

Publication information:

Banerjee, R. & Watling, D. (2005). Children's understanding of faux pas: Associations with peer relations. *Hellenic Journal of Psychology: Special Issue on Theory of Mind*. 2, 27-45.

**Running Head:** Understanding of faux pas

Children's understanding of faux pas:

Associations with peer relations

Robin Banerjee and Dawn Watling

University of Sussex, UK

**Address:** Dr Robin Banerjee, Department of Psychology, University of Sussex, Falmer, Brighton, BN1 9QH, United Kingdom. Tel. +44-1273-877222; Fax +44-1273-678058; Email: robinb@sussex.ac.uk

***Acknowledgements:***

1. We would like to extend our thanks and appreciation to the children and staff at the schools that participated in this study, and to Dimitra Fotopoulou, Laura Kerr, and Sarah Watson for their contribution to data collection. We are grateful for the valuable comments of three anonymous reviewers.

2. This research was funded by Brighton & Hove City Council.

### Abstract

The present study addresses children's performance on the 'faux pas' test of social understanding. Based on previous tasks reported in Baron-Cohen et al. (1999) and Banerjee (2000), a computer interface was used to administer a new version that required children to answer forced-choice questions about four hypothetical stories involving unintentional insults. In a sample of 308 children the 5- to 6-year-olds were significantly poorer on the faux pas test than the 8- to 9-year-olds, as expected. Although the children performed well in identifying that feelings had been hurt and in answering comprehension questions, they found three questions relatively difficult: detecting the faux pas in the first place, seeing that the insult was unintentional, and recognising the ignorance that led to the faux pas. Importantly, success on the key questions of the faux pas task was negatively associated with peer rejection. Rejected and controversial children, who receive relatively high numbers of negative sociometric nominations from their classmates, performed significantly worse on this task than other children. This pattern was evident only for the older age group. Results are discussed in the light of recent research linking theory of mind performance with social adjustment.

**Key words:** Faux pas, Theory of mind, Peer relations.

One of the most active and lively areas of research in developmental psychology over the past two decades has centred on children's understanding of mental states. The enormous interest in this area was sharpened by findings that deficits in 'theory of mind' were associated with autism, since they suggested a clear link between mental-state reasoning and social behaviour (e.g., Baron-Cohen, 1997; Baron-Cohen, Leslie, & Frith, 1985). Alongside the work on autism, many researchers have recently turned to theory of mind tasks as possible predictors of variability in peer relations within the normally developing population (e.g., Peterson & Siegal, 2002; Slaughter, Dennis, & Pritchard, 2002). In the course of this research, however, it has become clear that the most commonly used tests of theory of mind, which normally developing children usually pass by around 5 or 6 years of age, are inadequate measures of more complex mental-state understanding. High-functioning autistic (HFA) individuals and individuals with Asperger syndrome (AS) often do well on standard theory of mind tasks (e.g., Dahlgren & Trillingsgaard, 1996), which therefore cannot account for the socio-behavioural profiles of these groups. At the same time, within the normally developing population, there is large variability in older school children's social behaviour and peer relations that of course cannot be explained by their ceiling performance on standard theory of mind tasks. The 'faux pas' task, developed originally by Baron-Cohen, O'Riordan, Stone, Jones, and Plaisted (1999) and adapted by Banerjee (2000) and Banerjee and Henderson (2001), is a more advanced theory of mind task. It requires insights into the mental states involved in unintentional insults (e.g., criticising a painting without realising that you are talking to the person who painted it). The present study was designed to test the hypothesis that performance on a new version of this task should be associated with peer relations in normally developing primary school children.

Baron-Cohen et al. (1999) presented the faux pas task as a new test of theory of mind that tapped more advanced mental-state reasoning than standard tasks of false belief (e.g.,

Baron-Cohen et al., 1985; Wimmer & Perner, 1983) and second-order false belief (e.g., Perner & Wimmer, 1985; Sullivan, Zaitchik, & Tager-Flusberg, 1994). Standard false belief tasks require an insight into beliefs about (or beliefs about beliefs about) the identity or location of physical objects. However, mental-state reasoning in naturalistic contexts is likely to involve far more complex awareness of links among multiple mental states (e.g., intentions and emotions as well as beliefs). Some tests using more naturalistic instances of non-literal utterances, such as sarcasm and double-bluff, have been found to be difficult for individuals with HFA or AS (Happe, 1994; Jolliffe & Baron-Cohen, 1999). This seems to be true of the faux pas task too. In Baron-Cohen et al.'s (1999) paper introducing the faux pas task, evidence from three studies suggested that performance on the task increases with age between 7 and 11 years within the normal population, and is less evident among children with AS or HFA, even with samples of children who had all passed first-order and second-order false belief tasks. Baron-Cohen et al.'s task required children to detect and identify faux pas in a number of hypothetical vignettes, to answer a comprehension question about the faux pas, and to identify the false belief (in fact, this was usually a state of ignorance) that led to the faux pas.

