

I Did Well. Should I Tell? Gender Differences in Children's Academic Success Disclosures

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Abstract There is growing evidence that individuals frequently share good news with others and that these positive event disclosures can predict positive affective outcomes. In the current study, we tested hypotheses regarding gender differences in one type of positive event disclosure: children's willingness to disclose academic successes to friends. Participants were 524 children living in the Midwestern United States. The sample was divided into two age groups: middle childhood and early adolescence. Consistent with hypotheses, girls were more likely than boys to disclose academic successes to friends. Also consistent with hypotheses, this gender difference was mediated by gender differences in perceived norms and perceived responses. Specifically, girls' greater willingness to disclose academic successes to friends was partially explained by girls' greater sense that academic success disclosures are normative and – especially among early adolescents – by girls' greater sense that academic success disclosures will be met with supportive responses. Contrary to predictions, this gender difference was not mediated by prosocial goals. Although these findings may run contrary to the notion that girls are more likely than boys to adopt a modest self-presentation style, they are consistent with evidence that girls' friendships are more likely than boys' to be characterized by features (e.g., validation) that would facilitate positive event disclosures and with evidence that boys are more likely than girls to demonstrate a devaluing of academic achievement and effort. Future research will be important in better

understanding how parent, teacher, and peer socialization processes interact to contribute to children's decision-making regarding academic success disclosures.

Keywords Human gender differences · Self disclosure · Academic achievement · Peer relationships

Introduction

Previous research employing U.S. samples has documented robust gender differences in self-disclosures in peer contexts. As early as third grade, girls are more likely than boys to disclose personal thoughts and feelings to friends. By sixth grade, the gender difference is moderate to large in magnitude (see Buhrmester and Prager 1995, and Rose and Rudolph 2006, for reviews). Importantly, however, the extant research on gender differences in self-disclosures in U.S. samples has focused on disclosures in general (e.g., McNelles and Connolly 1999) or on disclosures in response to *negative* events, including academic problems (e.g., getting a bad grade on a test) or social problems (e.g., being teased by a classmate) (e.g., Altermatt and Broady 2009; Rose 2002; Rose et al. 2012).

Examining potential gender differences in *positive* event disclosures is important for at least two reasons. First, there is evidence that positive event disclosures are common among school-age children in both the U.S. and in other countries, including China (Altermatt and Ivers 2011; Heyman et al. 2008; Quatman and Swanson 2002). Indeed, there is evidence that positive event disclosures may be more common than negative event disclosures in children as young as preschool (e.g., Altermatt 2015; Hicks et al. 2015) – perhaps because positive event disclosures carry fewer risks (e.g., of feeling incompetent) than negative event disclosures. Second,

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evidence from a spate of studies employing adult samples in the U.S. (e.g., Gable et al. 2004, 2006, 2012) and from a handful of studies employing child samples in the U.S. suggests that sharing news of positive events with others can be predictive of positive affective outcomes (Langston 1994). For example, Altermatt (2011) found that middle school students who frequently shared news of an academic success (e.g., a good grade on a test) with peers developed more positive school attitudes over time than students who shared infrequently, even after controlling for report card grades. Altermatt (2015) extended these findings, demonstrating that, among middle school students, academic success disclosures predicted day-to-day increases in school-related positive affect, especially when friends responded enthusiastically to the good news. That children, like adults, can benefit from sharing positive news is not unexpected given that sharing positive news with others has the potential to satisfy developmentally-important psychological goals including demonstrating competence and establishing warm, supportive relationships with peers (Covington 2000).

The current study contributes to the nascent literature on positive event disclosures in children by testing hypotheses regarding gender differences in U.S. children's academic success disclosures. Unless otherwise noted, all studies here reviewed are based on U.S. samples.

Gender Differences in Academic Success Disclosures

One goal of the present study was to test the hypothesis that girls would be more likely than boys to disclose academic successes to friends. Although some prior research suggests that no gender differences will emerge or that boys might disclose academic successes more than girls, the bulk of the evidence seems to point to a gender difference in academic success disclosures favoring girls.

One competing hypothesis is that no gender differences will emerge in children's academic success disclosures. Evidence supporting this hypothesis can be garnered from prior research indicating that many of the factors that have been hypothesized to contribute to gender differences in negative event disclosures – including boys' inexperience with discussing negative emotions with parents and boys' valuing of toughness and invulnerability – are less likely to play a role in decision-making about positive event disclosures (Rose et al. 2012). Some direct empirical support for this competing hypothesis also exists. Specifically, two recent studies found no evidence of gender differences in children's beliefs about the appropriateness of academic success disclosures among 3- to 7-year old children in the United States (Hicks et al. 2015) or 7- to 15-year old students in China (Zhang et al. 2015). Notably, both studies employed hypothetical vignettes involving other children. It remains unclear whether gender

differences will emerge in children's self-reported willingness to disclose their own academic successes to friends.

A second competing hypothesis is that boys will disclose academic successes more than girls. Evidence supporting this hypothesis can be garnered from prior research indicating that, as early as third grade, females may adopt a more modest self-presentation style than males (Daubman et al. 1992; Stipek and Gralinski 1991; Zook and Russotti 2013), perhaps because girls are more sensitive to the potential risks of discussing academic accomplishments with peers including being viewed as competitive or boastful (Heyman et al. 2008; Watling and Banerjee 2007). Consistent with this possibility, Benenson and Schinazi (2004) found that female adolescents were more likely than male adolescents to report that they would feel badly if they outperformed a friend academically. It is unclear whether these negative feelings are strong enough to compel girls to avoid sharing academic success disclosures altogether.

A third – and, to our mind, the most compelling – hypothesis is that girls will disclose academic successes more than boys. A finding of more frequent academic success disclosures among girls than boys would be consistent with a relatively large extant literature indicating robust gender differences in self-disclosures more generally. It would also be consistent with evidence indicating that, as early as second grade, there are gender differences in the sorts of peer interactions that would facilitate positive event disclosures (Rose and Rudolph 2006). Compared to boys, girls are, for example, more likely to spend time conversing with friends (Ladd 1983; Moller et al. 1992), more likely to engage in collaborative and helping behavior (Strough et al. 2001) and more likely to report being involved in friendships characterized by high levels of intimacy, acceptance, and validation (Camarena et al. 1990; Crockett et al. 1984; Parker and Asher 1993). A finding of more frequent academic success disclosures among girls than boys would also be consistent with growing evidence, from both the United States and other countries (e.g., Belgium and the Netherlands) that, as early as middle childhood, boys show greater academic disengagement than girls (Dotterer et al. 2009; Symonds et al. 2014; Van de Gaer et al. 2008), perhaps, in part, because demonstrating high levels of academic engagement runs counter to the masculine gender role, especially during adolescence (Adler et al. 1992; Czopp et al. 1998; Dekker et al. 2013).

In sum, while competing hypotheses exist, we predicted that boys would be more likely than girls to eschew academic success disclosures. In particular, we believe that the extant literature on gender differences in peer relationships and academic engagement suggests that, for boys more so than girls, the potential benefits of disclosing academic successes to friends – including experiencing the positive emotions that can come with demonstrating competence – will be outweighed by the risks of doing so – including experiencing

the negative emotions that can come with violating peer interaction norms or by being ignored or criticized by peers who may not approve of demonstrating high levels of academic engagement.

