



Parental autonomy support and homework completion: Mediating effects of children's academic self-efficacy, purpose for doing homework, and homework-related emotions

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Título: Apoyo parental a la autonomía y terminación de las tareas: Efectos mediadores de la autoeficacia académica, el propósito y las emociones de los niños al realizar las tareas

Resumen: La calidad de la crianza afecta el desempeño de los niños en las tareas escolares. El presente estudio examinó las relaciones entre el apoyo parental a la autonomía, la autoeficacia académica, el propósito de realizar las tareas por aprender, las emociones positivas y la terminación de las tareas escolares. La muestra incluye 984 estudiantes (*M* edad = 10.68 años, *DS* = 0.63), 502 (51%) niños y 482 (49%) niñas de escuelas primarias de Sonora, México. Se calculó un modelo estructural. El modelo estructural indica que el apoyo parental a la autonomía se relaciona directamente de forma positiva con la autoeficacia académica, el propósito de aprender en las tareas, las emociones positivas y la terminación de las tareas. El análisis multigrupo muestra que el sexo y el desempeño académico del niño no moderan las relaciones propuestas en el modelo estructural. En general, los resultados sugieren que el apoyo parental a la autonomía promueve la terminación de las tareas en la educación primaria.

Palabras clave: Crianza. Apoyo a la autonomía. Autoeficacia académica. Motivación autónoma. Emociones en las tareas. Terminación de las tareas.

Abstract: Parenting qualities may affect children's homework achievement. The present study examined the relationship among parental autonomy support, children's academic self-efficacy, learning-oriented purposes for doing homework, positive homework-related emotions, and homework completion. The sample included 984 children (*M* age = 10.68 years, *SD* = 0.63), 502 (51%) boys and 482 (49%) girls from elementary schools of Sonora, Mexico. A structural model and multigroup invariance by gender and academic achievement was calculated. The structural model indicated that parental autonomy support had a direct positive relation with children's academic self-efficacy, learning-oriented purposes, and positive emotions in homework; it also had an indirect effect in homework completion by its positive association with these psychological resources. A multi-group analysis indicates that gender and academic achievement did not moderate the structural relations. Overall, findings suggest that parental autonomy support is critical to promote homework completion in elementary school children.

Keywords: Parenting. Autonomy support. Academic self-efficacy. Autonomous motivation. Homework emotions. Homework completion.

Introduction

Academic lags around the globe are concerning to scholars. However, the assigning homework has proven to improve students' school engagement and academic achievement (Fan et al., 2017; Núñez et al., 2013; Valle et al., 2015). As a result, homework has become one of the main activities assigned to students for non-instructional hours (Cooper, 1989; Olympia et al., 1994). Even though past studies report a correlation between homework and academic achievement, its positive effects on students are possible only when these assignments are completed (Dettmers et al., 2011; Núñez et al., 2015; Rosário et al., 2018; Trautwein et al., 2006; Valle et al., 2016). Homework, however, is often times seen as a source of stress for many students, these conditions endanger its completion (Dettmers et al., 2011; Katz et al., 2012; Trautwein et al., 2009) and also threatens to slow the improvement of students' skills and lower their attitudes toward school.

Although a plethora of studies have reported on the positive effects of homework, the current literature fails to explain the factors that lead to its completion by students. However, emerging literature suggests that homework completion is associated with home-and-child related variables. Specifically, the type of parenting exerted at home (Doc-

toroff & Arnold, 2017; Patall et al., 2008; Xu et al., 2017) and the child's psychological resources as well (e.g., intrinsic motivation) (Feng et al., 2019; Hagger et al., 2015).

The effects of parental involvement in homework completion are broadly reported; in fact, it seems the quality of parental involvement is a behavioral driver toward homework completion. In this regard, some scholars (Doctoroff & Arnold, 2017; Van Voorhis, 2011; Xu et al., 2017) report a positive effect of parental involvement on homework completion, whereas others (Maloney et al., 2015; Pomerantz et al., 2006; Walker et al., 2004) report homework as an important source of stress and conflict between children and parents. Broadly speaking, it cannot be assumed that homework completion is influenced by the mere presence of parents, but rather by the quality of their involvement.

When parents support autonomy, they take into consideration their children's perspectives, offer them meaningful choices, and encourage their self-expression and self-regulated behaviors (Roth et al., 2009; Tian et al., 2014). Likewise, parents prompt the development of psychological resources in children. Despite its relevance, the mediate effects of children's psychological resources in the relationship between parenting autonomy granting and homework completion are underexplored. Moreover, past studies have only explores whether students' intrinsic motivation for doing homework mediates the association between parental autonomy support and homework completion (Feng et al., 2019; Hagger et al., 2015).

Considering all the above, the Self-Determination Theory (SDT; Deci & Ryan, 1985) was adopted to analyze the effects

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of the type of parental involvement in their children's homework. SDT posit that the process of individual development requires a social context that supports the satisfaction of basic psychological needs (autonomy, competence, and relatedness). According to this framework, parenting plays a central role in creating the social and emotional context that facilitates the satisfaction of children psychological needs (Costa et al., 2016; Grolnick, 2009). The SDT identifies three critical dimensions of parenting: autonomy support, structure, and involvement (Griffith & Grolnick, 2014; Grolnick & Ryan, 1989). Nonetheless, as other scholars (Jang et al., 2010; Joussemet et al., 2008; Ryan & Deci, 2017; Sierens et al., 2009), we believe the provision of autonomy support remains essential for individual development, as it promotes the improvement of children's psychological resources that facilitate academic success, positive outcomes, and well-being (Cheung & Pomerantz, 2011; Froiland, 2015; Gonida & Cortina, 2014; Liew et al., 2014; Vasquez et al., 2015).

We believe there is a need to study other psychological resources in children that might mediate the relationship between parenting autonomy support and homework completion. Based in previous research (Dettmers et al., 2011; Fen et al., 2019; Goetz et al., 2012; Hagger et al., 2015; Kitsantas et al., 2011; Lee & Jonson-Reid, 2016; Liu et al., 2019; Luo et al., 2016; Xu, 2010, 2011; Xu & Wu, 2013), we believe psychological resources such as academic self-efficacy, learning-oriented purposes for doing homework, and positive homework-related emotions are capable to mediate the relations between parental autonomy support and children's homework completion. For us, the exploration of these psychological resources would contribute to improve the current understanding of parental roles that encourage children to perform better while doing homework.

Academic Self-Efficacy

Self-efficacy refers to an individual judgment about the own abilities to perform a task (Bandura, 1997). Some scholars posit that self-efficacy is a context-specific evaluation of the abilities to perform a specific task (Bong, 2002; Schunk & Pajares, 2009). In an academic context, self-efficacy refers to the students' beliefs about their capacities to perform accordingly to achieve academic goals (Schunk & DiBenedetto, 2016; Zimmerman, 2000). In fact, some scholars (Grijalva-Quíñonez et al., 2020; Katz et al., 2014; Kitsantas et al., 2011; Liu et al., 2019) have already reported a positive relationship between children's academic self-efficacy and homework performance.

