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## Relationship Education and Classroom Climate Impact on Adolescents' Standards for Partners/Relationships

*The effectiveness of relationship education has been supported for youth in correcting faulty relationship beliefs and forming conflict management skills; however, there is very limited research addressing whether relationship education matters for building or modifying relationship standards for romantic partners or relationships. Furthermore, whether and how social climate could add to or moderate curriculum effects has not been considered. Using a sample of 1,808 students nested in 106 high school family and consumer science classes in a southern state, this study examined the impact of a general youth-focused relationship education curriculum and classroom social climate on one ideal standard for relationship*

*partners, warmth/trustworthiness, and one for romantic relationships, intimacy/loyalty. Findings revealed significant and positive curriculum main effects on both standards, while controlling for classroom context. The model for warmth/trustworthiness also showed classroom effects adding to curriculum effects. The role of classroom factors needs further consideration as curriculum effects are examined.*

Relationship education for youth has been found to facilitate the correction of faulty relationship beliefs and the development of conflict-management skills (Adler-Baeder, Kerpelman, Schramm, Higginbotham, & Paulk, 2007; Kerpelman et al., 2010); however, there is scarce research addressing whether relationship education matters for building or modifying standards for romantic partners or relationships, particularly those associated with higher quality relationships (for an exception, see Kerpelman, Pittman, Adler-Baeder, Eryigit, & Paulk, 2009). Fletcher, Simpson, Thomas, and Giles (1999) described these standards as continuously accessible knowledge structures pertaining to romantic partners or relationships. Almost no work has considered the potentially independent

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and interactive effects of social context on the emergence of these standards. However, Bronfenbrenner's (1989) ecological theory and the social cognitive perspectives of Bandura (1986) and Dodge (Crick & Dodge, 1994; Dodge, 1986) point to the salience of contextual processes when studying development. In addition, although studies of relationship education using a pretest/posttest design necessarily control for pretest scores in their analyses, few studies consider the possibility that pretest scores may influence the effectiveness of relationship education on an individual and social context level. Kerpelman et al., (2010) is an exception but addresses only the individual level. They found that individuals with the lowest pretest scores on conflict-management skills were the most positively influenced by the curriculum. Therefore, this study aims to test a curriculum effect on two areas of adolescents' relationship standards at posttest, while considering the role of the classroom social context and controlling for participants' standards at pretest as well as demographic characteristics (i.e., age, race, and gender).

#### *The Contents and Function of Partners/Relationships Standards*

Researchers have long studied the desirable or "ideal" characteristics of romantic partners and relationships (e.g., Hill, 1945), and a great volume of work has emerged in this area. However, studies differ in the numbers and types of items they include as well as the dimensions they assess (Buss & Barnes, 1986; Goodwin & Tang, 1991; Simpson & Gangestad, 1992). For example, Simpson and Gangestad (1992) found two dimensions (attractiveness/social visibility and relationship closeness/intimacy) using 15 items; Goodwin and Tang (1991) found three dimensions (kindness/consideration, extraversion, and sensitivity) using a different set of 15 items; and Buss and Barnes (1986) reported nine dimensions (kindness/consideration, socially exciting, artistic/intelligent, religious, domestic, professional status, likes children, politically conservative, and easygoing/adaptable) using 76 items.

Although these studies used adult samples, Fletcher et al. (1999) focused a series of studies on youth (undergraduate students) at the University of Canterbury and produced reliable measures of partner/relationship standards.

Their studies revealed three dimensions that individuals consider ideal for romantic partners (warmth/trustworthiness, vitality/attractiveness, and status/resources) and two that people tend to consider ideal for relationships (intimacy/loyalty and passion). The warmth/trustworthiness dimension represents individual attributes that affect the quality of intimate relationships (e.g., supportive, sensitive, honest, trustworthy, communicative, and affectionate). The vitality/attractiveness dimension includes characteristics reflecting the perceived attractiveness and vigor of the prospective partner (e.g., nice body, sexy, good sense of humor, and attractive). Finally, the status/resources dimension assesses markers of the partner's social status (e.g., good job, financially secure, well dressed, appropriate age, and successful). The first two dimensions for partners are again reflected in the attributes that describe relationships. Specifically, standards for relationships are evaluated in terms of intimacy/loyalty (e.g., respect, trust, loyalty, monogamy, equality, sharing, and acceptance) and relationship passion (e.g., passionate, romantic, similar personalities, and intellectual equality). Through replication and carefully selected questions and analyses, convergent, divergent, and construct validity were demonstrated for assessments of these knowledge structures pertaining to ideal standards for partners/relationships among college-age participants.

The components of the ideal standards described by Fletcher et al. (1999) are rated positively across studies regardless of the age of the relationship participants (e.g., kindness; Buss & Barnes, 1986; Regan, Levin, Sprecher, Christopher, & Cater, 2000), and they tend to be appealing characteristics with advantageous interpersonal consequences (Wiggins, 1979). More than simply desirable traits, Fletcher and Simpson (2000) conceptualized these standards for partners/relationships as the comparison standards described in interdependence theory (Thibaut & Kelley, 1956). In other words, these standards are important because they calibrate ongoing relationship quality and play a pivotal role for making decisions about maintaining and terminating romantic relationships (e.g., Fletcher et al., 1999).

Although there is some debate about whether ideal standards for partners and relationships are important in the context of interpersonal attraction (e.g., Eastwick & Finkel, 2008), once

relationships are formed, the evidence for an association between these preferred characteristics and relationship quality and stability is compelling, supporting the importance of these standards in all ongoing romantic-type relationships. These associations are supported in studies using cross-sectional (e.g., Murray, Holmes, & Griffin, 1996) and longitudinal (e.g., Fletcher & Simpson, 2000) data. To better understand the emergence of relationship and partner standards, this study focuses on the views of adolescents under the assumption that these standards are in the process of forming. Because the characteristics of warmth/trustworthiness and intimacy/loyalty are found in healthy relationships (Moore et al., 2004), we examine whether a general relationship education curriculum intended to address a wide range of relationship topics is influential in shaping the two standards for these characteristics.

