Gender integration and elementary-age students' classroom belongingness: The importance of

other-gender peers

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Abstract

Most US students attend coeducational classes, but to what extent do students feel integrated into the entire classroom of their peers, especially with other-gender peers? The major goal of this research was to investigate how variations in gender integration (GI), measured by students' expectancies about inclusion, efficacy, and social costs of interacting with other-gender (OG) peers, predicted school liking and classroom supportiveness over an academic year, using a short-term longitudinal design. We also explored how students' expectancies changed over the year. Participants included elementary school students (515 school-age children; 51% boys, Mage = 9.08 years, SD = 1.00; 3-5th grade; 26 classrooms). A two-wave latent change score model showed that changes over the year varied depending on type of expectancy, grade, and gender, with decreases in inclusion and efficacy for boys. Longitudinal path analyses conducted to assess whether GI expectancies predicted school belongingness showed that students' levels of other-gender inclusion in the Fall uniquely predicted changes in levels of school liking and classroom community over the year, even with many controls in the model. The findings demonstrate that students' relationships with other-gender peers matter for having a sense of belonging in school, and educators should support and encourage these relationships.

    Keywords: school belongingness, gender relationships, inclusion, gender integration

Gender integration and school-age children's feelings of school belongingness: The

importance of other-gender peers

Students spend thousands of hours in classrooms over the course of elementary school, and the quality of their social and academic experiences in schools are intricately linked. When students have positive relationships with their peers, they tend to like school (Bouton et al., 2011; Ladd et al., 1996; Vollet et al., 2017) and perceive their class as a supportive community (Solomon et al., 2000). Whether students feel a sense of belonging in their school is central to their success in school.

Despite the consistency of findings on the importance of a positive social climate for students' success in school, significant gaps in the research remain (Berkowitz et al., 2017). One critical shortcoming in this research, and in educational practices and policies, is the failure to consider gender of fellow students as a factor impacting the social climate of the classroom. Gender is in the news; schools are dealing with more issues concerning gender than ever before, and yet the role of gendered peer relationships in the classroom has not been a central topic of discussion among educators. Gender may have been ignored because, even though most schools are coeducational, educators and researchers may assume that boys and girls spend considerable time together in their classes, they will also work and play well together. The reality, however, may be different.

Children, like adults, often seek out others like themselves in gender, race/ethnicity, and language (McPherson et al., 2001). For gender, the evidence is clear that young children form gender-segregated relationships and that this strengthens over childhood. As such, working groups in classrooms may be shaped by these same-gender preferences and, instead of working together collaboratively, students may not form healthy relationships or working partnerships

with other-gender peers (Fabes et al., 2018). The failure to consider the role of gender in classroom climate means that we do not know if classrooms are integrated by gender. Indeed, some children may be effectively integrated with other-gender peers, such that their expectancies about and interactions and relationships with other-gender peers are positive, but others may not be.

The major goal of the present study was to investigate individual differences in an important aspect of gender integration (GI) in the classroom – namely, students' expectancies about other-gender peers. We examined how students' positive expectancies (e.g., feeling included by, feeling efficacious with) and negative expectancies (social costs related to interactions with) other-gender peers related to school belongingness (school liking and classroom supportiveness).

The present study fills several gaps in the literature. First, it addresses within classroom changes in school belongingness. We examined how expectancies early in the school year relate to later school belongingness (i.e., school liking and classroom supportiveness); that is, longitudinal changes within the span of one academic year. This will inform whether expectancies about other-gender relationships within the students' present classroom relate to changes in the feelings the student has for school during the same academic year. Second, because few studies have examined issues of gendered relationships, we aimed to better understand how to assess GI using three related but distinct constructs: students' expectancies of feeling included, social costs of interactions (e.g., teasing), and efficacy with other-gender peers, and we explored the stability and change in these differing types of expectancies about peers. We acknowledge that gender is better conceptualized as a spectrum than binary (Hyde et al., 2018), however, because most young students view themselves and others as falling in a binary

categories ("I'm a boy") (Glazier et al., 2020), we restricted this research to these categories. We consider same-gender peers to be those peers in the same gender group as the target student and other-gender peers to be those peers in the other gender group as the target student.

Importance of School Belongingness

Belongingness is a basic human need (Baumeister & Leary, 1995; Ryan & Deci, 2000); Understanding the feeling of being included and connected within groups is the basis of much work in social psychology (Ryan & Deci, 2000) as well as being a foundational concern of sociologists (e.g., Fromm, 1955). Students spend many hours a day in groups within their classrooms, and the powerful motivating effects of group membership and intergroup collaboration have been focus in educational research providing compelling evidence from school-age children about the importance of feeling included, belonging, and of experiencing classrooms as communities (see Hallinger & Murphy, 1986; Solomon et al., 1996). Children's motivation to learn and to succeed in group-related tasks is related to feeling a sense of belonging in their groups, even when these groups are arbitrarily formed (Master & Walton, 2013).

Gender impacts feelings of inclusion and belonging in a classroom. The role of gender in educational settings has been a focus in the past, but it has not received much attention for almost 50 years with few exceptions (Bigler, 1995; Hilliard & Liben, 2010; Shutts et al., 2017). Furthermore, the attention that has been given to gender has been on the role of teachers' differential treatment of girls and boys within their classes and, in early research, to cooperative learning involving girls and boys (Lockheed, 1986; Lockheed & Harris, 1982, 1984). Contemporary work has seldom focused on the extent to which boys and girls interact within classes, whether they have good quality interactions, and whether children tend to view their

classmates as sharing the same community as themselves, or whether they think the community extends to only some students in class. This is surprising given that, as previously noted, most U.S. students spend their days in coeducational classrooms where approximately half of the class consists of other-gender students. To feel fully included within a class, students would likely need to feel included by everyone, not just same-gender students.

The likelihood of feeling included by everyone in the classroom may be quite limited for many children due to their prior relationship histories as well as to their current and persistent preferences for same-gender peers. Gender segregation – the tendency of boys and girls to prefer to interact with same-gender peers – begins at a very young age, increases over childhood, and continues to be evident throughout life (Mehta & Strough, 2009). Even in coeducational classes, children show strong preferences for working with and spending time with same-gender peers, while often ignoring or actively resisting interactions with other-gender peers (Lockheed, 1986). Classic studies of classrooms (Lockheed, 1986) and more contemporary focus-group research (Miller & Updegraff, 2014; Miller et al., 2010) suggest that other-gender student relationships are lacking in many classrooms. The question we address in this research is whether variations in feeling integrated with other-gender peers in classrooms has consequences for students' sense of belongingness at school, indicated by school liking and perceptions of classroom supportiveness. Despite its importance, there is a dearth of research examining the role of gender integration (GI) in contemporary U.S. coeducational classrooms, and this research is designed to address this significant gap.

