



Intergenerational Transmission of Educational Aspirations in Chinese Families: Identifying Mediators and Moderators

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Abstract

Parents' educational aspirations for youth play an important role in shaping youth's own educational aspirations; however, little is known about how and in what context parents may transmit their aspirations to youth effectively. This is of particular interest and import to be examined in Chinese families, given Chinese cultural emphasis on educational achievement and Chinese youth's outstanding academic performance internationally. By integrating several key theories of motivation and parental socialization (i.e., the expectancy-value model of academic achievement, the two-step model of value transmission, the contextual model of parenting, and the self-determination theory), the current study investigated simultaneously the mediating roles of parental involvement in youth's learning and youth's perceptions of parental aspirations, as well as the moderating role of parental warmth in the intergenerational transmission process of educational aspirations in Chinese families. A two-wave longitudinal study spanning about half a year was conducted among 323 Chinese seventh graders (54% female; $M_{\text{age}} = 13.25$ years) and one of their parents (median educational attainment = completion of high school, median monthly income = USD 766–1226). It was found that parental educational aspirations for youth were related positively both indirectly through parental involvement and directly to youth's perceptions of parental aspirations, which in turn were associated positively with youth's own educational aspirations about half a year later. It was also found that parental educational aspirations for youth and youth's own educational aspirations were associated positively with each other only when youth reported experiencing high levels of parental warmth, but unrelated when youth reported experiencing low levels of parental warmth, whereas such moderating effects of parental warmth were absent on the links from parental aspirations to youth's perceptions of parental aspirations and parental involvement. These findings highlight the importance of integrating multiple theories to understand parent-to-youth transmission of educational aspirations in non-western cultures, which helps not only reveal generalizability, as well as boundary conditions for Western-originated theories, but also inform practical endeavors at promoting youth's educational achievement worldwide to draw on strengths of different cultures.

Keywords Early adolescents · Educational aspirations · Intergenerational transmission · Parental involvement · Parental warmth

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Introduction

Educational aspirations have long been recognized as a key motivational factor contributing to youth's academic achievement (Beal and Crockett 2010; Khattab 2015). Prior

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studies have suggested that parents' educational aspirations for youth play a significant role in youth's development of educational aspirations (Kirk et al. 2011; Lazarides et al. 2016). However, little is known about how and under what conditions parents may transmit their educational aspirations for youth to the next generation effectively. The current study aimed to fill in this gap by identifying mediators and moderators in the intergenerational transmission process of educational aspirations.

Drawing on major theories of motivation and parental socialization, the current study tested the following hypotheses regarding parent-to-youth transmission of educational aspirations. Specifically, guided by the expectancy-value model of achievement motivation (Eccles and Wigfield 2002) and the two-step model of value transmission (Grusec and Goodnow 1994), respectively, we examined parental involvement in youth's learning and youth's perceptions of parental educational aspirations for them simultaneously as mediators in the parent-to-youth transmission process of educational aspirations. We expected that parental aspirations would first be perceived by youth, partly through parental involvement in youth's learning, and in turn be internalized as youth's own aspirations. Moreover, guided by the contextual model of parenting (Darling and Steinberg 1993) which emphasizes the role of general aspects of parenting in moderating the effects of specific aspects of parenting on Youth's outcomes, and the self-determination theory (SDT) (Deci and Ryan 2000; Grolnick et al. 1997), which purports that youth would be particularly likely to recognize and internalize parental values when their need for relatedness is fulfilled in the parent-youth relationship, we examined parental warmth as a potential moderator in the intergenerational transmission process of educational aspirations. We expected that youth would be more likely to perceive and internalize parental educational aspirations for them in the context of high (vs. low) parental warmth that satisfies their need for relatedness.

We conducted the current study in a sample of Chinese families because of the following theoretical and empirical considerations. Although in response to calls to extend the understanding of psychological processes beyond Western populations (Arnett 2008; Henrich et al. 2010), there has been research evidencing the applicability of the aforementioned Western-originated theories (i.e., the expectancy-value model of achievement motivation, the two-step model of value transmission, the contextual model of parenting model, and the SDT) in Chinese populations (e.g., Cheung and Pomerantz 2015; Nagengast et al. 2011; Wang et al. 2007; Wu and Yao 2013), relevant theories have not been tested in examining specifically parent-to-youth transmission of educational aspirations. On the one hand, Chinese youth have been consistently found to

outperform their Western counterparts academically, for example, Chinese 15-year olds in Shanghai outperformed their counterparts in the United States in math, reading, and science in the Program for International Student Assessment (Gurria 2014, 2016). On the other hand, both cross-cultural similarities and differences between Chinese and Western families have been documented in youth's motivational landscape and parental influences on youth's academic functioning (e.g., Cheung and Pomerantz 2015; Qu and Pomerantz 2015; Wang and Pomerantz 2009). It is hence of much interest and import to further explore factors and processes of particular significance to Chinese youth's educational achievement, one of which concerns parents' high-educational aspirations for youth being transmitted effectively to the next generation (Guo 2014; Li 2004). Insights into the process of parent-to-youth transmission of educational aspirations in Chinese families would not only contribute to a better understanding about the generalizability of relevant Western-originated theories to a contrasting non-Western culture, but also inform practical endeavors to promote youth's educational achievement worldwide that may benefit from drawing on strengths of different cultures (for reviews of cross-cultural insights into learning-related aspects of parenting, see Pomerantz et al. 2014; Pomerantz et al. 2008).

Intergenerational Transmission of Educational Aspirations

Educational aspirations are defined as wishes and desires that individuals have formed regarding their educational attainment (Murayama et al. 2015; Yamamoto and Holloway 2010), and have been evidenced to play a positive role in youth's academic achievement over time (Beal and Crockett 2010; Khattab 2015). In particular, high-educational aspirations held by both Chinese parents for youth and Chinese youth for themselves have been deemed as a key contributor to Chinese youth's academic achievement (Guo 2014; Li 2004). However, few studies have gone beyond arguing for an overall culture-level emphasis on educational achievement to investigate how parental aspirations may indeed be transmitted to the next generation effectively in individual Chinese families. In light of findings showing that even in China where there is a strong general cultural value of educational achievement, academic motivation declines normatively during early adolescence (Wang and Pomerantz 2009), it is crucial to examine what factors and processes at the level of individual families may help youth stay motivated academically. Of specific concern in this study was the issue of Chinese parents' educational aspirations for youth being transmitted effectively to the next generation, thereby helping youth maintain their motivation in academics.

