Gender as predictor of social rejection: the mediating/moderating role of effortful control and parenting

Ester Ato*, María D. Galián y María A. Fernández-Vilar

Departamento de Psicología Evolutiva y de la Educación. Universidad de Murcia (Spain)

Título: El género como predictor de rechazo social: el papel mediador / moderador del control con esfuerzo y crianza de los hijos.
Resumen: El objetivo de este trabajo fue investigar las diferencias de género en una muestra de 474 niños de entre 6 y 8 años, con respecto al rechazo por parte de sus iguales, medido a través del status sociométrico. Además, analizamos cómo el temperamento (Control con esfuerzo) y la crianza (Apoyo y Disciplina) intervienen en esta relación. Para la medida del rechazo social aplicamos el método de nominaciones en el contexto del aula, y para medir el temperamento y la crianza administramos a los padres el cuestionario TMCQ (Temperament in Middle Childhood Questionnaire; Simmonds and Rothbart, 2004) y la adaptación española del PCRI (Parent-Child Relationship Inventory; Gerard, 1994). Con un enfoque de modelado estadístico se probaron distintos modelos de mediación/moderación hasta encontrar el que mejor explicó la relación entre estas variables. Los resultados confirmaron diferencias de género en rechazo social, siendo los niños más rechazados que las niñas. Por otro lado, el modelo que mejor se ajustó fue el que situó al control con esfuerzo como mediador de la relación entre sexo y rechazo social, y a la crianza como variable explicativa del temperamento. En conclusión, las diferencias entre niños y niñas en rechazo social son en gran parte debidas a las puntuaciones significativamente más bajas que presentan los niños en control con esfuerzo, y estas bajas puntuaciones están a su vez explicadas por prácticas parentales negativas, con bajos niveles de apoyo y disciplina.
Palabras clave: rechazo social; control con esfuerzo; crianza; mediación; moderación.

Abstract: The aim of this work was to analyze the gender differences found in a sample of 474 spanish children aged between 6 and 8 years with respect to peer rejection using a sociometric status technique. Thus, we analyzed how temperament (Effortful Control) and parenting practices (Parental support and Discipline) were involved in this relation. To measure social rejection we used the nominations method in the classroom context, while for temperament and parenting practices, parents were given a TMCQ (Temperament in Middle Childhood Questionnaire; Simmonds and Rothbart, 2004) and the Spanish version of the PCRI (Parent-Child Relationship Inventory; Gerard, 1994). Using an statistical modeling approach, we tested various mediation/moderation models until the best one with selected variables was found to explain the relation between these variables. The results confirmed gender differences in social rejection, with boys being rejected more than girls. The model that gave the best fit was the one that placed effortful control latent variable mediating the relation between gender and social rejection and parenting practices as a latent explanatory variable of effortful control. In conclusion, differences between girls and boys in social rejection are to a large extent explained by the significantly lower scores for boys in effortful control construct and, in turn, these lowest scores are explained by negative parental practices, with low levels of support and discipline.
Key words: social rejection; effortful control; parenting; mediation; moderation.

Introduction

Social rejection in school has relevant implications on children socio-emotional adjustment (Parker & Asher, 1987, for a review). High levels of social rejection have been associated with worse adjustment to the school environment (Ladd, 1990), greater presence of mental health problems (Rubin, Burowski, & Parker, 2006), and a greater probability of internalizing (Bell-Dolan, Foster, & Smith-Christopher, 1995; Gazelle & Ladd, 2003) and externalizing problems appearance (Calkins & Dedmon, 2000; Zhou, Lengua, & Wang, 2008) in later stages. Therefore, it is necessary gain better insights of the variables that foster its appearance to ensure the children social adjust to their environment.

Sociometric techniques are the most widely method for evaluating children's peer rejection in all contexts. However, the framework of classroom activities is the most commonly chosen because of its importance in child's social life (Buhs, Ladd, & Herald, 2006), and because this context is relatively easy to extrapolate, especially with respect to rejection (Martín & Muñoz de Bustillo, 2009). As regards methodology, mediation and moderation models are the most used since they are highly effective explaining the effects that different variables exert on each other, as is borne out by a wealth of studies in Psychology (Hayes, 2013).

From this perspective, traditional studies in social rejection used sex as the explanatory moderator in the relation between rejection and other relevant variables (Chang, Olson, Sameroff, & Sexton, 2011). However, it is necessary to ascertain to what extent sex may be an explanatory variable of rejection, and once these are confirmed, analyze which other variables may be mediating or moderating this relation. This is important because the intermediate childhood stage is one in which gender plays an important role in children's socializing, and one in which children adhere very closely to what is expected of their role. On the one hand, Spinath & Steinmayr (2008) used this analysis model for other adjustment variables, such as academic performance. On the other hand, Ladd (1999) related sex with social rejection without considering the intervention of other variables, but didn't provide conclusive findings for this relation. Therefore, it is necessary to look closely at the effects that this differentiation of roles can have on boys' and girls' social adjustment. This conceptual approach will allow us to go in depth into the effects of gender on peer rejection, and not consider it solely as a moderator, with no predictive power regarding an individual's adjustment.

Given that individual differences have been postulated as one of the most important predictors of social rejection, it may seem logical to suppose that gender differences can be, at least in part, explained by the temperamental characteristics of each individual. In the theoretical framework put for-

* Dirección para correspondencia [Correspondence address]:
Ester Ato Lozano. Departamento de Psicología Evolutiva y de la Educación. Facultad de Psicología. Despacho 4.37. Campus de Espinardo-30100, Murcia (Spain). E-mail: esterato@um.es

ward by Rothbart (1981), temperament is understood as individual differences in reactivity and self-regulation, which are of a constitutional origin and are influenced by the individual's heredity, maturing and experience. Self-regulatory capacity of children, in particular the effortful control, has been tightly linked to individuals' social adjustment through different indicators.