Mediators of Gender Differences in Academic Success Disclosures

A second goal of the present study was to test a model examining three hypothesized mediators of the expected gender difference in academic success disclosures. Based on Crick and Dodge's social information-processing model (Crick and Dodge 1994) which suggests that children's enactment of particular social behaviors is governed, in part, by children's interpretation of relevant social cues and by children's endorsement of particular social goals (see also Rose et al. 2012), we hypothesized that gender differences in academic success disclosures would be mediated by 1) gender differences in children's perceptions of friends' responses to success disclosures, 2) gender differences in children's perceptions of success disclosures as normative, and 3) gender differences in children's endorsement of prosocial goals.

Perceptions of Friends' Responses to Academic Success Disclosures

Prior research indicates that even very young children are sensitive to the feedback they receive from peers (Altermatt et al. 2002) and that sensitivity to peer feedback may increase with age (Brown 1990). Although scant attention has been paid to peer responses to positive event disclosures among children, research with adult samples suggests that perceived responses play a critical role in determining both whether individuals choose to disclose positive events to others and the likelihood that such disclosures will elicit the types of positive outcomes (e.g., greater relationship satisfaction) that are likely to predict future disclosures (Gable et al. 2004, 2006; Reis et al. 2010).

To date, no measure exists to carefully assess children's perceptions of friends' responses to academic success disclosures. In constructing such a measure for the present study, we adopted a framework used to examine adults' perceptions of partners' responses to positive event disclosures (Gable et al. 2004). In their model, Gable and her colleagues differentiated four response styles that varied along two dimensions: active versus passive and constructive versus destructive. Here, active-constructive responses are characterized by enthusiastic, positive support (e.g., "My partner usually reacts to my good fortune enthusiastically"), passive-constructive responses are characterized by more muted, understated support (e.g., "My partner says little, but I know he/she is happy for me"), active-destructive responses are characterized by attempts to diminish the significance of the event or by

derogatory comments (e.g., "My partner often finds a problem with it"), and passive-destructive responses are characterized by "benign disinterest" (e.g., "My partner often seems disinterested") (Reis et al. 2010, p. 315). Several studies employing adult samples have shown that active-constructive responses are associated with positive intrapersonal and interpersonal outcomes, including more positive evaluations of the event, greater intimacy with the interaction partner, and, most importantly for our purposes, an increased willingness to self-disclose personal information in future interactions (Gable et al. 2004, 2006; Reis et al. 2010). Considerably less attention has been paid to passive-constructive and destructive responses in the extant literature, but one recent study suggests that these responses may play a more limited role in predicting positive event disclosures (Gable et al. 2012). In light of this research and consistent with evidence that girls' friendships are more likely than boys' friendships to be characterized by features (including higher levels of closeness, nurturance, trust, validation, and enhancement of worth) that should promote the type of positive, enthusiastic support that characterizes active-constructive responses (see Rose and Rudolph 2006, for a review), we anticipated that gender differences would emerge in active-constructive responses – with girls perceiving more active-constructive responses than boys. We anticipated that this gender difference in active-constructive responses would, in turn, play an important role in mediating expected gender differences in academic success disclosures. It seems possible that gender differences might also emerge in passive-constructive and destructive responses (with girls perceiving more passive-constructive and fewer destructive responses than boys). However, both of these responses are associated with negative interpersonal outcomes among adults (Gable et al. 2004). Given evidence that boys and girls report similar levels of satisfaction and conflict in their relationships (Rose and Rudolph 2006) and that passive-constructive and destructive responses are less likely than active-constructive responses to predict positive event disclosures (Gable et al. 2012), we anticipated that these gender differences would be weaker than gender differences in active-constructive responses and play a more limited role in mediating expected gender differences in academic success disclosures.

Perceptions of Academic Success Disclosures as Normative

Prior research provides clear evidence that friends and peer group members often share similar achievement-related behaviors, including levels of academic effort and engagement (Hamm et al. 2011; Kindermann 1993; Ryan 2001). Although these similarities are partially explained by selection effects wherein children choose to associate with peers whose achievement-related behaviors already coincide with their own, there is increasing evidence that children also change their behaviors over time to achieve increased similarity with

peers, including classmates (Berndt and Keefe 1995; Crosnoe et al. 2008; Kindermann 1993). Descriptive norms – that is, children’s perceptions of peers’ behaviors – likely play a key role in this process. When children perceive that their peers engage in certain types of behaviors, they are likely to adopt and maintain them. In contrast, when children perceive that their peers avoid certain types of behaviors, they are likely to abandon them (Hamm et al. 2011; Ryan 2000). There is growing evidence that, because of the gender-segregated nature of children’s peer interactions, boys’ and girls’ achievement-related goals and behaviors may differ in ways that both contribute to and perpetuate gender-differentiated peer group norms (see Leaper 1994, and Fabes et al. 2014 for reviews). For example, there is evidence that, in both U.S. samples and samples from other countries (e.g., Belgium and the Netherlands), boys are more likely than girls to view academic achievement and effort as feminine. As a result, boys may be more likely than girls to adopt achievement goals and behaviors – including concealing successes – that demonstrate a devaluing of academic achievement or effort (Adler et al. 1992; Czopp et al. 1998; Dekker et al. 2013). Consistent with these findings, we anticipated that gender differences would emerge in perceptions of academic success disclosures as normative and that this gender difference in perceived norms would play an important role in mediating gender differences in academic success disclosures. Specifically, we anticipated that girls would be more likely to disclose academic successes to friends than boys because girls perceive this behavior as more normative than boys.

Prosocial Goals

In deciding whether to share news of an academic success, children are likely trying to balance a range of academic and social goals. Children who decide to keep news of academic successes to themselves may, for example, be seeking to minimize conflict by downplaying relative performance differences or they may be seeking peer approval by distancing themselves from adults who value academic achievements. In contrast, children who decide to disclose academic successes to friends may be seeking to gain social status by demonstrating academic competence or they may be seeking to offer instrumental assistance to a classmate in need (Galván et al. 2011; Heyman et al. 2008; Juvonen and Murdock 1993). We decided to focus on children’s pursuit of prosocial goals (Wentzel 1993a, 1994, 1998) as a potential mediator of gender differences in academic success disclosures for two reasons. First, there is robust evidence for gender differences in prosocial goals, with girls endorsing prosocial goals and engaging in prosocial behaviors more than boys (see Rose and Rudolph 2006, for a review). Second, some research suggests that prosocial goals may play an important role in explaining group differences in interpretations of academic success

disclosures. Specifically, Heyman and her colleagues (2008) found cross-cultural differences in interpretations of academic success disclosures among 6- to 11-year olds, with U.S. children viewing disclosures as an attempt to show off and Chinese children viewing disclosures as an implicit offer of help. In explaining these findings, these authors noted that the different responses may reflect, in part, cultural differences in prosocial goal pursuit, with Chinese children endorsing the Confucian principle that individuals have a moral obligation to help others learn (see Li 2003). If prosocial goals *do* play a role in explaining group differences in academic success disclosures, it seems reasonable to suspect that expected gender differences in children’s endorsement of prosocial goals – especially as evidenced in girls’ greater desire to help classmates who need assistance with academic problems – might help to explain girls’ greater willingness to share academic success with friends.

