MEN DON’T CARE FOR CARING: FUNDAMENTAL GOALS AND MEN’S INTEREST IN HEED ROLES.

by

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ABSTRACT

Whereas women are increasingly moving into the workforce in general, and formerly male-dominated careers in specific, men continue to be underrepresented in the fields of healthcare, early education and the domestic sphere (HEED; Croft, Schmader, & Block, 2015). The current work sought to understand why men continue to show little interest in HEED careers and don’t perceive them as broadly valuable to the same extent women do. Previous research suggested that men and women show differing interest in Science and Technology careers to the extent that women are more communally oriented than men (Diekman et al., 2011). In three studies, the current research tested the hypothesis that men see HEED careers as less interesting and valuable than do women to the extent that men hold less communal (vs. agentic and competitive) goals than women. Study 1 and 2 show that gender differences in interest in and value assigned to HEED roles were indeed mediated by men’s relatively lower communal goals. In addition, study 2 suggested that competitiveness may play a special role in explaining why men, more so than women, tend to expect a breadwinner rather than a primary caregiver role in their future. Study 3 provided first experimental evidence that activating men’s communal goals can increase their interest in HEED occupations.
PREFACE

Experiments 1-3 included in this thesis contain original, unpublished, independent work by the author, K. Block. The research presented here was approved by the University of British Columbia’s Behavioral Research Ethics Board (H10-03173).
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INTRODUCTION

As the above quote from the Disney movie Mulan illustrates, even young children in our society are exposed to clear guidelines of what characteristics we value in men – being fast, forceful, strong and mysterious. In the movie, the beloved female hero – Mulan – has to pretend to be a male warrior to succeed on her adventures. Much like Mulan’s changing role in the movie, the push toward gender equality in the real world continues to focus mainly on creating equal representation of women in formerly male-dominated occupations. Indicating some social progress, women are now, for example, becoming doctors and lawyers at similar rates than are men (Bureau of Labor Statistics, 2014). Although scientists and policy makers have made considerable efforts to rectify women’s continuing underrepresentation in the sciences and other positions of leadership, men’s underrepresentation in certain careers, notably occupations related to teaching or health care, as well as the lack of men that are primary caregivers to their families, remains largely understudied (Croft, Schmader & Block, 2015). The current research seeks to understand men’s relative reluctance to take on such careers by examining how men and women differ in which fundamental goals they value.

A Persistent Inequality

The underrepresentation of men in certain careers is remarkable and persistent. For example, in the United States, men only represent approximately 10% of nurses, about 3%
preschool and kindergarten teachers, and 18% of social workers (Bureau of Labor Statistics, 2014). In addition to a marked segregation in paid occupations, we see a similar gender inequality persisting in the domestic sphere, where caregiving and homemaking are still dominated by women, rather than equally shared by men (Hochschild & Machung, 2012; Pew Research Center, 2013). Relate to childcare, in Canada, for example, the average working mother takes 44 weeks of leave after their child is born, while the average working father only takes approximately 2 weeks of leave (Ferraro, 2010). Such statistics show a persistent gender imbalance that rivals the widely discussed underrepresentation of women in Science, Technology, Engineering and Math (STEM) fields. In an effort to create an umbrella term that would aid the study of men’s underrepresentation in certain roles marked by providing care, compassion, and support to others, my colleagues and I recently proposed that each of the roles discussed here as dominated by women can broadly be characterized as belonging to the fields of healthcare, early education, or the domestic sphere (described by the acronym HEED; Croft, Schmader, & Block, 2015). As we noted in this recent review, despite years of research aimed at understanding why women are underrepresented in STEM fields, psychologists have not focused similar levels of systematic attention on understanding why men are underrepresented in HEED roles.

The field’s lack of understanding of why women dominate HEED roles is especially troublesome in light of evidence that men themselves, and society at large, could benefit from gender equality in HEED in several ways. Men themselves would likely benefit emotionally from increased equality – as caregiving roles, especially for one’s children, are related to psychological well-being, emotional growth, and marital satisfaction (Duckworth & Buzzanell, 2009; Fischer & Anderson, 2012; Knoester, Petts, & Eggebeen, 2007; Pleck & Masciadrelli, 2004; Yarwood, 2011). But men could also benefit economically. For example, the health sector
has enormous projected job growth in the coming years, giving ample opportunity for secure employment (Bureau of Labor Statistics, 2013).

At the same time, women and children would also benefit from men’s increased participation in HEED roles, especially in the domestic sphere. Here, to date, even in dual-earner couples, women continue to carry a disproportionate share of childcare- and household-burdens (Bird, 1999; Sayer, England, & Bianchi, 2009; Hochschild, 1989; Hochschild & Machung, 2012). If men participated more in domestic roles, women would likely have more free time to spend on career or leisure. Equally important, both male and female children would reap benefits from an increased participation of men in a number of HEED roles. For young boys, who are currently being educated in a school environment overwhelmingly dominated by women, an increased number of male teachers would provide a more diverse array of male role models (Sevier, 2015). At home, increased involvement of fathers in domestic life would likely model gender equality, especially for girls, as evidence suggests that more domestically involved fathers tend to have daughters with less gender-stereotypical aspirations (Croft, Schmader, Block, & Baron, 2015).

Given that men’s underrepresentation in HEED roles is so pervasive and the benefits to be gained by mitigating this imbalance are so broad, the present research aims to understand men’s relative reluctance to enter HEED roles. While acknowledging that a host of factors are likely at play in preventing men from entering HEED roles, the current research focuses on understanding HEED’s gender inequality in light of known gender differences in the prioritization of fundamental goals. To set up the hypotheses to be tested in the current research, I will first outline the general framework that informs our understanding of different factors that play into men’s underrepresentation in HEED fields. Next, I will discuss the importance of communion and agency as fundamental dimensions of individual differences and outline how
men and women differ on these two dimensions. I will then outline goal congruity theory and discuss what previous evidence can and cannot tell us about the connection between gender differences in career interest and gender differences in communal and agentic goals.

**Gender Differences in Social Roles**

To understand why men are underrepresented in HEED roles, we need to first acknowledge that a host of factors likely interact to create the observed differences in the roles that men and women self-selected into. Together with my colleagues, I have recently developed a theoretical model that identifies external, as well as internal barriers to men’s participation in female-dominated roles in healthcare, elementary education, and the domestic sphere – HEED roles (Croft, Schmader & Block, 2015). In this model, we pose that distal factors have led to the emergence and maintenance of gender stereotypes and status differences among men and women, which then foster both external social barriers, but also internal barriers, that deter men from equal participation in HEED roles. More specifically, we proposed that biological differences – such as men’s advantage in upper body strength and women’s unique role in childbirth and care for infants – interacted with cultural and economic factors to create a sex-based role segregation of women as responsible for household and children, and men as responsible for being breadwinners. This division of labor then gave rise to stereotypes about men and women as being fit for the roles they typically occupied and, in addition, afforded men greater status in society (Eagly & Wood, 2004; Eagly & Steffen, 1984). Based on these biological and cultural processes giving rise to gender stereotypes and status differences among men and women, we assert that a number of external barriers – such as backlash against men who try to occupy female-dominated roles – but also internal barriers – such as lower endorsement of communal goals, traits, and possible selves – prevent men from seeking out HEED roles (Croft, Schmader, & Block, 2015).
A considerable body of work shows that men anticipate and experience external barriers for participating in female-stereotypic roles. Research suggests that engaging in behaviors that are stereotypically feminine poses a threat to male-identity, which men are normatively required to display (Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008). Men who have to engage in feminine behaviors publically, therefore, tend to compensated by more male-role congruent behaviors – such as aggression – that are aimed at affirming masculine identity (Bosson & Vandello, 2011; Funk & Werhun, 2011). And men’s fears are not unfounded, as a number of studies have shown that both as children and adults, boys (Blakemore, 2003; Levy et al., 1995) and men (Brescoll & Uhlmann, 2005; Rudman & Fairchild, 2004; Rudman & Mescher, 2013; Vandello, Hettinger, Bosson, & Siddiqi, 2013) are viewed negatively and publically derogated by others when they engage in female-stereotypical behaviors or take on female-stereotypic occupations.

Whereas ample evidence shows that men experience social sanctions when they engage in HEED roles, there has been markedly less work devoted to understanding the internal factors that could prevent men from seeking such roles in the first place. When men and women self-select into different occupations, sociologists speak of horizontal self-segregation, suggesting that men choose to approach some roles and avoid others. This stands in contrast to vertical segregation, representing inequalities in rank within and between occupations (Blackburn, Jarman, & Brooks, 2000; Hakim, 1992).

But what psychological construct guides men’s internal choices against HEED roles? Generally speaking, research suggests that individuals tend to pursue careers that they perceive as affording those goals that are most valuable to them personally (Berings, De Fruyt, & Bouwen, 2004; Judge & Bretz, 1992; Morgan & Isaac, 2001). As occupational choices seem to be tied to
personal goals, gender differences in the extent to which certain goals are internalized should relate to gender differences in occupational choices (Evans & Diekman, 2009). Thus, the focus of my thesis is to examine one internal reason why men might not choose HEED roles and occupations – the differences in the goals and values that men, as compared to women, internalize (Croft, Schmader, & Block, 2015). More specifically, I’ll be examining gender differences in endorsement of communal and agentic goals.

**The Importance of Communion and Agency**

Communion and agency were first proposed by Bakan (1966) to describe the two fundamental dimensions of human existence in general – subsuming traits, goal motivations, and behaviors. Agency refers to a focus on the self, promoting self-interest and self-growth, whereas communion refers to a focus on others, connecting with them and caring for and about them (Bakan, 1966). Since these dimensions were first proposed, communion and agency have become applied as the fundamental dimensions in the measurement of all human interpersonal traits (Blackburn, Renwick, Donnelly, & Logan, 2004; Wiggins, 1979). Theorists have also argued that these two dimensions are likely anchored in human evolution, as they represent distinct strategies to deal with distinct adaptive challenges (Fiske, Cuddy, & Glick, 2007; Guisinger & Blatt, 1994; Gurven, von Rueden, Massenkoff, Kaplan, & Lero Vie, 2013; Baumeister & Leary, 1995).

A number of different areas of psychology have converged on the idea of these two core dimensions are able to broadly characterize how we view ourselves, how we view others, and which goals are important to us. Indeed, researchers have successfully applied the dimensions of communion and agency to understanding self-described traits (Bem, 1974; Spence, Helmreich, & Stapp, 1974; Wiggins, 1979; Abele, 2003), perception of others including the content of
stereotypes (Fiske et al., 2007), as well as different modes of relating to others (Oyserman, Coon, & Kemmelmeier, 2002). Further supporting the conceptualization of communion and agency as universal dimensions, they emerge across many cultures when analyzing the dimensional structure of trait ratings of individuals in different countries (Ybarra et al., 2008; Thalmayer & Saucier, 2014). Most relevant to the current work, human goals and values – characterizing what kinds of things individuals see as important or worthwhile to achieve – also reliably factor into the dimensions of communal goals (e.g. caring for and connecting with others) and agentic goals (e.g. achieving independence and status; Trapnell & Paulhus, 2012).

**Gender differences in communion and agency**

Whereas the body of work on communion and agency supports the idea that these distinctions represent fundamental dimensions of human variability, these dimensions show important gender differences. Not through coincidence did gender researchers quickly adopt the concepts of agency and communion in the 1970s. Early research showed marked gender differences in communal and agentic traits, with men describing themselves as more agentic while women tended rated themselves higher in communal traits (Twenge, Campbell, & Gentile, 2012; Twenge, 1997). Indeed, communion and agency differentiated so cleanly between men and women that, in the gender literature, communal and agentic traits are often used synonymously with “femininity” and “masculinity” respectively (Eagly and Wood, In Press).

Although I do not discount that there are likely some underlying biological processes that could make men, on average, more agentic and women more communal, the focus of my research lies on the socio-cultural processes that exacerbate and perpetuate such differences. Social role theory (Eagly & Steffen, 1984), for example, explains how men and women became connected with agency and communion, respectively, as the result of the historical distribution of
men and women into different social roles that required different behaviors. Specifically, since men have traditionally occupied more competitive, independent, and dominant roles in working outside the home, men came to be seen and see themselves as more agentic. Similarly, as women have traditionally occupied, and continue to disproportionally occupy, roles focused on making social connections and caring for others, they are seen as and see themselves as more communal than do men (Diekman & Goodfriend, 2006; Eagly & Wood, 2004; Eagly & Steffen, 1984).

In line social role theory’s predictions, as men and women’s social roles continue to change, the traits and goals we associate with them change as well. Since women have begun to move into formerly male-stereotypic careers and the workforce more generally, gender differences in self-described traits have diminished, but only in regards to agentic traits (Twenge et al., 2012; Twenge, 1997). As shown by longitudinal work examining data from the late 1960’s up to 2009, women have steadily increased in self-rated agency at rates faster than men. Indeed, by 1995 women described themselves as agentic at levels that, on average, matched those of men (Twenge et al., 2012; Twenge, 1997). In contrast, the degree to which men rate themselves to be communally oriented – valuing caring, helping and relationships – has changed very little and has remained consistently below women’s averages. Indeed, when asked for their projections, people even anticipate that women will become increasingly agentic in future decades, whereas they forecast that men will remain consistently lower than women in communion (Diekman & Eagly, 2000).