#### *The Salience of Relationship Education*

Although much of the research on romantic relationships focuses on adults, it is important to look specifically at the romantic relationships of less experienced individuals to extend what is known about the emergence of standards for partners/relationships. Adolescent romantic relationships therefore are a good target for this research. Adolescence is a good time to examine the role of relationship education because, aside from the processes of identity formation, Erikson (1963) theorized that the other developmentally defining process of adolescence and early adulthood is building one's capacity for intimacy. Some teenagers may not understand what constitutes a healthy relationship and may lack positive role models; thus they may be prone to unhealthy relationships/behaviors (e.g., Kerpelman et al., 2009). For example, they may construe jealousy or frequent text messages as signs of love, and thus acceptable (Teenage Research Unlimited, 2006), instead of a warning sign of abuse (Sorensen, 2007). Teenagers also tend to be unrealistic about romantic relationships and expect their relationships with romantic partners to be nearly perfect (Montgomery, 2005).

Considerable evidence shows that appropriate research-based relationship education tailored for adolescents can minimize the negative outcomes associated with adolescents' romantic relationships by helping teenagers understand the nature of healthy relationships,

establish healthy relationship patterns, develop problem-solving and communication skills, and identify positive role models (e.g., Adler-Baeder et al., 2007; Kerpelman et al., 2009). Adolescents want to learn about relationships (Wood, Senn, Desmarais, Park, & Verberg, 2002), and it can be argued that relationship education should be available to adolescents well before they participate in premarital education programs, by which time relationship beliefs may already have developed and solidified (Gardner & Boellaard, 2007). Although relationship education tends to be focused on couples, Hawkins, Carroll, Doherty, and Willoughby (2004) argued for focusing on adolescents who are forming attitudes and beliefs about marriage and relationships. In fact, high school or earlier may be the best time to start marriage and relationship education (e.g., Gardner, Giese, & Parrott, 2004).

Relationship Smarts (RS+; Pearson, 2004/2007) is a general relationship education curriculum that includes thirteen 60- to 90-minute lessons in four units. Unit 1 (lessons 1 – 4) addresses concepts of maturity, values, infatuation, and love; Unit 2 (lessons 5 – 8) covers knowledge about dating relationship processes; Unit 3 (lessons 9 & 10) offers communication skills for healthy relationships; and Unit 4 (lessons 11 – 13) helps participants understand how and why a healthy relationship matters and succeeds and helps adolescents plan for the future. Lesson 3 in particular assists adolescents in thinking about the foundation of good relationships (e.g., having common interests and talking to each other) and helps teens realize the importance of warmth/trustworthiness and intimacy/loyalty. The curriculum specifically downplays the importance of vitality/attractiveness and status/resources because these relationship dimensions tend to be the ones youth overemphasize. Instead, it advocates putting passion on hold while letting other aspects of close relationships develop first. Thus, in keeping with the emphases of the curriculum, this study focuses only on two standards, one addressing partners (warmth/trustworthiness), and one addressing relationships (intimacy/loyalty).

The few studies focusing on relationship education for youth have supported its effectiveness (Adler-Baeder et al., 2007; Gardner & Boellaard, 2007; Kerpelman et al., 2009; Sparks, Lee, & Spjeldnes, 2012). These studies differ in the outcomes they address, but each finds that participants benefit from exposure to relationship

education curricula. There is very limited research, however, addressing whether and how relationship education matters for building or modifying standards for romantic partners or relationships. The sole example we located was Kerpelman et al. (2009), which showed that adolescents receiving a curriculum, compared to adolescents who did not, placed greater importance on supportiveness when describing their ideal partners. Their study also found that the influence of the curriculum lasted for a year after the program, but faded by 2 years. Thus, our first and most important research question is whether the two standards for romantic partners and relationships (i.e., warmth/trustworthiness and intimacy/loyalty) are influenced by a general relationship education curriculum, and we hypothesize that they are.

Hypothesis 1: Specifically, we expect that high school age students receiving a relationship education curriculum will report higher importance ratings for two partner/relationship standards—warmth/trustworthiness and intimacy/loyalty—after the curriculum compared to peers who do not receive the curriculum.

#### *The Moderators of Relationship Education Effects*

Wadsworth and Markman (2012) encouraged relationship education researchers to search for moderators of the effects of relationship education because no treatment is 100% effective, and moderators can help us understand “what works for whom.” Several studies have explored or proposed moderators of marriage and relationship education in adults (Adler-Baeder et al., 2010; Bradford, Adler-Baeder, Ketring, & Smith, 2012; Hawkins, Stanley, Blanchard, & Albright, 2012), but few studies address this topic among teenagers. Most moderator studies (Adler-Baeder et al., 2007; Kerpelman, Pittman, & Adler-Baeder, 2008; Sparks et al., 2012) examine the effects of participant characteristics (e.g., gender, race, household income, academic performance, family structure, identity style); however, few examine the effects of treatment-related factors, though research indicates that one’s initial views assessed by pretest scores prior to an educational treatment may affect what one learns from a treatment (e.g., Kerpelman et al., 2010).

Some research on school-based treatments gives attention to whether and how participant’s beliefs or behavior at pretest moderate the impact of the treatment, but most of these studies focus on behavior problems (e.g., aggression). For example, one study reported that children in test schools with higher levels of aggressive behavior in the first grade showed larger reductions by the third grade, but initial levels of social competence and hyperactive-disruptive behavior did not moderate treatment-related change (Conduct Problems Prevention Research Group [CPPRG], 2010). The only study we found that tested whether and how pretest scores moderate the effects of relationship education among adolescents is the Kerpelman et al. (2010) study. Greater improvements in conflict-management skills occurred for the free-lunch-eligible group compared to the free-lunch-ineligible group. They speculated that pattern was connected to the fact that free-lunch-eligible students had significantly lower pretest scores which, in turn, suggested they had greater need and more opportunity to improve. We propose to consider individuals’ pretest scores as a moderator of the effects of relationship education on ideal standards for romantic partners/relationships. If pretest scores matter for adolescents’ responses to treatment, it may be that those with the lowest initial standards will benefit most from a curriculum.

