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Are 'Machiavellian' Chinese children well-adapted in the peer group? The relationship between resource acquisition strategies and social functioning and status

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The purpose of the present study was to examine the relationship between resource acquisition strategies, social functioning and social status in Chinese children. A sample of nearly 500 Chinese children in elementary schools in Shanghai, China, participated in this study. The authors divided the sample into five resource acquisition strategies; based on self-reported use of coercive and pro-social strategies of resource control, they were 'bistrategic controllers' (Machiavellians), 'coercive controllers', 'pro-social controllers', 'non-controllers', or 'typicals'. The results revealed that bistrategic controllers were the most effective in resource control, followed by pro-social and coercive controllers: non-controllers were the least effective. It also indicated that bistrategic and coercive controllers exhibited poor social functioning and low peer status; in contrast, 'typical' controllers emerged as possessing positive social functioning and high peer status. In addition, non-controllers were not at risk with regard to social competence. The results indicate specific cultural 'meanings' of different resource acquisition strategies in Chinese children.

Key words: Chinese children, peer group, resource acquisition strategy, social dominance, social functioning, social status.

There has recently been increasing interest in the group of children who are aggressive but also exhibit pro-social skills. Hawley (2003a) has labelled them as 'Machiavellian'. Much research has been conducted within this resource control and social dominance framework (Hawley, 1999, 2007), which emphasizes both aggressive and pro-social behaviours as strategies for personal goal pursuits in the peer group. Machiavellian children, also categorized as 'bistrategic controllers' by Hawley and her colleagues, are those who can effectively balance pro-social and aggressive strategies to control resource for the individual pursuit of social status and material gains at the top of that hierarchy (Hawley, 2003a; Hawley, Little, & Card, 2008; Hawley, Little, & Pasupathi, 2002).

The adaptive social and psychological outcomes (e.g. popularity, adjustment, reciprocal friendship) of bistrategic controllers in the contexts of peer interactions have been widely documented in Western literature (see Hawley, 2007, for a more comprehensive review). In this regard, bistrategic control is thought to facilitate personal goals that are appreciated in the individualistic culture of the West. Other researchers (e.g. Bond, 1991; Ho, 1986) have assumed that this self-serving strategy – which threatens a harmonious group-oriented society – is not encouraged in Chinese culture. As such, bistrategic strategy in resource control may have different adaptive outcomes in different cultural contexts. The purpose of the present study was therefore to explore the adaptive or maladaptive nature of bistrategic strategy, together with other strategies of resource control, within a resource control and social dominance framework in Chinese children.

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Resource control types

In humans, a wide range of social behaviours, such as helping, co-operation, relational/physical aggression, and deception can be viewed, in an evolutionary perspective, as strategies for attainment in social dominance (Charlesworth, 1996). The theoretical model of resource control and social dominance focuses mainly on two broad and independent classes of resource control behaviours: coercive and pro-social. Given the functional values of these behaviours (Charlesworth, 1988, 1996; Gat, 2000; Green & Rechis, 2006; Pellegrini, 2008; Strayer, 1989), the model emphasizes that the resource control behaviours that children use may influence the extent of their social dominance in their peer group (Hawley, 1999). Hawley identified five distinct strategies of resource acquisition according to their social dominance level (i.e. resource control ability) in a sample of German children (Hawley, 2003a; Hawley *et al*., 2002), which are known as 'pro-social', 'coercive', 'bistrategic' and 'typical' controllers and 'non-controllers'.

Evidence is emerging, showing that different strategies of resource acquisition are associated with different psychological and social outcomes. Research conducted in a Western context has shown that coercive children who used a single set of coercive strategies of resource control tended to be less agreeable and morally less mature and to display higher levels of aggressive behaviour (Hawley, 2003a, b; Hawley *et al*., 2002). In spite of their poor social skills, the pure aggressive group were not wholly rejected; instead they received social support from peers and were rated by peers as around the average on social status (e.g. Hawley, 2003a). This may be because of the individualistic cultural context, in which children might value aggression as 'cool'. As a consequence, such culturally-endorsed norms may enhance the likelihood of tolerance, within the peer group, of aggressive behaviours (Cillessen & Mayeux, 2004; LaFontana & Cillessen, 2002).

