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Effects Of Gender Stereotypes On Judgments Of Career Tracks

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EFFECTS OF GENDER STEREOTYPES ON JUDGMENTS OF CAREER TRACKS

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Dedication

To my Mom

EFFECTS OF GENDER STEREOTYPES ON JUDGMENTS OF CAREER
TRACKS

by

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DISSERTATION

Presented to the Faculty of the Graduate School of

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Abstract

Occupational gender role stereotypes may impact how others evaluate the career choices of women and men. Women more so than men are employed in occupations that are viewed as communal. Men more so than women are employed in occupations that are viewed as agentic. In the first experiment, participants evaluated the career paths of male and female targets when the targets were considering a career change to a gender role congruent, incongruent, or gender role neutral career path. Female targets' career choices were evaluated more favorably in gender role congruent versus incongruent career tracks. Female targets' career choices were also evaluated more favorably in congruent career tracks than were male targets'. Male targets' career choices were evaluated equally across vignettes. In the second experiment, the framing of the career paths was manipulated as either communal or agentic. The framing had no effect on evaluations. Results largely replicated the first experiment. Female targets' career paths were evaluated more favorably when they were gender role congruent versus incongruent. Male targets' gender role incongruent career paths, however, were evaluated more favorably than congruent. In both experiments, explicit sexist attitudes did not affect evaluations. Others' judgments may affect women's participation in careers typically dominated by men. Others' judgments, however, may not affect men's participation in careers dominated by women, and may actually help men when they choose to pursue these career paths.

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1. Introduction

There are many academic fields and occupations in which there is unequal representation of men and women (Cohen, 2013; Larivière, Ni, Gingras, Cronin, & Sugimoto, 2013; National Science Foundation, 2016). Women comprise 50% of the workforce in the U.S but only 24% of the careers in STEM fields (Science, Technology, Engineering, and Math; Beede, Julian, & Langdon, 2011) and 38% of careers as physicians and surgeons (Bureau of Labor Statistics, 2015) – prestigious and lucrative careers. Men are underrepresented in K-12 education, nursing, and social work among other fields (Bureau of Labor Statistics, 2015). For women in typically male-dominated fields, biases and discrimination, whether explicit or implicit, can contribute to the *leaky pipeline* in which compounding factors beginning early and continuing throughout one's education and career lead to attrition (Blickenstaff, 2005; Diekman, Weisgram, & Belanger, 2015). Similarly, for men, gendered expectations beginning early on in life can shape career tracks, keeping them out of fields typically dominated by women (Eagly, Wood, & Diekman, 2000; Wilbourn & Kee, 2010). There is, however, asymmetry in gendered expectations. Men who pursue fields dominated by women tend to be paid more and move quickly into leadership positions. This *glass escalator effect* for men in which hidden advantages work to propel men into high status positions in fields dominated by women (Koch, D'Mello, & Sackett, 2015) contrasts with the *glass ceiling* effect for women in which hidden barriers prevent their ascent to the highest echelons in organizations.

There are gender disparities in careers, but to what extent do stereotype expectations contribute to these disparities? Women are expected to be more warm, sensitive, and polite than men (i.e. communal; Eagly et al., 2000; Prentice & Carranza, 2002). Men are expected to be more self-reliant, competitive, and aggressive than women (i.e. agentic). As such, women and

men can face societal expectations to pursue careers that align with the stereotypical traits they are expected to embody (Eagly et al., 2000). The present research tests the extent to which gender stereotypes affect evaluations of men's and women's career tracks. Ultimately, judgments of others that favor gender stereotypic over non-stereotypic career tracks may be a contributing factor to educational and occupational gender disparities, especially as these judgments are made at a critical time in one's education when they are making decisions about career paths to pursue.

1.1 STEREOTYPE ROLE CONGRUITY

Eagly and Karau (2002) proposed role congruity theory as an explanation for gender disparities in organizational leadership positions. Role congruity theory proposes that actual and idealized traits of men and women shape expectations of their role in society. These actual and idealized traits lead to descriptive and prescriptive norms applied to women and men. Descriptive norms describe the traits of men, women, and their social and professional roles. Prescriptive norms are how people believe men and women should behave, including the careers they should pursue and social roles they should take on. Prescriptive norms for women tend to be communal. Examples of communal traits are kind, caring, and engaging in a democratic leadership style. Prescriptive norms for men tend to be agentic. Examples of agentic traits are independence, decisiveness, and engaging in an autocratic leadership style. Agency and communion are often described as fundamental dimensions of individuals (Abele & Wojciszke, 2014). Each gender is viewed as more communal or agentic than the other and face an expectation to take on roles viewed as more communal or agentic (Eagly & Karau, 2002). One aspect of the leaky pipeline for women and men may be that there exists an incongruence between prescriptive norms of communion or agency and the career field chosen by an individual.

Violations of gendered prescriptive judgments tend to lead to negative evaluations, especially of women in leadership positions (Garcia-Retamero & López-Zafra, 2006; Heilman, 2001). Women in leadership positions are often penalized for agentic qualities but communal qualities stereotypic of women also violate a prescriptive norm. Men face similar expectations. Moss-Racusin et al. (2010) found that men who were modest were viewed as weaker, less hireable, and less qualified for leadership roles because they violate prescriptive norms of confidence and ambition deemed as necessary in high status positions. Thus, there exists societal expectations of the traits men and women should possess. In turn, these prescriptions affect how men and women are viewed in their professional lives and have direct and indirect implications for the careers they choose.

Whereas much of the research on role congruity theory has been applied to evaluations of men and women leadership roles, violations of prescriptive gender norms have also been shown to lead to negative evaluations of women in medical careers, and academia (Knobloch-Westerwick & Glynn, 2013; Madera, Hebl, & Martin, 2009). In academia, women are viewed as more communal than men and communal characteristics are negatively associated with hiring decisions. Women in academia face a double-standard as they are expected to be communal; however, communalism does not fit the role of a driven, intelligent, and competitive academic researcher (Rudman, Glick, & Phelan, 2008). Likewise, implicit association tests show that *male* tends to be more quickly paired with *scientist* than does *female* (Nosek et al., 2009). These biases likely have direct and indirect influences on participation of women in top academic positions (Weeden, Thébaud, & Gelbgiser, 2017).

Implicit bias research in the medical realm shows that *male* is more quickly associated with *doctor* than is *female*; likewise, *female* is more quickly associated with *nurse* than is *male*

(Banaji & Hardin, 1996; Wilbourn & Kee, 2010). Male colleagues are even less likely to use professional titles when introducing female compared to male doctors at a professional conference (Files et al., 2017). Whereas medicine is by its nature communal (i.e. caring for others) and attracts women – many who had been pursuing STEM careers in physical science prior to pursuing medicine (Diekmann et al., 2015) – women are wholly underrepresented in leadership positions in medicine and in positions in academic medicine (Jagsi et al., 2006). Female physicians also reported finding themselves taking on stereotypic communal roles such as helping the nursing staff, nurturing patients, and apologizing for errors – behaviors their male counterparts typically do not engage in (Barbaria, Abedin, & Nunez-Smith, 2009). There also exists gender role incongruity for women in medicine because *medical doctor* is a high-status and high paying career. High status positions align with stereotypes of men more so than women (Croft, Schmader, & Block, 2015; Eagly et al., 2000).

