

# Doing better but feeling worse: an attributional account of achievement—self-esteem disparities in Asian American students

Xiaochen Chen<sup>1</sup> · Sandra Graham<sup>2</sup>

Received: 16 August 2017 / Accepted: 19 March 2018 / Published online: 9 May 2018  
© Springer Science+Business Media B.V., part of Springer Nature 2018

**Abstract** Asian American students often report lower self-esteem than their peers from other racial groups even though they are doing better academically. The current study attempted to explore this paradox from an attributional perspective. Academic achievement, self-esteem and attributions for academic failures (i.e., low ability and low effort) were examined in an ethnically diverse sample of 3546 White, Black, Latino, and Asian American 8th grade students ( $M_{\text{age}} = 14.03$  years) from California. Results showed that Asians had the highest grade point average but the lowest self-esteem among the four major racial/ethnic groups. Asians and Latinos also endorsed more low ability attributions than Whites and Blacks. The self-esteem gap between Asians and their White and Black peers was partly explained by more endorsement of low ability attributions. Implications for future research and interventions were discussed.

**Keywords** Academic achievement · Self-esteem · Low ability attributions · Asian American adolescents

## 1 Introduction

Asian American students are largely portrayed as a model minority because of their academic excellence (Min 2005). Such excellence is displayed, for example, in school grades, scores on achievement tests, and rates of admission to the nation's best colleges and universities (e.g., Bangston and Zhou 2002; Chen and Stevenson 1995; Hsin and

---

✉ Xiaochen Chen  
xiaochenchen@ruc.edu.cn

<sup>1</sup> Department of Psychology, Renmin University of China, Beijing 100872, China

<sup>2</sup> Department of Education, University of California, Los Angeles, Los Angeles, USA

Xie 2014; Yuan et al. 2016). However, Asian American students have often been found to report the lowest self-esteem of the major racial/ethnic groups (i.e., Whites, African Americans, Latinos) (Bangston and Zhou 2002; Greene et al. 2006). Researchers attempting to explain Asians' paradoxically low self-esteem have primarily focused on demographic variables such as immigration status (e.g., Bangston and Zhou 2002). The psychological mechanisms that may underlie this high-achieving group's lower self-worth are still unknown.

One unexplored explanation for a high achievement but low self-esteem paradox might relate to how Asian American students interpret their academic outcomes. Even the most high-performing students unavoidably encounter some achievement setbacks. In addition, cross cultural studies have documented more self-critical views about academic deficiency among Asian descent students as well as their parents (Heine et al. 2001; Ng et al. 2007). Thus, Asian students are more like to experience achievement setbacks when the academic outcomes do not meet their own high standards for success. The current study explored whether attributions for such setbacks (i.e., receiving a low grade or a grade lower than expected) could explain the self-esteem gap between Asians and their non-Asian peers who are not doing as well academically.

### 1.1 Academic attributions and corresponding psychological consequences

The basic assumption of attribution theory is that when individuals encounter a negative outcome such as achievement failure, they undergo a causal search to understand *why* it happened (Weiner 1986). In the achievement domain, ability and effort are among the most dominant causal ascriptions: when explaining achievement failure, individuals often attach the most importance to their perceived competence and how hard they try. However, there are important differences between these two prevalent self-ascriptions that differentially relate to adjustment. Failure because of perceived low ability/aptitude is a characteristic of the person, stable over time, and beyond one's control. As an internal, chronic, and uncontrollable cause of failure, a self-ascription to low ability leads to low self-esteem, lower expectations for future success, and the belief that there is no response in one's repertoire to alter the course of failure. There is a great deal of research on the debilitating consequences of low ability attributions (see review in Graham and Taylor 2016). A low effort attribution, in contrast, is more adaptive because effort is perceived as both unstable and under one's volitional control. The failing student who believes that he or she did not try hard enough can be bolstered by the belief that there is a relationship between one's efforts and subsequent outcomes, and failure need not occur again. Guided by these casual distinctions, a number of motivation intervention programs have attempted to change students' attribution for failure from low ability to lack of effort (e.g., Boese et al. 2013; Perry et al. 2010).

### 1.2 Characteristics of Asian students' academic causal ascriptions

Consistent with the Confucian doctrine emphasizing constant self-improvement through hard work (Lee 1996), which has a pervasive influence in Asian culture, effort is a salient cause that many Asian heritage students use to explain

achievement outcomes. Studies with both school-aged children and college students have consistently shown that Asian students hold stronger beliefs regarding the connection between effort and achievement (Hsin and Xie 2014; Yan and Gaier 1994).