In fact, early adolescence is a developmental period during which intergenerational transmission of values and attitudes is of particular salience. This is a time when youth start to think about and plan for their futures (Massey et al. 2008), and parents still serve as an important source of guidance and reference despite increasing peer influences (Eccles and Wigfield 2002). Moreover, compared to children of younger age, early adolescents have developed more advanced cognitive abilities (Hill and Tyson 2009), which enable them to perceive parents' perspectives more easily. Indeed, prior studies have evidenced significant degrees of similarity in youth's and their parents' values and attitudes among both Western (Barni et al. 2011; Zhang et al. 2011) and Chinese samples (Kim and Hou 2016; Shen et al. 2016). Yet, there has been relatively little research on mechanisms underlying such intergenerational transmission.

Potential Mediators Underlying the Intergenerational Transmission Process

Two theoretical models are particularly informative for the understanding of the parent-to-youth transmission process of educational aspirations, namely, the expectancy-value model of achievement motivation (Eccles and Wigfield 2002) and the two-step model of value transmission (Grusec and Goodnow 1994). The expectancy-value model of achievement motivation proposes that for parental values to be transmitted to the next generation, parents need to express their values through corresponding parenting behaviors, which in turn can affect youth's values (Simpkins et al. 2012, 2015). Specifically, when parents hold high aspirations for youth's educational attainment, in order to promote youth's academic achievement, parents may be highly involved in youth's learning—for example, engaging youth in various learning-related activities including monitoring youth's progress in schoolwork and sending youth to take after-school classes (Halle et al. 1997; Sy and Schulenberg 2005). As such parental involvement conveys to youth the message that schoolwork and learning are important, which has been shown to be the case in both China and the United States (Cheung and Pomerantz 2015), youth may take on parents' educational aspirations for them.

In addition to the expectancy-value model of achievement motivation, the two-step model of value transmission postulates that value transmission occurs in two steps (Grusec and Goodnow 1994). First, youth need to be aware of parental values in terms of perceiving them accurately; and second, youth need to accept parental values as their own. Both steps are essential for effective value transmission. This two-step process has been supported in a number of prior studies in both Western and Chinese samples

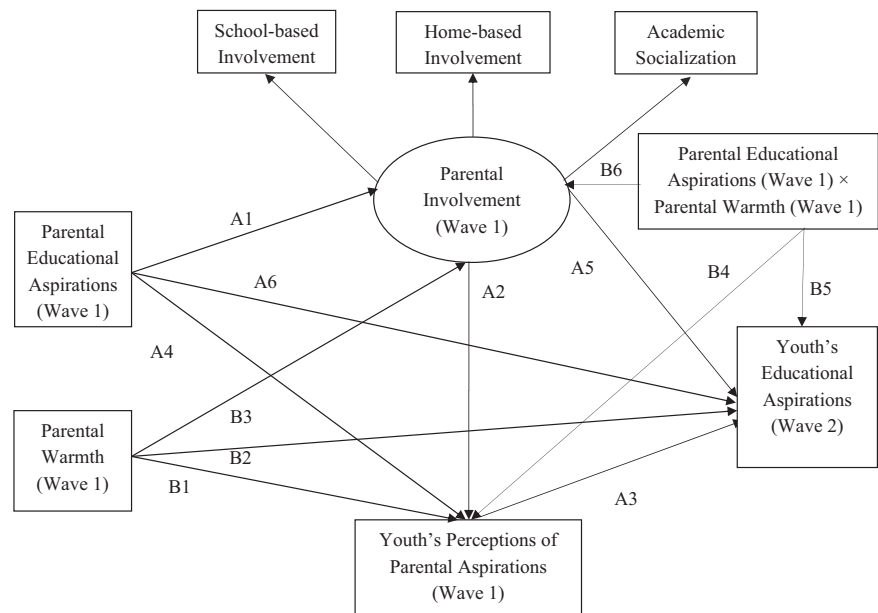
(Cheung and Pomerantz 2015; Knafo and Schwartz 2009), such that the more accurately youth perceive parental values, the greater extent they accept those values.

The aforementioned research guided by the expectancy-value model of achievement motivation and the two-step model of value transmission, respectively, has investigated separately the mediating roles of parenting behaviors and youth perceptions of parental values in intergenerational value transmission. Moving forward to combine the two models may provide a more comprehensive understanding of the process in revealing the importance of both parents' and youth's active roles, that is, parents' engaging in observable parenting behaviors can facilitate the necessary step in value transmission for youth to perceive parental values accurately (Goodnow 1997). Specifically in the case of intergenerational transmission of educational aspirations, parental aspirations for youth may first translate into parental involvement in youth's learning (e.g., helping with homework, discussing learning strategies, communicating with teachers; see Path A1 in Fig. 1); such observable parenting behaviors convey clearly the message to youth that parents want them to achieve high educationally and thus facilitate youth's accurate perceptions of parental aspirations (Path A2 in Fig. 1), which in turn are internalized as youth's own aspirations (Path A3 in Fig. 1). It is of note that the expectancy-value model of achievement motivation and the two-step model of value transmission do not exclude channels other than parental involvement and youth's perceptions through which parental educational aspirations for youth may relate to youth's own aspirations. Therefore, we also tested direct links from parental aspirations to youth's perceptions, from parental involvement to youth's aspirations, and from parental aspirations to youth's aspirations (see Paths A4, A5, and A6 in Fig. 1, respectively).

