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Effects of Everyday Romantic Goal Pursuit on Women's Attitudes Toward Math and Science

Lora E. Park[1], Ariana F. Young[1], Jordan D. Troisi[1], and Rebecca T. Pinkus[2]

Abstract

The present research examined the impact of everyday romantic goal strivings on women's attitudes toward science, technology, engineering, and math (STEM). It was hypothesized that women may distance themselves from STEM when the goal to be romantically desirable is activated because pursuing intelligence goals in masculine domains (i.e., STEM) conflicts with pursuing romantic goals associated with traditional romantic scripts and gender norms. Consistent with hypotheses, women, but not men, who viewed images (Study 1) or overheard conversations (Studies 2a-2b) related to romantic goals reported less positive attitudes toward STEM and less preference for majoring in math/science compared to other disciplines. On days when women pursued romantic goals, the more romantic activities they engaged in and the more desirable they felt, but the fewer math activities they engaged in. Furthermore, women's previous day romantic goal strivings predicted feeling more desirable but being less invested in math on the following day (Study 3).

Keywords

gender roles, goal conflict, motivation, self-presentation, romantic relationships, women and STEM

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Although women have made tremendous progress in education and the workplace over the past few decades, they continue to be underrepresented at the highest levels of science, technology, engineering, and math (STEM; National Science Board, 2010). Various theories may account for this gender gap, including social learning theories (e.g., Bussey & Bandura, 1999), expectancy-value models (e.g., Eccles, 1994), and the pervasiveness of cultural stereotypes regarding women's inferior math ability (e.g., Schmader, Johns, & Forbes, 2008; Spencer, Steele, & Quinn, 1999).

A recent review of the literature concluded that the most influential contributor to the gender gap in STEM was women's preferences for non-STEM fields (Ceci, Williams, & Barnett, 2009). Building on this idea, we propose that the activation and pursuit of romantic goals in everyday life may shape women's preference for STEM. Two goals that are particularly salient during the young adult years are the goal to be romantically desirable, which facilitates social and mate-related outcomes, and the goal to be intelligent, which facilitates educational and career outcomes. For women, but not men, the goal to be romantically desirable may interfere with the goal to be intelligent in STEM because pursuing intelligence goals in masculine domains may detract from women's perceived desirability to men. Consequently, women (but not men) may express less motivation to pursue STEM when the goal to be romantically desirable is activated.

Gender and Goal Conflict

Goals are mental representations of a desired end state that pertain to a behavior or an outcome; they guide efforts to select and persist in activities that are instrumental in attaining goal-relevant outcomes (Carver & Scheier, 1998). We conceptualize romantic goals in the present research as a type of self-presentational goal—seeking to construct an image of oneself as romantically desirable to others. People actively strive to create, modify, and maintain impressions of themselves to others when a domain is important to their sense of self (Schlenker & Leary, 1982). Because women, in particular, are socialized to be romantically desirable (Rudman & Glick, 2008; Sanchez & Kwang, 2007), they may be motivated to act in ways to enhance their perceived desirability to others in romantic contexts.

From a young age, children are exposed to the typical roles that men and women are expected to occupy in society; these gender roles reflect shared expectations of the types of

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activities and behaviors that men and women ought to engage in, consistent with the sexual division of labor in society (Diekman & Eagly, 2002; Eagly & Wood, 1999). Women are expected to be communal and nurturing, consistent with their tendency to occupy familial and occupational roles; men are expected to be agentic and dominant, consistent with their tendency to occupy roles in which such qualities are valued.

One context in which traditional gender roles and norms are likely to be activated is in the romantic context. Traditional romantic scripts in Western cultures are highly gendered and prescribe how men and women should think, feel, and behave in romantic situations. In romantic contexts, men are expected to demonstrate their dominance, competence, and assertiveness, whereas women are expected to be passive, admiring, and accommodating toward men (Rudman & Glick, 2008). Romantic socialization begins at an early age and is reinforced through exposure to models of gender-linked behavior in storybooks, films, and television (Collins-Standley, Gan, Yu, & Zillman, 1996; Rudman & Glick, 2008). Women, in particular, receive sociocultural messages that emphasize the importance of appearing physically attractive and romantically desirable for self-esteem and social acceptance (Park, DiRaddo, & Calogero, 2009; Sanchez & Kwang, 2007).

For men, wanting to be intelligent in STEM is not likely to conflict with being romantically desirable because men are encouraged in Western society to be agentic and to excel in male-stereotyped domains (Prentice & Carranza, 2002). In contrast, women are theorized to experience conflict between pursuing romantic goals and intelligence goals in STEM because traditional romantic scripts—and the gender norms embedded within such scripts—discourage women from appearing intelligent in masculine domains. Indeed, women who deviate from traditional gender norms experience social backlash for violating perceivers' expectations (Rudman, 1998). For example, women who display agentic qualities (Rudman & Fairchild, 2004) or succeed in male-typed jobs (Heilman, Wallen, Fuchs, & Tamkins, 2004) are viewed negatively by others, whereas men in gender-incongruent occupations do not experience such parallel costs (Yoder & Schleicher, 1996).

Given these findings, it is not surprising that women often suppress agentic, masculine qualities in romantic contexts. For example, women portrayed themselves in stereotypically feminine ways when they expected to interact with a man with traditional gender ideologies (Zanna & Pack, 1975) or interacted with a man with sexist attitudes (Logel et al., 2009). In addition, women who implicitly associated romantic partners with chivalry aspired to lower incomes and reported less interest in leadership positions than did women with weaker implicit romantic fantasies (Rudman & Heppen, 2003). Given the underrepresentation of women in STEM fields in particular, we sought to understand why women show diminished interest in these fields, by examining the impact of romantic goal strivings in everyday life.

Goal Activation and Pursuit

Goal pursuit can occur through volitional choice, as when individuals choose certain goals over others, or through exposure to environmental stimuli that automatically activate goals (Aarts & Dijksterhuis, 2000; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001). Exposure to objects, settings, and situations can influence the accessibility of goals and subsequent behavior; objects and settings can become associated with specific goals with which they have been repeatedly paired, such that encountering such stimuli automatically activates the relevant goal. For example, participants who were primed with objects associated with business (e.g., briefcases vs. backpacks) were more competitive and stingier with their money in activities involving financial investments (Kay, Wheeler, Bargh, & Ross, 2004). In another study, participants primed with company logos associated with creativity goals (i.e., Apple computers) showed more creativity than those primed with logos not associated with creativity (i.e., IBM; Fitzsimons, Chartrand, & Fitzsimons, 2008).

Goals can also be activated by merely perceiving others' behavior, via goal contagion: People quickly and effortlessly infer goals from others' actions and adopt and pursue goals that others are perceived to strive for (Aarts, Gollwitzer, & Hassin, 2004). In addition, people can inhibit distracting or competing goals while pursuing important, self-relevant goals through the process of goal shielding (Shah, Friedman, & Kruglanski, 2002). Specifically, strong commitment to focal goals reduces cognitive accessibility of alternative goals; this process can become automated, such that inhibiting alternative goals facilitates attainment of focal goals (Shah & Kruglanski, 2002).

Based on this research, we propose that romantic goals can be activated and pursued by personal choice or through exposure to environmental cues and situations encountered in daily life. Once these goals are activated, women may automatically adopt attitudes and behaviors that facilitate romantic goals and inhibit conflicting goals, such as the goal to be intelligent in masculine domains (i.e., STEM).

Overview of Studies

Because women (but not men) who display agentic qualities are perceived unfavorably, women may experience conflict between pursuing romantic goals and pursuing intelligence goals in STEM. Accordingly, women, but not men, may show less motivation to pursue intelligence goals in STEM—but not in other fields—when the goal to be desirable is activated. In addition to romantic goals, goals related to intelligence and friendships are highly relevant and valued among college students. We therefore included intelligence goals (Studies 1, 2a, and 3) and friendship goals (Study 2b) as controls in the present studies. Specifically, in Study 1, men and women were exposed to images intended to activate the goal to be romantically desirable or intelligent and then reported their

current interest in STEM and preference for academic majors. In the next set of studies, men and women overheard a conversation related to romantic goals, intelligence goals (Study 2a), or friendship goals (Study 2b) and then reported their STEM attitudes and preference for academic majors. Finally, in Study 3, we used daily diary methodology to directly investigate the impact of women's daily goal strivings on their choice of activities and interpersonal feelings.