Besides an apparent emphasis on effort attributions (see Grant and Dweck 2001), Asian students have been shown to be more self-critical when evaluating their competence. In their landmark research on Asian and American school children, Stevenson et al. (1990) found that as early as first grade, Chinese and Japanese children viewed themselves as less competent in math and language arts than did American children, despite the fact that their actual achievement was often higher. That cultural difference is maintained as children make their way through adolescence (Chen and Stevenson 1995). Moreover, interviews with second generation Asian immigrants revealed that Asian Americans who did not meet the excessively high educational expectations set by their parents felt like failures and tended to blame their negative outcomes on low ability (Lee and Zhou 2014). It is of note that Asian Americans' academic excellence is manifested against a backdrop of the "model minority" stereotype widely accepted in society (e.g., Min 2005), a high-achieving peer culture (Lee 2015), and a family environment in which parents set quite high standards for their children's academic performance because of the heightened value of education as a route to upward mobility (Pomerantz et al. 2008; Tan and Yates 2011). It is possible that this high-achieving peer norm, as well as societal and parental expectations, cause Asian Americans who fail to meet expectations to doubt their own academic ability, which in turn can dampen their self-esteem.

### 1.3 The current study

In the current study, we attempted to explore Asian American students' lower self-esteem despite high achievement from an attributional perspective. Using a large ethnically diverse middle school sample comprised of Asian, White, African American, and Latino students, we first compared racial differences in academic achievement, self-esteem, and self-ascriptions for academic failures to low ability and lack of effort. Next, we adopted a model comparison approach (Clogg et al. 1995) to examine whether racial differences in self-esteem could be explained by distinctive attributional patterns. We hypothesized that Asian Americans would show the highest achievement but lowest self-esteem among the four major racial/ethnic groups, and Asians would endorse more internal attributions (both effort and ability) compared to their peers in other racial/ethnic groups. More importantly, based on the known linkage between ability attributions and self-esteem (Weiner 1986), we hypothesized that low ability attributions could partly account for self-esteem differences between Asians and their non-Asian peers. We focused on an eighth grade sample because of heightened awareness of academic stereotypes during early adolescence (Cvencek et al. 2015) and because academic self-perceptions at this grade level are of great importance for a successful transition to high school (Benner and Graham 2009).

## 2 Methods

### 2.1 Sample and procedure

Data for the current study were drawn from UCLA Middle School Diversity Project (MSDP), which is a four-wave longitudinal study of adolescents' social, emotional and academic experiences in the middle school years. Surveys used in the study were developed by the MSDP research team. This research conforms to the University of California, Los Angeles (UCLA) ethical guidelines for conducting research with children. It was approved by the North General Institutional Review Board (NGIRB) of the UCLA Office of the Human Research Protection Program. The original sample ( $N=5991$ ) was recruited in the fall semester of sixth grade from 26 public schools throughout California. During recruitment, all students and families received informed consent and informational letters. Only students who returned signed parental consents and written assent forms participated. Across the 26 schools, participation rates ranged from 74 to 94% ( $M=84\%$ ). Based on student self-report, the ethnic breakdown of the sample was 31.5% Latino, 19.6% White, 13.3% East/Southeast Asian, 12.0% African American/Black, 13.9% multiethnic/biracial, and 9.7% other (e.g., Middle Eastern, Pacific Islander).

Students completed written questionnaires within a classroom setting in the fall and spring semesters of sixth-grade year (Waves 1 and 2), and again in the spring semester of seventh (Wave 3) and eighth grade (Wave 4). Students received \$5 at sixth grade and \$10 at seventh and eighth grades for completing each wave of the surveys. Data reported here were from the Wave 4 survey, since we began to include academic attribution measures in eighth grade. At Wave 4, 78.3% of the original sample continued to participate. Students left the study primarily because they had transferred to another non-participating school. Because the focus of the current study was to examine racial differences in self-esteem, academic achievement and attributions, the analytic sample was limited to four major racial (pan-ethnic) groups: White, Black, Latino and Asian. This inclusion criteria resulted in a final sample of 3546 8th grade participants (51% female;  $M_{age} = 14.03$  years), which was 43.8% Latino ( $n = 1553$ ), 26.0% White ( $n = 923$ ), 16.4% Asian ( $n = 582$ ), and 13.8% Black ( $n = 488$ ). Because we had data on self-esteem and GPA at 6th grade, we compared the pattern of racial differences of the full 6th grade sample with the pattern documented for our 8th grade sample (see Results section for 8th grade descriptives). Preliminary analyses showed that the pattern of racial differences in self-esteem and GPA was almost identical at 6th grade and 8th grade.