Potential Moderating Role of Parental Warmth

Extant theories also suggest moderating conditions for intergenerational value transmission. The contextual model of parenting (Darling and Steinberg 1993) states that general parenting styles characterized by overall parental warmth or control may moderate the effects of specific parenting practices. Consistent with this proposal, the SDT specifies that when youth's basic psychological needs are satisfied in the context of socialization—for instance, when parental warmth in terms of parents' expression of affection and love toward youth fulfills youth's need for relatedness—youth would readily attend to and take on values held by socialization agents, such as parents; in contrast, when youth's basic psychological needs such as that for relatedness is unsatisfied, it may be difficult for them to recognize and internalize values held by socialization agents (Deci and

Fig. 1 Conceptual framework linking parental educational aspirations for youth to youth's educational aspirations



Ryan 2000; Grolnick et al. 1997). Indeed, prior studies have shown that parental responsiveness which fulfills youth's need for relatedness facilitates whereas indifferent parenting which leaves youth's need for relatedness unsatisfied hinders youth's perceptions of parental values (Knafo and Schwartz 2003, 2009).

Therefore, specifically in the intergenerational transmission process of educational aspirations conceptualized in the current study, we expected parental warmth to moderate both the link from parents' educational aspirations for youth to youth's perceptions of parental aspirations, and the link from parental aspirations to youth's aspirations (Paths B4 and B5 in Fig. 1, respectively). Moreover, parental warmth may also moderate the link from parental aspirations to parental involvement (Path B6 in Fig. 1) in that when parents hold high-educational aspirations for youth out of acceptance and love toward youth rather than instrumental reasons (e.g., that youth may grow up to bring the family financial gains)—namely, with high (vs. low) parental warmth—they may be more likely to accompany their high aspirations with constructive parenting behaviors, such as involvement in youth's learning that can indeed help youth do well (Grusec et al. 1997).

The Current Study

The current study aimed to examine potential mediators and moderators in the intergenerational transmission process of educational aspirations in a sample of Chinese early adolescents and one of their parents. As shown in Fig. 1, moving beyond prior studies that have investigated

the mediating roles of parents' involvement in youth's learning and youth's perceptions of parental aspirations separately, we would test particularly the hypothesis that parents' educational aspirations for youth may first translate into their involvement in youth's learning (Path A1), and such parental involvement may facilitate youth's perceptions of parental aspirations (Path A2), which in turn may be internalized as youth's own aspirations (Path A3). Also, we would examine the potential role of parental warmth in moderating the links from parental aspirations to youth's perceptions (Path B4), and to youth's own aspirations (Path B5), as well as the link from parental aspirations to parental involvement (Path B6). We hypothesized that when parental warmth is high (vs. low), youth may be more likely to both recognize and internalize parental aspirations, and parents may be more likely to accompany their educational aspirations for youth with involvement in youth's learning.

Methods

Participants

Three hundred and twenty-three seventh graders (175 females and 148 males; mean age = 13.25 years, $SD = .65$) and one of their parents (163 mothers and 155 fathers, with five parents not specifying their gender; mean age = 40.75 years, $SD = 4.65$) participated in the current study. One parent from each family provided consent for herself/himself and her/his child to participate. The participants were

recruited through a public school in Shenzhen, one of the most economically developed cities in South China. Basic demographic information for the sample is shown in Table 1.

Procedure

The current study was approved by the Survey and Behavioral Research Ethics Committee of the Chinese University of Hong Kong. Both school approval and written informed consent from parents for youth to participate were obtained. Two-wave longitudinal data were collected spanning approximately half a year. In the spring semester of Grade 7 (Wave 1), youth brought home a set of questionnaires for one of their parents to complete, which were then returned to youth's homeroom teachers. At both Wave 1 and ~6 months later in the fall semester of Grade 8 (Wave 2), youth themselves completed a set of questionnaires in classroom sessions supervised by their homeroom teachers. A total of 287 youth participated at both waves. The attrition rate was 12%. An attrition analysis was conducted to compare families who participated at both waves with those who did not participate at wave 2 on all of the study variables. No significant differences were found.

Measures

Parental and Youth's Educational Aspirations

At Wave 1, parents reported their educational aspirations for the participating youth, in response to a measure adapted from prior studies ("How far would you like your child to go in school?" Murayama et al. 2015; Yamamoto and Holloway 2010) to reflect the education system in China on a 7-point scale (1 = completion of junior high school, 2 = completion of senior high school, 3 = associate degree, 4 = bachelor's degree from a non-top-tier university, 5 = bachelor's degree from a top-tier university, 6 = master's degree, 7 = doctoral degree). Youth reported their perceptions of their parents' educational aspirations for them ("How far do you think your parents would like you to go in school?") on a 6-point scale (1 = completion of junior high school, 2 = completion of senior high school, 3 = associate degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree). On the same 6-point scale, youth also reported their own educational aspirations ("How far would you like to go in school?") at both Wave 1 and Wave 2. Prior studies using similar measures have demonstrated the validity of these measures in showing that Youth's educational aspirations predict their academic performance, as well as educational attainment in both western and Chinese samples (Beal and Crockett 2010; Leung et al. 2010).

Table 1 Demographic characteristics of the sample at wave 1

Characteristics	N	%
Youth gender		
Female	175	54%
Male	148	46%
Parent relationship to participating youth		
Biological father	155	49.0%
Biological mother	163	50.5%
Unspecified	5	0.5%
Parental educational attainment		
Incompletion of elementary school	5	1.5%
Completion of elementary school	17	5.3%
Completion of junior high school	104	32.2%
Completion of senior high school	109	33.7%
Associate degree	54	16.7%
Bachelor's degree	24	7.4%
Master's degree	5	1.5%
Doctoral degree	0	0
Parental occupation		
Civil servant	8	2.5%
Professional (e.g., teacher, doctor, lawyer, technician)	30	9.3%
Company staff	59	18.3%
Self-employed	112	34.7%
Migrant workers	33	10.2%
Others	27	2.8%
Parental monthly income		
<USD 306 (CNY 2000)	27	8.4%
USD 306–766 (CNY 2000–4999)	110	34.1%
USD766–1226 (CNY 5000–7999)	61	18.9%
USD1226–1686 (CNY 8000–10999)	45	13.9%
USD 1686–2146 (CNY 11000–13999)	19	5.9%
USD 2146–2606 (CNY 14000–16999)	11	3.4%
USD 2606–3066 (CNY 17000–19999)	6	1.9%
USD 3066–3833 (CNY 20000–25000)	1	.3%
>USD 3833 (CNY 25000)	13	4%