Pro-social children were considered as those who used a single set of pro-social strategies of resource control that were not altruistic (i.e. self-sacrifice, or collective orientation) but were self-serving and instrumental in the long term (Hawley, Shorey, & Alderman, 2009). In their series of studies, Hawley and her colleagues (Hawley, 2002, 2003a; Hawley *et al*., 2002, 2008) found that pro-social controllers were above average on resource control ability, agreeable, well-liked by their peers, and adept at perceiving social cues.

In Hawley's opinion, bistrategic children displayed both dark and bright behavioural characteristics (Hawley, 2003a, 2007) and therefore experienced both favourable and unfavourable outcomes. Because they displayed social and physical aggression (Hawley, Little, & Card, 2007), they had lower ratings in peer approval than the pro-social controllers (Hawley *et al*., 2008). However, bistrategic children who were skillful in manipulating others tended to be the most successful at resource control and social dominance (Hawley *et al*., 2008).

In addition, the findings of Hawley *et al*. provided compelling evidence that non-controllers were the least affiliated to the peer group, possessed inhibited moral comprehension, and had the least positive influence on outcomes (Hawley, 2003b; Hawley *et al*., 2002). Non-controllers had many adjustment difficulties (Hawley, 2010): as a result, they were considered as most 'at risk', in part due to their lack of dominance-directed behaviours (Hawley, 2003b).

Resource control types, social functioning and social status in Chinese children

Hawley (1999, 2007) explains dominance-related behaviours with regard to functional terms. The functional meaning of behaviours, however, should be interpreted according to the specific cultural context (Chen & French, 2008; Chen, French, & Schneider, 2006). That is to say, cultural values and norms may provide guidance for the interpretation and evaluation of social behaviours, which in turn may affect the functional meanings of the behaviours in the social group, and eventually influence the development of children by producing different social and behavioural outcomes. The self-interested nature of pro-social and coercive strategies, seen in the framework of resource control and social dominance, may not show the same picture of adaptive outcomes in a collectivistic culture as in an individualistically-oriented culture (French, 2011; French *et al*., 2011).

The Chinese collectivistic value system differs from most Western societies in the emphasis that is placed on the maintenance of group wellbeing and interdependent social relationships and networks (Bond, 1991, 1996; Ho, 1986). In this value system, individual behaviour is closely linked to social responsibility for the group and relative status within the social hierarchy. Consistently, Chinese children are socialized to develop altruistic attitudes and behaviours and to restrain personal desires for the benefits and interests of the collective (Chen, Li, Li, Li, & Liu, 2000; Ho, 1986). Chinese schools emphasize collectivistic moral education in which children are encouraged to engage in altruistic behaviours and activities towards the people around them and to help each other in the peer group (Chen *et al*., 2000; Sun, 2006).

Aggressive and disruptive behaviours are strictly rejected and discouraged in Chinese society because of its potential threat to the well-being of the group (Bond, 1991; Chen, Rubin, & Li, 1995; Chen, Rubin, Li, & Li, 1999; Ho, 1986). A large body of studies has shown that aggressive behaviour is negatively associated with peer acceptance, social competence and skills (e.g. Chang *et al*., 2005; Chen *et al*., 1995, 1999; Liu & Chen, 2003; Ma, Shek, Cheung, & Lee, 1996; Schwartz *et al*., 2010; Tom, Schwartz, Chang, Farver, & Xu, 2010). More direct evidence demonstrated that assertive bids in resource control are related to peer disapproval (French *et al*., 2011).

According to the theoretical model of resource control and social dominance, pro-social strategy, in nature, represents not altruism but self-interest (Hawley, 1999, 2010). Self-interest behaviours are not socially accepted in collectivism-oriented societies like China (Ho, 1986; Navon & Ramsey, 1989). Therefore, among five resource control groups, pro-social controllers may not be the most liked by their peers.

Bistrategic strategies of resource control (or 'Machiavellianism') may oppose traditional morality and interpersonal trust in Chinese culture (Hwang & Marsella, 1977; Siu, 2003). Bistrategic controllers who view interpersonal relationships as being secondary to personal pursuits (Hawley, 2003a; Hawley *et al*., 2009; Stewart & Stewart, 2006), and

who display less moral behaviours (Hunter, Gerbing, & Boster, 1982; Siu, 2003) seem not to be perceived as well-behaved in the Chinese social context (Chen *et al*., 1995; Hwang & Marsella, 1977; Siu & Tam, 1995). Given that personal goals are attained at relatively higher interpersonal cost, bistrategic controllers may jeopardize their social standing in the peer group in China. Also their 'dark sides' (i.e. aggressive behaviour) may lead them to experience negative outcomes, as with coercive controllers.