### 2.2 Measures

#### 2.2.1 Academic achievement

Academic grade point average (GPA) was used as the indicator of academic achievement. Students' school transcripts from spring semester in eighth grade were used to

calculate GPA using 5-point scales, with A, B, C, D, and F worth 4, 3, 2, 1, and 0 points, respectively. We calculated the mean of students' grades for four major academic courses (i.e., math, science, English, and social studies) to get their academic GPA.

### 2.2.2 *Self-esteem*

Self-esteem was measured with four items from the Global Self-Worth subscale of the Harter Self-Perception Profile for Children (SPPC) (Harter 1985). The SPPC uses a response format that is designed to minimize social desirability. For each item, students were presented with two statements separated by the word *but*, with each statement reflecting high or low self-esteem. An example item is: "Some kids are often unhappy with themselves BUT other kids are pretty pleased with themselves." Students chose one of the two alternatives and then indicated whether the selected statement was *really true for me* or *sort of true for me*. This creates a 4-point scale for each item. The ratings for the four items were averaged to create a single self-esteem score ranging from 1 to 4, with higher numbers indicating greater self-esteem ( $\alpha = .88$ ).

### 2.2.3 *Academic attributions*

Modeling an existing attribution measure in social domain (Graham and Juvonen 1998), we developed a new questionnaire for the current study to examine students' attributions for subjective academic failure. Students were first asked to think about a time in middle school when they did poorly on an important test (i.e., got a failing grade, a low grade, or a lower grade than expected), and then to indicate how much they agreed with 18 statements that could be reasons for doing poorly on the test. The statements included attributions designed to capture lack of ability (e.g., "I'm just not smart enough"), lack of effort (e.g., "I should have studied more"), as well as external attributions such as luck (e.g., "It was bad luck") or the test (e.g., "The test was too hard for everyone"). Each item was rated on a 5-point scale ( $1 = \textit{definitely not a reason}$  to  $5 = \textit{definitely a reason}$ ). In the remaining analyses, we focused on the two internal causal ascriptions (i.e., low ability and low effort) because internal attributions most directly influence self-esteem in attribution theory (Weiner 1986). Both scales had adequate internal consistency: low ability (3 items,  $\alpha = .78$ ) and low effort (4 items,  $\alpha = .70$ ). A mean score was calculated for each scale.

### 2.2.4 *Covariates*

We also controlled for gender, generational status, and socioeconomic status (SES) in examining racial differences in self-esteem. Research with adolescents consistently shows that girls report lower self-esteem than boys (Hyde 2014). There is some literature suggesting possible differences in self-esteem between immigrant and native-born adolescents, although empirical findings on this issue are not conclusive (Bangston and Zhou 2002). We also controlled for student SES (using parent education level as a proxy) in our analyses to avoid confounding race with SES.

### 2.2.5 Generational status

Students' generational status was determined by a question in which students indicated whether they and their parents were born in the United States. First-generation students were those born outside the United States. Second-generation students were born in the United States and at least one of their parents was foreign born. The third-plus generation consists of native-born students whose parents were also born in the United States. Asian and Latino participants were primarily first or second generation immigrants (Asians: 26.6% first generation, 67.7% second generation; Latinos: 11.8% first generation, 68.5% second generation). White and Black participants were primarily third-plus generation (74.1% White and 73.4% Black).

### 2.2.6 Parent education

The parent or guardian with whom the student lived was asked to complete a questionnaire about their highest level of education. The response options ranged from 1 to 6 (1=elementary/junior high school, 2=some high school, 3=high school diploma or GED, 4=some college, 5=4-year college degree, 6=graduate degree). Mean parent education level of the four racial/ethnic groups was 4.90 ( $SD=1.03$ ), 4.36 ( $SD=1.52$ ), 4.26 ( $SD=1.09$ ), 2.90 ( $SD=1.51$ ), for Whites, Asians, Blacks and Latinos respectively.

## 3 Results

### 3.1 Descriptive statistics

Table 1 shows the mean and standard deviation of GPA, self-esteem and academic attributions for each racial/ethnic group. As expected, Asians achieved a significantly higher GPA than their White, Black, and Latino peers,  $F(3, 4397)=313.61$ ,  $p<.001$ ,  $\eta^2=.19$ . However, they reported the lowest self-esteem among the four racial groups,  $F(3, 4397)=17.89$ ,  $p<.001$ ,  $\eta^2=.02$ . There were also significant racial differences in attributions for academic failure. Asians endorsed more low ability attributions than did Whites and Blacks but not Latinos,  $F(3, 4397)=17.83$ ,  $p<.001$ ,  $\eta^2=.02$ . White students were least likely to endorse low effort attributions compared to their peers from the other three racial groups,  $F(3, 4397)=15.64$ ,  $p<.001$ ,  $\eta^2=.02$ .