Effortful Control (EC) is a multidimensional construct including several capacities such as the voluntary focusing of attention and suppressing inappropriate responses (Rothbart & Bates, 2006). Specifically, low levels of EC linked: a) to worse social adjustment of the individual (Eisenberg, Fabes, Guthrie, & Reiser, 2000), b) with lower levels of social competence (Spinrad et al., 2007), and c) a greater presence of internalizing and externalizing problems (Murray & Kochanska, 2002). Elsewhere, lower levels of EC found in boys than in girls (Else-quest, Hyde, Goldsmith, & van Hulle, 2006), confirming gender difference in this construct. How EC might mediate or moderate relations between sex and social rejection therefore requires an in-depth study.

Furthermore, the differences that boys and girls exhibit in terms of peer social rejection may be due to educational practices children elicit from their parents. The most studied dimensions in this area have been the warmth, support and control scales traditionally associated with the democratic style. Parenting high in support and control has been associated with better child adjustment in many areas (Caspi et al., 2004). Then, in this study parenting practices (PP) could mediate or moderate the relation between sex and social rejection, i.e., sex may have an effect on parenting and generate different educational traits for boys and girls that could lie behind the different trajectories in social adjustment between the two sexes. Though some reports stated differences in the way that boys and girls are brought up, and moderated relations between parenting practices and social adjustment (Denham et al, 2000) we didn´t find studies that incorporate both aspects. Therefore, the effect of parenting on gender differences that could lead to social rejection is an issue to be addressed.

So the aims in this study were: a) to analyze the gender differences existing in peer rejection values in children aged 6 to 8 years of the First Cycle of Primary School (FCPS), b) to look the possible mediating/moderating effects of self-regulatory capacities and parenting practices in this relation, and c) considering self-regulatory and parenting practices as latent dimensions, to test different structural equation models to understand better the relation between these variables and the role of the intermediate variables in this relation.

Method

Participants

The sample comprised 474 Spanish children (50.2% boys and 49.8% girls) of 6 (33.8%). 7 (37.7%) and 8 (28.5%) year olds, corresponding to the FCPS. Participating families were

recruited from various schools in Murcia (Spain). 82.7% of respondents were mothers and 75% worked during the previous 6 months. 9% had Primary School studies, 22.1% had completed Secondary School, 30.4% held a professional qualification, 26.6% were university graduates, and a 1.1% held a PhD.

Instruments

Temperament. The Temperament in Middle Childhood Questionnaire (TMCQ; Simmonds & Rothbart, 2004) was used to measure temperament. This questionnaire gets information provided by parents on a number of daily situations. TMCQ includes 160 items on a 5-point Likert scale grouped into 17 scales to evaluate the temperament: (1) *Activation Control*: The capacity to perform an action when there is a strong tendency to avoid it; (2) *Activity level*: Level of gross motor activity including rate and extent of locomotion; (3) *Affiliation:* The desire for warmth and closeness with others, independent of shyness or extraversion; (4) *Anger/frustration*: Amount of negative effect related to interruption of ongoing tasks or goal blocking; (5) *Assertiveness/dominance*: Tendency to speak without hesitation and to gain and maintain control of social situations; (6) *Attentional Focusing*: Tendency to maintain attentional focus upon task-related channels; (7) *Discomfort:* Amount of negative effect related to sensory qualities of stimulation, including intensity, rate or complexity of light, movement, sound and texture; (8) *Fantasy/Openness:* Active imagination, aesthetic sensitivity and intellectual curiosity; (9) *Fear:* Amount of negative affect including unease, worry or nervousness related to anticipated pain or distress and/or potentially threatening situations; (10) *High Intensity Pleasure:* Amount of pleasure or enjoyment related to situations involving high stimulus intensity, rate, complexity, novelty and incongruity; (11) *Impulsivity*: Speed of response initiation; (12) *Inhibitory Control:* The capacity to plan and to suppress inappropriate approach responses under instructions or in novel or uncertain situations; (13) *Low Intensity Pleasure:* Amount of pleasure or enjoyment related to situations involving low stimulus intensity, rate, complexity, novelty and incongruity; (14) *Perceptual Sensitivity*: Amount of detection of slight, low intensity stimuli from the external environment; (15) *Sadness*: Amount of negative affect and lowered mood and energy related to exposure to suffering, disappointment and object loss; (16) *Shyness:* Slow of inhibited approach in situations involving novelty or uncertainty; and (17) *Soothability/Falling Reactivity:* Rate of recovery from peak distress, excitement or general arousal. Coefficient alpha for the subscales ranged from .621 to .887.

In line with studies that have used EC with scales designed by the Rothbart team (Chang, et al., 2011; Zhou, Main, & Wang, 2010), we selected the Attentional focusing (alpha = .887) and Inhibitory control (alpha = .670) scales to make operative this construct. In several studies, both dimensions have been identified systematically by the EC construct, over others.

Rejection scoring. To obtain subjects' rejection, teachers administered a sociogram in which children answered, in order of preference, about 3 other children with whom they least liked; (1) working; (2) spending their free time (in the classroom context). Participation rate was of 91% and mixed sex nominations were recovered. Data were collected with the BULL-S Questionnaire (Cerezo, 2000). For each of the children participating, a rejection score was calculated following procedure detailed in the reference manual (Cerezo, 2000, p. 28-31).

Parenting. To evaluate parents' educational patterns, the Parent-Child Relationship Inventory (PCRI; Gerard, 1994) in its Spanish adaptation (Roa & Del Barrio, 2001) was used. This questionnaire have 7 scales to collect information: (1) *Parental support*, which measures the amount of social, emotional and economic support parents feel they are receiving; (2) *Satisfaction with parenting*, which measures the amount of satisfaction parents feel in their role as parents; (3) *Involvement*, which measures the degree of interaction, knowledge and acceptance parents believe they have with respect to their children; (4) *Communication*, which evaluates the parents' perception of how effective is the communication with their children; (5) *Limit setting,* which measures the importance parents give to setting limits, its management, and the perception of children as being problematic; (6) *Autonomy*, which evaluates parents' attitudes in fostering or facilitating independence in their children; and (7) *Role Orientation,* which measures parents' beliefs regarding the role of gender in their children's upbringing. One last scale, *Social desirability,* is used to check the validity of parents' responses. Coefficients alpha for these subscales were between .566 and .764.