In their series of studies, Hawley and her colleagues generally use 'typical' controllers as a comparison group and do not highlight the social and psychological characteristics and outcomes of this subgroup. 'Typical' controllers, by definition, are those who tend not to appear overly bold and aggressive and/or who do not stand out in the group. Some researchers label this group of children as 'self-regulated' in China (Xu, Farver, Chang, Zhang, & Yu, 2007; Xu *et al*., 2008), given that their behavioural strategies are regarded as mature in social interpersonal skills (e.g. self-control, harmonious peer relationships).

A recent study has indicated that Chinese school-age children, compared with their Canadian counterparts, tend to use less aggressive means in attempting to control resource (French *et al*., 2011). It has been suggested that, compared with other resource control types, those who use a moderate level of both coercive and pro-social strategies tend to have higher social status in the peer setting (Strayer, 1989). Notwithstanding that less research is available on 'typical' controllers in a resource control theory framework, there is some indirect evidence based on the definition of 'typical' controller. These children were found to enjoy high social standing in their peer group, that included high levels of leadership (Chen, Li, & Li, 1994; Chen *et al*., 2002), and social acceptance (Xu *et al*., 2007). Therefore, 'typical' controllers with a moderate level of resource control may be more socially adaptive and enjoy all the benefits of social inclusion in Chinese society.

'Non-controller', according to Hawley's (2010) definition, corresponds to those children who are socially anxious and withdrawn. Unlike in Western cultures, non-controllers may not be at risk of being poorly-adjusted in Chinese society. Although unsociable behaviours may not lead non-controllers to be socially prominent, they may be partly (if not wholly) accepted by their peers, given that their behaviour may not undermine the group's well-being. For example, Chang *et al*. (2005) found that communication avoidance (silent non-participation) behaviour was found to be not significantly associated with peer acceptance. The direct evidence was found in a recent study that compared Chinese and Canadian school-age children, demonstrating that passive observation and non-involvement in the resource control context was positively related to peer approval in Chinese children but not significantly related in Canadian children (French *et al*., 2011). It indicated that Chinese children who did not take an active part in resource control with their peers were not socially rejected.

The present study

Few empirical studies have examined the social and psychological characteristics of resource acquisition strategies from a cultural-contextual perspective. As a result, our understanding of resource acquisition strategies is still largely based on the norms of Euro-American cultures. The objective of the current study, therefore, was to identify the culture-specific functional meanings of resource acquisition strategies in Chinese children. In particular, their differential social outcomes were tested in the context of the peer group.

There were two research questions in the present study. The first question examined differences in resource control abilities (social dominance) among five strategies, in order to validate the replication of the classification of resource acquisition strategies in Chinese children. Consistent with the theoretical prediction from the framework of resource control and social dominance, we hypothesized that bistrategic controllers would be highest-rated in resource control ability and non-controllers the lowest. The second question centred on type differences in social functioning. We expected that two groups of coercive behaviours (i.e. bistrategic and coercive controllers) would have higher levels of negative social functioning and lower social status, relative to other groups, while 'typical' children may have higher level of positive social functioning and higher social status.

Methods

Sample and procedure

Participants in this study were 487 children (247 boys and 240 girls) from Grades 2 to 5 in elementary schools in public schools in Shanghai, China. The mean ages of children were 9.56 years ($SD = 1.25$). In this sample, approximately 34% of mothers and 30% of fathers had completed high school only, 37% of mothers and 43% of fathers had a college/university degree and 10% of mothers and 12% of fathers also received some post-graduate education. The sample was representative of children in urban areas in China.