Men also face gender role stereotype imposed barriers to employment in female-dominated fields, particularly nursing (McLaughlin, Muldoon, & Moutray, 2010; Meadus, 2000), and K-12 education (Bureau of Labor Statistics, 2015). Men comprise less than 10% of all nurses in the United States and only about 19% of elementary and middle school teachers. In education, people implicitly associate elementary school teachers with *feminine* (White & White, 2006). Boys tend to view careers as nurses as “women’s work” (Hemsley-Brown & Foskett, 1999) and men report more negative attitudes toward male than female nurses (Clow, Ricciardelli, & Bartfay, 2015). Once in nursing, attrition among men is higher than among women (McLaughlin, et al., 2010). Despite these disparities for men in a female dominated position, women in nursing are under-represented in administrative positions in the field (Kleinman, 2004; Williams, 2005), an effect that occurs in other female-dominated fields as well (Budig, 2002; Williams, 2013).

Despite career participation biases deriving from gender role incongruity, over the past decades women have been making gains in careers dominated by men (Bureau of Labor Statistics, 2013, as cited in Croft et al., 2015). The same, however, cannot be said for men. From 1995 to 2013, the percentage of men as elementary school teachers, nurses, social workers, and counselors, among other female-dominated careers, has stagnated or decreased. Gender roles may be more restrictive for men than they are for women (Eagly et al., 2000; Wilbourne & Kee, 2010), especially for men in female-dominated workplaces in which the work is communal (Clow et al., 2015; Croft et al., 2015). Communal work tends to be viewed as low status work. Similarly, low status occupations tend to be viewed as requiring more communal traits (Eagly et al., 2000; Jackman, 1994). Although men may be at a proportional disadvantage in communal fields dominated by women, these careers are lower paid, viewed as lower status careers, and women still face disparities in employment frequency and pay in high status positions dominated by men, including managerial positions in female-dominated fields (Williams, 2013). Thus, equality is a multi-faceted issue not being solved simply by ensuring proportional gender equality in participation.

The present research adds to our understanding of how men's and women's career tracks are evaluated in the context of gender role congruity theory. In the present research, career choices are evaluated that are congruent and incongruent with men and women. The career tracks themselves present a descriptive norm such that they are careers dominated, or often viewed as dominated, by either women or men. The evaluations of men and women in these careers tracks are a prescriptive norm with the hypothesis that the prescriptions will align with the descriptive gender norm. Furthermore, as the descriptive norm of a career is manipulated to

be congruent with descriptive norms of agency and communion for men and women respectively, the prescriptive norm should follow suite.

The current research adds to and extends the literature by 1) testing judgements when the option exists to prescribe a gender role congruent or incongruent career track, and 2) by testing judgments of career tracks when manipulating gender role congruency (agency or communalism) of career tracks.

1.2 TRADITIONAL GENDER ROLES AS MODERATOR OF STEREOTYPE JUDGMENTS

The current experiments assessed judgments in alignment with stereotypic gender roles. Attitudes toward traditional gender roles – and more specifically, attitudes toward equality of women and men in the workplace – had to be taken into consideration as a possible moderator of judgments. The often used measure of ambivalent sexism (Glick & Fiske, 2001) includes items that load onto a gender differentiation latent factor; however, these items do not have face-validity with gender differentiation in socio-professional roles, and instead differentiate the genders on moral domains (e.g. “Women have a quality of purity that few men possess”). A measure of neo-sexism (Tougas, Brown, Beaton, & Joly, 1995) taps into attitudes toward the advancement of women in comparison to men in socio-professional contexts. Neo-sexist attitudes work to uphold gender hierarchies and inequalities. Neo-sexism came about as overt hostile and discriminatory attitudes toward women have become socially unacceptable over the latter half of the 20th century (Tougas et. al, 1995). Neo-sexist attitudes downplay women’s role, and institutionalized discrimination faced by women, in the workplace. Neo-sexism, among women, is strongly negatively correlated with attempts at upward mobility (Tougas, Beaton, & St-Pierre, 1999). Neo-sexism in men strongly and positively correlates with old fashioned sexism as well collective self-interest – i.e. believing that professional gains for women are zero-sum for

men (Tougas et al., 1995). Because Tougas et al.'s measure of neo-sexism has been developed and tested with professional contexts in mind, it made sense to use this measure as a potential moderator in the experiments. Women and men who hold neo-sexist attitudes are likely to make judgments of others' career tracks that align with societal gender imbalances.

1.4 HYPOTHESES

1. Women and men are encouraged into gender role congruent career tracks more so than gender role incongruent career tracks.
2. Women and men will be more encouraged into gender role incongruent career tracks when the gender role framing (communal or agentic) aligns with their gender.
3. Neo-sexist attitudes may moderate these effects, such that those who score higher on the measure will be more influenced by the role congruity of a career.

The following experiments were pre-registered on the Open Science Framework (<https://osf.io/mkvf4/>). All materials, hypotheses, and descriptions of analyses were uploaded to the Open Science Framework when data collection began. Construction of primary dependent variables (i.e. scale measures) was determined prior to data collection. Sample size determinations were made prior to data collection and were registered when data collection began. All measures, manipulations, and exclusions are reported. Data collection for the two experiments ran simultaneously and participants were randomly assigned to experiment one or two.

2. EXPERIMENT 1

2.1 EXPERIMENT 1 METHODS

Experiment one tests the hypothesis that men and women are encouraged into gender role congruent careers. Encouragement in this experiment is measured by items asking participants to evaluate the extent they believe the target should pursue a gender role congruent or incongruent career path, as well participants' evaluations about the targets' skills, future success, and future happiness in the career. As discussed in the introduction, the literature on role congruity theory (Eagly & Karau, 2002) shows that high-status positions, leadership roles, and other roles perceived as agentic lead to judgments that favor men in these careers. Careers typically viewed as low-status and communal lead to judgments that favor women over men. This first experiment tests people's judgments of men and women when there is ambiguity regarding the career path that the target wishes to pursue – whether it be gender stereotype congruent or not. The ambiguity in these experiments takes the form of a target person's feelings of ambivalence toward their current educational and career path while expressing a desire to change that path. The gender of the target is manipulated between-subjects with all other information held constant. Evaluations are made of career tracks that are stereotypical of men, women, or career tracks that are relatively stereotype neutral. Thus, differences in evaluations of male and female targets' career tracks is evidence of stereotyped prescriptive judgments.

This experiment uses a 2 (target gender – between-subjects, randomly assigned) by 3 (stereotype congruent, incongruent, or neutral career track – within subjects) mixed design. Participants judged the targets' possible career tracks, both the career track the target is currently pursuing as well as the career track the target is considering a change to. After reading each scenario, participants provide judgments about how well the current career track and the possible future career track fit the target.