Our emphasis on the role of GI in classrooms is supported by the intergroup contact hypothesis (Allport, 1954) that highlights the importance of having contact with diverse peers as an effective way to improve attitudes toward others. This hypothesis has been elevated to a

theory—Intergroup Contact Theory (ICT) and is now supported by hundreds of studies that provide support for the positive benefits of individuals having contact with outgroup members (Pettigrew et al., 2011). Although gender is seldom studied from an intergroup perspective (with one's own gender being the "in-group" and other-gender(s) being the "out-group"), when it has been examined this way, similar intergroup effects have been noted (Martin et al., 2017). Based on findings from ICT studies and the recognition that gender may act in similar ways, we would expect that students who have positive experiences with other-gender peers should experience improved attitudes toward that group over time. Children who have more positive attitudes toward other-gender peers are more likely to develop them as friends, and are more likely to be able to enlist a broader array of emotional and academic support from peers (Caprara et al., 2000). This should enhance feelings of overall belongingness in school.

Prior Studies Assessing Gender and School Belongingness

Although little attention has been paid to the issue of gender as it relates to students' belongingness at school – operationalized in this study as students' assessments of the degree to which they like being at school and they feel a sense of community at school – two studies have addressed this issue. The present study builds on these two prior studies. In Andrews et al (2016), the authors tested how students' beliefs and feelings about inclusion and costs of social interactions with same- and other-gender peers were related to school liking and classroom community in 2nd and 4th grade students measured concurrently and longitudinally into the next school year. As predicted from Intergroup Contact Theory, other-gender expectancies were correlated in the expected ways with outcomes when measured concurrently. The longitudinal approach was designed to assess "carryover effects" from one year to the next and found only one predictive relation: initial assessment of inclusion-enjoyment with other-gender peers was

positively related to classroom community a year later. These are intriguing findings in that feelings of inclusion with other-gender peers in a classroom from the prior year predicted feeling included in a new classroom with a different set of peers.

In a second study employing a partial replication of the same sample as Andrews et al., (2016) and additional measures, 4th grade students were followed into 5th grade with focus on whether students' gender-based relationship efficacy (GBRE) concerning other-gender students related to four measures of school belongingness. Although the patterns were not significant in 4th grade, in 5th grade, feeling efficacious with other-gender peers was related to school liking, school engagement, and classroom community, and at a trend level for school motivation (Field et al., 2017). These studies are important in that they introduced the expectancy and efficacy measures that assess several different facets of other-gender relationships and they showed intriguing relations to school belongingness.

The Present Study

Prior literature provides a strong foundation for continuing the exploration of the nature of GI and its impact on school belongingness. While these studies provide initial insights into the importance of other-gender relationships for feelings of belongingness, they leave unanswered several questions about the role of other-gender relationships. First, they were conducted on one data set and so additional studies examining these questions using a different sample are vital. Second, these studies do not address the issue of whether the relationships early in the school year predict belongingness later in the same school year. Instead, they predict from one year to the next year where students are with different classmates. To explore the idea that early other-gender relationships improve school belongingness within classrooms, it is crucial to understand whether increased other-gender peer interactions have positive impacts on changes *within the*

same school year. The significance of addressing this question is, if these changes are seen within a span of an academic year, teachers may be able to modify these interactions for the benefit of students in the class. Teachers would have added motivation to give students opportunities for other-gender peer interactions.

Furthermore, questions about the nature of other-gender expectancies remain to be answered. One concerns whether elementary school students will show any evidence of changes in their expectancies about other-gender peers over the course of a school year. Because elementary students tend to remain with the same classmates over the course of the day, this allows for many opportunities to get to know each other, and as such, their experiences may change their expectancies over time. For this reason, we are interested in identifying any broad changes from Fall to Spring in these measures. We explored this issue by examining if the various measures of expectancies of inclusion, social costs, and efficacy about other-gender peers changed over the course of one academic year (Research Question 1; RQ1) in students in 3rd, 4th, and 5th grade. We controlled for general peer expectancies by including same-gender measures of the same constructs as covariates.

The measures used to assess students' expectancies about peers tapped into their expectancies of inclusion, expectancies about social costs of interacting, and efficacy with both same- and other-gender peers, allowing for multiple perspectives on students' relationships. We also examined the interrelations among these variables (RQ2). Prior research has illustrated that these measures are related to one another (Andrews, et al., 2016; Field, et al., 2017) and we expanded on this research by examining how these interrelationships change over the course of one academic year. Based on Intergroup Contact Theory (Miller et al., 2013), we expected that other-gender inclusion and efficacy would be positively related to each other bidirectionally over

time (H1). That is, T1 other-gender inclusion would positively predict T2 other-gender efficacy, and T1 other-gender efficacy would positively predict T2 other-gender inclusion. Similarly, other-gender social costs would be negatively related to other-gender inclusion and efficacy bidirectionally over one academic year (H2).

We next focused attention on the major question of this research, that is, does variability in expectancies of other gender peers (as an indicator of GI) have significant consequences for school belongingness (i.e., school liking and classroom supportiveness) within the span of one academic year (RQ2). To expand upon prior research, we examined whether GI with other-gender peers early in the school year predicted changes in school belongingness measures, while controlling for same-gender expectancies. The control of same-gender expectancies was important: by doing so, we were able to assess the unique contributions of other-gender expectancies. We expected that other-gender expectancies of inclusion (H3) and efficacy (H4) developed early in the school year would be positively predictive of changes in school liking and classroom supportiveness, and other-gender expectancies associated with social costs would be negatively predictive of these outcomes (H5) above the contributions of control variables.

Finally, to better understand the relations between GI indicators and children's school belongingness, we explored whether these relations might differ across different genders, grades, and ethnicities. Because of a large proportion of Latinx students in the sample, we were able to explore whether Latinx students and non-Latinx students would show similar patterns. In sum, for RQ3, we explored whether child gender, grade, and ethnicity moderated the path models in RQ2 and RQ3.