Measures

Resource control strategy. Resource Control Strategy Inventory (RCSI; Hawley, 2006; Hawley *et al*., 2002) was used to measure participants' strategies for dominance attainment along pro-social or coercive dimensions in their peer context. Coercive resource control consists of six items (e.g. 'I access resources by dominating others'; 'I

Table 1 Gender distributions for resource acquisition strategies

	Bistrategic	Coercive	Prosocial	Typical	Non-controller	Total
Boy						
n	44	54	53	64	32	247
%	17.8	21.9	21.5	25.9	13.0	
Girl						
n	27	41	68	68	36	240
%	11.2	17.1	28.3	28.3	15.0	
Total						
n	71	95	121	132	68	487
%	14.6	19.5	24.8	27.1	14.0	

χ^2 (4, N = 487) = 7.97, $p > 0.05$.

access resources by bullying others') and pro-social resource control consists of four items (e.g. 'I offer myself for friendship to access resources'; 'I access resources by promising something in return'). Participants were asked to rate how true each item was for them on a 7-point scale ranging from 1 = 'not at all true' to 7 = 'completely true'.

Previous studies for this age group indicated that the confirmatory model for RCSC yielded an acceptable fit (e.g. Hawley *et al*., 2002). In the present study, the items loaded on the two corresponding factors in exploratory factor analysis. Then the confirmatory factor analysis for the two-factor model was conducted, showing that the data fitted reasonably well (χ^2 (34) = 120.83, $p < 0.05$; CFI = 0.90, GFI = 0.96, RMSEA = 0.07, SRMR = 0.07). In addition, to test whether the psychometric adequacy of the RCSI represented both low (Grade 2 and 3) and high graders (Grade 4 and 5), a multigroup confirmatory factor analysis (MCFA) was conducted (Hau, Wen, & Cheng, 2004; Little, 1997; Vandenberg & Lance, 2000). The test of pattern invariance for the RCSI revealed that the two-factor model satisfactorily represented the data, indicated by a reasonable overall fit (χ^2 (68) = 163.65, $p < 0.01$; CFI = 0.90, GFI = 0.93, RMSEA = 0.07, SRMR = 0.07).

Resource control types. The classification of resource control types was modelled after those used by Hawley and her colleagues (Hawley, 2003a; Hawley *et al*., 2008). They were identified by dividing the distributions of self-reported responses in both the pro-social and coercive strategies of resource acquisition. In the present study, the five types of resource control were classified as follows: (a) bistrategic controllers score in the top 66th percentile on both pro-social and coercive strategies ($n = 71$); (b) pro-social controllers score in the top 66th percentile on pro-social control but average or low on coercive control ($n = 121$); (c) coercive controllers score in the top 66th percentile on coercive control but average or low on pro-social control ($n = 95$); (d) typical controllers score between the 33rd and 66th percentile on one or both, but not above the 66th percentile on either ($n = 132$); and (e) non-controllers score in the lower 33rd percentile on both dimensions ($n = 68$). As illustrated in Table 1, there were no significant differences in gender distribution by type, χ^2 (4, $N = 487$) = 7.97, $p > 0.05$. The frequency distributions of resource types identified in the current Chinese sample is similar to those in the sample of German middle childhood children (Hawley *et al*., 2002).

Resource control ability. Self-perceived resource control was measured with 10 items (e.g. 'I am the centre of attention when with friends'; 'I am successful at getting the things that I and others value'.) assessing social ability and status in obtaining desired roles, possessions, or attention (Hawley, 2006; Hawley *et al*., 2008). Participants were asked to rate how true each item was for them on a 7-point scale ranging from 1 = 'not at all true' to 7 = 'completely true'. Internal consistency reliability estimate was 0.78.

Peer assessments of social functioning. In this section, within-class peer nomination procedure (Masten, Morison, & Pellegrini, 1985) was used, where participants were asked to nominate up to three children from the class in respect of their characteristics which related to social functioning and social status in the peer group. During administration, each child was provided with a booklet in which the names of all his/her classmates were printed on each page. The item scores were standardized within the class to adjust for differences in the number of nominators. Peer assessments of social functioning were conducted using an extended and revised Chinese version of the Revised Class Play questionnaire (Booth-LaForce, Oh, Kim, & Rubin, 2006; Masten *et al*., 1985). The measure has proved reliable, valid and culturally appropriate in Chinese children (e.g. Chang, 2003, 2004; Chang *et al*., 2004, 2005; Chen *et al*., 1995, 2000).