2.2. PREDICTIONS

1. Male targets will be more encouraged into careers stereotypical of males and female targets will be more encouraged into careers stereotypical of females.
2. These effects may be moderated by neo-sexist attitudes such that higher scores predict greater gender role congruent judgments.

2.3 PARTICIPANTS

This experiment was conducted online with UTEP students. It was decided a priori to collect data from at least 120 participants (60 per cell). A power analysis for the 2x3 interaction indicated a sample size of 82 was necessary to detect small to moderate effects at 80% power for $\eta^2 = .02$. Data were collected from 134 participants ($n = 93$ female, 41 male). Two observations were excluded from analyses because they were from participants who had participated previously. These participants' first completion were retained. Mirroring the University's demographics, the sample was predominantly Latino (90.3%). The average age of participants was 19.95 ± 3.12 years. Most participants were freshmen or sophomores (83.58%).

2.4. PROCEDURE

After giving informed consent, participants were given instructions about the experiment. The instructions read:

Thank you for participating. We conduct research for the University's Career Center and we are gathering opinions about different student situations that we commonly encounter. Our goal is to develop an online advice system for students to use as they decide their career paths.

Your task will be to read about and offer your opinion about student situations. We use these responses to modify our algorithms for our *Online Student Advice System*. The names have been altered to protect anonymity of the students; however, these situations

mirror what we commonly encounter in our work. Participation should last around 15-20 minutes. In order to better serve students, we ask that you please read everything carefully and complete these tasks without distraction. Thank you.

After these instructions, participants were randomly assigned to read about either female or male targets. The vignettes contained information about students who were in either gender role congruent career tracks with plans to switch to an incongruent career track, or in gender role incongruent career tracks with plans to switch to a congruent career track – with congruence dependent on the target gender. Also, participants read about a gender neutral situation (i.e. the career track does not have gender stereotypes associated with it). One example is below. All vignettes can be found in the supplemental materials online (<https://osf.io/mkvf4/>).

Problem our office faced:

Brandon is a senior pursuing a bachelor's degree in criminal justice to become a police officer. Brandon has a decent GPA (3.21 out of 4.0) in his major but he has been considering a career change. He has expressed concern that the policing profession has increasingly become less focused on helping people, and there seems to be little opportunity to act independently in the profession. Therefore, Brandon is considering to change his major to a bachelor's in social work to become a social worker. He is unsure about this change, however, and really could see himself happy in either profession.

Brandon's coursework has prepared him well for making this career change. Brandon is a good decision maker, particularly under stress. In his free time, Brandon enjoys exercising and is training for a half-marathon. Brandon is engaged in the community and volunteers his time to a youth soccer league. A mediocre performance review in a summer internship, however, may raise concerns as he applies to the new major.

Career outlook: Both social work and law enforcement are seeing substantial long term growth. Both professions require extensive training. Also, these professions have relatively equal earning potential. After five-years on the job, social workers have a median salary of \$53,100; and police officers have a median salary of \$52,900.

The vignettes contained both positive and negative information about the candidate, presenting them overall as competent for pursuing either career track. The vignettes also contained both communal and agentic characteristics of the target. Social work and being a police officer were presented as similarly lucrative. In the case of nursing or being a medical doctor, the differences in time to degree were discussed when presenting median salaries and median pay was presented as similar when obtaining graduate professional credentials in nursing. All information was held constant between target gender conditions. Gender role congruence is dependent on the target gender. For example, a female target who is in a nursing program switching to a pre-medical program is considering a gender role incongruent career switch. Conversely, a female target switching from a pre-medical to a nursing program is considering a gender role congruent career switch.

There were five different scenarios that participants could evaluate: 1) Switching from a nursing degree to pre-medical to eventually be a doctor; 2) Switching from a pre-medical program to nursing; 3) Switching from social work to criminal justice to be a police officer; 4) switching from criminal justice to social work; and the control or stereotype neutral condition 5) Switching from a major in accounting to pursue a career in real estate sales. The career tracks were chosen based partially on previous literature on gender stereotypes about medical professions (as discussed in introduction), and by looking at Bureau of Labor Statistics (2015) data about participation in these careers by men and women. The goal with choosing the career

tracks was to use careers with gender discrepancies that were in the same field (e.g. nursing or medical doctor, police officer or social worker). All possible combinations of targets and career tracks were presented through counterbalancing (see Table 1). For example, a stereotype congruent career change could be in the criminal justice domain or in the healthcare domain and participants only rated one stereotype congruent scenario. Counterbalanced presentations were randomly assigned. The order in which participants evaluated the gender role congruent, incongruent, and neutral vignettes was randomized.

Table 1. Counter-balanced scenarios

Counter-balanced scenario:	Pursuing nursing, switching to pre-med	Pursuing pre-med, switching to nursing	Pursuing social-work, switching to police officer	Pursuing police officer, switching to social work
Female targets				
1	Incongruent			Congruent
2		Congruent	Incongruent	
Male targets				
1	Congruent			Incongruent
2		Incongruent	Congruent	

Note. The stereotype congruence is listed in reference to the career change the target is considering in the vignettes. The stereotype neutral vignette was the same across conditions and counter-balances.

2.4.1. Dependent Variables

After each vignette, participants were asked to evaluate the targets' career options. Participants answered questions about the career track the target was considering switching to, as

well as the career track the target was currently pursuing. The items for each possible career track are:

1. To what extent do you believe [target name] should switch [his/her] major to pursue [career] (1 = Should definitely not switch, 6 = Definitely should switch).
2. To what extent do you believe [target name] should stick with [his/her] current plan to become [occupation]? (1 = Should definitely not stick with current plan, 6 = Definitely should stick with current plan).
3. [Target name] has a good chance of becoming a [occupation] (1 = Strongly disagree to 6 = Strongly agree).
4. [Target name] would have a successful career as a [occupation] (1 = Strongly disagree to 6 = Strongly agree).
5. [Target name] has the skills needed to be a [occupation] (1 = Strongly disagree to 6 = Strongly agree).
6. [Target name] would be happy as a [occupation] (1 = Strongly disagree to 6 = Strongly agree).

Note that questions 3-6, were asked in relation to both the career track the target was considering changing to, as well as the career track the target was currently pursuing. As such, each vignette included both stereotype congruent and incongruent items. From these items, composites of stereotype congruent, incongruent, and neutral target evaluations were created. A principle components analysis was performed on the data to ensure the items intercorrelated appropriately (Table 2). The DVs and filler items were presented in random order to the participants. The manipulation checks always appeared immediately after the vignettes.

2.4.2. Manipulation checks, filler items, and qualitative responses.

There were two manipulation checks following each vignette. Participants were asked which major or career the target was currently pursuing and which major or career they were considering switching into. Filler items, six in each vignette, included general questions about the careers (e.g. “Being a social worker requires a lot of hard work”) and the target (e.g. “Brandon is approaching his situation with caution”). These fillers were included solely to attempt to disguise the intentions of the experiment and were not analyzed. To further the ostensible reasoning behind the experiment, participants were asked to write out their advice to the target. These were not analyzed but will be revisited to inform future research.