The suggestion that faux pas tasks are a better measure of 'naturalistic' mental-state reasoning than standard false belief tasks raises a central question, investigated in the present study, of how important this kind of task may be in predicting specific social outcomes. The basic premise that theory of mind performance should be linked to specific aspects of social behaviour or peer relations within the normally developing population is not new. It seems reasonable to expect a bi-directional association between theory of mind and positive peer relations: an insight into others' mental states should facilitate successful social interaction, while at the same time one is likely to develop such insight through experiencing positive peer interactions (Slaughter et al., 2002). However, most of the studies so far have focused on

standard tests of belief and emotion understanding used with young children. A number of recent studies, for example, have assessed associations between performance on false belief tasks and peer acceptance. Slaughter et al. (2002) observed that 4- to 6-year-olds who were rejected by their peers (as determined through sociometric nominations) performed worse on theory of mind tasks, while Peterson and Siegal (2002) reported that popular 3- to 5-year-olds were better on false belief tasks than their rejected counterparts. However, the findings are by no means clear. In a second study reported by Slaughter et al. (2002), theory of mind scores were not significantly associated with peer status, while Badenes, Estevan, and Bacete (2000) found that peer-rejected 4- to 6-year-olds were similar to average children on several theory of mind tasks. Part of the problem here is likely to be that the theory of mind tasks are simply not tapping the (more advanced) everyday mental-state reasoning skills that underlie successful peer relations. In any case, the standard belief and emotion understanding tasks would have little predictive value for explaining social behaviour in older children.

The present study was designed to build on the progress made in the construction of social understanding tasks in order to evaluate the role of advanced theory of mind as a correlate of peer relations. There is already some evidence that advanced theory of mind is linked to certain patterns of social behaviour in primary school children. Sutton, Smith, and Swettenham (1999), for example, reported that bullies scored higher than victims did on a set of 11 story tasks measuring complex belief and emotion understanding (including several faux pas stories). However, a detailed assessment of links between advanced mental-state understanding and peer acceptance/rejection is lacking.

There is good reason to predict that faux pas understanding in particular would be associated with positive peer relationships. Baron-Cohen et al. (1999) concluded their report by saying that they considered their faux pas task to be a “first step towards creating methods for assessing the use of a theory of mind in increasingly naturalistic social settings” (p. 415).

It seems likely that the combined focus on knowledge states, intention, and emotion – and the links between them – comes far closer to everyday ‘mindreading’ than standard false belief tasks. Two other studies involving an adaptation of the faux pas task provide further indication that the understanding of faux pas situations is likely to be associated with aspects of social adjustment. Banerjee (2000) demonstrated that children, who understood the unintentional nature of the insult in the faux pas stories (after passing a series of control questions), tended to better understand the value of modesty. They were more likely to see modest responses to praise (e.g., ‘‘I was just lucky’’’) as leading to more positive social evaluation than immodest responses (e.g., ‘‘I’m really clever’’). In addition, Banerjee (2000) showed that faux pas scores were positively correlated with a measure of self-monitoring, whereby children who reported monitoring and adjusting their social behaviour in response to situational demands scored relatively highly on faux pas tasks. These findings are consistent with results from Banerjee and Henderson (2001), whereby faux pas scores were inversely related to social anxiety and positively related (as part of a composite social cognition score) to teacher ratings of sociability.

The research results discussed above set the scene for a large-scale assessment of the relationship between faux pas task performance and peer acceptance/rejection. In particular, if faux pas tasks really do tap everyday mental-state reasoning, higher performance should be positively associated with peer acceptance. In the present study, we used sociometric peer nomination techniques to identify children’s peer status. Based on procedures described by Coie and Dodge (1983, 1988), children used a class photograph to identify three classmates with whom they would really like to play and three classmates with whom they would really not like to play. The standardised numbers of positive and negative nominations received were used to generate scores of peer acceptance. They were also used to classify the children as popular (high positive, low negative), rejected (low positive, high negative), controversial

(high positive, high negative), neglected (low positive, low negative), or average (moderate positive, moderate negative). Many research studies have demonstrated that children who are popular and high on peer acceptance typically have more advanced social skills than children who are rejected (see reviews by Gifford-Smith & Brownell, 2003; Newcomb, Bukowski, & Pattee, 1993). Based on the argument set out earlier, we would expect corresponding differences in faux pas performance. Importantly, we will also explore whether any such effects of peer status are due more to the heightened performance of Popular/Controversial children (who receive relatively high numbers of positive nominations) or to the impaired performance of Rejected/Controversial children (who receive relatively high numbers of negative nominations).

The present report concerns data from the first year of a three-year longitudinal study of social cognition and peer relations in approximately 330 primary school children (from ages 5 to 8 years for one group, and ages 8 to 11 years for a second group). Children are seen once a term, and they complete a battery of tasks in a 15- to 20-minute session using a multimedia computer interface (detailed in Method section below). The particular variables of interest in the present report are the faux pas scores, based on four stories with accompanying forced-choice questions, and sociometric nominations. We expect to replicate previous findings that performance on the faux pas task improves with age, so that the 8- to 9-year-olds should do better than the 5- to 6-year-olds. More importantly, given the general expectation that theory of mind should be associated with positive peer relations, we expect children who do well on the faux pas task to be higher on peer acceptance. We hypothesise that these associations should be particularly evident for the faux pas questions tapping the more complex reasoning processes. These processes are the following: (a) To recognise that the insult was unintentional (e.g., X did not want to upset Y when X criticised Y's painting); (b) To recognise that

the character who made the faux pas was ignorant about some key aspect of the situation (e.g., X did not know that Y had painted the picture).