The three sociability items were, in abbreviated forms, 'kids who make new friends easily, get other children to be

with and play with them, and like to play with others rather than alone'. Three altruism items were, in abbreviated forms, 'kids who are helpful, trustful and considerate of and care for others'. Two items descriptive of leadership were, in abbreviated forms, 'kids who are good leaders and have their own opinions, and independently solve the problems'. Six items descriptive of self-control were, in abbreviated forms, 'kids who obey in school, wait their turn, persist, obey the peer group norms, are restrained and are modest'. Two aggression items were, in abbreviated forms, 'kids who interrupt and disturb others and pick on others'. Three items descriptive of peer exclusion were, in abbreviated forms, 'kids who no classmate plays with, no one make friends with and is often left out.' The internal consistency reliability based on within-class standardized scores was 0.86 for sociability, 0.87 for altruism, 0.90 for leadership, 0.94 for self-control, 0.79 for aggression, and 0.89 for peer exclusion.

Social status. Each child was asked to nominate up to three peers they liked (positive nomination) and three peers they disliked (negative nomination) in the classroom (the questions were: 'Which three children in this classroom do you like the most?' and 'Which three children in this room do you like the least?'). Then their raw frequency scores were converted into standardized z-scores within the class group.

Results

Intercorrelations among variables

Results from correlations among social functioning and status variables are presented in Table 2. Positive social characteristics (e.g. sociability, altruism) were positively correlated with each other, and negative social characteristics (e.g. aggression, peer exclusion) were positively correlated with each other. Positive social characteristics were significantly and negatively related to negative social characteristics, except the relationships between sociability and aggression, between sociability and peer dislike, and between leadership and peer dislike.

Gender differences in social variables

As shown in Table 3, there was no significant gender difference in self-reported resource control. However, gender differences were found in all peer-nominated social variables. The results supported many common findings. Peers nominated girls to have higher sociability, altruism, leadership, self-control than boys. Peers reported boys to display greater aggression and peer exclusion than girls. In terms of sociometric nomination, peers nominated girls as being more liked, and less disliked, than boys.

Resource acquisition strategy differences in social variables

This section centred on exploring the main effect differences across resource acquisition strategies, particularly by comparing bistrategic controllers with other types, in terms of social functioning and social status. A preliminary analysis revealed no significant main effects or interactions involving age (low graders (Grade 2 and 3) versus high graders (Grade 4 and 5)). Therefore, age was removed from all further analyses. Separate 2 (gender) × 5 (resource acquisition strategy) ANOVAs were conducted for all the variables we focused on. As shown in Table 2, children's resource acquisition strategies significantly differed on resource control and all peer nominated social variables. In addition, non-significant interactions between gender and resource acquisition strategy were found in all social variables with the exception of altruism. Specifically, there was a significant main effect of resource control types in altruism for girls (F (4, 235) = 2.77, $p < 0.05$), but not for boys (F (4, 242) = 1.96, $p > 0.05$). Following are the results of LSD post hoc analyses for the main effects of resource acquisition strategies.

Resource control. Bistrategics as a group were higher in self-reported resource control than all other four types of

Table 2 Intercorrelations among variables

	1	2	3	4	5	6	7	8
1. Sociability	–							
2. Altruism	0.78**	–						
3. Leadership	0.78**	0.80**	–					
4. Self-control	0.74**	0.84**	0.88**	–				
5. Aggression	–0.08	–0.19**	–0.10*	–0.18**	–			
6. Peer exclusion	–0.09*	–0.18**	–0.10*	–0.14**	0.67**	–		
7. Pos. socio. nom.	0.68**	0.64**	0.53**	0.55**	–0.20**	–0.24**	–	
8. Neg. socio. nom.	–0.07	–0.16**	–0.07	–0.12*	0.65**	0.91**	–0.22**	–

*$p < 0.05$, **$p < 0.01$.