Method

Participants

Participants were 515 school-age children in grade 3, 4, and 5 (51.1% boys; *M*age = 9.08, *SD* = 1.00). Students were recruited from 26 classrooms in three public elementary schools (*ns* = 7, 10, and 12 from each school) in a Southwestern metropolitan area in the U.S. Minority enrollment of these schools were 60%, 56%, and 69% (state average was 61%). Further, for each school, 54%, 32% and 40% of students were eligible for free lunch (state average was 33%), and 11%, 7%, 11% of students eligible for reduced lunch (state average was 11%). Because of our interest in students' relationships, we aimed for at least 50% participation rate per class and met that for most classes. Among the 26 participating classes, there was a participation rate of at least 60% of students for 20 classes (average participation rate = 75.4%), and the remaining six classes had consent rates ranging from 40% to 58.8% (average = 53.2%). Thus, the overall participation rate was 70.3%. The number of participating students in the class ranged from 10 to 25 with an average of 21 participating students in a class. Students stayed with the same classmates throughout the day even though in some circumstances, all students in a class would shift to different classes/teachers for math. Using a short-term longitudinal design, data were collected in the Fall (T1) and Spring (T2) semesters over the course of one academic year. There were 477 students who had data at both time points. Twenty-seven students had data only at T1 (attrited at T2) and 14 students had data only at T2. Overall, there were 174 (33.8%) 3rd graders, 177 (34.4%) 4th graders, and 164 (31.8%) 5th graders. Ethnically, 242 students (47%) were non-Latinx, 221 (42.9%) were Latinx, and 52 (10.1%) had unknown ethnicity.

Procedures

Procedures of the study received approval by the Institutional Review Board of the university as well as participating school districts. Parental consent for their child's involvement in the study was acquired. Parents reported demographic information (gender, ethnicity).

Teachers were also recruited and consented to participate in the study. Children were asked to give their assent at the beginning of data collection. Data were collected at two time points in October (T1) and May (T2) in large group settings within each school. Students filled out a paper-and-pencil survey about their gender attitudes, identity, and academics for approximately one hour. Each child had a privacy screen so their answers could not be seen by others around them. During this time, one research staff member administered the survey by reading the questions aloud and several trained research assistants facilitated the assessment process by answering students' questions and supporting any students with reading/writing difficulties. To keep the students on pace with the survey reader, the surveys were designed to be easy to follow with clearly marked page numbers in big triangles and circles, and there were "stop" signs after each section. At the end of each assessments, students received a small gift for their time.

Measures

School Liking

At both T1 and T2, students reported their school liking by rating 10 items (e.g., "Are you happy when you're at school?") on a 3-point scale (1 = *no* to 3 = *yes*) (Ladd et al., 2000; Ladd & Price, 1987). There were five negatively worded items (e.g., "Is school terrible?") and they were reverse coded. A school liking scale was created by averaging all items at each time point. Internal consistency (αs) was .93 and .94 at T1 and T2, respectively.

Classroom Supportiveness

At both T1 and T2, students reported their perceptions of classroom supportiveness by rating 14 items ("Students in my class treat each other with respect") on a 5-point scale (0 = *strongly disagree* to 4 = *strongly agree)* (Battistich et al., 1995). An overall classroom supportiveness scale was created by averaging all items at each time point. Internal consistency

(αs) was .86 and .90 at T1 and T2, respectively.

Gender-based Inclusion and Costs Expectancies

At each time point, students' expectations of gender-based inclusion/enjoyment and costs of teasing/discomfort were assessed using a vignette measure (Andrews et al., 2016; Zosuls et al., 2011, 2014). There were two situations: a "pair" situation stating, "Imagine that in school, the teacher is having everyone do a new activity and all the kids have to pair up in groups of two. There is only one seat left and it is next to a (boy/girl)" and a "group" situation, "Imagine that in class, everyone is working on group projects about different types of animals. You had to come to class late, so the teacher told you to join whichever group was assigned the animal you are most interested in working on. The group assigned to your favorite animal is made up of all (boys/girls)."

Following each scenario, students were asked to rate their Inclusion expectancies (e.g., Do you think the [girls/boys] would let you join in?) with four items, and their Costs expectancies (e.g., "Do you think other kids would tease you for joining the [boys/girls?]") with five items. All items were rated on the same 5-point scale (0 = *no, not at all* to 4 = *yes, definitely*), and were then recoded into same- and other-gender items. Two scales were computed for Inclusion and two scales for Costs by averaging the relevant items for the same-gender (SG) and other-gender (OG) scenarios. All scales had high internal consistency (at T1 and T2 respectively, αs = .90 and .85 for SG Inclusion; αs = .91 and .89 for other-gender OG Inclusion; αs = .92 and .92 for SG Costs; αs = .94 and .94 for OG Costs). Each scenario was presented twice: once for same-gender peers and once for other-gender peers. At T1, both scenarios were administered. Students' responses about the pair and group scenarios were highly correlated at T1 (*rs* = .69 and .74 between the dyad and group scenarios for same-gender [SG] Inclusion and other-gender [OG]

Inclusion; rs = .65 and .69 between the two scenarios SG Cost and OG Costs), As such, at T2, only the group scenario was administered in order to reduce survey length and participant burden. We averaged the scores for both group and pair scenarios to create T1 composites, and we used the group scenario at T2.

Gender-Based Relationship Efficacy

At each assessment, students rated their efficacy beliefs about interacting with boy and girl classmates with a 14 item Gender-Based Relationship Efficacy scale (e.g., "How much do you know how to work on school projects or assignments with [girls/boys]?"). Each item was rated on a 5-point scale (from 0 = *not at all* to 4 = *a lot*) (Zosuls et al., 2014). Responses were averaged and recoded (boy/girl to own-gender/other-gender) to create separate scores for same-gender (SG) Efficacy and other-gender (OG) Efficacy. Internal consistency was high (αs = .92 for both SG Efficacy and OG Efficacy). The two scales have been demonstrated to be independent in prior research (Zosuls et al., 2014).

Overview of Analytic Plan

We conducted descriptive analyses (including attrition analysis) in SPSS and ran main analyses with *Mplus* 8.4. First, we examined demographic variables (i.e., gender, grade, ethnicity) to determine which variables to include as covariates. Specifically, we used analysis of variance (ANOVA) and independent samples *t*-test to compare mean differences in all of the dependent variables in this study by these demographic variables. Next, we examined intraclass correlations (ICCs) due to potential data dependency (n = 26 classes). ICCs were .05 and .18 for school liking and classroom supportiveness, respectively, indicating substantial class-level variance (Hox, 1998). To account for the variance explained by class membership, we used the TYPE = Complex command to adjust for standard errors.