We hypothesized that women (but not men) would express less interest in STEM when exposed to cues intended to activate romantic goals versus other goals (Studies 1-2b). Furthermore, we hypothesized that on days when women were striving to be romantically desirable, they might engage in more romantic activities and feel more desirable, but they might be less invested in their math course activities (Study 3). We also examined whether goal pursuit on a previous day predicted the following day's outcomes. Overall, findings from this research could enhance understanding of why women, but not men, show decreased interest and motivation to pursue intelligence-related goals in STEM fields.

Study 1

In everyday life, people are exposed to cues in their environment that activate goals and facilitate thoughts and behavior in line with such goals. Accordingly, in Study 1, we examined the effects of exposing men and women to images related to romantic versus intelligence goals in predicting their interest in STEM. We hypothesized that women who viewed romantic images would be less interested in STEM fields than women who viewed intelligence images because for women, wanting to be romantically desirable is theorized to interfere with wanting to be intelligent in the masculine domains of STEM. We did not expect the primes to differentially affect men's interest in STEM because for men, being romantically desirable and being intelligent in masculine domains is not likely to conflict.

Method

Participants and procedure. During a mass testing session, students in introductory psychology courses reported their interest (*yes* or *no*) in pursuing a degree or career in STEM. A total of 119 students (60 women, M_{age} = 18.96; 48% interested in STEM) participated in the study. Participants first completed what they thought was a pretest for another study examining the types of images that college students find appealing. In the *romantic goal prime condition*, participants viewed images related to romantic desirability; in the *intelligence goal prime condition*, participants saw images related to intelligence. Next, participants completed filler questionnaires and reported their interest in STEM and preference for academic majors. Finally, they completed a manipulation check and were debriefed and dismissed.

Materials

Image-rating task. Participants rated 15 images on the computer, which were intended to activate romantic desirability or intelligence goals. In both conditions, we selected images that displayed cues or situations related to the appropriate goal construct; people did not appear in any of the images. In the romantic goal prime condition, participants viewed images consisting of romantic-related settings and objects (e.g., romantic restaurants, beach sunsets, candles). In the intelligence goal prime condition, participants viewed images consisting of intelligence-related settings and objects (e.g., libraries, books, eyeglasses). Consistent with the cover story, participants rated how appealing each image was on a scale from 1 (*not at all appealing*) to 10 (*extremely appealing*). Responses were averaged to reflect appeal of the romantic (α = .90) and intelligence (α = .75) images.

A follow-up study was conducted with a separate sample (23 women, 48 men; M_{age} = 19.56) to assess goal activation based on the images used in this task. After viewing each image, participants responded (1 = *not at all*, 9 = *extremely*) to the questions: "How much does this image make you want to be romantically desirable?" and "How much does this image make you want to be intelligent?" As expected, the romantic images (M = 5.49, SD = 1.07) predicted greater motivation to be romantically desirable than the intelligence images (M = 2.41, SD = 1.32), $t(70) = 12.98$, $p < .001$, $d = 2.56$, and the intelligence images (M = 5.18, SD = 1.35) predicted greater motivation to be intelligent than the romantic images (M = 3.00, SD = 1.54), $t(70) = 8.21$, $p < .001$, $d = 1.51$. There were no significant sex differences in goal activation.

Interest in STEM. Participants were asked: "How interested are you in Math and Science (e.g., Computer Science, Technology, Engineering, Math, Chemistry, Physics, etc.)?" and "How likely are you to pursue a degree or career in Math and Science?" on a scale from 1 (*not at all*) to 7 (*very much*; α = .86).

Preference for academic majors. Participants ranked their preference for seven academic majors (i.e., math/science, English/foreign languages, arts, business, health, social sciences, education) from 1 (*most prefer*) to 7 (*least prefer*). Responses were later reverse scored such that higher numbers reflected greater preference for majoring in that domain.

Manipulation check. Participants reported the type of images they viewed by circling one of three choices: "Romantic desirability images," "Intelligence images," or "I don't recall."[1]

Results and Discussion

Eleven participants were excluded from analyses because they incorrectly recalled the images they viewed. The final sample consisted of 108 participants (54 women, M_{age} = 18.94). Table 1 reports descriptive statistics and zero-order correlations. There were no significant sex or condition differences in initial interest in STEM.[2]

Table 1. Means, Standard Deviations, and Zero-Order Correlations (Study 1; $N = 108$)

	1	2	3	4	5	6
M	–0.02	–0.06	6.41	4.01	4.40	2.86
SD	1.00	1.00	1.93	2.07	2.26	1.76
1. Sex	—					
2. Initial STEM interest	–.13	—				
3. Appeal of images	.12	–.00	—			
4. STEM interest	–.14	.61***	.13	—		
5. Preference for math/science major	–.10	.54***	.04	.88***		
6. Preference for English/foreign languages major	.26**	–.26**	.09	–.48***	–.50***	—

No significant findings emerged for the other academic majors when conducting our primary analyses, so these variables are not listed in the present table. STEM = science, technology, engineering, and math.
**$p < .01$. ***$p < .001$.

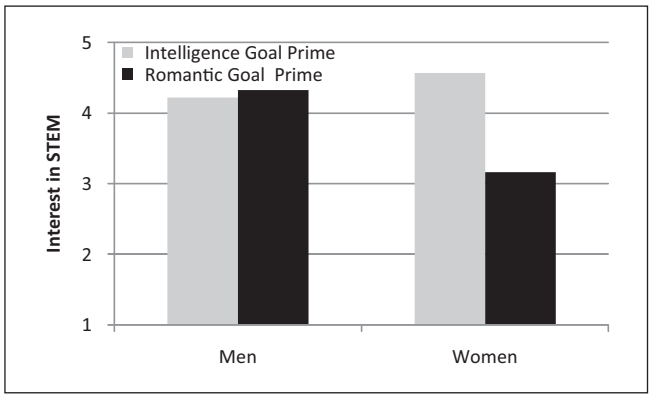

Figure 1. Study 1: Interest in science, technology, engineering, and math (STEM) as a function of participant sex and exposure to romantic versus intelligence images, controlling for initial STEM interest and appeal of images
Values reflect predicted scores based on regression analyses.

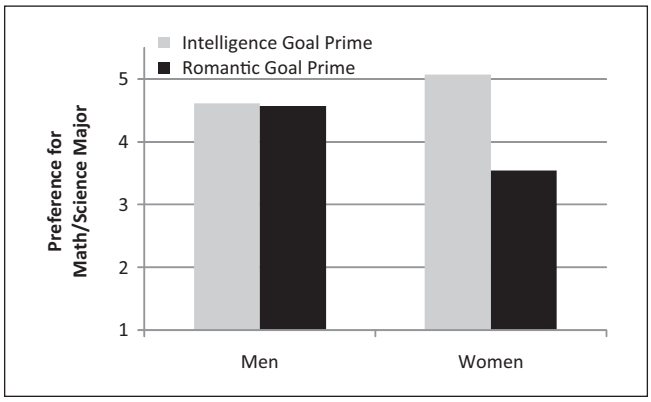

Figure 2. Study 1: Preference for math/science major as a function of participant sex and exposure to romantic versus intelligence images, controlling for initial science, technology, engineering, and math interest and appeal of images
Higher values reflect greater preference for majoring in that domain relative to other domains. Values reflect predicted scores based on regression analyses.