Hypothesis 2: We hypothesize the treatment effect will be stronger for participants who score lower at pretest on the two attributes (i.e., warmth/trustworthiness and intimacy/loyalty) of partners/relationships standards.

Treatment effects also may be affected by aspects of the social context in which the treatment takes place. Fletcher et al. (1999) proposed that contextual factors (e.g., being friends with another couple, reading a book about having a good marriage, or observing groups of nubile bodies) would affect the knowledge structures regarding standards for romantic relationships and partners. Recall the Kerpelman et al. (2009) finding that the effect of the educational treatment eroded after 2 years, even though it was sustained for 1 year. The authors speculated that this erosion might be attributable to peer influence over time. Ecological theory (Bronfenbrenner, 1989) as well as social cognitive theories of development (Bandura, 1986; Crick & Dodge, 1994; Dodge, 1986) point to the salience of

social climate in individual behavior. Normative perceptions, which could be understood as social norms or social climate, are defined as individuals' perceptions of how people should behave (Borsari & Carey, 2001) in a given area. In spite of the extensive literature on social climate and modeling, there is sparse literature regarding these influences on standards for romantic relationships. However, Kalmijn and Unnik (2007) showed the marital stability in a geographic region varies with the regional value orientation about divorce. Where less accepting attitudes about divorce exist, there were fewer divorces. Simon, Eder, and Evans (1992) showed that peer groups can shape the emergence of romantic feelings in relationships. They reported that early adolescent females developed romantic feelings and expressed romantic norms about the importance of romantic relationships in ways consistent with their same-sex peer group. Just as classroom composition influences children's aggressive behaviors by providing behavior norms or expectations (Aber, Jones, Brown, Chaudry, & Samples, 1998), we expect the social climate of a classroom to influence teenagers' romantic relationship attitudes and beliefs by offering norms and expectations regarding romantic relationships.

One method for operationalizing social climate is aggregating the responses of a social unit on a particular construct and treating that aggregation as a reflection of the climate in the group on that construct (e.g., Barth, Dunlap, Dane, Lochman, & Wells, 2004). This procedure is commonly used when conducting multilevel models to examine social climate effects on individuals. This multilevel methodology, which models individual outcomes in terms of individual-level factors and characteristics of the social unit in which the individual is embedded (Bryk & Raudenbush, 1992), has been used extensively to examine social climate influence.

Consistent with this strategy, we used a mean score calculated within a classroom to represent a class-level shared perception among classmates. Just as individuals within a class may define standards for partners/relationships differently, the mean classroom perspective on these standards can also vary across classes. Exposure to a discrepant class climate could be understood as exposure to different peer views regarding standards for partners/relationships. If class climate represents a form of group norm, the belief that one's peers think a particular way

may influence individuals toward those common views.

Hypothesis 3: We hypothesize that the initial social climate of a class will be positively associated with the posttest partners/relationships standards of individuals in that class, controlling for the students' unique pretest scores.

This hypothesis proposes a main effect for social climate.

Hypothesis 4: We test a possible interaction between social climate and pretest scores whereby the effect of social climate may be exaggerated among individuals with extreme scores.

Because no directional hypothesis favoring initially high versus low extremes seems defensible, our Hypothesis 4 simply explores this possibility.

The main effect of social climate proposed in Hypothesis 3 also may be qualified by the treatment effect because the relevant messages in the curriculum could generally promote increases in the scores for these standards at posttest. Because the classroom climate effect could influence students either positively or negatively, students should benefit the most (reveal the greatest change in the desired direction) if the treatment effect is combined with a positive social climate.

Hypothesis 5: We test the interaction between treatment and social climate to see whether students who received the curriculum and at the same time were embedded in classrooms with higher average initial partner/relationship standards will increase scores on the standards more than other students.

However, a three-way interaction would also be plausible.

Hypothesis 6: We test the interaction among treatment, social climate, and pretest scores to see whether it is only individuals who receive the curriculum and have relatively low pretest scores who are also embedded in a classroom with relatively high pretest scores (high discrepancy) that reveal the largest change on the two constructs (i.e., warmth/trustworthiness and intimacy/loyalty).

All the hypotheses are tested controlling for the race, age, and sex of participants. These controls are included because Wood et al. (2002) reported that girls are open to more sources

of romantic relationship information than boys (e.g., sex education program, friends, and parents). Montgomery (2005) reported that younger adolescents have more unrealistic expectations about romantic relationships compared to older adolescents. Finally, Ooms and Wilson (2004) argued that race/ethnicity may be important because minority youth who are more likely to witness unhealthy interaction patterns and relationship instability at home may develop less healthy standards about romantic relationships.

## METHOD

### *Sample and Procedure*

Data for this study were collected in the first year of the Healthy Couples, Healthy Children: Targeting Youth (HCHCTY) project from 2,066 high school students nested in 111 Family and Consumer Science (FCS) classes in a southern state. Participants in the treatment condition (64 test classes) received a relationships education curriculum (RS+; Pearson, 2004/2007) and those in the control condition (47 control classes) did not. From this analysis, we excluded five classes (two test classes and three control classes) with fewer than eight students. This tactic maximized variability at the classroom level but resulted in the loss of 20 students. We also excluded 248 participants due to data problems (e.g., obvious response set) during pretest (Time 1) or posttest (Time 2). The analysis sample included 1,808 high school students in 106 classes (62 test classes and 44 control classes). On average each class included 21 students, but the range of class sizes was 8 to 31. The excluded individuals did not differ from those retained for analysis in terms of student demographics. At pretest, students had an average age of 16 years ( $SD = 1.3$ ); the majority were female (77.6%); in terms of ethnicity, 26.8% of participants were Black, 67.3% were White, and the remaining 6.0% were other minorities; and for grade level, 34.3% of students were in ninth grade, 25.7% were in tenth grade, 19.5% in eleventh grade, and the remaining 20.4% were in twelfth grade. At the classroom level, the mean percentage of females was 73.4%, 64.8% White, 27% Black, and 3.7% other minorities.