Table 2 shows the correlations among key variables. There was a positive correlation between GPA and self-esteem, which suggested that students who got better grades tended to feel better about themselves. GPA was negatively related to both low ability and low effort attributions. Students who had lower GPA were more likely to blame themselves (lack of ability and lack of effort) for their academic failures. Consistent with attribution theory, a low ability attribution was negatively correlated with self-esteem. A low effort attribution also was negatively related to self-esteem, although the magnitude of the correlation was somewhat weaker than for low ability attribution.

**Table 1** Mean and standard deviation of GPA, self-esteem and academic attributions

Variables	Asian	White	Latino	Black
GPA	3.46 <sup>a</sup> (.70)	3.20 <sup>b</sup> (.87)	2.42 <sup>c</sup> (1.05)	2.34 <sup>c</sup> (1.06)
Self-esteem	3.07 <sup>a</sup> (.83)	3.24 <sup>b</sup> (.82)	3.20 <sup>b</sup> (.83)	3.44 <sup>c</sup> (.70)
Low ability	2.81 <sup>a</sup> (1.12)	2.57 <sup>b</sup> (1.13)	2.96 <sup>a</sup> (1.17)	2.61 <sup>b</sup> (1.11)
Low effort	3.44 <sup>a</sup> (.86)	3.19 <sup>b</sup> (.91)	3.50 <sup>a</sup> (.85)	3.40 <sup>a</sup> (.93)

<sup>a-c</sup>Means within a row with different superscripts differ significantly ( $p < .05$ )

### 3.2 Attributional explanation for racial differences in self-esteem

Next, we adopted a model comparison approach outlined by Clogg et al. (1995) to examine the role of attributions in explaining racial gaps in self-esteem. In a series of models, we examined how racial differences in self-esteem were related to variations in achievement and academic attributions. In Model 1, we entered race to predict self-esteem with Asian as the reference group. We also controlled for gender (0=female), generational status (3rd plus generation as reference group), and parent education level. We then entered GPA in Model 2 followed by low ability attributions in Model 3 and low effort attributions in Model 4. In the final Model, we included interaction terms between attributions and achievement to examine whether racial differences in self-esteem were related to variations in attributions similarly for students at different achievement levels.

Clogg et al.’s method (1995) allows us to determine whether the regression coefficients associated with a given set of predictors change significantly when other predictors or covariates are added to the model. This method has been used in social science research to determine whether a third variable could explain (i.e., suppress or enhance) the relationships between the predictor(s) and the outcome variable (e.g., Bangston and Zhou 2002; Osborne 2001). The change in the coefficient ( $d$ ) is the simple difference between the coefficient in a more parsimonious model and the coefficient in a fuller model. The standard error of the difference in the slopes [ $s(d)$ ] is calculated by the formula:

$$s^2(d) = s^2(b_{YX.Z}) - s^2(b_{YX})\delta_v^2/\delta_\epsilon^2$$

where  $s^2(b_{YX.Z})$  represents the square of the standard error of the relevant coefficient in the fuller model,  $s^2(b_{YX})$  represents the square of the standard error of the same coefficient in the parsimonious model,  $\delta_v^2$  represents the error variance under

**Table 2** Correlations between variables

Variables	1	2	3	4
1. GPA	–			
2. Self-esteem	.10	–		
3. Low ability	–.22	–.32	–	
4. Low effort	–.11	–.13	–.37	–

All correlations are significant at  $p < .01$

the fuller model, and  $\delta_\epsilon^2$  represents the error variance under the parsimonious model. The statistical significance of the difference in coefficients across models can be examined with a *t* test statistic  $t = d/s(d)$ .

In the current study, we employed this method to examine whether racial differences in self-esteem could be explained by academic attributions. For example, if the regression coefficient of the dummy variable for Blacks (which represents the racial differences in self-esteem between Asians and Blacks) is significantly reduced after entering (controlling for) low ability attributions, then we could attribute the Asian-Black esteem gap to racial differences in low ability attributions.

As shown in Model 1 in Table 3, Blacks, Whites, and Latinos all reported significantly higher self-esteem than did Asians. Consistent with the gender literature (see Hyde 2014), boys reported higher self-esteem than girls. In Model 2, GPA was a significant predictor of self-esteem, such that higher GPA was related to enhanced self-esteem ( $B = .09, p < .001$ ). From Model 1 to Model 2, the Asian-Black and Asian-Latino differences in self-esteem increased significantly: for Asian-Black, from  $B = .36$  to  $B = .43, d = .07, s(d) = .02, t = 3.67$ ; for Asian-Latino, from  $B = .12$  to  $B = .19, d = .07, s(d) = .02, t = 4.14$  (both  $ps < .01$ ). These results indicated that the Asian-Black and Asian-Latino gap in self-esteem would be even larger if Asian students' GPA were equal to that of their Black and Latino peers.