Interest in STEM. For our primary analyses, we conducted multiple regression analyses in which we entered initial interest in STEM (1 = *yes*, –1 = *no*) and centered ratings of the appeal of images as covariates, main effects of sex (coded as 1 = *female*, –1 = *male*) and condition (coded as 1 = *romantic goal prime*, –1 = *intelligence goal prime*), and the Sex × Condition interaction. The overall model predicting interest in STEM was significant, $R^2 = .44$, $F(5, 102) = 16.37$, $p < .001$, $f^2 = .82$. There was a significant Sex × Condition interaction, $\beta = –.19$, $p < .05$, $sr^2 = .03$ (see Figure 1); no other effects were significant.

Simple effect tests revealed, as predicted, that women who viewed the romantic images reported significantly less interest in STEM than did women who viewed the intelligence images, $\beta = –.35$, $p < .05$, $sr^2 = .04$; men's interest in STEM did not differ in response to the images they viewed. In addition, among participants who viewed the romantic images, women reported significantly less interest in STEM than did men, $\beta = –29$, $p < .01$, $sr^2 = .04$; in contrast, there were no sex differences in STEM interest among those who viewed the intelligence images.

Preference for math/science major. Next, we conducted a regression analysis, using the same procedure described above, to examine participants' preference for majoring in math/science. The overall model was significant, $R^2 = .33$, $F(5, 102) = 10.27$, $p < .001$, $f^2 = .52$. There were no significant main effects, but there was a significant Sex × Condition interaction, $\beta = –.16$, $p < .05$, $sr^2 = .03$ (see Figure 2). As expected, women who viewed the romantic images reported significantly less preference for majoring in math/science than did women who viewed the intelligence images, $\beta = –.34$, $p < .05$, $sr^2 = .03$; men's preference for majoring in math/science did not differ in response to the images they viewed. Among participants who viewed the romantic images, women tended to report less preference for math/science than did men, $\beta = –.23$, $p = .06$, $sr^2 = .02$; there were no sex differences in math/science preference among those who viewed the intelligence images.

Preference for other majors. We conducted a series of regression analyses, using the same procedure described previously,

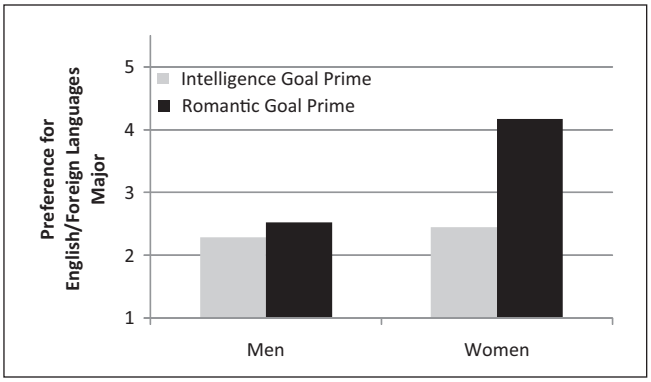

Figure 3. Study 1: Preference for English/foreign languages major as a function of participant sex and exposure to romantic versus intelligence images, controlling for initial science, technology, engineering, and math interest and appeal of images
Values reflect predicted scores based on regression analyses.

to examine participants' preference for majoring in the other academic majors. The only significant finding to emerge was for English/foreign languages; the overall model predicting this outcome was significant, $R^2 = .20$, $F(5, 102) = 5.12$, $p < .001$, $f^2 = .25$. There were significant effects of initial STEM interest, $\beta = -.22$, $p < .05$, $sr^2 = .05$; sex, $\beta = .26$, $p < .05$, $sr^2 = .06$; condition, $\beta = .28$, $p < .05$, $sr^2 = .04$; and Sex × Condition interaction in predicting preferences for English/foreign languages major, $\beta = .21$, $p < .05$, $sr^2 = .04$ (see Figure 3).

In particular, women who viewed the romantic images reported significantly greater preference for majoring in English/foreign languages than did women who viewed the intelligence images, $\beta = .49$, $p < .01$, $sr^2 = .07$; men's preference for English/foreign languages did not differ in response to the images they viewed. Among participants who viewed the romantic images, women reported significantly greater interest in majoring in English/foreign languages than did men, $\beta = .47$, $p < .001$, $sr^2 = .10$; among participants who viewed the intelligence images, there was no sex difference in preference for English/foreign languages major.

Overall, these results support our hypothesis that women, but not men, show less interest in STEM when exposed to cues related to romantic goals versus intelligence goals. We think that women may have distanced themselves from STEM because they experienced conflict between the goals to be romantically desirable and intelligent in the male-stereotyped domains of STEM. Women, but not men, also expressed greater interest in English/foreign languages when exposed to cues related to romantic goals, suggesting that women may simultaneously draw closer to domains that are traditionally feminine in an attempt to appear less masculine.

Study 2a

In the next set of studies, we sought to conceptually replicate the results of Study 1 by using a different experimental paradigm to activate romantic goals in everyday life: the perception of others' goal-directed behavior. According to the goal contagion hypothesis, perceiving others' goal pursuits automatically activates the mental goal representation in oneself, leading one to act on those goals (Aarts et al., 2004). Participants in the present studies overheard a conversation intended to prime a romantic goal or a control goal (i.e., intelligence goal, Study 2a; friendship goal, Study 2b). We hypothesized that overhearing a conversation related to romantic goals versus other goals would lead women, but not men, to report less positive attitudes toward STEM and less preference for majoring in math/science because for women, wanting to be romantically desirable is likely to conflict with pursuing intelligence goals in masculine domains such as STEM.

Method

Participants and procedure. A total of 119 students (62 women, $M_{age} = 18.96$; 52% interested in STEM) participated in sessions of up to five same-sex individuals. A same-sex experimenter explained that he or she was waiting for one more participant to show up before starting the study; he or she then left the room to check for the "missing participant." As the experimenter returned to the lab, a same-sex research assistant initiated a conversation with the experimenter just outside the doorway, within participants' earshot. In the *romantic goal prime condition*, the experimenter and research assistant engaged in a scripted conversation about a recent date that the experimenter had ostensibly gone on; in the *intelligence goal prime condition*, they engaged in a conversation about a test that the experimenter had recently taken. Following the conversation, participants reported their attitudes toward STEM and preference for majors, embedded among filler items. They then completed a manipulation check and suspicion check, and were debriefed and dismissed.

Materials

Conversation scripts. The conversations that participants overheard were designed to activate romantic goals or intelligence goals (see Appendix A). To assess goal activation, we conducted a follow-up study (23 women, 48 men, $M_{age} = 19.56$) in which students responded to questions pertaining to each conversation script using a 1 (*not at all*) to 9 (*extremely*) scale: "How much does this conversation make you want to be romantically desirable?" and "How much does this conversation make you want to be intelligent?" As expected, the romantic conversation ($M = 4.49$, $SD = 1.59$) predicted more romantic desirability goal activation than the intelligence conversation ($M = 2.61$, $SD = 1.60$), $t(70) = 8.02$, $p < .001$, $d = 1.18$, and the intelligence conversation ($M = 4.77$, $SD = 1.78$) predicted more intelligence goal activation than the romantic conversation ($M = 3.59$, $SD = 1.67$), $t(70) = 4.31$, $p < .001$, $d = .68$. There were no significant sex differences in goal activation.

Table 2. Means, Standard Deviations, and Zero-Order Correlations (Study 2a; $N = 113$)

	1	2	3	4	5
M	0.06	0.04	3.88	4.12	3.17
SD	1.00	1.00	1.61	2.31	1.83
1. Sex	—				
2. Initial STEM interest	–.12	—			
3. STEM attitudes	–.01	.55***	—		
4. Preference for math/science major	–.08	.46***	.81***	—	
5. Preference for English/foreign languages major	.20*	–.19*	–.42***	–.51***	—

STEM = science, technology, engineering, and math.
*$p < .05$. ***$p < .001$.

STEM attitudes and preference for majors. Participants responded to the questions: "How much do you like Math and Science (e.g., Computer Science, Technology, Engineering, Math, Chemistry, Physics, etc.)?" "How much do you identify with Math and Science?" and "How interested are you in Math and Science?" on a scale from 1 (*not at all*) to 7 (*very much*; α = .94). Participants also ranked their preference for academic majors, as in Study 1.