Learning-Oriented Purposes for Doing Homework

In the SDT context, identified regulation is a type of motivation that involves a relative self-determined regulation (Ryan & Deci, 2000, 2017). Identified regulation appears when an individual decides to get involved in an activity because this activity is judged as valuable and important (Ryan

& Connell, 1989; Vallerand & Ratelle, 2002). In the homework context, this identified regulation is exhibited when children do homework for learning-oriented purposes. In other words, because children are aware of the importance of homework for the improvement of skills and academic performance (Coutts, 2004; Xu, 2005; Warton, 2001). In this regard, the literature (Trautwein et al., 2006; Xu, 2005, 2011) reports a positive association between children's learning-oriented purposes for doing homework and homework completion.

Homework-Related Emotions

Achievement emotions reflect a learner's affective response when performing an academic task (Lüftenegger et al., 2016; Pekrun et al., 2011). These are important for students' motivation and performance (Linnenbrink-Garcia & Barger, 2014; Lüftenegger et al., 2016). Positive emotions in academic tasks influence the development of cognitive resources, improve social-behavioral, school engagement, and facilitate deep learning (Pekrun et al., 2017; Pekrun & Linnenbrink-Garcia, 2012). In the literature, enjoyment and pride are two positive emotions associated with positive effects on homework outcomes (Dettmers et al., 2011; Goetz et al., 2012; Pekrun et al., 2017). For example, Dettmers et al. (2011) reported that students who experience more positive homework-related emotions (e.g., enjoyment) have better levels of homework effort and completion.

Gender and Academic Performance: Their Moderating Role

The literature reporting on the moderating role of gender between parental involvement in children's homework and student performance remains scarce. However, it has been suggested that the type of parental involvement depends on the child's gender. Specifically, scholars (Dumont et al., 2012; Rogers et al., 2009; Xu et al., 2018) report that parents tend to control boys, whereas they support girls' autonomy. As expected, boys are usually more conflicted with parental involvement than girls do (Dumont et al., 2012). Nevertheless, parental involvement in academic settings seems to have a stronger effect in boys than girls (Pomerantz et al., 2007; Silinskas & Kikas, 2017).

However, not only children's gender influences parental involvement, but also prior academic performance (Benner et al., 2016; Silinskas et al., 2010). In fact, some studies report that children's prior academic performance affected the way parents become involved in children's homework (Grijalva-Quíñonez et al., 2020; Silinskas & Kikas, 2017; Silinskas et al., 2012). The literature reports that parents raising children with low grades adopt controlling strategies, whereas those raising children with high grades support the autonomy of the child (Dumont et al., 2014; Núñez et al., 2017).

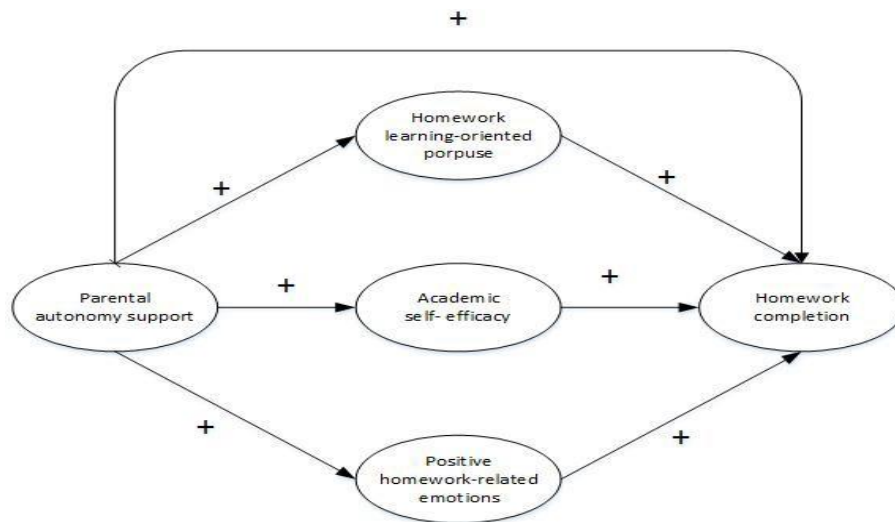
The Present Study

Current literature has scarcely explored the effects of parental autonomy support on homework completion. As a result, it is still unknown whether children's psychological resources are mediating factors in the relationship between parental autonomy support and homework completion. Whereas most research on parental involvement in homework has been conducted in developed countries, further studies in developing countries are necessary to understand the actual effects of parental involvement in children's homework. Therefore, unlike past studies (Bembenutty, 2010; Feng et al.,

2019), the present study aims to examine Mexican elementary school students (fifth and sixth grade).

Considering all the above, the present study has two overarching goals: (1) examining direct and indirect relationships between parental autonomy support, children's psychological resources (academic self-efficacy, oriented-learning purposes for doing homework, positive homework-related emotions, and homework completion in Mexican elementary students (see Figure 1) and; (2) testing the moderating role of children's gender and prior academic achievement in the structural model.

Figure 1
Theoretical Model of the Relations between Parental Autonomy Support, Student's Academic Self-Efficacy, Homework Learning-Oriented Purpose, Positive Homework-Related Emotions, and Homework Completion.



Based on the current body of literature, the authors pose the following hypotheses:

Hypothesis 1a (direct effects): a positive relationship between parental autonomy support and children's psychological resources. Likewise, a positive association between autonomy support and homework completion. Finally, the authors expected that children's psychological resources would be positively related to homework completion.

Hypothesis 1b (indirect effects): Parental autonomy support has a positive indirect effect in homework completion by their positive relations to children's psychological resources.

Hypothesis 2 (Moderations): Gender and academic prior achievement are moderating the relationships proposed in the structural model.

Method

Participants

Research participants were randomly selected from 44 urban public elementary schools from the state of Sonora, Mex-

ico. These schools, like most urban elementary schools in Mexico, include students from different socio-economic status but primarily low and middle. In total, 984 students were selected by simple probabilistic sampling ($p = .5, q = 95\%, e = 3\%$). The sample included 502 (51%) males and 482 (49%) females. Their age ranged from 10 to 13 years old ($M = 10.68$ years, $SD = 0.63$). 453 students (46%) were enrolled in fifth grade and 531 (54%) in sixth grade. In total, 55% of parents reported their families had a middle socio-economic status (SES) and 45% low-SES. In regard to parental education, 22.8% of parents had completed primary education, 25.3% completed middle school, 27.8% finished high school, and 24.1 hold a bachelor's degree.

Instruments

Parental autonomy support in homework. The autonomy support subscale of the Parental Involvement in Children Homework Scale (Grijalva-Quiñonez et al., 2020) was used. This scale comprises six items that measure parental autonomy support in homework (e.g., "When I refer to mistakes in homework, my parents encourage me to review it and

correct it,” $\alpha = .86$, $\omega = .88$). The Likert-type format was used (0 = *never*, 4 = *always*). The authors reported a CFA that provides evidence that the scale had a good fit in Mexican children ($X^2 = 59.21$, $df = 42$, $p = .041$; SRMR = .08; AGFI = .96; TLI = .99; CFI = .99; RMSEA = .03, 90% CI [.01, .05]).

