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Procedia Social and Behavioral Sciences 5 (2010) 694–697

Procedia
Social and Behavioral Sciences

WCPCG-2010

Present of a causal model for social function based on theory of mind with mediating of Machiavellian beliefs and hot empathy

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Received January 12, 2010; revised February 3, 2010; accepted March 6, 2010

Abstract

The purpose of the present study was to investigate the relationships among theory of mind, Machiavellian beliefs, hot empathy and social functions. To this end, 507 students of fourth and fifth grades were selected through random-cluster sampling. An advanced test of theory of mind, Kidde mach scale, hot empathy index and peer nomination scale were used as measuring instruments. The result revealed causal relations between the theory of mind, Machiavellian beliefs, hot empathy and negative and positive social functions. In addition, the results showed that Machiavellian beliefs and hot empathy were partial mediator variables between theory of mind and social functions in the causal model.

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Keywords: Theory of mind, Hot empathy, Machiavellian beliefs, Social function, causal model.

1. Introduction

Theory of mind (or mind reading) refers to our unique human ability to predict and explain behavior with reference to internal, mental states. Specially, it involves understanding a constellation of different mental states, including emotions, perceptions, desires, beliefs and the interrelations between them (Baron-Cohen, 1994). It hypothesized that the tendency to view self and others as mental agents underpins human social interactions beginning in the late toddler period.

A number of studies have linked theory of mind to various social outcome measures, including social behavior and other indicators of social competence. These studies demonstrated associations between mind-reading ability and social competent behavior (e.g. Badens et al, 2000), the quality of children peer relationships (e.g. Slaughter et al, 2002) and clinical status e.(e.g. Charman et al,2001). This body of research suggests that children with relatively good mind reading skills enjoy more successful social relationships than those who are less adapted mind readers. However, in recent year, evidence has been accumulating that an advanced theory of mind does not guarantee social success (e.g., Sutton et.al, 1999). Indeed, some children and adults consistently use their mind reading skills for antisocial purposes.

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doi:10.1016/j.sbspro.2010.07.167

One personality characteristic that may determine whether individuals use their mind reading skills to achieve positive or negative social outcomes is Machiavellianism. Machiavellian believes that other people can be manipulated in interpersonal situations and actively engages in manipulative, exhibitative behavior for his or her own personal gain (Wilson et al, 1996). There is some evidence (e.g. Sutton & Keogh, 2001) that Machiavellianism is negatively correlated with social desirability. In addition, Machiavellians are famously described as having the "cool syndrome". Affective coolness is there by age of 10 in the form of an absence of the emotionally based, empathic concern dimension of empathy. McIlwain (2003) defined empathy as "any process where the attended perception of the object's state of situation than to the subject's own prior state or situation" (p.44). Empathy is usually seen as multidimensional, involving cognitive and emotional abilities (hot and cold). Cold or cognitive empathy refers to the ability to understand the need state of another people where we may obtain the knowledge we seek, but there is no guarantee that we will be altruistically (Krebs & Russell, 1981). The experience of the warmer features of empathy, namely, emotional reasoning (hot empathy or empathy concern), makes us more likely to help when another's need is obvious (Barnett & Thompson, 1995). Altruistic action may be promoted by the feeling of kinship that may arise in some observers from the sharing of affective states, via the vicarious arousal of observing a person's situation. The developmental findings that young Machs are low in this vital dimension of hot empathy, "empathic concern", have also been demonstrated in adult Machs. Pellarini (2001) found that high levels of Machiavellianism were associated with low empathic concern ($r = -.43$). Lauria (2002) found significant negative correlations between Machiavellianism and empathic concern ($r = -.27$) too.

Social-cognitive abilities like mind reading are probably best viewed as "neutral social tools" (Kaukianent et al, 1999) and researchers need to turn their attention to the factors that determine when and how these skills are used. Such variables could include situational features, the individual's relationship with the other person, empathic disposition and personality. Thus, little research has been conducted to determine the relationships between theory of mind and social functions as a causal model, this study was designed to determine whether the relationships between theory of mind and negative-positive social functions (relational aggression, overt aggression, prosocial behavior) was mediated by hot empathy and Machiavellian beliefs. In this study, overt aggression and relational aggression were considered as negative social function and pro-social behavior was considered as positive social function.

2. Method

The sample consisted of 507 students (219 boys and 238 girls) of fourth and fifth grades of ages 9 to 12 ($M = 11.01$, $SD = 0.99$). The students were selected by applying a cluster random sampling method. To measure Theory of mind ability, Advanced test of theory of mind (Happé, 1994) was used. The test consisted of 24 strange stories. There are 12 types of story and two examples of each story type. The 12 story-types comprised lie, white lie, joke, pretend, misunderstanding, persuade, appearance/reality, figure of speech, sarcasm, forget, double bluff and contrary emotions. The justifications given in response to the "Why" question were rated as either correct or incorrect. A justification could be incorrect because it involved errors about the facts given in the story, or because it involved an inference that was inappropriate as a reason for the story character's utterance. The validity of the instrument was satisfactory. The reliability was found to be satisfactory too. (test re test = 0.87)