Hypotheses

The current study tested two sets of hypotheses regarding gender differences in academic success disclosures. We examined these gender differences in a sample of students in middle childhood (3rd – 5th grade) and early adolescence (6th–8th grade).

Hypothesis 1

Our first hypothesis was that girls would be more likely to disclose academic successes to friends than boys and that gender differences would also emerge for each of three proposed mediators of this gender difference (i.e., perceptions of friends’ responses to academic success disclosures, perceptions of success disclosures as normative, and prosocial goals). Specifically, we expected that girls would be more likely than boys to report active-constructive responses to academic success disclosures, to view academic success disclosures as normative, and to endorse prosocial goals. We expected few, if any, gender differences to emerge for perceptions of passive-constructive or destructive responses to academic success disclosures. We tested this hypothesis using a multivariate analysis of covariance (MANCOVA) with Gender (male, female) and Age Group (middle childhood, early adolescence) included as fixed factors. Given evidence that gender differences in peer interactions and academic engagement increase with age (Dotterer et al. 2009; Rose and Rudolph 2006) and that older children are more sensitive to peer feedback than younger children (Brown 1990), we anticipated that the magnitude of gender differences in academic success disclosures and each of the hypothesized mediators of this gender difference would increase with age. We included report card grades as a covariate in all analyses to ensure that gender differences in academic success disclosures or the hypothesized mediators

of these disclosures were not the result of gender differences in academic performance.

Hypothesis 2

Our second hypothesis was that girls' greater willingness to disclose academic successes to friends than boys would be partially mediated by gender differences in children's perceptions of friends' responses to academic success disclosures (with girls perceiving more active-constructive responses than boys), gender differences in perceptions of success disclosures as normative (with girls perceiving academic success disclosures as more normative than boys), and gender differences in endorsement of prosocial goals (with girls endorsing prosocial goals, especially a desire to help those in academic need, more than boys). We anticipated that passive-constructive and destructive responses would play, at best, a limited role in explaining gender differences in academic success disclosures. To evaluate this hypothesis, we tested a multiple mediational model (see Fig. 1) using analysis procedures outlined in Preacher and Hayes (2008). In light of our expectation that gender differences would increase with age (see Hypothesis 1), we used moderated mediation analysis procedures outlined by Preacher et al. (2007) to evaluate the prediction that evidence for mediation might be stronger for students in early adolescence than for students in middle childhood.

Method

Participants

Participants were 524 children (254 girls, 270 boys) who attended either a K–5th grade elementary school or a 6th–8th grade middle school located in a rural area in the Midwestern United States. This sample allowed us to examine gender differences in two age groups: middle childhood (3rd–5th grade: 116 girls, 145 boys) and early adolescence (6th–8th grade: 138 girls, 125 boys). The school district from which students were drawn was ethnically homogeneous (95.4 % White); 53.4 % of students received free or reduced price lunches.

Two weeks prior to each data collection, letters describing the study were given to all 3rd through 8th grade students in the district to take home to their parents or guardians. One week prior to data collection, phone calls were made to students' homes. If parents or guardians did not want their child to participate, they were instructed to return a form to their child's teacher or to contact the school or the researchers at the telephone numbers provided. Six percent of parents or guardians declined to have their child participate.

Procedure and Measures

Surveys were administered in two 45-min sessions during regular school hours. A trained research assistant read each item aloud to students. Children were asked to circle their answers on their own. A second research assistant was available to answer questions from children. Children were informed that their responses would be kept confidential and that their participation was voluntary. Absentees completed surveys during make up sessions.

Academic Success Disclosures

To assess children's willingness to disclose academic successes to friends, we created a multi-item measure modeled after the single-item measure used by Altermatt (2011). Children were presented with a common stem ("When I get a good grade ...") followed by three items: "I tell my friends about it," "I feel comfortable letting my friends know," and "I'm excited to let my friends know." Children responded to each item on a 5-point scale ranging from 1 (not at all true) to 5 (really true). Children's responses across the three items were averaged. Cronbach's alpha for this measure was .79.

Perceptions of Friends' Responses to Academic Success Disclosures

To assess children's perceptions of their friends' responses to academic success disclosures, we developed a new measure: the Perceived Responses to Academic Success Disclosures (PRASD) scale. Items were modeled on a measure developed by Gable et al. (2004) to assess adults' perceptions of partners' responses to positive event disclosures. Children were presented with a common stem ("When I tell friends about getting a good grade in school, they usually ...") and were asked to indicate on a 5-point scale ranging from 1 (not at all true) to 5 (really true) how friends typically responded. If children did not usually disclose academic successes to friends, they were asked to consider how friends might respond. Three items were designed to assess each of four response styles identified by Gable et al. (2004): active-constructive (e.g., "Congratulate me."), passive-constructive (e.g., "Don't make a big deal about it, but seem happy for me."), active-destructive (e.g., "Make me feel bad about it."), and passive-destructive (e.g., "Change the subject."). All items are provided in Table 1.

We used principal components analysis with varimax rotation to assess the factor structure of the original 12 items of the PRASD. Factors whose eigenvalues were greater than 1 were extracted. As shown in Table 1, the analysis yielded three factors which, together, accounted for 62.05 % of the total variance. The first two factors corresponded to the active-constructive and passive-constructive response styles identified by Gable et al. (2004). The third factor combined items