Table 3 Means and standard deviations of the social variables for boys and girls by resource acquisition strategies

	Resource control type										F value		
	Bistrategic		Coercive		Prosocial		Typical		Non-controller				
	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Gender	RC type	Interaction
Resource control	4.44	4.32	3.64	4.02	4.11	4.04	3.54	3.63	3.18	3.09	0.14	14.91***	0.82
	(0.89)	(1.26)	(1.12)	(0.99)	(1.14)	(1.03)	(1.11)	(0.98)	(0.98)	(1.19)			
Sociability	−0.48	0.36	−0.71	−0.07	−0.18	0.78	−0.43	1.39	−0.45	0.18	20.87***	2.49*	1.05
	(2.03)	(3.48)	(1.34)	(2.27)	(2.50)	(2.89)	(2.15)	(3.50)	(1.80)	(2.69)			
Altruism	−1.07	0.46	−0.91	0.03	−0.20	0.99	−0.92	1.91	−0.84	1.25	52.57***	2.80*	2.67*
	(1.61)	(3.27)	(1.15)	(2.07)	(2.26)	(3.02)	(1.81)	(3.40)	(1.62)	(3.34)			
Leadership	−0.45	0.09	−0.63	−0.24	−0.07	0.51	−0.28	0.83	−0.22	0.70	16.34***	2.75*	0.69
	(1.02)	(2.46)	(0.79)	(1.49)	(1.97)	(2.00)	(1.43)	(2.56)	(1.64)	(2.32)			
Self-control	−1.66	0.43	−1.77	−0.57	−0.18	1.13	−0.73	2.53	−0.93	2.99	24.21***	3.35**	1.31
	(1.81)	(6.60)	(1.49)	(3.81)	(5.64)	(5.55)	(4.39)	(6.82)	(2.91)	(7.22)			
Aggression	0.88	−0.25	0.85	−0.56	0.35	−0.62	0.35	−0.65	0.06	−0.84	49.59***	3.50**	0.33
	(2.62)	(1.62)	(2.60)	(1.01)	(2.11)	(0.66)	(1.71)	(0.85)	(1.46)	(0.55)			
Peer exclusion	1.03	0.15	0.59	−0.33	0.08	−0.82	−0.30	−0.63	0.30	−0.67	11.87**	2.63*	0.34
	(3.46)	(3.56)	(3.53)	(1.24)	(2.99)	(1.00)	(2.22)	(1.23)	(3.05)	(1.30)			
Pos. socio. nom.	−0.34	0.19	−0.26	−0.08	0.05	0.27	−0.06	0.56	−0.14	0.15	16.46**	3.37**	1.14
	(0.84)	(1.19)	(0.74)	(0.94)	(0.96)	(0.97)	(0.90)	(1.17)	(0.82)	(0.94)			
Neg. socio. nom.	0.47	0.00	0.21	−0.14	0.02	−0.22	−0.13	−0.25	0.13	−0.30	14.02***	2.73*	0.63
	(1.31)	(1.14)	(1.20)	(0.65)	(1.20)	(0.62)	(0.82)	(0.46)	(1.08)	(0.44)			

Note. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. For each variable, standard deviations are in parentheses under *M* scores. Neg. socio. nom., negative sociometric nomination; Pos. socio. Nom, positive sociometric nomination; RC, resource control.

controller. In addition, both pro-social and typical controllers reported themselves to be the more effective at resource control than non-controllers.

Sociability, altruism, leadership, and self-control. With regard to sociability, bistrategic controllers were not different from the other types; however both pro-social and typical controllers were viewed as being more sociable than coercive controllers. In addition, in girls, typical controllers were seen by their peers as more altruistic than bistrategic and coercive controllers. Furthermore, bistrategic controllers were viewed by their peers to show lower leadership than typical controllers, whereas coercive controllers were viewed by their peers to show lower leadership than pro-social, typical controllers and non-controllers. Lastly, pro-social, typical controllers and non-controllers were viewed by their peers as more self-controlled than bistrategic and coercive controllers.

Aggression and peer exclusion. Bistrategics as a group were higher in peer-nominated aggressive behaviours than pro-socials, typicals and non-controllers but they did not differ from coercive controllers. Also, bistrategics as a group were higher in peer-nominated peer exclusion than pro-socials, typicals and non-controllers but they did not differ from coercive controllers.

Positive and negative social nomination. Pro-social and typical controllers were better liked than bistrategic and coercive controllers. However, bistrategic controllers were more disliked than pro-socials, typicals and non-controllers.

Discussion

The primary goal of the present study was to consider that the functional meaning of resource acquisition strategies may be influenced by cultural beliefs in Chinese society. From this view, the differences in social and sociometric outcomes, which reflected culturally-defined functioning meaning, were found for these five strategies of resource acquisition in the peer settings in the present study. This underscored the potential importance of distinctions between five types of resource control within a specific culture.