In contrast to the research on the traits associated with men and women, the literature contains little evidence on the historical development of communion and agency as fundamental goal dimensions. Since, as described previously, gender stereotypes are pervasive and individuals are socialized to behave in line with them, men and women should also internalize
the desire to pursue goals that match their stereotypical gender role. In fact, recent work examining the extent to which people endorse communal and agentic goals does show patterns of gender differences similar to those of trait measures of agency and communion. Diekman and colleagues (Diekman, Brown, Johnston, & Clark, 2010; Diekman, Clark, Johnston, Brown, & Steinberg, 2011; Evans & Diekman, 2009a) find that agentic goals – such as self-promotion and status – are similarly important to young men and women in college samples. Yet, in the same samples, men continue to deem communal goals – such as helping others or connecting with them – to be less important than do women (Diekman et al., 2010; Diekman et al., 2011; Evans & Diekman, 2009). Such pervasive gender differences in valuing communal goals may have important consequences for the kinds of roles men and women pursue.

**Goal Congruity Theory & Men’s Underrepresentation in HEED Roles**

Whereas social role theory has mainly focused on how gendered roles result in different levels of communion and agency in men and women, the relationship between the goals men and women have and the roles they pursue is likely reciprocal (Evans & Diekman, 2009). That is, different social roles may not only lead to the differential internalization of traits and goals among men and women, but, once those goals are internalized, they can also drive men and women to self-segregate into different occupations. If – as we know from previous research – having internalized certain goals makes people seek out careers that are congruent with these goals (Dose, 1997; Berings et al., 2004; Judge & Bretz, 1992), then men and women’s different goals should lead men and women to favor, and ultimately pursue different social roles. This is the primary assertion of goal congruity theory (Diekman et al., 2011).

Scholars have recently started to examine this assertion, mainly with the focus of understanding why women tend to opt out of careers in Science, Technology, Engineering and
Math (STEM). This work body of work by Diekman and colleagues (2006; 2010; 2011) has gathered both correlational and experimental evidence suggesting that women are less interested in STEM careers partly because they hold different goals than do men. Specifically, past work has extensively tested the hypothesis that women seek careers that they feel can fulfill their communal goals, and that STEM careers are unattractive to women since they are seldom seen in communal ways. Evidence indeed shows that STEM related occupations, compared with other male- and female-stereotypic careers, are rated as less compatible with communal goals (Diekman & Evans, 2006; Diekman et al., 2010; Diekman et al., 2011). Given that women tend to value communal goals more than do men, and endorsing communal goals is negatively related to STEM interest, these studies also provide evidence that the gender difference in communal goals statistically mediates the gender difference in interest in STEM careers (Diekman et al., 2010; Diekman et al., 2011; Evans & Diekman, 2009a). In addition, this past research has also provided experimental evidence for the link between communal goals and women’s lack of interest for STEM. As predicted by goal congruity theory, reframing a career in science as communal increased women’s self-reported interest in the science career (Diekman et al., 2011), whereas activating communal goals with a prime decreased participant’s interest in STEM careers.

Despite the fact that past work is framed around understanding why women avoid STEM careers, some findings from these papers suggest that goal congruity theory may also help explain why men are underrepresented in HEED roles. First, in three studies, Diekman and colleagues (2009; 2010; 2011) showed that both men and women perceived HEED related female-stereotypic careers (such as nurse, social worker, and kindergarten teacher) as a better match for communal goals than STEM careers (such as mechanical engineer or computer
scientist). This suggests that those careers, which typically see an over-representation of women, are also the careers that are seen as satisfying those who wish to strive for communal goals. Giving support to this assertion, both men and women who viewed communal goals as important, also tended to be more interested in female-stereotypic HEED careers (Evans & Diekman, 2009; Diekman et al., 2010; 2011). These findings provide initial evidence that communal goals not only play an important role in explaining the gender difference in STEM interest, but can also explain, at least in part, why men may be less interested than women in female-stereotypic HEED careers such as nursing, teaching or social work. The goal of the current research is to focus on and further investigate how the different goals that men and women internalize can account for men’s underrepresentation in HEED roles.

**Current Research**

Although this past work provides some preliminary evidence that communal goals might explain gender differences in STEM as well as HEED careers, it also leaves open several important questions. First, the nature of the relationship between gender differences in communal goals and gender differences in interest in HEED careers remains unclear. Based on goal congruity theory, we would expect that men’s relative lack of communal goals can account for their relative lack of interest in HEED roles. Diekman and colleagues’ studies do show a positive correlational relationship between communal goals and interest in HEED related female-stereotypic careers, but the authors estimated the mediational effect sizes of communal goals only for explaining the gender differences in STEM interest. Being especially focused on understanding men’s underrepresentation in HEED roles, the first goal of the current research is to replicate the relationship between communal goals and HEED careers and formally estimate the effect that communal goals have in explaining gender differences in interest in HEED careers.
In addition to the correlational relationship between communal goals and HEED interest, the current work also aims to test the causal relationship between these variables that would follow theoretically from the goal congruity perspective. As Diekman and colleagues’ work was focused on understanding gender differences in STEM interest, the experimental evidence for the relationship between communal goals and interest in HEED careers is sparse. Only one study that activated communal goals, by having participants write about an experience in which communal goal motivation had been thwarted, and tested whether this would increase interest in HEED roles (Diekman et al., 2011). Results from this study suggest that this communal goal prime had no significant effect on participants’ interest in HEED careers. Participants in this study, however, included only 27 males distributed across conditions (Diekman et al., 2011) under-powering the design and making it difficult to detect possible condition by participant gender interaction. It thus remains unclear whether men might become more interested in HEED roles when their communal goals are activated, as one would expect based on goal congruity theory due to low power in the design. In addition, the authors decided to omit medically related HEED careers from this study (Diekman et al., 2011). Yet, we note that the healthcare sector is one of the occupational fields showing the most extreme gender differences in the US (Department of Labor Statistics, 2014). Therefore, I maintain that the causal connection between valuing of communal goals and interest in female-dominated HEED careers remains in question.

H1: Thus, the current work tests the primary hypothesis that men’s relatively lower communal goals should be, at least in part, able to explain why men are less interested in HEED careers than are women. Based on previous evidence, I expect that communal goals should statistically mediate gender differences in interest in HEED careers (study 1 and 2) and that experimentally activating communal goals should increase interest in HEED roles among men (Study 3 –
Studies 1 and 2 were also designed as experimental tests but the manipulation were ineffective in activating communal goals.

The second aim of the current research is to address whether communal goals only play a role in one’s own career interest or also link to how valuable certain careers are deemed to be to society at large. In other words, when individuals endorse communal goals to a lesser extent, does that simply shape their idiosyncratic career preferences or does this also lead them to assigned less broader societal value to HEED fields like nursing and early childhood education? Evidence shows that HEED roles are not only disproportionally avoided by men, but are also underpaid and afforded less status then comparable careers dominated by men (Cross & Bagilhole, 2002). If holding broadly communal goals is related to perceiving value in HEED careers, we should also expect men, compared to women, to perceive HEED careers as less broadly valuable. Such a gender difference in assigning broader value to communal goals should then be statistically explained by men’s relatively lower communal goals. H2: The current research, therefore, tests the hypothesis that men perceive HEED roles as less important to society than do women and that this gender difference is a function of men’s relatively lower communal goals. Studies 1 and 2 test these hypotheses.

A third goal of the current work is to determine whether communal goals as a mechanism explaining gender differences apply only to interest in paid occupations or also generalize to other instances of gendered role segregation, specifically in the domestic sphere. Just as the distribution of men and women into different careers is still unequal, women continue see themselves as more family-oriented (Brown & Diekman, 2010; Hakim, 2006) and indeed spend more time in domestic roles (e.g. Bird, 1999; Hochschild & Machung, 2012) than do men. In our theoretical paper, my co-authors and I posed that the domestic sphere forms an important part of
a number of communally oriented roles in which men are underrepresented (Croft, Schmader, & Block, 2015). If communal goals predict one’s interest in domestic roles, then gender differences in communal goals should not only explain paid career interests, but should also account for differences in affinity towards domestic sphere – including roles such as being the primary caregiver to children or prioritizing family-life over career-achievement. *H3: Hence, the current research tests the hypothesis that endorsing communal goals is related to increased interest in female-dominated roles in the domestic sphere. Specifically, those with higher communal goals should anticipate a more family- and caregiving-oriented life while they should envisions a life less focused on being a primary breadwinner. This relationship to communal goals should then statistically explain why men are less domestically oriented than are women. Study 1 and 2 test this hypothesis.*

Lastly, in the current work, I also sought to further investigate an important alternative mediator of gender differences in HEED roles – agency or facets of agency. Although Diekman and colleagues find no evidence for a gender difference in agentic goals as they conceptualize them, they do find that endorsing agentic goals relates to lower interest in HEED related and higher interest in male-stereotypic occupations (Diekman et al., 2011). This suggests that valuing goals such as independence, competition, and self-promotion could be perceived as incompatible with HEED careers.

Whereas Diekman’s work suggests that women avoid STEM careers because they conflict with communal goals, men might be driven away from HEED roles if they don’t allow men to pursue goals they value. Just as careers in HEED occupations such as nursing and social work may be incompatible with agentic goals, those who value striving for agentic goals may also feel that being more family-oriented or a primary caregiver to one’s children is incompatible...
with pursuing agency. Based on this theoretical argument, I maintain that agentic goals still need to be tested as a viable alternative hypothesis to communal goals being the sole mediator of gender differences in HEED roles. The current work, therefore, examines the relationship between agentic goals and both HEED careers and domestic roles typically dominated by women.

Because of the lack of evidence for a gender differences in overall agentic goals, however, we may need to reconsider how exactly agency could play into the gender difference in HEED role interest. It is possible that, even in the absence of an overall gender differences in agency, specific facets of agency are more strongly endorse by men than by women. Competitiveness is a good theoretical candidate for such a facet of agency. Evidence suggests that, in most cultures, men tend to seek and enjoy competition more than do women (Croson & Gneezy, 2009; Gneezy & Rustichini, 2004). In addition, according to sociologist Catherine Hakim (2006), competitiveness may be especially important in determining how an individual chooses to weigh domestic- vs. career orientation. Thus, competitiveness may be the facet of agency that is perceived as incompatible with HEED roles and therefore explains why men and women gravitate towards different roles. *H4: Another aim of the current work is therefore to test the hypothesis that men may to show less interest in pursuing careers such a nursing, teaching, and domestic roles such as being homemaker because their relatively higher agentic goals in general (study 1), or their relatively higher competitiveness in specific (study 2) conflicts with such roles.*
In study 1, I aimed to extend previous research several ways. First, the study was aimed at replicating evidence of gender differences in communal goals as a mediator of men and women’s different levels of personal interest in HEED related careers. But I also aimed to show gender differences in the extent to which men and women assign value to such careers. I hypothesized that gender differences in communal (and possibly) agentic goals would explain why women see HEED careers as more broadly valuable than men do. Furthermore, I also sought supporting evidence for the hypothesis that communal (and possibly) agentic goals mediate gender differences in more domestically orientated gendered roles, specifically in the prioritization of family over career, and related roles such as becoming a primary caregiver to children or becoming the primary breadwinner of one’s household.

Study 1 is comprised of two samples that were each separate attempts to use a subtle method of priming a more or less communal mindset to test the hypotheses using experimental methodology. Because initial analyses revealed no evidence that either manipulation was actually able to activate the desired goals in participants and, thus, also showed no condition differences on any of the dependent variables, analyses on these data have instead focused on testing hypotheses using correlational analyses, collapsed across these two samples given that all measures collected were the same and both samples were collected on paper in the same location. The details of the experimental methods and analyses testing for conditions differences are described below.
Methods

Participants & Procedure

Trained research assistants (both male and female) recruited 380 (184 male/ 196 female) participants on the campus of a large Canadian university. Research assistants approached individuals in common areas such as the library and the food court asking whether they have 10-15 minutes of time to complete a survey about “goals, opinions and preferences” in exchange for a piece of candy. Participants were predominantly undergraduate students ($M_{age} = 19.91, SD = 2.02$) and predominantly East Asian (46.3%) and Caucasian (22.9%) with some South East Asian (13.4%) participants. Other ethnicities combined represented the rest of our sample. After signing a consent form, all participants filled out their questionnaire with pen and paper.

Manipulations. As mentioned above, the two distinct studies that were combined to form Study 1 each contained an initial subtle priming manipulation. In study 1a ($n = 196$), we attempted to activate communal vs. agentic goals in participants by randomly assigning participants to rate either their communal (communal prime condition) or their agentic goals (agentic prime condition) or both goals (control) at the beginning of the questionnaire (with the non-primed measure collected at the end of the survey). Although some prior research has found that goals can be activated in people’s minds and influence later judgments merely by thinking about the extent to which these goals are important (Katz & Hass, 1988), the primes used in this sample effected neither self-rated communal goals, $F(2,194) = 1.02, p = .36$, nor self-rated agentic goals, $F(2, 194) = 0.81, p = .45$. Not surprisingly then, condition also had no effect on any of the dependent variables, all $F$’s $< .230$, $ps > .10$.

In a similar manner, in study 1b ($n = 184$), participants were randomly assigned to either first rate the degree to which they like competition (competitive condition) or, alternatively, first
rate the degree to which they dislike competition (cooperative condition), or a third condition including a mix of items indicating either like or dislike for competition (control condition). The goal in this version of the paradigm was to prime a cooperative vs. competitive mindset, but as in study 1a, the primes in study 1b had no effect on communal, $F(2, 184) = 0.07, p = .93$, or agentic goals, $F(2, 183) = 0.40, p = .68$, no effects on our primary dependent variables, with exception of significant effects on interest in STEM careers, and assigned value to STEM as well as HEED roles, $F_s > 3.01, ps < .052$. These effects are, however, difficult to interpret since they were not in the expected direction and occurred in absence of evidence that experimental prime worked. Because the data were collected in a similar manner, during the same time period, in the same location and included identical variables, I combined the two datasets and conducted correlational tests of the hypotheses on this larger dataset.