To assess within-person longitudinal changes over the year in the measures of other-gender inclusion, costs, and efficacy (RQ 1), two-wave latent change score models (Henk & Castro-Schilo, 2015) were estimated for each measure. The direction of change is indicated by the latent mean of a change score (e.g., a positive and statistically significant latent mean score would indicate significant within-person increases over time for the construct). In instances when the latent change variance was significant, this suggests that there are substantial between-person variabilities in the within-person change (e.g., not everyone showed significant increase for a construct); when that occurred, we explored whether gender and grade might explain these between-person variabilities by regressing the latent change scores on gender and grade.

To assess relations among the major measures (inclusion, costs, efficacy) concurrently and longitudinally (RQ 2), we estimated a path model in which other-gender (OG) inclusion, costs, and efficacy at T2 were specified as outcome variables, T1 OG variables were included to account for construct stability, and same-gender (SG) inclusion, costs, and efficacy at T1 specified as covariates along with other demographic variables when appropriate (e.g., gender, grade). Further, cross-lagged paths among OG variables were included to estimate longitudinal bidirectional relations among variables, to test H1 and H2.

To assess the role of inclusion (H3), costs (H4), and efficacy (H5) in predicting school liking and classroom supportiveness (RQ 3), we estimated a longitudinal path model with T1 OG inclusion, costs, and efficacy as predictors and T2 school liking and classroom supportiveness as outcome variables. Further, we included construct stability and covariates including SG variables of the predictors and appropriate demographic variables (e.g., gender, grade).

Finally, to examine the possibility of moderation (RQ 4), we conducted multiple group analyses with child gender, grade, and ethnicity as the grouping variables to explore potential

moderation for the path models. We specified and estimated an unconstrained model in which all path coefficients were allowed to freely estimate for each subgroup as well as a fully constrained model. We then used the Satorra-Bentler Chi-Square difference test (Satorra & Bentler, 2001) to compare these models. If the models did not differ, we would keep the fully constrained model as the final model and conclude there was no sign of gender moderations; if the models differed, this would indicate gender moderation. In this case, we would further probe moderation by releasing paths (one at a time) to be freely estimated across the subgroups based on both theory and modification indices, and then compare the more constrained model with the freely estimated model to determine which paths differed significantly based on child gender.

Results

Attrition Analyses

There were 27 students who attrited at T2. Pearson chi-square tests showed that attrited students did not significantly differ from the non-attrited students in child gender, grade, ethnicity (i.e., Latinx, non-Latinx, versus Other/Unknown), or any of the continuous variables in the study. This indicates that attrition-related missingness was missing at random (MAR) which refers to when the missing mechanism is systematically associated with one or more observed variables (Enders, 2010). Thus, the default missing data treatment in *Mplus* (i.e., Full Information Maximum Likelihood; FIML) is appropriate because FIML assumes an MAR missing data mechanism (Muthén & Muthén, 2017). We included race (i.e., multiracial versus other) as an auxiliary variable to account for this missingness.

Descriptive Analyses

Means, standard deviations, and correlations for the main variables among the total sample were presented in Table 1. To establish that OG and SG expectancies differed, gender

differences were examined in the inclusion, costs, and efficacy measures. All showed gender

differences. As Table 2 shows, both boys and girls had higher SG Inclusion than OG Inclusion

($ps < .001$, $\eta p^2 = .48, .40$), higher SG Efficacy than OG Efficacy ($ps < .001$, $\eta p^2 = .57, .53$), and

lower SG Costs than OG Costs ($ps < .001$, $\eta p^2 = .38, .39$). These findings also support the notion

that OG ratings indicate gender integration.

To determine which demographic variables to include as covariates, we compared means

on the dependent variables (at T2) by child gender, grade, and ethnicity. Independent samples *t*-

tests showed that girls had higher scores on T2 school liking and OG Inclusion than boys, *ps* <

.001, and higher T2 OG Efficacy than boys, $p < .05$, whereas girls had lower scores on T2 OG

Costs than boys, $p <= .001$ (see Table 2). Thus, gender was included as a covariate to predict

these variables. Using ANOVAs, there were some significant grade differences for T2 school

liking, $p < .01$ (5th graders, $M = 2.02$, had lower scores than 4th graders, $M = 2.38$). Further, there

were grade differences for T2 classroom supportiveness, $p <= .001$ (5th graders had lower T2

classroom supportiveness than 4th and 3rd graders). There were no other grade differences.

ANOVAs also showed differences by ethnicity for T2 school liking, $p < .05$ such that non-Latinx

children ($M = 2.37$) scored significantly higher than Latinx ($M = 2.12$) and Other/Unknown

children ($M = 2.09$). Therefore, grade and ethnicity were also included as control variables.

Overall, almost all study variables were correlated both within time and across time in

expected directions (see Table 1). Further, both same-gender and other-gender variables for

Inclusion, Costs, and Efficacy were significantly correlated in expected directions with school

liking and classroom supportiveness, although Efficacy showed somewhat fewer significant

correlations.

Inferential Analyses

Longitudinal Changes in Inclusion, Social Costs, and Efficacy (RQ 1)

Latent change score analysis showed that, over time, children experienced decreased other-gender (OG) inclusion expectancies ($\mu = -.12$, $p < .05$) and efficacy ($\mu = -.18$, $p < .01$), whereas their OG costs expectancies did not change in levels over time ($\mu = -.04$, $p = .529$). Further, there were substantial variabilities of within-person changes for all three constructs (i.e., significant latent variances). To explain these variabilities, we further examined moderation by grade, gender, and ethnicity for expectancies of inclusion and efficacy. Specifically, these variabilities were not explained by ethnicity; however, there was a significant increase in OG inclusion among 4th (from $M = 1.90$ to 2.14) and 5th (from $M = 1.90$ to 2.08) grade girls, whereas boys *decreased* in OG inclusion (although it was significant only for 3rd (from $M = 1.93$ to 1.55) and 5th grade boys (from $M = 2.11$ to 1.48), not 4th grade boys). Further, 4th (from $M = 1.97$ to 1.57) and 5th (from $M = 1.91$ to 1.55) grade boys decreased in OG efficacy, whereas 3rd grade boys and girls did not experience change in OG efficacy (see authors for details).

Longitudinal and Concurrent Relations among Inclusion, Costs, and Efficacy
(RQ 2)

Path analysis showed that the rank ordering of children's ratings of OG Inclusion, OG Costs, and OG Efficacy were all stable over time. For the inter-relations among these variables, we found support for H1: there was longitudinal bidirectional prediction between OG Efficacy and OG Inclusion over time. H2 was partially supported: OG inclusion and OG social costs were not bidirectionally related over time. Instead, only T1 OG Inclusion negatively predicted T2 OG social costs, and contrary to H2, OG Efficacy was not related to OG costs over time. Further, although predictions of relations between SG and OG variables were not made, T1 SG Costs also negatively predicted T2 OG Inclusion (see Figure 1 for the standardized parameter estimates of

this model). In summary, several of the predicted relations tended to be supported, but not always with bidirectional paths.