Manipulation check. Participants indicated the type of conversation they overheard earlier in the study by circling one of three choices: "Romantic conversation," "Intelligence conversation," or "I don't recall."

Results and Discussion

Four participants were excluded from analyses because they incorrectly recalled the conversation they overheard; two participants were excluded because they were suspicious that the conversation was staged. The final sample consisted of 113 participants (60 women, $M_{age} = 18.91$). There were no significant sex or condition differences in initial STEM interest. Table 2 reports descriptive statistics and zero-order correlations.

Attitudes toward STEM. We conducted a multiple regression analysis, as in Study 1, to test whether women who overheard the romantic conversation reported less positive attitudes toward STEM. The overall model was significant, $R^2 = .33$, $F(4, 108) = 13.31$, $p < .001$, $f^2 = .49$. There was a significant effect of initial STEM interest, $\beta = .55$, $p < .001$, $sr^2 = .30$, and a Sex × Condition interaction, $\beta = -.15$, $p = .05$, $sr^2 = .02$ (see Figure 4).

As expected, women who overheard the romantic conversation felt significantly less positive toward STEM than did women who overheard the intelligence conversation, $\beta = -.22$, $p < .05$, $sr^2 = .03$; men's attitudes did not differ in response to the conversation they overheard. In contrast to Study 1, men and women in the romantic goal prime condition did not differ in their attitudes toward STEM. Interestingly, women who overheard the intelligence conversation tended to report more positive attitudes toward STEM than did men, $\beta = .21$, $p = .06$, $sr^2 = .02$.

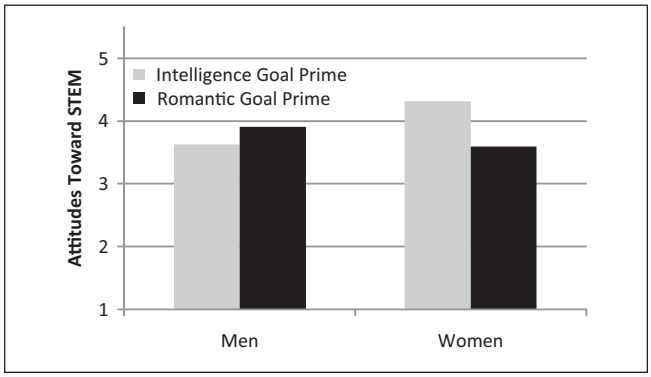

Figure 4. Study 2a: Attitudes toward science, technology, engineering, and math (STEM) as a function of participant sex and exposure to romantic versus intelligence conversations, controlling for initial STEM interest
Values reflect predicted scores based on regression analyses.

Preference for math/science major. Next, we conducted a regression analysis to examine participants' preference for majoring in math/science relative to other fields. The overall model predicting this outcome was significant, $R^2 = .24$, $F(4, 108) = 8.32$, $p < .001$, $f^2 = .31$; there was a significant effect of initial STEM interest, $\beta = .45$, $p < .001$, $sr^2 = .20$, and a marginally significant Sex × Condition interaction, $\beta = -.15$, $p = .08$, $sr^2 = .02$ (see Figure 5).

As expected, women who overheard the romantic conversation tended to report less preference for majoring in math/science than did women who overheard the intelligence conversation, $\beta = -.20$, $p = .08$, $sr^2 = .02$; men's preference for math/science major did not differ in response to the conversation they overheard. In contrast to Study 1, men and women did not differ in their preference for math/science major within the romantic goal prime condition or in the intelligence prime condition.

Preference for other majors. As in Study 1, the only significant finding that emerged from regression analyses was for English/foreign languages major; the overall model predicting this outcome was significant, $R^2 = .17$, $F(4, 108) = 5.45$, $p < .001$, $f^2 = .20$. Specifically, there was a significant Sex × Condition interaction, $\beta = .26$, $p < .01$, $sr^2 = .06$ (see Figure 6).

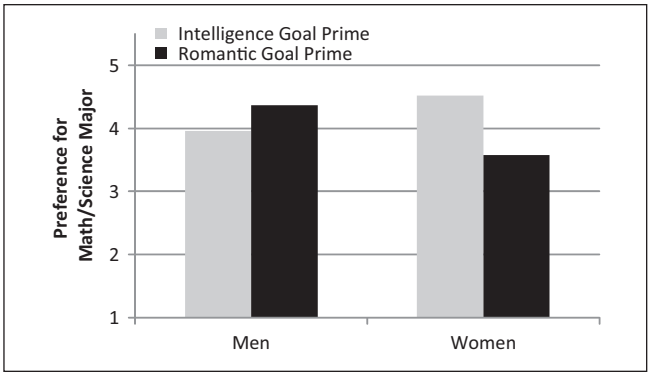

Figure 5. Study 2a: Preference for math/science major as a function of participant sex and exposure to romantic versus intelligence conversations, controlling for initial science, technology, engineering, and math interest
Values reflect predicted scores based on regression analyses.

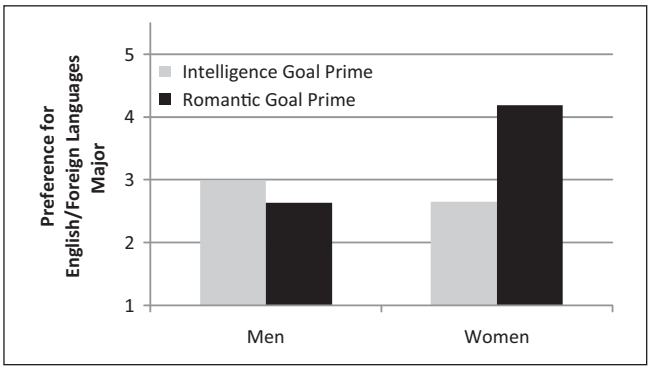

Figure 6. Study 2a: Preference for English/foreign languages major as a function of participant sex and exposure to romantic versus intelligence conversations, controlling for initial science, technology, engineering, and math interest
Values reflect predicted scores based on regression analyses.

Women who overheard the romantic conversation reported significantly greater preference for majoring in English/foreign languages than did women who overheard the intelligence conversation, $\beta = .42$, $p < .01$, $sr^2 = .10$; men's preference for English/foreign languages was not influenced by the conversations they overheard. Among participants who overheard the romantic conversation, women reported significantly greater interest in majoring in English/foreign languages than did men, $\beta = .42$, $p < .01$, $sr^2 = .09$. In contrast, among participants who overheard the intelligence conversation, there were no sex differences in preference for English/foreign languages major.

In sum, the results of Study 2a were generally consistent with the results of Study 1. Compared to women who overheard an intelligence conversation, women who overheard a romantic conversation reported less liking, identification, and interest in STEM and tended to show less preference for majoring in math/science versus other majors. In contrast to Study 1, women did not differ from men in their STEM attitudes or preference for math/science after overhearing the romantic conversation. A potential explanation for this discrepancy is that the romantic goal prime used in Study 1 was explicit and direct (i.e., viewing images), whereas the prime used in the current study was subtle and indirect (i.e., overhearing a conversation). Indeed, nearly one third of the participants in the present study did not recall the type of conversation they overheard, whereas the majority of participants in Study 1 recalled the type of images they viewed.

Another finding that differed from Study 1 is that women in the present study tended to feel more favorable toward STEM when they overheard the intelligence conversation compared to men who overheard this conversation. Perhaps women in the intelligence condition experienced a motivational boost after hearing a similar other (a female confederate) talk about how well she did on a recent test; the confederate may have served as a role model to enhance female participants' interest in academics, even in masculine domains.

An alternative explanation for the present findings is that the romantic goal prime condition replicates the pattern seen in the world, where women are less invested in STEM than men, and the intelligence goal prime condition eliminates this difference. We do not think that the romantic condition merely reflects the pattern seen in the real world because men and women did not differ in their initial interest in STEM. Indeed, even in the absence of initial differences in STEM interest, women, but not men, who were exposed to images (Study 1) or conversations (Study 2a) related to romantic goals showed less interest in STEM.