2.4.3. Demographics and sexist attitudes.

After reading and rating three vignettes, participants completed a demographics questionnaire. Finally, participants completed a 12 item measure of neo-sexist attitudes scored on a seven point scale (Strongly disagree, to Strongly agree; Tougas et al., 1995). Sample items include: “Women’s requests in terms of equality between the sexes are simply exaggerated” and “Discrimination against women in the labor force is no longer a problem in the United States.” This measure had good reliability, $\alpha = .80$, $M = 2.70$, $SD = 0.91$.

2.5. EXPERIMENT 1 RESULTS

All participants correctly identified the career tracks in the manipulation checks. Thus, no participants were excluded from analyses.

2.5.1. PCA on dependent variables

A PCA shows that the items intercorrelated as expected and should be combined to form composites of gender role congruent, incongruent, and neutral variables. The PCA extracted 5 factors (Table 2). The first three factors were as hypothesized. Factors 4 and 5 could be labeled as

“Switch to different career plan” and “Stick with current career plan.” These factors consisted of the same items with complementary correlation patterns for the incongruent and congruent items. These were not analyzed as separate factors because the “switch” and “stick” items loaded well onto their corresponding congruent or incongruent hypothesized factor. The item forming the stereotype neutral DV that read, “To what extent do you believe [target name] should stick with [his/her] current plan to be an accountant?” correlated negatively with the other neutral items and was thus deleted from the neutral composite. The neutral condition only had the target considering a change from accounting to real estate (and not vice-versa). Thus, the negative correlation only indicates that there may be tendency for participants to believe a person should switch careers while still indicating that the participant would be a good candidate in either career. Correlations and reliability of the measure composites are in Table 3.

Table 2. Principle components analysis.

Item	Factor				
	1	2	3	4	5
Switch-congruent		.65		-.34	.40
Stick-congruent	-.32	.41		.45	-.36
Good chance-congruent		.72			
Successful-congruent		.81			
Skills-congruent		.70			
Happy-congruent		.64	-.33		
Switch-incongruent	.53			-.45	.44
Stick-incongruent	.40	-.48		.41	-.33
Good chance-incongruent	.83				
Successful-incongruent	.85				
Skills-incongruent	.83				
Happy-incongruent	.80				
Switch-neutral			.55	-.38	.45
Stick- neutral			-.33	.58	.54
Good chance- neutral			.67		
Successful- neutral			.76		
Skills- neutral			.55		
Happy- neutral			.55	.43	

Note. Coefficients less than .30 were suppressed. Factor 1 represents the stereotype incongruent items. Factor 2 represents the stereotype congruent items. Factor 3 represents the stereotype neutral items. Factors 4 and 5 were not retained as the items conceptually fit better with in the first three factors. Bolded items were retained for each factor.

Table 3. Congruent, incongruent, and neutral rating correlations.

	1	2	3
1. Congruent	.78		
2. Incongruent	-.23, $p = .008$.83	
3. Neutral	.04, <i>ns</i>	.09, <i>ns</i>	.73

Note. Cronbach-alpha coefficients are on the diagonal.

2.5.2. Participant Gender Effects

Including participant gender in the model, both as a main effect and interaction term, did not yield any significant results. The stereotyping of targets did not differ between men and women. Only about 30% of the sample were men, however, so there may not be power to adequately detect participant gender effects.

2.5.3. Primary Analyses

To test the hypothesis people would evaluate men's and women's career decisions more favorably when they are stereotype congruent, the target gender was entered as a predictor of congruent, incongruent, and neutral ratings. The congruence is a repeated measure. The counter-balanced codings were also included in this model as an interaction term with target gender to determine if people responded differently to men or women in the different career tracks.

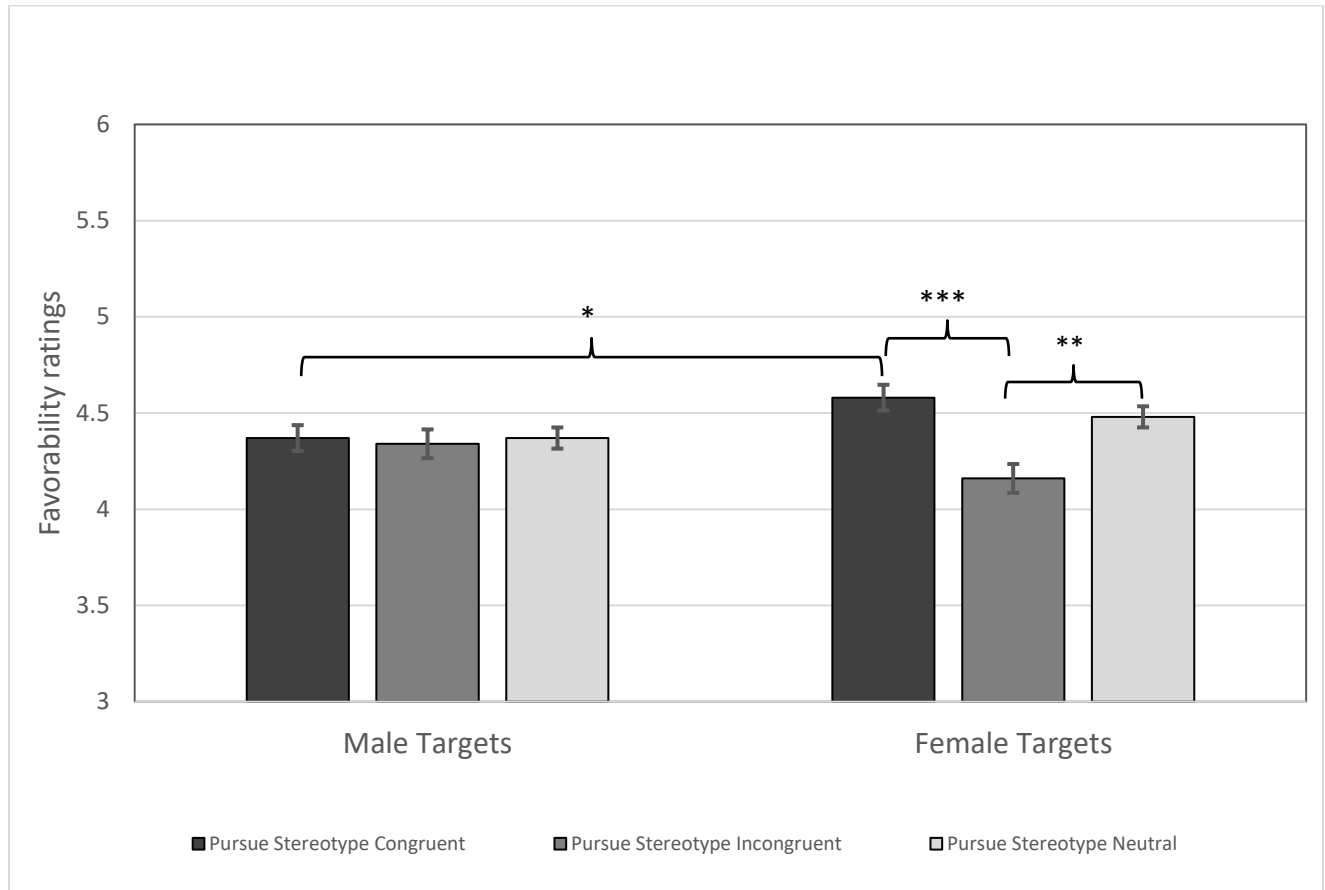
2.5.4. Ratings of stereotype congruent, incongruent, and neutral scenarios

There was a main repeated measures effect of congruence, $F(2, 260) = 6.10, p = .003, \eta^2 = .044$. Across target gender, participants rated the stereotype congruent career tracks ($M = 4.48, SD = 0.56$) more favorably than the stereotype incongruent career tracks ($M = 4.24, SD = 0.65$), $t(133) = 2.87, p = .005, d\text{-paired} = 0.25$. Participants also rated the neutral career track ($M = 4.45, SD = 0.48$) more favorably than the incongruent, $t(133) = 3.15, p = .002, d\text{-paired} = 0.27$.