FCS teachers volunteered to participate and were then randomly sorted into test and control conditions. Teachers assigned to the test group received a 2-day training before delivering the

curriculum. All teachers received instruction about when and how to collect and return data for the evaluation. Pretest data were collected from all students using a self-report survey during their regularly scheduled FCS class. Test students completed posttests upon completion of the curriculum, and control participants completed the second survey 6 weeks after the pretest. To protect confidentiality, every student was assigned an ID number and their names did not appear on the survey. Parents and students completed consent/assent forms. The procedure and instruments of this study were approved by the institutional review board at the investigators institution.

### *Measures*

*Outcome Variables.* The outcome assessments of standards for partners (warmth/trustworthiness) and relationships (intimacy/loyalty) were measured using the Partner/Relationship Ideal Standard Scale (Fletcher et al., 1999) at posttest. Each construct was measured with six attributes assessed on a 5-point scale that ranged from 1 (*very unimportant*) to 5 (*very important*). Example attributes were “understanding” for warmth/trustworthiness and “honest” for intimacy/loyalty. For each construct, the six items were averaged so that scores retained the 5-point scale and a higher score indicated the construct was more important to standards for partners/relationships.

*Predictors Measured at the Individual Level.* The same item sets serving as outcomes at posttest were assessed as predictors at pretest and used the same assessment scales. In this study, the alpha reliabilities for pre- and posttests were .93 and .94 for warmth/trustworthiness, and .97 and .97 for intimacy/loyalty, respectively.

*Predictors Assessed at the Classroom Level.* Because classes instead of individuals were assigned to test or control conditions, treatment condition was a class-level variable and was coded as 1 = *treatment* and 0 = *control*. Social climate was assessed at pretest as the average individual partner/relationship standards scores in a class. A higher score indicated a classroom environment placed higher value on the partner/relationship characteristic at the beginning of the study.

*Control Variables.* Participants self-reported their age, race, and sex. Age was coded in years. Sex was coded as 1=female and 0=male. Two dummy codes were created to compare Black (1=Black and 0=non-Black) and "Other Minorities" (1=Other minorities and 0=non-Others) ethnicities with White.

#### *Plan of Analyses*

Multilevel modeling is needed to predict individual-level outcomes using class-level characteristics (Goldstein, 2003). It is designed for the analysis of data on individuals nested within naturally occurring hierarchies like students within classes where individual's beliefs are not expected to be totally independent from those of their classmates, and therefore the differences between classes and within classes are expected to be important (Singer, 1998). The multilevel models presented here were produced using SAS 9.2.

All continuous individual-level predictors were centered on their grand mean for individuals, and all continuous class-level predictors were centered on the grand mean of class means. Table 1, however, presents the uncentered descriptive statistics for the variables so actual means can be examined. Centering facilitates interpretations of average estimated outcomes, because when all predictors are centered, each parameter can be interpreted as the estimated average outcome when all other predictors in a model are zero (Raudenbush & Bryk, 2002). Thus, the intercept ( $\gamma_{00}$ ) in the full models (Model 7) depicted in Tables 2 and 3 can be understood as the estimated average posttest score on the relevant standard for a White, male student of average age, who were in a control classroom with average classroom-level pretest scores and had the average pretest score themselves.

Dealing with missing data by dropping cases can create biased samples that make it harder to make valid inferences. Furthermore, single imputation (e.g., mean substitution, regression-based imputation) is not a satisfactory solution (Wayman, 2003). Multiple imputation procedures generate multiple imputed data sets and produce more valid solutions that combine results across the datasets (Wayman, 2003). Therefore, multiple imputations ( $N=5$ ) were used in this study, and the coefficients in the tables represent the mean coefficient across the five imputations.

## RESULTS

Before moving into hypothesis testing, two preliminary analyses were necessary. First, we fit the unconditional means models to estimate the variance for the outcomes between ( $\tau_{00}$ ) and within classes ( $\sigma^2$ ) to calculate an intraclass correlation (ICC). (Refer to Model 1 in Table 2 for warmth/trustworthiness results and to Model 1 in Table 3 for intimacy/loyalty results.) The ICC indicates how much variance in the outcome exists between classes. The results indicated that there was significant variability (see  $\tau_{00}$  in Model 1) between classrooms and thus a multilevel analysis for the two constructs was reasonable. To illustrate, in the case of warmth/trustworthiness, the ICC of 4.83 reflects the percentage of the total variation that is between classes. From Model 1 in Table 3, it can be seen that the ICC for intimacy/loyalty is 6.6%. The intercept for each of the two constructs was high (e.g., for warmth/trustworthiness,  $\gamma_{00} = 4.42$ ,  $p < .001$ ), suggesting that at posttest adolescents valued warmth/trustworthiness in a romantic partner and intimacy/loyalty in a romantic relationship.

The second preliminary analysis, derived from the suggestion of Raudenbush and Bryk (2002), is to construct baseline models using only individual level predictors before adding higher level predictors. For this test, we included pretest scores and the control variables (see Model 2 in Tables 2 and 3). The results indicated that higher scores at pretest were associated with higher scores at posttest. Using warmth/trustworthiness ( $\gamma_{10} = .27$ ,  $p < .001$ ) as an example, a one-point higher score among students at pretest was associated with an increase of .27 points at posttest. In addition to this fixed effect, the baseline model showed two random effects ( $\tau_{10}$  and  $\tau_{11}$ ). The coefficient  $\tau_{11}$  gives the variability across classrooms of the slope. It was significant for both constructs, which indicated that the association between students' pretest scores and their posttest scores varied from class to class. Finally, the coefficient  $\tau_{10}$  is the covariation between the intercept and slope and where significant it indicates that the two are related. The negative sign indicates that in classes with higher average pretest scores, the slope of the students' gains from pretest to posttest was smaller. This is not surprising given the high average pretest scores in the sample and may imply a ceiling effect.