According with our objectives, *Parental support* (Cronbach alpha= .625) and *Limit setting* (Cronbach alpha = .764) scales were selected to make operative the Parenting Practices (PP) construct, given its wide use in parenting evaluation (Chang et al., 2011; Maccoby & Martin, 1983). Furthermore, both scales were similar to those described by Maccoby & Martin (1983), "responsiveness" and "demandingness", and therefore they are the most useful in providing information about parenting.

Procedure

Schools were visited and a meeting was held with the head teachers to explain them the purpose of the project. After consent were given by the school, a second meeting with the tutors of the first three years of primary education was held to instruct them in the administration of the sociogram. At the same time they were given the questionnaires on temperament and upbringing along with a letter addressed to the parents instructions to fill in both questionnaires. A telephone number for queries was also provided.

Statistical Analysis

We used a statistical modelling framework with a non experimental design (Ato, López & Benavente, 2013) in order to find the most appropriate model to fit the relation between gender and social rejection considering latent dimensions of temperament and parenting as intermediate variables. The range of possible models to consider includes mediation models (to analyze direct and indirect effects of intermediate variables), moderation models (to analyze the conditional effects of intermediate variables) and mixed models (particularly, moderated mediation models).

Some mediation models were fitted with the classical/SEM (Baron & Kenny, 1986) and some others with causal inference (Imai, Keele & Tingley, 2010) approaches. Causal inference mediation models were fitted with mediation R package version 2.4.4 (Tingley, Yamamoto, Hirose, Keele & Imai, 2013) using nonparametric bootstrap confidence intervals with 5000 bootstrap simulations. Classical/SEM models were fitted with lavaan R package, version 0.5.10 (Rosseel, 2012) and Mplus version 5.1 (Muthén & Muthén, 2006) using maximum likelihood estimation. Model fit was assessed using three different fit indices with cutt-off scores (*CFI*>.95, *SRMR*<.08 and *RMSEA*<.05) as proposed by Hu & Bentler (1999) and Kline (2011). Moderated regression models were fitted using pequod R package version 0.0.3 (Mirisola & Seta, 2013) with residual centering of variables to avoid multicollinearity and ensure full orthogonality between product terms and first-order effects (Lance, 1988; Little, Bovaird, & Widaman, 2006). In the same line, we also used moderated mediation models in a conditional process analysis following the statistical and conceptual diagrams for models 7 and 14 as proposed in Hayes (2013, p. 447-450).

Results

Firstly, we ran a descriptive analysis of all variables included in our sample by gender and age (see Table 1). ANOVAs were applied to check for statistically significant differences in the measures used for the groups. Significant differences between boys and girls were found for Attention Focusing ($F_{(1, 471)} = 16.669$; $p < .001$), Inhibitory Control ($F_{(1, 471)} = 15.447$; $p < .001$), and Social Rejection ($F_{(1, 471)} = 13.353$; $p < .001$). With respect to age, significant differences were found only for Inhibitory Control ($F_{(2,470)} = 3.891$; $p = .021$).

Table 1. Basic descriptive statistics.

	Gender		Age		
	Girls Mean(*SD*)	Boys Mean(*SD*)	6 Mean(*SD*)	7 Mean(*SD*)	8 Mean (*SD*)
Effortful control					
(EC1)Attentional focusing	3.38(.94)	3.03(.92)	3.17(.91)	3.23(.98)	3.20(.93)
(EC2) Inhibitory control	3.33(.58)	3.12(.57)	3.14(.55)	3.22(.58)	3.34(.61)
Parenting practices					
(PP1) Parental support	2.39(.32)	2.38(.33)	2.38(.36)	2.41(.31)	2.35(.28)
(PP2) Limit setting	2.81(.44)	2.76(.38)	2.79(.46)	2.79(.40)	2.78(.38)
(SR) Social Rejection	3.96(5.74)	6.36(8.33)	5.22(7.74)	5.22(7.25)	5.04(6.67)

Standard correlation analysis was also used to explore relations between variables (Table 2). We were also interested in ascertaining if there were differences in negative votes between boys and girls depending on the informer's sex. An ANOVA confirmed the absence of a gender effect in both male: $F(1, 471) = .048$; $p = .827$, and female nominations: $F(1, 471) = .029$; $p = .864$.

Table 2. Pearson bivariate correlations *(n = 427)*

	Age	PP1	PP2	EC1	EC2	SR
Age	1	- .007	- .059	- .009	- .101*	.023
PP1		1	.492**	.290**	.294**	- .081
PP2			1	.217**	.181**	- .194**
EC1				1	.446**	- .367**
EC2					1	- .227**
SR						1

PP1: Parental support; PP2: Limit setting; EC1: Attentional focusing; EC2: Inhibitory control; SR: Social Rejection.
* $p < .05$; ** $p < .01$

An initial simple regression model showed a significant effect of Gender on Social Rejection (SR) ($\boldsymbol{\beta}= $ -2.40, $F(1, 472) = 7.16$; $p < .001$). Given this result, we planned a step by step statistical modeling analysis in order to find appropriate models capable to explain the role of latent variables EC and PP, each one with two main dimensions (Attentional Focusing and Inhibitory Control for EC, and Limit Setting and Parental Support for PP) intermediating in the relation between gender and SR. Six steps of modeling were run, as described in the following paragraphs.

Parenting practices as moderators on the relationship between gender and SR

A first step was to determine whether scales of parenting

were moderating the effect of gender differences on SR. A moderated multiple regression model was estimated for each dimension of PP following standard suggestions of centering (Aguinis, 2004, Hayes, 2013). We found that neither of the PP dimensions was moderating the relation between gender and SR (see Table 3).

Parenting practices as mediators on the relationship between gender and SR

An alternative model tested the hypothesis that PP dimensions mediated the effect of gender on SR, controlling the effect of age as a covariate. We also failed to find significant indirect effects in PP indicators.

Table 3. Parenting practices (PP) as moderators of gender-social rejection relationship.

Effect	Adj R^2	Δ Adj R^2	Nonstand. beta	Residual *Df*	*t*	$p > \mid t \mid$
Gender	.025		- 2.404	471	- 3.654	< .001
+ parental support	.027	.002	- 1.081	424	- 1.604	.110
+ limit setting	.056	.041	- 3.180	425	- 3.954	< .001
+ gender * parental support	.032	.005	.195	422	.157	.875
+ gender * limit setting	.057	.001	1.781	424	1.096	.274

Table 4. Dimensions of parenting practices (PP) as mediators of gender-social rejection relationship.