The main repeated measures effect is qualified by an interaction with target gender, $F(2, 260) = 4.08, p = .02, \eta^2 = .03$ (Fig. 1). There was no difference in ratings between the congruent, incongruent, and neutral career tracks for male targets. For female targets, however, participants rated the stereotype congruent career tracks ($M = 4.57, SD = 0.56$) significantly higher than the incongruent ($M = 4.16, SD = 0.70$), $t(70) = 3.61, p < .001, d\text{-paired} = 0.70$. Between conditions, participants rated congruent career tracks for female targets higher than for males ($M = 4.37, SD = 0.55$), $t(132) = 2.18, p = .03, d = 0.38$. Between conditions the ratings for the incongruent career tracks for male targets ($M = 4.34, SD = 0.58$) and female targets ($M = 4.16, SD = 0.70$) were similar, $t(132) = 1.58, p = .12$.

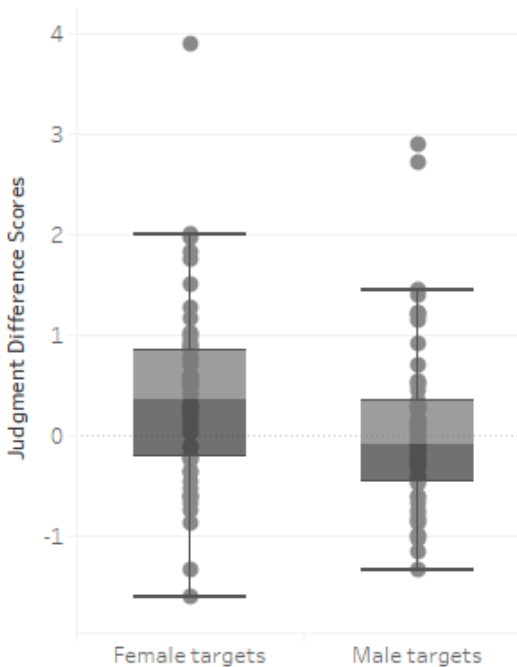
To investigate the target gender by stereotype congruence interaction further, I created difference scores by subtracting the stereotype incongruent evaluations from the stereotype congruent. Positive scores indicate favorability of the stereotype congruent vignettes and negative scores indicate favorability of the stereotype incongruent vignettes. Female targets ($M = 0.40, SD = 0.87$) had higher difference scores than male targets ($M = 0.03, SD = 0.83$), $F(1, 132) = 6.20, p = .014, \eta^2 = .045$ (Fig. 2). The difference scores for male targets were close to zero, indicating that the congruent and incongruent vignettes were evaluated similarly.

Figure 1. Target Gender by Stereotype Congruence Interaction.



Note. Asterisks denote significant mean differences, * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 2. Stereotype congruent and incongruent difference scores.



Note. The difference scores were created by taking the difference of the incongruent evaluations from the congruent evaluations. Positive numbers indicate more favorable evaluations of the stereotype congruent career track. Negative numbers indicate more favorable evaluations of the stereotype incongruent career track. The point at which the shading changes is the median.

2.5.5. Effects of explicit sexist attitudes.

The neosexism scores were added as an interaction term to the original model.

Neosexism did not predict any of the target ratings nor did it interact with the other terms in the model, $ps > .10$. In post-hoc testing, each individual variable making up the composites was entered into a model being predicted by neosexism with participant gender and target gender as between-subjects factors. There was not support that neosexism had predictive value in this experiment.

2.5.6. Counterbalancing effects

There was no effect of counterbalancing balancing as a main effect nor did it interact with target gender and the different congruent or incongruent career tracks, $F(2, 260) = 1.51, p = .22$. Participants randomly assigned to either counterbalanced condition evaluated – as one example – a female target considering a career change from pre-med into nursing the same as a female target considering a career change from being a police officer into social work.

2.6. EXPERIMENT 1 DISCUSSION

The results from this first experiment provide evidence that people make gender role stereotypical judgments about career tracks, but only for women. Men's career options were rated the same across congruent, incongruent, and the neutral vignettes. Previous literature (e.g. Croft et al., 2015; Wilbourn & Kee, 2010) states that occupational gender roles may be more restrictive for men than they are for women (e.g. Men would face more backlash going into nursing than women do pursuing a career as a medical doctor). The present research, along with others (e.g. Sherman & Zurbriggen, 2014), contrasts that literature by showing that only women's career choices were differentially judged. It could be the case, however, that men faced equally constraining judgments across conditions.

Whereas women's career choices were judged stereotypically in the experiment, women have also been making gains in employment in typically male-dominated fields (Bureau of Labor Statistics, 2013), including the occupations used in the experimental vignettes. Men have not been making gains in female-dominated fields. That participants did not judge men's career choices differently across congruence suggests that men may self-select out of female-dominated fields without experiencing pressure from others about their career choice. Comparatively, women may persist against occupational gender role stereotypes to make gains in male-dominated fields.

Unexpectedly, neosexist attitudes did not predict gender stereotyping of career choices. It is possible that the model including neosexism simply was not adequately powered to detect small interaction effects. The mean of the composite variable was quite a bit below the mid-point of the measure (2.7 on a seven-point scale) and standard deviation was less than one point. Overall, the college students in the sample may have scored too low on the variable with little variability. Assuming, however, an adequate measure of sexism and no type II error, the favorability ratings for the different career tracks for each gender appear to be derived implicitly rather than as a means of one's explicit attitudes toward gender workplace inequalities. This result is more insidious than if only sexist individuals made sexist judgments of others career choices.

3. Experiment 2

To further investigate the role that gender stereotypes play in judgments of career choices, in Experiment 2 the role congruity framing of the career tracks was manipulated. Framing careers as agentic or communal may differentially affect judgments of those career choices for male and female targets. Role congruity theory posits that violating prescriptive gender norms lead to negative evaluations. If, however, a career track is presented as aligning with a target's gender, there is no violation of a gender norm and there should be no negative evaluations. Framing a career with agentic or communal descriptors that align with the target gender should lead to evaluations that favor that career path compared to a career path that is framed gender role incongruently.