**Measures**

**Goals.** Participants were asked to rate the extent to which 14 goals are personally important to them. We adapted this measure from Diekman and colleagues (2010) by selecting an equal number of communal and agentic goals and eliminating items that were too similar to each other (e.g., self-direction and independence). Our final list of goals represented seven communal goals (helping others, serving humanity, working with people, connection with others, attending to others, caring for others, intimacy, $\alpha = .79$) and seven agentic goals (power, recognition, achievement, self-promotion, independence, status, competition, $\alpha = .69$). Participants rated each of these goals by placing an ‘X’ on a 10cm long semantic differential scale anchored by “Not at all important” to “Extremely important.” All questionnaire responses were then scored by a research assistant with a ruler and then divided by the scale length and multiplied to yield a score between 0 and 100.
**Career interest.** To assess interest in gender-stereotypical careers, participants rated the “degree to which [they] can imagine [themselves] being at all interested in” six HEED related female-stereotypical (social work, homemaker, human resources manager, preschool/kindergarten teacher, educational administrator, registered nurse, $\alpha = .79$) and six male-stereotypical careers (lawyer, dentist, engineer, computer scientist, environmental scientist, architect, $\alpha = .64$). These careers were originally taken from Diekman et al. (2010), but initial analyses suggested that the “lawyer” item did not fit in with other items of the scale, and thus we opted to exclude “lawyer” from our definition of male-stereotypic or STEM-related careers.¹ Our final measures for STEM related career interest, therefore, averages participants’ interest rating for only 5 careers: engineer, computer scientist, environmental scientist, architect, and dentist ($\alpha = .68$). Ratings were made on the same type of visual continuous scale used for goals with the anchors “Not at all interested” to “Extremely interested”.

**Value to society.** For the same set of six HEED related careers ($\alpha = .91$) and five STEM related careers ($\alpha = .85$) careers, we asked participants to rate the value of each of the careers to society in terms of a dollar amount. We specifically told participants that “we are NOT asking [them] to estimate the actual pay these roles currently get on the job market, but rather the VALUE [they] want to assign to them.” Ratings were made on a visual continuous scale with the anchors of “$0 per hour” to “$400 per hour”. Contrary to all others scales, we measured where participants placed the ‘x’ on the scale and converted their rating to its corresponding value between $0 - $400, rather them giving them a score out of 100. An exploratory maximum

¹ Analyses of the scale properties of our male-stereotypic career interest measure revealed that interest in “lawyer” had an item-total correlation of only $r = .11$, whereas all other items across all other measures had an item-total correlation of at least .20. In addition, examining labor statistics showed that, conversely to any of the other careers rated by participants, lawyer as an occupation did not show any marked gender imbalance (Bureau of Labor Statistics, 2013). Thus, ratings of lawyer for excluded both from the measure of career interest and of career value.
likelihood factor analysis with direct oblimin rotation confirmed that participants’ ratings of the value assigned to careers formed two factors that, although positively correlated, $r = .55$, included ratings of HEED related careers on one factor and ratings of STEM related careers on the second factor.

**Role Likelihood.** Participants reported the likelihood that, 15 years in the future, they would: a) be the primary caregiver to their children and b) be their families’ primary breadwinner. Ratings were made on a 1-100 visual continuous scale with the anchors “Not at all likely” to “Extremely likely”.

**Future family-orientation.** We assessed participants’ future family vs. career orientation with a 3-item ($\alpha = .86$) semantic differential scale taken from (Durante, Griskevicius, Simpson, Cantú, & Tybur, 2012). On the 3 items, using the same 1-100 visual continuous scale, participants reported the extent to which family vs. work would be more important to them in their future. One item, for example, asked participants to weigh which would be more important to them approximately 15 years in the future: “Having a family” on the one end of the scale, or “having a career” at the opposite end of the scale. As with the other scales, scores were measured with a ruler and converted to a score out of 100. Scores above 50 represent a prioritization of family over work and scores below 50 represent a prioritization of work over family.

**Demographics.** At the end of the study, participants completed a standard demographic questionnaire including gender, age, year standing, major, ethnicity, sexual orientation and dating status.
Results

Analysis Plan

Study 1 tested the hypothesis that communal, and possibly agentic, goals would show evidence of mediating the gender difference in role interest. First, I examined possible gender differences in HEED- and STEM role interest as well as our domestic role variables. I next tested our mediational hypotheses by: a) testing for gender differences in our mediators – communal and agentic goals, and b) testing whether communal and agentic goals, when entered simultaneously as predictors in a regression analyses (and controlling for gender), related to a given outcome measure, thereby fulfilling the underlying assumptions of mediation. Finally, to formally estimate a mediational effect, I conducted bootstrapping analyses to obtain indirect effects following procedures outlined in Preacher and Hayes (2004). To assess how communal goals and agentic goals independently mediate gender differences, they were always entered simultaneously as mediators in regression and bootstrapping analyses, although communal and agentic goals were not significantly correlated, $r (378) = .08, p = .11$. Descriptive statistics and correlations for all variables are reported in Table 1.

Table 1.

Study 1 Variable descriptives and correlations.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>8</th>
<th>9</th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td>1.</td>
<td>Communal Goals</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<td>72.69</td>
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<tr>
<td>2.</td>
<td>Agentic Goals</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>57.76</td>
<td>13.84</td>
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<tr>
<td>3.</td>
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<td>.02</td>
<td>.31*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>36.80</td>
<td>19.83</td>
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<tr>
<td>4.</td>
<td>HEED Value</td>
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<td>.02</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>167.95</td>
<td>79.51</td>
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<tr>
<td>5.</td>
<td>STEM Interest</td>
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<td>.02</td>
<td>.29*</td>
<td>.04</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>38.445</td>
<td>20.23</td>
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<td>6.</td>
<td>STEM Value</td>
<td>.09</td>
<td>.12*</td>
<td>.14*</td>
<td>.70*</td>
<td>.01</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>214.14</td>
<td>74.62</td>
</tr>
<tr>
<td>7.</td>
<td>Caregiver</td>
<td>.20*</td>
<td>.09</td>
<td>.24*</td>
<td>.03</td>
<td>-.09</td>
<td>-.02</td>
<td>--</td>
<td>--</td>
<td>61.65</td>
<td>24.85</td>
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<tr>
<td>8.</td>
<td>Breadwinner</td>
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<td>.09</td>
<td>-.19*</td>
<td>-.07</td>
<td>.12*</td>
<td>-.05</td>
<td>-.13*</td>
<td>--</td>
<td>57.44</td>
<td>19.65</td>
</tr>
<tr>
<td>9.</td>
<td>Family Orientation</td>
<td>.32*</td>
<td>-.16*</td>
<td>.28*</td>
<td>.12*</td>
<td>.06</td>
<td>-.04</td>
<td>.23*</td>
<td>-.12*</td>
<td>--</td>
<td>-44.60</td>
</tr>
</tbody>
</table>

Note. *p < .05
Gender Differences in Outcomes

Career Interest. Reflecting stereotypical gender differences, we expected men to be more interested in male-stereotypic STEM careers and women to be more interested in female-stereotypic HEED careers. To test this prediction, we conducted a 2 (participant gender) x 2 (career-type) mixed ANOVA with gender as the between-subjects factor. Although, participants overall showed no significant difference in interest for HEED vs. STEM related careers, \( F(1, 377) = 2.11, p = .15 \), the analyses yielded the expected gender x job type interaction, \( F(1, 377) = 71.59, p < .001 \). As expected, men \( (M = 30.14, SD = 18.74) \) reported less interest in HEED related careers than did women \( (M = 43.03, SD = 18.80) \), \( F(1, 377) = 44.62, p < .001 \). Women \( (M = 35.46, SD = 20.24) \), in turn, reported less interest for STEM related careers than did men \( (M = 41.63, SD = 19.77) \), \( F(1,377) = 8.96, p < .01 \). Indeed, pairwise comparisons showed that women favored HEED careers over STEM related ones, \( p < .001 \), whereas men favored STEM related careers over HEED related ones, \( p < .001 \).

Value of Careers. Next, we tested whether men would, as expected, assign lower value to HEED careers than would women, whereas both genders would highly value STEM careers, as they are typically assigned high status is society. To test this, we entered participants’ value ratings into a 2 (participant gender) x 2 (career-type) mixed ANOVA with gender as the between-subjects factor. Although, overall, participants assigned more value to STEM than to HEED careers, \( F(1,369) = 227.06, p < .001 \), and women tended to assign more value overall, \( F(1,369) = 5.59, p = .02 \), these main effects were subsumed by a marginally significant gender by job-type interaction, \( F(1,369) = 3.58, p = .06 \). As expected, men \( (M = 156.06, SD = 76.39) \) assigned significantly less value to HEED careers than did women \( (M = 179.03, SD = 80.94) \), \( F(1, 369) = 7.88, p < .01 \). However, women \( (M = 217.21, SD = 72.12) \) and men \( (M = 205.13, SD = \)
assigned an equivalently high level of value to STEM careers, $F(1, 369) = 2.45, p = .12$. In addition, pairwise comparisons showed that both men and women assigned more value to STEM careers than to HEED careers, $p < .001$, possibly reflecting the higher status that male-stereotypic careers tend to be imbued with.

**Caregiving vs. Breadwinning.** Similarly we expected that women, more than men, would anticipate becoming primary caregivers to their families, whereas men, more so than women, would expect to become primary breadwinners. A 2 (participant gender) x 2 (role-type) mixed ANOVA with gender as the between-subjects factor revealed that, overall, participants reported a higher likelihood of being the primary breadwinner than being the primary caregiver, $F(1, 352) = 6.63, p = .01$. This main effect, however, was subsumed by the expected participant gender x role-type interaction, $F(1,352) = 95.12, p < .001$. As expected, men ($M = 54.24, SD = 24.57$) predicted a lower likelihood of being primary caregivers in the future than did women ($M = 68.68, SD = 23.25$), $F(1, 352) = 33.13, p < .001$. Also reflecting stereotypical role expectations, women ($M = 49.23, SD = 18.21$), in turn, reported a lower likelihood of becoming primary breadwinners than did men ($M = 66.19, SD = 17.62$), $F(1,352) = 75.34, p < .001$. Indeed, matching stereotypical domestic role division, pairwise comparisons showed that women were more likely to anticipate a caregiver than a breadwinner role, $p < .001$, whereas men anticipated that it would be more likely for them to become breadwinners rather than caregivers, $p < .001$.

**Family-Orientation.** Lastly, we tested whether men would, as we expected, show less family-orientation than women. To test this, we submitted participants’ self-ratings into a between-subjects ANOVA that tested gender differences. Counter to our expectations, however, men ($M = 54.18, SD = 19.82$) and women ($M = 56.55, SD = 19.01$) did not differ significantly in the extent to which they see themselves as family- vs. career-oriented, $F(1, 379) = 1.41, p = .24$. 
Indeed, testing against the midpoint of the scale revealed that, regardless of gender, participants tended to see themselves as slightly more family- than career-oriented, $t(379) = 5.43, p < .001$.

**Mediational Analyses**

**Gender Differences in Mediator Variables.** Next, I tested whether men and women would show the expected gender differences in goals by conducting linear regression analyses predicting communal and agentic goals from gender (coded as male = 0, female = 1). As expected, men reported significantly lower importance of communal goals than did women, $\beta = .23, t(375) = 4.49, p < .001$. Replicating Diekman et al.’s findings (2010; 2011), men and women showed similar levels of agentic goals, $\beta = -.02, t(375) = -0.33, p = .74$. Since there is no gender difference in agentic goals, the gender difference in role interest described above cannot be explained by agentic goals and thus agency will not be tested as a mediator. However, all mediation models included agentic goals simultaneously with communal goals. All mediation models, including relationships between agentic goals and outcomes can be found in Figure 1.

**Mediation of Gender Differences in HEED related Roles.** To test my mediational hypotheses, I first tested whether communal goals, controlling for gender and agentic goals, showed a positive relationship with our female-stereotypic outcome variables. As expected, communal goals predicted significantly higher interest in HEED related careers (controlling for interest in STEM careers), $\beta = .24, t(375) = 5.26, p < .001$, and higher value assigned to such careers (controlling for value assigned to STEM related careers), $\beta = .15, t(365) = 4.11, p < .001$. Further matching the predictions, communal goals were predictive of a higher anticipated likelihood of being the primary caregiver to one’s future children (controlling for likelihood of being the primary breadwinner), $\beta = .18, t(352) = 3.25, p < .01$, and more family (vs. career) orientation, $\beta = .34, t(376) = 7.04, p < .01$. 
Finally, to test communal goals as a mediator of gender differences in our outcomes, indirect effects and .95 confidence intervals were estimated using 10,000 bootstrapped re-
samples. Consistent with our hypotheses, mediation analyses yielded significant indirect effects
of communal goals on: 1) interest in HEED related careers, \( \text{indirect effect} = .05, CI_{.95} (.03, .09) \),
2) ratings of worth of HEED related careers, \( \text{indirect effect} = .03, CI_{.95} (.01, .07) \), and 3) the
likelihood of being the future caregiver, \( \text{indirect effect} = .03, CI_{.95} (.01, .07) \). Moreover, despite
the lack of statistical significance of the total effect of gender in family-orientation, the positive
relationship between communal goals and family-orientation translated into a significant indirect
effect of communal goals on family-orientation, \( \text{indirect effect} = .08, CI_{.95} (.03, .13) \). These
mediation models are shown in Figure 1. These mediation analyses thus provide evidence in
support of the hypothesis that men show less interest and valuing of HEED related careers and
roles, in part, because communal goals are less important to men than they are to women. In
addition, although endorsing agentic goals was related to less value assigned to HEED and more
value assigned to STEM careers, the lack of a gender differences on this measure meant that
agency did not mediate gender differences in these outcomes.

