

Gender-Typed Behaviors and School Adjustment

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Abstract This study investigates whether gender-typed behaviors are associated with two aspects of school adjustment—engagement and attachment. The analysis uses a nationally representative sample of middle and high school students in US schools in 1995 ($n=6,349$ girls and 5,954 boys). Ordinary least square models show that both boys and girls with extremely gender-typed behaviors report lower levels of school engagement and attachment than gender-typical peers, consistent with previous research that documented adjustment problems linked to hypergender. Among boys but not among girls, gender-atypical students report lower levels of engagement and attachment than gender-typical peers, indicating stigma attached to boys' feminine behaviors at school. Interpersonal problems with peers and teachers explain large portions of these group differences.

Keywords Femininity · Gender type · Masculinity · School attachment · School engagement

Introduction

Although education research has traditionally focused on objective outcomes such as grades and test scores, school adjustment has received an increasing amount of attention

in recent years (Fredricks et al. 2004; Johnson et al. 2001). Some studies have focused on *school engagement*—the academic and behavioral aspect of school adjustment that addresses students' effort in school work such as attendance, homework, and extracurricular activities (Fredricks et al. 2004). Other studies have examined *school attachment*—the social and emotional aspect of school adjustment that measures students' connections to peers and to school (Libbey 2004; Voelkl 1997). Together these concepts indicate adolescents' adaptation to the student role and their well-being in the school context (Johnson et al. 2006). School adjustment is shaped by students' individual attributes such as race and socioeconomic background (Johnson et al. 2001; Ladd and Dinella 2009) as well as contextual factors such as classroom and school characteristics (Fredricks et al. 2004; Johnson et al. 2001; Moody and White 2003). The present paper investigates whether gender-typed behaviors are associated with school engagement and attachment among middle and high school students. We develop hypotheses by drawing from the literatures on hypergender and school bias against gender-atypical behaviors. These hypotheses are tested in regression analysis of a national sample of middle and high school students in the United States. Although our investigation focuses on US, the concepts of gender types and school adjustment apply to students across the world. The present study should help develop hypotheses in other countries and serve as a reference for comparison.

Gender strongly shapes school adjustment. Girls generally show greater engagement and stronger attachment than boys. These differences are modest, and the girls' lead in attachment disappears in higher grades (Johnson et al. 2001). Scholars have attributed these gender differences to socialization, through which boys and girls internalize unique sets of behavioral expectations (Maccoby and Jacklin 1974;

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Stockard 1999). Within gender, students vary considerably in the degree to which their behaviors conform to gender expectations (“gender types”), but the existing literature provides little information about whether and how gender types are associated with school adjustment.

Gender-typed behaviors have important implications for young people. They are related to psychological well-being (Kreiger and Dumka 2006) and several aspects of social experience at school including number of friends, loneliness, victimization, and engagement in peer bullying (Young and Sweeting 2004). Gender types are also linked to academic skills (Lubinski and Humphreys 1990; Maccoby 1966; Signorella and Jamison 1986). Lippa (1998), for example, showed that high school students with gender-atypical behaviors (feminine behaviors for boys and masculine behaviors for girls) have better academic skills across different subject areas than other students. The finding is consistent with Simonton’s (1994) argument that these students’ deviations from traditional gender expectations reflect their personal independence from conventional norms and promote academic creativity.

Extending this literature, the present study identifies implications of gender-typed behaviors for students’ subjective school experience—engagement and attachment. Although school engagement and attachment correlate with academic skills (Fredricks et al. 2004; Ladd and Dinella 2009), they have unique aspects. For example, school engagement strongly reflects effort, and students may deliberately shift levels of engagement in school work depending on how they want to express their gender identity in the presence of peers and teachers. Similarly, school attachment develops in social interactions with these individuals (Libbey 2004), and gender-typed behaviors may strengthen or weaken school attachment by shaping the nature of social interactions at school. For these reasons, gender-typed behaviors may be associated with school engagement and attachment in different ways that they are associated with academic skills. We further argue that due to the social nature of school adjustment, interpersonal relations with peers and teachers play important roles in the ways that gender-typed behaviors influence school adjustment.

Theoretical Perspectives on Gender-Typed Behaviors

Early socialization provides an important context in which gender-typed behaviors develop. Children learn masculine and feminine behaviors by observing and modeling family members and peers (Maccoby 1992; Mischel 1966), and positive and negative feedback reinforces children’s behaviors (Bussey and Bandura 1999). Once children develop gender identity, they are compelled to maintain it by continuing to engage in gender-typed behaviors (Cahill

1986; West and Zimmerman 1987). The ways in which people express gender identity vary across racial groups and socioeconomic classes (Connell and Messerschmidt 2005; Schrock and Schwalbe 2009), indicating differences in socialization experiences.