This experiment used a 2 x 2 x 3 mixed design in which target gender and stereotype role content (careers described in agentic or communal terms) were between-subjects factors, and like the first experiment, gender role congruence of the career track (stereotype congruent, incongruent, or neutral) was a within subjects factor.

3.1. PREDICTIONS

1. There will be a target gender, by career track, by stereotype role interaction such that women are more encouraged into career tracks that are stereotypically associated with men when these careers are framed as communal versus agentic. Men will be more encouraged into career tracks stereotypically associated with women when these careers are framed agentially versus communal.
2. These effects may be moderated by neo-sexist attitudes such that those scoring higher in sexism will be more likely to make stereotypical evaluations.

3.2. PARTICIPANTS

It was determined a priori to collect data from at least 240 participants (60 per cell). Data were collected from 286. A power analysis for the 2x2x3 interaction at 80% power indicated 116 participants would be needed to detect small effects of $\eta^2 = .02$. One observation was excluded because the participant participated twice. Their first observation was retained. Another participant was excluded as they spent little time on the experiment and failed all manipulation checks. Thus, $N = 284$ were included in analyses (92 male, 192 female). The average age was 20.50 ± 4.22 years. The sample was predominantly Latino (88.64%). Freshmen and sophomore students made up 76.06% of the sample.

3.4. PROCEDURE

After giving informed consent, participants read the same instructions that were used in the first experiment. Participants were then randomly assigned to one of four conditions in which they read about male or female targets with career framings that were either agentic or communal. The same career tracks used in Experiment 1 were used in this experiment. After reading the same vignettes that were used in the first experiment, participants also read another paragraph that described the typical characteristics of people who are successful in the career. These descriptions were either agentic or communal. Traits used in each of these framing vignettes were adapted from (Prentice & Carranza, 2002). Examples are below with the agentic and communal traits in italics:

Agentic:

Considerations about being a medical doctor: Research on the characteristics of the most successful individuals in the medical profession shows that being a medical doctor requires *independence* and an *ability to lead diverse groups of people*. Individuals who choose to pursue a career in medicine need to be very *self-reliant*.

Communal:

Considerations about being a medical doctor: Research on the characteristics of the most successful individuals in the medical profession shows that being a medical doctor requires *understanding* and *sensitivity*. Individuals who choose to pursue a career in medicine need to be very *empathetic*.

After the vignettes, participants completed the same dependent measures that were completed in the first experiment. Additional manipulation checks were added to check whether participants correctly identified the communal and agentic characteristics. The same composites of congruent, incongruent, and stereotype neutral evaluations used in experiment 1 were created for this experiment. After evaluating each vignette participants completed a demographics questionnaire and the neosexist attitudes scale ($M = 2.63$, $SD = 0.89$).

3.5. EXPERIMENT 2 RESULTS

3.5.1. Participant gender effects

Including participant gender in the model as both a main effect and interaction term did not yield any significant results. Evaluating the stereotype congruent, incongruent, and neutral career tracks of targets did not differ between female and male participants.

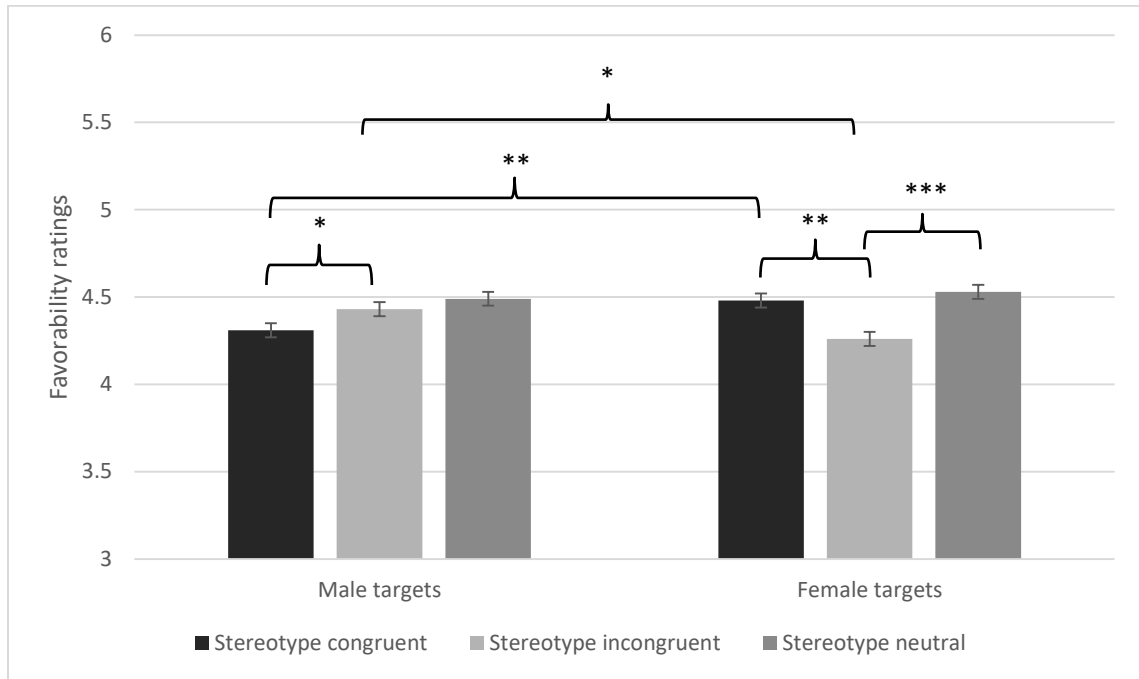
3.5.2. Primary analyses

The target gender, stereotype role framing, and counter-balance codings were entered into a general linear model with the stereotype congruence as a repeated measures outcome variable. There was an overall main effect of stereotype congruence, $F(2, 550) = 8.58$, $p < .001$, $\eta^2 = .03$. Collapsed across target gender, the neutral vignettes ($M = 4.51$, $SD = 0.47$) were evaluated higher than the incongruent vignettes ($M = 4.35$, $SD = 0.56$), $t(283) = 4.37$, $p < .001$, d -

paired = .22, and higher than the congruent vignettes ($M = 4.39$, $SD = 0.53$), $t(283) = 3.24$, $p = .001$, d -paired = .20. The incongruent and congruent did not differ.