## Method

### Participants

The children whose data are reported here are two cohorts participating in an ongoing three-year longitudinal study in a city in the south of England. They were from five Year 1 and seven Year 4 classrooms in seven primary/junior schools that had agreed to participate in this Local Education Authority-sponsored project. The children were all aged 5-6 (Year 1) or 8-9 (Year 4) years at the commencement of the project, and the data reported here are from the second term of that first academic year. A total of 308 had received peer nominations and had completed the faux pas task. Of these 308 children, 54 boys and 59 girls were in Year 1 (mean age: 6.02 years;  $SD = .39$ ) and 111 boys and 84 girls were in Year 4 (mean age: 9.01 years;  $SD = .29$ ).

### Materials

Children completed all tasks using a multimedia computer interface designed and created by the authors using Runtime Revolution software. All responses were made by using a mouse to click on on-screen buttons, and all text on the screen (e.g., instructions, stories, questions, response options etc.) was read out loud to the child via headphones. The tasks were presented on PCs running Windows 95, 98, or 2000 in the schools' computer laboratories.



## Measures

At each time point of the longitudinal study, children completed a battery of measures using the multimedia computer interface.<sup>1</sup> The two measures reported here are described below:

*Faux Pas*: Children were told (orally and through on-screen text) that they would hear four different stories, that they should listen carefully to the stories, and that they would be asked some questions at the end of each story. They then were presented with four faux pas stories in random order, each followed by six forced-choice questions in a fixed order. A single cartoon-style illustration accompanied each story, and all instructions, story text, questions, and response options were presented orally. Each story involved two child story characters where the ‘insulting’ character makes an unintentional insult about some target object and a neutral statement is made by the ‘insulted’ character. The insulting character was always ignorant with respect to the insulted character’s relationship with the target object. For example, in one story, one character says a painting is awful to a second character, not realising that he was the person who had painted it. The order in which the faux pas and neutral statements appeared was counterbalanced across stories. The six forced-choice questions are listed below, with the correct answer identified in italics.

DETECTION – In the story, did someone say something they should not have said?

(Yes or No)

IDENTIFICATION – What was said that should not have been said? ([insult by insulting character] or [neutral statement by insulted character])

FEELINGS – How does [insulted character] feel now? (Happy/Pleased or Sad/Upset)

INTENTION – Did [insulting character] want to make [insulted character] upset? (Yes or No)

COMPREHENSION – [question regarding target object] (Correct answer or Incorrect answer)

IGNORANCE – Did [insulting character] know [insulted character’s relationship with the target object]? (Yes or No)

The order of correct and incorrect response options was counterbalanced across stories<sup>2</sup>, but the six questions were presented in a fixed order after each story. The first two and the last two questions correspond to the four questions listed in Baron-Cohen et al. (1999), with the exception that forced-choice response options were presented to the children. Two stories involved a male character making the faux pas and two stories involved a female character making the faux pas. A sample story and question set is presented in the Appendix.

*Peer status:* Children were presented with a class photograph and the following instructions (presented orally and in on-screen text):

Please click on the faces of three children in your class who you would really like to play with. Then click on the green “OK” button to go on. If you change your mind, click on the red “Start Again” button.

A black oval ring ‘button’ surrounded each face on the screen and when the mouse-controlled pointer was moved over each ring the child would hear the name of the corresponding child. When a face was clicked, the corresponding name would appear in a space near the bottom of the screen and the button around that face was disabled. Children could clear the selection and start over at any point by clicking on a red ‘Start Again’ button. If fewer than three nominations were made, the child received an alert which gave him or her the choice of either completing three nominations or of skipping to the next task. After making the positive nominations and clicking on a green ‘OK’ button to indicate completion,

children saw the same class photograph but this time were asked to click on the faces of three children with whom they would really not like to play. Children were prevented from nominating themselves (their own 'button' was disabled), but were free to nominate classmates of either sex.

### Procedure

Children completed the task in groups of between 3 and 7 (with smaller groups for the younger children). Each child was seated at a computer in the school's computer laboratory, spaced apart from other children as much as possible. They were given a general introduction to the tasks, and then donned the headphones and clicked on the Start button on the first screen to commence the task. Research assistants who provided help when needed supervised them. Few problems were reported, and all children were familiar with the use of the mouse button. All tasks were presented in a random order (which, along with the use of headphones, helped to preserve individual privacy), and children completed the battery of tasks in a session usually lasting between 10 and 20 minutes, although there were no time limits on any task.

### Scoring

*Faux Pas.* Consistent with Baron-Cohen et al. (1999), children had to answer all questions for a story correctly in order to pass that story (scoring 1 point). Thus, correct answers to all 24 questions in the task would lead to a faux pas score of 4. Since there were two response options for each of six questions, the probability of passing a story by random guessing is very low (.016; across four stories, .06). In addition to this overall score, children re-

ceived 'question scores' out of four for each of the six questions. This allowed an analysis of which questions were relatively difficult or easy for the children. Since each question was answered by selecting one of two alternatives, chance responding would lead to a score of 2 for each of the six question scores.