Table 1. Descriptive Information (N = 1,808; Class N = 106)

		<i>n</i>	Percentage/Mean ( <i>SD</i> )
Age (Pretest)		1,763	15.99 (1.26)
Sex (Pretest)	Female	1,366	77.57%
	Male	395	22.43%
Race (Pretest)	Black/African American	473	26.75%
	White/Caucasian	1,190	67.31%
	Hispanic/Latino, Native American, Asian, other	68	5.94%
Class level percentage (Pretest)	Female		73.4%
	Black/African American		26.5%
	White/Caucasian		64.8%
	Hispanic/Latino, Native American, Asian, other		3.7%
Grade level (Pretest)	9 <sup>th</sup> Grade	607	34.33%
	10 <sup>th</sup> Grade	455	25.74%
	11 <sup>th</sup> Grade	344	19.46%
	12 <sup>th</sup> Grade	361	20.42%
Treatment	Test students (classes)	1,048 (62)	57.96% (58.49%)
	Control students (classes)	760 (44)	42.04% (41.51%)
Pretest standards	Warmth/trustworthiness	1747	4.46 (.81)
	Intimacy/loyalty	1749	4.67 (.82)
Posttest standards	Warmth/trustworthiness	1540	4.44 (.80)
	Intimacy/loyalty	1545	4.63 (.80)
Pretest class standards	Warmth/trustworthiness	106	4.33 (.23)
	Intimacy/loyalty	106	4.65 (.24)

The first hypothesis was that students receiving relationship education would show higher scores at posttest, which would indicate that those receiving the curriculum increased more at posttest on warmth/trustworthiness and intimacy/loyalty compared to participants in the control classes. To test this hypothesis we added the treatment main effect (see coefficients  $\gamma_{01}$ ) into Model 3. There was a small but significant main effect for treatment for both constructs. For warmth/trustworthiness, for example, students receiving the curriculum reported .15 units higher posttest scores compared to students in the control group.

Although the effects of treatment are statistically significant, it is desirable to evaluate their size. In multilevel modeling, two types of effect size are relevant: global and local (Raudenbush & Bryk, 2002). Global effects quantify the variance in the outcome explained by all predictors (at all levels), and local effect sizes quantify the variance in the outcome explained only by individual predictors (Peugh, 2010). Peugh noted that the global effect size in multilevel models is the square of the correlation between

predicted and observed values of the dependent variable (i.e., posttest warmth/trustworthiness and intimacy/loyalty). Calculating these correlations for Model 3 results (not shown) indicate that 7% of the variation in posttest warmth/trustworthiness and 4% of the variation in posttest intimacy/loyalty can be explained by individual's pretest scores and treatment. Local effect sizes represent proportional variance reduction and its calculation involves comparing the between classes variance ( $\tau_{00}$ ) and within class variance ( $\sigma^2$ ) in two models. Because we focus on the effect of treatment (class level variable), we compare Model 2 and Model 3 and find that the between classes variances ( $\tau_{00}$ ) in Model 3 diminished from .03 to .02 for warmth/trustworthiness and from .04 to .03 for intimacy/loyalty, suggesting that, respectively, approximately 33.3% and 25% of the variance between classes was explained by exposure to the general educational curriculum.

The second hypothesis was that the treatment would interact with individuals' pretest scores to influence posttest scores. To test this hypothesis, we included the cross-level interaction



Table 2. Multilevel Models for Predicting Posttest Warmth/Trustworthiness

Parameters	M1 <sup>a</sup>	M2 <sup>b</sup>	M3 <sup>c</sup>	M4 <sup>d</sup>	M5 <sup>e</sup>	M6 <sup>f</sup>	M7 <sup>g</sup>
Fixed effects							
Intercept ( $\gamma_{00}$ )	4.42***	4.25***	4.33***	4.41***	4.50***	4.48***	4.38***
Treatment ( $\gamma_{01}$ )			.15**	.17***			.17***
Class social climate ( $\gamma_{02}$ )					.08	-.03	.11
Treatment $\times$ Class social climate ( $\gamma_{03}$ )							-.13
Pretest scores ( $\gamma_{10}$ )		.27***	.27***	.35***	.27	.33***	.37***
Pretest scores $\times$ Treatment ( $\gamma_{11}$ )				-.13*			-.10
Pretest scores $\times$ Class social climate ( $\gamma_{12}$ )						.50***	.74***
Pretest scores $\times$ Treatment $\times$ Class social climate ( $\gamma_{13}$ )							-.39
Age ( $\beta_{2j}$ )		-.02	-.01	-.01	-.02	-.02	-.02
Sex ( $\beta_{3j}$ )		.23***	.24***	.23***	.23***	.23***	.23***
Black ( $\beta_{4j}$ )		-.05	-.07	-.07	-.05	-.05	-.06
Others ( $\beta_{5j}$ )		-.06	-.06	-.06	-.06	-.04	-.05
Random effects							
Intercept ( $\tau_{00}$ )	.03***	.03***	.02*	.02**	.03***	.03***	.02**
Covariance ( $\tau_{10}$ )		-.02*	-.02~	-.01~	-.02*	-.02*	-.01*
Pretest scores ( $\tau_{11}$ )		.04**	.04*	.04**	.04***	.03*	.02**
Residual ( $\sigma^2$ )	.59***	.54***	.54***	.53***	.53***	.53***	.53***
-2log-likelihood	4261.36	4117.56	4103.9	4111.1	4119.6	4106.5	4102.66
Intraclass correlation	4.83%						

Note: <sup>a</sup>Unconditional means multilevel model. <sup>b</sup>Baseline multilevel model with just one predictor (participants' pretest scores). <sup>c</sup>Multilevel model for testing the 1<sup>st</sup> hypothesis. <sup>d</sup>Multilevel model for testing the 2<sup>nd</sup> hypothesis. <sup>e</sup>Multilevel model for testing the 3<sup>rd</sup> hypothesis. <sup>f</sup>Multilevel model for testing the 4<sup>th</sup> hypothesis. <sup>g</sup>Multilevel model for testing the 5<sup>th</sup> and 6<sup>th</sup> hypotheses.