Prediction of School Liking and Classroom Supportiveness from Inclusion, Social Costs, and Efficacy (RQ 3)

For RQ3, path analysis examining how GI measures of inclusion, costs, and efficacy predicted school belongingness measures over the course of the year showed that children's T1 OG Inclusion was the only significant predictor for both school liking and classroom community; it positively predicted their T2 school liking and T2 classroom community over and above construct stability and covariates. Therefore, H3 was supported. However, H4 and H5 were not supported, because OG Efficacy and OG Costs were unrelated to school liking and classroom community. We should note that SG Inclusion, SG Costs, or SG Efficacy were not predictive of these outcomes either (Model fit: χ^2 [14] = 9.46, p = .801, CFI = 1.00, SRMR = .01, RMSEA = .00 [.00, .03]; Figure 2 presents the standardized parameter estimates of this model).

Moderation by Gender and by Grade (RQ 4)

Multiple group analysis with gender as a grouping variable yielded only a few differences between girls and boys in the pattern of relations among variables. For the inter-relations among inclusion, costs, and efficacy (RQ 2), the fully constrained model differed from the freely estimated model, $\chi^2_{\text{diff}}(20)$ = 35.15, p < .05. One path differed for boys and girls: T1 SG Costs positively predicted T2 OG Efficacy for boys, (b = .18, p < .05), but not for girls, (b = -.12, p = .305). When school liking and classroom supportiveness were included (RQ 3), there were no additional gender moderations. Multiple group analysis with grade as a grouping variable to test grade as a moderator revealed no grade-related differences for the inter-relations among inclusion, costs, and efficacy (RQ 2), $\chi^2_{\text{diff}}(42)$ = 50.08, p = .183, or for the relations among these

variables and children's school liking and classroom supportiveness, $\chi^2_{\text{diff}}(72) = 72.12$, $p = .474$.

Similarly, exploratory multiple group analyses with ethnicity ($n = 463$; Latinx vs. non-Latinx

children[1]) as a grouping variable showed no moderation for RQ 2, $\chi^2_{\text{diff}}(43) = 54.64$, $p = .110$, or

for RQ 3, $\chi^2_{\text{diff}}(40) = 53.59$, $p = .074$. Thus, most of the relations tested in this study did not

differ by child gender, grade, or ethnicity.

Discussion

With gender topics being in the news and central to issues in schools, it is surprising that

the gender of peers in students' classrooms has not be a focal issue for research. The present

study begins to fills this gap. The purpose of the present investigation was to provide deeper

understanding of how gender plays a role in school belongingness, especially through

consideration of students' relationships with other-gender peers. With a few recent exceptions

(Andrews et al., 2016; Field et al., 2017), little attention has been paid to the gender dynamics of

classrooms, and particularly to the potential impact of students' relationships with other-gender

peers. When gender is considered in the classroom, it is often in the form of examining gender

differences. Here, we expanded upon that perspective by exploring the nature of GI and its

consequences on measures of school belongingness. Specifically, our goals were to examine

three gender-relationship expectancies that children hold of other-gender peers; namely,

inclusion, efficacy in communication and interaction, and the social costs of interacting with

other-gender peers. We examined how these expectancies related to one another, how they

changed over the course of a school year, and then focused on our major question of how these

expectancies related to two school belongingness measures (school liking and classroom

supportiveness).

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[1] In this model, the "Other/Unknown" group ($n = 52$) was removed due to uneven cell sizes (the model did not fit the data well when this small group was included).

Students' Expectancies about Relationships

One of the goals of this research was to explore the interrelations among several expectancy measures. It is worth noting that each of these expectancy measures provides different insights of how well gender-integrated (GI) a student feels within a class, and including multiple indicators of GI is important in future research. Furthermore, it is important to separately assess same- and other-gender peer expectancies to discern the degree to which students held an ingroup versus outgroup perspective on their classmates. Consistent with gender development theories such as Gender Schema Theory and Developmental Intergroup Theory (Bigler & Liben, 2006; Martin & Halverson, 1981; Martin et al., 2002) and earlier research (Andrews et al., 2016; Field et al., 2017), we expected to find the ingroup-outgroup pattern. According to these theories and research, children develop differing and usually more positive expectations about their gender in-group (same-gender peers) versus outgroup members, and often show preferential behavior toward in-group members (Powlishta, 1995, 2004). The results provided strong support for this pattern: Students did not report a general sense of "I feel included by peers"; instead, for instance, they differentiated their responses according to the whether the peers were members of their in-group. And such differentiated patterns were found across all three measures (i.e., expectancies of inclusion, social costs, and efficacy). In all cases, bias in favor of students' own group prevailed. This finding points to the value of using same-versus other-gender-differentiated measures in research rather than more global measures (Martin et al., 2018). Lastly, the different responses to questions about same-gender and other-gender peers and the higher variability in other-gender versions of these constructs provided support for our use of other-gender versions of the expectancies measure as indicative of GI.

During the course of an academic year, students have many opportunities to engage with their classmates, as such, GI might change over time. Overall, we could discern no general patterns of change over time that were consistent across all grades and genders. Instead, students varied over time on each of the three expectancy measures of other-gender inclusion, costs, and efficacy. More fine-grained analyses of individual students over many classrooms using measures of actual contact and quality of contact may be needed to understand the conditions under which the informal nature of coeducational schooling for students in elementary school becomes effective intergroup contact – meaning that the contact influences attitudes (Allport, 1954; Fabes et al., 2018). Moreover, it might be important to assess the degree to which contact among children of different genders is positive and collaborative, since those conditions should heighten tendencies to have successful intergroup contact. There were some patterns of change that varied by gender and grade: Older girls reported higher other-gender inclusion expectancies over time than younger girls. In contrast, older boys reported lower efficacy with other-gender peers over time. The asymmetry of patterns may reflect global gender differences and developmental changes in peer relationships. For instance, girls may be more attentive to and protective of relationships or navigate changes in relationships more easily (Field & Martin, 2016; Leaper & Smith, 2004). Alternatively, particularly if they have previously had high levels of gender-segregated interactions, boys may lack knowledge and skills to successfully navigate these early other-gender interactions and so feel lower efficacy and feel less included by other-gender peers over time. Whereas gender differences in peer relationships likely relate to these measures of gender integration, a major question for future research is to explore how these expectancies of inclusion, costs, and efficacy relate to documented gender differences

concerning the nature of networks, goals and behavioral tendencies within peer groups (Rose & Smith, 2018).