*Peer status.* Three steps were involved, based on Coie and Dodge (1983, 1988). First, the numbers of positive/like (L) and negative/dislike (D) nominations received by each participant were standardised within each classroom. Second, the difference between those standardised scores was used to create a 'social preference' (SP) score, and the sum of the same standardised scores was used to create a 'social impact' (SI) score. Finally, the social preference and social impact scores were themselves standardised within classroom and used along with the standardised L and D scores to allocate children to five peer status group categories: Popular ( $SP > 1, L > 0, D < 0$ ). Rejected ( $SP < -1, L < 0, D > 0$ ). Controversial ( $SI > 1, L > 0, D > 0$ ). Neglected ( $SI < -1, L < 0, D < 0$ ), and Average ( $-1 < SP < 1$  and  $-1 < SI < 1$ ).

This resulted in successful classification of all but five of the 308 children, as follows: Popular:  $n = 40$ , mean absolute number of negative nominations ( $M_{\text{negative}}$ ) = .65, mean absolute number of positive nominations ( $M_{\text{positive}}$ ) = 6.38. Rejected:  $n = 40$ ,  $M_{\text{negative}} = 8.20$ ,  $M_{\text{positive}} = .88$ . Controversial:  $n = 18$ ,  $M_{\text{negative}} = 7.06$ ,  $M_{\text{positive}} = 4.72$ . Neglected:  $n = 48$ ,  $M_{\text{negative}} = .85$ ,  $M_{\text{positive}} = 1.08$ ). Average:  $n = 157$ ,  $M_{\text{negative}} = 2.11$ ,  $M_{\text{positive}} = 2.93$ . This distribution was similar for each age group,  $\chi^2(4, N = 303) = 1.52, p = .82$ , and gender,  $\chi^2(4, N = 303) = 5.95, p = .21$ .

## Results

Faux pas

We performed an analysis of variance on the overall faux pas scores (number of stories passed, out of a maximum 4), with age group and sex as the between-subjects variables. This showed only a significant main effect of age group,  $F(1, 304) = 88.35, p < .001$ , partial  $\eta^2 = .23$ . An inspection of data from the entire sample showed that the younger children scored significantly lower than the older children,  $M = .93, SD = 1.27$ , and  $M = 2.44, SD = 1.41$ , respectively. However, **one-sample** t-tests for each age group separately showed that these scores were significantly above the chance value of **.06 (.016 per story \* 4 stories)**: younger group,  $t(112) = 7.26, p < .001$ ; older group,  $t(194) = 23.52, p < .001$ . Further analysis of story effects showed only that one of the stories – where one character says he hates apple pie to someone who has just made him one – was generally passed less often than the other three (Cochran's  $Q, p < .001$ ; pass rate 40% vs. 50% for the remaining stories).

Analysis of performance on individual questions (scores out of a maximum of 4) showed that both age groups scored above chance (2) on all questions, with the exception of the initial detection of the faux pas, where the younger children scored at chance,  $M = 2.15, SD = 1.60, t(112) = 1.00, p = .32$ ; all other  $t > 6.43, p < .001$ . However, it is clear that three questions – identification, feelings, and comprehension – were generally easier than the others, with the younger age group scoring on average at least 3.30 out of 4 on each of these items, and the older age group scoring at ceiling level ( $> 3.86$  on each). In contrast, the other three items – detection, intention, and ignorance – were relatively difficult, with younger children scoring below 3 on these and older children below 3.6 on these. This pattern is illustrated in Figure 1.

-----  
 Figure 1 about here  
 -----

Faux pas and peer status

Our next analysis considered associations between the overall faux pas scores and the sociometric measures (standardised positive nominations, standardised negative nominations, social preference scores, and social impact scores). Table 1 shows the **Pearson** correlation coefficients for these associations, both for the whole sample and for each age group separately. Overall, faux pas understanding was positively associated with social preference scores. However, Table 1 shows that two qualifications must be made: First, these associations are evidently due more to negative correlations with the standardised number of negative peer nominations than to positive correlations with positive nominations. Second, the significant correlations noted above, along with a marginally significant negative association with social impact scores, are present only for the older age group. Furthermore, the pattern of correlations within each age group remained virtually unchanged after controlling for age. Finally, discounting scores for faux pas stories where the comprehension question was failed made virtually no difference to the pattern of correlations.

-----  
 Table 1 about here  
 -----

The link between faux pas and peer acceptance is confirmed in analysis of peer status group differences on faux pas performance. Following preliminary analyses of variance showing a significant effect of peer status for the older group only: older group,  $F(4, 189) = 2.91$ ,  $p < .025$ , partial  $\eta^2 = .06$ , and younger group,  $F(4, 104) = 0.64$ ,  $p = .63$ , planned contrasts of each extreme sociometric group against the average group showed that rejected and controversial 8- to 9-year-olds were significantly lower on faux pas performance: rejected vs. average  $t(189) = 2.59$ ,  $p = .01$ ; controversial vs. average  $t(189) = 2.46$ ,  $p < .02$ ; popular vs. average  $t(189) = 0.55$ ,  $p = .55$ ; neglected vs. average  $t(189) = 0.20$ ,  $p = .85$ . The correspond-

ing mean scores are shown in Table 2. The lower mean scores of the controversial and rejected children are consistent with the correlations of faux pas scores with social preference, social impact, and standardised negative nominations discussed above. Specifically, rejected children are low on social preference and high on negative nominations, while controversial children are high on social impact and high on negative nominations. Interestingly, further analysis suggested that the poorer performance of the rejected children was especially true of the rejected boys, while the poorer performance of the controversial children was especially true of the controversial girls.