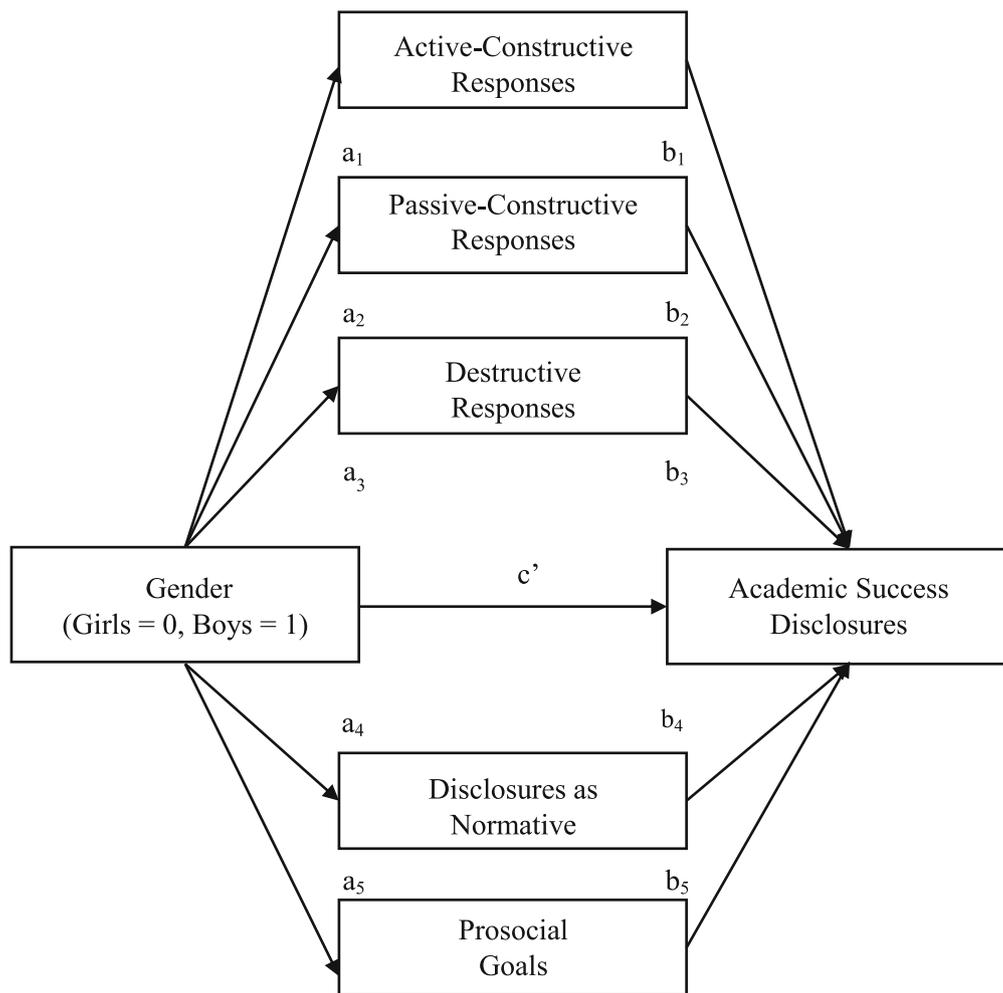


Fig. 1 Multiple mediational model. The model shows the direct effect (c') and specific indirect effects (a,b) of gender on academic success disclosures through five mediators

modeled after the items designed to assess the active-destructive and passive-destructive response styles identified by Gable et al. (2004). All factor loadings were above .60 on their primary factor. Only one item loaded above .40 on any other factor. This item was dropped. Children's responses to the active-destructive and passive-destructive items were averaged to form a single, five-item destructive scale. This destructive scale – along with scales created by averaging children's responses to the three active-constructive items and three passive-constructive items – was used in all analyses. As shown in Table 1, Cronbach's alphas were acceptable for all three scales.

Perceptions of Academic Success Disclosures as Normative

To assess children's perceptions of the extent to which academic success disclosures were normative among their classmates, children were presented with three items: "In my classes, kids tell their friends when they get good grades," "In my classes, kids feel comfortable letting their friends know when

they get good grades," and "In my classes, kids are excited to let their friends know when they get good grades." Children were asked to indicate their agreement with each item on 5-point scale ranging from 1 (not at all true) to 5 (really true). Children's responses across the three items were averaged. Cronbach's alpha for this measure was .81.

Prosocial Goals

Children's endorsement of prosocial goals was assessed with six items modified from two existing measures: the Social Goal Scale (Wentzel 1993b, 1998) and the Classroom Life Measure (Johnson et al. 1983). Children responded to each of the items (e.g., "I try to help my classmates solve problems once I've figured them out," "In my classes, I like to help other students learn," "If a kid performs poorly on a test, I try to help them learn the material," "I try to help my classmates learn new things," "I try to share what I've learned with classmates," and "In my classes, I care about how much other students learn.") on a 5-point scale ranging from 1 (not at all true) to 5

Table 1 Principal components analysis of Perceived Responses to Academic Success Disclosures (PRASD) items

Response	Active-constructive	Passive-constructive	Destructive
When I tell friends about getting a good grade in school, they usually.			
Tell me they are happy for me.	.84		
Congratulate me.	.81		
Act happy and excited for me.	.81		
Don't say much, although I know they're happy for me.		.78	
Don't say much, but I can tell they are happy I did well.		.74	
Don't make a big deal about it, but seem happy for me.		.75	
Make me feel bad about it.			.67
Make me feel like I'm bragging.			.75
Make me feel like I shouldn't have told them.			.82
Don't seem interested. ^a	-.43		.64
Seem not to care.			.72
Change the subject.			.77
Eigenvalue	2.45	1.79	3.20
Percentage of variance explained	20.42	14.89	26.74
Cronbach's α	.80	.65	.80

Principal components analysis with varimax rotation is shown. $N=495$. Loadings $\geq .40$ are displayed

^a This item was deleted from the scale as its factor loading was $> .40$ on two factors

(really true). Children's responses across the six items were averaged. Cronbach's alpha for this measure was .91.

Academic Performance

Children's report card grades were obtained in four academic subject areas (language arts, social studies, mathematics, and science). Letter grades were converted to numerical values (0=F to 12=A+). The mean of the grades in the four subjects during the semester during which data were collected was employed as an index of academic performance.

Results

Preliminary Analyses

To determine whether there were gender differences in academic performance, we conducted a Gender (girls, boys) \times Age Group (middle childhood, early adolescence) analysis of variance (ANOVA). A significant main effect emerged for Gender, indicating that girls ($M=8.27$, $SE=.18$) received higher report card grades than boys ($M=7.20$, $SE=.17$), $F(1,475)=19.69$, $p<.001$. The Gender \times Age Group interaction was not significant, $F(1,475)=1.69$, $p>.05$, indicating that the magnitude of the gender difference was similar for students in middle childhood and early adolescence. To ensure that gender differences in academic success disclosures or the hypothesized mediators of these disclosures were not the

result of gender differences in academic performance, we included report card grades as a covariate in all analyses.

To examine associations among study variables, we conducted partial correlations, controlling for academic performance. Partial correlations are presented, separated by gender and age group, in Table 2. These data provide preliminary support for the importance of perceived responses, perceived norms, and prosocial goals in predicting disclosure decisions. For both girls and boys, active-constructive responses, perceptions of success disclosures as normative, and prosocial goals positively predicted academic success disclosures. These associations emerged in both middle childhood and early adolescence, $r(100 \text{ to } 135)=.17 \text{ to } .47$, $ps<.05$. Associations for passive-constructive and destructive responses were more mixed. For boys, passive-constructive responses positively predicted academic success disclosures, but only in middle childhood, $r(135)=.46$, $p<.001$. For girls, passive-constructive responses positively predicted academic success disclosures, $r(105)=.36$, $p<.001$, and destructive responses negatively predicted academic success disclosures, $r(105)=-.22$, $p<.05$, but only in early adolescence.