The analyses outlining the interrelationships over time in inclusion, social costs, and efficacy with other-gender peers showed that efficacy and inclusion were bidirectionally related longitudinally to each other. These patterns confirmed the potential of a gender-integration cycle in which having more contact with other-gender peers leads to a variety of positive outcomes, including lower stereotyping, more positive attitudes, improved efficacy, and more comfort and inclusion (Miller et al., 2013). Other findings suggested directional paths needing further investigation, such as between earlier other-gender inclusion predicting lower future other-gender social costs (but not the reverse). Many have speculated that teasing and other social costs related to other-gender interactions promotes and maintains gender segregation (Sroufe et al., 1993; Thorne, 1986). The present findings suggest a different pattern: earlier experiences of costs associated with other-gender peer interactions did not predict later feelings of exclusion (low inclusion) by other-gender peers. Instead, we identified a seldom-studied pathway in which students who reported initial low levels of inclusion later reported higher levels of social costs. Not feeling included by other-gender peers may heighten rejection sensitivity (Downey et al., 1998) or change the interpretations of cues from other-gender peers (Crick & Dodge, 1994), thereby making later social costs more salient, more memorable, or perceived as more negative.

Does Early Gender Integration Predict Later School Belongingness?

The major goal of the present research was to examine how gender integration in the classroom (e.g., other-gender inclusion, costs, and efficacy) was related to school belongingness outcomes, specifically, school liking and classroom supportiveness. Although there are many contributors to school liking and to feeling included in the classroom, including teacher-student

relationships, a sense of unity and of a caring community, low competitiveness, and positive relationships with other students (Bouton et al., 2011; Solomon et al., 2000; Wentzel, 2009; Wentzel & Caldwell, 1997; Zedan, 2010), we focused on student-student relationships, and expanded the research focus to include consideration of the same- and other-gender peers within classrooms rather than general peer acceptance or rejection. We also examined this over the course of one year to explore whether relationships *within a class* related to changes in school liking and classroom supportiveness.

Consistent with many research studies demonstrating the importance of students having a sense of belonging in their classes (Master & Walton, 2013; Walton et al., 2012), in zero-order correlations, we found that our measures of GI were all related in expected ways to school belongingness measures, with inclusion and social costs concerning other-gender peers being more strongly related than was efficacy. However, when we controlled for the same-gender variables, stability of constructs, and other covariates, we found that only other-gender inclusion predicted later school-related outcomes. While the effects were not strong, finding significant effects with so many covariates included in the model is notable. These findings suggest that relationships with other-gender peers may play a unique role in belongingness. Same-gender expectancies appeared to play a small or non-significant role in these outcomes. It is difficult to imagine feeling a strong sense of community without feeling comfortable and included by other-gender peers, because other-gender peers likely constitute a significant proportion of a student's classmates. Having a strong sense of community, by definition, would suggest positive relationships among most, if not all, students in a class. Further, controlling for same-gender inclusion enabled us to examine the role of other-gender expectancies as unique predictors of belongingness (e.g., Martin & Fabes, 2001).

A unique feature of the present study was illustrating that students' feelings of inclusion with other-gender peers matter over the course of a single academic year. That is, students' feelings of inclusion early in the school year was uniquely predictive of later school liking. Earlier research found a "carryover effect" in feeling included by other-gender peers in classrooms in a prior year related positively to school liking in the following year, when students were with a different group of peers (Andrews et al., 2016). We designed our study to discern whether this effect would be apparent at a more proximal level, that is, whether it is the relationships with students within a classroom (proximal) that matter to school liking rather than having a generally positive view of classmates that carries over from year to year (distal). The distal effect may be a personality disposition; a proximal effect, however, would suggest that gender integration may be more easily modifiable by educators. For that reason, we felt it important to test the proximal pattern: the expectancies students developed about the peers they are in contact with over the course of an academic year might change their school liking (for better or worse) rather than this being due to a general sense of being liked by other students. The proximal pattern was demonstrated: expectancies about other-gender peers had a positive impact on school liking *within the same school year.* This finding is significant, as this provides teachers with added motivation to encourage students to engage more than they already do in other-gender peer interactions, and further, for them to support students' development of positive expectancies and attitudes about other-gender peers. Educators may also have added incentives to develop strategies early in the school year to promote positive growth in attitudes toward school.

Recommendations for Teachers

As relationships with other-gender peers are important for school belongingness, educators should devote more attention to peer relationships in general and to other-gender peer relationships in particular (Fabes et al., 2018). Research has demonstrated that teachers can influence the relationships students have with each other in a variety of ways (Gest et al., 2014; Madill et al., 2014; Vollet et al., 2017), including through reinforcement (Serbin et al., 1977), seating arrangements, and even in the labeling of students in their classes (Hilliard & Liben, 2010). For example, in a classic study, Serbin and colleagues found that when teachers acknowledged or reinforced girls and boys interacting together, these types of interactions increased over time (Serbin et al., 1977). Pairing other-gender students in "buddy" dyads or groups may also be effective in increasing other-gender interactions (Hanish et al., 2021).

Strengths, Limitations, and Future Directions

This study addressed an important and mostly overlooked (or invisible) issue in coeducational classrooms. Specifically, although boys and girls are in the same classroom together, we know little about how their relationships contribute to their feelings about each other and about school in general. This study contributed toward understanding these critical dimensions of classroom relationships and interactions.

As with any study, the present study had strengths and weaknesses. One strength was the longitudinal design. Although relatively short-term, we were able to assess mean level intraindividual changes over time, as well as examine how expectancies reported in the Fall of an academic year related to changes in outcomes reported in the Spring. The two-wave longitudinal design of the present study allowed for examining within-person change over the course of the academic year, but future research may consider including more waves of data collection that would enable an assessment of changes over longer periods of time. Furthermore, the measures

of belonging, inclusion, and comfort in interactions with other students were all student reports, which may be appropriate for the types of measures used here that reflect students' own attitudes and feelings, but this results in a mono-informant design. Future studies may extend measures to capture more nuances in students' sense of belonging. Developing belongingness measures that also tap into different contexts could be interesting as they may indicate that belonging varies substantially depending on classroom focus (e.g., feelings of belongingness during math might differ from feelings of belongingness during reading). Collecting information from additional perspectives is an interesting challenge for future researchers and will help to answer the question of how students' views relate to others' views of students' belonging, inclusion, and comfort in interactions. Finally, although it is reasonable to focus on other-gender inclusion, costs, and efficacy, considering how these expectancies vary across every member of the classroom would likely add additional clarity to the construct of gender integration.