	Parental support (*n* = 427)		Limit setting (*n* = 428)	
Effects	Estimate	95% *IC*	Estimate	95% *IC*
Total	- 2.296	(- 3.71/- .99)	- 2.300	(- 3.77/- 0.95)
Direct	- 2.268	(- 3.71/- .96)	- 2.157	(- 3.57/-0.85)
Indirect	- .028 (*p* =.50)	(- .16/.09)	- .143 (*p* =.27)	(- .47/.10)
Proportion via mediation	.012 (*p* =.49)	(-.05/.24)	.062 (*p* =.33)	(- .05/.22)

Effortful control (EC) dimensions as moderators of the relationship between gender and SR

The next step was to determine if dimensions of EC were moderating the effect of gender differences on SR. A moderated multiple regression model was again estimated for each dimension of EC. Attentional focusing dimension revealed a marginal moderating effect ($p = .043$) but inhibitory control dimension did not reached a significant effect (see Table 5).

Table 5. Effortful Control (EC) dimensions as moderators of gender-social rejection relationship.

Effect	Adj R^2	Δ Adj R^2	Nonstandard. beta	Residual df	t	$p > |t|$
Gender	.025			471	-3.654	< .001
+ inhibitory control	.064	.039	-2.541	470	-4.546	< .001
+ attentional focusing	.134	.115	-2.580	470	-7.756	< .001
+ gender * inhibitory control	.069	.044	-.078	424	12.612	.078
+ gender * attentional focusing	.140	.006	1.343	470	2.025	.043

Given a significant moderating effect of one dimension of EC, we fit two SEM models to test the effect of moderation considering EC as a latent variable. A first model included main effects of gender and EC latent indicators, and the fit was significant ($\chi^2_6 = 23.35$, $p < .001$); sample-sized adjusted BIC = 7130.7. The second model included also product indicators but the fit was not better ($\chi^2_5 = 22.26$, $p < .001$); sample-sized adjusted BIC = 7132.6, and product terms effect did not reached statistical significance ($b = 1.058$; $p = .294$).

Effortful control as a mediator on the relationship between gender and SR

Our interest in this step was to know if scales of EC were mediating the relationship between gender and SR using EC indicators (attention focusing and inhibitory control) as mediators. In this case, we found a significant indirect effect with both indicators of EC, and the proportion via mediation was .376 (for Attentional focusing) and .221 (for Inhibitory control).

Table 6. Effortful control (EC) dimensions as mediators of gender-social rejection relationship

Effects	Attentional focusing ($n = 474$)		Inhibitory control ($n = 474$)	
	Estimate	95% IC	Estimate	95% IC
Total	-2.402	(-3.70/-1.15)	-2.402	(-3.63/-1.18)
Direct	-1.499	(-2.65/-.40)	-1.872	(-3.07/-.68)
Indirect	-.903 ($p < .001$)	(-1.49/-.45)	-0.53 ($p < .001$)	(-.94/-.21)
Proportion via mediation	.376 ($p = .07$)	(.20/.71)	.221 ($p = .08$)	(.09/.49)

A SEM approach to fit a mediation model considering EC as a latent mediator variable revealed an acceptable fit ($\chi^2_1 = 1.827$; $p = .176$, CFI = .996, RMSEA = .042 (90% CI: 0.000-0.138)) and SRMR = .014, but the value of the upper bound of 90% CI was large, suggesting that the poor-fit hypothesis could not be rejected. Some plausible equivalent models (see Little, Card, Bovaird, Preacher, & Crandall, 2007) including age and some dimensions of PP were also discarded as inconsistent in the evaluation of validity of mediation model tested.

5) Parenting as moderating the relationship between gender and social rejection mediated by effortful control

The following step was to consider if parenting moderated the relation gender-SR mediated by EC. In this moderated mediation model (Hayes, 2013) the moderation effect may appear to be related with *a* or *b* path of the basic mediation model. Therefore, we first used a regression approach to determine the separated effect of limit setting and parental support in the path *a* (Model 7, see Hayes, 2013). As shown in Table 7 (for attention focusing) and Table 8 (for inhibitory control), none of the four models got a significant interaction. The results of a second regression approach requesting the role of dimensions of parenting in the path *b* of the basic mediation model (Model 14, see Hayes, 2013) revealed that none of the four plausible models was significant. Then, a moderated mediation SEM model was discarded.

Table 7. Parenting dimensions as moderators of path a of mediation model (criterion variable: attention focusing).

Effect	Adj R^2	Δ Adj R^2	Nonstand. beta	Residual df	t	$p > \mid t \mid$
Gender	.032		.350	472	4.083	< .001
+ parental support	.086	.054	.397	424	4.564	< .001
+ limit setting	.117	.085	.624	425	6.027	< .001
+ gender* parental support	.086	.000	.109	423	.628	.530
+ gender* limit setting	.117	.000	.074	424	.352	.725

Table 8. Parenting dimensions as moderators of path a of mediation model (criterion variable: inhibitory control).

| Effect	Adj R^2	Δ Adj R^2	Nonstand. Beta	Residual df	t	$p > \mid t \mid$
Gender	.029		.209	472	3.390	< .001
+ parental support	.057	.028	.206	424	3.757	< .001
+ limit setting	.106	.077	.397	425	6.142	< .001
+ gender* parental support	.057	.000	-.070	423	-.641	.522
+ gender* limit setting	.107	.001	-.165	424	-1.268	.205

Parenting as a direct effect on the temperamental mediator variable

The final modeling step located the effect of parenting as a direct effect on temperament using a SEM approach. We found a very satisfactory fit ($\chi^2_7 = 8.272$, $p = .309$, CFI = .996, SRMR = .023, and RMSEA = .021 (90% CI = 0.000 – .065)). The mediation effect was complete (Baron & Kenny, 1986) because of the total effect of gender on social rejection excluding mediator (path *c*) was significant ($Z = - 2.150$, $p < .001$), but after including mediator, the effect direct (path *c'*) changed to not significant ($Z = -.460$, $p = .511$). The indirect effect (product *a*b*) was also significant ($Z = -1.690$; $p < .001$), and the proportion of mediating effect was in this case 0.79. Figure 1 shows the standardized path coefficients of this model. To ensure the truthfulness of results, some equivalent models were tested. Firstly, we try to check some of the standard assumptions of general linear model and SEM: multivariate normality, completely random missing data, large sample size, correct model specification and exogeneity (Kaplan, 2009), but anyone appeared as problematic. Reverse causal effects interchanging mediator and outcome variable were discarded because the pattern of results changed dramatically. An interaction term between predictor and moderator to the final model was included, as suggested by Kraemer, Wilson, Fairburn, & Agras (2002), but the model rise to $\chi^2_{15} = 1995.534$, $p < .001$. Finally, the same models were also fitted with Mplus program with exactly the same results.