In this paper, we conceptualize masculinity and femininity as the opposite ends of gender-typed behaviors. Although some scholars view masculinity and femininity as two distinct dimensions (e.g., Bem 1974; Spence and Helmreich 1978), the approach has received many criticisms from conceptual and methodological standpoints (e.g., Pedhazur and Tetenbaum 1979; Taylor and Hall 1982). The present study also differs from these previous studies in its focus on behavioral display of gender types, instead of underlying personality traits (“gender orientation”). One-dimensional measures of gender-typed behaviors tend to show stronger associations with academic skills than two-dimensional measures of gender orientation (Lippa 1998). Implications of the difference between the two approaches are not clear for school adjustment research because very few studies in the area have explicitly measured gender-typed behaviors.

To develop hypotheses about the relationship between gender-typed behaviors and school adjustment, we draw on two literatures. The first literature focuses on problems associated with hypergender behaviors, and the second literature addresses schools’ emphasis on traditional gender expectations and the resulting stigma imposed on gender-atypical students. These literatures therefore focus on the opposite extremes of gender types, and together they suggest a non-linear relationship between gender-typed behaviors and school adjustment: Both extremely gender-typed and gender atypical students may show poorer adjustment than gender-typical students. With the exceptions of Young and Sweeting’s (2004) study in Scotland and Willis’ (1977) study in England, our literature review below concentrates on US studies, corresponding to the study focus on US schools.

Do Extremely Gender-Typed Students Show Poorer Adjustment Than Gender-Typical Students?

To develop hypotheses about school adjustment among extremely gender-typed students, we draw from the literature on hypergender. The concept of hypergender was originally developed in research on gender inequality and sexual violence, and it refers to extreme adherence to traditional gender expectations. Hypermasculinity is characterized by “calloused sex attitudes toward women,” “a conception of violence as manly,” and “a view of danger as exciting” (Mosher and Sirkin 1984, p.151). Hyperfemininity is characterized by a belief that being in a heterosexual relationship determines women’s success, a relationship

maintenance strategy that relies on sexual activities, and an expectation that men will act aggressively in sexual conduct (Murnen and Byrne 1991). Both hypermasculinity and hyperfemininity are viewed as contributing factors for the perpetuation of gender inequality and violence against women.

In addition to these defining characteristics, hypergender is linked to other problematic behaviors, including negative attitudes toward intellectual and work-related activities. For example, among male college students, hypermasculine men tend to lack interests in increasing their knowledge and learning logics but instead spend more time on amusement than other men (Mosher and Sirkin 1984). Consequently, hypermasculinity is associated with low school engagement among college students (Lasane et al. 1999). Similarly, among female college students, hyperfeminine women tend to place small importance on having a job and being competitive in their career (Murnen and Byrne 1991).

Implications of these findings regarding hypergender for gender-typed behaviors are not very clear because of the following conceptual differences between hypergender and gender-typed behaviors. First, gender types mainly focus on behaviors and interests, whereas beliefs about how men and women should act are an important element of hypergender. Second, unlike gender types, hypergender emphasizes men's and women's sexual relationships with the opposite gender. Given these conceptual differences, it is not surprising that hypergender scales do not correlate highly with gender type scales (Kreiger and Dumka 2006). Third, the concept of gender types generally applies to children and adolescents as well as adults. In contrast, the concept of hypergender is mostly used for the adult population, and its sexual component mentioned above may have limited applicability to children and adolescents.

Despite these differences, previous findings on hypergender poses a possibility that extreme internalization of traditional gender expectations have negative consequences for adolescents' adjustment at school. Extremely masculine boys may show strong interests in risk-taking behaviors and leisure activities, which would distract them from school work. Extremely feminine girls may lack interests in occupational careers, which would lower their school engagement.

In this study, we further investigate whether interpersonal problems explain poor adjustment among extremely gender-typed students. Hypermasculine men tend to demand others' attention, argue with others, and control others' behaviors (Mosher and Sirkin 1984). These findings may suggest that extremely sex-typed boys may cause frictions with their peers and teachers. Consistently, qualitative studies show that boys bully their peers and challenge teachers to demonstrate their adherence to traditional male expectations (Willis 1977). Among women,

hyperfemininity is associated with antisocial attitude in general and hostility to other women (McKelvie and Gold 1994; Murnen and Byrne 1991). In line with these findings, popular girls who display exaggerated feminine behaviors reject or are perceived to reject other girls' attempts to join their popular crowds (Eder 1985; Merten 1997). These interpersonal problems associated with extremely gender-typed behaviors may in turn lower school engagement for both girls and boys by distracting them from school work and weaken attachment by creating emotional distance from peers and teachers.

Do Gender-Atypical Students Show Poorer Adjustment Than Gender-Typical Students?

