that rejected children are not a behaviorally homogeneous group but rather are a heterogeneous group of children who differ in terms of cognitive, emotional, and behavioral characteristics (Coie, Dodge, & Kupersmidt, 1990). For example, some rejected children are highly aggressive, whereas others are withdrawn or submissive (French, 1988). Thus, in future work, it may be important to recognize that hostility of attributions (and other aspects of social information processing) may be more closely related to specific behavioral dispositions than to sociometric status. In any case, it is important not to assume that all rejected children are aggressive. This is particularly the case for girls, for whom aggression is less likely to be a salient characteristic than it is for boys (Crick & Grotpeter, 1993).

As for problem solutions, some interesting findings emerged. The interaction of gender with story type indicated that it was only for the provocation stories that boys offered more aggressive solutions than girls. This effect involving gender and story type is difficult to interpret, because subject gender is confounded with gender of the provocateur in the vignette. It is possible that boys provide more aggressive solutions than girls primarily when they are provoked by another boy but not another girl. This is consistent with the finding that boys expect exceptionally strong social approval for aggressive retaliation when provoked by another boy (Perry, Perry, & Weiss, 1989). On the other hand, girls may expect social approval for a different response type, such as passivity or withdrawal. Thus, we recommend that future research include vignettes involving

both male and female characters and that solutions be classified along other dimensions besides aggression.

Another unexpected interaction was found between gender and interpersonal context. Boys' responses were consistently highly aggressive across both competitive and collaborative contexts, whereas girls gave less aggressive solutions in the collaborative than in the competitive condition. Moreover, it was only within the collaborative context that girls provided less aggressive solutions than boys. It thus appears that girls were more sensitive to the collaborative versus competitive task instructions than boys. Perhaps instructions to collaborate with a peer had the effect of priming girls' prosocial cognitions (e.g., thoughts about helping, sharing, and supporting) that are incompatible with thoughts about aggression.

A significant effect of sociometric status was found for problem solutions, supporting the hypothesis that socially rejected children provide more aggressive solutions to social problems than do socially accepted children. The three-way interaction among interpersonal context, outcome, and sociometric status indicates that rejected children provided more aggressive responses than accepted children in all conditions except competition plus failure. This finding is counterintuitive and contrary to the research hypothesis, however. Perhaps the competition plus failure condition simulates an interpersonal situation involving high negative affect, a threat to self-esteem, and a subsequent attempt to defend against this threat. Thus, all children may demonstrate a tendency toward retaliatory aggression in this particular context.

Although contextual effects were found for both attributions and solutions, the particular effects differed across the two dependent variables, suggesting that contextual factors that affect attributions are not necessarily the same ones that affect behavioral solutions. In this study, failure affected attributions but not solutions, whereas interpersonal context (collaboration vs. competition) affected solutions (for girls) but not attributions.

The present study contributes to the existing literature on social information processing by providing a new methodology for assessment. Embedding social information processing tasks within different experimentally manipulated contexts allows for the assessment of real and ongoing interpersonal behavior on social information processing. The different contexts serve to elicit physiological arousal and affective responses and, thereby, to more closely approximate interpersonal situations experienced outside the laboratory.

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