Model 3 added low ability attributions, which significantly predicted lower self-esteem ( $B = -.25, p < .001$ ). More pertinent to our hypotheses, from Model 2 to Model 3, the regression coefficient for achievement predicting self-esteem dropped significantly [from  $B = .09$  to  $B = .02, d = .07, s(d) = .01, t = 5.85, p < .001$ ], suggesting that low ability attributions for academic failure weakened the positive

**Table 3** Regression models predicting self-esteem from race, GPA, and attributions

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>B</i> ( <i>SE</i> )	<i>B</i> ( <i>SE</i> )	<i>B</i> ( <i>SE</i> )	<i>B</i> ( <i>SE</i> )	<i>B</i> ( <i>SE</i> )
(Constant)	2.94 (.07)***	2.91 (.07)***	3.02 (.09)***	3.02 (.09)***	3.02 (.09)***
Black	.36 (.06)***	.43 (.06)***	.34 (.08)***	.34 (.08)***	.34 (.08)***
White	.11 (.05)*	.13 (.05)*	.04 (.06)	.04 (.07)	.03 (.07)
Latino	.12 (.05)**	.19 (.05)***	.20 (.06)***	.21 (.06)***	.21 (.06)***
Gender	.41 (.03)***	.44 (.03)***	.35 (.04)***	.35 (.04)***	.35 (.04)***
1st generation	-.07 (.06)	-.10 (.06)	-.15 (.07)*	-.15 (.07)*	-.15 (.07)*
2nd generation	-.07 (.04)	-.08 (.04)*	-.09 (.05)	-.10 (.05)*	-.10 (.05)*
Parent education	.00 (.01)	-.01 (.01)	-.02 (.01)	-.02 (.01)	-.02 (.01)
GPA		.09 (.02)***	.02 (.02)	.02 (.02)	.02 (.02)
Low ability			-.25 (.02)***	-.25 (.02)***	-.25 (.02)***
Low effort				-.01 (.02)	-.01 (.02)
GPA × low ability					.01 (.02)
GPA × low effort					-.03 (.02)
$\delta$	.787	.783	.756	.755	.754
$R^2$	.082	.091	.172	.174	.177

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



association between achievement and self-esteem. Moreover, the Asian-White and Asian-Black gap in self-esteem dropped significantly from Model 2 to Model 3: for Asian-White, from  $B = .13$  to  $B = .04$ ,  $d = .09$ ,  $s(d) = .04$ ,  $t = 2.32$ ; for Asian-Black from  $B = .43$  to  $B = .34$ ,  $d = .09$ ,  $s(d) = .04$ ,  $t = 2.12$  (both  $ps < .05$ ). Controlling for low ability attributions thus reduced the self-esteem differences between Asians and their White and Black peers. Neither low effort attributions included in Model 4 nor the attribution by achievement interaction terms in Model 5 had significant effects on the race—self-esteem or achievement—self-esteem associations.

## 4 Discussion

Asian Americans are generally assumed to conform to the model minority stereotype (Lee 2015; Wong et al. 1998). Guided by this positive stereotype legacy, research on Asian students has primarily focused on their academic success, while neglecting their social and emotional well-being, including self-esteem (Kiang et al. 2016). Few studies thus far have provided a compelling explanation of the well-documented high achievement but low self-esteem paradox in Asian American students. The current study attempted to address this gap from an attributional perspective. The model comparison analyses (Clogg et al. 1995) provided important insights into racial gaps in self-esteem. Results showed that Asians' self-esteem was lowest among the four major racial/ethnic groups (Model 1), and there was a positive link between GPA and self-esteem (Model 2). However, after entering GPA into the model, the Asian-Black and Asian-Latino esteem gaps become significantly larger (comparing Model 2 with Model 1), which implies that the current paradoxical differences in self-esteem between high and low achieving groups could be even more glaring if Black and Latino students' GPA caught up with that of Asians. It is of note that the racial gap in self-esteem dropped significantly and the association between GPA and esteem became non-significant when low ability attribution was entered into the model (comparing Model 3 with Model 2). Consistent with the ability-esteem linkage in attribution theory, these findings suggested that Asian students' lowered self-esteem despite high achievement was partly explained by their low ability attributions.