Finally, conceptually replicating Study 1, women who overheard a romantic conversation reported greater preference for majoring in English/foreign languages than women who overheard the intelligence conversation. Whereas expressing interest in masculine domains may interfere with women's goal to be romantically desirable, expressing interest in feminine domains is compatible with women's goal to be desirable and, more broadly, with traditional romantic scripts and gender norms that encourage women to appear feminine—and not masculine—in their attitudes and interests.

Study 2b

Whereas the studies so far suggest effects of romantic versus intelligence goal priming, it is unclear whether there is something unique about romantic goals versus interpersonal goals more generally. To address this question, Study 2b compared a romantic goal prime (i.e., overhearing a conversation about a date) with a friendship goal prime (i.e., overhearing a conversation about a visit from a same-sex friend). If romantic goals are redundant with interpersonal goals, there should be no differences in attitudes toward STEM or preference for math/science major following exposure to a conversation intended to activate romantic goals versus friendship goals. However, if romantic goals are distinct from other interpersonal goals, differences on the dependent measures should emerge. To further test the unique predictive ability of

Table 3. Means, Standard Deviations, and Zero-Order Correlations (Study 2b; $N = 86$)

	1	2	3	4	5	6	7	8
M	0.30	4.38	0.49	593.63	4.31	4.00	4.31	3.34
SD	0.96	2.22	0.88	82.88	1.72	1.73	2.02	1.68
1. Sex	—							
2. Initial STEM interest	.10	—						
3. Enrollment in	.07	–.48***	—					
4. Math SAT score	–.00	.07	–.19	—				
5. STEM attitudes	.11	.70***	–.32**	.26*	—			
6. Arts attitudes	–.01	–.27*	–.23*	–.11	–.46***	—		
7. Preference for math/science major	–.01	.66***	.29*	.13	.85***	–.46***	—	
8. Preference for English/foreign languages major	.08	–.28*	–.17	–.02	–.33**	.31**	–.37***	—

STEM = science, technology, engineering, and math; MSE = math/science/engineering.
*$p < .05$. **$p < .01$. ***$p < .001$.

romantic goal pursuit, we controlled for participants' initial STEM interest, math/science experience, and math competence in the present study.

Participants and procedure. During a mass testing session, students in introductory psychology courses reported their interest in pursuing a degree or career in STEM on a scale from 1 (*not at all*) to 7 (*very much*), their current enrollment in a math/science/engineering (MSE) course, and their most recent math SAT score. A total of 96 students (60 women, $M_{age} = 19.20$; average interest in STEM = 4.38; 74% enrolled in an MSE course; average math SAT score = 599) participated in the study.

The procedure was similar to Study 2a except that we dropped (from the romantic conversation) the phrase: "That's why I spent so much time getting ready. I just wanted to look good for her/him" to rule out the possibility that men and women might differ in the amount of time or energy they anticipate exerting to look attractive. In addition, we replaced the intelligence conversation with a conversation intended to activate friendship goals (see Appendix B). After overhearing one of these conversations, participants responded to the following questions, embedded among filler items, to assess STEM attitudes: "How much do you like Math and Science (e.g., Math, Technology, Computer Science, Chemistry, Physics, Engineering)?" "How interested are you in Math and Science?" and "I consider myself to be more mathematical than artistic" on a scale from 1 (*not at all*) to 7 (*very much*; $\alpha = .84$). Using the same response scale, participants reported their attitudes toward the arts: "How much do you like the Arts and Humanities (e.g., Visual and Performing Arts, English, Literature, Philosophy, Foreign Languages)?" "How interested are you in the Arts?" and "I consider myself to be an 'Arts' person" ($\alpha = .92$). Participants then ranked their preference for majors, completed a suspicion check and manipulation check, and were debriefed and dismissed.

Results and Discussion

Eight participants were excluded from analyses because they incorrectly recalled the type of conversation they overheard; two participants were excluded because they were suspicious that the conversation was staged. The final sample consisted of 86 participants (56 women, $M_{age} = 19.20$). There were no sex or condition differences in the covariates. Table 3 reports descriptive statistics and zero-order correlations.

Attitudes toward STEM. As in the previous studies, we conducted a multiple regression analysis in which we entered covariates (i.e., enrollment in an MSE course, coded as 1= *yes*, –1 = *no*; centered scores for initial interest in STEM[3]; math SAT scores), main effects of sex (coded as before), and condition (coded as 1 = *romantic goal prime*, –1 = *friendship goal prime*), and the Sex × Condition interaction. The overall model was significant, $R^2 = .56$, $F(6, 68) = 14.48$, $p < .001$, $f^2 = 1.27$. There were significant effects of initial STEM interest, $\beta = .63$, $p < .001$, $sr^2 = .31$; math SAT scores, $\beta = .21$, $p < .05$, $sr^2 = .04$; and a Sex × Condition interaction, $\beta = –.22$, $p < .05$, $sr^2 = .04$ (see Figure 7).

As expected, women who overheard the romantic conversation felt significantly less positive toward STEM than did women who overheard the friendship conversation, $\beta = .22$, $p < .05$, $sr^2 = .03$; men's STEM attitudes did not differ in response to the conversation they overheard. Also, among participants who overheard the friendship conversation, women reported more positive attitudes toward STEM than did men, $\beta = .29$, $p < .05$, $sr^2 = .04$; in contrast, there were no sex differences in STEM attitudes among those who overheard the romantic conversation.

Attitudes toward the arts. Next, we conducted a regression analysis, as done previously, but with initial STEM interest and enrollment in an MSE course as covariates. The overall model was significant, $R^2 = .16$, $F(5, 80) = 3.10$, $p < .05$,

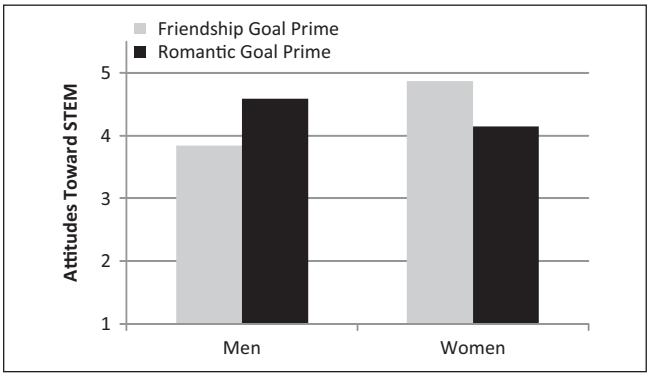

Figure 7. Study 2b: Attitudes toward science, technology, engineering, and math (STEM) as a function of participant sex and exposure to romantic versus friendship conversations, controlling for initial STEM interest, enrollment in a math/science/engineering course, and math SAT scores
Values reflect predicted scores based on regression analyses.

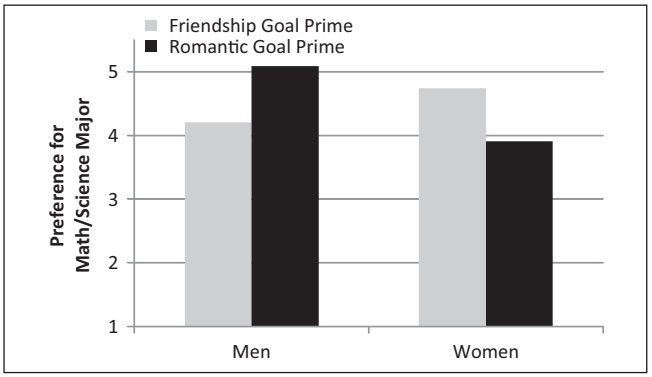

Figure 9. Study 2b: Preference for math/science major as a function of participant sex and exposure to romantic versus intelligence friendship conversations, controlling for initial science, technology, engineering, and math interest and enrollment in a math/science/engineering course
Values reflect predicted scores based on regression analyses.