-----  
 Table 2 about here  
 -----

Our final analysis examined whether certain faux pas questions were responsible for the above associations in the older age group. Because of concerns about the uneven distribution of scores on the individual ‘question scores’, we divided children into those scoring 3 or 4 and those scoring below 3. Given the almost universally high performance on the three ‘easy’ questions (only 5 or fewer of the 195 children scored below 3 out of 4 on these), this distinction could not account for variability in peer acceptance/rejection. However, as shown in Table 3, performance on two of the ‘difficult’ questions – intention, and ignorance – was significantly associated with social preference (reflecting negative associations with negative nominations). The children who scored below 3 out of 4 received significantly more negative nominations and thus had significantly lower social preference scores. Consistent with this, rejected and controversial children – the peer status groups with relatively high levels of negative peer nominations – were together more than twice as likely as the other peer status groups to have low intention and low ignorance scores: 30% of rejected/controversial children scored low on intention, in comparison with 12% of other children,  $\chi^2(1, N = 194) =$

7.86,  $p = .005$ , while 35% of rejected/controversial children scored low on ignorance in comparison with 17% of other children,  $\chi^2(1, N = 194) = 5.89, p < .02$ .

-----

Table 3 about here

-----

## Discussion

The results reported above confirm previous findings that children's detection and understanding of faux pas improve with age (Banerjee, 2000; Baron-Cohen et al., 1999). In particular, although performance on individual questions tended to be high, correct responses to all six questions following a faux pas story were found on average in less than one story out of four for the younger age group, in comparison with over two stories for the 8- to 9-year-olds. The distribution of errors across questions was uneven, however. Children very rarely failed to identify the faux pas statement when directly asked, to recognise that the insulted character was upset/sad, or to answer the comprehension question correctly. The errors were much more likely to appear on the initial detection of faux pas, the recognition that the upset was not intentional, and/or the appreciation of the ignorance that led to the faux pas.

Critically, the variability in faux pas scores was associated with variability in children's peer relations. Children with higher social preference scores (i.e., more preferred by their classmates) tended to perform better on the faux pas test, and in particular on the intention and ignorance questions. Furthermore, it seemed clear that this association was due not so much to the elevated performance of popular children (who are liked more than average by their classmates) as to the poor performance of rejected and controversial children (who are



disliked more than average by their classmates). Finally, and intriguingly, it seemed that these associations were present only in the older age group.

Turning first to the differences between faux pas questions, we are in a better position now to explain the previously observed developmental lag between passing standard false belief tasks and succeeding on faux pas tasks (see Banerjee, 2000; Baron-Cohen et al., 1999). The results show that, as hypothesised, the questions about the lack of intention and the knowledge state that led to the faux pas are indeed the most significant aspects of the task. Even 5- to 6-year-old children are usually able to pick out the faux pas statement (rather than the neutral statement) when directly asked, and can see the negative consequence of the insult for the insulted character's feelings. The challenging aspects of the task concern the higher-order reasoning required to infer that the upset had not been intended, and the awareness of the faulty knowledge state that was responsible for the faux pas. Furthermore, it is the variability on these aspects of the task that is associated with sociometric status scores. Returning to the claims that the faux pas task measures more 'naturalistic' mental-state reasoning, we suggest that it is the tracking of multiple, linked mental states that lies at the heart of everyday folk psychology. Furthermore, these mental states often relate to intangible entities in social life: the faux pas stories involved beliefs/knowledge about past events and characters' psychological preferences, in contrast to the beliefs about physical object identity and location that are typically the concern of standard belief tasks.

Further research is still needed in order to specify whether other less naturalistic tasks with higher levels of complexity (e.g., standard second-order false-belief tasks) show similar associations with social relations<sup>3</sup>. However, there is good evidence from other strands of theory of mind research that the naturalistic qualities identified above – related to the tracking of multiple mental states in the context of social interactions – can help to explain the relative difficulty of the faux pas task. First, children's understanding of linkages among different

mental states tends to appear later in development, in comparison with the understanding of those mental states in isolation. For example, children's appreciation of the emotional consequences of beliefs and desires continues to develop for several years beyond success on simpler belief and desire tasks (e.g., Ruffman & Keenan, 1996; Yuill, Perner, Pearson, Peerbhoy, and van den Ende, 1996). In addition, moving on to the issue regarding the referents of the mental states, children's performance on a 'social' version of the false belief task involving beliefs about story characters' play activities was found by **Nguyen and Frye (1999)** to lag behind their performance on a standard 'physical' false belief task. We suggest that these kinds of issues are likely to be responsible for shaping developmental trends in faux pas understanding. The fact that the questions about intention and ignorance are the ones responsible for the associations with sociometric status support our suggestion that these questions are tapping abilities and processes used in everyday reasoning. Importantly, other naturalistic tasks (e.g., that tap the understanding of irony and sarcasm) may also be successful in predicting variability in peer relations, and further research on this topic is clearly needed.