**Mediation of STEM and Breadwinner Roles.** Although my primary interest in this
research was to focus on HEED roles, I also examined whether findings on STEM careers from
Diekman and colleagues (2009; 2010; 2011) were replicated and extended in this sample by
testing for the expected negative relationship between communal goals and STEM, as well as
breadwinner variables. As expected, results showed that communal goals predicted lower interest
STEM related careers (controlling for interest in HEED careers), \( \beta = -.12, t (376) = -2.45, p = .01, \)
and marginally lower ratings of the worth of STEM related careers (controlling for worth of
HEED careers), \( \beta = -.07, t (376) = -1.94, p = .053 \). In addition, mediation analyses yielded a
significant indirect effect of gender on interest in STEM careers via communal goals, *indirect effect* = -.03, *CI*95 (-.06, -.005); and on the rated worth of STEM careers via communal goals, *indirect effect* = -.02, *CI*95 (-.04, -.0001).

Unexpectedly, however, communal goals predicted significantly higher (rather than lower) reported likelihood of being the future breadwinner (controlling for future caregiver), $\beta = .13$, $t (375) = 2.53$, $p = .01$, and thus were not examined as a possible mediator of gender differences on this variable. These mediation models can be found in Figure 1. Because women endorse more communal goals but report they will be less likely to be breadwinners in our sample, the positive relationship we found between anticipating a breadwinner role and communal goals suggests that women are not less likely to anticipate breadwinner roles simply because they are more communally oriented than are men. Thus, consistent with the Amanda Diekman’s work, these findings suggest that women might be less interested in male-stereotypic STEM careers, and even see these careers as less broadly valuable, because communal goals are more important to them than they are to men. But, these findings also suggest that interest in other male-stereotypic roles, such as anticipating being the primary breadwinner to a family may operate through different mechanisms than communal goals.
Figure 1. Mediation Models in Study 1. Panels A through D represent mediational models for each outcome variable.

Note. **p < .01, *p < .05, † p < .10
Discussion

Results of study 1 revealed evidence that men’s relative lack of interest in HEED-related occupations as well as their lower valuing of such careers is in part explained by men’s relatively lower communal goal endorsement. In addition, findings supported the hypothesis that communal goals are a broad psychological construct that can also explain gender differences in a different set of traditionally female-dominated roles, such as future family-orientation and anticipation of being a caregiver to one’s children. Thus, study 1 provides initial evidence that communal goals are able to partly explain not only why men are relatively less interested in certain paid careers and see them as less broadly valuable to society, but can also partly account for men’s different role aspirations within their future families.

Moreover, as expected, the data replicated Diekman’s findings of communal goals mediating the gender difference in STEM career interest, and also shows an indirect effect that suggests that communal goals predict diminished valuing of STEM related careers. Study 1, thus, provides more supporting evidence of the goal congruity hypothesis whereby women tend to avoid STEM careers because these careers seem to be a poor fit to their more communal goals and values. However, whereas communal goals explained gender differences in evaluating paid male-stereotypic careers in STEM related fields, communal goals could not explain gender differences in anticipating the male-stereotypic role of being the primary breadwinner for one’s family. Instead, a significant positive relationship between communal goals and anticipating being a breadwinner might suggest that this role can be construed as a form of helping and caretaking. If anything, holding communal goals seems to therefore facilitate the anticipation of taking care of one’s future family in a financial manner. However, since neither communal nor
agentic goals mediated men’s higher propensity towards the breadwinner role, this difference is likely to be driven by other variables that were not assessed in study 1.

A second goal in study 1 was to examine the alternative hypothesis that men are less interested in caregiving roles and occupations not because they are less communally motivated, but because these roles are a poor fit to their higher levels of agency. Although agentic goals were related to placing greater value on STEM careers and less value on HEED careers, the lack of any gender difference in agency made this variable an unlikely mediator of gender differences on these variables. I reasoned, however, that perhaps it is not agency broadly speaking that is in conflict with HEED, but rather a specific facet of agency. For example, although longitudinal studies suggest that the gender gap in overall agency has closed (Twenge 1997, 2012), ample evidence suggests that men, more than women, seek and enjoy competition (Croson & Gneezy, 2009). This gender difference in competitiveness is evident early in development (Gneezy & Rustichini, 2004) across a number of cultures (Gneezy, Leonard, & List, 2009). In addition to the existing gender differences competitiveness, this facet of agency has also been conceptualized as the opposite pole of cooperation, which could be considered a facet of communal behavior (Bakan, 1966). Being competitive could then be seen as conflicting with roles that require communal acts of helping, caring and nurturing, as do HEED roles. Indeed, evidence suggests that a competitive framing of situations leads to less prosocial behavior, for example, on economic games (Liberman, Samuels, & Ross, 2004). If competitiveness conflicts with prosocial behaviors, then a gender difference in this trait can offer a plausible explanation for men’s weaker interest in roles that are oriented towards attending to others’ needs – HEED related careers and caregiving in a domestic realm. Based on this evidence, study 2 was designed to test whether possible gender differences in competitiveness would be able to account for gender
differences in HEED role interest, over and above the mediational effect of communal goals that I aimed to replicate.

It is important to note that study 1 was originally designed to provide an experimental test of the hypotheses. However, our manipulations did not have the desired goal of activating communal vs. agentic goals and had, thus not surprisingly, no meaningful effects on our dependent variables. Given that the employed manipulations only asked participants to rate themselves on goals, it is likely that these manipulations were too subtle to actually activate a goal state. Especially as participants filled out the surveys in public areas of the campus, rather than in a quiet and controlled lab setting, simply reporting the importance of communal and agentic goals was perhaps not salient enough to actually activate the respective goals.

Since the manipulation in study 1 was quite weak and did not produce the desired goal-priming effects, study 2 sought to investigate the effects of competitiveness vs. cooperativeness with a stronger, more immersive, experimental manipulation in a more controlled lab setting. I chose to adapt an economic game that had previously been shown to elicit cooperative or competitive behaviors depending on the framing of the task (Liberman, Samuels & Ross, 2004). In this task, described in detail below, participants play a game that requires them to cooperate with their opponent, risking that their opponent will defect, or decide to defect (compete) themselves, securing a reward for the self and potentially leaving the opponent with empty hands. I hypothesized that putting individuals in a competitive mindset during this game, by framing the game competitively, should suppress their communal goals and thus reduce their interest in HEED roles, whereas framing the game cooperatively, should lead to heightened interest in HEED roles by priming a more communal goal orientation. Despite the increased immersiveness we tried to create in Study 2, this manipulation also failed to show the desired effects, leading me
to test the role of communal goals and competitiveness with correlational analyses as I did in Study 1. The details of the experimental methods and analyses testing for conditions differences are described below.
Study 2 – Competition Game Prime

Methods

Participants & Procedure.

We recruited 308 (152 men/156 women) participants from either the Human Subject Pool of a large Canadian university who participated for 1% extra credit, or the paid subject pool at the same university who participated for $10 compensation. Participants were undergraduate students ($M_{age} = 20.0, SD = 2.23$) from a variety of majors (39.3% from Psychology, 10.7% from other Arts majors, 22.7% from Science majors, 12.7% business, and the rest from other majors). Our sample was predominantly East Asian (52.9%) and Caucasian (22.7%) with some East Indian (14.0%) participants. Other ethnicities combined represented the rest of the sample.

Participants came into the lab, with a maximum of two participants per session, and were told they would complete a study examining individual differences in playing games. After signing a consent form, all participants completed the study in a separate cubicle in the lab to which the researcher gave instructions via a microphone. Participants were led to believe they would first play a single round of a distributive game with another participant in a different lab, with whom they were linked through the computer but would not meet, and would then complete some individual difference measures, after which they would play more rounds (unspecified number) of the game. In reality, the other player was a computer whose responses were pre-programmed. After a single round of the game, which was intended to manipulate a cooperative or competitive mindset, participants completed our primary outcome measures but believed that more rounds of the game would be played later. This procedure was designed to maintain the manipulated mindset while participants completed our dependent variables. In actuality,
participants did not actually play more rounds of the game and were instead taken into separate room to be debriefed after they had finished the last demographic questionnaire.

**Manipulation.** The game played by participants was a version of a Prisoner’s Dilemma (PD) game, which was varied in framing to manipulate a cooperative or competitive mindset. Past work has shown that framing the PD as a “Community Game” elicited more pro-social behaviors on the game, whereas framing it as the “Wall Street Game” elicited more self-promotion (Liberman et al., 2004). Modeled on this prior research, in every round of the game, each of two players had to choose one of two cards – black, the “cooperate” option, or red, the “defect option”. Choices are not revealed until each of the players has entered a choice, but pay-offs depend on both players’ choices. Importantly, when both players cooperate and choose the black card, pay-offs (candy in our case) are maximized. Choosing black, however, is risky since a player who chooses black receives no pay-off when their game-partner defects by choosing red. When both players choose red – the competitive option – they both get a reward smaller than when they would have both chosen black, but avoid the danger of losing out on pay-offs altogether. Red is then the more competitive option because one can either get at least a small reward (when the other player also chooses red as well), or a more sizeable reward (when the other player chooses black and is left empty handed; See Figure 2 for detailed pay-off matrix).

To prime a competitive vs. cooperative mindset, participants who were randomly assigned to the cooperative condition heard a description of the task as “the cooperation game” along with the instructions describing their co-player as a “partner”, whereas participants in the competitive condition heard a description of the task as the “the competition game” along with the instructions describing their co-player as an “opponent”. Furthermore, to establish expectations of the co-player that were congruent with the mindset to be activated, the alleged
other player (the computer) was programmed to choose the competitive option (red) in the competitive condition and the cooperative option (black) in the cooperative condition.

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<thead>
<tr>
<th>Player 1 (Participant) Choice</th>
<th>Player 2 (PC) Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
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<tr>
<td>P1 – 3 candies</td>
<td>P1 – 3 candies</td>
</tr>
<tr>
<td>P2 – 3 candies</td>
<td>P2 – 5 candies</td>
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<td>P1 – 0 candies</td>
</tr>
<tr>
<td>P2 – 5 candies</td>
<td>P2 – 4 candies</td>
</tr>
</tbody>
</table>

*Figure 2. PD payoff Matrix used in Study 2.*

**Measures**

We measured communal goals (0-100 scale; \( \alpha = .83 \)), agentic goals (0-100 scale; \( \alpha = .83 \)), HEED related career interest (0-100 scale; \( \alpha = .76 \)), STEM related careers interest (0-100 scale; \( \alpha = .72 \)), value assigned to HEED careers ($0-$400 per hour scale; \( \alpha = .93 \)), value assigned to STEM careers ($0-$400 per hour scale; \( \alpha = .92 \)), future family-orientation (0-100 scale; \( \alpha = .82 \)) and likelihood of being the caregiver and breadwinner with the same measures used in study 1. The only difference was that scales were now computerized semantic differential scales, where participants used a cursor that could be dragged between the two anchors.

**Trait Competitiveness.** In addition, after all our dependent measures but before the demographics, participants self-reported their trait competitiveness on a well-validated 9-item measure (\( \alpha = .94 \); Houston, Harris, McIntire, & Francis, 2002). Items included positively worded statements (e.g. "I am a competitive individual.") and negatively worded statements (e.g. "I don't like competing against other people.") and was rated on a scale of 0 = “Strongly Disagree” to 100 = “Strongly Agree”.
Table 2.

**Study 2 Variable Descriptives and Correlations**

<table>
<thead>
<tr>
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<th>4</th>
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<th>6</th>
<th>7</th>
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<th>9</th>
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<td>.12*</td>
<td>.20*</td>
<td>.21*</td>
<td>55.61</td>
<td>20.67</td>
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Note. *p < .05

**Results**

**Manipulation Check**

Our manipulation was designed to prime a cooperative vs. competitive mindset in participants. If the manipulation had an effect of participants’ construal of the situation, we would have expected their responses on the game to be in accordance with their condition. That is, more participants in the competitive condition should pick the red card in comparisons to those in the cooperative condition, who should pick the black card more. To test whether the distribution of choices differed between conditions in expected ways, we conducted a chi-square test. Contrary to expectations, the proportion of participants who chose the red card over the black card in the competitive condition (62.5%) was not significantly larger than the proportion of participants choosing the red card in the cooperative condition (55%) choice, $\chi^2 (1) = 1.72, p = .19$. This result suggests that our manipulation was not effective at inducing different goal orientations in participants. Indeed, overall, more participants chose the red card (n = 181) – the competitive choice – more often than the black card (n = 127) in our sample, $\chi^2 (1) = 9.50, p < .01$. 

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As our card choice manipulation check was not significant, it is perhaps not surprising that condition also showed no effect on participants’ ratings of communal goals, $F(1, 306) = .01$, $p = .92$, agentic goals, $F(1, 306) = 2.67$, $p = .10$, and self-reported competitiveness, $F(1, 306) = 0.40$, $p = .84$. There was only one significant effect of condition, whereby those in the competition condition rated themselves as more likely to become primary caregivers ($M = 58.01$, $SD = 1.61$) than those in the cooperation condition ($M = 52.94$, $SD = 1.59$), $F(1, 306) = 5.034$, $p = .03$. This effect is, however, difficult to interpret given that we are not sure what mindset we primed in participants, and there were no other significant effects of condition on any dependent or supplementary variables, all $Fs < 0.87$, all $ps > .35$. Means for all variables by condition can be seen in Table 3. I therefore switched my focus to testing correlational analyses examining whether I can replicate and extend findings from Study 1 by examining communal and agentic goals, but also the new variable of trait competitiveness, as potential mediators of gender differences in role orientation.

Table 3.