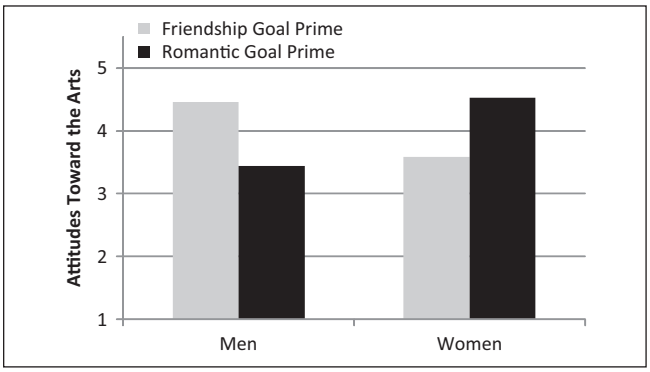

Figure 8. Study 2b: Attitudes toward the arts as a function of participant sex and exposure to romantic versus friendship conversations, controlling for initial science, technology, engineering, and math interest and enrollment in a math/science/engineering course
Values reflect predicted scores based on regression analyses.

$f^2 = .19$. The only significant result was a Sex × Condition interaction, $\beta = .28$, $p < .05$, $sr^2 = .07$ (see Figure 8). Women who overheard the romantic conversation reported significantly more positive attitudes toward the arts than did women who overheard the friendship conversation, $\beta = -.27$, $p < .05$, $sr^2 = .04$; men's arts attitudes did not differ across conditions. Additionally, among participants who overheard the romantic conversation, women felt significantly more positive toward the arts than did men, $\beta = .30$, $p = .05$, $sr^2 = .04$. There was a marginal sex difference in arts attitudes among those who overheard the friendship conversation, $\beta = -.24$, $p = .10$, $sr^2 = .03$.

Preference for math/science major. Next, we conducted a regression analysis, as done previously, to examine participants' preference for majoring in math/science relative to other fields. Initial STEM interest and enrollment in an MSE course were entered as covariates. The overall model was significant, $R^2 = .48$, $F(5, 80) = 14.64$, $p < .001$, $f^2 = .92$. There was a significant main effect of initial STEM interest, $\beta = .66$, $p < .001$, $sr^2 = .33$, and a Sex × Condition interaction, $\beta = -.21$, $p < .05$, $sr^2 = .04$ (see Figure 9).

Specifically, women who overheard the romantic conversation tended to express less preference for majoring in math/science than did women who overheard the friendship conversation, $\beta = .21$, $p < .05$, $sr^2 = .03$; men's interest in STEM did not differ in response to the conversation they overheard. Similar to Study 1, women in the romantic goal prime condition showed significantly less preference for majoring in math/science than did men, $\beta = -.28$, $p < .05$, $sr^2 = .03$; there were no sex differences within the friendship goal prime condition.

Preference for other majors. There were no significant Sex × Condition interactions in predicting preference for any of the other academic majors.

Overall, the results of Study 2b were generally consistent with the findings of the previous two studies: Women exposed to cues related to romantic goals (i.e., a conversation about a date) reported less positive attitudes toward STEM and less preference for majoring in math/science than did women exposed to cues related to friendship goals. These findings emerged even after controlling for initial STEM interest, enrollment in an MSE course, and math SAT scores, suggesting a unique effect of romantic goal pursuit in shaping women's STEM outcomes.

Although men and women did not differ in their preference for other majors in the present study, women did report more

positive attitudes toward the arts after overhearing the romantic conversation. This finding is consistent with the previous studies, in which women reported greater preference for feminine majors (e.g., English/foreign languages) after being exposed to romantic images and conversations. Thus, women, but not men, appear to distance themselves from STEM fields versus other fields when romantic goals are activated but not when intelligence goals or interpersonal goals are activated.

Study 3

In Study 3, we used a more explicit method of assessing goal pursuit by asking women to report on their daily romantic and intelligence goal strivings, romantic activities and math course activities, and feelings of attractiveness, likability, and desirability. Because only women reported less interest in STEM in the previous studies, we recruited women for the present study.

Past research has shown that active goals increase accessibility of goal means (i.e., ways to achieve the goals) and decrease accessibility of competing goals and means (Shah & Kruglanski, 2002). In addition, the value of activities is influenced by goal pursuit. For example, priming the goal of studying enhances the value of academic concepts (e.g., library, college) and reduces the value of nonacademic temptations (e.g., television, chat; Fishbach, Zhang, & Trope, 2007). Given societal pressures for women to be desirable, pursuing romantic goals may be highly valued among women but may detract from other goal pursuits.

Building on the previous studies, we hypothesized that the pursuit of romantic goals would lead women to engage in more romantic activities and to feel more desirable, but it might make them less invested in their math course activities. In contrast, the pursuit of intelligence goals might lead women to engage in more math activities, fewer romantic activities, or both. These effects may be observed on a daily basis, as well as across days, such that goal strivings on a previous day affect the next day's activities and interpersonal feelings.

Method

Participants and procedure. A total of 54 women (M_{age} = 19.07) from college math courses participated in a 21-day daily diary study. Twenty-eight participants were in a romantic relationship; 24 participants were not in a relationship. Women who were interested in pursuing a degree or career in STEM were recruited to participate. In Phase 1, participants came to the lab and were instructed on the use of a personal digital assistant (PDA) hand-held computer to record their daily responses. In Phase 2, participants completed a survey on their PDA before going to bed each night, in which they reported on their goal strivings that day, feelings of desirability, and activities they engaged in, embedded among filler items. In Phase 3, participants returned to the lab, were debriefed, and received $75.

Table 4. Means and Standard Deviations (Study 3; *N* = 54)

	M	*SD*
Romantic goals	3.17	1.14
Intelligence goals	3.81	1.05
Math activities	3.70	2.20
Romantic activities	2.25	1.86
Feelings of desirability	3.42	0.97

Daily Diary Survey Items

Romantic goal pursuit. Participants responded to the items: "Today, I was striving to meet my personal goals related to my relationship with a current or potential romantic partner" and "Today, I was trying to be romantically desirable" on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*; α = .63).

Intelligence goal pursuit. Using the same response scale, participants responded to the items: "Today, I was striving to meet my personal goals related to my classes/grades/academic performance/competence" and "Today, I was trying to be academically competent/intelligent" (α = .80).

Activities checklist. Participants reported whether they had engaged in various math and romantic activities that day. For *math activities* (seven items), participants responded to all items in relation to their current math course; sample items were: "Today, I paid attention in class" and "Today, I did my homework." Sample *romantic activities* (seven items) were: "Today, I called/emailed/texted someone I was romantically interested in" and "Today, I spent time with someone I was romantically interested in." For each category, we summed the total number of activities that participants engaged in that day (1 = *yes*, 0 = *no*).

Feelings of desirability. Daily interpersonal feelings were assessed with the items: "Today I felt romantically desirable," "Today I felt physically attractive," and "Today I felt likeable" on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*; α = .79).

Results

Participants completed a total of 1,113 daily reports. Forty entries (4%) were discarded for being too close together in time (i.e., less than 12 hr apart). The final number of entries analyzed was 1,073 with an average of 19.13 reports (*SD* = 2.22) per person. Table 4 reports means and standard deviations for the study variables.