Parental Involvement in Youth's Learning

Parental involvement in Youth's learning was assessed by Youth's reports using a 5-point scale (1 = not at all true of my parents to 5 = very true of my parents), in response to a measure based on Hill and Tyson (2009)'s theoretical framework of parental involvement. The measure has three subscales, one assessing school-based involvement with three items (e.g., "My parents go to parent-teacher conferences"), one assessing home-based involvement with three items (e.g., "My parents help me with my homework when I ask"), and one assessing academic socialization with four items (e.g., "My parents talk to me about things related to what I am studying in

school”). For each subscale, the mean of its corresponding items was taken, with higher numbers indicating higher levels of parental school-based involvement, home-based involvement, and academic socialization, respectively ($\alpha = .54-.88$). The three subscales were associated positively with each other, $r_s = .29-.37$, $p_s < .001$, and would be used to indicate the latent construct of parental involvement in the central analysis.

Parental Warmth

Parental warmth was assessed by youth’s reports using a 5-point scale (1 = *not at all true of my parents* to 5 = *very true of my parents*) in response to the six-item subscale of parental warmth of the Perceptions of Parents Scale (e.g., “My parents accept me and like me as I am,” and “My parents make me feel very special.” Niemiec et al. 2006; Robbins 1994). The mean score of the six items was taken, with higher numbers indicating higher levels of parental warmth ($\alpha = .73$).

Background Information

Information on parent and youth gender, parental educational attainment, and youth’s grades in school was collected at Wave 1, given that these variables have been found to relate to youth’s own aspirations (Boxer et al. 2011; Dubow et al. 2009). Parents reported their educational attainment on an 8-point scale (1 = *incompletion of elementary school*, 2 = *completion of elementary school*, 3 = *completion of junior high school*, 4 = *completion of senior high school*, 5 = *associate degree*, 6 = *bachelor’s degree*, 7 = *master’s degree*, 8 = *doctoral degree*). Youth’s grades in three core subjects (i.e., Chinese, math, and English) were obtained from school records. Grades were numerical originally, ranging from 0 to 100 (range = 30–95, mean = 74.89, SD = 10.72 for Chinese; range = 6–98, mean = 65.35, SD = 22.45 for math; and range = 17–99, mean = 58.80, SD = 20.86 for English). We standardized the grades in each subject within the school, and then took the mean across the three subjects, yielding an index with higher numbers representing better grades.

Results

Preliminary Analyses

Table 1 displays means, standard deviations, and bivariate correlations of all study variables. As expected, parents’ educational aspirations for youth at Wave 1 were associated positively with youths’ own aspirations at both Wave 1 and Wave 2, indicating significant intergenerational similarities

in educational aspirations for youth both concurrently and over time. Also consistent with expectations, positive associations were found between parental aspirations and parental involvement in Youth’s learning at Wave 1, between parental involvement and Youth’s perceptions of parental aspirations at Wave 1, and between youth’s perceptions of parental aspirations at Wave 1 and youth’s own aspirations at both Wave 1 and Wave 2.

Central Analysis

Central analysis was conducted employing Structural Equation Modeling (SEM) in Mplus 7.0 (Muthen and Muthen 1998–2016). In total, there were 79 missing values for all study variables, which were handled in Mplus using the full information maximum likelihood estimation method that enables full usage of all available data (Muthen and Muthen 1998–2016). The central analysis examined simultaneously all mediations and moderations proposed in our conceptual framework (see Fig. 1). Specifically, path As tested the mediations (i.e., A1 from Wave 1 parental educational aspirations to Wave 1 parental involvement, A2 from Wave 1 parental involvement to Wave 1 youth’s perceptions of parental aspirations, A3 from Wave 1 youth’s perceptions to Wave 2 youth’s aspirations, A4 from Wave 1 parental aspirations to Wave 1 youth’s perceptions, A5 from Wave 1 parental involvement to Wave 2 youth’s aspirations, and A6 from Wave 1 parental aspirations to Wave 2 youth’s aspirations), with three indirect links (i.e., that of A1–A2–A3 from Wave 1 parental aspirations to Wave 1 parental involvement first, to Wave 1 youth’s perceptions next, and then to Wave 2 youth’s aspirations; that of A4–A3 from Wave 1 parental aspirations to Wave 1 youth’s perceptions, and then to Wave 2 youth’s aspirations; and that of A1–A5 from Wave 1 parental aspirations to Wave 1 parental involvement, and then to Wave 2 youth’s aspirations) being inferred using the delta method (Muthen and Muthen 1998–2016). Paths Bs tested the moderations, with B1–B3 representing the direct links from Wave 1 parental warmth to Wave 1 youth’s perceptions, Wave 2 youth’s aspirations, and Wave 1 youth’s involvement, respectively, and B4–B6 representing the interaction terms between Wave 1 parental aspirations and Wave 1 parental warmth in predicting Wave 1 youth’s perceptions, Wave 2 youth’s aspirations, and Wave 1 parental involvement, respectively. We included parental educational attainment and Wave 1 youth’s grades as covariates in the model by adding direct links from them to Wave 2 youth’s aspirations, given their significant associations with Wave 2 youth’s aspirations (Table 2). We did not adjust for Wave 1 youth’s aspirations in the model because we expected youth’s educational aspirations to be maintained rather than changed necessarily over a time period of 6 months only in middle school. The

Table 2 Means, standard deviations, and zero-order correlations among study variables