Discussion

Our study had a number of aims. It sought to ascertain whether there were gender differences with respect to sociometric status, in particular "rejection". We recorded the frequency with which children chose or rejected others in school related activities. We also sought to uncover more about the role of biological variables, such as temperament,

and environmental variables, like parenting practices, in the established relation between gender and peer rejection.
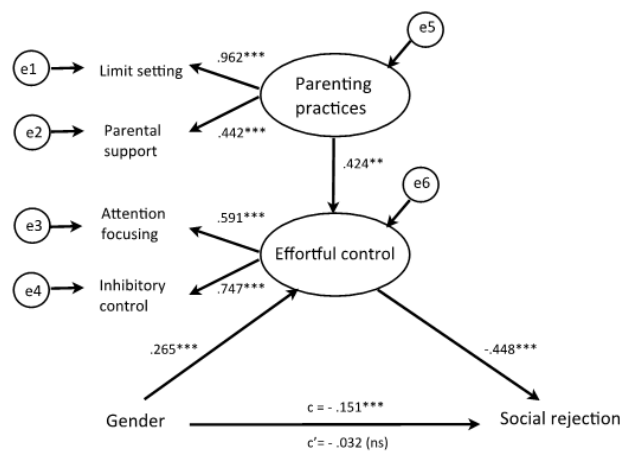
Figure 1. Final SEM mediation model.
Figures near path represent standardized estimates, ** $p < .01$, *** $p < .001$

As regards the first aim, results showed that boys were more likely to receive negative peer nominations than girls. Several studies have found more likelihood of antisocial behavior in boys (Eivers, Brendgen, Vitaro & Borge, 2012; van Lier, Vitaro, Wanner, Vuick & Crijnen, 2005). One of the remarkable aspects in the explanation of this finding seems to be the greater presence of physical aggressiveness shown by boys, which increases the likelihood of rejection by their peers (Archer, 2004; Bettencourt & Miller, 1996; Eagly & Steffen, 1986). Relational aggressiveness, in contrast, has been reported as being more likely in girls (Bjorkqvist & Niemela, 1992; Crick, Casas, & Mosher, 1997; Lagerspetz, Bjorkqvist, & Peltonen, 1988; Ostrov & Crick, 2007), although Salmivalli & Kaukiainen (2004) have also observed high levels of this aggressiveness in boys. In any case, there is a greater amount of data for physical aggressiveness in childhood, while relational aggressiveness is more frequent in adolescence (Prinstein, Boergers & Vernberg, 2001),

which may explain why boys are more likely to be rejected in this stage. Other indicators of social competence, such as empathy and prosocial behavior are lower in boys than in girls (Rose & Rudolph, 2006), which again could explain the lower peer scorings they receive.

Gender segregation suffered by children at these ages may be a further consideration of importance in explaining these differences, since children function in strict adherence to the role of their gender, basing their identity to a large extent on conducts proper to the same. In this sense, childhood environment is propitious to the development of antisocial behaviors on account of its high content of physical, brusque games (Martin & Fabes, 2001). The fact that children prefer to play with peers of the same sex may favor imitating aggressive behaviors more proper of males. This preference for same sex peers has been inversely related with the preferred "rejected" gender in the peer nominations, i.e. boys are more likely to reject girls and vice versa (Dijkstra, Lindenberg, & Veenstra, 2007). However, this not was corroborated in this study, with boys being rejected more, regardless of the sex of the child making the nomination. Gender segregation may expose boys to situations which are more propitious for fostering aggressiveness, but this would not affect the valuation of these behaviors because they are penalized by boys and girls alike.

It is important to note that the rejection observed in our study is linked to the classroom, and may not be applicable to other contexts. However, Martín & Muñoz de Bustillo (2009) included differential effects in preference nominations measured in different contexts, and they showed rejection had a trans-contextual connotation, implying that "rejected" children are poorly considered regardless of the nominations' context.

Moreover, we look at how EC and PP mediate the relation found between gender and the "rejection" status. After testing some structural equations models, we found EC as the mediating variable between sex and social rejection. We have not found any previous studies that reported this structure in relation to sociometric status. Although Eisenberg et al. (2005) showed relations between parenting and temperament with respect to social competence, none have looked at how this relation explains the gender differences found in social rejection.

Then, it seems that the fact that boys suffer more peer rejection than girls may be mediated by their temperamental characteristics and, more specifically, by the significantly lower scores boys obtained in EC construct. The effect of EC on social competence has been widely discussed (Kochanska, Murray, & Harlan, 2000; Eisenberg, Hofer, & Vaughn, 2007; Spinrad et al., 2006). Indeed, several indicators have been used to show that lower levels of EC were associated with worse social competence. Furthermore, EC is not only directly related to levels of social competence, it can also moderate the effects of other temperamental characteristics may exercise on the same, such as negative emotionality. A series of studies by the Eisenberg team have highlighted this "cushioning effect" of EC with respect to negative temperamental characteristics (Fabes et al., 1999). Specifically, it has been showed that high levels of anger and discomfort were not forerunners of low social competence when EC was high. Hence, EC was a risk or prevention factor in the emergence and development of social skills and was involved in the consequent effects of an individual's subsequent socio-emotional adjustment. According with Else-Quest et al. (2006), this study confirms the significant differences observed in EC when boys and girls were compared, with the latter scoring higher. Then, it is possible these differences determine the differential effect that anger or aggressiveness levels may have on the sociometric status, and in detriment of boys.