Despite their superior academic performance, Asian students appeared to have a more negative self-image regarding their academic competence (Stevenson et al. 1990; Chen and Stevenson 1995). It is possible that the cultural emphasis on constant striving for self-improvement makes Asian students particularly sensitive to their perceived intellectual inadequacy (Pomerantz et al. 2008). It is also quite plausible that the "model minority" stereotype poses an excessively high frame of reference for Asian students in evaluating their own academic aptitude. Thus failures are more likely to be interpreted as a sign of low ability due to upward social comparison (Marsh et al. 2000). In addition, heightened effort expenditure among Asian American students (e.g., Fuligni 1997; Hsin and Xie 2014) may also bear a subtle relation to the low ability attribution. Given the compensatory relation between ability and effort as causes of achievement (Barker and Graham 1987), Asian students who already work hard but still encounter failures are most likely to endorse a low

aptitude self-ascription. Future research should pay more attention to understanding the vulnerability of Asian students who suffer academic failures despite hard work.

Although we believe the current study makes significant contributions to the literature, we acknowledge its limitations. First, we focused on attributions for academic failures in general. It is possible that causal ascriptions of academic performance were contingent upon a specific academic subject. Ethnographic studies on Asian Americans revealed that the model minority stereotype led to negative self-image among Asian descents who felt they did not live up to the stereotypes (Lee 2015; Lee and Zhou 2014). Perhaps Asian students who do poorly on a math test, a subject which Asians are stereotypically perceived to be good at (Cvencek et al. 2015), are more vulnerable to low ability self-ascriptions than those who fail in other (non-STEM) subjects. Future research examining academic attributions for different subjects is needed to determine the generalizability of the current findings.

A related issue concerns what counts as an academic failure for Asian students. In the current study, we focused on causal ascriptions for *perceived* failure (i.e., receiving a low grade or a grade lower than expected) rather than objective academic outcomes. This could also be seen as strength of our study. For a generally high-achieving group, subjective perceptions of failure based on a stricter frame of success (Lee and Zhou 2014) may be more closely related to students' psychological adjustment. Third, attributions have been documented to be *contextualized* social cognitions (e.g., Schacter and Juvonen 2015). In their study on attributions for peer victimization, Graham et al. (2009) found that victims were more likely to feel "different" and blame their own characteristics for their plight when their ethnic group was a numerical majority at school. Following the same logic, it is possible that failing Asian students are more likely to feel inadequate and make low ability attributions when there are many high-achieving Asian peers at school. One important next step is to examine how school characteristics shape students' academic causal ascriptions. Finally, the current study focused on an eighth grade sample. We chose to study this age group because during early adolescence racial stereotypes concerning academic ability become increasingly salient and personally meaningful (Cvencek et al. 2015), and because academic self-concept at this time period has profound effects on future achievement and educational attainment (Marsh and O'Mara 2008). Future longitudinal research is needed to examine how students' academic ascriptions and their self-esteem develop as they navigate through the high school years, when educational practices such as academic tracking make ability evaluations more salient.

Despite these limitations, we believe that the current study has important theoretical and practical implications. A number of motivation interventions have been conducted to reduce the negative effects of academic racial stereotypes among low and average-achieving students by emphasizing unstable casual ascriptions such as effort or a growth mindset (e.g., Blackwell et al. 2007; Yeager et al. 2016). The current findings call attention to the need to focus on positive stereotypes and high achieving students as well. For example, "model minority" students could be taught techniques to avoid blaming low ability when their outcomes do not live up to the success stereotype. Results from the current study suggested that stressing effort expenditure or malleability of intelligence may not be suitable as an intervention for

Asian youth, who already endorse a strong effort belief and are sensitive to ability evaluations. Instead, interventions emphasizing a *learning strategy* attribution (e.g., “I did not study the materials the right way”), which is also unstable and controllable, may be a more appropriate intervention approach for Asian students to restore their self-esteem (Weiner 1988). There are a myriad of intervention approaches that captures the richness of what attribution theory tells us about causal ascriptions, their underlying properties, and their consequences. Understanding the achievement—self-esteem disparities in Asian American adolescents provides a timely context for exploring some of that richness.

**Acknowledgements** This research was funded by Grants from the National Institute of Child Health and Human Development (5R01HD059882) and the National Science Foundation to Sandra Graham. The first author was also funded by Fundamental Research Funds for the Central Universities, and the Research Funds of Renmin University of China (16XNLQ05) to prepare the manuscript at University of California, Los Angeles.