To develop hypotheses about school adjustment among gender-atypical students, we draw on the literature on school bias against gender-atypical behaviors. This literature points out that schools emphasize traditional gender expectations and that students' ability to perform these roles influences their social status at school. Consequently, students who exhibit gender-atypical behaviors face rejection and harassment by peers and sometimes by teachers, as documented in qualitative studies (Eder et al. 1995; Payne 2007; Risman and Seale 2009; Smith 1998). These studies further suggest that boys experience stronger sanctions for gender-atypical behaviors than girls (Risman and Seale 2009; Swearer et al. 2008; Thome 1993; Young and Sweeting 2004). Stronger stigma for boys' feminine behaviors seems to result partly from the perceived link to male homosexuality, which is more negatively viewed than female homosexuality (Herek 2002). Boys who display feminine behaviors are often teased for being gay, regardless of their sexual orientation (Eder et al. 1995; Risman and Seale 2009; Pascoe 2007). Further, because males generally have more negative attitudes toward gender-atypical behaviors and homosexuality than females (Herek 2002; Martin 1990), feminine boys may receive more negative responses from their same-gender peers than masculine girls do. Consistent with these findings, Young and Sweeting's (2004) study of 15-year olds in Scotland showed that gender-atypical boys (defined by extreme scores in a one-dimensional gender diagnosticity scale) reported more frequent victimization, fewer same-gender friends, and greater levels of loneliness than other boys, whereas gender-atypical girls did not differ from other girls in those variables.

Previous studies of gender-atypical behaviors provided little information about school adjustment, however. It is possible that interpersonal problems such as peer bullying and harassment lower their school engagement by reducing their ability and motivation to concentrate on school work and weaken their attachment to school by creating emotional distance from peers and teachers. Given the

stronger stigma attached to boys' gender-atypical behaviors, we further hypothesize that the disadvantages in school adjustment associated with gender-atypical behaviors should be greater for boys than girls.

Present Study

The purpose of this study is to examine whether gender-typed behaviors are associated with two aspects of school adjustment—engagement and attachment. Previous research of gender-typed behaviors focused on academic skills, victimization, social isolation, and psychological well-being as outcomes, and the present study extends this literature by examining the implications for school adjustment. The following hypotheses are developed from the literatures on hypergender and school bias against gender-atypical behaviors.

- Hypothesis 1: Extremely gender-typed students should show lower levels of school engagement and attachment than gender-typical students.
- Hypothesis 2: Gender-atypical students should show lower levels of school engagement and attachment than gender-typical students.
- Hypothesis 3: Interpersonal problems with peers and teachers should partly explain lower levels of school engagement and attachment among extremely gender-typed students and gender-atypical students.
- Hypothesis 4: The disadvantages in school engagement and attachment associated with gender-atypical behaviors should be greater for boys than girls.

These hypotheses are tested in the regression analysis of the second wave data from the National Longitudinal Study of Adolescent Health (Add Health). The data set is collected in 1995, and the results should be interpreted keeping the historical context in mind. Some studies indicated that gender interpretations of certain behaviors are stable across generations—e.g., outdoor play as a masculine behavior (Morgan 1998) and crying as a feminine behavior (Lombardo et al. 2001), but other studies have documented recent changes. For example, concern for appearance does not necessarily indicate femininity (McCormack 2010), and being a high achiever or an athlete is no longer viewed as a masculine trait (Quatman et al. 2000). Although the definitions of masculinity and femininity might have changed somewhat, students continue to express their gender identity at school and evaluate whether their peers conform to or deviate from gender expectations (Pascoe 2007; Risman and Seale 2009), suggesting that gender-typed behaviors have important impact on school adjustment today. Add Health data provide a unique

opportunity to examine the relationship between gender-typed behaviors and school adjustment because of the following features not available in more recent data sets. First, the nationally representative sample increases the generalizability of findings. Second, the data set covers a wide range of behaviors and interests, which allowed variable construction of gender-typed behaviors based on the gender diagnosticity technique as explained below.

Method

Data and Sample

Add Health is an on-going longitudinal study designed to assess health status and health related behaviors in adolescence and young adulthood among people residing in US. In 1994, 80 high schools and 52 feeder schools (middle schools that sent students to these high schools) were selected, and students attending these schools participated in in-depth interviews (Wave 1 In-Home Interviews). About a year later, Wave 2 In-Home Interviews were conducted with the same respondents minus those who had graduated from high schools. Except for control variables, the present paper used Wave 2 data because some items of our gender type measure were available only in that wave. Among 13,570 students who participated in the Wave 2 interviews, the present analysis focused on 12,303 respondents (6,349 girls and 5,954 boys) who attended school in the school year. About 7.0% of the students had data missing from one or more variables. To include all respondents, we imputed the variables from the Waves 1 and 2 using the “ice” command in Stata 9.2 (Royston 2004). The sample had the following racial/ethnic composition: 68% white, 15% black, 12% Hispanic, 4% Asian, and 1% others. About 20% of the sample was in each grade level between the 8th and 11th grades, and 36% of the sample had at least one college-educated parent.

Measures

School Adjustment

Measures of school engagement and attachment were similar to Johnson and colleagues' (2001) scales. School engagement summed two items: “Since school started this year, how often have you had trouble paying attention in school?” (0=every day to 4=never), and “How often have you had trouble getting your homework done?” (0=every day to 4=never) ($\alpha=.70$). Unlike Johnson et al. scale, our measure of school engagement did not include an item on skipping classes due to low correlations with the other two items. The two-item and three-item scales produced similar results in

preliminary analysis, however. *School attachment* summed three items: “You felt close to people at your school,” “You felt like you were part of your school,” and “You were happy to be at your school” ($\alpha=.79$). Response categories ranged from 1=strongly disagree to 5=strongly agree.