**Condition Differences for all Study 2 variables.**

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<th>COMPETE</th>
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Analysis Plan

In light of the failed manipulation, I utilized study 2 data to test whether communal (and agentic) goals and/or, competitiveness would show evidence of mediating gender differences in role interest. As in study 1, I first examined possible gender differences in outcome variables and then conducted path-analyses and bootstrapping of indirect effects to test mediation. To assess how communal goals, agentic goals, and trait competitiveness independently mediate gender differences, they were always entered simultaneously as mediators, especially because both communal goals, $r (308) = .15, p = .01$, and competitiveness, $r (308) = .41, p < .001$, showed a positive correlation with agentic goals. Note that I report relationships to outcome measures and mediational analyses for communal goals and competitiveness in separate sections, despite that fact that they were analyzed as predictors and mediators of each outcome in the same regression equation. Descriptive statistics and correlations for all variables are reported in Table 2, all mediation models are reported in Figure 3 and Figure 4.

Gender differences in Outcomes

Career Interest. We expected to replicate our findings from Study 1 showing men to be more interested than women in STEM related careers and women to be more interested than men in HEED related careers. As in study 1, we tested this hypothesis with a 2 (participant gender) x 2 (career-type) mixed ANOVA with gender as the between-subjects factor. Although, overall participants reported more interest in STEM than HEED related careers, $F (1,306) = 29.48, p < .001$, and female-participants reported a higher overall career-interest, $F (1,306) = 9.65, p < .01$, these main effects were subsumed by the expected participant gender x job type interaction, $F (1, 306) = 76.44, p < .001$. Decomposing this interaction showed, as expected, that men ($M = 36.58$, $SD = 19.16$) reported less interest in HEED related careers than did women ($M = 53.21$, $SD =$
16.29), \( F(1, 306) = 67.49, p < .001 \). Women (\( M = 34.85, SD = 19.32 \)), in turn, reported less interest for STEM careers than did men (\( M = 41.05, SD = 19.73 \)), \( F(1, 306) = 7.77, p < .01 \).

Indeed, pairwise comparisons showed that women favored HEED careers over STEM ones, \( p < .001 \), whereas men favored STEM related careers over HEED ones, \( p = .02 \).

**Value of Careers.** Next, we tested whether the data would, as expected, reveal that women see HEED careers as more valuable than do men, whereas both men and women would see STEM careers as valuable. A 2 (participant gender) x 2 (career-type) mixed ANOVA with gender as the between-subjects factor revealed a main effect of career type: Participants assigned more value to STEM than HEED careers, \( F(1,306) = 69.08, p < .001 \), that was subsumed by a significant gender x job type interaction, \( F(1, 306) = 5.35, p = .02 \). Lending some support to our hypothesis, men assigned marginally (\( M = 108.96, SD = 78.96 \)) less value to HEED careers than did women (\( M = 126.88, SD = 88.62 \)), \( F(1, 306) = 3.54, p < .06 \). However, women (\( M = 145.46, SD = 90.90 \)) did not assign significantly different levels of value to STEM related careers than did men (\( M = 141.81, SD = 84.66 \)), \( F(1,306) = 0.13, p = .72 \). In addition, pairwise comparisons showed that both men and women assigned more value to STEM careers than to HEED careers, \( ps < .001 \), replicating effects from Study 1.

**Caregiving vs. Breadwinning.** Similarly we expected that women, more so than men, would expect to become the primary caregiver of their family, whereas men, more so than women, would expect to become the primary breadwinner in their family. To test this hypothesis, we entered participants’ predictions about role likelihood into a 2 (participant gender) x 2 (role-type) mixed ANOVA with gender as the between-subjects factor. Overall participants reported a higher likelihood of being the primary breadwinner than being the primary caregiver, \( F(1, 306) = 15.40, p < .001 \), but this main effect was subsumed by the expected participant gender x role
type interaction, $F (1, 306) = 198.19, p < .001$. As expected, men ($M = 45.50, SD = 22.11$) reported a lower likelihood of being the primary caregiver in the future than did women ($M = 65.37, SD = 17.50$), $F (1, 306) = 76.70, p < .001$. Women ($M = 49.80, SD = 17.05$), in turn, reported a lower likelihood of becoming the primary breadwinner than did men ($M = 73.91, SD = 18.58$), $F (1, 306) = 140.93, p < .001$. Indeed, pairwise comparisons showed that women were more likely to anticipate a caregiver than a breadwinner role, $p < .001$, whereas men anticipated that it would be more likely for them to become breadwinners rather than caregivers, $p < .001$, showing that our participants anticipated gender-stereotypic domestic roles.

**Family-Orientation.** Lastly, we tested whether men would, as we originally had expected but not found in Study 1, show less family-orientation than women. Contrary to what was observed in Study 1, a between-subjects ANOVA on this dataset revealed that in Study 2 men ($M = 53.15, SD = 21.17$) reported being significantly less family-oriented than did women ($M = 58.06, SD = 19.85$), $F (1, 306) = 4.29, p = .04$. Indeed, testing against the midpoint of the scale revealed that women tended to see themselves as significantly more family- than career-oriented, $t (306) = 5.04, p < .001$, whereas men only saw themselves as marginally more family- than career-oriented, $t (306) = 1.83, p = .06$.

**Mediation of HEED Roles by Communal Goals and Competitiveness**

**Gender Differences in Mediator Variables.** Now turning to the variables we hypothesized to be mediators of gendered role interests, we first tested whether men and women show the expected gender differences in goals by conducting linear regression analyses predicting communal and agentic goals from gender (coded as male = 0, female = 1). Confirming our expectation and replicating Study 1, men reported significantly lower importance of communal goals than did women, $\beta = .15, t (306) = 2.62, p < .01$, but showed similar levels of
agentic goals to women, $\beta = .05$, $t (306) = 0.82$, $p = .41$. Since, as in Study 1, there is no gender difference in agentic goals, we did not analyze agentic goals as a potential mediator. As expected, however, trait competitiveness, was significantly higher in men compared to women in our sample, $\beta = -.36$, $t (306) = -6.79$, $p < .001$, rendering trait competitive a viable candidate for testing mediation. Figure 3 shows are mediation models for HEED related outcomes and Figure 4 shows all mediation models for STEM and breadwinner related outcomes.

**Mediation by Communal Goals.** In series of regression analyses, I next tested whether communal goals, (controlling for gender, trait competitiveness and agentic goals which were entered on the same step of the regression model), showed a positive relationship with each of our female-stereotypic outcome variables. As expected and replicating Study 1, communal goals significantly predicted higher interest in HEED careers (controlling for interest in STEM careers), $\beta = .26$, $t (306) = 5.43$, $p < .001$, higher value assigned to HEED careers (controlling for value assigned to STEM careers, $\beta = .10$, $t (306) = 2.77$, $p = .01$, and more family (vs. work) orientation, $\beta = .21$, $t (306) = 3.67$, $p < .001$. Expectably, bootstrapping analyses to estimate indirect effect sizes yielded significant indirect effects of communal goals on: 1) interest in HEED related careers, *indirect effect* = .04, *CI*$_{95}$ (.01, .08), 2) ratings of worth of HEED related careers, *indirect effect* = .01, *CI*$_{95}$ (.003, .03), and 3) family-orientation, which did show gender differences in this study, *indirect effect* = .03, *CI*$_{95}$ (.01, .07).

In contrast to our findings from study 1 and not matching our predictions, communal goals were only marginally predictive of a higher anticipated likelihood of being the primary caregiver to one’s future children (controlled for likelihood of being breadwinner), $\beta = .09$, $t (306) = 1.79$, $p = .08$. Although communal goals did not significantly predict anticipating being a
primary caregiver (as it had in Study 1), there was a significant indirect effect of communal goals on anticipating a primary caregiver role, \( indirect\ effect = .01, CI_{95} (.0001, .04) \).

**Mediation by Competitiveness.** Next, describing analyses from the same regression models reported above, I present data that can speak to the alternative hypothesis – that competitiveness would be negatively related to HEED interest (controlling for gender, communal goals, and agentic goals), and could therefore account for men’s relative lack of interest in HEED roles. There was, however, little evidence that trait competitiveness mediated gender differences in ratings of HEED careers. First, trait competitiveness did not significantly relate to interest in, \( \beta = .01, t (306) = 0.16, p = .87 \), or worth assigned to HEED related careers, \( \beta = .001, t (306) = .03, p = .97 \), or to family-orientation, \( \beta = -.05, t (306) = - 0.83, p = .41 \). Thus, tests of indirect effects using bootstrapping analyses yielded no evidence of trait competitiveness as a mediator of interest in HEED careers, \( indirect\ effect = -.003, CI_{95} (-.04, .04) \), worth assigned to HEED careers, \( indirect\ effect = -.001, CI_{95} (-.03, .03) \), or family-orientation, \( indirect\ effect = .02, CI_{95} (-.03, .07) \).

The one exception was that trait competitiveness (rather than communal goals as we had expected), did significantly predict a lower anticipated likelihood of being the primary caregiver to one’s future children, \( \beta = -.17, t (306) = - 2.99, p < .01 \), and statistically explained some of the gender difference in anticipated likelihood of being the primary caregiver, \( indirect\ effect = .06, CI_{95} (.01, .12) \). All presented models can be found in Figure 3.
Figure 3. Mediation models for HEED variables in Study 2. Panel A through D show mediation models for all HEED related outcome variables. All mediators were entered simultaneously for each model.

Note. **p < .01, *p < .05, † p < .10
Mediation of STEM and Breadwinner by Communal Goals and Competitiveness

Mediation by Communal Goals. As above, I tested for evidence that communal goals and competitiveness mediate gender differences in STEM and breadwinner roles by simultaneously entering communal goals, competitiveness (and agentic goals) in regression and bootstrapping analyses. The results on communal goals, which I report first, provide a test of whether women are less interested in STEM careers and male-stereotypic breadwinner roles because these roles are a poor fit to women’s more communal goals. As hypothesized and replicating Study 1, results showed that communal goals predicted lower interest in STEM related careers (controlling for interest in HEED careers), $\beta = -.12$, $t (306) = -2.08$, $p = .04$, but only marginally lower ratings of the value of these STEM careers (controlling for value of HEED careers), $\beta = -.07$, $t (306) = -1.89$, $p = .06$. Supporting our hypotheses and replicating Diekman’s work (2010), bootstrapping analyses provide evidence for communal goals mediating the gender difference in interest in STEM careers, indirect effect = -.02, CI$_{95}$ (-.05, -.002), and showing an indirect effect on worth assigned to STEM jobs, indirect effect = -.01, CI$_{95}$ (-.03, -.0003). These findings are consistent with the idea that women are less interested in and place less value on these occupations because they are seen as a poor fit to women’s stronger communal goals.

Similar to our findings on the likelihood of being a primary caregiver, study 2 did not replicate the positive relationship between the likelihood of being the primary breadwinner found in study 1. In this second study, communal goals did not significantly relate to the likelihood of being the primary breadwinner, $\beta = -.01$, $t (306) = -0.21$, $p = .83$, nor did bootstrapping analyses show any evidence that communal goals mediated the gender differences in anticipating a primary breadwinner role, indirect effect = -.002, CI$_{95}$ (-.02, .01). Thus, we did not replicate the
unexpected positive relationship of communal goal and breadwinning that was observed in Study 1.

**Mediation by Competitiveness.** The above analyses replicated Diekman’s goal congruity hypotheses as an explanation for women’s weaker interest in certain careers, despite now controlling for gender differences in competitiveness. However, Diekman has never examined whether gender differences in trait competitiveness might be an alternative mediator of these preferences, which I tested in this study. The same regression analyses predicting ratings of STEM related careers from competitiveness, communal goals and agentic goals, also revealed that trait competitiveness was not significantly related to interest in, $\beta = - .04$, $t (306) = - 0.60$, $p = .55$, or worth assigned to male-stereotypic careers, $\beta = .001$, $t (306) = 0.03$, $p = .97$. Furthermore, bootstrapping analyses yielded no evidence that trait competitiveness significantly mediated the gender differences in interest in STEM careers, *indirect effect* = .01, $CI_{95} (-.03, .07)$, or the worth assigned to STEM careers, *indirect effect* = -.001, $CI_{95} (-.03, .03)$. These results suggest that trait competitiveness cannot account for Diekman’s previous findings.

Nevertheless, trait competitiveness seemed to play a role in a different gender difference. Those high in trait competitiveness were more likely to anticipate being the primary breadwinner in their future family, $\beta = .13$, $t (306) = 2.31$, $p = .02$, and similar to the findings on the predicted likelihood of being primary caregiver, there was a significant indirect effect of gender on this variable via trait competitiveness, *indirect effect* = -.04, $CI_{95} (-.10, -.01)$. All mediation models presented in this section can be found in Figure 4.
Figure 4. Mediation models for STEM variables in Study 2. Panel A through C show mediation models for all male-stereotypic outcome variables. All mediators were entered simultaneously for each model.

Note. **p < .01, *p < .05, †p < .10
Discussion

In addition to the goal of replicating findings from Study 1 showing that communal goals could account for men’s lower interest in HEED and family roles, Study 2 was also set up to test trait competitiveness as an alternative explanation for gender differences in such variables. Specifically, Study 2 tested whether men tend to be less interested in HEED careers and domestic roles to the extent that they are more competitive than women. Summing up, now controlling for competitiveness in addition to agentic goals, we replicated most of our findings on communal goals from Study 1. By replicating the findings of Study 1, Study 2 provided confirmatory evidence that communal goals mediate the gender difference in interest in and broader value assigned to HEED- and STEM related careers, as well as family-orientation. Thus, holding strong communal goals seems to draw us towards those careers, which are perceived to afford these goals, while also leading us to avoid careers that we deem as unlikely to fulfill communal goals. This process then creates gender differences in career interest, but also gender differences in which careers are perceived as broadly valuable. Our data suggest that one reason why men don’t seem to opt into careers such as nursing and teaching, and in fact don’t perceived them as being as worthwhile for society as do women, is that men don’t share the communal goals that are important for such careers. The same is true for family-orientation, which also seems to be intimately tied to valuing caring, helping, and connecting. At the same time, I also find evidence that women may be more drawn to HEED rather than STEM roles, because occupations such as engineer or architect are not as compatible with communal goals as are teaching or nursing, lending even more support to Diekman’s original research.