#### Compliance with ethical standards

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

## References

- Bangston, V., & Zhou, M. (2002). Being well vs. doing well: Self-esteem and school performance among immigrant and nonimmigrant racial and ethnic groups. *International Migration Review*, 36, 389–415. <https://doi.org/10.1111/j.1747-7379.2002.tb00086.x>.
- Barker, G. P., & Graham, S. (1987). Developmental study of praise and blame as attributional cues. *Journal of Educational Psychology*, 79(1), 62–66. <https://doi.org/10.1037/0022-0663.79.1.62>.
- Benner, A. D., & Graham, S. (2009). The transition to high school as a developmental process among multiethnic urban youth. *Child Development*, 80(2), 356–376. <https://doi.org/10.1111/j.1467-8624.2009.01265.x>.
- Blackwell, L., Trzesniewski, K., & Dweck, C. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development*, 78(1), 246–263. <https://doi.org/10.1111/j.1467-8624.2007.00995.x>.
- Boese, G. D., Stewart, T. L., Perry, R. P., & Hamm, J. M. (2013). Assisting failure-prone individuals to navigate achievement transitions using a cognitive motivation treatment (attributional retraining). *Journal of Applied Social Psychology*, 43(9), 1946–1955. <https://doi.org/10.1111/jasp.12139>.
- Chen, C., & Stevenson, H. W. (1995). Motivation and mathematics achievement: A comparative study of Asian-American, Caucasian-American, and East Asian high school students. *Child Development*, 66(4), 1215–1234. <https://doi.org/10.2307/1131808>.
- Clogg, C. C., Petkova, E., & Haritou, A. (1995). Statistical methods for comparing regression coefficients between models. *American Journal of Sociology*, 100(5), 1261–1293. <https://doi.org/10.1086/230638>.
- Cvencek, D., Nasir, N. I. S., O'Connor, K., Wischnia, S., & Meltzoff, A. N. (2015). The development of math–race stereotypes: “They say Chinese people are the best at math”. *Journal of Research on Adolescence*, 25(4), 630–637. <https://doi.org/10.1111/jora.12151>.
- Fulgini, A. J. (1997). The academic achievement of adolescents from immigrant families: The role of family background, attitudes, and behavior. *Child Development*, 68(2), 351–363. <https://doi.org/10.1111/j.1467-8624.1997.tb01944.x>.
- Graham, S., Bellmore, A., Nishina, A., & Juvonen, J. (2009). “It must be me”: Ethnic diversity and attributions for peer victimization in middle school. *Journal of Youth and Adolescence*, 38, 487–499. <https://doi.org/10.1007/s10964-008-9386-4>.
- Graham, S., & Juvonen, J. (1998). Self-blame and peer victimization in middle school: An attributional analysis. *Developmental Psychology*, 34(3), 587–599. <https://doi.org/10.1037/0012-1649.34.3.587>.