In our report on the data analysis, we qualified our observation of the overall link between faux pas scores and sociometric preference by noting that the association was explained more by the negative peer nominations – higher in rejected and controversial children – than by the positive peer nominations. **Also, we demonstrated** that the significant relationships were only found among the older children. These qualifications raise important and unresolved issues. First, although it is entirely reasonable to expect that an impaired understanding of faux pas would be found among children who are disliked by their classmates more often than average, it is unclear why heightened faux pas performance is not associated with increased positive reactions from peers. In order to address this ambiguity, we must link faux pas understanding to the more immediate, socio-behavioural characteristics – such as

aggression, withdrawal, and sociability – that are typically seen as major predictors of peer acceptance and rejection (Newcomb et al., 1993). For example, perhaps the most important area of overlap in the behavioural profiles of rejected and controversial children is their high scores on measures of aggressive behaviour, and we can speculate that poorer faux pas understanding is associated with negative sociometric nominations precisely because it leads to more aggression. Longstanding evidence has shown that hostile attribution biases are more common in aggressive children (Dodge, 1980; Dodge & Frame, 1982), and since faux pas stories involve unintentional insults that are a commonplace feature of everyday life, a poorer understanding of these kinds of situations should be associated with increased aggression. Importantly, although faux pas performance is not concurrently associated with positive peer nominations, we should leave open the possibility that better faux pas understanding may, in time, also lead to increased sociability and, thereby, to increased peer acceptance.

On the other hand, we must also recognise that performance on the faux pas task may be the consequence, as well as the cause, of peer acceptance/rejection. If we assume that positive peer interactions are an important context for the development of social skills (see Asher & Coie, 1990) we can speculate that negative peer experiences, likely to be experienced by (and provoked by the aggression of) rejected and controversial children, may make it difficult for children to acquire advanced mental-state reasoning skills. Interestingly, it appears that the neglected status is not associated with difficulty on the faux pas task. This **finding** is consistent with broader lines of evidence that children with this peer status classification are not likely to be at risk of developmental difficulties (see Newcomb et al., 1993). Thus, it is likely to be the presence of highly negative social relations rather than the absence of highly positive social relations that is associated with difficulty on the faux pas task.

We must also acknowledge the possibility that other factors – besides aggressive behaviour and hostile attribution biases – may account for the associations between negative

peer experiences and difficulty on the faux pas task. First, we need to be more specific about the socio-behavioural characteristics that are associated with faux pas performance; some particular forms of aggression and/or prosocial behaviour may be more relevant than others **are**. In addition, there are likely to be close links with emotional characteristics, such as social anxiety (e.g., Banerjee & Henderson, 1999). Finally, given evidence that language competence is associated with performance on theory of mind tasks (e.g., Astington & Jenkins, 1999; also see Baron-Cohen et al., 1999) along with observed links between peer rejection and academic difficulties (see Gifford-Smith & Brownell, 2003), the contribution of general cognitive and linguistic abilities to associations between peer status and faux pas understanding must also be addressed in further research.

A further, related issue concerns the fact that associations between faux pas and sociometric scores were found only among the older children. We can speculate that the advanced mental-state reasoning tapped by the faux pas task is of greater significance in the older children than in the younger children. Whereas young children's friendships relate primarily to companionship and common play interests, the peer relations of the 8- to 9-year-olds are likely to revolve around psychological dynamics of social evaluation in relation to peer group norms (e.g., see Bigelow & la Gaipa, 1975; Parker & Gottman, 1989). In the latter context, an insight into multiple mental states (including unintentional insults in particular) may be of central importance in the maintenance of positive – or avoidance of negative – peer relations. Indeed, our evidence suggests that whereas younger children share common difficulties with faux pas reasoning, an older child with such difficulties may well experience problems in interacting with his or her more sophisticated peers. Thus, although of course it remains possible and even probable that simpler mental-state reasoning tasks may be associated with aspects of younger children's social relations, faux pas understanding may assume

greater significance as a predictor of social behaviour and peer relations as children increase in age.

In summary, the present study has demonstrated that responses to faux pas stories are indeed an effective and useful index of social understanding that relates to ‘real-life’ social outcomes. However, longitudinal analyses are clearly needed to address the outstanding issues discussed above, most particularly with regard to the causal direction of associations between faux pas understanding and social outcomes. Such analyses would build on the preliminary findings of links between faux pas performance and peer rejection found here, by identifying more precisely the role played by social-cognitive abilities in the developmental trajectories of children’s everyday social life.

## References

- Asher, S. R., & Coie, J. D. (Eds.). (1990). Peer rejection in childhood. New York: Cambridge University Press.
- Astington, J. W., & Jenkins, J. M. (1999). A longitudinal study of the relation between language and theory-of-mind development. Developmental Psychology, *35*(5), 1311-1320.
- Badenes, L. V., Estevan, R. A. C., & Bacete, F. J. G. (2000). Theory of mind and peer rejection at school. Social Development, *9*(3), 271-283.
- Banerjee, R. (2000). The development of an understanding of modesty. British Journal of Developmental Psychology, *18*(4), 499-517.
- Banerjee, R., & Henderson, L. (2001). Social-cognitive factors in childhood social anxiety: A preliminary investigation. Social Development, *10*(4), 558-572.
- Baron-Cohen, S. (1997). Mindblindness: An essay on autism and theory of mind. Cambridge, MA: MIT Press.
- Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a “theory of mind”? Cognition, *21*(1), 37-46.
- Baron-Cohen, S., O’Riordan, M., Stone, V., Jones, R., & Plaisted, K. (1999). Recognition of faux pas by normally developing children with asperger syndrome or high-functioning autism. Journal of Autism and Developmental Disorders, *29*(5), 407-418.
- Bigelow, B. J., & la Gaipa, J. J. (1975). Children’s written descriptions of friendship: A multidimensional analysis. Developmental Psychology, *11*(6), 857-858.
- Coie, J. D., & Dodge, K. A. (1983). Continuities and changes in children’s social status: A five-year longitudinal study. Merrill-Palmer Quarterly, *29*(3), 261-282.
- Coie, J. D., & Dodge, K. A. (1988). Multiple sources of data on social behavior and social status in the school: A cross-age comparison. Child Development, *59*(3), 815-829.