Gender Differences in Academic Success Disclosures and Hypothesized Mediators

Our first hypothesis was that girls would be more likely to disclose academic successes to friends than boys and that gender differences would also emerge for each of the proposed mediators of this gender difference (i.e., perceptions of friends' responses to academic success disclosures,

Table 2 Partial correlations by gender and age group

Variable	1	2	3	4	5	6
Middle childhood						
1. Academic success disclosures	–	.37***	.46***	.02	.47***	.17*
2. Active-constructive responses	.25**	–	.49***	–.12	.28***	.34***
3. Passive-constructive responses	.00	–.22*	–	.03	.32***	.26**
4. Destructive responses	–.08	–.26**	.19*	–	.02	.07
5. Disclosures as normative	.20*	.27**	.12	–.12	–	.31***
6. Prosocial goals	.19*	.27**	.12	.17	.44***	–
Early adolescence						
1. Academic success disclosures	–	.21*	.18	.07	.32***	.40***
2. Active-constructive responses	.24**	–	.33***	.04	.27**	.34***
3. Passive-constructive responses	.36***	.22*	–	.11	.34***	.34***
4. Destructive responses	–.22*	–.20*	.02	–	.06	.06
5. Disclosures as normative	.39***	.31***	.13	–.10	–	.58***
6. Prosocial goals	.19*	.44***	.06	.06	.40***	–

Partial correlations are shown. Analyses controlled for academic performance. Partial correlations for middle childhood girls ($n=108$) and early adolescent girls ($n=105$) are below the diagonal. Partial correlations for middle childhood boys ($n=135$) and early adolescent boys ($n=100$) are above the diagonal

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

perceptions of success disclosures as normative, and prosocial goals). Specifically, we expected that girls would be more likely than boys to perceive active-constructive responses to academic success disclosures, to view academic success disclosures as normative, and to endorse prosocial goals. We expected few, if any, gender differences to emerge for perceptions of passive-constructive or destructive responses to academic success disclosures. To test the first hypothesis and to provide preliminary evidence for a test of the second hypothesis, we conducted a multivariate analysis of covariance (MANCOVA) with Gender (girls, boys) and Age Group (middle childhood, early adolescence) as between-subjects factors. By including age group as a factor, we were able to address the possibility that gender differences in self-disclosures or the hypothesized mediators of such disclosures become more pronounced with age (Rose and Rudolph 2006). Academic performance was included as a covariate. Means and standard errors are presented in Table 3.

As expected, girls were significantly more likely than boys to disclose academic successes to friends, $F(1,455)=8.51$, $p<.01$. Gender differences also emerged for each of the hypothesized mediators of gender differences in academic success disclosures. Specifically, girls were more likely than boys to perceive that their friends typically responded to academic success disclosures in active-constructive ways, $F(1,455)=24.15$, $p<.001$, girls were more likely than boys to view academic success disclosures as normative, $F(1,455)=3.95$, $p<.05$, and girls were more likely than boys to hold prosocial goals, $F(1,455)=4.95$, $p<.05$. Importantly, the gender difference for active-constructive responses was moderated by age

as indicated by a significant Gender \times Age Group interaction, $F(1,455)=5.20$, $p<.05$. Among students in middle childhood, girls were only marginally more likely than boys to perceive active-constructive responses, $F(1,250)=2.88$, $p<.10$. Among students in early adolescence, girls were significantly more likely than boys to perceive active-constructive responses, $F(1,216)=25.68$, $p<.001$. Indeed, the mean for active-constructive responses for early adolescent boys (2.27) was substantially lower than the mean for early adolescent girls (3.01) and both girls and boys in middle childhood (3.35 and 3.07, respectively). A significant Gender \times Age Group interaction also emerged for passive-constructive responses, $F(1,455)=12.20$, $p<.001$. Here, girls and boys did not differ in their perceptions of passive-constructive responses in middle childhood, $F(1,250)=1.89$, $p>.05$. By early adolescence, however, girls reported more passive-constructive responses than boys, $F(1,216)=11.44$, $p<.001$. Gender differences did not emerge in children's reports of destructive responses to academic success disclosures, $F(1,455)=0.00$, $p>.05$.

Mediators of Gender Differences in Academic Success Disclosures

A central goal of the present study was to examine *why* girls might be more likely to disclose academic successes than boys. Our second hypothesis was that gender differences in academic success disclosures would be mediated by children's perceptions of friends' responses to academic success disclosures (especially friends' active-constructive responses to academic success disclosures), children's perceptions of success disclosures as normative, and children's endorsement of

Table 3 Gender and age group differences in academic success disclosures and hypothesized mediators of academic success disclosures

Variables	Full sample		Full sample		Middle childhood		Early adolescence	
	Girls <i>M</i> (<i>SE</i>)	Boys <i>M</i> (<i>SE</i>)	Middle childhood <i>M</i> (<i>SE</i>)	Early adolescence <i>M</i> (<i>SE</i>)	Girls <i>M</i> (<i>SE</i>)	Boys <i>M</i> (<i>SE</i>)	Girls <i>M</i> (<i>SE</i>)	Boys <i>M</i> (<i>SE</i>)
Academic success disclosures	3.51 (.07) _a	3.21 (.07) _b	3.44 (.07) _a	3.29 (.08) _a	3.56 (.10) _a	3.47 (.10) _a	3.33 (.09) _a	3.10 (.11) _b
Active-constructive responses ^a	3.18 (.07) _a	2.67 (.07) _b	3.21 (.07) _a	2.64 (.08) _b	3.35 (.10) _a	3.07 (.09) _a	3.01 (.11) _a	2.27 (.11) _b
Passive-constructive responses ^a	2.90 (.06) _a	2.78 (.06) _a	2.97 (.06) _a	2.70 (.07) _b	2.87 (.09) _a	3.07 (.08) _a	2.91 (.09) _a	2.49 (.10) _b
Destructive responses	1.85 (.06) _a	1.85 (.06) _a	2.00 (.06) _a	1.70 (.06) _b	1.94 (.09) _a	2.05 (.09) _a	1.76 (.09) _a	1.64 (.09) _a
Disclosures as normative	3.83 (.07) _a	3.64 (.07) _b	3.95 (.07) _a	3.51 (.07) _b	4.09 (.10) _a	3.82 (.09) _b	3.57 (.10) _a	3.45 (.10) _b
Prosocial goals	3.37 (.07) _a	3.15 (.07) _b	3.76 (.07) _a	2.75 (.07) _b	3.96 (.10) _a	3.58 (.09) _b	2.79 (.10) _a	2.72 (.11) _a

Means (*M*) and standard errors (*SE*) from a multivariate analysis of covariance (MANCOVA) with Gender ($n_{\text{girls}}=219, n_{\text{boys}}=241$) and Age Group ($n_{\text{middle childhood}}=249, n_{\text{early adolescence}}=211$) as factors are shown. Academic performance was included as a covariate. Participants responded to all measures on a five-point scale ranging from 1 (not at all true) to 5 (really true). Means within sub-grouping (e.g., girls versus boys in the full sample) with differing subscripts are significantly different at the $p < .05$ level

^a Denotes a significant Gender × Age Group interaction

prosocial goals. A variety of methods for testing mediation have been proposed (see MacKinnon et al. 2002, for a review). In the present study, we tested our second hypothesis by utilizing procedures detailed in Preacher and Hayes (2008) that allow the researcher to test two or more mediators at once. Specifically, this approach allows the researcher to determine whether an overall indirect effect exists (i.e., whether a set of variables mediates the effect of *X* on *Y*) and to assess the strength of each indirect effect (i.e., whether variable *M* mediates the effect of *X* on *Y* while controlling for all other mediators) (Preacher and Hayes 2008). While some statisticians recommend the use of the standard normal distribution for deriving a *p* value for the indirect effects, Preacher and Hayes (2008) warn against doing so given that sampling distributions tend to be normal only in very large samples. Instead, they recommend bootstrapping, a nonparametric resampling procedure which does not assume the normality of a sampling distribution. Here, a confidence interval is produced for each indirect effect. If the confidence interval does

not cross zero, the null hypothesis of no mediation can be rejected (Preacher and Hayes 2008).