- Graham, S., & Taylor, A. Z. (2016). Attribution theory and motivation in school. In K. Wentzel & D. Wiebe (Eds.), *Handbook of motivation in school*. London: Taylor & Francis.
- Grant, H., & Dweck, C. S. (2001). Cross-cultural response to failure: Considering outcome attributions with different goals. In F. Salili, C.-Y. Chiu, & Y.-Y. Hong (Eds.), *Student motivation: The culture and context of learning*. Dordrecht: Kluwer Academic Publishers.
- Greene, M., Way, N., & Pahl, K. (2006). Trajectories of perceived discrimination among Black, Latino, and Asian American adolescents: Patterns and psychological correlates. *Developmental Psychology*, *42*(2), 218–238. <https://doi.org/10.1037/0012-1649.42.2.218>.
- Harter, S. (1985). *The self-perception profile for children: Revision of the Perceived Competence Scale for Children manual*. Denver, CO: University of Denver.
- Heine, S. J., Kitayama, S., Lehman, D. R., Takata, T., Ide, E., Leung, C., et al. (2001). Divergent consequences of success and failure in Japan and North America: An investigation of self-improving motivations and malleable selves. *Journal of Personality and Social Psychology*, *81*(4), 599–615. <https://doi.org/10.1037/0022-3514.81.4.599>.
- Hsin, A., & Xie, Y. (2014). Explaining Asian Americans' academic advantage over Whites. *Proceedings of the National Academy of Sciences*, *111*(23), 8416–8421. <https://doi.org/10.1073/pnas.1406402111>.
- Hyde, J. S. (2014). Gender similarities and differences. *Annual Review of Psychology*, *65*, 373–398. <https://doi.org/10.1146/annurev-psych-010213-115057>.
- Kiang, L., Tseng, V., & Yip, T. (2016). Placing Asian American child development within historical context. *Child Development*, *87*(4), 995–1013. <https://doi.org/10.1111/cdev.12578>.
- Lee, W. O. (1996). The cultural context for Chinese learners: Conceptions of learning in the Confucian tradition. In D. A. Watkins & J. B. Biggs (Eds.), *The Chinese learner: Cultural, psychological and contextual influences* (pp. 63–67). Hong Kong: HKU Comparative Education Research Centre.
- Lee, S. J. (2015). *Unraveling the "model minority" stereotype: Listening to Asian American youth*. New York, NY: Teachers College Press.
- Lee, J., & Zhou, M. (2014). The success frame and achievement paradox: The costs and consequences for Asian Americans. *Race and Social Problems*, *6*(1), 38–55. <https://doi.org/10.1007/s12552-014-9112-7>.
- Marsh, H. W., Kong, C. K., & Hau, K. T. (2000). Longitudinal multilevel models of the big-fish-little-pond effect on academic self-concept: Counterbalancing contrast and reflected-glory effects in Hong Kong schools. *Journal of Personality and Social Psychology*, *78*(2), 337–349. <https://doi.org/10.1037/0022-3514.78.2.337>.
- Marsh, H. W., & O'Mara, A. (2008). Reciprocal effects between academic self-concept, self-esteem, achievement, and attainment over seven adolescent years: Unidimensional and multidimensional perspectives of self-concept. *Personality and Social Psychology Bulletin*, *34*(4), 542–552. <https://doi.org/10.1177/0146167207312313>.
- Min, P. G. (Ed.). (2005). *Asian Americans: Contemporary trends and issues*. Thousand Oaks, CA: Sage.
- Ng, F. F. Y., Pomerantz, E. M., & Lam, S. F. (2007). European American and Chinese parents' responses to children's success and failure: Implications for children's responses. *Developmental Psychology*, *43*(5), 1239–1255. <https://doi.org/10.1037/0012-1649.43.5.1239>.
- Osborne, J. W. (2001). Testing stereotype threat: Does anxiety explain race and sex differences in achievement? *Contemporary Educational Psychology*, *26*(3), 291–310. <https://doi.org/10.1006/ceps.2000.1052>.
- Perry, R. P., Stupnisky, R. H., Hall, N. C., Chipperfield, J. G., & Weiner, B. (2010). Bad starts and better finishes: Attributional retraining and initial performance in competitive achievement settings. *Journal of Social and Clinical Psychology*, *29*(6), 668–700. <https://doi.org/10.1521/jsep.2010.29.6.668>.
- Pomerantz, E. M., Ng, F. F., & Wang, Q. (2008). Culture, parenting, and motivation: The case of East Asia and the United States. *Advances in Motivation and Achievement: Social Psychological Perspectives*, *15*, 209–240. [https://doi.org/10.1016/S0749-7423\(08\)15007-5](https://doi.org/10.1016/S0749-7423(08)15007-5).
- Schacter, H. L., & Juvonen, J. (2015). The effects of school-level victimization on self-blame: Evidence for contextualized social cognitions. *Developmental Psychology*, *51*(6), 841–847. <https://doi.org/10.1037/dev0000016>.
- Stevenson, H. W., Lee, S. Y., Chen, C., Stigler, J. W., Hsu, C. C., Kitamura, S., et al. (1990). Contexts of achievement: A study of American, Chinese, and Japanese children. *Monographs of the Society for Research in Child Development*, *5*, i-119.
- Tan, J. B., & Yates, S. (2011). Academic expectations as sources of stress in Asian students. *Social Psychology of Education*, *24*(3), 389–407. <https://doi.org/10.1007/s11218-010-9146-7>.

- Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York, NY: Springer.
- Weiner, B. (1988). Attribution theory and attributional therapy: Some theoretical observations and suggestions. *British Journal of Clinical Psychology*, 27, 93–104. <https://doi.org/10.1111/j.2044-8260.1988.tb00757.x>.
- Wong, P., Lai, C. F., Nagasawa, R., & Lin, T. (1998). Asian Americans as a model minority: Self-perceptions and perceptions by other racial groups. *Sociological Perspectives*, 41(1), 95–118. <https://doi.org/10.2307/1389355>.
- Yan, W., & Gaier, E. L. (1994). Causal attributions for college success and failure: An Asian-American comparison. *Journal of Cross-Cultural Psychology*, 25(1), 146–158. <https://doi.org/10.1177/0022022194251009>.
- Yeager, D. S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., Hinojosa, C., et al. (2016). Using design thinking to improve psychological interventions: The case of the growth mindset during the transition to high school. *Journal of Educational Psychology*, 108(3), 374–391. <https://doi.org/10.1037/edu0000098>.
- Yuan, S., Weiser, D. A., & Fischer, J. L. (2016). Self-efficacy, parent-child relationships, and academic performance: A comparison of European American and Asian American college students. *Social Psychology of Education*, 19(2), 261–280. <https://doi.org/10.1007/s11218-015-9330-x>.

**Xiaochen Chen** is an assistant professor in the Department of Psychology at Renmin University of China. Her research interests include: academic motivation and peer relations during adolescence.

**Sandra Graham** is a distinguished professor in the Department of Education at University of California, Los Angeles (UCLA). Her major research interests include: academic motivation and social development in children of color, particularly in school contexts that vary in racial/ethnic diversity.