Interpersonal Problems

The analysis also included two variables of interpersonal problems as possible mediators for the relationship between gender-typed behaviors and school adjustment. *Problems with peers* was measured by a five-point question, “How often have you had trouble getting along with your peers?” (0=never to 4=every day). *Problems with teachers* was measured by a similar five-point question, “How often have you had trouble getting along with your teachers?” (0=never to 4=every day).

Gender Typed Behaviors

We employed a modified version of gender type measure constructed by Udry and colleagues (Cleveland et al. 2001; Udry and Chantala 2004). This measure is based on gender diagnosticity technique (GD) developed by Lippa and Connelly (1990). Unlike scales based on fixed sets of questions (e.g., Bem 1974; Spence and Helmreich 1978), GD considers a wide range of items available in a given data set and identifies those that strongly predict respondents’ gender. Thus, the technique has the advantage of defining gender-typed behaviors within the particular sample and under the specific temporal context, moving away from the unrealistic assumption made in fixed-item scales about the universality of gender types (Auster and Ohm 2000).

Using the Add Health Wave 2 data, Udry and Chantala (2004) identified 16 items that strongly predicted gender. The list included items such as frequency of crying, which positively predicted being a girl and negatively predicted being a boy, and frequency of fighting, which positively predicted being a boy and negatively predicted being a girl. Appendix A presents the complete list of items. From Udry and Chantala’s original list, we dropped one item (“trouble paying attention at school”) due to the overlap with our school engagement measure. In the next step, a logistic regression model was run to predict gender (girls coded as 0 and boys coded as 1) by the remaining items. Each item was significantly related to gender independent of other items ($p<.001$ for each item). The GD score was the probability of being a boy estimated by the logistic regression model, and it ranged from 0 to 1, with high values indicating very masculine behaviors and low values indicating very feminine behaviors.

Udry and colleagues have demonstrated this scale’s validity and reliability in their previous work (Cleveland et

al. 2001; Udry and Chantala 2004). Other measures of gender-typed behaviors and gender orientation are specific to activity domains such as daily activities and occupational interests (Lippa 1998) or include subscales for dimensions such as agency and communion (e.g., Spence and Helmreich 1978). Reliability for these scales is established by selecting items that highly correlate within each domain. Udry and colleagues’ scale instead includes items *across domains* that predict gender *independent of each other*. For this reason, measures of reliability based on inter-item correlations such as Cronbach’s alpha are not applicable to their scale. To establish the scale’s ability to correctly classify adolescents by gender, Udry and colleagues used receiver operating characteristic (ROC)—a measure of accuracy used in medical testing, epidemiology, and weather forecast. They reported that the scale correctly identified gender for 81.7% of the sample (Cleveland et al. 2001).

As shown in Table 1, GD scores were only weakly correlated with school engagement, attachment, and interpersonal problems with peers and teachers, partly because GD scores were in non-linear relationships with these variables. To address the non-linearity, we trichotomized GD scores as in Udry and Chantala’s (2004) and Young and Sweeting’s (2004) studies. Students were classified into the following three groups: extremely gender-typed (girls with bottom 10% GD scores and boys with top 10% GD scores), gender-typical (girls and boys with middle 80% GD scores), and gender-atypical (girls with top 10% GD scores and boys with bottom 10% GD scores). Percentiles were computed within each grade-gender group (e.g., 9th grade boys) because students interact primarily with peers of the same grade (Coleman 1961; Kandel 1978) and likely compare behaviors within each gender and because GD scores showed a weak, negative correlation with grade levels for both girls ($r=-.12$, $p<.001$) and boys ($r=-.07$, $p<.001$). Table 2 presents means and standard deviations of GD scores for each gender-type group by gender and grade level.

Control Variables

The analysis included race and socioeconomic background as control variables because they correlated with gender-typed behaviors (Connell and Messerschmidt 2005; Lippa 1998; Schrock and Schwalbe 2009) and with school adjustment (Johnson et al. 2001; Ladd and Dinella 2009). These variables were constructed from the Wave 1 data. *Race* was a set of five dummy variables including non-Hispanic white (reference category), non-Hispanic black, Hispanic, Asian, and others. *Parent education* was a set of three dummy variables including less than high school, high school graduate (reference category), and college graduate, based on mother’s or father’s educational level, whichever was higher.

Table 1 Bivariate correlations among key variables.