The main congruence effect was qualified by the congruence by target gender interaction, $F(2, 550) = 9.18$, $p < .001$, $\eta^2 = .032$ (Fig. 3). Similar to the first experiment, female targets' career choices were rated more favorably when they were stereotype congruent ($M = 4.48$, $SD = 0.52$), compared to stereotype incongruent ($M = 4.26$, $SD = .60$), $t(143) = 3.07$, $p = .003$, d -paired = .26. Female targets' stereotype neutral career choices ($M = 4.53$, $SD = 0.48$) were also rated more favorably than incongruent career choices, $t(143) = 4.69$, $p < .001$, d -paired = .42, but did not differ from stereotype congruent career choices, $t(143) = 1.00$, $p = .32$. For male targets, interestingly, stereotype incongruent career choices ($M = 4.43$, $SD = 0.49$) were evaluated more favorably than their congruent career choices ($M = 4.31$, $SD = 0.53$), $t(139) = 2.18$, $p = .031$, d -paired = .19, as were their stereotype neutral career choices ($M = 4.49$, $SD = 0.45$), $t(139) = 3.68$, $p < .001$, d -paired = .33. Between conditions, stereotype congruent career choices were rated more favorably for female than male targets, $t(282) = 2.76$, $p = .006$, $d = .33$. Also, stereotype incongruent career choices were more favorably for male ($M = 4.43$, $SD = 0.49$) compared to female targets ($M = 4.26$, $SD = .60$), $t(282) = 2.54$, $p = .012$, $d = .30$.

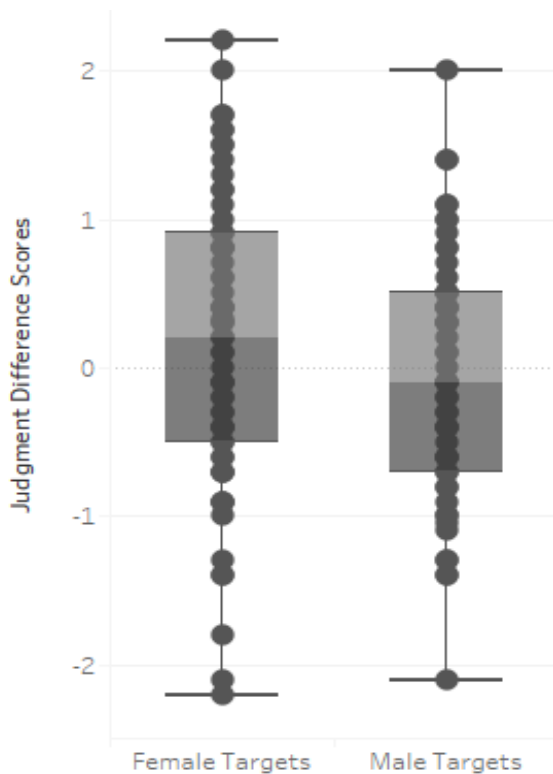
Figure 3. Target gender by stereotype congruence ratings of career choices



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

Like the first experiment, difference scores were created by subtracting the ratings of the stereotype incongruent scenarios from the stereotype congruent. Positive scores indicate greater favorability for the stereotype congruent career tracks; whereas, negative scores indicate greater favorability for the stereotype incongruent career tracks. There was an overall target gender effect such that ratings of female targets' career tracks favored stereotype congruent ($M = 0.20$, $SD = 0.83$) and ratings of male targets' career tracks favored stereotype incongruent ($M = -0.12$, $SD = 0.67$), $F(1, 275) = 13.45$, $p < .001$, $\eta^2 = .046$. Where the zero point indicates equal ratings of stereotype congruent and incongruent career tracks, ratings of female targets differed significantly from zero, $t(143) = 3.07$, $p = .003$, as did ratings of male targets, $t(139) = -2.18$, $p = .031$.

Figure 4. Stereotype congruent and incongruent difference scores.



Note. The difference scores were created by taking the difference of the incongruent evaluations from the congruent evaluations. Positive numbers indicate more favorable evaluations of the stereotype congruent career track. Negative numbers indicate more favorable evaluations of the stereotype incongruent career track. The point at which the shading changes is the median.

3.5.3. Counterbalancing effects

Unlike the first experiment, there were effects of counterbalancing the career tracks in the second experiment. There was a target gender by stereotype congruence by counterbalancing effect, $F(2, 550) = 6.56, p = .002, \eta^2 = .023$. Deconstructing this interaction, there was a greater difference between ratings of congruent and incongruent career choices for female targets when the stereotype congruent career track was nursing and the incongruent was police officer ($M_{diff} =$

0.35), compared to social work as the congruent and doctor as the incongruent career track ($M_{diff} = .07$), $t(141) = 2.03$, $p = .044$, $d = .34$.

3.5.4. Effects of explicit sexist attitudes

The neosexism scores were added as an interaction term to the original model.

Neosexism did not predict any of the target ratings nor did it interact with the other terms in the model, $ps > .05$. As in the first experiment, as post-hoc exploratory analyses, each individual variable making up the composite dependent variables was entered into a model being predicted by neosexism with participant gender as a between-subjects factor. There were some notable significant effects in these analyses. As neosexism increased, men indicated that male targets were more likely to succeed in a gender role congruent career track compared to female targets, $F(1, 88) = 5.19$, $p = .025$, $\eta^2_p = .055$. Also, as neosexism increased among women, they rated male targets as more likely to be happy in a stereotype incongruent career track (e.g. nursing) when it was framed agentially, $F(1,92) = 7.33$, $p = .008$, $\eta^2_p = .074$.

The stereotype role framing (agentic or communal) did not interact with the target gender and stereotype congruence of the career tracks, $F(2, 550) = 0.46$, $p = .63$. To further investigate effects of framing, I excluded any participants who incorrectly identified half or more of the traits in the manipulation checks. These manipulation checks asked people to check the boxes of the traits most associated with the career track vignette according to what they read. There were 61 exclusions. Re-running the analysis, there was still no significant effect or interactions with the framing, $F(2, 430) = 0.55$, $p = .58$. Examining only the univariate statistics for each stereotype congruence variable, there were no significant effects of framing, all $ps > .10$. As an exploratory analysis, I looked at each variable that formed the composite of the stereotype congruent, incongruent, and neutral measures. There were no effects of framing interacting with

target gender and congruence. Thus, the agentic and communal framing manipulation used in this experiment appears to have no effect on judgments.

3.6. EXPERIMENT 2 DISCUSSION

The results of the second experiment largely replicated the first experiment. Female targets' career choices were rated more favorably when they were stereotype congruent versus incongruent. Differing from the first experiment, male targets' stereotype incongruent career choices were rated more favorably than their congruent and more favorably than female targets' incongruent career choices. This preference for stereotype incongruent career tracks for male targets may be evidence of the glass escalator effect (Koch, Mello, & Sackett, 2015) in which men have hidden advantages when they enter fields typically dominated by women. Furthermore, women tend to anticipate that they will not have an influential voice in fields dominated by men (Chen & Moons, 2015). This anticipation contributes to women avoiding entering male-dominated fields while in college, thus contributing to overall gender disparities. Comparatively, the positive evaluations of men aspiring to pursue female-dominated career tracks in the current experiment suggests men likely do not worry that they will not have influence in female-dominated fields. In future research, anticipation of influence among men should be investigated as contributing factor for the glass escalator effect.

The stereotype role framing of the career tracks had no effect on judgements in this experiment, with the exception of an interaction with participant gender, target gender, and neosexist attitudes found in post-hoc exploratory analyses. It may be the case that the agentic and communal framing manipulation used in the experiment was just ineffective. Different ways to frame careers gender role congruently or incongruently could be explored. The manipulation checks asked participants to indicate the attributes of the career tracks as discussed in they were

discussed in the vignette. A better manipulation check would be to simply ask the attributes of a career to see if framing would lead to responses that aligned with a framing manipulation.