From the environmental perspective, the family atmosphere of the children is important in their socialization, and a wealth of studies have used scales of support and control in an attempt to gauge the effect of parenting practices, on children's social competence (Weiss, Dodge, Bates, & Petit, 1992). Harter (1999) found a moderate relation between parental support and the development of social skills, and other studies found significant relations between parental support and positive adjustment (Caspi et al., 2004; Denham et al., 2000); Dodge & Petit (2003) reported associations between negative parenting practices and social and behavioral problems. In this study, PP has not been shown to be a mediator or moderator in the relation between sex and social rejection, between sex and EC, or between EC and social rejection. Nevertheless, the effect of PP was significant as an explanatory variable of the EC. As we mentioned earlier, to the best of our knowledge there are no other studies that replicate this relation between temperament and parenting with respect to gender differences in social rejection measured according to sociometric status.

Therefore the parents' style of upbringing didn´t explain why boys are rejected more than girls, so our conclusion is PP, that includes little support and discipline, can, at first sight, be associated with a greater likelihood of social rejection (although results in this respect have not been significant); there is no difference in PP according to sex, unlike what has been reported in other studies (McKee et al., 2008; Zhou, Eisenberg, Wang, & Reiser, 2004). This may be due to the ever stronger messages parents receive to bringing up children with the focus on equality rather than difference of sexes. Besides, child rearing practices do not mediate or moderate the relation found between gender and EC. In other words, the fact that boys have lower self-regulatory capacities than girls is not mediated by parenting practices. Although Crockengerg (1986) reported a differential effect in upbringing for boys and girls on the basis of temperament, we have not found any that put parenting as a mediator in the relations between gender and temperament using a specific analysis of mediation or moderation.

PP neither has direct effects on social rejection. Although some studies point to a relation between certain types of parental discipline and social adjustment of the individual

(Engels, Dekovic, & Meeus, 2002; Chen, Dong, & Zhou, 1997), no one have examined in depth the specific relation between parenting and social rejection as measured by sociometric status. Furthermore, PP didn´t show mediation or moderation effects in the relation found between EC and the sociometric status "rejection". Then, low levels of EC associated with a higher likelihood of peer rejection were not mediated by PP. The approach to these relations in the literature has focused on the effects of mediation of temperament in the relation between parenting and social adjustment and not the other way round (Eisenberg et al., 2001; Valiente et al., 2006).

In this regard, this study showed that PP were not directly related to social rejection, although they significantly explained EC. Specifically, positive PP, with high levels of support and discipline, traditionally linked to the democratic style, point to high levels of EC (Eisenberg, Zhou, Spinrad, Valiente, Fabes & Liew, 2005). Hence, a causal relation has been observed between parenting and temperament, such that positive parenting practices seem to foster greater and better self-regulatory capacities in children (Lengua, 2007). Similarly, low levels of support and discipline lead to lower levels of self-regulation (Kochanska & Knaack, 2003). The data were collected, moreover, during childhood, when the relations between parenting and temperament were deeply rooted, given the ample experience the child and carer now have. These results therefore indicate that the style of upbringing did not have a direct mediating or moderating effect on social rejection. Rather, it is gender, mediated by children characteristics, that determines social adjustment. Gender therefore explained a higher or lower score in EC, which in turn explained peer social rejection. However, the PP employed can raise or diminish the levels of EC, which seems

logical given the important role of parents and careers in the education of emotional self-control.

In conclusion, we think that two important issues arise from the findings of our study. On the one hand, there is a greater likelihood of boys being socially rejected more than girls by their peers during childhood, due to a large extent to their lower self-regulatory capacities. On the other hand, importance must be given to the fact that the educational environment only affects social rejection indirectly, through the effect it has on children's temperament, and EC is a key factor in explaining the differences between boys and girls in terms of social rejection. We believe that educational practices in both the home and at institutional level, should take into account the importance of detecting low levels of EC and of fostering its development, with special attention to boys, given the high implications it has in their later socioemotional adjustment.

This study has limitations. Perhaps the most important of these has to do with the measure of the social rejection we have worked with, as this didn´t consider the behaviors that characterize peer social rejection when making nominations. Other indicators of temperament and parenting, beyond the maternal report would also have enhanced the interpretation of our data. It would, moreover, be of interest in future research to look more closely other temperamental characteristics that might affect social rejection, e.g. negative emotionality. A further point is that we have analyzed the indirect parental effect (measured through parenting practices) on rejection, so it would be interesting to get a measure of the direct effect of parents in modeling the socializing behaviors of their children in the peer group. Finally, a longitudinal approach to the relations found is required to ascertain whether the gender differences remain in later stages.

References

Aguinis, H. (2004). *Regression analysis for categorical moderators*. NY: The Guilford Press.
Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology, 8*, 291–322.
Ato, M., López, J. J., & Benavente, A. (2013). Un sistema de clasificación de los diseños de investigación en psicología. *Anales de Psicología, 29*(3), 1038-1959.
Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
Bell-Dolan, D., Foster, S., & Smith-Christopher, J. (1995). Girls´ peer relations and internalizing problems: Are socially neglected, rejected, and withdrawn girls at risk? *Journal of Child Clinical Psychology, 24*(4), 463-473.
Bettencourt, B. A., & Miller, N. (1996). Gender differences in aggression as a function of provocation: A meta-analysis. *Psychological Bulletin, 119*, 422–447.
Bjorkqvist, K., & Niemela, P. (Eds.) (1992). *Of mice and women: Aspects of female aggression.* San Diego: Academic Press, Inc.
Buhs, E. S., Ladd, G. W., & Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children´s classroom engagement and achievement? *Journal of Educational Psychology, 98*(1), 1-13.