Academic self-efficacy. We used the academic self-efficacy scale of the Patterns Adaptive Learning Scales (PALS; Midgley et al., 2000) to assess students’ self-efficacy. This scale measures students’ perceptions of their efficacy to achieve academic goals (e.g., “I can solve the activities assigned in class,” $\alpha = .84$, $\omega = .84$) through 5 items. The response format was Likert-type with options from 0 (*strongly disagree*) to 5 (*strongly agree*). The CFA results suggest the model fit the data ($X^2 = 7.68$, $df = 5$, $p = .174$; SRMR = .01; AGFI = .98; TLI = .99; CFI = .99; RMSEA = .03, 90% CI [.02, .06]).

Homework learning-oriented purpose. Children’s learning-oriented purpose for doing homework was assessed by 9 items (e.g., “Doing homework helps you learn how to manage your time,” $\alpha = .86$, $\omega = .88$) of the learning-oriented purpose subscale of the Homework Purpose Scale (HPS; Xu, 2010). Items indicate the extent to which students are engaged in homework out of identified reasons that reflected endorsing the values of the task. The response format was Likert-type ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). The CFA results suggest the scale fit the data ($X^2 = 5.83$, $df = 7$, $p = .559$; SRMR = .01; AGFI = .98; TLI = .99; CFI = .99; RMSEA = .03, 90% CI [.01, .05]).

Positive homework emotions. Positive homework emotions were assessed by 5 items (e.g., “I enjoy do my homework,” $\alpha = .84$, $\omega = .85$) of the Homework Emotion Scale (Goetz et al., 2012) that measures positive emotions (enjoy and pride) during the homework process. Children responded to 5-point Likert-type scales ranging from 0 (*completely disagree*) to 4 (*completely agree*). The CFA results suggest that the measurement model fit the data ($X^2 = 2.88$, $df = 4$, $p = .577$; SRMR = .02; AGFI = .99; TLI = .99; CFI = .99; RMSEA = .02, 90% CI [.01, .06]).

Homework completion. Drawing on previous literature (Trautwein et al., 2006; Xu, 2011), we developed a scale to measure student’s homework completion. The scale comprised 6 items (e.g., “I deliver homework on time,” $\alpha = .76$, $\omega = .79$). The response format was Likert-type, which ranged from 0 (*never*) to 4 (*always*). The CFA suggests that the measurement model fit the data ($X^2 = 11.11$, $df = 9$, $p = .268$; SRMR = .03; AGFI = .98; TLI = .99; CFI = .99; RMSEA = .02, 90% CI [.02, .06]).

Academic performance. The evaluation of academic performance was obtained qualitatively. Teachers were asked to evaluate each student’s academic performance during the course: 1 (*very bad* ≤ 6 points), 2 (*bad* 7 points), 3 (*good* 8 points), 4 (*very good* 9 or 10 points). In order to establish two different levels in this variable, we used the next criteria: low achievement (options of scale 1 and 2) and high achievement (op-

tions of scale 3 and 4).

Procedure

Upon receiving approval from the Ethical Committee of the Technological Institute of Sonora, principals and teachers from the 47 elementary schools across the state of Sonora were invited to participate in the study. In total, 44 (94%) elementary schools accepted this invitation. Later a consent letter was sent to parents to explain the purpose of the study and to ask permission for students’ participation, after ensuring confidentiality of the information collected. Only 2% of parents refused to allow their children to participate in the study. In addition to consent letters from parents, they were also explained that their child’s participation was voluntary; therefore, a child may withdraw themselves at any time. All of the students accepted the invitation to participate in the study. Data collection was carried out by one of the researchers in the participants’ classrooms.

Data Analysis

The total percentage of missing data was 3%. In all cases, lost items were treated using the SPSS 25 multiple imputation methods. Structural equations models were calculated with the AMOS software. The value of Mardia’s coefficient was 7, which indicates non-normally distributed data (Arbuckle, 2017; Byrne, 2016). Then, the Maximum Likelihood Estimation (ML) with Bollen-Stine bootstrap (with 500 replicates) and bias-corrected confidence interval (CI 95%) (Byrne, 2016; Kline, 2016) was used. The bootstrap is an effective method to dealing with multivariate non-normality issues (Bollen & Stine, 1992; Byrne, 2016; Finney & DiStefano, 2013; Hancock & Liu, 2012).

In order to evaluate goodness of fit for the model, we used fit indices proposed in the literature (Bollen & Stine, 1992; Byrne, 2016; Enders, 2002; Hair et al., 2017): Bollen-Stine bootstrap and associated probability ($p < .05$), Chi-squared and associated probability (X^2 with $p < .001$), Standardized Root Mean Square Residual (SRMR $\leq .05$), Tucker-Lewis Index (TLI $\geq .95$), Adjusted Goodness of Fit Index (AGFI $\geq .95$), Comparative Fit Index (CFI $\geq .95$), and Root Mean Square Error of Approximation (RMSEA $\leq .05$). Direct and indirect path were calculated with bias-corrected confidence interval bootstrap (95% CI).

To compare a model of the determinants of homework completion across groups (male and female, low-achievement and high-achievement students), we tested for the structural invariance across groups, following a multigroup analysis approach (Byrne, 2016). The approach is used to test whether a structural model is replicated across groups from the same population. In our case, we examined if structural path described in Figure 1, were invariant across each group of males ($n = 502$) and females ($n = 482$), and low-achievement ($n = 328$) and high-achievement ($n = 656$). To test the invariance of the structural model across groups,

we followed the sequence of nested models that increase the constraints from one model to the next (Byrne, 2016; Vandenberg & Lance, 2000). The configural model (Model 1) was the first step in establishing invariance. The configural invariance implicates that a similar model structure in both groups fit the data. The configural model served as a baseline model to test the subsequent models. Then tested measurement weights model (Model 2), imposed constraints that all factor loadings were equal across groups. This test passed if the measurement model operating similarly across groups. Finally, the structural invariance was tested by adding cross-group constraints to the structural regression path (Model 3) and residual error of latent variables (Model 4). The invariance of each model was verified using indicators (ΔX^2 with $p \geq .001$, $\Delta CFI < .01$, and $\Delta RMSEA < .015$) (Byrne, 2016). Because X^2 statistic is sensitive to large sample (Tomarken & Waller, 2003) when approach based on ΔX^2 and others goodness-of-fit indexes (ΔCFI and $\Delta RMSEA$) disagree, we relied in the values of the ΔCFI and $\Delta RMSEA$ to assess model fit.