~ $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

between pretest scores and treatment into Model 4 (see coefficients  $\gamma_{11}$ ). The interaction was statistically significant for both constructs. The coefficients were small, and the negative sign indicated that the treatment effect was slightly stronger for students with lower pretest scores compared to those with higher pretest scores.

The third hypothesis was that classroom social climate would positively relate to individuals' posttest standards (controlling for pretest scores). To test this hypothesis, we examined the effects of social climate (see coefficients  $\gamma_{02}$  in Model 5). The main effects of classroom social climate ( $\gamma_{02}$ ) were not significant, suggesting no support for the third hypothesis. In other words, classroom social climate did not influence individuals' posttest standards independently.

To test the fourth hypothesis of whether individuals' pretest scores interact with the social climate to influence participants' posttest

standards, we added the cross-level interaction between social climate and students' pretest scores (see coefficients  $\gamma_{12}$ ) to Model 6. Results indicated the association between classroom social climate and posttest standards was moderated by individuals' pretest scores for warmth/trustworthiness ( $\gamma_{12} = .50, p < .001$ ) but not for intimacy/loyalty. To further explore the significant interaction, simple regression slopes for the association between social climate and posttest standards were plotted at a low individual pretest value (.50 *SD* below the mean) and a high individual pretest value (.50 *SD* above the mean), respectively (Preacher, Curran, & Bauer, 2006). Figure 1 presents the plot and shows a significant relationship between social climate and posttest standards for adolescents with high pretest scores, but not for adolescents with lower pretest scores. The slope of the solid line is significant and reveals that individuals with high pretest scores in classes that agree with those

Table 3. *Multilevel Models for Predicting Posttest Intimacy/Loyalty*

Parameters	M1 <sup>a</sup>	M2 <sup>b</sup>	M3 <sup>c</sup>	M4 <sup>d</sup>	M5 <sup>e</sup>	M6 <sup>f</sup>	M7 <sup>g</sup>
Fixed effects							
Intercept ( $\gamma_{00}$ )	4.60***	4.44***	4.39***	4.38***	4.44***	4.44***	4.30***
Treatment ( $\gamma_{01}$ )			.09*	.11*			.10*
Class social climate( $\gamma_{02}$ )					.09	.04	.10
Treatment $\times$ Class social climate ( $\gamma_{03}$ )							-.09
Pretest scores ( $\gamma_{10}$ )		.23***	.22***	.31***	.22***	.25***	.30***
Pretest scores $\times$ Treatment ( $\gamma_{11}$ )				-.15*			-.08
Pretest scores $\times$ Class social climate ( $\gamma_{12}$ )						.21	-.04
Pretest scores $\times$ Treatment $\times$ Class social climate ( $\gamma_{13}$ )							.43
Age ( $\beta_{2j}$ )		-.03*	-.04*	-.03*	-.03*	-.03*	-.03*
Sex ( $\beta_{3j}$ )		.20***	.20***	.21***	.20***	.19***	.20***
Black ( $\beta_{4j}$ )		-.02	-.02	-.02	-.01	-.01	-.02
Others ( $\beta_{5j}$ )		-.03	-.03	-.03	-.03	-.02	-.03
Random effects							
Intercept( $\tau_{00}$ )	.04***	.04***	.03***	.04***	.04***	.04***	.03**
Covariance( $\tau_{10}$ )		-.03*	.02 ~	-.02 ~	-.03*	-.03*	-.02*
Pretest scores( $\tau_{11}$ )		.07**	.06***	.05***	.06***	.06***	.04**
Residual ( $\sigma^2$ )	.57***	.52***	.52***	.52***	.52***	.52***	.51***
-2log-likelihood	4190.3	4084.84	4086.18	4085.3	4086.7	4086.72	4087.32
Intraclass correlation	6.56%						

Notes: <sup>a</sup>Unconditional means multilevel model. <sup>b</sup>Baseline multilevel model with just one predictor (participants' pretest scores). <sup>c</sup>Multilevel model for testing the 1<sup>st</sup> hypothesis. <sup>d</sup>Multilevel model for testing the 2<sup>nd</sup> hypothesis. <sup>e</sup>Multilevel model for testing the 3<sup>rd</sup> hypothesis. <sup>f</sup>Multilevel model for testing the 4<sup>th</sup> hypothesis. <sup>g</sup>Multilevel model for testing the 5<sup>th</sup> and 6<sup>th</sup> hypotheses.

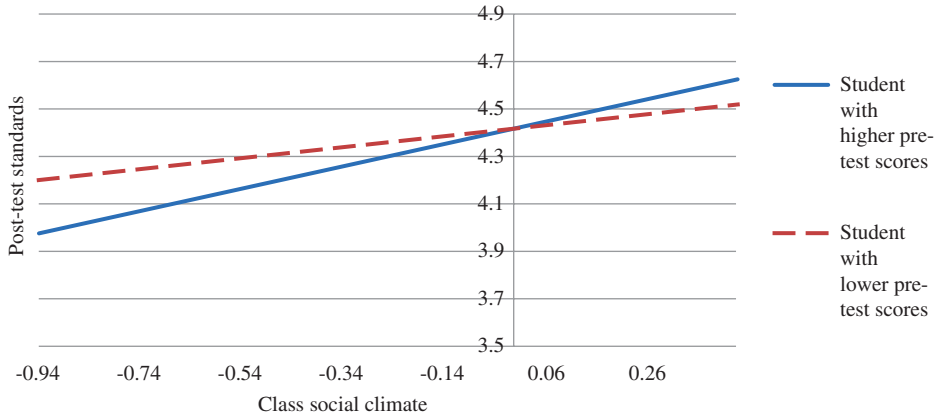
~ $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

standards retain high scores at posttest (right of vertical axis). But participants with high pretest scores in classes with lower standards were influenced in the direction of the class. This means that a negative social climate had an eroding effect on high pretest standards related to warmth/trustworthiness.

