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Exchanging Social Positions:

Enhancing Perspective Taking Within a Cooperative Problem Solving Task

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Abstract

When people occupy different social positions within a cooperative task they experience discrepant role and situation demands and thus have divergent perspectives. The reported research predicts that exchanging social positions within a cooperative task can overcome divergences of perspective. This prediction was tested in two experiments using the Communication Conflict Situation. The first experiment ($n = 88$) found that position exchange increased the ability of dyads to solve a communication conflict arising through discrepant perspectives. The second experiment ($n = 120$) found that the effect of position exchange exceeds that of purely cognitive perspective taking, thus suggesting that it cannot be reduced to a purely cognitive process. Exchanging social positions is a newly identified and powerful social mechanism through which perspective taking, within a cooperative task, can be enhanced.

Key Words: Position exchange, problem solving, perspective taking, attribution, dominance, Mead.

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Exchanging Social Positions:

Enhancing Perspective Taking Within a Cooperative Problem Solving Task

Contemporary societies are heterogeneous. The structural differentiation of society into diverse institutions and the necessary interaction between these institutions means that encountering strangers has become a daily occurrence (Simmel, 1950). We live in a social world filled with ‘others’ – people embedded in different contexts, participating in different cultures and institutions, and having different interests (Gillespie, 2008). Unsurprisingly, problems of perspective taking have come to the foreground in many domains, including intergroup conflict (Pettigrew & Tropp, 2008), international relations (Booth & Wheeler, 2008), social policy (Scheff, 1967), organizational management (Boland & Tenkasi, 1995), therapy (Cooper, 2008), health service research (Assa-Eley & Kimberlin, 2005), industrial relations (Spekman, Salmond & Lambe, 1997), and economic exchange (Fullbrook, 2002). We assume that these problems are created, in part, by participants experiencing different situation and role demands. The present article investigates whether divergences of perspective can be overcome by people exchanging social position and thus experiencing the situation and role demands of the other.

Perspective Taking: Cognitive and Social Approaches

To date much of the empirical literature on perspective taking has focused upon its cognitive underpinnings. It is now widely agreed that, although perspective taking is central to social life, people are not particularly good at it. People egocentrically anchor

their understanding of other people in their own assumptions (Fussell & Krauss, 1991; Pollmann, Finkenauer & Dijk, 2008). First, people assume that the perspective of the other is the same as their own. Second, to the extent that this initial projection is inadequate, people make secondary adjustments which are limited by cognitive capacity (Epley & Gilovich, 2006). Research shows that both children and adults make the same initial egocentric bias when perspective taking, but that adults are better at secondary adjustments (Epley, Morewedge, & Keysar, 2004, but see, Nadig, & Sedivy, 2002). Moreover, increasing cognitive load seems to limit the extent to which speakers are able to orient to the perspective of their audience (Roßnagel, 2000), which again indicates a secondary adjustment process that is cognitively demanding.

Although perspective taking must entail cognitive mechanisms, it must also entail social interaction (Coelho & Figueiredo, 2003; Marková, 2003; Martin, Sokol & Elfers, 2008). Research from social psychology (Moscovici, 1976) and developmental psychology (Piaget, 1932) has shown that social interaction can lead to decentration and the production of perspective-transcending knowledge. Sammut and Gaskell (2010) show how perspective taking cannot be understood in isolation of the representational content of the given perspectives and the social-institutional relation between the parties concerned. It makes a difference whose perspective is being imagined, what their perspective actually is and what the quality of the social relation between self and other is. Thinking harder and longer about the perspective of the other is not always sufficient to overcome divergences of perspective. People can be resistant to the perspective of the other due to identity commitments (Psaltis & Duveen, 2006) or power asymmetries (Galinsky, Magee, Inesi, & Gruenfeld, 2006). The present article advances a distinctively social approach to perspective taking called position exchange.