Consistent with our hypotheses, bistrategic controllers were the most effective in resource control, followed by pro-social and coercive controllers, and non-controllers were the least. Our results confirmed the definition of resource control types in terms of resource control ability (Hawley, 2002, 2003a). Based on the theoretical model of resource control and social dominance in an evolutionary perspective, in a competitive setting there exist different strategies for resource acquisition, which may be a culturally-generalized phenomenon. Individuals who use

different strategies, however, acquire different level of resources. It was expected that the bistrategic controller might be most effective, followed by pro-social and coercive controllers. This was supported by the present study.

In many respects, bistrategic controllers and coercive controllers were highly similar. They did not differ in terms of peer behavioural assessment for altruism, aggression, and positive peer nomination. However, compared to coercive controllers, bistrategic controllers had higher levels of peer exclusion. Peer exclusion was characterized as the behavioural manner in which children spent time alone in social interactions because they were rejected and isolated by their peers. This might be attributed to inappropriate /immature interpersonal skills (Rubin, Coplan, & Bowker, 2009). This seemed to mean that Chinese participants perceived those who used both coercive and pro-social behaviours as inappropriate. As a result, bistrategic controllers were isolated from peer groups. Taken together, Chinese children's 'dark' sides of resource control, regardless of whether it was partial (bistrategic type) or complete (coercive type), might not be accepted by a peer group in the social context emphasizing group well-being and harmony (French *et al*., 2011). That is to say, Chinese traditional values, which especially emphasize collective responsibility over individual achievement, may exert much greater stress on Chinese children with self-serving strategies, relative to their counterparts in Western cultural contexts. Particularly, although bistrategic types were theoretically seen as a balance of pro-sociality (bright side) and coercion (dark side), the cost of dark sides outweighed the benefit of bright side in Chinese society. In other words, their coercive strategy attenuated the positive side of pro-social strategy, which resulted in the decrease in their general social standing in the peer group. Therefore, bistrategic or 'Machiavellian' children were less likely to enjoy positive peer regard, which was not consistent with the results found in Western individual cultures.

In previous Western literature, children's pro-social strategies for controlling resource were generally associated with positive characteristics (Hawley, 2002, 2003a, b; Hawley *et al*., 2008) but, in the present study, the pro-social type in Chinese children was not associated with positive social functioning. In the resource control and social dominance frameworks, pro-social controllers were characterized by behavioural patterns in the service of personal goal over collective goal. Therefore, it was not surprising that children, especially girls, with pro-social strategy did not show higher levels of altruistic behaviours in the peer group. However, because pro-social controllers displayed moderate levels of leadership and self-regulation, they were less likely to be rejected by the peer group.

Consistent with the hypotheses, the 'typical' controllers stood out as having higher levels of altruism, self-control, sociability and leadership compared with other controller types. Their self-control ability might help them to effectively balance the coercive and pro-social strategy to control resources. Their mature social skills might afford them opportunities to be at the top in the social hierarchy among peers. Given these positive characteristics, it was not surprising that they were more likely to be liked by their peers. Children in China who were capable of balancing moderate levels of both strategies (i.e. neither extremely high nor extremely low; cf., Hawley, 2002, 2003a; Hawley *et al*., 2008 found in the Western cultures) appeared to be most adaptive and competent. They might be seen as model students and shining examples of social competence in Chinese society.

In the present study, non-controllers did not have lower levels of positive social attributes, such as altruism and self-control. They had socially desirable interpersonal skills and competences and they were less likely to be disliked and rejected by their peers. Compared with two coercive groups of resource controllers (coercive and bistrategic), non-controllers were not at the bottom in terms of peer reputation and social standing. This was mainly because their unsociable behaviour and attitude did not threaten the group's well-being (Bowker & Raja, 2011; Kim, Rapee, Oh, & Moon, 2008). In the Chinese traditional value system, wu-wei (or *to do nothing* in English) is one of effective interpersonal strategies in coping with a variety of social contexts (Cheng, Lo, & Chio, 2010).