Results

Preliminary Analysis

Table 1 shows the means, standard deviations, correlations (Pearson's correlations), and differences (Student's t and Cohen's d) by gender and academic achievement in the study variables. The results indicated a positive correlation between all variables involved in the study. Moreover, we found that females reported higher levels of academic self-efficacy, positive homework-related emotions, and homework completion than males. Finally, the results denoted that children with better performance have a higher level of academic self-efficacy. They also reported holding learning-purposes for doing homework and having completed homework with higher frequency compared to their peers with a lower performance (see Table 1). However, the effect sizes are small in all cases, suggesting little practical relevance of these differences.

Table 1
Mean's, Standard Deviations, correlations, and Mean Comparisons by Gender and Achievement in Study Variables.

Variable	M	SD	1	2	3	4	5
1. Parental autonomy support	2.84	0.71	-				
2. Academic self-efficacy	2.85	0.70	.59***	-			
3. Learning-oriented purpose	3.09	0.69	.55***	.39***	-		
4. Positive homework-related emotion	3.08	0.99	.53***	.37***	.66***	-	
5. Homework completion	2.75	0.54	.61***	.62***	.75***	-.68***	-
M/SD Male			2.79/0.70	2.75/0.75	3.04/0.71	2.95/1.05	2.68/.58
Female			2.90/0.71	2.94/0.63	3.15/0.67	3.20/0.93	2.81/.50
Student's t			- 1.60	- 2.70**	- 1.55	- 2.59*	- 2.50*
Cohen's d			0.15	0.26	0.15	0.25	0.24
M/SD Low-achievement			2.75/0.77	2.68/0.78	3.00/0.72	3.01/0.72	2.64/0.58
High-achievement			2.91/0.65	2.98/0.59	3.17/0.66	3.13/0.92	2.83/0.50
Student's t			- 2.30	- 4.50**	- 2.52*	- 1.31	- 3.59**
Cohen's d			0.22	0.43	0.24	0.12	0.34

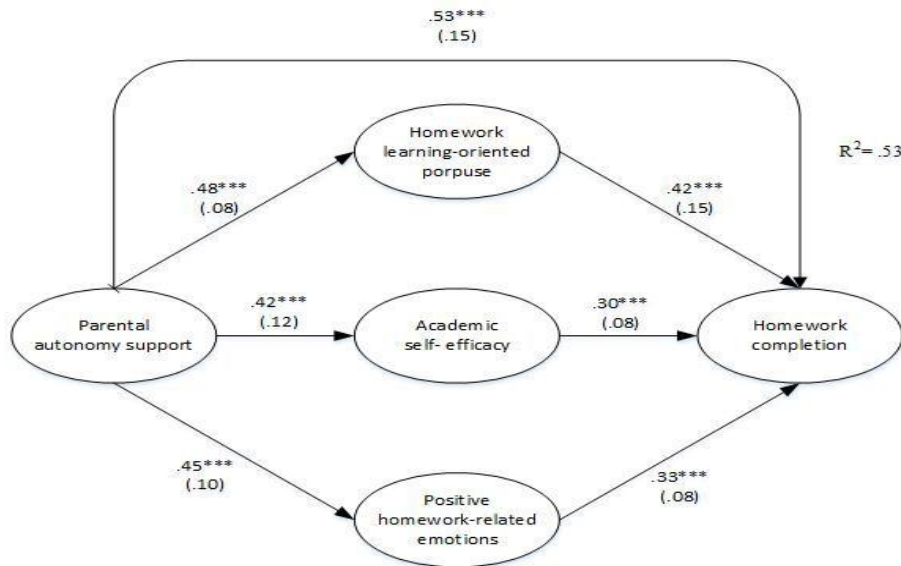
* $p < .05$; ** $p < .01$; *** $p < .001$.

Structural Model

The results of the structural model are presented in Figure 2. The Bollen-Stine bootstrap ($p = .764$) and fit index ($X^2 = 214.24$, $df = 201$, $p = .145$; SRMR = .06; AGFI = .93; TLI = .97; CFI = .98; RMSEA = .03, 90% CI [.02, .04]) suggest that the structural model fit the data. The model explained 53% of variance scores for homework completion. Results of the direct effects indicate that parental autonomy support is positively associated with academic self-efficacy ($\beta = .42$, 95% CI [.30, .58], $p < .001$, homework learning-oriented purpose ($\beta = .48$, 95% CI [.32, .52], $p < .001$), positive

homework emotions ($\beta = .45$, 95% CI [.32, .56], $p < .001$), and homework completion ($\beta = .53$, 95% CI [.39, .59], $p < .001$). On the other hand, learning-oriented purpose for doing homework, academic self-efficacy, and positive homework emotions was positively related to the student's homework completion ($\beta = .42$, 95% CI [.33, .55], $p < .001$; $\beta = .30$, 95% CI [.19, .43], $p < .001$; $\beta = .33$, 95% CI [.20, .47], $p < .001$, respectively). Regarding indirect effects, results indicated that parental autonomy support ($\beta = .38$, 95% CI [.36, .57]) favored homework completion through positive relations to self-efficacy, learning-oriented purpose, and positive homework emotions.

Figure 2
Results of the Structural Model of the Relations Between Parental Autonomy Support, Student's Academic Self-Efficacy, Homework Learning-Oriented Purpose, Positive Homework-Related Emotions, and Homework Completion.



Note. Standardized coefficients, standard error, and R^2 are presented.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

Multi-Group Analysis by Gender and Academic Performance

A nested model was used to examine the moderating effects of the students' gender and prior academic achievement (low and high) on the relationships proposed in the theoretical model. Results showed the existence of configural invariance (Model 1) in both gender ($\chi^2 = 249.93$, $df = 222$, $p = .096$; SRMR = .06; AGFI = .91; CFI = .99; TLI = .99; RMSEA = .03, CI [.01, .05]), and academic achievement groups ($\chi^2 = 246.91$, $df = 222$, $p = .121$; SRMR = .06; AGFI = .91; CFI = .99; TLI = .99; RMSEA = .02, 90% CI [.01, .04]).

In gender, the difference in X^2 statistic was small and not statistically significant between Model 1 with Model 2 and Model 3, and the ΔCFI and $\Delta RMSEA$ values remain the same. These results in-

dicate that measurement factor loadings and structural path are invariant by sex. The difference in χ^2 statistic value between Model 1 and Model 4 was large and statistically significant. However, because of the concerns about the over sensitivity of the test to sample size, we used ΔCFI and $\Delta RMSEA$ indexes to assess the difference in model fit. Differences in CFI less than .01 and RMSEA less than .015 indicates that there are no substantial differences between Model 1 and Model 4. Based on these criteria, there appear the residual structural errors between boys and girls.

Regarding groups of low and high achievement student's differences between values of the χ^2 , the CFI and RMSEA statistics indicates the existence of configural, measurement, and structural invariance. These results implicate that prior achievement does not affect the relations proposed in the structural model (see Table 2).

Table 2
Results of the Invariance Analysis by Gender and Academic Achievement.