Several of the findings from the present research have implications for how peer relationships are studied. In particular, future research should consider more seriously the finding that other-gender expectancies provide unique information about belongingness that goes beyond what is given by same-gender expectancies. These other-gender interactions appear to play important roles in children's social experiences. While same-gender relationships are clearly significant in children's lives, other-gender relationships play roles that require further investigation by peer researchers. How girls and boys differentially relate to peers of the same- and other-gender is also worthy of additional research and especially for early adolescents. Furthermore, measures of same- and other-gender inclusion, social costs, and efficacy should be employed more frequently in research on peer relationships given the ingroup bias demonstrated in these measures.

Future research should expand to include older students, especially because adolescence is a time of considerable change for youth and their peer environments. Moreover, research enlisting wide variation in participant gender and sexual identities would be fruitful to explore how students who are gender non-conforming, transgender, or sexual minorities report patterns of expectancies about inclusion, efficacy, and social costs and whether these are similar or different than those of gender conforming students, and whether the links between expectancies and school belongingness outcomes is similar or differs. Given COVID-19 restrictions on social interactions and schooling restrictions, questions about whether same- and other-gender peer relationships might be differentially impacted should be explored. How students return to their classrooms and how to better enhance their feelings of belonging within those classrooms are questions of vital importance. Finally, expanding our understanding gender integration to explore how it relates to other forms of integration and sense of community may provide insights into how to reduce tribalism and segregation, and this is an interesting direction for future research efforts.

Conclusions

The present study provides an important step towards making visible what may be a largely unseen problem to educators – that is, the lack of gender integration in classrooms. This step involved exploring potential measures or indicators of gender integration and their links to school outcomes. Students' relationships in the classroom, and especially with other-gender peers, play an important role in school belongingness. The present findings extend prior research in two ways. First, by exploring a variety of GI measures, we demonstrated differing aspects of belonging with other-gender peers. Specifically, we illustrated how changes in students' expectancies of inclusion, costs, and efficacy with other-gender peers occur over the course of a year, how these expectancies inter-relate. Second, our key concern was examining how these expectancies relate to two measures of school belongingness outcomes—school liking and

classroom community. The findings demonstrated that relationships with other-gender peers

matter and educators should encourage and support these relationships.

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Table 1

Descriptive Statistics and Correlations among Main Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 T1 SG Inclusion	--												
2 T1 OG Inclusion	.11*	--											
3 T2 OG Inclusion	.09	.50***	--										
4 T1 SG Costs	-.35***	.04	-.10*	--									
5 T1 OG Costs	-.08	-.27***	-.12*	.34***	--								
6 T2 OG Costs	-.19***	-.23***	-.36***	.22***	.44***	--							
7 T1 SG Efficacy	.42***	.03	.003	-.27***	-.14**	-.08	--						
8 T1 OG Efficacy	.05	.50***	.42***	-.07	-.20***	-.18***	.15***	--					
9 T2 OG Efficacy	.05	.32***	.54***	.02	-.04	-.20***	.04	.47***	--				
10 T1 School	.25***	.24***	.20***	-.12**	-.11*	-.10*	.10*	.11*	.09	--			
11 T2 School	.13**	.21***	.29***	-.11*	-.10*	-.17***	.07	.05	.12*	.62***	--		
12 T1 Class	.32***	.26***	.11*	-.24***	-.20***	-.13**	.33***	.07	-.02	.43***	.27***	--	
13 T2 Class	.22***	.25***	.20***	-.18***	-.19***	-.21***	.18***	.13**	.10*	.32***	.42***	.57***	--
Mean	3.12	1.97	1.85	.71	1.65	1.61	3.46	2.00	1.82	2.57	2.23	2.59	2.37
Min	0	0	0	0	0	0	0	0	0	0	0	.38	.38
Max	4	4	4	4	4	4	4	4	4	4	4	4	4
SD	.83	1.00	1.10	.87	1.18	1.27	.78	1.15	1.14	1.00	1.04	.71	.78
N	493	493	464	491	490	465	484	484	457	495	477	485	467

*Notes. * p<.05. ** p < .01. *** p < .001.*

T1 = Fall semester; T2 = Spring semester; SG = same-gender; OG = other-gender; Efficacy = gender-based relationship efficacy;
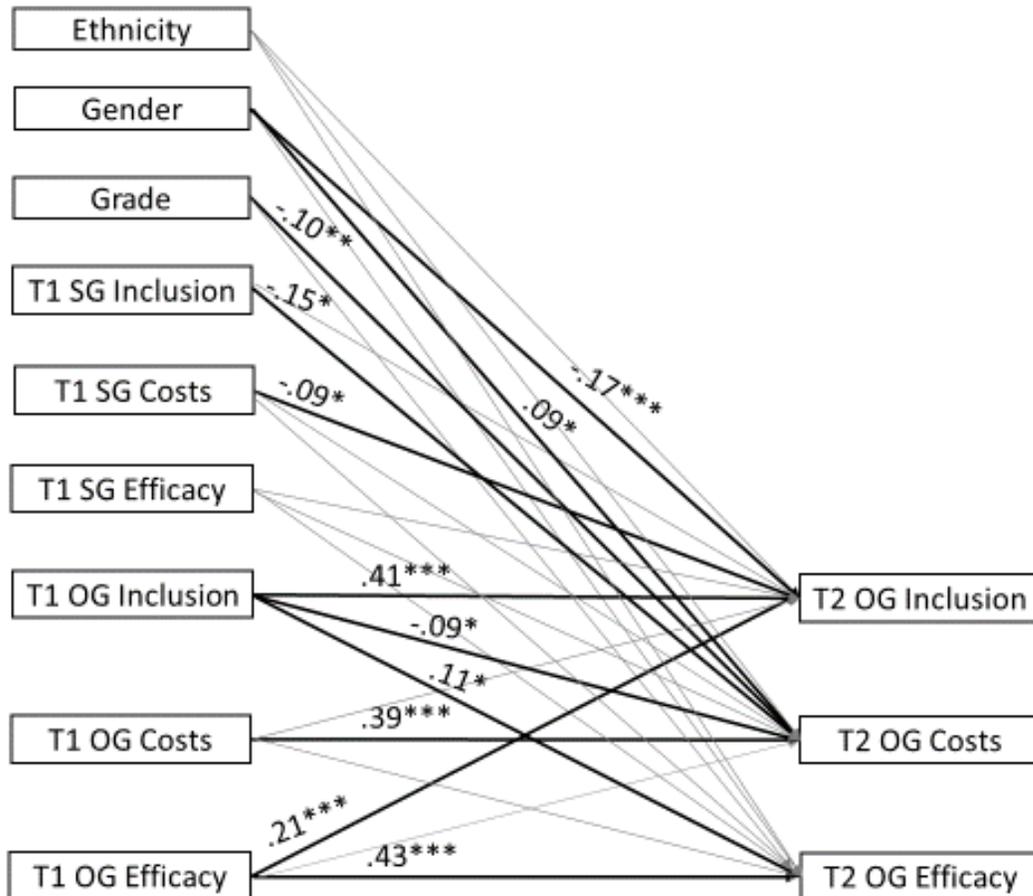
Class Support = Classroom Supportiveness.