The data painted a different picture in the case of men and women’s anticipation of being the primary caregiver or primary breadwinner of their future families. Contrary to our findings
from Study 1, communal goals do not show a significant relationship to anticipating primary caregiver or primary breadwinner roles when accounting for trait competitiveness. This suggests that deciding whether to strive for a career that can provide for a family or instead focusing on being the caregiver to one’s children, and perhaps putting career achievement second, is not dependent on communal goals. Instead, Study 2 implicated trait competitiveness in influencing such decisions. Although there are no gender differences in agentic goals broadly speaking, men in this sample did indeed score higher than women on trait competitiveness. These gender differences in trait competitiveness, rather than communal goals, seemed to explain why men are less likely to anticipate being a primary caregiver but more likely to anticipate a breadwinner role.

Taken together, these results, therefore, suggest that decisions about which careers to take on may be more driven by gender differences in communal goals while decisions on whether focus one’s role in the family on caregiving or breadwinning might be driven by gender differences in competitiveness. One reason why competitiveness plays a special role in influencing these family-specific variables might be that, contrary to the HEED careers interest, these decisions concern the dyadic relationship with one’s future partner. Thinking about which partner in a dyad will become a caregiver, and which will become the breadwinner might trigger a competitive mindset for some people, which could result in the desire to be more financially successful than their partner. If this is true, trait competitiveness should be related to a desire to provide for the family through a successful career rather than are caregiver role, whereas one’s actual choice of career to occupy should be less tied to competitiveness. These are exactly the results we observed in Study 2.
Despite these interesting findings, Study 2 was initially designed as an experimental test of the hypotheses. My analyses, however, showed that condition had no effect on card choice and goals, suggesting that the manipulation was not able to change participants’ mindset in the desired way. Indeed, results indicated that participants were overall more competitive than cooperative. There are several possible reasons for the failure of our manipulation to show the desired effects. First, the procedure may have failed to properly engage participants in the task description, which would have rendered the manipulation ineffective at changing people’s mindset. Although I modeled our manipulation on Liberman et al.’s (2004) methods, I did change the exact framing of the tasks to better represent competition vs. cooperation. It is possible that, with this adaptation, I made the framing of the tasks less salient to participants than Liberman and colleagues (2004) had. Alternatively, participants could have become disengaged due to the complexity of our task. The task involved a number of instructions delivered to the participant via a microphone and several setup steps, such as complex instructions about the game and a (fake) 30-second waiting period before the other player was allegedly connected. Perhaps, between all these procedures, the manipulation was not clear enough to make an impact on participants’ mindset.

A second issue is that participants seem to have entered our experiment with an overall competitive mindset that could have been hard to counteract with a manipulation. One possibility is a self-selection effect with relatively competitive students deciding to participate in the study, as the study was described as “Game Study” on the Subject Pool from which participants were recruited. In addition, the description of the study as a “game” could have cued a competitive atmosphere in every participant, regardless of predispositions or condition in the experiment. If participants were coming into our lab with a competitive attitude, they might not have been
swayed by the framing manipulation to approach the situation in a more cooperative way. As mentioned in the results, analyses of the most frequent choice among participants suggested that the majority of participants did not approach the game cooperatively. Contributing to this general competitive mindset may have been the fact that participants never met their fellow player (since it was a computer). Previous research on economic games shows that individuals act more antisocially in such games when responses are one-shot and anonymous (Haley & Fessler, 2005). The way I set up the game, therefore, could have created a mainly competitive motivation that overrode any cooperativeness our subtle manipulation induced.

Because of the failed manipulations, an obvious limitation of Studies 1 and 2 is their correlational nature. Since the manipulations employed in Study 1a and 1b, Study 2 was designed to prime cooperative vs. competitive by creating a socio-motivational context in which either cooperation or competition is expected. Despite the more immersive nature of this manipulation, this method also showed none of the desired effects on the manipulation checks. Since Study 1 and 2 failed to activate either communal or competitive mindsets, the causal relationship between communal goals and HEED interest remains in question. Based on goal congruity perspective and evidence from Study 1 and 2 of this work, I still expected a causal relationship between men’s relatively lower communal goals and their relative lack of interest in HEED roles. The theoretical predictions are especially strong for personal interest in HEED careers and family-orientation, since goal congruity focuses on how individuals are guided by their goals in choosing which pathways personally fit best for them (Diekman et al., 2011). Thus, Study 3 was aimed at testing whether activating communal goals in men would increase men’s interest in HEED careers, as well as their family-orientation.
In a third attempt at a working manipulation of communal goals, we looked to previous research that has successfully activated communal goals in an experimental paradigm, namely Diekman’s work on communal goals and STEM careers. Using a paradigm successfully employed by Diekman and colleagues (2011), Study 3 aimed to activate communal goals by having participants recall a time these goals were blocked. Originally adapted from Moskowitz (2002), such a prime is thought to activate the drive to pursue a goal by reminding participants of a time at which a given drive was intensified because they could not achieve their goal immediately. Contrary to our previous manipulation, this method tries to harness participants’ own experiences to create a prime that arouses a communal goal drive in a person-specific manner.

In addition, Study 3 focused on testing our hypotheses on men specifically. Diekman and colleagues have, in several studies, provided evidence that women’s avoidance of STEM careers is driven by their high communal goals. Yet, no experimental evidence is available to clarify the role of communal goals in men’s interest in HEED roles. Since study 3 focuses on providing this evidence, I opted to collect only data from men. Study 3 also included revised measures to gauge participants’ evaluation of HEED careers. The new measures were aimed at gaining a better understanding of the processes through which communal goal activation might increase interest in HEED roles in men. I decided not only to ask about personal interest in HEED roles as a dependent variable, but also asked participants to rate how much each career would fulfill their personal goals. If participants have insight into the process of goal congruity driving their career selection, they should also find HEED careers more in line with their personal goals if we activated their communal goal orientation. In this case, we should see an increase in interest in HEED roles in the communal prime condition that is mediated by an increased sense that HEED
roles match one’s personal goals. Alternatively, participants may increase their interest in HEED roles when primed with communal goals without explicitly realizing that these roles are now a better fit for their goals.

In addition, Study 3 also included measures of possible moderators of the expected condition effects, as several individual differences could influence the extent to which participants are amenable to the manipulation in this study. First, I included a measure of endorsement of stereotypical male-norms as a possible moderator of condition effects in the study. From previous research we know that men are easily threatened in their gender identity, especially when engaging in female-stereotypic activities (Bosson, Vandello, Burnaford, Weaver, & Arzu Wasti, 2009; Vandello et al., 2008). Thus, the hypothesis follows that male participants who endorse extremely traditional norms around the male gender role should show little change in self-reported interest in HEED roles, even if we activated their communal goals successfully. Said differently, only men who do not adhere strongly to male-gender norms might be affected by the manipulation. Secondary analyses in Study 3 test this hypothesis.

In addition, it is possible that participants’ tendency to ascribe to communal goals more generally would influence the ease with which a prime can activate such communal goals in them. Specifically, those who are generally low in communal goal-orientation may be relatively resistant to a goal activation prime, since they simply don’t hold the goals that the prime is trying to activate. Since our priming method relies on the existence of communal goals on some level, we should then see the most pronounced effect of condition in those who endorse communal goals to begin with. I thus included the familiar goal measure from Study 1 and 2 to test these hypotheses in secondary analyses for Study 3.
Study 3 – Experimental Essay Prime

Method

Participants

The sample included 113 male participants who were recruited on the campus of a large Canadian university and participated in exchange for a piece of candy. Participants were approached by a male or female research assistant and asked whether they would have 15 minutes to participate in a study from the psychology department that was investigating “individual differences in interests and opinions”. Thirteen participants were excluded for not actually completing the essay that acted as experimental manipulation, leaving a total sample of 100 men (50 in each condition). Participants were undergraduate students ($M_{\text{age}} = 21.18$ years, $SD = 3.04$) and our sample was predominantly East Asian (42.0%) and Caucasian (32%) with some East Indian (8%) participants. Other ethnicities combined represented the rest of our sample.

Procedure and Measures

We manipulated goal motivation using a method employed by Diekman and colleagues (2011). Specifically, participants were randomly assigned to first write an essay designed to activate communal goals (communal condition, $n = 50$) or to write a neutral essay (control condition, $n = 50$). In the communal condition, the essay prompt read, “Please think about a time when you wanted to act communally—that is, you wanted to care for someone else, be kind, or be caring—but you were unable to do so. What was this situation, and what did it feel like?” By reminding participants of a time that their motivation to behave communally – which presumably exists in everyone to some extent – was thwarted, this manipulation is thought to activate communal goals. Indeed, research on other goals shows that reminding people of a time where
they could not achieve a desired goal makes them more focused on that goal (Moskowitz, 2002). Participants in the control condition were simply asked to write about what they saw the last time they went into a forest. All participants were asked to spend approximately 5 minutes writing but were not held to a time limit.

**Manipulation checks.** To assess the effectiveness of our manipulation at activating communal goals (but not agentic goals), immediately following the manipulation participants self-reported the extent to which, 1) achieving communal goals currently feels important to them, and 2) achieving communal goals would feel satisfying at the moment. Ratings were made on a 9-point scale ranging from “1 = Not at all” to “9 = Extremely”.

**Career ratings.** After the low-reliability issues we experienced in Study 1 and 2, especially with male-stereotypic STEM careers, one goal of Study 3 was to improve the measures of career interest and develop measures that more clearly reflect HEED vs. STEM occupations. Hence, I chose careers in Study 3 based on a pilot study in which participants (n = 148, after exclusions for failing attention checks) rated the extent to which they perceived 10 HEED related and 10 STEM related careers as female- vs. male-dominated. The initial 20 careers for this pilot were selected by comparing some of the careers used in Diekman et al. (2010) to Department of Labor Statistics from 2012 (Bureau of Labor Statistics, 2013). We chose to focus on white-collar careers to avoid to any potential confounding effect of socioeconomic status on status differences that might be based on gender. Thus, the pilot included careers that required at least a Bachelor’s degree, and were occupied by at least 70% females (for female-stereotypic HEED) or at least 70% males (for male-stereotypic STEM). Based on this pilot data from MTurk, we chose the four careers that participants perceived to be the most “female-dominated” HEED related careers (nurse, social worker, special education teacher, kindergarten
teacher) and the four careers that participants perceived to be most “male-dominated” STEM careers (computer system architect, industrial engineer, software developer, mechanical engineer). For each of these careers, participants in study 3 rated their career interest by indicating the extent to which it was “difficult or easy to imagine themselves in each of the careers” ($\alpha_{\text{female careers}} = .84; \alpha_{\text{male careers}} = .88$). In addition, to assess whether participants could gauge the goal affordance of the careers, they rated the extent to which it was “difficult or easy to imagine that each career would fulfill their personal goals” ($\alpha_{\text{female careers}} = .85; \alpha_{\text{male careers}} = .86$).

All ratings were made on a 9-point likert scale ranging from “1 = Extremely Difficult” to “9 = Extremely Easy”.

**Family Orientation.** As in studies 1 and 2, participants rated their family-orientation on 3 items ($\alpha = .65$) assessing the extent to which they anticipate family vs. work orientation in their future. Ratings were made on a 9-point semantic differential scale, with “1” indicating work-orientation and “9” family-orientation.

**Communal and Agentic Goals.** Similar to study 1 and 2, participants rated seven communal goals (helping others, working with people, attending to others, connection with others, intimacy, caring for others, serving humanity; $\alpha = .88$) and seven agentic goals (status, achievement, self-promotion, power, independence, competition, recognition; $\alpha = .86$) on the extent to which they are personally important to them. Ratings were made on a 9-point scale ranging from “1=Not at all important” to “9 = Extremely Important”. Along with rating the importance of communal and agentic goals, participants also rated how important ‘money’ is to them as a goal. I included this item for exploratory purposes but will not further discuss it for the purposes of this thesis.
### Table 4.

**Study 3 variable descriptives and correlations.**

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<td>7. Male-Norms</td>
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Note. *p < .05

**Stereotypical Male-Norm Endorsement.** To assess whether beliefs about stereotypical male-norms would moderate the effects of condition on outcome variables, participants completed an 8-item self-report measure of endorsement of stereotypical male gender role norms (Pleck, Sonenstein, & Ku, 1993; α = .76). In this measure, participants rated the extent to which
they agree or disagree with statements such as “A guy will lose respect if he talks about his problem” on a 9-point scale ranging from “1=Strongly Disagree” to “9=Strongly Agree”. Higher scores on this scale indicate endorsement of stereotypical male-norms. Correlations and descriptives for all measures can be found in Table 4.

Results

Manipulation Checks

My first goal was to test the effectiveness of the manipulation in activating a communal goal orientation, while presumably having no effect on agentic goals. As predicted, condition significantly affected the amount of satisfaction anticipated from achieving communal goals, \( t(98) = 2.36, p = .02 \). Participants in the communal condition, who wrote about a time their communal goals were blocked, anticipated greater satisfaction from attaining communal goals \((M = 7.70, SD = 1.02)\) than did participants in the control condition \((M = 7.14, SD = 1.34)\).

However, counter to what would be expected from a strong manipulation, participants in the communal condition \((M = 6.84, SD = 1.39)\) did not significantly differ from those in the control condition \((M = 6.56, SD = 1.82)\) on the extent to which participants thought achieving communal goals felt important to them in them moment, \( t(98) = 0.86, p = .39 \). As expected, condition did not affect the extent to which men felt agentic goals were important, \( t(98) = -0.40, p = .69 \), or the anticipated satisfaction from reaching agentic goals, \( t(98) = -0.15, p = .88 \).