Variables	(1)	(2)	(3)	(4)	(5)
(1) Gender diagnosticity score	1.00	.05*	.01	-.01	.10***
(2) School engagement	.15***	1.00	.23***	-.39***	-.37***
(3) School attachment	.13***	.22***	1.00	-.26***	-.23***
(4) Problems with peers	-.08***	-.36***	-.25***	1.00	.32***
(5) Problems with teachers	-.01	-.35***	-.23***	.34***	1.00

Pearson correlation coefficients are presented with girls' coefficients in the lower half ($n=6,349$) and boys' coefficients in the upper half ($n=5,954$)
* $p<.05$; *** $p<.001$

Results

Descriptive Statistics

Table 3 presents descriptive statistics of key variables separately for girls and boys. Gender differences in continuous variables were detected in t tests, and those in categorical variables were examined in design-based F tests (an alternative to chi-square tests for analysis of complex survey data; StataCorp 2005). Consistent with previous research (e.g., Johnson et al. 2001), girls showed greater levels of school engagement than boys ($t=6.42, p<.001$). Girls and boys did not differ in school attachment because girls' weaker attachment in higher grades cancels out their stronger attachment in lower grades, as demonstrated by Johnson and colleagues (2006). Compared to boys, girls reported lower levels of problems with peers ($t=-2.49, p<.01$) and teachers ($t=-10.32, p<.001$). Other variables showed no gender difference.

Do Extremely Gender-Typed Students Show Poorer School Adjustment?

Under Hypothesis 1, we expected that extremely gender-typed students should show poorer school adjustment than gender-typical students. To test the hypothesis, OLS models were run for each adjustment outcome (engagement and attachment) separately for girls and boys. The model included gender type

categories (extremely gender-typed behaviors and gender-atypical behaviors with gender-typical behaviors as the reference category) and control variables. For Hypothesis 1, we expected a significant, negative coefficient for extremely gender-typed behaviors. Model 1 of Table 4 summarizes the results. For both girls and boys, the dummy coefficient for extremely gender-typed behaviors showed a significant, negative coefficient for both school engagement ($t=-5.65, p<.001$ for girls; $t=-3.49, p<.001$ for boys) and school attachment ($t=-5.62, p<.001$ for girls; $t=-4.55, p<.001$ for boys). Therefore, the results gave strong support for Hypothesis 1 that extremely gender-typed students show poorer school adjustment than gender-typical students.

Do Gender-Atypical Students Show Poorer School Adjustment?

Under Hypothesis 2, we expected that gender-atypical students should show poorer school adjustment than gender-typical students. This hypothesis was also tested in Model 1 of Table 4. We expected a significant, negative coefficient for gender-atypical behaviors. Among girls, the dummy coefficient was not significant for school engagement or attachment, indicating that gender-atypical girls did not differ from gender-typical girls. Among boys, the dummy coefficient was significant and negative for both school engagement ($t=-4.08, p<.001$) and attachment ($t=-2.38, p<.05$), suggesting that gender-atypical boys had lower levels of school

Table 2 Means and standard deviations (in parentheses) of gender diagnosticity scores by gender type category, gender, and grade level.

Grade Level	Girls			Boys		
	Extremely gender typed	Gender typical	Gender atypical	Extremely gender typed	Gender typical	Gender atypical
8th	.25 (.07)	.69 (.12)	.94 (.02)	.82 (.06)	.40 (.16)	.05 (.03)
9th	.24 (.08)	.69 (.12)	.93 (.02)	.79 (.06)	.35 (.17)	.02 (.04)
10th	.26 (.10)	.67 (.13)	.91 (.03)	.77 (.08)	.33 (.18)	.04 (.02)
11th	.19 (.07)	.61 (.16)	.90 (.04)	.76 (.07)	.32 (.18)	.02 (.07)
12th	.17 (.09)	.59 (.16)	.89 (.04)	.74 (.07)	.31 (.19)	.03 (.02)

$n=6,349$ girls and $5,954$ boys. Gender diagnosticity scores range between 0 (very feminine) and 1 (very masculine). Gender type categories are determined by percentiles of gender diagnosticity scores within each gender-grade level group: extremely gender-typed (girls with bottom 10% GD scores and boys with top 10% GD scores); gender-typical (girls and boys with middle 80% GD scores); and gender-atypical (girls with top 10% GD scores and boys with bottom 10% GD scores)

Table 3 Descriptive statistics by gender.

Variables	Range	Girls		Boys		Gender Difference
		<i>M</i> or %	<i>SD</i>	<i>M</i> or %	<i>SD</i>	
School engagement	0–8	5.85	1.74	5.55	1.84	$t=6.42, p<.001$
School attachment	3–15	11.19	2.71	11.32	2.47	$t=-1.73, ns$
Problems with peers	0–4	0.79	0.92	0.86	0.95	$t=-2.49, p<.01$
Problems with teachers	0–4	0.69	0.86	0.92	0.95	$t=-10.32, p<.001$
Race						$F(3.88, 496.64)^a=1.69, ns$
White	0–1	68%		68%		
Black	0–1	16%		14%		
Hispanic	0–1	12%		12%		
Asian	0–1	3%		4%		
Others	0–1	1%		2%		
Parent education						$F(1.99, 254.82)^a=2.69, ns$
Less than high school	0–1	11%		11%		
High school graduate	0–1	55%		52%		
College graduate	0–1	34%		37%		

$n=6,349$ girls and $5,954$ boys.

^aDesign-based F tests (an alternative to chi-square tests for analysis of complex survey data; StataCorp 2005)

engagement and attachment than gender-typical boys. The results were therefore consistent with Hypothesis 2 for boys but not for girls.