Table 2

Means and Standard Deviations of Study Variables by Gender

	Girls			Boys		
	M	SD	N	M	SD	N
T1 SG Inclusion	3.26	.80	243	2.97	.84	250
T1 OG Inclusion	1.94	.90	243	1.99	1.09	250
T2 SG Inclusion	3.08	.94	233	3.01	.89	231
T2 OG Inclusion	2.07	.97	233	1.62	1.17	231
T1 SG Costs	.51	.74	242	.90	.95	249
T1 OG Costs	1.55	1.15	241	1.75	1.19	249
T2 SG Costs	.42	.80	233	.68	.91	231
T2 OG Costs	1.42	1.19	233	1.80	1.32	232
T1 SG Efficacy	3.40	.83	240	3.52	.73	244
T1 OG Efficacy	2.07	1.11	243	1.92	1.18	241
T2 SG Efficacy	3.20	.92	230	3.36	.89	227
T2 OG Efficacy	1.95	1.11	231	1.68	1.15	226
T1 School Liking	2.75	.87	244	2.39	1.07	251
T2 School Liking	2.41	.96	238	2.06	1.10	239
T1 Class Support	2.63	.69	238	2.54	.73	247
T2 Class Support	2.41	.76	234	2.34	.79	233

Notes. T1 = Fall semester; T2 = Spring semester; SG = same-gender; OG = other-gender; Efficacy = gender-based relationship efficacy; Class Support = Classroom Supportiveness.

Figure 1

Standardized Parameter Estimates for the Relations among Inclusion, Costs, and Efficacy

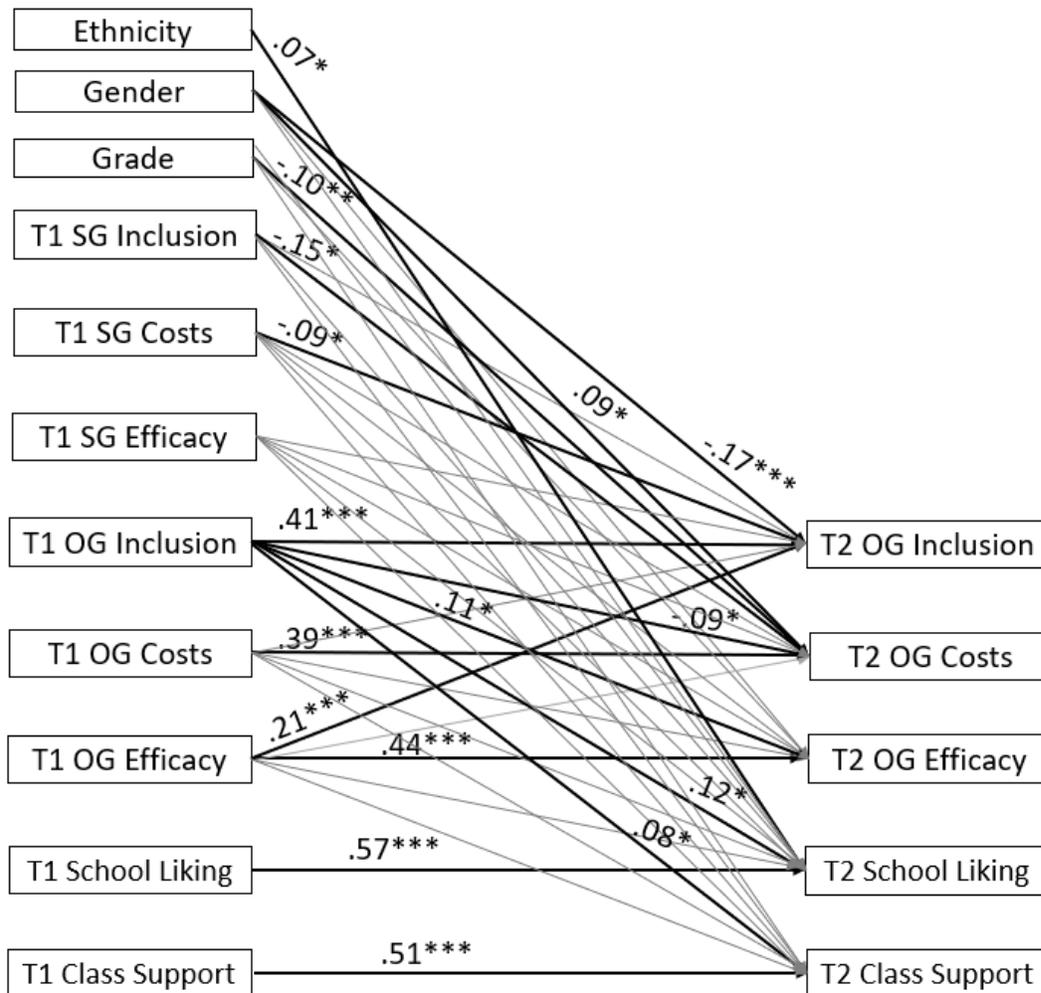*Notes: * p<.05. ** p < .01. *** p < .001*

Bolded paths were statistically significant, and coefficients for these paths were included. All exogenous variables were allowed to correlate, and endogenous residuals were allowed to covary, although not shown in the figure. T1 = Fall semester; T2 = Spring semester; SG = same-gender; OG = other-gender; GBRE = gender-based relationship efficacy.

Figure 2

Standardized Parameter Estimates for Prediction of School Liking and Classroom

Supportiveness

*Notes: * p<.05. ** p < .01. *** p < .001*

Bolded paths were statistically significant, and coefficients for these paths were included. All exogenous variables were allowed to correlate, and endogenous residuals were allowed to covary, although not shown in the figure. T1 = Fall semester; T2 = Spring semester; SG = same-gender; OG = other-gender; GBRE = gender-based relationship efficacy; Class Support = Classroom Supportiveness.