\(^2\) After Study 3 was complete, we ran an extended replication of the manipulation that I report here. This replication attempt \((N = 153\) men distributed across three conditions), however, failed to show significant effects on the manipulation check or any of the dependent variables. Importantly, this follow-up study differed from the original study in several ways. First, in addition to the communal essay prime and the control essay prime, this new study also contained a condition in which participants had to write about a time in which they wanted to act competitively but were prevented from doing so. This third condition was included to activate a competitiveness goal. Second, the study was conducted in that lab and on computers, rather than with pen and paper in the field, to ensure better experimental control. In addition, the essay
Activation of Communal Goals affects HEED Role Interest

Given the evidence that the manipulation was at least somewhat effective in activating communal goals, I next tested whether the experimental (communal) condition was also able to increase men’s interest in HEED roles, as predicted. Indeed, activating communal goals (vs. control) significantly affected the ease with which men said they could imagine themselves in HEED careers, $t(98) = 1.96, p = .05$. Men in the communal condition ($M = 4.16, SD = 2.00$) found it significantly easier to imagine themselves as nurses, social workers, and teachers than did men in the control condition ($M = 3.42, SD = 1.75$). Next I tested whether participants showed awareness HEED roles better fit the goals we had activated in the communal condition. However, results revealed that participants in the communal condition ($M = 4.23, SD = 2.05$) did not differ significantly from participants in the control condition ($M = 3.83, SD = 2.10$) in the extent to which they saw HEED careers as affording their personal goals, $t(98) = 0.97, p = .34$.

Similarly, contrary to predictions, the data showed no evidence for a causal connection between communal goal activation and family-orientation in this study, since men did not show higher family (vs. career)-orientation in the communal compared to the control condition, $t(97) = 0.18, p = .86$.

STEM Roles

Diekman et al. (2011) had previously shown that activating communal goals in a mixed gender sample made participants less interested in STEM careers. Although Study 3 contained manipulation now contained a timer, giving participants a maximum of seven minutes to write their essay before the page would auto-advance. Thus, this follow-up study was designed to replicate the effects of priming communal goals on HEED career interest and, in addition, tested the hypothesis that priming competitiveness might reduce men’s interest in HEED. However, since our manipulation checks showed no significant effects between conditions, it is not surprising that none of the dependent variables were influenced either.
only male participants and a different pre-tested set of STEM careers, I tested whether I conceptually replicated the effect of communal goal activation inhibiting interest in STEM careers. However, in contrast to Diekman’s findings (2011), priming communal goals did not decrease interest in STEM jobs in this all male sample. Our results showed no condition differences in the ease of imagining oneself in STEM careers or the perceived goal-affordance of male-stereotypic careers, \( ts < .89, ps > .37 \).

**Secondary Analyses**

**Stereotypical Male-norms as a Moderator.** To test whether stereotypical male-norm endorsement moderated the effect of condition on each of the outcomes, I conducted a series of regression analyses in which I entered condition (0 = communal, 1 = control) and stereotypical male-norms (standardized) as predictors on step 1 of the regression and the interaction of condition and stereotypical male-norms on step 2 of the regression. Results indicated that male-norms (controlling for condition) were not related to the ease of imagining oneself in HEED careers, perceived goal affordance of HEED, or family-orientation, \( \beta = -.02, -.03, .01 \) respectively, \( ts < .24, ps > .81 \). Also contrary to what I had expected, stereotypical male-norm endorsement did not interact with condition to predict either of these variables, \( ts < .51, ps > .60 \).

Similarly, stereotypical male-norm endorsement did not predict the extent to which participants could imagine themselves in STEM roles, \( \beta = -.01, t (98) = -0.10, p = .92 \), nor did participants endorsement of stereotypical male-norms interact with condition to predict this outcome, \( \beta = -.01, t (98) = - 0.07, p = .95 \). However, there was a marginally significant interaction between condition and endorsement of male-norms in predicting the perceived goal-affordance of STEM careers, \( \beta = -.25, t (98) = -1.75, p = .08 \). However, when this interaction was decomposed using simple slopes analyses, none of the simple slopes were statistically
significant and, thus, I will not attempt to interpret this marginal effect. These analyses then suggest that men who endorsed tradition male-norms were affected by our prime in a similar manner to those who did not endorse such male-norms.

**Communal Goal Endorsement as a Moderator.** Finally, to test whether chronic communal goal endorsement was a moderator of condition, I first examined whether condition influenced this variable by conducting a 2 (condition) x 2 (goal type) mixed ANOVA with condition as the between-subjects factor. Results revealed that, while participants generally rated communal goals as more important to them than agentic goals, \( F(1, 98) = 25.20, p < .001 \), there was no main effect of condition, \( F(1,98) = 0.82, p = .37 \), or condition by value-type interaction, \( F(1,98) = 0.96, p = .33 \), suggesting that neither communal nor agentic goals on this measure were influenced by condition and could therefore be used in moderation analyses. Thus, I next conducted regression analyses entering condition, communal goals, and agentic goals (as a control variable) on step 1 and the interaction of condition and communal goals on step 2 of the regression model predicting each outcome variable. Contrary to what was expected, however, none of the analyses showed a significant interaction between condition and communal goals, all \( \beta < .40 \), all ps > .38, suggesting that the prime did not operate differently in those with high vs. low communal goals.

**Discussion**

Taken together, these findings provide first evidence for the causal role of communal goals in men’s relative lack of interest for HEED roles. In line with the original primary hypothesis of the current research, the data from Study 3 suggest that activating communal goals increased the ease with which men could imagine themselves in HEED careers. However, activating communal goals did not seem to make men perceive HEED careers as more congruent
with their personal goals, neither did it affect men’s family-orientation. One possible explanation for this lack of effect could simply be that the experimental manipulation was weak. Our manipulation indeed may have had only a weak effect on communal goals, as only one of our two manipulation checks on communal goal activation showed an increase over the control condition. If the manipulation was weak in the first place, it was unlikely to have a long lasting effect. A short-lived effect of the manipulation would explain why we saw no effect on goal affordance of HEED careers or family-orientation, as these items came later in the survey.

One likely reason for the weak effect of our manipulation was the setting in which the study questionnaire was completed. Participants were recruited in public spaces on campus and completed the study mostly exactly they were approached, be it a table in the library or a bench in the food court area. In order to activate communal goals, however, the essay manipulation relied on participants effectively reliving the experience that they were writing about. This is likely difficult to achieve in a distracting environment. In addition, many participants seemed not be strongly motivated to fill out the study to the best of their ability. Indeed, I had to exclude an unusually large number of participants from the analyses because they did not even attempt to complete the essay on the first page. Even among those who did complete the essay many may have done so half-heartedly, rendering the manipulation quite weak. Despite our encouraging results, I therefore caution that effects need to be replicated with a stronger manipulation. I have been unable to do so thus far.

Another possible explanations for the lack of effect on participants’ perceptions of HEED roles as affording their personal goals is that participants in the experimental condition may have not consciously realized that their communal orientation was heightened, and that HEED jobs fit such a heightened communal orientation. In other words, evaluation of goal congruence might
sometimes take place more automatically, or implicitly, rather than being consciously deliberated. Thus, participants could not have consciously reported that HEED careers are more goal congruent after the communal prime. This possibility might also align with the null effect on the manipulation check that assesses participants’ explicit thoughts about how important communal goals are to them in the moment. Indeed, ample research suggests that people sometimes make decisions on a gut level – automatically or implicitly – and examine and sometimes justify their judgments explicitly afterwards (Gawronski & Bodenhausen, 2006). The data would fit with this broader phenomenon.

In addition to the weak experimental effects that this study provided, it was also focused on a specific group of subjects, thus limiting the conclusions than can be broadly drawn. Contrary to previous research by Diekman and colleagues (2011), the current study only included men. For the first experimental test of our hypotheses, I elected to focus on men because the overarching goal of this line of research is to understand why men are currently underrepresented in fields such as healthcare, teaching, social work and the domestic sphere. However, men and women may be differentially sensitive to activation of communal goals. If men generally have less communal goals than women, for example, then it may be markedly harder to activate those goals in men. The study, however, provides limited support for this, as trait level communal goals did not moderate the effect of condition. Nevertheless, measures of communal goals were also collected after the manipulation in this study, making them a less than ideal measure for a moderator.

Yet, if our manipulation worked in any way different for men and women, this could explain why the manipulation worked less clearly for us than it did for Diekman and colleagues, who use a mixed-gender sample dominated by women (2011). This could also explain why I was
unable to replicate Diekman’s findings on activation of communal goals decreasing interest in STEM careers. Whereas Diekman and colleagues concluded that activating communal goals broadly decreases interest in STEM careers, my results suggest that this is not the case for men. It is possible then that female participants drive Diekman’s effects, whereas the study’s small sample size fails to reveal gender by condition interactions. One possible explanation for men’s lack of change in STEM interest is that STEM careers are seen as stereotypically masculine and therefore provide men with a sense of fit and belonging, regardless of goal congruity (Cheryan et al., 2009). At this point, however, the first step in future research needs to be a clarification of the possibly different effects that communal primes could have on men and women’s career interests by collecting a sample of men and women with enough power to detect gender by condition interactions reliably. I have recently attempted to do so, but failed to replicate the effect of condition on the manipulation checks\(^2\), effectively leaving this question open for future research.
General Discussion

The main focus of the current work was to understand whether, and how broadly, internalized goals function to create different role aspirations for young men and women. Building on previous work testing goal congruency theory (Diekman et al., 2011), the current research was specifically interested in whether communal goals (as opposed to an agentic or competitive motivation) could explain: 1) why men continue to avoid and 2) also generally undervalue occupations such as nursing and teaching, and furthermore, 3) why men don’t equally share domestic responsibilities with their female partners. The three studies I presented here provide mostly consistent evidence to answer these questions. Results from study 1 and 2 replicated past correlational evidence showing that men are less interested in female-dominated HEED careers and more drawn to male-stereotypic STEM careers to the extent that communal goals are less important to them than they are to women. Extending past findings, I also found that men in our sample perceived HEED careers as less broadly valuable than did women, which was, as predicted, also partly explained by men’s relatively lower communal goal endorsement. In addition, this tendency of men to assign less importance to helping, caring, and connecting than do women also accounted for men’s relatively lower family- relative to career-orientation. Taken together, these findings suggest that gender differences in communal goals are broadly meaningful, as they seem to relate to which social roles individuals deem personally interesting and, moreover, generally worthwhile to society at large.

Similar to past research (Diekman et al., 2010; Diekman et al., 2011; Evans & Diekman, 2009), however, Study 1 and 2 only provided correlational evidence for the link between communal goals and HEED role interest. With Study 3, I examined the hypothesized causal link between endorsement of communal goals and interest in HEED roles. Despite some important
limitations, results from this study provide initial evidence that activating communal goals in men can boost their interest in HEED related fields. Specifically, data showed that activating communal goals in men made it significantly easier for them to imagine themselves as nurses, social workers and teachers.

Whereas these findings on the role of communal goals in gender differences in HEED interest were, broadly speaking, in line with the initial hypotheses and quite consistent across studies, findings for the predictive role of agentic goals were more complex. Data from Studies 1 and 2 did show that endorsing agentic goals consistently related to assigning less value to HEED and more value to STEM careers. Nevertheless, as previous research had found (Diekman et al., 2010; Diekman et al., 2011; Evans & Diekman, 2009), my data consistently showed no gender differences in overall agentic goals, thereby effectively eliminating agentic goals as a possible alternative explanation for men’s relatively lower interest and valuing of in HEED roles. This speaks against the alternative hypothesis that men avoid HEED roles, more so than women, because men have an overall higher orientation towards agentic goals that is not compatible with HEED.

I remained skeptical, however, whether no part of agentic goals truly plays a role in men’s relative reluctance towards HEED roles. In Study 2, I thus tested trait competitiveness, which represents a specific facet of agency known to show gender differences, as an alternative mediator of gender differences in role interest. Competitiveness was indeed significantly more pronounced in men than women in this sample, replicating past research (Croson & Gneezy, 2009). This gender difference did, however, not explain interest in HEED or STEM careers over and above communal goals. Instead, trait competitiveness showed a relationship only to a specific set of variables. Over and above communal goals, higher trait competitiveness predicted
lower anticipation of being a primary caregiver and higher anticipation of being a primary breadwinner in one’s future family. Importantly, communal goals showed no consistent relationship to these variables when accounting for trait competitiveness. These findings suggest that men are more likely to strive for being primary earners rather than primary caregivers in their families in part because men are more competitive than women, and not because women are simply more oriented towards caring and nurturing. As sociological theorist have suggested (Hakim, 2006), gender differences in competitiveness seem to drive decisions about whether to focus on breadwinning or caregiving, whereas deciding on a specific career might be more driven by communal goals. One possibility for the specific role that competitiveness seems to play might be that decisions about caregiving vs. breadwinning most often happen in dyadic relationships (Bartley, Blanton, & Gilliard, 2005) where two individuals can compete for these roles. Here, competitive individuals might want to retain the upper hand in their relationship by securing a role as breadwinner, regardless of which specific occupation they want to eventually pursue.