To test the fifth and sixth hypotheses addressing whether and how treatment and classroom social climate interacted to affect students' posttest scores, the two-way interaction (Class Social Climate  $\times$  Treatment) and the three-way interaction (Pretest Scores  $\times$  Class Social Climate  $\times$  Treatment) were the focus. Thus, Model 7 includes all predictors (i.e., the three-way interaction and all predictors and combinations that make it up). Neither the two-way interaction between treatment and initial social climate nor the three-way interaction was significant, indicating that social climate did not moderate the treatment effect.

To summarize, the results indicated that posttest standards were significantly and substantially predicted by pretest scores at the individual level. In addition, the first hypothesis was supported. Teens who received the curriculum placed more importance at posttest on warmth/trustworthiness and intimacy/loyalty compared to those who did not receive the curriculum after controlling for social climate. Furthermore, the second hypothesis was also supported. A modest but significantly larger treatment effect was noted for students with initially lower standards. Finally, the results supported the fourth hypothesis that adolescents' posttest standards were influenced by the interaction of social climate and pretest scores, but only for warmth/trustworthiness. Individuals with initially high standards showed a small but significant erosion in their posttest standards when in a class that had low standards for warmth/trustworthiness.

FIGURE 1. PROTOTYPICAL PLOT FOR THE MODERATING EFFECT OF PRETEST SCORES ON THE CLASS SOCIAL CLIMATE AND POST-TEST IDEALS LINK FOR WARMTH/TRUSTWORTHINESS.



DISCUSSION

Our most important goal in this study was to see whether a general relationships education curriculum would influence adolescent standards pertaining to warmth/trustworthiness as a valued romantic partner attribute and intimacy/loyalty as a valued relationship quality. The findings indicated that the curriculum made a significant positive difference, although the effect size is small (i.e., .07 for warmth/trustworthiness and .04 for intimacy/loyalty). This adds to prior research evaluating relationship education that reports adolescents exposed to a curriculum place greater importance on having a supportive partner compared to youth who do not receive a curriculum (e.g., Kerpelman et al., 2009).

A noteworthy finding was that most adolescents in this study scored quite high on both measured standards at the beginning of the study. This suggests that, even with an average age of 16, these participants expressed high standards for two aspects of romantic partners/relationships identified as important by Fletcher et al. (1999). Even at this early age, therefore, youth appear to be developing standards that research on adolescents and adults shows are associated with higher quality partners and relationships. Although these views may have emerged through exposure to relationships education in various settings (Wood et al., 2002), it is likely that diverse sources, such as cultural influences (e.g., movies, television, popular songs, and fairy tales) or peers may have been influential.

These diverse sources may provide conflicting messages that do not yield strong or stable messages. Furman (2002) reported that young people spend a lot of time in romantic relationships, and they think and talk about their partners and relationships often. If high school age adolescents describe good partner and relationship standards but for the wrong or misinformed reasons, quality relationship education may need to be targeted to those who are even younger (e.g., middle school students), with the goal of teaching about these standards before they are first being formed. As Montgomery (2005) noted, middle school age adolescents tend to be unrealistic about romantic relationships and expect their relationships with romantic partners to be nearly perfect. Recall that our findings do not unequivocally support the conclusion that high standards are stable in this age group. Exposure to a negative social climate appeared to influence the views of those with initially high standards for warmth/trustworthiness. In ways parallel to identity formation (Erikson, 1963), tentative standards for partners/relationships may require more exploration through experience and instruction.

Controlling for the consistent and substantial association between pretest and posttest scores across the treatment and control conditions, our second goal was to test whether participants' initial views (pretest scores) affected the results of the curriculum. We explored the possibility that pretest scores might moderate treatment effects on adolescents' posttest standards

because some research has shown that pretest scores can affect the results of some interventions. For example, the CPPRG (2010) found that initial amounts of aggression mattered for outcome levels of aggression following treatment. Kerpelman et al. (2010) also found that the pretest scores mattered for conflict-management skills after the curriculum. The results here suggest that, in addition to their independent effects, individuals in the treatment condition with initially lower scores revealed an additional increment in their posttest scores. This interaction suggests that the educational intervention had an added benefit for individuals whose initial views are more discrepant from the educational objectives. This is an important finding because, to the extent that individuals' behavior in relationships is reflected in their standards for those relationships (Fletcher et al., 1999; Thibaut & Kelley, 1956), it appears that relationship education can have a disproportionately strong effect on those with lower standards while sustaining the already higher standards of others.

Another major goal of this study was to test whether and how social climate affects adolescent perceptions of partners/relationships standards. Social climate effects may represent cultural or regional values. For example, Kalmijn and Unnk (2007) found that divorces were fewer in regions with less accepting attitudes toward divorce compared to regions with more tolerant attitudes. Similarly, Gangestad and Buss (1993) reported that physical attractiveness was more prized in places where pathogens are more common. Our focus was on social organizations much smaller and closer than these regional or cultural levels. We focused on classroom social climate. It is perhaps not surprising that we found its effects less pervasive than cultural or regional values. Nevertheless, we did find a small significant influence in the case of standards for warmth/trustworthiness. Social climate interacted with individuals pretest scores to predict postprogram standards. When exploring the interaction, we found that the social climate effect was significant only for those reporting higher pretest scores. Indeed, the association between social climate and postprogram standards for individuals with lower pretest scores was statistically nonsignificant, which means the standards of these students were not "sensitive" to the classroom environment. However, for standards related to warmth/trustworthiness,

adolescents with high pretest scores seemingly reconsidered those standards when the social climate of the classroom was increasingly at odds with their pretest views. Ecological and social cognitive models applied to this situation would suggest that students with higher standards for partners/relationships, when surrounded by peers with lower standards for the same, modeled their views and lowered their self-reported standards, perhaps to promote social acceptance from peers and avoid their disapproval (Brauer & Chekroun, 2005). Although this pattern was observed only in one construct, and it occurred without regard to treatment condition, it could have implications for individuals who teach relationship education to groups of peers. If high standards at pretest can be negatively affected by exposure to a social climate that endorses low standards, instructors need to be able to gauge the generalized perspective of the classroom and may need to take special care to reinforce high standards for a characteristic associated with healthy relationships.