	1	2	3	4	5	6	7	8	9	10
1. Youth's gender (0 = girl, 1 = boy)	1									
2. Parental gender (0 = mother, 1 = father)	-.02	1								
3. Parental educational attainment	-.01	.17**	1							
4. Wave 1 youth's grades	-.23*	.02	.02	1						
5. Wave 1 parental educational aspirations for youth	-.01	-.08	.27***	.38***	1					
6. Wave 1 parental involvement	-.02	-.06	.21**	.20***	.19**	1				
7. Wave 1 youth's perceptions of parental aspirations	-.10	.08	.16**	.31***	.37***	.22***	1			
8. Wave 1 parental warmth	.06	-.05	.03	.18**	.08	.32***	.04	1		
9. Wave 1 youth's educational aspirations	-.14*	.003	.20*	.41***	.36***	.25**	.59***	.10*	1	
10. Wave 2 youth's educational aspirations	-.09	-.05	.12*	.37***	.31***	.16**	.45***	.13*	.51*	1
Range	—	—	1–7	26.67–94.17	2–7	1.44–5	1–6	1–5	1–6	1–6
<i>M</i>	—	—	3.89	66.35	4.92	4.03	4.39	3.54	4.32	4.37
<i>SD</i>	—	—	1.13	16.19	1.13	.65	1.02	.75	.96	.95

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

model examining simultaneously all of the aforementioned paths fit the data well, $\chi^2(26) = 33.18$, $p = .16$, CFI = .97, RMSEA = .03 [.00, .06], yielding results that supported most although not all of our hypotheses.

Mediations

As shown in Table 3 and Fig. 2, when all direct and indirect links were considered simultaneously, Wave 1 parental aspirations were related positively to Wave 1 parental involvement (Path A1) and in turn to Wave 1 youth's perceptions of parental aspirations (Path A2), which were subsequently related positively to Wave 2 youth's aspirations (Path A3). This indirect link of A1–A2–A3 from parental aspirations to parental involvement first, to youth's perceptions next, and then to youth's aspirations over time was significant ($b = .02$, $SE = .01$, $p = .05$). Moreover, Wave 1 parental aspirations were related positively to Wave 1 youth's perceptions (Path A4), with the indirect link of A4–A3 from parental aspirations to youth's perceptions and then to youth's aspirations over time also being significant ($b = .12$, $SE = .03$, $p < .001$). However, the link from Wave 1 parental involvement to Wave 2 youth's aspirations was non-significant (Path A5), and so was the indirect link of A1–A5 from parental aspirations to parental involvement and then to youth's aspirations over time ($b = .01$, $SE = .02$, $p = .95$). The direct link from Wave 1 parental aspirations to Wave 2 youth's aspirations was also non-significant (Path A6). These results indicate that parental involvement and youth's perceptions together explained fully the overtime association between parental aspirations and youth's aspirations, with youth's perceptions not only

further mediating fully the association between parental involvement and youth's aspirations, but also mediating the part of the overtime association between parental aspirations and youth's aspirations that was not accounted for by parental involvement.

Moderations

As shown in Table 3 and Fig. 2, although there was no significant interaction between parental aspirations and parental warmth at Wave 1 in predicting Wave 1 youth's perceptions of parental aspirations or Wave 1 parental involvement, parental aspirations and parental warmth at Wave 1 did interact significantly in predicting Wave 2 youth's aspirations. As shown in Fig. 3a, decomposition of this interaction using simply slope analysis (Aiken and West 1991) revealed that only when youth reported experiencing high levels of parental warmth (one standard deviation above the sample mean), parental aspirations were related positively to youth's aspirations over time ($b = .19$, $SE = .09$, $p = .03$); in contrast, when youth reported experiencing low levels of parental warmth (one standard deviation below the sample mean), parental aspirations were unrelated to youth's aspirations over time ($b = -.01$, $SE = .08$, $p = .88$). Region of significance was also tested (Preacher et al. 2006), which consistently, showed that when parental warmth was around and above the sample mean, there was a positive association between parental aspirations and youth's aspirations over time, but when parental warmth was below the sample mean, there was no significant association between parental aspirations and youth's aspirations over time (Fig. 3b).

Table 3 Path coefficients representing mediations and moderations in the structural equation modeling (SEM) model

Paths in the model	<i>b</i>	SE	<i>p</i>
A1: Parental educational aspirations for youth→parental involvement	.25	.08	.002
A2: Parental involvement→youth's perceptions of parental aspirations	.20	.07	.006
A3: Youth's perceptions of parental aspirations→youth's educational aspirations	.38	.06	<.001
A4: Parental educational aspirations for youth→youth's perceptions of parental aspirations	.31	.06	<.001
A5: Parental involvement→youth's educational aspirations	.01	.08	.95
A6: Parental educational aspirations for youth→youth's educational aspirations	.09	.06	.16
B1: Parental warmth→youth's perceptions of parental aspirations	-.08	.06	.24
B2: Parental warmth→youth's educational aspirations	-.02	.06	.73
B3: Parental warmth→parental involvement	.44	.09	.002
B4: Parental educational aspirations for youth*parental warmth→youth's perceptions of parental aspirations	-.06	.05	.27
B5: Parental educational aspirations for youth*parental warmth→youth's educational aspirations	.10	.05	.05
B6: Parental educational aspirations for youth*parental warmth→parental involvement	.01	.08	.87
Indirect links			
1: Parental educational aspirations for youth→parental involvement→youth's perceptions of parental aspirations→youth's educational aspirations	.02	.01	.05
2: Parental educational aspirations for→ youth's perceptions of parental aspirations→youth's educational aspirations	.12	.03	<.001
3: Parental educational aspirations for youth→parental involvement→youth's educational aspirations	.001	.02	.95

Note. Significant paths are in bold. The word “path” was used following conventions describing SEM models, not to indicate causality beyond the correlational nature of the current study