Position Exchange

The theory of position exchange is a novel development of Mead's (1913, 1934; Farr, 1996) ideas concerning the social development of perspective taking within cooperative activities (Gillespie, 2005, 2006; Martin, 2005; Martin & Gillespie, 2010; Martin, Sokol & Elfers, 2008). The definition of cooperative activity, as used in our theory, has two parts (Ashley & Tomasello, 1998; Dillenbourg, 1999; Rose, 2004). First, cooperative activity is defined by having a division of labour such that participants have different social positions and experience different situational demands. Second, successful completion of a cooperative activity entails participants cooperating across their differences. Collaborative activities, in contrast, are defined as activities where people work together without differentiated roles or responsibilities. Cooperative activities can vary in terms of power asymmetries and the extent to which goals are shared (Rummel & Spada, 2005). Thus some activities that are often labelled as competitive are also cooperative activities in the sense of our theory. Examples of cooperative activities include: buying/selling, performing/listening, giving/receiving, directing/following, questioning/answering, throwing/catching, and hiding/seeking.

The theory of position exchange assumes that each participant within a cooperative activity has a distinctive perspective due, in part, to the distinctive social position they occupy within the cooperative activity. This is one source of divergences of perspective: each participant experiences different situation and role demands. The theory posits that routine and frequent exchange of social positions within cooperative activities occurring during child and adult development are a basis for the development of perspective taking (Gillespie, in press).

The idea of position exchange rests upon a key assumption, namely, that social positions shape people's perspectives. Evidence for this assumption is widespread and conclusive. For example, the classic social psychological research on the power of the situation (Ross & Nisbett, 1991) supports the assumption. Furthermore, the works of Milgram, Zimbardo, Asch, and many others have demonstrated that people's thoughts and actions can be shaped to a startling degree by situational manipulations. Moreover, these situational influences, despite being powerful, are often underestimated (Ichheiser, 1949), as revealed, for example, by the psychiatrists who estimated that only a tiny minority of normal people would obey the experimenter in Milgram's (1969) experiments.

Position exchange is different to cognitive perspective taking. Cognitive perspective taking has been defined as "intuiting, as accurately as possible, another person's thoughts, feelings, attitudes, interests or concerns in a particular situation" (Epley, Caruso, & Bazerman, 2006, p. 873). People engaging in cognitive perspective taking try to imagine the perspective of another person without experiencing the social situation of the other directly. Position exchange, on the other hand, occurs when someone moves out of their own social situation and into the social situation of the other, thus experiencing the situation of the other directly.

Evidence for the Theory of Position Exchange

Although there is no direct evidence for the relation between position exchange and perspective taking, there are several studies which provide indirect evidence. In an experimental study of problem solving, Shirouzu, Miyake and Masukawa (2002) found that dyads working together on a paper folding task produced more abstract, eloquent

and mathematical solutions compared to individuals working alone who engaged mainly in trial-and-error folding. They speculate that, because the task was done by one person at a time, the dyads engaged in frequent exchange between actor and observer positions, and this facilitated distancing from the particularities of the problem. In a meta-review of research on role playing, McGregor (1993) found evidence that having children play the role of victims of racism could reduce subsequent racist behaviour. Role play is closely related to the idea of position exchange, except that, instead of taking the actual social position of the other, one acts it out. Finally, there have also been qualitative studies of teachers becoming students (Lowe, 1987) and doctors becoming patients (Edelstein & Baider, 1982) which indicate that experiencing the social position of the other can lead to better understanding of the perspective of the other.

However, there is also research which may seem to provide inconclusive evidence. Research conducted in the 1960s found contradictory evidence regarding the question of whether role reversal leads to a convergence of perspectives (Johnson, 1967; Muney & Deutsch, 1968). However, role reversal, as operationalized in these experiments, is not equivalent to position exchange. Participants with discrepant points of view were asked to argue for the other's point of view. In our view, such a manipulation is a form of cognitive perspective taking rather than a position exchange manipulation, because these manipulations did not entail relocating individuals within socio-institutional structures such that they would experience the situation and role demands of the other.

The two experiments reported in the present article provide the first direct test of the theory of position exchange.

Experiment 1

The hypothesis was that position exchange would lead to enhanced perspective taking during a cooperative problem solving task. The independent variable was the presence of absence of position exchange during a cooperative task and the dependent variable was whether dyads were able to correctly resolve a problematic divergence of perspectives.