Data analytic strategy. We used multilevel modeling (HLM 6.03 software; Raudenbush & Bryk, 2002) to test (a) whether participants' daily goal pursuits predicted their engagement

Table 5. Same-Day Fixed Effect Coefficients and Standard Errors from HLM Analyses in Study 3 ($N = 54$)

	Intercept	Relationship status	Yesterday's math activities	Yesterday's romantic activities	Yesterday's feelings of desirability	Today's romantic goals	Today's intelligence goals
Today's math activities	1.23***	–0.04	0.04***			–0.05**	0.39***
	(0.05)	(0.07)	(0.01)			(0.02)	(0.03)
Today's romantic activities	0.15	0.72**		0.05***		0.31***	-1.50×10^{-4}
	(0.17)	(0.19)		(0.01)		(0.04)	(0.02)
Today's feelings of desirability	3.29***	0.24			0.06	0.42***	0.04
	(0.16)	(0.18)			(0.04)	(0.03)	(0.03)

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

that day in romantic and math activities and feelings of desirability, controlling for the previous day's scores on the dependent measure of interest (i.e., same-day analyses), and (b) whether goal pursuits on the previous day predicted the following day's activities and feelings of desirability, controlling for yesterday's scores on the dependent measure of interest (i.e., cross-day analyses). Because daily reports of romantic and intelligence goal pursuits were nested within persons, we used multilevel modeling to handle the nonindependence of observations (Kenny, Korchmaros, & Bolger, 2003). All models were computed using full maximum likelihood estimation, and dependent variables that were assessed as count data (i.e., number of math and romantic activities) were analyzed by specifying the outcome variables as having a Poisson distribution.

Same-day analyses. To analyze the relation between daily goal pursuit and math activities, we predicted engagement in math activities after taking into account daily-level differences in romantic and intelligence goal pursuit, controlling for relationship status and the previous day's math activities.

The Level 1 model was:

$$\text{Today's Math Activities} = \beta_{00} + \beta_{10}(\text{Romantic Goals}) + \beta_{20}(\text{Intelligence Goals}) + \beta_{30}(\text{Yesterday's Math Activities}) + e$$

The Level 2 models were:

$$\begin{aligned} \pi_0 &= \beta_{00} + \beta_{01}(\text{Relationship Status}) + r_0 \\ \pi_1 &= \beta_{10} + r_1 \\ \pi_2 &= \beta_{20} + r_2 \\ \pi_3 &= \beta_{30} \end{aligned}$$

We present the mixed model below as a prototype for the remainder of the analyses:

$$\text{Today's Math Activities} = \beta_{00} + \beta_{01}(\text{Relationship Status}) + \beta_{10}(\text{Romantic Goals}) + \beta_{20}(\text{Intelligence Goals}) + \beta_{30}(\text{Yesterday's Math Activities}) + r_0 + r_1(\text{Romantic Goals}) + r_2(\text{Intelligence Goals}) + e$$

Specifically, we predicted today's engagement in academic activities from a grand mean intercept (β_{00}) that varies randomly across individuals (r_0); the main effect of the covariate of relationship status (β_{01}, a fixed effect); romantic goals (β_{10}), which captures the daily average within-person slope and varies randomly across individuals (r_1); intelligence goals (β_{20}), which captures the daily average within-person slope and varies randomly across individuals (r_2); the covariate of the previous day's academic activities (β_{30}, a fixed effect, which captures the average within-person stability slope across individuals); and an error term (e) that reflects each person's daily deviation from his or her own mean on the dependent variable.All daily-level within-person predictors were centered on each person's mean for that variable. Thus, significant effects for daily-level variables reflect effects of being high versus low relative to one's own mean.

Table 5 summarizes the results of all the same-day analyses. As hypothesized, daily romantic goal pursuit predicted engaging in fewer math activities today, whereas daily intelligence goal pursuit predicted engaging in more math activities today, controlling for relationship status and the previous day's math activities. Daily romantic goal pursuit also predicted engaging in more romantic activities today, whereas daily intelligence goal pursuit was not related to romantic activities, controlling for relationship status and the previous day's romantic activities. Finally, daily romantic goal pursuit predicted greater feelings of desirability today, whereas daily intelligence goal pursuit did not predict feelings of desirability, controlling for relationship status and the previous day's feelings of desirability.

Cross-day analyses. Next, to examine how the previous day's variables predicted today's outcomes, we conducted cross-day analyses, which parallel those used in the same-day analyses, with the exception that the two goal pursuit variables reflect the previous day's goal pursuits instead of the current day's goal pursuits. In these models, all lagged variables were centered on each person's mean for that variable. Thus, significant effects for lagged variables reflect effects of being high versus low relative to one's own mean on the dependent variable on the previous day. The mixed model presented below was used as a prototype for the remainder of the analyses:

Table 6. Cross-Day Fixed Effect Coefficients and Standard Errors from HLM Analyses in Study 3 ($N = 54$)

	Intercept	Relationship status	Yesterday's math activities	Yesterday's romantic activities	Yesterday's feelings of desirability	Yesterday's romantic goals	Yesterday's intelligence goals
Today's math activities	1.28***	–0.02	0.04***			–0.07**	0.08***
	(0.05)	(0.06)	(0.01)			(0.02)	(0.02)
Today's romantic activities	0.14	0.81***		0.08***		-3.10×10^{-3}	1.00×10^{-3}
	(0.17)	(0.19)		(0.02)		(0.03)	(0.02)
Today's feelings of desirability	3.32***	0.18			0.05	0.08**	–0.03
	(0.16)	(0.18)			(0.04)	(0.04)	(0.03)

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

$$\text{Today's Math Activities} = \beta_{00} + \beta_{01}(\text{Relationship Status}) + \beta_{10}(\text{Yesterday's Romantic Goals}) + \beta_{20}(\text{Yesterday's Intelligence Goals}) + \beta_{30}(\text{Yesterday's Math Activities}) + r_0 + r_1(\text{Yesterday's Romantic Goals}) + r_2(\text{Yesterday's Intelligence Goals}) + e$$

Table 6 summarizes the results. Romantic goal pursuit on the previous day predicted engaging in fewer math activities today, whereas intelligence goal pursuit on the previous day predicted engaging in more math activities today, controlling for relationship status and the previous day's math activities. There were no effects of the previous day's romantic or intelligence goal pursuits in predicting today's romantic activities, controlling for relationship status and yesterday's romantic activities. Finally, participants' romantic goal pursuit on the previous day predicted feeling more desirable today, controlling for relationship status and yesterday's feelings of desirability.

Discussion

Consistent with hypotheses, on days when women were striving to be romantically desirable, they engaged in more romantic activities and felt more desirable but engaged in fewer math activities (e.g., studying for math class, completing math homework). In contrast, on days when women were striving to do well academically, they engaged in more math activities. Importantly, the cross-day findings revealed that goal pursuit on the previous day had a lingering effect on today's activities and feelings: the more women pursued romantic goals on the previous day, the more desirable they felt, but the fewer math activities they engaged in on the following day. On the other hand, the more women pursued intelligence goals on the previous day, the more math activities they engaged in on the following day. Together, these findings suggest a reinforcing property of goal pursuit that influences how women choose to spend their time and energy in daily life and over time.

A limitation of Study 3 is that we did not assess women's involvement in non-STEM activities. However, our prior studies showed that women reported less interest in STEM, but not other fields, when the goal to be romantically desirable was activated. In fact, women reported *greater* interest in feminine fields (e.g., English/foreign languages) and showed greater preference for majoring in such fields when the goal to be desirable was activated.

In sum, the results of Study 3 reveal one route through which women may show reduced interest in STEM, via daily pursuit of romantic goals. All women in this study were enrolled in a college math course and were initially interested in pursuing a degree or career in STEM. Even among this selective group, women—when striving to be romantically desirable—spent more time and effort on romantic activities and less on math activities on a daily basis. Pursuing romantic goals proved to be rewarding: Women felt more attractive, desirable, and likable on days when they were trying to be desirable, and this effect carried over to the next day. However, the more women pursued romantic goals on the previous day, the fewer math activities they engaged in on the following day.

General Discussion

Across studies, we found converging support for the idea that when romantic goals are activated—whether by environmental cues or personal choice—women show less interest and investment in STEM. Specifically, viewing romantic images (Study 1) or overhearing a conversation about a romantic date (Studies 2a-2b) led women, but not men, to report less positive attitudes toward STEM, and less preference for majoring in math/science relative to other fields, than being primed with other goals (e.g., intelligence or friendship goals). These effects did not generalize to other academic domains; in fact, women reported greater interest in feminine domains (e.g., arts, English/foreign languages) when primed with romantic goals.