Discussion

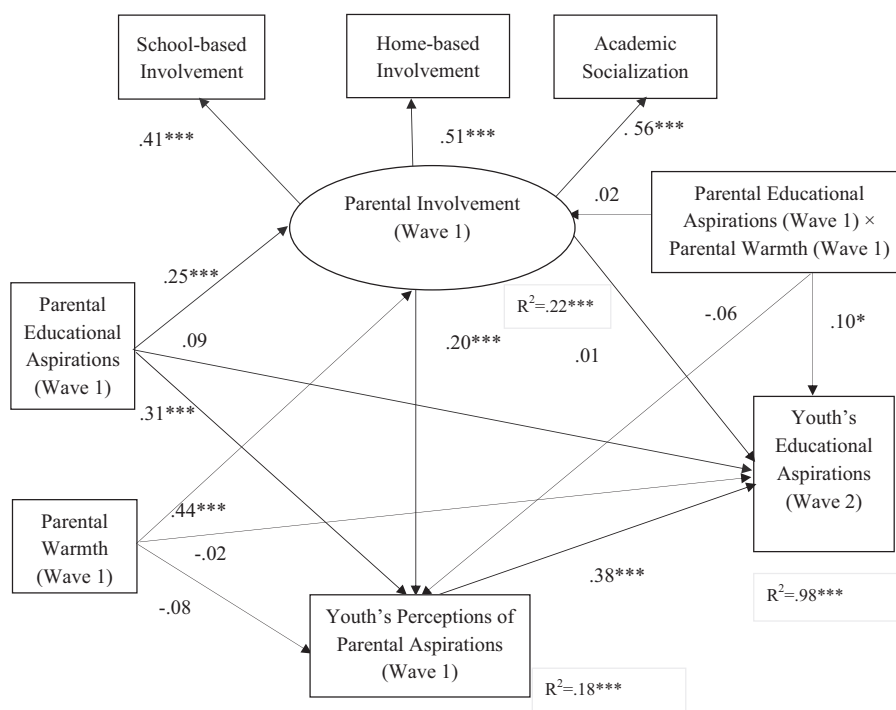
Educational aspirations have long been documented as a key contributor to Chinese youth's academic achievement (Guo 2014; Leung et al. 2010). The current study moved beyond such documentation to investigate the important question of how youth's educational aspirations form, in particular, how Chinese youth may take on their parents' educational aspirations for them. Guided by the expectancy-value model of achievement motivation (Eccles and Wigfield 2002) and applying it in conjunction with the two-step model of value transmission (Grusec and Goodnow 1994), this study examined parental involvement in youth's learning and youth's perceptions of parental aspirations for them as potential mediators in the intergenerational transmission process of educational aspirations. It was found that parental aspirations were related positively—both indirectly through parental involvement and directly to youth's perceptions of parental aspirations, which in turn were associated positively with youth's own aspirations about half a year later. In addition, drawing on the contextual model of parenting (Darling and Steinberg 1993) and the SDT (Deci and Ryan 2000; Grolnick et al. 1997), this study examined parental warmth as a potential moderator in the intergenerational transmission process of educational aspirations. It was found that parental aspirations and youth's aspirations were associated positively with each other only

in the context of high-parental warmth, but unrelated in the context of low-parental warmth.

Linking Parental and Youth's Educational Aspirations

Consistent with prior research on intergenerational value transmission in general (Barni et al. 2011; Shen et al. 2016) and parent-to-youth transmission of educational aspirations in particular (Kirk et al. 2011; Lazarides et al. 2016), the current study revealed significant positive associations between parents' educational aspirations for youth and youth's own educational aspirations not only concurrently but also over about half a year. The overtime positive association between parental aspirations and youth's aspirations, especially after adjusting for parents' educational attainment and youth's school grades which have also been found to be influential on youth's aspirations (Boxer et al. 2011; Dubow et al. 2009), is particularly telling of the importance of intergenerational transmission for youth's development of educational aspirations. Moving beyond documenting the association between parental aspirations and youth's aspirations, the current study shed light on underlying mechanisms of the intergenerational transmission process of educational aspirations by identifying two potential mediators, namely, parental involvement in youth's learning, and youth's perceptions of parental

Fig. 2 Estimates from structural equation modeling (SEM) testing the conceptual framework. *Notes.* All continuous variables were standardized before they were entered in the SEM model; the model also included parental educational attainment and youth's grades at Wave 1 as covariates of youth's educational aspirations at Wave 2, which are not shown for clarity of presentation. Estimates are unstandardized coefficients, and R^2 represents the percentage of variance explained by the model. * $p < .05$, ** $p < .01$, *** $p < .001$



aspirations. Two sets of mediations linking parental aspirations to youth's aspirations about half a year later were evidenced in the current study. First, there was a positive link from parental aspirations to parental involvement in youth's learning, which in turn was positively linked to youth's perceptions of parental aspirations, and youth's perceptions were subsequently positively linked to youth's own aspirations over time. Second, there was a positive link from parental aspirations directly to youth's perceptions, which were subsequently positively linked to youth's own aspirations over time. The aforementioned two sets of mediations each explained a significant proportion of the overtime association between parental aspirations and youth's aspirations, together reducing the direct link from parental aspirations to youth's aspirations non-significant. These findings lend support to our proposal of integrating the expectancy-value model of achievement motivation (Eccles and Wigfield 2002) and the two-step model of value transmission (Grusec and Goodnow 1994) to understand the intergenerational transmission process of educational aspirations.

In line with the expectancy-value model of achievement motivation that emphasizes the critical role of parenting behaviors in conveying parental values to youth, parental involvement in youth's learning was found to relate positively to youth's perceptions of parental aspirations. Moreover, in line with the two-step model of value transmission that purports the necessity for youth to first perceive and then to accept and internalize parental values, youth's perceptions of parental aspirations were found to

mediate both the link from parental involvement and the link directly from parental aspirations to youth's aspirations. These findings highlight the importance of considering the active roles of both parents and youth in intergenerational value transmission: On the one hand, it is important that parents engage actively in parenting behaviors that reflect their values explicitly and are readily visible to youth (Goodnow 1997), and on the other hand, it is essential that youth perceive parental values actively and accurately.