Dahlgren, S. O., & Trillingsgaard, A. (1996). Theory of mind in non-retarded children with autism and Asperger's syndrome: A research note. Journal of Child Psychology and Psychiatry and Allied Disciplines, *37*(6), 759-763.

Dodge, K. A. (1980). Social cognition and children's aggressive behavior. Child Development, *51*(1), 162-170.

Dodge, K. A., & Frame, C. L. (1982). Social cognitive biases and deficits in aggressive boys. Child Development, *53*(3), 620-635.

Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. Journal of School Psychology, *41*(4), 235-284.

Happe, F. G. E. (1994). An advanced test of theory of mind: Understanding of story characters' thoughts and feelings by able autistic, mentally handicapped, and normal children and adults. Journal of Autism and Developmental Disorders, *24*(2), 129-154.

Jolliffe, T., & Baron-Cohen, S. (1999). The Strange Stories Test: A replication with high-functioning adults with autism or Asperger syndrome. Journal of Autism and Developmental Disorders, *29*(5), 395-406.

Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. Psychological Bulletin, *113*(1), 99-128.

Nguyen, L., & Frye, D. (1999). Children's theory of mind: Understanding of desire, belief and emotion with social referents. Social Development, *8*(1), 70-92.

Parker, J. G., & Gottman, J. M. (1989). Social and emotional development in a relational context: Friendship interaction from early childhood to adolescence. In T. J. Berndt & G. W. Ladd (Eds.), Peer relationships in child development (pp. 95-131). Oxford, England: Wiley.

Perner, J., & Wimmer, H. (1985). "John thinks that Mary thinks that . . .": Attribution of second-order beliefs by 5- to 10-year-old children. Journal of Experimental Child Psychology, 39(3), 437-471.

Peterson, C. C., & Siegal, M. (2002). Mindreading and moral awareness in popular and rejected preschoolers. British Journal of Developmental Psychology, 20(2), 205-224.

Ruffman, T., & Keenan, T. R. (1996). The belief-based emotion of surprise: The case for a lag in understanding relative to false belief. Developmental Psychology, 32(1), 40-49.

Slaughter, V., Dennis, M. J., & Pritchard, M. (2002). Theory of mind and peer acceptance in preschool children. British Journal of Developmental Psychology, 20(4), 545-564.

Sullivan, K., Zaitchik, D., & Tager-Flusberg, H. (1994). Preschoolers can attribute second-order beliefs. Developmental Psychology, 30(3), 395-402.

Sutton, J., Smith, P. K., & Swettenham, J. (1999). Social cognition and bullying: Social inadequacy or skilled manipulation? British Journal of Developmental Psychology, 17(3), 435-450.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. Cognition, 13(1), 103-128.

Yuill, N., Perner, J., Pearson, A., Peerbhoy, D., & et al. (1996). Children's changing understanding of wicked desires: From objective to subjective and moral. British Journal of Developmental Psychology, 14(4), 457-475.



### Footnotes

<sup>1</sup>These measures related to peer relations (loneliness, peer status, and a class play activity), emotional characteristics (social anxiety, depressive symptoms), self-perception, and social cognition (including the faux pas task).

<sup>2</sup>This was not true for the first, fourth, and sixth questions, where Yes and No response buttons remained in fixed positions in accordance with a standard presentation of these buttons in other tasks in the battery.

<sup>3</sup>A pilot version of Sullivan et al.'s (1994) second-order false-belief task was in fact administered as part of the test battery at this timepoint. Passing this task was positively correlated with social preference, but this effect disappeared after controlling for performance on the faux pas task. In contrast, the faux pas scores remained significantly correlated with social preference among the older children after controlling for the second-order false-belief task performance.

## Appendix

### Sample faux pas story and questions

Nick has painted a picture of a rocket for a class exhibition. Nick's friend, Peter, is in another class, but he comes to see the exhibition after school. Peter points to Nick's picture and says, "The rest of the paintings are quite nice, but this rocket picture is dreadful, isn't it?" Nick says, "Oh, I need to go home now."

**Detection:** In the story, did someone say something they should not have said? Yes OR No

**Identification:** What was said that should not have been said? Nick said, "I need to go home now" OR Peter said, "This rocket picture is dreadful"

**Feelings:** How does Nick feel now? Sad OR Pleased

**Intention:** Did Peter want to make Nick upset? Yes OR No

**Comprehension:** Who painted the rocket picture? Nick painted it OR Someone else painted it

**Ignorance:** Did Peter know that Nick had painted the rocket picture? Yes OR No

Other scenarios: one character says curtains are horrible to person who has just bought them; one character says he hates apple pie to cousin who has just made one; one character is negative about violins to friend who has just started violin lessons.

Figure 1. Mean scores on each of the six faux pas questions, by age group.