Do Interpersonal Problems Mediate the Relationship Between Gender-Typed Behaviors and School Adjustment?

In Hypothesis 3, we proposed that interpersonal problems should partly mediate the relationship between gender-typed behaviors and school adjustment. As a preliminary step, we first made sure that both extremely gender-typed students and gender-atypical students reported more problems with peers, $F(2, 127)=16.05, p<.001$ for girls and $F(2, 127)=11.79, p<.001$ for boys, and with teachers, $F(2, 127)=10.07, p<.001$ for girls and $F(2, 127)=17.20, p<.001$ for boys. This result suggested the possibility that these variables may mediate the relationship between gender-typed behaviors and school adjustment. Hypothesis 4 was directly tested in Model 2 of Table 4, which added interpersonal problems with peers and teachers as predictors. We expected that these two variables should have significant, negative coefficients and that the coefficients for extremely gender-typed and gender-atypical behaviors should be substantially reduced from Model 1 to Model 2. For both girls and boys, interpersonal problems with peers and teachers were negatively associated with school engagement and attachment as expected. Reductions of the dummy coefficients for extremely gender-typed and gender-atypical behaviors were also observed for all combinations of gender and school adjustment outcomes (except gender-atypical girls' engagement and attachment, which were not significant before the introduction of interpersonal problems as shown in Model 1). The largest

reduction of coefficient (76%) occurred for extremely gender-typed boys' engagement (from -0.42 in Model 1 to -0.10 in Model 2). After considering interpersonal problems in Model 2, extremely gender-typed boys did not differ from gender-typical boys in school engagement. The smallest reduction (20%) was observed for extremely gender-typed girls' school attachment (from -1.22 in Model 1 to -0.98 in Model 2), and extremely gender-typed girls' attachment was still significantly lower than gender-typical girls' engagement ($t=-4.89, p<.001$) even after taking interpersonal problems into account in Model 2. Overall, the results were consistent with Hypothesis 3.

Is the Disadvantage of Gender-Atypical Behaviors Greater for Boys Than Girls?

Under Hypothesis 4, we predicted that the disadvantage in school engagement associated with gender-atypical behaviors should be greater for boys than girls. The hypothesis was tested using the interaction term between gender-atypical behaviors and boys in a combined sample of girls and boys. We expected that the interaction term would have a significant, negative coefficient. Table 5 summarizes the results. The interaction term showed a negative coefficient for both school engagement and attachment as expected, but it was significant only for school engagement ($t=-3.54, p<.001$). Therefore, the results were mixed for Hypothesis 4.

Supplemental Analysis

Follow-up analysis was conducted to examine whether the relationship between gender type and school adjustment

Table 4 OLS models predicting school engagement and attachment by gender-typed behaviors (gender stratified models).

Predictors	Model 1				Model 2			
	Girls		Boys		Girls		Boys	
	Engage	Attach	Engage	Attach	Engage	Attach	Engage	Attach
Gender type (ref = typical)								
Extremely gender typed	-.58*** ^a	-1.22*** ^a	-.42***	-.72***	-.34*** ^a	-.98*** ^a	-.10	-.47**
	(.10)	(.22)	(.12)	(.16)	(.10)	(.20)	(.12)	(.15)
Gender atypical	.06	.03	-.49***	-.43*	.14	.12	-.32**	-.29
	(.11)	(.16)	(.12)	(.18)	(.09)	(.15)	(.11)	(.18)
Race (ref = white)								
Black	.37***	-.53***	.39***	-.03	.50***	-.39**	.35***	-.06
	(.09)	(.15)	(.10)	(.14)	(.09)	(.14)	(.09)	(.13)
Hispanic	-.00	.05	.06	.04	-.06	-.01	-.09	-.09
	(.13)	(.17)	(.11)	(.16)	(.11)	(.16)	(.10)	(.16)
Asian	.08	.37	.07	-.29	-.20	.08	-.09	-.41*
	(.14)	(.20)	(.16)	(.19)	(.15)	(.22)	(.16)	(.20)
Others	.00	-.90*	-.07	-.32	-.03	-.94*	.09	-.18
	(.26)	(.44)	(.35)	(.39)	(.24)	(.45)	(.30)	(.35)
Parents' education level (ref = high school graduate)								
Less than high school	.21	-.06	.05	.04	.17	-.10	.09	.07
	(.11)	(.16)	(.14)	(.16)	(.10)	(.16)	(.12)	(.16)
College graduate	-.11	.08	-.07	.39***	-.19***	-.00	-.18*	.30**
	(.06)	(.11)	(.08)	(.11)	(.06)	(.11)	(.07)	(.10)
Problems with peers								
					-.52***	-.54***	-.59***	-.52***
					(.04)	(.07)	(.04)	(.06)
Problems with teachers								
					-.53***	-.53***	-.54***	-.41***
					(.04)	(.06)	(.04)	(.06)
Constant	5.86***	11.37***	5.60***	11.30***	6.63***	12.15***	6.62***	12.14***
	(.06)	(.10)	(.07)	(.09)	(.06)	(.12)	(.08)	(.11)
R ²	.02	.03	.02	.02	.21	.11	.23	.10

Unstandardized coefficients with standard errors in parentheses. $n=6,349$ girls and 5,954 boys

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

^a indicates significant difference from the gender-atypical group at $p < .001$

depended on students' sociodemographic background and school characteristics. The possibility of interaction effects was suggested by the argument that meanings and expressions of gender identity differ across social groups and school contexts (Connell and Messerschmidt 2005; Schrock and Schwalbe 2009), as mentioned earlier. We considered as possible moderators both student-level variables such as race and parent education as well as school-level variables such as school size, region, level of urbanization, and socioeconomic composition of the student body, but none of the variables showed significant interaction effects, indicating that the relationship between gender-typed behaviors and school adjustment did not vary across these individual and school characteristics.