Notably, one prior study by Cheung and Pomerantz (2015) focusing on parental involvement in youth's learning, although not on parental educational aspirations for youth, did investigate value development in terms of both "the perception-acceptance pathway" from parental involvement to youth's perceptions of parental value and in turn to youth's value, and "the experience pathway" from parental involvement directly to youth's value. Intriguingly, whereas both pathways were significant in their study where the value under examination was in terms of how much importance youth perceived their parents to place for them and they placed for themselves on schoolwork, only "the perception-acceptance pathway" (i.e., from parental aspirations to parental investment first, to youth's perceptions of parental aspirations next, and then to youth's aspirations) but not "the experience pathway" (i.e., from parental aspirations to parental investment, and then directly to youth's aspirations) was significant in this study. It might be because compared to importance placed on schoolwork to be rated on a subjective scale (i.e., 1 = not at all important to 7 = very important; Cheung and Pomerantz 2015),

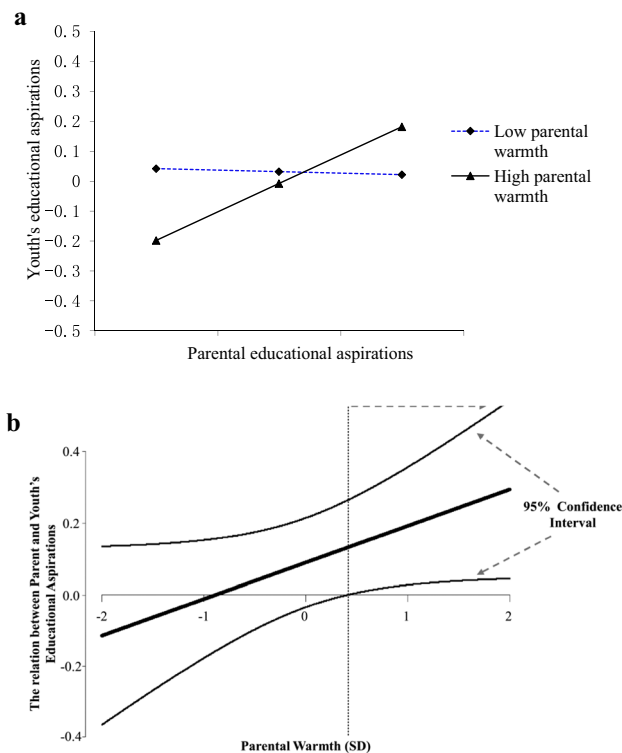


Fig. 3 **a** Interaction between parental educational aspirations for youth and parental warmth at Wave 1 in predicting youth's educational aspirations at Wave 2. Parental aspirations and subsequent youth's aspirations were associated positively with each other when parental warmth was high (one standard deviation above the sample mean) but unrelated when parental warmth was low (one standard deviation below the sample mean). **b** Region of significance for the interaction between parental educational aspirations for youth and parental warmth at Wave 1 in predicting youth's educational aspirations at Wave 2. The *x*-axis represents level of parental warmth; the *y*-axis represents the association between parental aspirations and subsequent youth's aspirations. The curves represent 95% confidence intervals. The vertical dashed line indicates the boundary of the region of significance: The association between parental aspirations and subsequent youth's aspirations was significant only on the right side of dashed line, such that when parental warmth was around and above the sample mean, there was a positive association but when parental warmth was below the sample mean, there was no significant association

educational aspirations as measured in this study are more concrete and specific, and hence tend to leave less room for youth to generate additional value beyond their perceptions of their parents' aspirations for them. Indeed, it was found in the current study that the overtime association between parental aspirations and youth's aspirations was explained fully by two links involving youth's perceptions of parental aspirations—one from parental aspirations through parental involvement indirectly to youth's perceptions, and the other from parental aspirations directly to youth's perceptions.

The significant positive link from parental aspirations directly to youth's perceptions that remained after the mediating role of parental involvement was taken into account is of particular note suggesting existence of other

mechanisms through which youth's perceptions of parental aspirations may be facilitated. One possible mechanism that may be of particular salience in Chinese culture is parenting behaviors promoting youth's sense of responsibility to parents, which entails achieving high educationally to repay parents with family honor as well as financial gains (Lin et al. 2015; Wang 2018; Wang and Chang 2010). When parents hold high-educational aspirations for youth, they may not only get involved in youth's learning to convey their aspirations, but also engage in parenting behaviors that are aimed to cultivate in youth's sense of responsibility to parents (e.g., having conversations with and giving directives to youth about such responsibility), stressing to youth that accomplishing high-educational attainment is an essential way for them to fulfill their responsibility to parents. Indeed, sense of responsibility to parents has been evidenced to be a significant motivating force in the academic arena for both Chinese and American adolescents (Pomerantz et al. 2011).

The Role of Parental Warmth

Parental warmth as a potential qualifying condition for the intergenerational transmission process of educational aspirations was also examined in the current study. Consistent with prior studies documenting greater parent-youth value congruence at high (vs. low) levels of closeness (Barni et al. 2011) or better (vs. poorer) quality of the relationship (Albert and Ferring. 2012) between youth and their parents, this study found a significant interaction between parental aspirations and parental warmth in predicting youth's aspirations about half a year later, such that only when parental warmth was high (one standard deviation above the sample mean), parental aspirations was related positively to youth's aspirations over time, whereas when parental warmth was low (one standard deviation below the sample mean), parental aspirations and youth's aspirations was unrelated over time. Yet, parental warmth did not moderate the link from parental aspirations to youth's perceptions of parental aspirations, indicating that regardless of levels of warmth youth may be experiencing from their parents, they may perceive their parents' educational aspirations for them with the same degree of accuracy. Parental warmth did not moderate the link from parental aspirations to parental involvement either, indicating that regardless of how much warmth parents may be extending to youth, their involvement in youth's learning may be linked to their educational aspirations for youth to the same extent. On the one hand, these findings support the contextual model of parenting (Darling and Steinberg 1993) and the SDT (Deci and Ryan 2000; Grolnick et al. 1997) in showing that parental warmth may serve as an overall context of parenting which can enhance youth's

responsiveness to parental socialization attempts, such as being more likely to take on parental values.