Our last goal was to test whether classroom social climate could moderate the treatment effects. The results indicated that social climate did not moderate the effect of treatment, nor was the three-way interaction significant between social climate, treatment, and pretest standards. The findings indicate, first, that there was no distinction between how social climate operated in the treatment versus the control condition and, second, that variations in combinations of social climate and treatment were not related to standards at pretest.

We proposed social climate effects for both standards but in the end found it for only one. Several possibilities exist for understanding the unexpectedly modest role of social climate in the current investigation. First, it is possible that classroom peers are not the informants about partners/relationships standards that participants prefer, and other informants (e.g., close friends, relationship partners, or Facebook friends) may be better reference groups. Another possible reason for the modest contribution of social climate in this study is our assessment of social climate as the average score of the student's classroom. This assessment strategy assumes that the standards of all classmates are equally relevant to all class members. However, some adolescents may talk about their romantic attitudes in class, whereas others may not or may talk only to a select few who may not well

represent the class mean. Our measure also assumes that students are able to observe the climate in a classroom. The influence of social climate works through the pressure of norms, but if norms are not observable in a group, their influence cannot be expressed. Other studies using similar classroom aggregates measure more visible behaviors (e.g., aggressive behaviors), which may be more effective in communicating norms. With no independent method to check that participants observed the classroom average as a norm it is possible that the aggregate assessment did not fully represent an expressed class-level norm.

Taken together, the results of this study have interesting implications for relationships education. They suggest that in addition to the effect of curriculum content, curriculum goals may be affected also by the classroom context (Aber et al., 1998). This further suggests that it may be important to know what the class context actually is in a given school or community and how sensitive students are to the social climate in their classes.

The results also indicate that gender has significant influence on these partner/relationship standards. This gender effect is consistent with prior studies reporting that girls tend to garner more romantic relationship information from multiple sources including sex education (e.g., McKay & Holowaty, 1997) and friends (e.g., Wood et al., 2002). Girls appear more receptive to relationship education and may also do more norm creating in the area of romantic relationships. Wood et al. (2002) also suggested that boys are less socialized than girls before dating. An implication of that finding is that boys may especially benefit from relationship education but male adolescents may need additional tailoring of the curriculum content to better fit their needs (e.g., more dosage and special content designed for boys).

#### *Limitations and Future Directions*

Although this study includes a number of strengths, including large sample size, a multi-level data design, a locally representative sample in terms of race, true test and control conditions, and true pre- and posttest data collection, there are several limitations that require comment. Limitations to this study include an unbalanced sample in terms of gender. This imbalance is due to the fact that the curriculum was being

tested in FCS classes which have traditionally overrepresented females. The generalizability of the current findings to males may be uncertain.

The measure of social climate was limited because aggregating may not be the best measure for social climate when measuring these standards. Another weakness in this study is the assumption that relationship norms would form in a similar way or even at all in a structured class where the salience of the relationships among the participants could vary greatly. Finally, participants already held views that were largely consistent with the standards identified by Fletcher et al. (1999). Thus, the treatment effect, social climate effect, and the moderation effect might be attenuated. Therefore, our findings should be interpreted in light of these limitations.

Future research would benefit from including additional class-level and individual-level variables. For example, standards for partners/relationships held by parents could be considered because studies report the transmission of attitude and behavior between mothers and daughters (e.g., Newcomer & Udry, 1984). Also, sibling's standards may also be valuable to consider because research supports the older sibling's role in teaching their younger siblings about relationships (e.g., Brody, Stoneman, & MacKinnon, 1982). Consideration of demographic characteristics of facilitators and participants (e.g., sex, race, age, education level, marital status, and family structure) could also advance this research because prior studies report that such characteristics play a significant role in participants' experience (e.g., Constantine, 2001; Ooms & Wilson, 2004). Furthermore, assessment of the match between participant-facilitator demographics could be useful since a closer match predicts higher perception of facilitator quality (e.g., Higginbotham & Myler, 2010) and better intervention outcomes (Bradford et al. 2012).

Relationship education teachers should consider the role of the peer context when providing relationship education. Peer beliefs could be assessed prior to starting the program, and then curriculum adjustments could be made based on the views of the participants and class to take advantage of class strengths. There can be a focus on warming up youth in contexts that might be initially more negative. Also, as relationship education proceeds, it might be advisable to "take the temperature" of the context

periodically to gauge the supportiveness of the class to the relationship education messages.

Even though the youth know these standards (i.e., warmth/trustworthiness and intimacy/loyalty) are important and score high on them at the pretest, we still, via education, may be affecting their understanding of what it means behaviorally to be warm/trustworthy and intimate/loyal. Future research should elucidate how youth are defining these characteristics and whether education refines their views and behavior related to the importance of warmth/trustworthiness and intimacy/loyalty.

In conclusion, prior studies provide initial evidence that relationship education in high schools is beneficial to youth in terms of valuing the importance of having a supportive partner (Kerpelman et al., 2009) and other romantic attitudes (e.g., Adler-Baeder et al., 2007; Gardner et al., 2004). This study extends prior studies to other areas of partner/relationship standards (i.e., warmth/trustworthiness and intimacy/loyalty) and the potential influence of social climate on changes in these standards. This study supports the influence of relationship education on youth as they form partner/relationship standards. It also suggests that interventions can be especially beneficial to those whose initial views are more discrepant from the learning objectives of the curriculum. Finally, this study also adds to our understanding of how classroom social climate influences adolescents' development by testing social climate effects on adolescents' standards as well as the moderation effects of social climate. Social climate effects were supported for warmth/trustworthiness, but no moderation effect for treatment was found. The study demonstrates an ecological perspective that accounts not just for the views of individuals, but also for those of the peers who create the adolescent participant's social context.

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