As shown in Table 4, analyses supported the notion that gender differences in academic success disclosures were mediated by perceptions of active-constructive responses and by perceptions of academic success disclosures as normative. The confidence interval for the total indirect effect, $-.1527$, did not cross zero, 95 % CI: $[-.2570$ to $-.0552]$. In addition, the confidence intervals for the specific indirect effects for active-constructive responses, $-.0815$, and perceptions of academic success disclosures as normative, $-.0578$, did not cross zero, 95 % CIs: $[-.1574$ to $-.0297]$ and $[-.1320$ to $-.0055]$, respectively. The specific indirect effects for passive-constructive responses, destructive responses, and prosocial goals were weaker, and all three confidence intervals crossed zero. As shown in Fig. 2, the direction of the point estimates for each pathway are consistent with the interpretation that girls (coded 0) are more likely than boys (coded 1) to perceive their friends as responding to success disclosures in

Table 4 Summary of analyses examining mediators of the relationship between gender and academic success disclosures

	Indirect effect	Standard error	95 % confidence interval	
			Lower	Upper
Total *	-.1527	.0517	-.2570	-.0552
Active-constructive responses *	-.0815	.0320	-.1574	-.0297
Passive-constructive responses	-.0163	.0190	-.0611	.0156
Destructive responses	-.0004	-.0002	-.0174	.0093
Disclosures as normative *	-.0578	.0318	-.1320	-.0055
Prosocial goals	.0034	.0042	-.0233	.0422

$N=460$. Estimates of indirect effects are based on 5000 bootstrap samples. Confidence intervals are bias corrected. Effects marked by an asterisk are those in which the confidence interval does not cross zero. In these cases, the null hypothesis of no mediation is rejected. Academic performance was included as a covariate

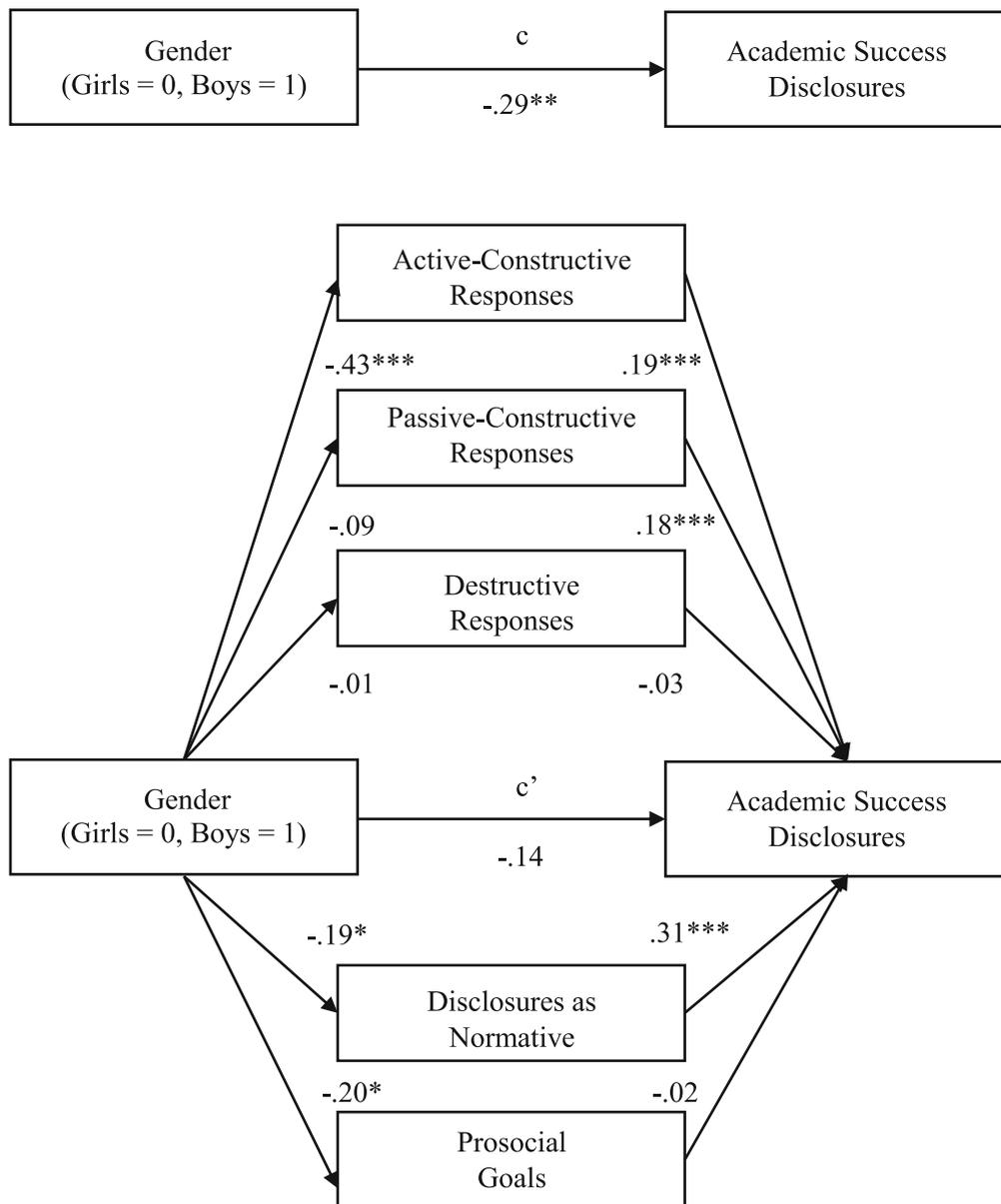


Fig. 2 Multiple mediator analysis. The first model shows the total effect of gender on academic success disclosures (c). The second model shows the direct effect (c') and specific indirect effects (a, b) of gender on

academic success disclosures through five mediators. $*p < .05$. $**p < .01$. $***p < .001$

active-constructive ways and more likely to view academic success disclosures as normative; these gender differences, in turn, help to explain why girls are more likely than boys to disclose academic success to friends.