Model	X^2	df	ΔX^2	Δdf	p	ΔCFI	$\Delta RMSEA$
Gender							
Configural (Model 1)	249.93	222					
Measurement weight (Model 2)	270.77	234	20.84	12	.053	.003	.002
Structural weight (Model 3)	293.96	240	44.02	18	.001	.007	.006
Structural residual (Model 4)	316.36	246	66.43	24	< .001	.009	.012
Achievement level							
Configural	246.91	222					
Measurement weight	268.95	234	22.04	12	.037	.004	.003
Structural weight	279.64	240	32.73	18	.098	.006	.004
Structural residual	302.10	246	55.18	24	.002	.007	.011

Discussion

The main purpose of the study was to examine direct and

mediational relations of parental autonomy support, children's psychological resources (academic self-efficacy, autonomous motivation, and positive homework emotions) and homework completion. Overall, the SDT (Deci &

Ryan, 1985) was suitable to examine the proposed variables. That is, results indicate that parental autonomy granting was positively related to children's academic self-efficacy, learning-oriented purpose for doing homework, and positive homework-related emotions. These positive relationships, in turn, predicted homework completion. Findings also suggest that children's psychological resources were partial mediating factors in the relation between parental autonomy granting and homework completion. Regarding role and prior academic achievement, we found both do not moderate the structural model relations.

Parental autonomy granting, psychological resources and homework completion (direct relations hypothesis)

The findings were consistent with hypothesis. Parental autonomy support was a significant factor contributing to the development of children's psychological resources and homework outcomes (Gonida & Cortina, 2014; Ryan & Deci, 2017; Silinkas & Kikas, 2017; Vasquez et al., 2015). These results are consistent with previous studies (Cheung & Pomerantz, 2011; Vasquez et al., 2015), which reported a strong association between parental autonomy support and homework completion. Moreover, in line with previous research (Grijalva-Quiñonez et al., 2020; Liu et al., 2019), our findings indicate when parents support autonomy; they ended up stimulating their child's academic self-efficacy and the adoption of learning-oriented purposes for doing homework. This type of parenting also promotes positive homework-related emotions in children.

More importantly, results suggest that children's psychological resources are an important cognitive construct that promotes homework completion and should be considered. These results are similar to other studies (Bembenutty, 2010; Feng et al., 2019; Katz et al., 2014) that reported academic self-efficacy, learning-oriented purposes in homework, and positive homework-related emotions were related to lower levels of homework procrastination and better proactive approaches to completing homework.

The mediating role of psychological resources (mediational relations)

As stated in hypothesis, results show that children's psychological resources mediate the relationship between parental autonomy support and homework completion. Specifically, parental autonomy support seems to contribute to the development of children's psychological resources, which in turn lead to homework completion. Consistent with other studies (Feng et al., 2019; Xu, 2011), our findings underline that students' learning-oriented purpose for doing homework acts as a mediating factor between parental autonomy support and homework completion.

Moreover, the findings disclosed a mediating role of both

self-efficacy and positive homework emotions in the relationship between parental autonomy support and homework completion. Results are consistent with studies that show the mediating effects of these variables in the relationship between parental support of autonomy and students' academic outcomes (Hejazi et al., 2009; Luo et al., 2016; Zhen et al., 2017).

Moderate role of gender and prior academic achievement

Contrary to we expected based in previous research (see Dumont et al., 2012; Dumont et al., 2014; Núñez et al., 2017; Silinkas et al., 2012), our results indicate that gender and prior academic achievement do not have a moderating effect on the relationship proposed in the structural model. This result, in particular, means that Hypothesis 2 must be rejected. Further studies are needed to clarify the results obtained in the Mexican context. However, we posit that cultural differences in the meaning of autonomy support partially explained the lack of moderating effects of both variables (gender and academic performance) on homework completion (Marbell & Grolnick, 2013; Ryan & Deci, 2011, 2017).

Conclusions

Our findings are consistent with SDT predictions (Deci & Ryan, 1985). Overall, results showed that the quality of parenting influences children's psychological resources and academic outcomes as well. In particular, the study evinced that parental autonomy support not only promotes homework completion directly. Parental autonomy also facilitates in children the development of psychological resources that lead the satisfaction of needs of autonomy (learning purposes-oriented homework), competence (academic self-efficacy), and relatedness (positive homework-related emotions). These results are important because it contributes to a better understanding of the benefits of parental autonomy support, which go beyond the positive effects on homework completion. The support of children's autonomy also contributes to the development of psychological resources that in the future might enable children to better perform in different contexts (Detters et al., 2011; Katz et al., 2014).

Overall, our study suggests that academic competence among children is associated with the autonomy granted by parents to children. These findings provide further pieces of evidence for disentangling this construct in future research on parenting and children's academic adjustment. These results are in line with studies suggesting that autonomy granting, and control are distinct parenting constructs (Mageau et al., 2015; Silk et al., 2003) that should be studied separately. Finally, similar to previous research, our findings suggest that in Mexico, similar to other countries with a horizontal collectivist culture, an indulgent parenting style that supports children's autonomy frequently has a positive influence on

children academic adjustment (García & Gracia, 2009; García et al., 2018).

Limitations and Future Research

The results of the present study contribute to understanding familiar and individual factors in the homework context; however, some limitations should be considered. First, a cross-sectional design was used. Thus, results cannot be assumed as causal relationships among the included variables. Therefore, further research should consider the use of longitudinal or other experimental design for testing possible causal variables that affect homework completion. Second, all the data were based on self-reported measures, except for academic prior achievement. Thus, future studies should consider other sources of information from multiple perspectives (for example, parents' self-reports) to enhance the current understanding of parental involvement in children's home-

work. Third, despite the literature reports that parental involvement in academic issues changes depending on grade (Nuñez et al., 2015), the study only includes students from 5th and 6th grade. Therefore, further research is needed to prove whether the present findings may be related to children in older and/or younger age groups. Finally, although the sample is similar to schools located in urban regions of Mexico, it may not be representative of the diversity of school, children, and families in Mexico as a whole (for example, indigenous students). Studies with more diverse samples are necessary in future studies.