Method

The Communication Conflict Situation

The Communication Conflict Situation developed by Blakar (1973) was used for the cooperative problem solving task. This paradigm is ideally suited to testing the hypothesis because: it is a clearly documented task, it is based on creating two clearly differentiated social positions (Director and Follower), it creates a divergence of perspective which is challenging (Palm & Öhman, 1992), cooperation across the divergence of perspective is essential to resolving the task and, thus, successful resolution of the task is a good index of perspective taking (Cramton, 2001).

In the basic trials, both Directors and Followers were given a copy of the same map (an abstract grid city map). However, the Director's map had a route marked on it while the Follower's map had no route. The task was for the Director to communicate the route to the Follower and for the Follower to draw the correct route on their blank map. The Director and Follower sat opposite each other with their respective maps concealed. Apart from not being able to see each other's maps, no restrictions were put on the communication. Participants were given up to 15 minutes. Each trial ended when

the dyad presented the correct route on the Follower's map to the experimenter. This basic set-up rarely produces conflict, and most dyads solve it in a couple of minutes (Blakar, 1973, 1984).

The basic set up was a prelude to the conflict situation. In the conflict situation, a short but crucial extra road was present on the Director's map, making the Director's route impossible for the Follower to draw on the blank map. Neither Director nor Follower was aware of the discrepancy. The rules for this conflict situation were the same as in the basic situation, except that dyads were given up to 30 minutes. Participants who gave up or ran out of time were scored as not solving the task. Solving the conflict trial entailed both participants agreeing that the maps were discrepant and presenting this fact to the experimenter. In line with previous studies, participants usually spent longer with these discrepant maps and failed to solve them (Blakar, 1973).

Attempting to resolve the discrepant maps can be described as a "cooperative problem solving task" (Boyle, Anderson, & Newlands, 1994, p. 1). Solution requires dyads to work cooperatively and engage in decentration and perspective taking to overcome their divergent perspectives (Blakar, 1973; Cramton, 2001). Accordingly, we took success in solving the discrepant maps as an operationalization of perspective taking within a cooperative task, and thus as our dependent variable.

Design

The experimental design was between subjects with two conditions: a control condition and a position exchange condition. Each group was involved in four trials of the Communication Conflict Situation. The first three trials were with the basic set-up. The fourth trial was an impossible route due to a small discrepancy in the maps. In the

control condition each participant maintained their assigned social position (Director or Follower) throughout the four trials. In the position exchange condition, the participants exchanged social positions (thus Directors became Followers and Followers became Directors) in the second trial and then reverted to their original social positions for the third and fourth trials.

Procedure

The procedure followed the guidelines produced by Blakar (1973). Participants sat facing each other across a table. The four routes were based on the same map, but participants were handed fresh maps for each route such that the Director always had a map with just one route marked on it and the Follower always had a fresh blank map. Followers were requested to mark their route with a pen. Followers often asked for, and received, new blank maps because they had spoiled their original blank map by marking erroneous routes. The maps were on clipboards and shielded from view. All participants fully understood the task as demonstrated by their success on the first map. After the fourth trial, with the discrepant maps, the participants were fully debriefed concerning the purpose of the experiment.

Participants

Eighty eight participants recruited from the University of Stirling were randomly grouped into 44 dyads and each dyad was then randomly assigned to either control or position exchange conditions such that there were 22 dyads in each condition. Each participant within the dyads was randomly assigned to either the Director or Follower social positions upon entering the room. The participants had a mean age of 24 ($SD =$

11.07) and were predominantly female (65 females and 23 males). There were 34 females and 10 males in the fixed position condition and 31 females and 13 males in the position exchange condition.

Results and Discussion

All forty four dyads managed to solve the first three trials successfully within the 15 minutes allowed (M per trial = 129 seconds, SD = 86 seconds). Thirty two (73%) of the dyads in the fourth trial (with the discrepant maps) either gave up trying to solve the task or were unable to solve the task within the 30 minutes allotted. A repeated measures 2(condition)*3(first three trials) mixed ANOVA found no main effect of condition on time taken, $F(1, 42) = 0.053, p = .818, \eta^2 < .001$, indicating that position exchange did not have an effect on speed of task performance.