Calkins, S. D., & Dedmon, S. A. (2000). Physiological and behavioral regulation in two-year-old children with ggressive/destructive behavior problems. *Journal of Abnormal Child Psychology, 28*(2), 103-118.
Caspi, A., Moffitt, T. E., Morgan, J., Rutter, M., Taylor, A., Arseneault, L., … & Polo-Thomas, M. (2004). Maternal expressed emotion predicts children's antisocial behavior: Using MZ-twin differences to identify environmental effects on behavioral adjustment. *Developmental Psychology, 40*, 149–161.
Cerezo, F. (2000). *Bull-S. Test de evaluación de la agresividad entre escolares*. Madrid: Albor-Cohs.
Chang, H., Olso, S. L., Sameroff, A. J., & Sexton, H. R. (2011). Child effortful control as a mediator of parenting practices on externalizing behavior: evidence for a sex-differentiated pathway across the transition from preschool to school. *Journal of Abnormal Child Psychology, 39*(1), 71-81.
Chen, X., Dong, Q., & Zhou, H. (1997). Authoritative and authoritarian parenting practices and social and school adjustment in Chinese children: A cross-cultural perspective. *International Journal of Behavioural Development, 20*, 855-873.
Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33*(4), 579–588.
Crockenberg, S. B. (1986). Are temperamental differences in babies associated with predictable differences in caregiving? *New Directions for Child Development, 31*, 53-73.
Denham, S. A., Workman, E., Cole, P. M., Weissbrod, C., Kendriora, K. T., & Zahn-Waxler, C. (2000). Prediction of externalizing behavior prob-

lems from early to middle childhood: The role of parental socialization and emotion expression. *Development and Psychopathology*, *12*, 23-45.

Dijkstra, J. K., Lindenberg, S., & Veenstra, R. (2007). Same-gender and cross-gender peer acceptance and peer rejection and their relation with bullying and helping among preadolescents: A goal-framing approach. *Developmental Psychology*, *43*, 1377–1389.

Dodge, K., & Petit, G. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology*, *39*, 349–371.

Eagly, A. H., & Steffen, V. J. (1986). Gender and aggressive behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, *100,* 309–330.

Eisenberg, N., Cumberland, A. & Spinrad, T. L. , Fabes, S.A., Shepard, S.A., Reiser, M., … & Guthrie, I. K. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development*, *72*, 1112−1134.

Eisenberg, N., Fabes, R. A., Guthrie, I. K., & Reiser, M. (2000). Dispositional emotionality and regulation: their role in predicting quality of social functioning. *Journal of Personality and Social Psychology*, *78*, 136-157.

Eisenberg, N., Hofer, C., & Vaughan J. (2007). Effortful control and its socioemotional consequences. In J. J. Gross (Ed.). *Handbook of emotion regulation*. New York: Guilford Press.

Eisenberg, N., Sadovsky, A., Spinrad, T. L., Fabes, R. A., Losoya, S. H., Valiente, C., … & Shepard, S. A. (2005). The relations of problem behavior status to children´s negative emotionality, effortful control, and impulsivity: Concurrent relations and prediction of change. *Developmental Psychology*, *41*, 193-211.

Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R., & Liew, J. (2005). Relations among positive parenting, children's effortful control, and externalizing problems: A three-wave longitudinal study. *Child Development*, *76*, 1055-1071.

Eivers, A., Brendgen, M.R., Vitaro, F. & Borge, A.I. (2012). Concurrent and longitudinal links between children's and their friends' antisocial and prosocial behavior in preschool. *Early Childhood Research Quarterly. 27*(1), 137- 146 .

Else-quest, N. M., Hyde, J. S., Goldsmith, H. H., & Van Hulle, C. (2006). Gender differences in temperament: A meta-analysis. *Psychological Bulletin*, *132*, 33-72.

Engels, R., Dekovic, M., & Meeus, W. (2002). Parenting practices, social skills and peer relationships in adolescence. *Social Behavior and Personality*, *30*, 3-18.

Fabes, R. A., Eisenberg, N., Jones, S., Smith, M., Guthrie, I., Poulin, R., … & Friedman, J. (1999). Regulation, emotionality, and preschoolers´ socially competent peer interactions. *Child Development*, *70*, 432-442.

Gerard, A. B. (1994). *Parent-child relationships inventory: Manual.* Los Angeles: WPS.

Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis–stress model of internalizing trajectories in childhood. *Child Development*, *74*(1)*,* 257-278.

Harter S. (1999). *The construction of the self: A developmental perspective*. NY: The Guilford Press.

Hayes, A. (2013). *An introduction to mediation, moderation and conditional process analysis: a regression-based approach*. NY: The Guilford Press.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55.

Imai, K., Keele, L., & Tingley, D. (2010). A general approach to causal mediation analysis. *Psychological Methods, 15*(4), 309-334.

Kaplan, D. (2009). *Structural equation modeling: foundations and extensions*. Advanced Quantitative Techniques in the Social Sciences Series, vol. 10. Thousand Oaks, CA: Sage.

Kline, R. (Ed.) (2011). *Principles and practice of structural equation modeling*. NY: The Guilford Press.

Kochanska, G., & Knaack, A. (2003). Effortful control as a personality characteristic of young children: Antecedents, correlates, and consequences. *Journal of Personality*, *71*, 1087–1112.

Kochanska, G., Murray, K. T., & Harlan, E. T. (2000). Effortful control in early childhood: continuity and change, antecedents and implications for social development. *Developmental Psychology*, *36*, 220-232.

Kraemer, H. C., Wilson, G. T., Fairburn, C. G., & Agras, W. S. (2002). Mediators and moderators of treatment effects in randomized clinical trials. *Archives of General Psychiatry*, *59*, 877-883.

Ladd, G. W. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment? *Child Development*, *61*, 1081-1100.

Ladd, G. W. (1999). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? *Journal of Educational Psychology*, *98*(1), 1-13.

Lagerspetz, K., Bjorkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year-old children. *Aggressive Behavior*, *14*, 403–414.

Lance, C. E. (1988). Residual centering, exploratory and confirmatory moderator analysis, and decomposition of effects in path models containing interactions. *Applied Psychological Measurement*, *12*, 163-175.

Lengua, L. J. (2007, April). *Family disruptions and parenting as predictors of the development of executive functioning*. Paper presented at the Biennial Meeting for the Society for Research on Child Development, Boston, MA.

Little, T. D., Bovaird, J. A., & Widaman, K. F. (2006). On the merits of orthogonalizing powered and product terms: Implications for modeling latent variable interactions. *Structural Equation Modeling*, *13*, 479-519.