Study 3 examined the consequences of romantic goal pursuit in daily life. On days when women pursued romantic goals, they felt more attractive and desirable and engaged in more romantic activities but engaged in fewer math activities. Women's romantic goal pursuits on the previous day also carried over to the next day: The more women sought to

be romantically desirable on a previous day, the more desirable they felt, but the fewer math activities they engaged in on the following day. Overall, these findings are consistent with the idea that women experience conflict between wanting to be romantically desirable and wanting to be intelligent in the male-stereotyped domains of STEM.

A strength of the current research is the ecological validity of its methods. Being exposed to romantic-related objects and settings, overhearing a conversation about a date, and striving to be romantically desirable in everyday life are common occurrences. Thus, features of daily life may serve to bolster women's romantic goal pursuits and, in doing so, hinder their intelligence goal pursuits in STEM.

Gender and Romantic Goal Pursuit

From a young age, girls are socialized to prioritize romantic goals and to find love, even at the expense of personal power and autonomy (Rudman & Glick, 2008; Rudman & Heppen, 2003). Adherence to traditional romantic scripts, and the gender roles embedded within such scripts, may attenuate women's agentic goal strivings. Indeed, women who implicitly associated romantic partners with chivalry reported less interest in pursuing higher education, prestigious occupations, or leadership positions—all stereotypically masculine characteristics (Rudman & Heppen, 2003). Extending these findings, we found that both the situational activation and volitional pursuit of romantic goals led women to distance themselves from STEM but to express greater interest in feminine fields (e.g., arts, English).

Given that math/science is associated with masculinity and arts/humanities with femininity (Nosek, Banaji, & Greenwald, 2002; Park, Cook, & Greenwald, 2002), it makes sense that women—when primed with the goal to be romantically desirable—would shy away from masculine fields and draw closer to feminine fields. Along these lines, Davies, Spencer, Quinn, and Gerhardstein (2002) found that women exposed to gender-stereotypic commercials reported less interest in educational and vocational options in which they were susceptible to stereotype threat (i.e., quantitative domains) and more interest in fields in which they were not vulnerable to such threats (i.e., verbal domains). Whereas Davies and colleagues interpreted their results in terms of gender-based stereotype threat (i.e., the situational predicament of being personally reduced to a negative stereotype, such as women being bad at math), we conceptualize our research in terms of traditional romantic scripts and gender norms, which may contribute to women's goal conflict between wanting to be romantically desirable and wanting to be intelligent in masculine domains such as STEM.

Our findings are also consistent with recent research showing that women report less interest in STEM careers because these fields are perceived to impede fulfillment of communal goals (e.g., helping others; Diekman, Brown, Johnston, & Clark, 2010). An important difference between these two goals, however, is that romantic goals are conceptualized as self-presentational in nature and as being linked to traditional romantic scripts and gender norms, whereas communal goals are not related to traditional romantic scripts or self-presentational concerns per se.

In relation to theories of goal pursuit, the present research suggests that goal shielding occurred for women, but not for men, when pursuing romantic goals. Goal shielding occurs when people inhibit alternative goals in the process of pursuing focal goals (Kruglanksi et al., 2002; Shah et al., 2002). In the current studies, romantic goal priming led women, but not men, to report less positive attitudes toward STEM (Studies 1-2b); women also engaged in fewer math activities on days when they were pursuing romantic goals, as well as across days (Study 3).

Whereas men are encouraged to excel in masculine domains, women are socialized to downplay intelligence goals in masculine domains in romantic contexts, consistent with traditional romantic scripts and gender norms that exist in Western cultures.

Limitations and Future Directions

There are a few limitations of the current research, as well as potential future directions. First, we theorized that women would distance themselves from STEM because pursuing intelligence goals in masculine domains such as STEM interferes with the goal to be romantically desirable. However, we did not determine whether goal conflict directly accounted for the results of the present studies, so future research is needed to test this idea of cognitive interference.

Another limitation is that we did not directly test whether the experimental manipulations primed the goal to be romantically desirable or merely activated the cognitive construct of romance in general. We did, however, conduct follow-up studies, which confirmed that exposure to the images and conversations used in our studies led participants to want to be romantically desirable versus intelligent. In addition, we explicitly asked participants in Study 3 to report on their daily goal strivings related to romantic and intelligence goal pursuits. Thus, converging evidence suggests that the activation and pursuit of goals, rather than mere construct activation, was likely responsible for the effects observed.

Also, whereas we only assessed participants' short-term interest in STEM, future research could examine whether romantic goal strivings influence other outcomes, such as course grades, persistence in STEM, or field of employment. Another future direction is to examine the degree to which women's self-reported academic attitudes and interests are the result of conscious, motivated processes or more nonconscious, automatic processes. Because traditional romantic scripts and gender norms are learned early and reinforced throughout life, women may respond to romantic goal priming in largely automatic ways. However, people can also consciously choose to prioritize certain goals over others (e.g., Ajzen, 1991).

Conclusion

The present research demonstrated that the activation and pursuit of romantic goals has distinct and far-reaching effects on women's attitudes, preferences, and involvement in activities related to STEM. Using ecologically valid methods, we found that college women showed less interest in STEM when the goal to be romantically desirable was activated, either by environmental cues or by personal choice. Together, the findings from this research highlight the value of examining everyday romantic goal pursuit in understanding why women show diminished interest in pursuing the male-dominated fields of STEM.

Appendix A

Romantic Desirability Conversation Script (Study 2a)

Research Assistant: Hey, what's going on?
Experimenter: Nothing much. I'm just waiting for one more person to show up before I start this session.
Research Assistant: Oh hey, how was that date you had the other day?
Experimenter: Oh yeah, it went really well. We had a really nice dinner and then we just talked for hours! We really clicked and had lots in common. I had a great time.
Research Assistant: So, what did she/he look like? Was she/he hot?
Experimenter: Omigod, so hot! That's why I spent so much time getting ready. I just wanted to look good for her/him.
Research Assistant: Do you think she/he likes you?
Experimenter: Yeah, I think so. I'll tell you more about it later. I've got to get this session started.
Research Assistant: Alright, cool.

Intelligence Conversation Script (Study 2a)

Research Assistant: Hey, what's going on?
Experimenter: Nothing much. I'm just waiting for one more person to show up before I start this session.
Research Assistant: Oh hey, how was that test you had the other day?
Experimenter: Oh yeah, it went really well. I studied really hard and made sure I understood everything from lecture and the textbook. I even met with the professor to go over some of the material before the test.
Research Assistant: So, what was the test like? Was it hard?
Experimenter: Omigod, so hard! That's why I spent so much time studying for it. I just wanted to be prepared for the test.
Research Assistant: Do you think you got an A on it?
Experimenter: Yeah, I think so. I'll tell you more about it later. I've got to get this session started.
Research Assistant: Alright, cool.

Appendix B

Friendship Conversation Script (Study 2b)

Research Assistant: Hey, what's going on?
Experimenter: Nothing much. I'm just waiting for one more person to show up before I start this session.
Research Assistant: Oh hey, how was your friend's visit?
Experimenter: Oh yeah, it went really well. We hung out and I showed him/her around town. It was nice to just catch up with him/her.
Research Assistant: So, did you have a lot of fun?
Experimenter: Yeah, it was so fun!
Research Assistant: Do you think he'll/she'll come back to visit?
Experimenter: Yeah, I think so. I'll tell you more about it later. I've got to get this session started.
Research Assistant: Alright, cool.

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Notes

1. Four participants did not recall the images they viewed, but we retained their data because people are not always able to report on the source of goal priming. In subsequent studies, we retained data from participants who did not recall the manipulation. Even after excluding these participants ($n = 30$, Study 2a; $n = 40$, Study 2b), the pattern of results remained the same, although the effects were weaker because of reduced power.
2. One explanation for the lack of sex differences in initial science, technology, engineering, and math interest is that participants were predominantly freshmen who had not yet decided on their major.
3. Fourteen participants did not report their math SAT scores, but we retained their data because they completed all other measures in this study.

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