The Bryant (1982) paper-and-pencil Index of empathy is used to assess hot empathy. The Empathy Index is a 22-item instrument. This scale requires respondents to indicate agreement or disagreement with each of 22 statements, for example, "It makes me sad to see a boy (girl) who can't find anyone to play with". The validity of the instrument was satisfactory. The reliability was found to be satisfactory too (test re test = 0.90)

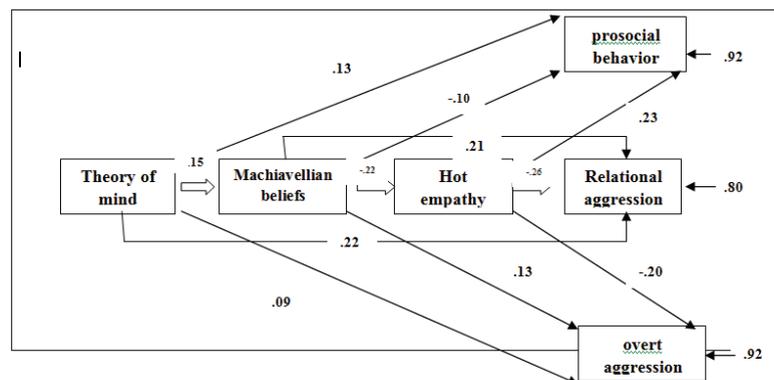
The 20-item Kidde Mach scale (Christie & Geis, 1970) was used to assess subject's attitudes towards human nature and trust in interpersonal relationships. Agreement with the statements was indicated on a 5 point scale with anchors of 1: disagree very much and 5: agree very much. The possible range of score is 20 to 100. Internal consistency was found to be satisfactory (Cronbach alpha = 0.89). The validity of the instrument was found satisfactory too.

To estimate the positive-negative social functions, Peer nomination scale (Crick & Grotpeter, 1995) was administered. The Peer nomination scale consists of three subscales, relational aggression (5 items), overt aggression (5 items) and prosocial behavior (4 items). During the administration of the peer nomination instrument, subjects were provided with a class roster and were asked to nominate up to 3 classmates who best fit the behavioral descriptions provided for each of items on the measure. The number of nominated children received from peers

for each of the items on these subscales was then standardized within each classroom. The standardized scores for the items of a subscale were summed to yield a total subscale score. The possible range of score is 20 to 100. Internal consistency was found to be satisfactory (Cronbach alpha for relational aggression was 0.89, for overt aggression was 0.95 and for pro-social behavior was 0.83). The validity of the instrument was found satisfactory too

3. Results

Linear structural equations were used to test the causal model. The full model is presented in fig 2. Goodness of fit indices revealed that the model fit the data well (AGFI=.90, Gfi=.96, RMR=0.05). As hypothesized, Machiavellian beliefs and hot empathy mediated associations between theory of mind and the positive-negative social functions. In addition to a direct positive path from theory of mind to social functions (overt aggression β =.09, relational aggression β = .22 and pro-social behavior β =.13) it was indirectly related via a Machiavellian beliefs and hot empathy (overt aggression β =.03, relational aggression β =.04 and pro-social behavior β = -.02). Theory of mind was also positively associated with Machiavellian beliefs scores (β =0.15) and Machiavellian beliefs, in turn, lead to negative social functions (relational aggression, β =.06 and overt aggression, β =.04) via lower hot empathy and positive social function (pro-social behavior, β =-.05) via higher hot empathy.



4. Discussion

The investigation was designed to assess the role of hot empathy and Machiavellian beliefs as mediator variables between theory of mind and social functions of 9 - 12 years old students. The results of this study revealed that theory of mind was directly related to social functions (negative and positive social functions). Thus, it seems obvious that a theory of mind is fundamental to social functioning. This evidence is consistent with the view that theory of mind is a necessary ability for negative and positive social functions (McIlwain, 2003).

The present investigation establishing that linkage among theory of mind and social functions were mediated by the Machiavellian beliefs. This suggests, for example, that pro-social and aggressive behavior relationships may be influenced by the extent to which students use a Machiavellian's worldview. This pattern of findings supports the arguments of Happe and Frith (1996) who suggest that a theory of nasty mind may arise as a result of mistreatment of others through behavioral exploitation if one has the cynicism predated the behavioral manipulation and the theory of mind that aren't skewed by cynicism views (theory of nice mind) can be used for prosocial behaviors.

As hypothesized, relationships between theory of mind and social functions in addition to Machiavellian beliefs, were mediated by the hot empathy. As hot empathy was positively related to prosocially behavior and negatively associated with overt and relational aggressions, indicating that the hot empathy not only may play a central role in actively motivating to help another, but it may also serve to be one affectively, empathically aroused and to anticipate the cessation of mutually experienced personal distress. Therefore hot empathy seems to block exploitation and promote helping. These findings, support Currie and Sterelny's (2000) notion that "our basic grip on the social world depends on our being able to see our fellows as motivated by beliefs and desires we sometimes share and sometimes do not" (p.145). It should be mentioned that the results of this study are limited to the population.

Therefore, the results should be generalized only with care to other groups of students. Similar studies are also recommended to be conducted in the other population to gather more information about the causal model.

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