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References

- Arbuckle, J. M. (2017). *IBM® SPSS® Amos™ 25 user's guide*. IBM.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Bembenutty, H. (2010). Homework completion: The role of self-efficacy, delay of gratification, and self-regulatory processes. *The International Journal of Educational and Psychological Assessment*, 6(1), 1–20.
- Benner, A. D., Boyle, A. E., & Sadler, S. (2016). Parental involvement and adolescents' educational success: The roles of prior achievement and socioeconomic status. *Journal of Youth and Adolescence*, 45, 1053–1064. <https://doi.org/10.1007/s10964-016-0431-4>
- Bollen, K. A., & Stine, R. A. (1992). Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods & Research*, 21(2), 205–229. <https://doi.org/10.1177/0049124192021002004>
- Bong, M. (2002). Predictive utility of subject-, task-, and problem-specific self-efficacy judgments for immediate and delayed academic performances. *The Journal of Experimental Education*, 70(2), 133–162. <https://doi.org/10.1080/00220970209599503>
- Byrne, B. M. (2016). *Structural equation modeling with AMOS. Basic concepts, applications, and programming* (4th ed.). Routledge.
- Cheung, C. S.-S., & Pomerantz, E. M. (2011). Parents' involvement in children's learning in the United States and China: Implications for children's academic and emotional adjustment. *Child Development*, 82(3), 932–950. <https://doi.org/10.1111/j.1467-8624.2011.01582.x>
- Cooper, H. (1989). *Homework*. Longman.
- Costa, S., Cuzzocrea, F., Gugliandolo, M. C., & Larcán, R. (2016). Associations between parental psychological control and autonomy support, and psychological outcomes in adolescents: The mediate role of need satisfaction and need frustration. *Child Indicators Research*, 9, 1059–1076. <https://doi.org/10.1007/s12187-015-9353-z>
- Coutts, P. M. (2004). Meanings of homework and implications for practice. *Theory Into Practice*, 43(3), 182–188. https://doi.org/10.1207/s15430421tip4303_3
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum.
- Dettmers, S., Trautwein, U., Lüdtke, O., Goetz, T., Frenzel, A. C., & Pekrun, R. (2011). Students' emotions during homework in mathematics: Testing a theoretical model of antecedents and achievement outcomes. *Contemporary Educational Psychology*, 36(1), 25–35. <https://doi.org/10.1016/j.cedpsych.2010.10.001>
- Doctoroff, G. L., & Arnold, D. H. (2017). Doing homework together: The relation between parenting strategies, child engagement, and achievement. *Journal of Applied Developmental Psychology*, 48, 103–113. <https://doi.org/10.1016/j.appdev.2017.01.001>
- Dumont, H., Trautwein, U., Lüdtke, O., Neumann, M., Niggli, A., & Schnyder, I. (2012). Does parental homework involvement mediate the relationship between family background and educational outcomes? *Contemporary Educational Psychology*, 37(1), 55–69. <https://doi.org/10.1016/j.cedpsych.2011.09.004>
- Dumont, H., Trautwein, U., Nagy, G., & Nagengast, B. (2014). Quality of parental homework involvement: Predictors and reciprocal relations with academic functioning in the reading domain. *Journal of Educational Psychology*, 106(1), 144–161. <https://doi.org/10.1037/a0034100>
- Enders, C. K. (2002). Applying the Bollen-Stine bootstrap for goodness-of-fit measures to structural equation model with missing data. *Multivariate Behavioral Research*, 37(3), 359–377. https://doi.org/10.1207/S15327906MBR3703_3
- Fan, H., Xu, J., Cai, Z., He, J., & Fan, X. (2017). Homework and students' achievement in math and science: A 30-year meta-analysis, 1986–2015. *Educational Research Review*, 20, 35–54. <https://doi.org/10.1016/j.edurev.2016.11.003>
- Feng, X., Xie, K., Gong, S., Gao, L., & Cao, Y. (2019). Effects of parental autonomy support and teacher support on middle school students' homework effort: Homework autonomous motivation as mediator. *Frontiers in Psychology*, 10, e612. <https://doi.org/10.3389/fpsyg.2019.00612>
- Finney, S. J., & DiStefano, C. (2013). Non-normal and categorical data in structural equation modeling. In G. R. Hancock, & R. O. Mueller (Eds.), *Quantitative methods in education and the behavioral sciences: Issues, research, and teaching. Structural equation modeling: A second course* (pp. 439–492). Information Age Publishing.
- Froiland, J. M. (2015). Parents' weekly descriptions of autonomy supportive communication: Promoting children's motivation to learn and positive emotions. *Journal of Child and Family Studies*, 24, 117–126. <https://doi.org/10.1007/s10826-013-9819-x>
- García, F., & Gracia, E. (2009). Is always authoritative the optimum parenting style? Evidence from Spanish families. *Adolescence*, 44(173), 101–131.
- García, O. F., Serra, E., Zacarés, J. J., & García, F. (2018). Parenting styles and short- and long-term socialization outcomes: A study among Spanish adolescents and older adults. *Psychosocial Intervention*, 27(3), 153–161. <https://doi.org/10.5093/pi2018a21>
- Goetz, T., Nett, U. E., Martiny, S. E., Hall, N. C., Pekrun, R., Dettmers, S., & Trautwein, U. (2012). Students' emotions during homework: Structures, self-concept antecedents, and achievement outcomes. *Learning and Individual Differences*, 22(2), 225–234. <https://doi.org/10.1016/j.lindif.2011.04.006>
- Gonida, E. N., & Cortina, K. S. (2014). Parental involvement in homework: Relations with parent and student achievement-related motivational beliefs and achievement. *British Journal of Educational Psychology*, 84(3), 376–396. <https://doi.org/10.1111/bjep.12039>
- Griffith, S. F., & Grolnick, W. S. (2014). Parenting in Caribbean families: A