Given evidence that the magnitude of gender differences in peer interactions and school adjustment may increase with age (see Dotterer et al. 2009; Rose and Rudolph 2006), we conducted a final set of analyses that allowed us to determine whether evidence for mediation differed by age group. Using procedures outlined by Preacher et al. (2007), we calculated an index of moderated mediation which tests whether indirect effects vary across different values of one of more moderator

variables (W). Here, W is age group: middle childhood versus early adolescence. If the confidence interval for the index of moderated mediation does not cross zero, the researcher can conclude that relationship between the indirect effect and the moderator is not zero, and moderated mediation is supported (Preacher et al. 2007). Evidence for moderated mediation emerged for both active-constructive responses, $-.0775$; 95 % CI: $[-.1882$ to $-.0136]$ and passive-constructive responses, $-.1175$; 95 % CI: $[-.2311$ to $-.0475]$. In both cases, evidence for mediation was stronger for students in early adolescence than for students in middle childhood. Specifically, as shown in Table 5, although active-constructive responses mediated the

Table 5 Summary of analyses examining age group as a moderator of the degree to which active-constructive responses and passive-constructive responses mediate the relationship between gender and academic success disclosures

	Conditional indirect effect	Standard error	95 % confidence interval	
			Lower	Upper
			Middle childhood	
Active-constructive responses *	-.0463	.0297	-.1235	-.0032
Passive-constructive responses	.0371	.0260	-.0044	.1025
			Early adolescence	
Active-constructive responses *	-.1238	.0465	-.2326	-.0456
Passive-constructive responses *	-.0804	.0324	-.1607	-.0301

N=460. Estimates of conditional indirect effects are based on 5000 bootstrap samples. Confidence intervals are bias corrected. Effects marked by an asterisk are those in which the confidence interval does not cross zero. In these cases, the null hypothesis of no mediation is rejected. Academic performance was included as a covariate

relationship between gender and academic success disclosures in both middle childhood and early adolescence, the indirect effect for students in middle childhood, $-.0463$; 95 % CI: $[-.1235$ to $-.0032]$, was considerably smaller than the indirect effect for students in early adolescence, $-.1238$; 95 % CI: $[-.2326$ to $-.0456]$. Passive-constructive responses mediated the relationship between gender and academic success disclosures only for early adolescents. Here, the confidence interval for the indirect effect for passive-constructive responses crossed zero for students in middle childhood, $-.0371$; 95 % CI: $[-.0044$ to $.1025]$. In contrast, the confidence interval for the indirect effect for passive-constructive responses did not cross zero for early adolescents, $-.0804$; 95 % CI: $[-.1607$ to $-.0301]$.

Discussion

A small, but growing, literature suggests that both adults and children who share good news with others can experience positive affective outcomes, especially when others respond in enthusiastic ways. At the same time, sharing positive news with others carries some risks, including feeling unsupported or being viewed as competitive or boastful (Altermatt 2011, 2015; Gable et al. 2004, 2006, 2012). The current study is one of only a handful of studies to examine positive event disclosures in children, focusing on examining gender differences in children's willingness to disclose academic successes to friends.

Gender Difference in Academic Success Disclosures

Although two recent studies have pointed to the possibility that girls and boys might report similar levels of academic success disclosures (Hicks et al. 2015; Zhang et al. 2015), both relied on hypothetical vignettes. The current study contributes to the extant literature by providing evidence that, when reporting on their own self-presentation strategies, girls appear significantly more likely than boys to disclose academic

successes to their friends. This finding is consistent with an extensive literature documenting gender differences in the sorts of peer interactions that are likely to promote self-disclosure in general and the disclosure of positive events in particular. Girls' friendships are, for example, characterized by higher levels of closeness, intimacy, and trust than are boys' friendships (see Rose and Rudolph 2006). The finding that girls are more likely than boys to disclose academic successes to friends is also consistent with evidence that downplaying academic effort and devaluing academic achievement may be part of the masculine gender role (e.g., Adler et al. 1992).

Some prior research indicates that gender differences in self-disclosure become more pronounced with age (see Rose and Rudolph 2006, for a review). In the current study, evidence for age-related changes in the magnitude of the gender difference in academic success disclosures was mixed. On the one hand, a *significant* gender main effect was accompanied by a *non-significant* interaction between gender and age group in predicting academic success disclosures, suggesting that the magnitude of the gender difference in academic success disclosures was similar across age groups. On the other hand, when analyses were conducted separately by age group, the gender difference in academic success disclosures fell just shy of significance for students in middle childhood ($p=.053$), but reached significance for students in early adolescence (see Table 3), suggesting an age-related increase in the magnitude of the gender difference. Future research will be important in replicating (or contradicting) this pattern of findings and comparing this pattern to that found for negative event disclosures. If age-related increases in the magnitude of the gender difference in disclosures are more muted for positive events than for negative events, future research might examine the reasons. One possible reason is that older boys continue to find opportunities to share academic successes with friends (albeit at levels that are consistently below girls'), but, as they age, they become increasingly savvy about how and to whom they disclose. This possibility is supported by some prior research.

For example, Pomerantz et al. (1995) found that although older elementary school students made fewer overt social comparison statements (e.g., “My picture is better than yours.”) than younger students, older students did not desist from social comparison altogether. Instead, they shifted to more subtle social comparison behaviors, including inquiring about peers’ progress. In the case of academic success disclosures, older boys may still disclose when they succeed, but be careful to do so in ways that are likely to enhance (rather than detract from) their reputation among peers. One way boys may do so is to downplay the role that effort plays in their successes. Consistent with this notion, research by Juvonen and Murdock (1993) indicates that children expect that students who attribute successes to effort will be unpopular with peers, perhaps because acknowledgement of hard work implies competitiveness or acceptance of adult norms about the importance of school. These authors found that children are, in turn, less likely to endorse effort attributions when explaining successes to peers than to parents or teachers (Zook and Russotti 2013).

Mediators of Gender Differences in Academic Success Disclosures

The current study also contributes to the extant literature by uncovering some of the reasons for girls’ higher levels of academic success disclosures relative to boys’. Across age groups, girls’ greater willingness to disclose academic successes to friends was partially explained by gender differences in active-constructive responses and perceived norms. Specifically, girls appeared more willing than boys to disclose academic successes to friends because they anticipated more of the enthusiastic, supportive responses that have been found to yield positive outcomes among adult samples (e.g., Gable et al. 2004) and because they view these disclosures as more normative. Importantly, evidence for active-constructive responses as a mediator of gender differences in academic success disclosures was stronger in early adolescence (when boys’ perceptions of active-constructive responses were especially low) than in middle childhood and evidence for passive-constructive responses as a mediator of gender differences in academic success disclosures emerged *only* among early adolescents. These findings are consistent with evidence that, as children make the transition to middle school, they become increasingly sensitive to feedback from peers (Brown 1990) and with evidence that the gender gaps in peer interactions and academic engagement become more pronounced with age (e.g., Dotterer et al. 2009; Rose and Rudolph 2006).

The finding that, especially by early adolescence, *both* active-constructive responses and more muted, passive-constructive responses were positively associated with academic success disclosures is important given some evidence from the adult capitalization literature that *only* active-constructive responses are associated with the gains in

positive affect and relationship satisfaction that would be expected to predict future disclosures (Gable et al. 2004, 2006; but see Gable et al. 2012). In interpreting the current findings, it is important to consider that adults and children may differ in the degree to which passive-constructive responses *feel* supportive. Prior research on positive event disclosures suggests that adults often reveal academic, job-related, or financial successes to close others. Disclosures of these types of accomplishments have the potential to generate relative-performance comparisons and, in turn, less-than-enthusiastic responses (Gable et al. 2006). Still, adults seem to have high expectations for how others will respond, anticipating that others will, for example, be able to suppress feelings of envy to convey active, engaged enthusiasm. Given these high expectations, a passive-constructive response that merely communicates positivity may be a disappointment (Gable et al. 2004). There is reason to believe that children might develop much lower expectations for peers’ responses to academic success disclosures. Even very young children are cognizant of the potential risks of revealing academic accomplishments to peers (Heyman et al. 2008) and are significantly more likely to receive criticism than praise from their peers for their efforts in the classroom (Altermatt et al. 2002). By adolescence, peer support for academic engagement is even less positive (e.g., Dotterer et al. 2009). In this type of environment, it may be that even a muted response to an academic success disclosure is interpreted as supportive.