Discussion

Extending the literature on gender differences in school adjustment, this study examined whether gender-typed behaviors are associated with school adjustment within each gender. The results are overall consistent with the hypotheses derived from the literatures on hypergender and school bias against gender-atypical behaviors.

Consistent with previous research documenting the links between hypergender and adjustment problems, extremely gender-typed students report lower levels of engagement and attachment than gender-typical students for both girls and boys. These group differences are partly explained by interpersonal problems with peers and teachers, in line with

Table 5 OLS models predicting school engagement and attachment by gender-typed behaviors in a combined sample of girls and boys.

Predictors	Engage	Attach
Gender type (ref = typical)		
Extremely gender typed	-.57*** ^a (.10)	-1.22*** ^a (.22)
Gender-atypical	.06 (.10)	.03 (.16)
Race (ref = white)		
Black	.38*** (0.08)	-.28* (.12)
Hispanic	.03 (.09)	.05 (.13)
Asian	.08 (.10)	.02 (.13)
Others	-.04 (.28)	-.57 (.30)
Parents' education level (ref = high school graduate)		
Less than high school	.13 (.09)	-.02 (.12)
College graduate	-.09 (.06)	.24** (.08)
Boys (versus girls)	-.25*** (.05)	.12 (.09)
Extremely gender typed	.15 (.16)	.51 (.29)
*Boys		
Gender-atypical	-.55*** (.15)	-.48 (.25)
*Boys		
Constant	5.85*** (.06)	11.28*** (.10)
R^2	.02	.02

Unstandardized coefficients with standard errors in parentheses. $n=12,303$

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

^a indicates significant difference from the gender-atypical group at $p<.001$

past research on hypermasculine men's aggressive behaviors and lack of sympathy (Mosher and Sirkin 1984) and hyperfeminine women's hostility and antisocial attitudes (Murnen and Byrne 1991). Hypergender is a concept developed to explain the persistence of gender inequality and violence against women. In this sense, it is not surprising that hypergender is associated with various types of adjustment problems such as psychological distress, risk-taking behaviors, and lack of logical thinking (Kreiger and Dumka 2006; McKelvie and Gold 1994; Mosher and Sirkin 1984). Extending this literature, the present study shows that extremely gender-typed behaviors, identified by a GD measure, are also linked to adjustment problems. The finding runs counter to Kreiger and Dumka's (2006) study of college students, which reported no relationship between GD scores and various aspects of psychological adjustment except hostility. The discrepancy might have resulted partly from the analytical design—Kreiger and Dumka used a GD instrument that focused on occupational interests and treated GD scores as a continuous variable, whereas we used a GD instrument covering various activity domains and trichotomized GD scores. Another possible explanation is that school

engagement and attachment are unique types of adjustment that show clear disadvantage of extremely gender-typed behaviors. Future research requires greater attention to whether extremely gender-typed behaviors are associated with other types of adjustment problems for adolescents and adults.

The analysis also showed that gender-atypical boys report lower levels of engagement and attachment than gender-typical boys. The finding is consistent with the argument that the school's strong emphasis on traditional gender expectations creates stigma for gender-atypical behaviors (Eder et al. 1995; Payne 2007; Risman and Seale 2009). For both school engagement and attachment, the relationship between gender-atypical behaviors and poor adjustment is limited to boys, although the gender difference in the strength of the relationship is significant only for school engagement. This finding concurs with previous studies documenting more serious stigma of boys' feminine behaviors than girls' masculine behaviors (Risman and Seale 2009; Swearer et al. 2008; Young and Sweeting 2004). These previous studies concentrated on victimization and peer rejection as negative consequences of gender-atypical behaviors, and the present study

extends this literature by demonstrating their implications for school adjustment.

The association between gender-atypical behaviors and poor school adjustment diverges from previous findings on academic skills—gender-atypical students generally have better skills than other students (Lippa 1998; Simonton 1994). The discrepancy in findings perhaps indicates that gender-atypical behaviors have different impacts on individual skills and actual experience at school. Specifically, school engagement and attachment may be more strongly affected than academic skills by peers' and teachers' negative responses to gender-atypical behaviors, especially for boys. In fact, interpersonal problems with peers and teachers explain substantial portions of the gaps in school engagement and attachment between gender-atypical and gender-typical boys. The conflicting combination of high academic skills and poor school adjustment among gender-atypical boys raises a concern that their stressful school experience limits the ability to fully realize their academic potentials. Consistently, a follow-up analysis showed that gender-atypical boys (and girls) do not necessarily earn better grades than gender-typical students, despite their higher cognitive ability. (The detailed results from the follow-up analysis are available upon request.)