- look at parental control, structure, and autonomy support. *Journal of Black Psychology*, 40(2), 166–190. <http://doi.org/10.1177/0095798412475085>
- Grijalva-Quiñonez, C. S., Valdés-Cuervo, A. A., Parra-Pérez, L. G., & García-Vázquez, F. I. (2020). Parental involvement in Mexican elementary students' homework: Its relation with academic self-efficacy, self-regulated learning, and academic achievement. *Psicología Educativa*, 26(2), 129–136. <https://doi.org/10.5093/psed2020a5>
- Grolnick, W. S. (2009). The role of parents in facilitating autonomous self-regulation for education. *Theory and Research in Education*, 7(2), 164–173. <https://doi.org/10.1177/1477878509104321>
- Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. *Journal of Educational Psychology*, 81(2), 143–154. <https://doi.org/10.1037/0022-0663.81.2.143>
- Hagger, M. S., Sultan, S., Hardcastle, S. J., & Chatzisarantis, N. L. D. (2015). Perceived autonomy support and autonomous motivation toward mathematics activities in educational and out-of-school contexts is related to mathematics homework behavior and attainment. *Contemporary Educational Psychology*, 41, 111–123. <https://doi.org/10.1016/j.cedpsych.2014.12.002>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2017). *Multivariate data analysis* (7th ed.). Pearson.
- Hancock, G. R., & Liu, M. (2012). Bootstrapping standard errors and data model fit statistic. In H. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 296–306). The Guilford Press.
- Hejazi, E., Shahraray, M., Farsinejad, M., & Asgari, A. (2009). Identity styles and academic achievement: mediating role of academic self-efficacy. *Social Psychology of Education*, 12(1), 123–135. <https://doi.org/10.1007/s11218-008-9067-x>
- Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology*, 102(3), 588–600. <https://doi.org/10.1037/a0019682>
- Joussemet, M., Landry, R., & Koestner, R. (2008). A self-determination theory perspective on parenting. *Canadian Psychology*, 49(3), 194–200. <https://doi.org/10.1037/a0012754>
- Katz, I., Buzukashvili, T., & Feingold, L. (2012). Homework stress: Construct validation of a measure. *The Journal of Experimental Education*, 80(4), 405–421. <https://doi.org/10.1080/00220973.2011.610389>
- Katz, I., Eilat, K., & Nevo, N. (2014). "I'll do it later": Type of motivation, self-efficacy and homework procrastination. *Motivation and Emotion*, 38, 111–119. <https://doi.org/10.1007/s11031-013-9366-1>
- Kitsantas, A., Cheema, J., & Ware, H. W. (2011). Mathematics achievement: The role of homework and self-efficacy beliefs. *Journal of Advanced Academics*, 22(2), 310–339. <http://doi.org/10.1177/1932202x1102200206>
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). The Guilford Press.
- Lee, Y. S., & Jonson-Reid, M. (2016). The role of self-efficacy in reading achievement of young children in urban schools. *Child and Adolescent Social Work Journal*, 33, 78–89. <https://doi.org/10.1007/s10560-015-0404-6>
- Liew, J., Kwok, O., Chang, Y.-p., Chang, B. W., & Yeh, Y.-C. (2014). Parental autonomy support predicts academic achievement through emotion-related self-regulation and adaptive skills in Chinese American adolescents. *Asian American Journal of Psychology*, 5(3), 214–222. <https://doi.org/10.1037/a0034787>
- Linnenbrink-Garcia, L., & Barger, M. M. (2014). Achievement goals and emotions. In R. Pekrun, & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (pp. 142–161). Routledge.
- Liu, Y., Sang, B., Liu, J., Gong, S., & Ding, X. (2019). Parental support and homework emotions in Chinese children: mediating roles of homework self-efficacy and emotion regulation strategies. *Educational Psychology*, 39(5), 617–635. <https://doi.org/10.1080/01443410.2018.1540769>
- Lüftenecker, M., Klug, J., Harrer, K., Langer, M., Spiel, C., & Schober, B. (2016). Students' achievement goals, learning-related emotions and academic achievement. *Frontiers in Psychology*, 9, e2706. <https://doi.org/10.3389/fpsyg.2016.00603>
- Luo, W., Ng, P. T., Lee, K., & Aye, K. M. (2016). Self-efficacy, value, and achievement emotions as mediators between parenting practice and homework behavior: A control-value theory perspective. *Learning and Individual Differences*, 50, 275–282. <https://doi.org/10.1016/j.lindif.2016.07.017>
- Mageau, G. A., Ranger, F., Joussemet, M., Koestner, R., Moreau, E., & Forest, J. (2015). Validation of the Perceived Parental Autonomy Support Scale (P-PASS). *Canadian Journal of Behavioural Science*, 47(3), 251–262. <https://doi.org/10.1037/a0039325>
- Maloney, E. A., Ramirez, G., Gunderson, E. A., Levine, S. C., & Beilock, S. L. (2015). Intergenerational effects of parents' math anxiety on children's math achievement and anxiety. *Psychological Science*, 26(9), 1480–1488. <https://doi.org/10.1177/0956797615592630>
- Marbell, K. N., & Grolnick, W. S. (2013). Correlates of parental control and autonomy support in an interdependent culture: A look at Ghana. *Motivation and Emotion*, 37, 79–92. <http://doi.org/10.1007/s11031-012-9289-2>
- Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Freeman, K. E., Gheen, M., Kaplan, A., Kumar, R., Middleton, M. J., Nelson, J., Roemer, R., & Urdan, T. (2000). *Manual for the patterns of adaptive learning scale (PALS)*. University of Michigan.
- Núñez, J. C., Epstein, J. L., Suárez, N., Rosário, P., Vallejo, G., & Valle, A. (2017). How does student prior achievement and homework behaviors relate to perceived parental involvement in homework? *Frontiers in Psychology*, 8, e1217. <https://doi.org/10.3389/fpsyg.2017.01217>
- Núñez, J. C., Suárez, N., Cerezo, R., González-Pienda, J., Rosário, P., Mourão, R., & Valle, A. (2013). Homework and academic achievement across Spanish Compulsory Education. *Educational Psychology*, 35(6), 726–746. <https://doi.org/10.1080/01443410.2013.817537>
- Núñez, J. C., Suárez, N., Rosário, P., Vallejo, G., Valle, A., & Epstein, J. L. (2015). Relationships between perceived parental involvement in homework, student homework behaviors, and academic achievement: differences among elementary, junior high, and high school students. *Metacognition and Learning*, 10, 375–406. <https://doi.org/10.1007/s11409-015-9135-5>
- Olympia, D. E., Sheridan, S. M., & Jenson, W. (1994). Homework: A natural means of home-school collaboration. *School Psychology Quarterly*, 9(1), 60–80. <https://doi.org/10.1037/h0088844>
- Patall, E. A., Cooper, H., & Robinson, J. C. (2008). Parent involvement in homework: A research synthesis. *Review of Educational Research*, 78(4), 1039–1101. <https://doi.org/10.3102/0034654308325185>
- Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in students' learning and performance: The Achievement Emotions Questionnaire (AEQ). *Contemporary Educational Psychology*, 36(1), 36–48. <https://doi.org/10.1016/j.cedpsych.2010.10.002>
- Pekrun, R., Lichtenfeld, S., Marsh, H. W., Murayama, K., & Goetz, T. (2017). Achievement emotions and academic performance: Longitudinal models of reciprocal effects. *Child Development*, 88(5), 1653–1670. <https://doi.org/10.1111/cdev.12704>
- Pekrun, R., & Linnenbrink-Garcia, L. (2012). Academic emotions and student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 259–282). Springer.
- Pomerantz, E. M., Moorman, E. A., & Litwack, S. D. (2007). The how, whom, and why of parents' involvement in children's academic lives: More is not always better. *Review of Educational Research*, 77(3), 373–410. <https://doi.org/10.3102/003465430305567>
- Pomerantz, E. M., Ng, F. F.-Y., & Wang, Q. (2006). Mothers' mastery-oriented involvement in children's homework: Implications for the well-being of children with negative perceptions of competence. *Journal of Educational Psychology*, 98(1), 99–111. <https://doi.org/10.1037/0022-0663.98.1.99>
- Rogers, M. A., Theule, J., Ryan, B. A., Adams, G. R., & Keating, L. (2009). Parental involvement and children's school achievement: Evidence for mediating processes. *Canadian Journal of School Psychology*, 24(1), 34–57. <https://doi.org/10.1177/0829573508328445>
- Rosário, P., Carlos Núñez, J., Vallejo, G., Nunes, T., Cunha, J., Fuentes, S., & Valle, A. (2018). Homework purposes, homework behaviors, and academic achievement. Examining the mediating role of students' perceived homework quality. *Contemporary Educational Psychology*, 53, 168–180. <https://doi.org/10.1016/j.cedpsych.2018.04.001>
- Roth, G., Assor, A., Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2009). The emotional and academic consequences of parental conditional regard: Comparing conditional positive regard, conditional negative regard, and autonomy support as parenting practices. *Developmental Psychology*, 45(4), 1119–1142. <https://doi.org/10.1037/a0015272>

- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57(5), 749-761. <https://doi.org/10.1037/0022-3514.57.5.749>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. <https://doi.org/10.1037//0003-066x.55.1.68>
- Ryan, R. M., & Deci, E. L. (2011). A self-determination theory perspective on social, cultural, and economic support for autonomy and their importance for well-being. In V. I. Chirkov, R. M. Ryan, & M. Sheldon (Eds.), *Human autonomy in cross-cultural context. Perspectives on the psychology of agency, freedom, and well-being* (pp. 45-64). Springer.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. The Guilford Press.
- Schunk, D. H., & DiBenedetto, M. K. (2016). Self-efficacy in education. In K. R. Wentzel, & D. B. Miele (Eds.), *Handbook of motivation at school* (2th ed., pp. 34-54). Routledge.
- Schunk, D. H., & Pajares, F. (2009). Self-efficacy theory. In K. R. Wentzel, & A. Wigfield (Eds.), *Educational psychology handbook series. Handbook of motivation at school* (p. 35-53). Routledge.
- Sierens, E., Vansteenkiste, M., Goossens, L., Soenens, B., & Dochy, F. (2009). The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology*, 79(1), 57-68. <https://doi.org/10.1348/000709908X304398>
- Silinskas, G., & Kikas, E. (2017). Parental involvement in math homework: Links to children's performance and motivation. *Scandinavian Journal of Educational Research*, 63(1), 17-37. <https://doi.org/10.1080/00313831.2017.1324901>
- Silinskas, G., Leppänen, U., Aunola, K., Parrila, R., & Nurmi, J. E. (2010). Predictors of mothers' and fathers' teaching of reading and mathematics during kindergarten and Grade 1. *Learning and Instruction*, 20(1), 61-71. <https://doi.org/10.1016/j.learninstruc.2009.01.002>
- Silinskas, G., Niemi, P., Lerkkanen, M-K., & Nurmi, J.-E. (2012). Children's poor academic performance evokes parental homework assistance-but does it help? *International Journal of Behavioral Development*, 37(1), 44-56. <https://doi.org/10.1177/0165025412456146>
- Silk, J. S., Morris, A. S., Kanaya, T., & Steinberg, L. (2003). Psychological control and autonomy granting: Opposite ends of a continuum or distinct constructs? *Journal of Research on Adolescence*, 13(1), 113-128. <https://doi.org/10.1111/1532-7795.1301004>
- Tian, L., Chen, H., & Huebner, E. S. (2014). The longitudinal relationships between basic psychological needs satisfaction at school and school-related subjective well-being in adolescents. *Social Indicators Research*, 119, 353-372. <https://doi.org/10.1007/s11205-013-0495-4>
- Tomarken, A. J., & Waller, N. G. (2003). Structural equation modeling: Strengths, limitations, and misconceptions. *Annual Review of Clinical Psychology*, 1, 31-65. <https://doi.org/10.1146/annurev.clinpsy.1.102803.144239>
- Trautwein, U., Niggli, A., Schnyder, I., & Lüdtke, O. (2009). Between-teacher differences in homework assignments and the development of students' homework effort, homework emotions, and achievement. *Journal of Educational Psychology*, 101(1), 176-189. <https://doi.org/10.1037/0022-0663.101.1.176>
- Trautwein, U., Lüdtke, O., Schnyder, I., & Niggli, A. (2006). Predicting homework effort: Support for a domain-specific, multilevel homework model. *Journal of Educational Psychology*, 98(2), 438-456. <https://doi.org/10.1037/0022-0663.98.2.438>
- Valle, A., Pan, I., Núñez, J. C., Rosário, P., Rodríguez, S., & Regueiro, B. (2015). Deberes escolares y rendimiento académico en Educación Primaria [Homework and academic achievement in Primary Education]. *Anales de Psicología*, 31(2), 562-569. <https://doi.org/10.6018/analesps.31.2.171131>
- Valle, A., Regueiro, B., Núñez, J. C., Rodríguez, S., Piñero, I., & Rosário, P. (2016). Academic goals, student homework engagement, and academic achievement in elementary school. *Frontiers in Psychology*, 7, e463. <https://doi.org/10.3389/fpsyg.2016.00463>
- Vallerand, R. J., & Ratelle, C. F. (2002). Intrinsic and extrinsic motivation: A hierarchical model. In E. L. Deci, & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 37-64). The University of Rochester Press.
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, 3(1), 4-70. <https://doi.org/10.1177/109442810031002>
- Van Voorhis, F. L. (2011). Costs and benefits of family involvement in homework. *Journal of Advanced Academics*, 22(2), 220-249. <https://doi.org/10.1177/1932202x1102200203>
- Vasquez, A. C., Patall, E. A., Fong, C. J., Corrigan, A. S., & Pine, L. (2015). Parent autonomy support, academic achievement, and psychosocial functioning: a meta-analysis of research. *Educational Psychology Review*, 28, 605-644. <https://doi.org/10.1007/s10648-015-9329-z>
- Xu, J. (2005). Purposes for doing homework reported by middle and high school students. *The Journal of Educational Research*, 99(1), 46-55. <https://doi.org/10.3200/JOER.99.1.46-55>
- Xu, J. (2010). Homework purpose scale for high school students: A validation study. *Educational and Psychological Measurement*, 70(3), 459-476. <https://doi.org/10.1177/0013164409344517>
- Xu, J. (2011). Homework completion at the secondary school level: A multi-level analysis. *The Journal of Educational Research*, 104(3), 171-182. <https://doi.org/10.1080/00220671003636752>
- Xu, X., Dai, D., Liu, M., & Deng, C. (2018). Relations between parenting and adolescents' academic functioning: The mediating role of achievement goal orientations. *Frontiers in Education*, 3, e1. <https://doi.org/10.3389/educ.2018.00001>
- Xu, J., Fan, X., Du, J., & He, M. (2017). A study of the validity and reliability of the parental homework support scale. *Measurement*, 95, 93-98. <https://doi.org/10.1016/j.measurement.2016.09.045>
- Xu, J., & Wu, H. (2013). Self-regulation of homework behavior: Homework management at the secondary school level. *The Journal of Educational Research*, 106(1), 1-13. <https://doi.org/10.1080/00220671.2012.658457>
- Walker, J. M. T., Hoover-Dempsey, K. V., Whetsel, D. R., & Green, C. L. (2004). Parental involvement in homework: A review of current research and its implications for teachers and after school program staff, and parent leader. *Educational Psychologist*, 36(3), 195-209.
- Warton, P. M. (2001). The forgotten voices in homework: Views of students. *Educational Psychologist*, 36(3), 155-165. https://doi.org/10.1207/S15326985EP3603_2
- Zhen, R., Liu, R.-D., Ding, Y., Wang, J., Liu, Y., & Xu, L. (2017). The mediating roles of academic self-efficacy and academic emotions in the relation between basic psychological needs satisfaction and learning engagement among Chinese adolescent students. *Learning and Individual Differences*, 54, 210-216. <https://doi.org/10.1016/j.lindif.2017.01.017>
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82-91. <https://doi.org/10.1006/ceps.1999.1016>