In summary, within the framework of resource control and social dominance (Hawley, 1999, 2007), we identified five types of resource control in Chinese children. However, the social and psychological outcomes of these five types of resource control in the Chinese context are different from those perceived in Western societies. Specifically, the children who 'move against' the social world (i.e. both coercive and bistrategic controllers) have adjustment difficulties but those who 'move away from' the social world (i.e. non-controllers) are not at risk with regard to social adjustment – their unsociable behaviours are relatively benign. Chinese children with moderate levels of both coercive and pro-social strategies (i.e. 'typical' controllers) are more adaptive, relative to other groups. Specific cultural values and norms in different societies (e.g. collectivistic society in China versus individualistic society in North America) may be important in the interpretation and evaluation of psychosocial outcomes produced by various resource controller types. The study demonstrated the necessity of examining resource acquisition strategies in different cultures.

Practical implications

The resource control types, in terms of social interactions, can be considered as children's interpersonal strategy within their peer groups. The distinct profiles of five types of controllers found in the present study may suggest that the unique cultural beliefs or values endorsed in Chinese

society should be crucial for understanding the functional meaning of social interpersonal strategy. Based on the current findings, the most salient implication for practice is that interventions may be necessary for both coercive controllers and bistrategic controllers, because they all display higher levels of aggressive behaviour, which are not accepted by peer groups. Programs such as emotional regulation, moral education, social skill training, and self-regulation enhancement may be helpful (Dishion, McCord, & Poulin, 1999). In contrast, these programs seem to be not very effective or valuable for the non-controllers, who have performed well in these domains, compared with coercive and bistrategic controllers.

The culture of peer group networking may be helpful in such intervention. From the findings of the present study, a child of about 10 years of age can differentiate between the psychological and social characteristics of five types of resource control strategies. They have standards or norms for acceptance or rejection of different social behaviours; in such a way, they create their own peer culture, which in turn exerts pressure over the development of social behaviours of members of the peer group (Chen, 2012; DeRosier, Cillessen, Coie, & Dodge, 1994; Ellis & Zarbatany, 2007; Harris, 1995). For example, Chang (2004) has found that the classroom norm characterized by intolerance of aggressive behaviours may strengthen a negative association between aggressive behaviour and peer acceptance, which consequently reduces the aggressive behaviours. Therefore, it may be useful to use the peer group culture to socialize children's behaviours, including resource control strategies, and ultimately this may help children to develop socially desirable behaviours.

Limitations and future directions

Resource control ability in this study may be biased by the self-reported nature of the study. For example, it can be expected that bistrategic controllers would tend to report themselves as having high resource control, although they may not actually do so. However, previous studies have indicated that peers and teachers assessed the five types of controllers consistently in the way they viewed their resource control abilities (Hawley, 2003a, b; Hawley *et al*., 2008). The same results were also found in laboratory observations (Charlesworth, 1996). This suggests that children should be able to accurately evaluate themselves in resource control. Future research that includes other metrics (e.g. peer nomination, parent-report, teacher-rating or observation) may provide additional breadth of view in the assessment of the associations addressed here.

The sources of evaluation of children's social functionings are mainly from peer nomination in the present study. Although the participants may provide valid and reliable information, particularly through 'within-class' nomination, it is also useful to expand the sources of informants. Different sources of information about the social functionings of different types of resource control may make the picture much clearer.

This study focuses mainly on the macro-level cultural context. The resource control strategies are also micro-level context-dependent (Pellegrini, 2008). The use of aggressive and pro-social strategies to control resources may vary as a function of specific social settings (e.g. structured or unstructured school or classroom culture), which result in different social and psychological outcomes of five types of resource control. This issue should be examined in future research.

Hawley's identification of resource control was theory-driven, mainly based on the theoretical model of resource control and social dominance (Hawley, 1999). We defined our resource control groupings in the same way as Hawley. The current results showed that the types identified are consistent with this theoretical model in an evolutionary perspective but it will also be interesting to see whether, in the future, these five types can be identified by a data-driven method (e.g. cluster analysis technique) and whether these data-driven types can indicate consistent results in terms of social and culture functioning across cultures (e.g. China versus North America).

Like mainland China, many other countries and regions in Asia (e.g. Hong Kong, Singapore, Taiwan) are often conceptualized as prototypes of societies with collectivistic orientations (Triandis, 1995). Thus, it remains to be examined whether the results of the present study can be generalized to these collectivistic societies.

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