Although correlational analyses showed moderately strong correlations between prosocial goals and academic success disclosures and although girls endorsed prosocial goals more than boys, prosocial goals did not emerge as a significant, independent mediator of gender differences in academic success disclosures after controlling for gender differences in children’s perceptions of friends’ responses to success disclosures and gender differences in children’s perceptions of success disclosures as normative. One interpretation of these findings is that, in making decisions about whether to disclose academic successes to friends, both girls and boys are guided more by characteristics of the audience (here, friends’ responses and peer norms) than by their personal characteristics (here, their endorsement of prosocial goals). This finding is consistent with evidence that disclosure decisions are better predicted by contextual variables than intrapersonal variables (Quatman and Swanson 2002). It is also possible that the effect of prosocial goals on academic success disclosures is moderated to a large degree by other factors including the closeness and relative performance of the interaction partners (Heyman et al. 2008; Quatman and Swanson 2002). For example, prosocial goals may play a limited role in predicting gender differences in students’ decisions about disclosing successes to similarly-performing peers. Instead, these goals may be primarily influential when children have the opportunity to reveal a success to an under-performing other (Heyman et al. 2008). Future research will be important in examining these

moderators. Future research will also be important in determining the degree to which the mediators here discussed (peer responses, peer norms, and prosocial goals) are specific to academic success disclosures or whether they play a similarly important role in predicting academic failure disclosures or non-academic performance disclosures. Although research addressing this issue is, to date, limited, some research suggests that peer responses may play a more important role in predicting future disclosures in the context of positive events than negative events (Altermatt 2015), perhaps because receiving social support in the context of positive events is less fraught than receiving social support in the context of negative events where positive emotions following support (e.g., relief) may be mitigated by negative emotions following support (e.g., embarrassment) (Gable et al. 2012).

Directions for Future Inquiry

Given the role that positive event disclosures in general (Gable et al. 2004, 2006, 2012) and academic success disclosures in particular (Altermatt 2011, 2015) may play in predicting positive affective outcomes, attention should be paid to the socialization practices that might contribute to boys' decreased willingness to share news of academic successes with friends. These might include gender differences in how parents discuss emotions, including positive emotions, with their young children (Chaplin and Aldao 2013), gender differences in peers' tolerance for emotional expression (Rose and Rudolph 2006), and gender differences in the *goodness of fit* between the classroom climates created by teachers and children's temperaments (Dotterer et al. 2009; Jacobs et al. 2002; Symonds et al. 2014). One especially promising area of inquiry will be to examine how parents and teachers might help children balance their academic and social goals during capitalization opportunities – that is, their desire to appear competent and, at the same time, maintain positive peer relationships. Research by Heyman and her colleagues (2008) provides some initial insights. In explaining cross-cultural differences in interpretations of academic success disclosures – with Chinese children viewing success disclosures more positively than children from the U.S. (especially when one child outperformed another) – these authors suggested that Chinese children's more positive evaluations may partially reflect the Confucian value of striving for improvement (Heyman et al. 2008). To the extent that teachers in the U.S. can encourage these same values by promoting mastery goals (with their focus on self-improvement and learning), the potential costs of sharing successes with friends may be minimized (Heyman et al. 2008; Wentzel 1998).

Importantly, the current study focused on children's *perceptions* of friends' responses to academic success disclosures. Future research will need to determine the degree to which these perceived responses are correlated with direct observations of peers' behavior or peers' self-reports of their

behavior. Although one might hope for strong associations, we anticipate that associations between perceived and actual responses to academic success disclosures may be relatively weak. This finding would be consistent with evidence that associations between perceived support and enacted support are typically modest, both in general and in the particular context of positive event disclosures (Gable et al. 2006). Determining the level of congruence between perceived and actual support in the context of children's academic success disclosures has important practical implications. On the one hand, if boys – and, perhaps especially, early adolescent boys – are underestimating the level of support they might expect to receive from friends following academic success disclosures, then it makes sense to encourage boys to disclose. On the other hand, if boys are correct in believing that academic success disclosures are unlikely to be well-received by peers, then efforts to encourage boys to disclose need to be preceded by efforts to encourage more positive peer responses to these disclosures.

The current study also focused on children's *perceptions* of *descriptive norms* – that is, children's perceptions of the degree to which their peers appear willing to disclose their own academic successes. Future research will be important in determining whether these norms align (or misalign) with direct observations or peers' self-reports of their behavior or with *injunctive norms* – that is, children's perceptions of the degree to which their peers view academic success disclosures as appropriate or socially acceptable. One possibility is that injunctive norms begin to shift toward non-disclosure earlier than descriptive norms. That is, children – and, perhaps especially, boys – may begin to believe that peers think academic disclosures are unacceptable before either children or their peers actually begin to avoid disclosures. If this is the case, teachers may play an important role in delaying or minimizing declines in academic success disclosures by helping to shape classroom peer cultures that emphasize the value of celebrating academic accomplishments (Hamm et al. 2011, 2014; Heyman et al. 2008; Reschly et al. 2008).

As work on academic success disclosures continues, more nuanced measures of disclosure processes must be developed. In developing these measures, it will be important, for example, to assess the number and closeness of interaction partners (e.g., are children disclosing to many or few acquaintances, friends, or peers?), the gender of interaction partners (e.g., are children disclosing to same-sex or opposite-sex peers?), and the relative performance of interaction partners (e.g., are children disclosing to similarly-performing peers or to peers whom they have out-performed or under-performed?).

Conclusions

Everyday academic successes are a common part of children's everyday experiences (Lehman and Repetti 2007; Pomerantz

and Eaton 2001). The current study contributes to the extant literature by examining gender differences in children's willingness to disclose academic successes to their friends. Together, the findings suggest that children's perceptions of their friends' behavior play an especially important role. That is, girls appear more willing to disclose academic successes to friends in part because girls are more likely to expect that friends will respond in supportive ways and more likely to believe that such disclosures are normative. Given evidence that academic success disclosures impact both children's school attitudes and their peer relationships (Altermatt 2011, 2015; Altermatt and Ivers 2011) and that teachers can play a critical role in shaping peer groups norms in their classrooms (Hamm et al. 2011, 2014), attention should be paid to how teachers might help to create classroom environments where students – and especially early adolescent boys – can reasonably expect that their attempts to openly pursue academic success will yield more benefits than costs.

Compliance with Ethical Standards I certify that we have complied with the APA ethical principles regarding research with human participants in conducting the research presented in this manuscript.

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