Regarding the hypothesis, no dyads (0%) in the control condition successfully solved the task while 12 of 22 dyads (55%) in the position exchange condition managed to resolve the discrepant perspectives. A Chi-Square analysis was used to test whether position exchange facilitated task solution in the fourth trial (discrepant maps). A significant association was found, $\chi^2(1, N = 44) = 16.50, p < .001$, and the Phi value indicated a substantial relationship (.612). This result indicates that position exchange has a powerful effect on perspective taking within the cooperative task.

However, despite the strength of the position exchange effect, it is not possible to conclude that it is entirely the result of the social process of position exchange. It might be that the effect is due to the manipulation enhancing cognitive perspective taking. Interventions aimed at stimulating cognitive and affective perspective taking have been found to be effective at, for example, increasing helping behaviour (Oswald,

1996), decreasing stereotypic biases (Galinsky & Moskowitz, 2000), decreasing various egocentric biases (Savitsky, Van Boven, Epley, & Wright, 2005) and reducing intergroup prejudice (Wolf, Cohen, Kirchner, Rea, Montoya & Insko, 2009). Perhaps the position exchange manipulation simply stimulated cognitive perspective taking. Accordingly, in our second experiment we test whether position exchange is superior to a purely cognitive perspective taking manipulation.

Assuming that the position exchange effect cannot be reduced to cognitive perspective taking, there are two possible explanations for the effect which need to be explored. The first possible explanation is based upon attribution theory. Research has shown that people tend to make self-serving attributions (Mezulis, Abramson, Hyde & Hankin, 2004). In the trial with the impossible route, both Director and Follower likely experience failure, and we would expect them to blame either their partner or the maps. Maybe position exchange ‘blurs’ the normally rigid opposition between self and other making it more difficult to blame the other because each was previously in the situation of the other. For example, research by Storms (1973) has shown that a change of visual perspective can attenuate the actor-observer divergence. If position exchange makes participants less likely to blame each other, then perhaps this attenuation of self-serving attribution leads participants toward blaming the map.

The second possible explanation of the effect is that position exchange alters the power relationship within the dyad. People in power tend to perceive others more stereotypically and judge them more negatively (Brauer & Bourhis, 2006). Power has been shown to inhibit communication and perspective taking in experiments (Galinsky et al., 2006), interpersonal relations (Collins & Marková, 1999) and organisations (Scholl, 1999). The map task appears to participants as requiring a flow of information

from the Director to the Follower. However, successful solution requires that information flows in the reverse direction. It is possible that the Director takes up a position of dominance *vis-à-vis* the Follower, and accordingly, movement of information about the discrepancy from the Follower to the Director is inhibited. Perhaps exchanging social positions reduces the power asymmetry (because both participants engage in directing and following), which, in turn, enables perspective taking.

Experiment 2

The second experiment tested whether the position exchange effect was due to cognitive perspective taking. It also explored whether position exchange alters either patterns of attribution or the power relation between participants. The main hypothesis (H₁) was that position exchange would be more effective at resolving discrepant perspectives than a cognitive perspective taking manipulation. The first exploratory hypothesis (H₂) was that position exchange would lead to more self-blame and less other-blame. The second exploratory hypothesis (H₃) was that position exchange would reduce the power asymmetry between Director and Follower.

Method

The Communication Conflict Situation

The Communication Conflict Situation (described in Experiment 1) was used again. Using the same cooperative problem solving task enabled comparison of results between the two experiments.

Design

The experiment had five within-dyad trials: four trials with congruent maps and a fifth trial with discrepant maps. The rationale for increasing the number of trials (from four to five) was to introduce an extra position exchange trial and, thus, to try to increase the effect of the position exchange manipulation on task solution.