On the other hand, these findings also suggest complex dynamics among various influencing factors on parenting and youth's development at both the level of individual families and the level of cultural settings. Specifically as revealed in the current study, although parental warmth may usually help youth better tune in on their parents (Deci and Ryan 2000; Grolnick et al. 1997), and help parents better engage in constructive ways to realize their socialization goals (Grusec et al. 1997), when it comes to educational aspirations, Chinese youth are apparently quite tuned in on their parents, and Chinese parents are apparently quite motivated by their aspirations for youth to get involved in youth's learning, regardless of how much warmth there may be in the parent-youth relationship. This might be because in Chinese culture where academics represent a central domain in both youth's development and parental socialization (Pomerantz et al. 2014; Pomerantz et al. 2008; see also Wang et al. 2012), youth would in general pay attention to their parents' educational aspirations for them, and parents who aspire for youth to achieve high educationally would in general try to do everything to make youth study hard and do well academically including being involved in youth's learning.

Limitations and Future Directions

This study had some notable limitations, leaving open questions for future research. First, given its correlational albeit short-term 2-wave longitudinal design, causality cannot be determined in the current study for the proposed links. For example, other than parents' educational attainment and youth's school grades which were taken into consideration in the current study, there may be other third variables, such as school or neighborhood characteristics that contribute to both parents' and youth's own educational aspirations. Also, some of the links examined in this study may actually be bidirectional, such as the link between parental aspirations and parental involvement. Moreover, the 6-month window of time allows examination of how youth's educational aspirations may be maintained but may be too short to capture how youth educational aspirations may be changed.

Second, this study examined a quite homogeneous sample with all youth attending the same school and all families from the same urban area. Generalizability of some of the findings might vary across different settings both within China and in other cultures. For example, the link from parental aspirations to parental involvement might be weaker than what has been documented in the present urban sample if investigated among Chinese parents residing in rural areas, given their scarce resources to guide and assist

youth academically, or among Western parents given a generally weaker belief in parents' ultimate responsibility for youth's academic achievement in Western cultures than in Chinese culture. In addition, as mentioned earlier, unlike what has been found in this study, parental warmth might facilitate youth's perceptions of parental aspirations and also promote parents to translate their educational aspirations for youth into involvement in youth's learning in Western cultures, where academics are not generally such a central domain in youth's development and parental socialization as in Chinese culture.

To address the aforementioned limitations of this study, future research needs to employ more stringent longitudinal designs with multiple waves spanning extended periods of time to capture developmental changes and gain further insights into the directionality of the links documented in the current study. Future research also needs to involve samples from different settings both within China (e.g., urban vs. rural areas) and across cultures (e.g., China vs. the United States) to compare directly how the mediations and moderations documented in this study in the intergenerational transmission process of educational aspirations may vary across diverse sociocultural settings. Moreover, parenting behaviors besides parental involvement in youth's learning, such as parental attempts to cultivate in youth's sense of responsibility to parents may be examined as additional mechanisms for parental educational aspirations to be conveyed to youth.

Conclusion

This study investigated systematically the intergenerational transmission process of educational aspirations in Chinese families, by examining simultaneously the mediating roles of parental involvement in youth's learning and youth's perceptions of parental aspirations, as well as the moderating role of parental warmth. It has yielded two major findings of both theoretical and practical significance. First, it was found that parental educational aspirations for youth were related positively both indirectly through parental involvement and directly to youth's perceptions of parental aspirations, which in turn were associated positively with youth's own educational aspirations about half a year later. This finding highlights the importance of both parents' and youth's active roles for effective intergenerational transmission of educational aspirations (e.g., parents engaging actively in explicit parenting behaviors in terms of involvement in youth's learning to convey their aspirations for youth, and youth actively paying attention to and taking on parental aspirations). Second, it was found that parental aspirations and youth's aspirations were associated positively with each other only when youth reported

experiencing high levels of parental warmth, but unrelated when youth reported experiencing low levels of parental warmth. This finding shows the benefits of a generally positive relationship context (e.g., high levels of parental warmth) for effective intergenerational value transmission.

The aforementioned findings from the current study have important theoretical and practical implications. Theoretically, these findings join those from prior studies to corroborate the applicability of several key theories of motivation and socialization to Chinese culture, namely, the expectancy-value model of achievement motivation which emphasizes the role of explicit parenting behaviors in intergenerational value transmission, the two-step model of value transmission which features the necessary step of youth being aware of parental values for effective intergenerational value transmission, the contextual model of parenting which calls for examination of effects of specific aspects of parenting in general contexts of parenting, and the SDT which underscores satisfaction of need for relatedness as a facilitator of successful socialization. More importantly, this study testifies the meaningfulness and fruitfulness of integrating the aforementioned theories in understanding intergenerational value transmission. Practically, the findings from this study are informative to guide parents and practitioners in their endeavors to foster youth's educational achievement. Specifically, as youth's educational aspirations are indeed related positively to their parents' aspirations for them, parents should be encouraged to hold reasonably high educational aspirations for youth; moreover, it is important that parents convey their aspirations for youth through explicit parenting behaviors, such as getting involved in youth's learning to make youth aware of such parental aspirations; and a positive parent-youth relationship characterized by parental warmth also needs to be strived for to facilitate intergenerational transmission of educational aspirations.

Authors' Contributions N.W. created and conducted the study as her PhD dissertation project, and drafted the manuscript; H.Y. helped analyze, interpret the data and draft the manuscript; Q.W. supervised the design and implementation of the study, guided the conceptualization of the research questions, helped reinterpret the results coherently, and revised the manuscript thoroughly. C.Y. participated in the interpretation of the data and helped draft the manuscript. All authors read and approved the final manuscript.

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Data Sharing Declaration The data analyzed in this study are not publicly available but are available from the corresponding author with agreement of the third author on reasonable request.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval This study was approved by the Survey and Behavioral Research Ethics Committee of the Chinese University of Hong Kong. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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