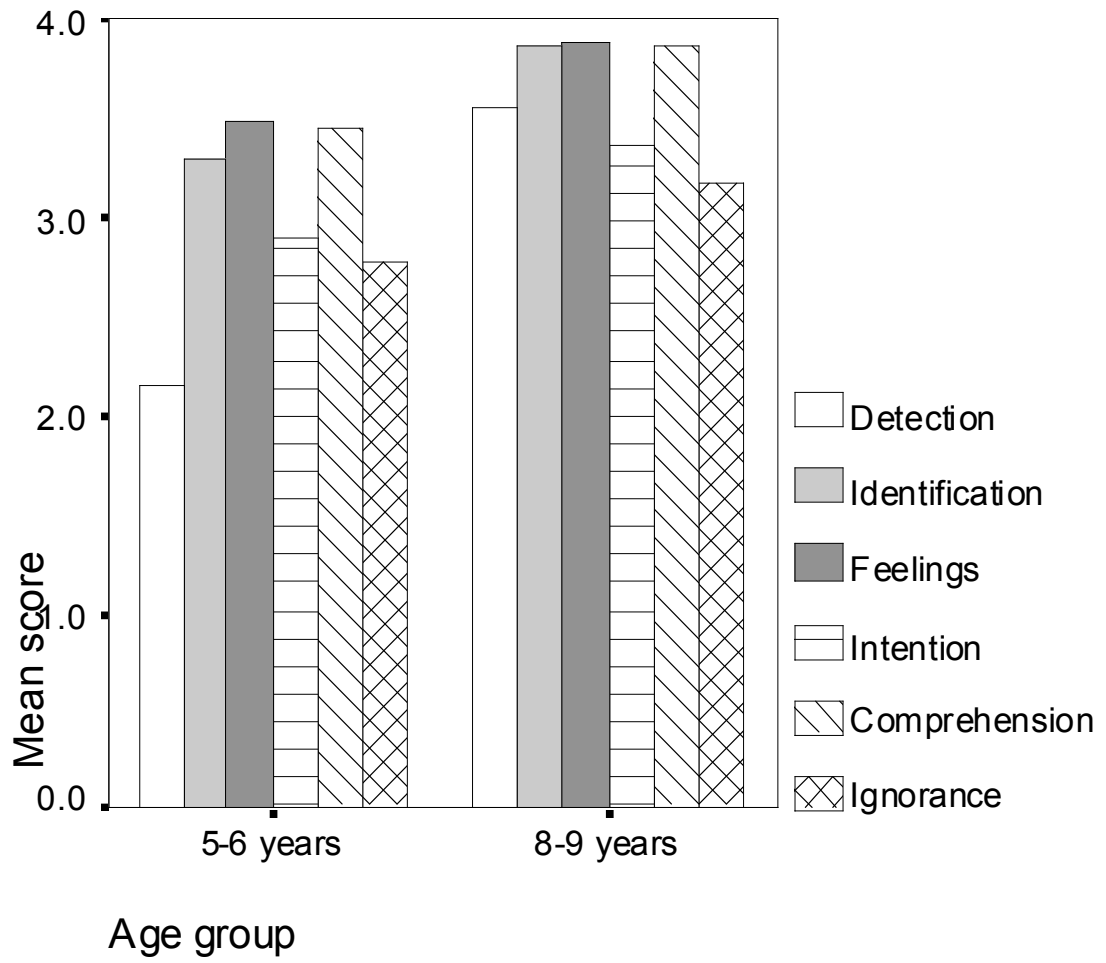


Table 1. **Pearson** correlations between faux pas scores and sociometric scores, by age group.

	Social preference	Social impact	Standardised positive nominations	Standardised negative nominations
Age 5-6 years	.08	-.04	.04	-.09
Age 8-9 years	.20**	-.13 <sup>+</sup>	.09	-.23***
Total	.13*	-.07	.06	-.15**

Note: <sup>+</sup>  $p \leq .10$ ; \*  $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$ .

Table 2. Mean (SD) faux pas scores of younger and older children, by peer status classification.

	Popular	Rejected	Controversial	Neglected	Average
Age 5-6 years	1.19 (1.28)	0.77 (0.83)	0.75 (1.49)	1.27 (1.53)	0.81 (1.26)
Age 8-9 years	2.46 (1.14)	1.85 (1.59)	1.50 (1.43)	2.58 (1.37)	2.63 (1.38)

Table 3. Mean (SD) sociometric scores of children scoring high and low on intention and ignorance questions (8-9 year age group only)

	Social preference	Standardised positive nominations	Standardised negative nominations
Faux pas – Intention			
Low (< 3 out of 4), $\underline{n}$ = 29	-.86 (1.74)	-.26 (.78)	.60 (1.33)
High ( $\geq$ 3 out of 4), $\underline{n}$ = 166	.15** (1.55)	.06 (1.01)	-.10** (.88)
Faux pas – Ignorance			
Low (< 3 out of 4), $\underline{n}$ = 40	-.58 (1.76)	-.19 (.97)	.38 (1.22)
High ( $\geq$ 3 out of 4), $\underline{n}$ = 155	.15** (1.54)	.06 (.99)	-.09* (.90)

Note: Asterisk(s) indicate high vs. low t-test significant at \*  $p \leq .05$  or \*\*  $p \leq .01$