The experiment had three between-dyad conditions: a control condition, a cognitive perspective taking condition, and a position exchange condition. In the control condition, each participant was randomly assigned a fixed social position (i.e., Director or Follower) at the outset and maintained this social position during the five trials. In the cognitive perspective taking condition, the participants were given instructions to take some time to try to understand the task from their partner's point of view. They were encouraged to imagine what their partner might be thinking and feeling, and to consider what expectations they might have, and how they might feel about any disagreements (in accordance with Oswald, 1996). Then, before moving on to the next trial, participants in this condition were asked to bring into the next trial their understanding of the thoughts and feelings of their partner. In the position exchange condition, participants exchanged social positions in Trial 2, then reverted to their original social positions in Trial 3, then exchanged positions again in Trial 4, and reverted again to their original positions for Trial 5. Analysis compared the extent to which participants in the three conditions were able to solve the discrepant maps in Trial 5 (H_1). The conversations that occurred during the task were analysed to assess attributions of blame (H_2) and communicative dominance (H_3).

Procedure

The basic procedure was the same as for the first experiment and followed the guidelines produced by Blakar (1973). All the conversations were audio recorded. After the fifth trial, with the impossible route, the participants were fully debriefed.

Participants

One hundred and twenty participants were recruited from the Stirlingshire area. All participants were paired with a participant of the opposite gender, to form 60 mixed gender dyads. Each dyad was randomly assigned to the experimental conditions until each of the conditions comprised 10 males directing females and 10 females directing males. Participant demographics were: 60 males, 60 females, age ranging from 18 to 59 years ($M = 26$; $SD = 10.94$), and from a wide range of occupational backgrounds.

Analysis of Communicative Dominance

Initiative-Response Analysis (Linell, Gustavsson & Juvonen, 1988; Linell, 2009) is a methodology for assessing communicative dominance in dyadic interaction. Instead of defining dominance in terms of the amount of speech produced, Initiative-Response Analysis defines dominance in terms of controlling the direction of the conversation and influencing the actions and utterances of the other party. Each utterance is analysed in terms of the preceding turn (e.g., how does it follow on from the previous turn?) and the proceeding turn (e.g., how does the other party react to the utterance?). Thus, communicative dominance is assessed in terms of who is leading, who is following, who is ignoring, and who is making the major initiations which change the course of the communication.

The analysis entails coding each utterance into one of 18 mutually exclusive categories (for a full account of these categories, see Linell, Gustavsson & Juvonen, 1988). These 18 categories can be assigned points on a six-point scale of dominance, ranging from turns which are totally dependent, not proactive, and often rejected or ignored (scored as 1), to turns which are independent, often to the point of ignoring what has gone before, and which are followed up by the other party (scored as 6). Averaging the scores for each participant in the dyad produces each participant's IR index, and subtracting the two IR indices produces the IR difference which provides a synthetic measure of the degree of asymmetry within the dyad. We used Initiative-Response Analysis to test the exploratory hypothesis (H₃) that position exchange reduces the power asymmetry.

Data and Data Analysis

The dependent variable for the main hypothesis (H₁) was success in solving Trial 5 (discrepant maps). In order to explore H₂ and H₃ all the conversations were transcribed. The transcripts contained 255,271 words, with 149,490 words spoken by Directors and 81,746 words spoken by Followers. First, the transcripts were coded for attributions of blame (H₂). The codes were: blaming self, blaming other, blaming the dyad, and blaming the map. Second, the transcripts were coded according to Initiative-Response Analysis (H₃).

All the coding was done using Atlas/ti, which is a computer software package that assists with the coding of textual data (Muhr & Friese, 2004). Separate transcripts were prepared for each dyad for each of the five trials (i.e., 60 dyads doing 5 trials = 300 transcripts). Coding of the 300 transcripts was blind to condition. A random sample

of five transcripts for each condition (i.e., 5%) was coded (for attribution and IR codes) by an independent coder and blind to condition, to assess inter-rater reliability. Cohen's Kappa (.743) was above .7 which indicates satisfactory coding.

Results and Discussion

All the dyads managed to complete the first four trials (basic maps) successfully within the 15 minutes allowed (M per trial = 160 seconds, SD = 105 seconds). A repeated measures 3(condition)*4(first four trials) mixed ANOVA showed no differences between the experimental conditions on speed of task performance, $F(2, 57) = 1.892, p = .16, \eta^2 = .008$. Thirty seven (62%) of the dyads in the fifth trial (discrepant maps) either gave up or were unable to finish within the 30 minutes allowed.