**Limitations and Future Directions.**

Whereas the data presented here is consistent with most of the hypotheses across three studies, the current work also has some important limitations that have to be taken into consideration. First, whereas correlational evidence across studies is quite consistent, the current research fails to provide strong experimental evidence for the role of communal goals (and agentic goals or competitiveness) in men’s lack of interest for HEED roles and related variables. In my thesis, I attempted four distinct modes manipulating participants’ goal orientation in order to gather such evidence. First, in Studies 1a and 1b, I tried to activate goals simply by having participants rate only the goals I aimed to activate. When this approach proved unsuccessful, the
next step was to immerse participants in a game-playing situation that was supposed to align their motivations with the communal vs. competitive expectations set up in the instructions of the game. As this approach also failed to yield the desired manipulation of goal orientation, I last turned to a replication of Diekman’s (2011) procedure for priming communal goals – an essay prime in which participants wrote about a personal experience. With this prime, I was able to gather at least some evidence that activating communal goals increased men’s interest in HEED roles. Nevertheless, effects seemed to be weak and possibly short lived. Moreover, I have since unsuccessfully attempted to replicate these effects with only minor changes to the procedure². Whereas, each study may have had its distinct shortcomings, these difficulties in finding a viable manipulation also suggest that participants’ fundamental goals are difficult to target experimentally. This may be the case because communal and agentic goals, broadly speaking, represent dimensions of trait-like individual differences (Trapnell & Paulhus, 2012). As such, they would be quite stable, and, therefore, hard to move around by a brief manipulation. If this is the case, future research may need to focus on more long-term interventions to heighten men’s communal goals or, alternatively, gather experimental evidence by manipulating the perceptions of careers rather than goals themselves. For example, Diekman and colleagues (2011) have shown that framing STEM careers more communally increased women’s interest in such careers. By the same logic, framing HEED careers as less communal – and possibly more competitive – should reduce gender differences in interest here as well.

Next, whereas the evidence for the importance of trait competitiveness is promising, it is severely limited and leaves open a number of questions about the role this trait plays in gender differences HEED roles. Trait competitiveness was tested as a possible alternative hypothesis for why men tend to show relatively little interest in HEED roles, because previous evidence
suggested that it showed reliable gender differences (Croson & Gneezy, 2009) and theorists had implicated this trait in gender differences in career-orientation (Hakim, 2006). In fact, both study 1b and study 2 (as well as the failed extended replication of study 3) attempted to prime competitiveness and failed to succeed, leaving the current research with only correlational data to test hypotheses on competitiveness. This evidence did show that men’s higher trait competitiveness explained a significant proportion of these gender differences, while communal goals had no significant effect over and above competitiveness. Nevertheless, I only tested the mediational role of competitiveness in one study, which was correlational, and therefore caution that these results have to be replicated to evaluate whether they are reliable.

The role that trait competitiveness specifically plays in explaining anticipation of caregiver vs. breadwinner roles also needs to be explored further, as I recommend caution on the measures I have used to assess these constructs. Across Studies 1 and 2, the caregiver and breadwinner constructs were only measured with one item each, which specifically asked participants to estimate the likelihood that they would take these roles in the future. The measurement of predictions about what would realistically happen in their future, rather than assessing their desire to take on these roles, distinguishes these measures from others in the current research. It remains unclear whether interest in vs. realistic predictions of participation in HEED roles would be influenced by distinct individual differences. Thus, a replication may want to use a more in depth measure that differentiates between anticipation of and interest in caregiver vs. breadwinner roles with multiple items that accurately capture these constructs and their relationship to trait competitiveness.

Regardless of measurement issues, however, I maintain that trait competitiveness is an important variable to consider in future research, especially because it shows large and consistent
gender differences (Croson & Gneezy, 2009). Although we did not show that competitiveness mediated gender differences in career aspiration in undergraduates, it is possible that competitiveness plays a more important role at later stages in life. When men and women are actually trying out careers they thought would suit them (rather than just thinking about possible careers as undergraduates) trait competitiveness might partly determine which careers men and women maintain. Here, we may expect women to leave occupations – such as in business and leadership – that feel ill fitted for those low in competitiveness, while men may be drawn away from careers – such as social work or teaching – that do not have a clear competitive component. Yet, the competitiveness of a situation, as previous research suggests (Liberman et al., 2004), often lies in how it is framed. Hence, we may expect that framing careers as more competitive and promoting friendly competition in the day-to-day of HEED roles could make them more attractive to men after all.

In addition to further exploring the role of different mediators of gendered role interest, future research may also want employ a greater range of dependent measures to create better ecological validity. All outcome variables in these studies were measured on self-report scales, which tap into participants’ conscious, deliberative thoughts about their career aspirations. With these measures, I may have failed to capture all different levels on which individuals evaluate possible future roles for themselves. Specifically, self-report scales give participants the time to control their personal biases and align their response with pervasive social norms (Devine, 1989; Gawronski & Bodenhausen, 2006) and can, moreover, be poor predictors of actual behavior compared to implicit measures (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). Thus responses on explicit measures might be affected by participant’s perceptions of which roles they normatively should be interested in, thus leaving these measures resistant to change by a
communal prime. In this sense, it is possible that gender differences in role interest could be inflated by self-report bias, whereas effects of activating communal goals could be masked.

Future studies could address this issue by using more implicit, as well as behavioral measures of career interest, which would be harder to consciously influence by participants and might be better able to capture actual intentions to consider a given careers. Measures of implicit associations represent one possibility. Scholars have suggested that, somewhat independently from the conscious or controlled attitudes that we can report, we evaluate our surroundings in a more automatic and uncontrolled manner (Gawronksi & Bodenhausen, 2006). This level of processing is often referred to as implicit or automatic cognition and can be assessed with a number of measures, most notably the implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998). The IAT measures strength of association between concepts by using a reaction time task, and has been widely used to assess implicit evaluative attitudes towards domains, such as math or science (Nosek, Banaji, & Greenwald, 2002). Future studies could, for example, measure the extent to which participants implicitly associate HEED (vs. STEM) careers with “interesting” or “valuable”, thereby bypassing explicit self-report scales. Another option would be behavioral measures that could tap into job interest on another level. Here, it might be possible to assess the amount of time participants spend examining job ads for HEED vs. STEM roles, providing a measure of how interested they are in these careers without asking participants to explicitly evaluate the careers. In addition, as real life requires (at least temporarily) choosing one career over others, forced choice measure of career interest could be more ecologically valid. It would be especially informative to follow a cohort of young men and women over time to determined how the goals they hold early on not only affect what careers they actually choose for themselves, but also how invested and satisfied they are with these careers.
Given the difficulties the current work had in producing experimental evidence, future research may need take into account other factors that could impede both men’s interest in female-dominated careers but also, and maybe more importantly, might steer them away from communal goals in general. Judging from the small effects of communal goals on HEED interest – Only 16% percent of the gender differences in Study 1, and 9% in Study 2, was explained by communal goals – a host of other factors must play a role in men’s underrepresentation in HEED fields. But these factors are likely also related to the gender difference in communal goals themselves, which has proven so stubborn to experimental manipulation. I propose 1) gender-role conflict and 2) goal-conflict as two factors that likely impede a communal orientation in men.

Conflict with stereotypical gender roles is one possible mechanism that could prevent men from pursuing communally oriented goals more broadly, and communally oriented careers more specifically. As noted in the introduction, pervasive gender stereotypes prescribe men independent, competitive and dominant roles, whereas women continue to be seen as warm or communal (Ebert, Steffens, & Kroth, 2014). Especially for men, there is an expectation to behave in line with these stereotypical roles and avoid feminine behavior at all cost (Vandello et al., 2008). And when men do engage in female-stereotypical behaviors, they often feel threatened in their gender identity and are indeed viewed negatively and openly scolded by others (Moss-racusin, 2014). As such, stereotypical expectations could effectively prevent men from showing open interest in HEED roles.

Once gender stereotypes are internalized, they could moreover guide men’s lack of interest in HEED even without external sanctions. But internalizing gender stereotypes should also influence the extent to which men ascribe to communal goals at a more fundamental level.
Indeed, research on balanced identity processes (Greenwald et al., 2002) suggests that gender stereotypes moderate the relationship between gender identity and one’s own preferences. For example, research shows that a more feminine gender identity is related to less math interest to the extent that individuals associate math with men (Nosek et al., 2002). It is then possible that male-identity relates to less communal goals, and pursuit of communal roles, to the extent that men connect being communal to being feminine.

Addressing and changing gender stereotypes might thus make it easier to activate communal goals in men and could also free them up to pursue communally oriented careers in HEED fields. Retraining implicit associations could be one avenue to alleviate the constraints that gender stereotypes put onto communal orientation in men. A recent meta-analysis (Lai et al., 2014) suggests that providing vivid counter-stereotypical examples can effectively shift implicit associations. Thus, if we provided men with positive examples of well-respected men who are also very communally oriented (without appearing unmanly) we should break down some of the barriers preventing men from communally oriented roles and goals alike.

Whereas fear of defying gender-stereotypical roles may prevent men from communal goal pursuits, other goals that men are typically socialized to pursue could also stand in direct conflict with a communal orientation. My data suggest that competitiveness is at least related to less interest in caregiving roles, but the lack of a negative relationship between communal goals and competitiveness suggests that this may not be where conflict occurs. Instead, previous research suggests that status and dominance, which are typically higher in men (Rudman, Moss-Racusin, Phelan, & Nauts, 2012), could conflict with communal goals, and therefore also with pursuit of communally oriented HEED careers. Research has in fact shown that being in a dominant position does seem to impede prosocial – or communally oriented – thoughts and
behavior. For example, individuals put in a position of high power are less likely to take the perspective of others (Galinsky, Magee, Inesi, & Gruenfeld, 2006) or show empathy (Van Kleef et al., 2008), but are more likely to act anti-socially by cheating (Lammers, Stape, & Galinsky, 2010). Based on previous work, we would expect that having (or striving for) dominance/power could impede communal goals, and may, therefore, lead to decreased interest in communally oriented careers. Since men, as compared to women, continue to hold positions of higher power in society (Rudmand et al., 2009), their power and dominance could contribute to gender differences in communal goal orientation. One interesting question, among many, is then whether activating power goals in women would suppress their communal goals to levels matching those of average men.

Yet, the relationship between power/dominance and communal goals seems to be further complicated by individual differences in the extent to which these goals are perceived as compatible. As part of my current work, my supervisor and I have developed a scale assessing the extent to which individuals perceive agentic goals as compatible with communal goals. This scale contains two distinct subscales assessing: 1) the perceived compatibility of communal goals with achievement goals, and 2) the perceived compatibility of communal goals with dominance and power strivings. Preliminary results show that, whereas achievement goals are generally perceived as compatible with communion, there is considerable variability in the extent to which individuals believe that communal goals can easily be combined with a striving for power and dominance. These findings suggest that such individual differences have to be taken into account when trying to understand why men tend to be less communally oriented than women. But, these findings also point to a possible way to increase communal goals in men. We should expect that increasing perceptions of communal goals as compatible with power and dominance should
make it easier for men to endorse them. Here, again, it might be helpful to employ positive exemplars. For example, showing examples of successful men who occupy powerful positions while also valuing communal goals and engaging in communal behaviors could alleviate some of the potential conflict between communal and power goals.

**Broader Implications**

Despite the numerous open questions following from the current work, I believe that it makes a broadly valuable contribution to understanding gender role inequality from an understudied perspective. Understanding why men continue to be less interested in careers such as nursing, teaching and social work, as well as why women continue to be responsible for the bulk of domestic work, is an importance piece in the puzzle of gender inequality (Croft, Schmader, & Block, 2015). Whereas a majority of researchers have focused on understanding why women are underrepresented and treated unequally in STEM fields and leadership roles, men’s reluctance to enter HEED professions is often overlooked.

This may be especially true because men, at least at first glance, do not seem to have a desire to enter these fields, as indicated by their lower interest ratings in the current, as well as many past studies (e.g. Evans & Diekman, 2009a). The current findings suggest that only focusing on welcoming men in HEED roles and removing external barriers would do little to solve their underrepresentation in these fields without also addressing why HEED roles are not perceived as personally interesting and broadly valuable by men. Importantly, my data provided evidence that communal goals are a broad mechanism that can explain not only why men shun HEED careers but also why they perceive them as not broadly valuable. If men, who continue to hold higher status and more positions of leadership and authority in society, continue to undervalue HEED roles, it is not surprising that such careers continue to be underpaid in
comparison to STEM careers requiring similar education and commitment (Katz, Stern, & Fader, 2005). Indeed, the current work assessed the value assigned to careers in form of an hourly wage that would accurately reflect the careers’ value to society. HEED careers, despite the importance of nurses, teachers and child care to the functioning of society, were evaluated as less valuable than STEM careers, especially by men. This was, in part, explained by communal goals, as lack of communal goals, in general, seems to be tied to undervaluing HEED in comparison to STEM careers.

But my data might also point to ways to potentially change this current situation. The presented work suggests that one way to change both men’s underrepresentation and the general undervaluing of HEED roles may be to foster more communal goals in both men and women. As Gloria Steinem aptly stated, “we’ve begun to raise our daughters more like sons, but few have the courage to raise our sons more like our daughters”. Communal goals seem to be part of being raised “like daughters”. Rather than just opening up HEED roles to men by removing external barriers to their entry, we have to “raise” men to have the broader goals that are congruent with HEED roles. Given the difficulties of activation communal goals in adults in the lab, interventions that instill communal orientation such as empathy and perspective taking in young children of both genders might be especially valuable, as they tackle gender differences early on (Schonert-Reichel, Smith, Zaidman-Zait, & Hertzman, 2012).

Finally, increasing men’s participation in HEED roles would be a valuable contribution to gender equality and well being in society. Evidence suggests that engaging in communal roles not only can benefit men themselves, but also their partners, their children, and society at large (Croft, Schmader, & Block, 2015). Finding evidence that increasing communal goals could increase men’s willingness to participate in HEED roles is therefore a very exciting prospect,
especially since the current studies suggest that communal goals are a mechanism that broadly affects perceptions about a number of careers and domestic roles. In sum then, the current research provides an important extension of goal congruency theory by examining the link between communal goals and evaluations of HEED roles. Importantly, new directions in understanding men’s relative lack of communal goals- and role-orientation emerge based on the current findings.
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