Little, T. D., Card, N. A., Bovaird, J. A., Preacher, K. J., & Crandall, C. S. (2007). Structural equation modeling of mediatio and moderation with contextual factors. In T. D. Little, J. A. Bovaird, & N. A. Card (Eds.), *Modeling contextual effects in longitudinal studies* (pp. 207-230). Mahwah, NJ: Lawrence Erlbaum Associates.

Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family. Parent-Child interaction. In P. H. Mussen, & E. M. Hetherington (Eds), *Handbook of child psychology. Socialization, personality and social development* (Vol. 4) (pp. 1-101). New York: Wiley.

Martin, C. L., & Fabes, R. A. (2001). The stability and consequences of young children's same-sex peer interactions. *Developmental Psychology*, *37*, 431–446.

Martín, E., & Muñoz de Bustillo, M. C. (2009). Un análisis contextual de la preferencia y el rechazo entre iguales en la escuela. *Psicothema*, *21*(3), 439-445.

Mckee, L., Colletti, C., Rakow, A., Jones, D. J., & Forehand, R. (2008). Parenting and child externalizing behaviors: Are the associations specific or diffuse? *Aggression and Violent Behavior*, *13*, 201–215.

Mirisola, A., & Seta, L. (2013). *Pequod: Moderated regression package.* R package version 0.0-3. Retrieved from http://CRAN.R-project.org/package=pequod

Murray, K. T., & Kochanska, G. (2002). Effortful control: Factor structure and relation to externalizing and internalizing behaviors. *Journal of Abnormal Child Psychology*, *30*(5), 503-514.

Muthén, L. K., & Muthén, B. O. (2006). *Mplus user's guide (5th ed.)*. Los Angeles, CA: Muthén & Muthén.

Ostrov, J. M., & Crick, N. R. (2007). Forms and functions of aggression during early childhood: A short-term longitudinal study. *School Psychology Review*, *36*, 22–43.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*, *102*, 357-389.

Prinstein, M. J., Boergers, J., & Vernberg, E. M. (2001). Overt and relational aggression in adolescents: Social-psychological functioning of aggressors and victims. *Journal of Clinical Child Psychology*, *30*, 477-489.

Roa, L., & Del Barrio, V. (2001). Adaptation of the Parent-Child Relationship Inventory (PCRI) to the Spanish population. *Revista Latinoamericana de Psicología*, *33*(3)*,* 329-341.

Rose, A. J., & Rudolph, K. D. (2006). A review of gender differences in peer relationship processes: potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin*, *132*, 98–131.

Rosseel, Y. (2012). Lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, *48*(2), 1-36.

Rosseel, Y. (2013). *The lavaan tutorial*. Department of Data Analysis. Ghent University.

Rothbart, M. K. (1981). Measurement of temperament in infancy. *Child Development*, *52*, 569-578.

Rothbart, M. K., & Bates, J. E. (2006). Temperament. In D. Damon, R. Lerner, & N. Eisenberg (Eds.), *Handbook of child psychology: Social, emotional, and personality development (6th ed.)* (pp. 99-106). New York: Wiley.

Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer interactions, relationships, and groups. En W. Damon, R. M. Lerner, & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development (6th ed.)* (pp. 571–645). New York: Wiley.

Salmivalli, C., & Kaukiainen, A. (2004): "Female aggression" revisited: Variable-and person-centered approaches to studying gender differences in different types of aggression. *Aggressive Behavior*, *30*, 158-163.

Simmonds, J., & Rothbarth, M. K. (2004). *The Temperament in Middle Childhood Questionnaire (TMCQ): A computerized self-report measure of temperament for ages 7-10.* Poster session presented at the Occasional Temperament Conference, Athens, GA.

Spinrad, T. L., Eisenberg, N., Cumberland, A., Fabes, R. A., Valiente, C., Shepard. S. A., … & Guthrie, I. K. (2006). The relations of temperamentally based control processes to children's social competence: A longitudinal study. *Emotion*, *6*, 498–510.

Spinrad, T. L., Eisenberg, N., Gaertner, B., Popp, T., Smith, C. L., Kupfer, A., … & Hofer, C. (2007). Relations of maternal socialization and toddlers' effortful control to children's adjustment and social competence. *Developmental Psychology*, *43*(5), 1170-1186.

Spinath, B., & Steinmayr, R. (2008). Longitudinal analysis of intrinsic motivation and competence beliefs: Is there a relation over time? *Child Development*, *79*, 1555-1569.

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2013). *Mediation: R package for causal mediation analysis. R package version 4.2.2*. Retrieved from http://CRAN.R-project.org/package=mediation

Valiente, C., Eisenberg, N., Spinrad, T. L., Reiser, M., Cumberland, A., Losoya, S. H., & Liew, J. (2006). Relations among mothers' expressivity, children's effortful control, and their problem behaviors: A four-year longitudinal study. *Emotion*, *6*, 459–472.

Van Lier, P. L. O., Vitaro, F., Wanner, B., Vuijk, P., & Crijnen, A. A. M. (2005). Gender differences in developmental links among antisocial behavior, friends' antisocial behavior, and peer rejection in childhood: Results from two cultures. *Child Development*, *76*(4), 841-855.

Weiss, B., Dodge, K. A., Bates, J. E., & Petit, G. S. (1992). Some consequences of early harsh discipline: Child aggression and a maladaptive social information processing style. *Child Development*, *63*(6), 1321-1335.

Zhou, Q., Eisenberg, N., Wang, Y., & Reiser, M. (2004). Chinese children´s effortful control and dispositional anger/frustration: Relations to parenting styles and children´s social functioning. *Developmental Psychology*, *40*, 352-366.

Zhou, Q., Lengua, L. J., & Wang, Y. (2008). The relations of temperament reactivity and effortful control to children´s adjustment problems in China and the United States. *Developmental Psychology*, *45*(3), 724-739.

Zhou, Q., Main, A., & Wang, Y. (2010). The relations of temperamental effortful control and anger/frustration to chinese children´s academic achievement and social adjustment: A longitudinal study. *Journal of Educational Psychology*, *102*(1), 180-196.