Gender role congruity of the careers affected evaluations whereas the role congruity of the framing (agentic or communal) had no effect. It may be the case that people have solidified ideas about the career tracks used in the experiment and framing them agentially or communally does not affect how the careers are perceived. It may not be the attributes of the career that make it stereotypical of men or women, but the career itself. This possibility could be tested in a future experiment by having participants rate the agentic and communal qualities of career tracks, as well as identifying the careers as feminine or masculine, after a framing manipulation. If, for example, a nursing career is identified as agentic after being framed agentially, but the career is still identified as feminine, there would be evidence that stereotypes of careers outweigh stereotype role congruity when people evaluate a career. The question then becomes how do we prevent the effects found in these experiments such that people encourage women and men equally into different career fields? Further, do the opinions of others even matter when people are making career choices? There has been much research showing that increasing female participation in male-dominated fields can be accomplished through increasing exposure to same-sex role models (e.g. Dasgupta, 2011) as can manipulating an environment to be less stereotypical of males (Cheryan, Master, & Meltzoff, 2015; Master, Cheryan, & Meltzoff, 2016). Perhaps similar manipulations could be adopted to affect others' evaluations of stereotype incongruent career choices.

Like the first experiment, the neo-sexism measure was not a good predictor of evaluations of the career tracks differently for men and women. Again, it could be that there was not adequate power, or limited variability, to detect small interaction effects. The exploratory

analyses, however, showed that the measure may have some predictive value. For men, there was a general expression of sexism such that they indicated that the male targets would be more likely to succeed in gender-role congruent careers than women would. Interestingly, for women, the stereotype role framing interacted with increased sexist attitudes to predict that men would be happier than women in gender-role incongruent career tracks when these career tracks were framed with the male agentic role stereotype.

4. General Discussion and Future Directions

The two experiments showed consistent gender stereotype effects in evaluations of career tracks. Evaluations of women's possible career choices were impacted by the gender role congruence more so than men's. Indeed, in the first experiment, there were no differences in judgments of men's career choices, only women's. The second experiment provides evidence of a glass escalator effect for men in that their incongruent career options were evaluated more positively than their congruent career choices. The opposite was true for women – their congruent career choices were evaluated more positively than incongruent. Because the effect for men was found in only one experiment, a replication of the experiment would provide greater confidence in the finding. Taken together, the findings from the two experiments suggest that women's participation in careers typically dominated by men may be negatively impacted by gender role incongruity of careers. Men's participation in careers typically dominated by women, however, are likely not impacted negatively by gender role congruity and may even be helped. Why, then, do more men not go into female-dominated occupations? Across economic strata, men's participation in careers dominated by women has essentially been stagnant over decades (Croft et al., 2015). It may be the case that gender stereotypes impact self-evaluations, rather than others' evaluations, which in turn restricts men's career choices (Wilbourn & Kee, 2010). Future research ought to investigate how gender stereotypes affect other versus self-evaluations of career choices.

The results with the career paths chosen may not be generalizable to other careers. The career paths were chosen based on that they have been used in previous research, there are gender imbalances, and gender stereotypes about the careers. There was, however, an effect of counter-balancing in the second experiment such that participants had responded differently to

female targets pursuing nursing compared to social-work. Thus, it is difficult to say whether the results in the two experiments generalize beyond the career paths used.

Role congruity theory states that women's and men's professional lives are evaluated in relation to gender stereotypes of agency and communion – expectations of each gender and of a given career path (Eagly & Karau, 2002). The theory, however, does not fully explain the results of the present experiments. In both experiments, the results with evaluations of female targets align with what is expected from role congruity theory. The results with evaluations of male targets, however, do not seem to align with the theory. Role congruity theory would predict that men's gender role congruent career choices would be evaluated more positively than incongruent career choices. Much of the role congruity theory research has been done with regards to women in leadership positions. The descriptive norm of men as leaders may lead people to view men's choices as more agentic than women's. The evaluated scenarios also presented agentic and communal of the target. It may be the case that the agentic traits were taken into consideration more for male than female targets, and communal traits more for female than male targets. It may also be the case that the agentic and communal traits of the targets nullified the gender role framing in the second experiment. With male targets' agentic traits in mind, their career choices that are gender role incongruent may have been evaluated more positively. In future research, these target traits can be manipulated to test this hypothesis.

A tenet of modern feminism is that gender inequality is socially constructed, rather than biological or ordained by a higher power (Cott, 1987). The contentious post-feminist theory of choice feminism downplays institutional inequalities as a thing of the past and posits that individualism and agency in choice is empowering (Orr, 1997). Critics point out that choice that subjugates women to a gender hierarchy furthers institutional inequalities. The present research

results, situated in feminist theory, shows that choice in a career may be limited for women because of societal gender role norms. If the attitudes of close others in women's life resemble those found in the present two experiments, such attitudes may at times be one of the many compounding factors that lead to attrition from the pipeline of women in male-dominated fields.

It was hypothesized that explicit sexist attitudes would moderate the stereotyping effects. In both experiments, these attitudes mostly did not affect evaluations, suggesting the evaluations may be an implicit bias without a dispositional correlate. Previous research has shown that women tend to have the same negative implicit biases toward women as men (Rudman & Kilianski, 2000). Other research on the effects of gender stereotypes in occupations have shown similar stereotype congruency results without explicit attitudes moderating effects (see e.g. Heilman, 2001 meta-analysis). Other research, however, has shown that ambivalent sexism predicts more favorable attitudes toward women in stereotypical roles (e.g. "homemaker"; Glick, Diebold, Bailey-Werner, & Zhu, 1997). There was no evidence for such an effect in the present experiments. Notably, Glick et al. (1997) used a measure of ambivalent sexism which may better capture dispositional sexist attitudes than the neo-sexist measure used in these experiments. Intuitively, it would seem that those who endorse traditional gender roles would encourage gender differentiation aligned with such attitudes, more so than individuals with more egalitarian attitudes (Glick & Fiske, 2001). It may be the case that the experiments were under-powered to properly detect the effects of the individual differences variable, a limitation of experiments. Future research should further explore the effects of sexist attitudes on judgments of men and women in their careers. The findings from the present research suggest a need to explore how implicit versus explicit biases affect evaluations of women and men in their careers.

This research explored the effects of gender stereotypes about career paths. Individuals who ostensibly expressed interest in a particular career goal were evaluated differently based on their gender. The implications are that such evaluations can go on to affect participation, and real world work-place evaluations, of women and men in their careers. The present research, contextualized in a higher education setting where students are making decisions that will affect their careers for many years to come, informs how gender stereotypes can contribute to the *leaky pipeline* for women. Close others in young women's lives may make judgments similar to those of the participants in these studies. Downstream, these judgments may slightly nudge women to pursue one career path over another, even if they do express an interest in a career path dominated by men. Conversely, when young men make those decisions, the present research suggests others in their life will likely be supportive of whatever they choose.

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Vita

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