The main hypothesis (H_1), that position exchange would be more effective at resolving discrepant perspectives than a cognitive perspective taking intervention, was tested using a Chi-Square test. Figure 1 shows the number of dyads in each condition which solved Trial 5. There was a significant relationship between task solution and the three conditions, $\chi^2(6, N = 60) = 34.987, p < .001, \Phi = .764$. The difference between the control (i.e., fixed position) condition and the cognitive perspective taking condition was not significant, $\chi^2(1, N = 40) = 3.137, p = .18$. In contrast, the position exchange condition produced significantly more solutions than the control condition, $\chi^2(1, N = 40) = 25.859, p < .001, \Phi = .804$, and the cognitive perspective taking condition, $\chi^2(1, N = 40) = 14.545, p < .001, \Phi = .603$. Thus, the main hypothesis (H_1), that position exchange enhances perspective taking beyond simply stimulating cognitive perspective taking, was supported.

[Insert Figure 1 about here]

Comparing the two experiments revealed a potentially interesting finding. A contingency table of solutions in the position exchange condition between experiments 1 and 2 revealed that position exchange was more effective in the second experiment, $\chi^2(1, N = 42) = 4.546, p = .033, \Phi = .329$. Because this is a comparison between experiments, we need to be cautious. However, it suggests that exchanging social positions twice (experiment 2 had an extra position exchange manipulation in Trial 4) may be more effective than exchanging positions once.

The first exploratory hypothesis (H_2), that position exchange reduces self-serving attributions, was tested by coding the transcripts of Trial 5 (discrepant maps) for utterances blaming self, other, the dyad and the map. Figure 2 shows the pattern of blame. The expected pattern of self-serving attributions (Smith & Postmes, 2009) is evident. A paired t -test showed that the difference between self-blame ($M = 1.083, SD = 1.660$) and other-blame ($M = 3.783, SD = 4.808$) was significant ($t = 4.061, df = 59, p < .001$). A 3(condition)*4(blame type) mixed ANOVA found a significant main effect of blame type, $F(3,171) = 13.589, p < .001, \eta^2 = .173$. Furthermore, the interaction of condition and blame type was significant, $F(6, 171) = 3.939, p = .001, \eta^2 = .100$. This interaction, however, was mainly due to the particularly high number of utterances blaming the map in the position exchange condition. Given that blaming the map is almost similar to solving the task (the dyad agreeing that the maps were discrepant), attributions blaming the map were removed from the analysis. A 3(condition)*3(blaming self, other and dyad) ANOVA then no longer found a significant interaction between condition and blame type, $F(4, 114) = 1.477, p = .214, \eta^2 = .038$. Accordingly, the results suggest that the position exchange effect cannot be explained in terms of altering the pattern of attributions.

[Insert Figure 2 about here]

The second exploratory hypothesis (H₃) that position exchange creates a more symmetric power relation was tested using Initiative-Response Analysis. Figure 3 shows how the IR difference changed over the five trials by condition. Linell, Gustavsson and Juvonen (1988, p. 433) compare IR scores from a range of contexts and describe IR differences above .5 as “unbalanced.” The typical IR difference for informal everyday conversations is about .14 while one of the most asymmetrical communicative genres is a lawyer’s interrogation of a witness (IR difference 1.65). The mean IR differences in our experiment varied from .946 which is distinctly asymmetrical to .282 which is approaching normal conversation.

[Insert Figure 3 about here]

Overall, the IR difference scores revealed asymmetrical communication, with Directors being dominant and Followers being subordinate. Given that power asymmetries can inhibit perspective taking (Galinsky et al., 2006) it was possible that this asymmetry was inhibiting resolution of the discrepant maps and that exchanging social positions was levelling this asymmetry. Accordingly, a repeated measures mixed 3(condition)*5(all trials) ANOVA was used to test whether position exchange caused a change in communicative dominance (IR difference) over the course of the trials. There were significant main effects for trial sequence, $F(4, 228) = 7.848, p < .001, \eta^2 = .117$, and condition, $F(2, 57) = 6.526, p = .003, \eta^2 = .018$. However, because the position exchange intervention only starts in the second trial, effects of position exchange on communication asymmetry should become evident in a significant interaction between trial and condition – but this effect failed to reach statistical significance, $F(8, 228) = 1.369, p = .113, \eta^2 = .032$. Subtracting the IR difference found in trial 1 (before the