The study has important policy implications. Parents, teachers, and school administrators should be aware that students' disengagement from school work and detachment from peers and teachers may reflect or result from their expressions of gender identity. Given the negative implications of extremely gender-typed behaviors, schools should help students understand that student identity does not threaten gender identity—a boy can be masculine and a serious student at the same time, and that a girl can be feminine and professionally oriented. Given the mediating role of interpersonal problems, this effort should also include reconceptualization of social relationships at school, so that creating and maintaining relationships with peers and teachers on the basis of respect and cooperation, rather than aggressiveness and hostility, would make positive contributions to students' gender identity. At the same time, parents and schools need to work together to promote acceptance of diversity in gender expressions among students, which should reduce bias against students who display gender-atypical behaviors and thereby improve their social relationships and adjustment at school. Improvement in school adjustment among extremely-gendered and gender-atypical students should in turn help them achieve their full academic potentials.

The study has four important limitations. First, using the GD technique, the measure of gender-typed behaviors was constructed within the sample. Therefore, the findings cannot be directly compared to studies based on fixed-item scales of gender orientation such as Sex Role

Inventory (Bem 1974) and Personal Attributes Questionnaire (Spence and Helmreich 1978). Future research that includes both types of measures should contribute to a greater understanding about how gender-typed behaviors are related to school adjustment. Second, by design, the items of the gender type measure did not correlate highly with each other. Therefore, extending the present study that demonstrated the overall relationship between gender-typed behaviors and school adjustment, future research should investigate whether there are specific domains of gender-typed behaviors that are more strongly linked to school adjustment than others and to what extent these domains contribute to the overall relationship. Third, our measures of interpersonal problems were based on general questions about the degrees to which students got along with their peers and teachers rather than direct questions about these individuals' responses to students' gender-typed behaviors. Therefore, the present analysis might have underestimated the extent to which interpersonal problems account for the relationship between gender-typed behaviors and school adjustment. Further, our general measures could not address different types of interpersonal problems that extremely gender-typed and gender-atypical students might have experienced. The literature suggests that interpersonal problems for extremely gender-typed students result from their hostility and aggression to others (Mosher and Sirkin 1984; Murnen and Byrne 1991; Young and Sweeting 2004) whereas problems experienced by gender-atypical students reflect ridicule and harassment by peers and teachers (Risman and Seale 2009; Swearer et al. 2008; Young and Sweeting 2004). This difference needs to be directly tested in future research. Finally, the data used in the present analysis are 15 years old. Recent changes that occurred might have blurred the difference between masculine and feminine behaviors (McCormack 2010; Quatman et al. 2000), although students continue to express their gender identity in their behaviors and closely monitor whether their peers conform to gender expectations (Pascoe 2007; Risman and Seale 2009). Future research based on more recent data will show whether the changes in the definitions of masculinity and femininity have weakened the association between gender-typed behaviors and school adjustment.

Conclusions

The relationship between gender-typed behaviors and school adjustment is not linear and differs between boys and girls. To interpret the complex pattern, one needs to consider both adjustment problems linked to extremely gender-typed behaviors and stigma imposed on boys' feminine behaviors. In both processes, problems with peers and teachers play important roles. Gender-typed behaviors

are associated with both elements of school adjustment—engagement and attachment, suggesting that gender-typed behaviors shape both students' behavioral commitment to school work and emotional connections to school. The existing literature on gender-typed behaviors among students concentrates on academic skills, psychological adjustment, victimization, and this study adds a new dimension to the literature by demonstrating its relationship with school adjustment.

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Appendix A

Items for Gender Type Measure

-
1. In the past, 12 months, how often have you cried frequently? (F)
 2. In the past, 12 months, how often have you been moody? (F)
 3. In the past, 12 months, how often have you had a poor appetite? (F)
 4. Generally, for the parts of this interview that you have answered by yourself using the computer, how honestly have you answered the questions? (F)
 5. During the past seven days, how often were you bothered by things that usually don't bother you? (F)
 6. You are physically fit. (M)
 7. In the past, 12 months, how often did you get into a serious physical fight? (M)
 8. During the past week, how many times did you do exercise, such as jogging, walking, karate, jumping rope, gymnastics or dancing? (M)
 9. During the past week, how many times did you go roller-blading, roller-skating, skate-boarding, or bicycling? (M)
 10. You are emotional. (F)
 11. You like yourself just the way you are. (M)
 12. You live your life without much thought for the future. (M)
 13. You are sensitive to other people's feelings. (F)
 14. You like to take risks. (M)
 15. Difficult problems make you very upset. (M)
-

The scale created by Udry and Chantala (2004) was modified for the present analysis. (M) indicates that the item positively predicts being a boy and negatively predicts being a girl. (F) indicates that the item positive predicts being a girl and negatively predicts being a boy.

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