position exchange manipulation occurred) from the average IR differences in trials 2-5 also revealed no difference between conditions, $\chi^2(2, N = 60) = 1.411, p = .494$. The absence of an interaction between trial and condition and the absence of an overall IR difference in Trials 2-5 suggests that the position exchange effect cannot be explained in terms of reducing communication dominance.

General Discussion

In both experiments, exchanging social positions led to a large statistically significant increase in the number of dyads correctly resolving the divergence of perspectives created by the task. In neither experiment did position exchange increase efficiency of task performance on the basic trials. The second experiment replicated and strengthened the position exchange effect. Most importantly, the second experiment suggests that the effect cannot be reduced to stimulating the cognitive process of perspective taking, rather, the effect is almost entirely due to the social process of exchanging social positions. Our exploratory analyses suggest that, although there are interesting effects of position exchange on attributions and communicative dominance, these mechanisms do not seem to be sufficient to account for the position exchange effect on task solution. Taken together, these experiments suggest that position exchange is a newly identified and powerful mechanism through which perspective taking, within a cooperative task, can be enhanced.

The theory of position exchange advances a distinctively social approach to perspective taking. Most social approaches focus on the quality of the social relation between participants, for example, whether there is a power asymmetry (Galinsky et al., 2006) or whether there is a conflict at the level of identity or knowledge (Psaltis &

Duveen, 2006). These approaches assume that participants are in fixed positions, and thus the focus is on how the 'gap' between self and other can be bridged. Position exchange is distinctive because it manipulates the 'gap' between self and other directly: self becomes the other and the rarely questioned opposition between self and other is transgressed. In the position exchange trials no cognitive feat of imagining the perspective of the other is necessary because each participant steps into the situation which the other occupied in the previous trial. Thus, at a cognitive level, position exchange assumes no magical feat of mind-reading, only that each participant is able to remember the previous trial.

Implications for child development, autism, and intergroup conflict

The theory of position exchange has grown out of discussions about the development of perspective taking among children (Martin, Sokol & Elfers, 2008; Martin & Gillespie, 2010). Gillespie (2006) has speculated that position exchange is a common feature of children's games. For example, in playing hide and seek there are clearly differentiated social positions (hider and seeker) and children repeatedly exchange social positions within the game, thus honing their perspective taking ability within the game. Might it be that many of the routine games and interactions of children, which entail position exchange, are in fact important mechanisms for the development of perspective taking? A similar methodological design to the present studies, but with a task tailored to children, would be able to address this question.

If position exchange is a mechanism through which perspective taking develops, then it might be important for autism. Autism is characterised by social deficits in relation to negotiating the perspectives of others. Research has shown that children with

autism rarely engage in role play or turn taking (Morrison, 2000; Harris, 2000). It is unclear whether this is a cause or consequence of autism. This relationship could be tested using games with and without position exchange. Would the children with autism who have participated in a game with repeated position exchange demonstrate fewer social deficits within the game and/or beyond the game?

Perspective taking has become an important issue in the study of reducing intergroup conflict (Pettigrew & Tropp, 2008; Sammut & Gaskell, 2010). Experiments have shown that even getting participants to imagine the perspective of the other, and how the other might react to one's own actions, can reduce intergroup competition (Wolf, Cohen, Kirchner, Rea, Montoya & Insko, 2009). Could position exchange further reduce intergroup competition and conflict? One way to investigate this would be to conduct experiments with the same design that we have used but adding in two additional conditions, namely, participants would either be paired with a member of their ingroup or outgroup. Evidence suggests that when groups working together on a superordinate goal fail, then intergroup tensions can be increased (Worchel, Axsom, Samaha & Schweitzer, 1978). Would position exchange help to overcome inter-group blame when participants are grappling with the discrepant maps and failing at their superordinate goal?

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